

# CHAPTER 1: THE RISK MANAGEMENT PROCESS

Accidental losses of property, income, life and health, and from liability to others are facts of life which represent risks of potential serious financial consequences to all business organizations. Risk arises for each of these due to the variation of possible outcomes that can occur throughout time. The greater the number of possible outcomes, the greater the amount of risk. All possible outcomes of an event occurring over a specified period of time can be plotted graphically to create a probability distribution. There is a rational process – the risk management process – for preventing or minimizing the adverse effects of these losses. Good risk management reduces the negative effects of uncertain future losses by making these losses less likely, less severe, or more predictable – allowing more effective allocation of the organization's scarce resources.

Risk can be categorized as either "speculative risks" or "pure risks." Speculative risks or "business risks" are those risks where there is a chance for gain as well as loss. A port's decision to build a new dock and terminal facility would be an example of a business risk. The risk associated with building the new facility is speculative since it could result in either a financial gain or loss.

Risk management is concerned primarily with those risks which are *not* of a speculative nature. These risks, often identified as "pure risks," arise when there is only the possibility of loss. There is no chance of a gain with a pure risk. Thus, the variation of possible outcomes associated with opening a new port facility is not a pure risk since there is a possibility of a gain or a loss. However, the variation of port property and liability losses is a pure risk since a port is in a position to only lose. Since risk management deals solely with pure losses, the definition of risk can be redefined to that "variation of pure losses that will occur over a specified period of time."

Risk management has been defined as "the process of making and carrying out decisions that will minimize the adverse effects of accidental

losses upon an organization." Making these decisions is a five-step process.

The five steps of the risk management process are:

1. Identifying and measuring loss exposures.
2. Identifying and examining alternative techniques for dealing with these exposures.
3. Selecting the most appropriate risk management alternatives consistent with the organization's risk financing philosophy.
4. Implementing the selected alternatives.
5. Monitoring and improving the selected alternatives.

Traditional risk management involves only "pure risk" as discussed above and not business risks. However, an increasing number of today's leading risk managers are expanding their functions to include managing:

- Liquidity risks – not having sufficient cash or other liquid assets to function normally.
- Market risks – inability to buy or sell goods or services in customary markets at usual prices and terms.
- Political risks – adverse actions of governments that may expropriate or excessively restrict or tax an organization's assets and activities, or block currency transactions.
- Technological risks – failure to keep pace with changes in production, operating, and service techniques or quality standards.
- Catastrophe response planning.
- Security and fire safety risks – failure to protect facilities and personnel from acts perpetrated by criminals, terrorists, and disgruntled employees.

The current terms applied to this expanded scope of activities are "Holistic Risk Management" and "Enterprise Risk Management."

# THE RISK MANAGEMENT DECISION PROCESS

## Identification and Measurement of Loss Exposures

### Identification of Loss Exposures

The first step of the risk management process, the identification of a port's loss exposures, is one of the most important steps but the one most often ignored. A thorough, comprehensive identification process is critical because all subsequent steps in the risk management process flow from these findings. Every loss exposure has three dimensions: (1) the type of value exposed to loss; (2) the peril causing loss; and (3) the extent of the potential financial consequences of that loss.

A port needs to develop techniques that systematically identify those areas of pure risk. The key word is systematically. A structured approach should always be used to identify loss exposures. Without such an approach, some loss exposures will not become evident until a loss actually occurs. Of course, after a loss occurs is poor time to start planning for it.

There are a variety of techniques that can be used to systematically identify losses. These include insurance company checklists, flow chart methods, analysis of past losses, review of financial statements, inspections, interviews with employees, and trade journal articles on insurance.

- Surveys/questionnaires regarding the organization's operations (see Appendix C). One must be aware that most existing documents of this type are "insurance oriented" and are therefore limited to identifying risks for which conventional insurance is available. The objective should be to identify all possible exposures – whether insurable or not – so this will require a more comprehensive search usually requiring a customized questionnaire.
- Reviewing the loss history of your organization and networking with counterparts in similar organizations in your industry to learn of their sources of loss.

- Analyzing your organization's financial statements and accounting records for sources and uses of funds, asset entries, liability entries, etc.
- Reviewing your organization's other records and documents such as leases, contracts, purchase orders, etc., to find liabilities assumed or transferred; minutes of board of directors' meetings to learn of future plans; capital budgets to identify property values at risk.
- Constructing flow charts of operations to help identify potential bottlenecks; preparing emergency response plans to assure continuity of operations in the event of catastrophe, etc.
- Continually conducting personal inspections of facilities to keep current on all activities and to identify unusual exposures not determinable from surveys, questionnaires, or monitoring other internal documents.
- Consulting with experts within and outside your organization to supplement your knowledge and understanding of potential exposures to loss.

*Financial Statement.* One technique often used by risk managers to identify losses is the financial statement approach. The person responsible for risk management (risk manager) should analyze the port's financial statements to determine where potential loss exposures exist.

Analysis of the port's financial statement in terms of this outline may assist in identifying exposures.

### Areas of Potential Loss

- *Property Loss*
  - Direct – fire, lightning, explosion, etc.
  - Indirect – business interruption, extra expense, etc.
  - Crime – dishonesty, theft, burglary, forgery, computer fraud, etc.
- *Liability*
  - Premises, Products, etc.
  - Marine (e.g., stevedores' legal liability)
  - Auto

Professional Environmental impairment liability (i.e., sudden and non-sudden [gradual] pollution)

- *Personnel Losses*  
Key employees  
General employees  
Workers' Compensation

*Flow Chart.* Constructing a flow chart tracing the movement of goods from when they enter the port facility until they leave can be helpful to identify loss exposures. After completing the flow chart, determine what events can interrupt the smooth flow of goods. Are there specific points on the flow chart which are susceptible to bottlenecks? The flow chart is a good tool for the risk manager to visualize the activities of the port. For this reason, it serves as a useful supplement to the checklist approach and financial statement analysis.

*Historical Losses.* An analysis of a port's historical losses can often help identify potential future losses. A risk manager should not put too much emphasis on this technique alone since many port loss exposures may not have generated a loss up to now. In addition, ports are experiencing a dynamic period when new loss exposures are being created daily. To be more effective in performing this analysis, it is a good idea to stay in contact with other ports and discuss with them any risk management problems, exposures, or solutions. Communication with peers can help identify new loss exposures. Trade journals that publish articles on insurance provide another reference in identifying loss exposures.

*Facility Inspection.* One of the best means of identifying a port's loss exposures is to periodically inspect the facilities. Inspections are important because with other exposure identification techniques the risk manager is heavily reliant on the information provided by others. Often there is a significant difference between what is reported and what actually exists. By inspecting port operations, the risk manager becomes better acquainted with activities that are actually being performed by the port. Interviewing employees can also provide valuable information because port employees interact each day in the port environment and can assist in the identification of loss exposures. Note:

Port employees may be performing some hazardous activities without the knowledge of a port's management. It is not uncommon for employee activities to create loss exposures.

There are four categories of pure losses that will be identified by the seven identification techniques described on the previous page. (1) "Direct property losses" occur when tangible port property is destroyed or damaged by a particular peril. (2) An example of an "Indirect Property Loss" is the destruction of half a building by fire. The half destroyed by fire would incur a direct property loss. If the remaining half of the building is condemned because it does not comply with building codes, the demolition of the remaining portion of building is described as an indirect loss. (3) "Net income losses" occur as a result of a direct loss to port property that causes either a decrease in revenue or an increase in expenses. (4) The final category is that of "liability losses." Liability losses occur when port operations damage or destroy another party's property or cause bodily or personal injury to others.

After the four types of losses are identified through the techniques discussed, the loss potential of each exposure is measured to determine the seriousness of the loss exposure. The next section examines the measurement of the loss exposures, the second step of the risk management process.

### **Measurement of Loss Exposures**

All loss exposures are comprised of frequency and severity dimensions. Next in the risk management process is to measure these dimensions so that the risk manager can determine their relative importance to the port. This measurement stage is also important to the stages that follow in the risk management process when the risk manager attempts to control and finance the losses arising from the exposures.

The frequency and severity of all loss exposures lie in one of the quadrants of the loss matrix below:

**Figure 1**  
**Loss Exposure Matrix**

<b>Cell A</b> <ul style="list-style-type: none"> <li>▪ High Severity</li> <li>▪ High Frequency</li> </ul>	<b>Cell C</b> <ul style="list-style-type: none"> <li>▪ Low Severity</li> <li>▪ Low Frequency</li> </ul>
<b>Cell B</b> <ul style="list-style-type: none"> <li>▪ Low Severity</li> <li>▪ High Frequency</li> </ul>	<b>Cell D</b> <ul style="list-style-type: none"> <li>▪ High Severity</li> <li>▪ Low Frequency</li> </ul>

Because they represent catastrophic loss exposures, Cells D and A require immediate attention. Total cost to a port of loss exposures found in Cell B can be substantial because losses here tend to be more frequent: they are often treated through loss control, thus reducing the frequency. Loss exposures in Cell C are sometimes considered as a "cost of doing business" and absorbed within the operating budget, however systems should be implemented to control these costs. Often the control mechanism can be implemented and administered by line management without direct involvement by a risk manager.

Before a risk manager can determine where a loss exposure lies in the loss exposure matrix, he or she must measure the exposure's frequency and severity. Historical loss experience of the port and the industry assists in the identification of loss frequency and provides a good indicator of future loss frequency. The credibility of this information increases as the quantity of data increases.

When estimating the severity of a loss exposure, the risk manager should be careful to look at all the losses that could arise out of a particular event. In addition, the risk manager should consider the period of time necessary to put the port in the same condition as it was prior to a loss. For example, after a major fire loss, the indirect property losses and loss of income can be greater than the direct property damage. Consequently, the risk manager must look at the ultimate financial impact of a loss on the port. Only after all the costs that arise from a particular event have been identified, such as fire damage to a key location, can the true severity of loss be determined.

After the port has identified and measured its loss exposures in terms of the loss exposure matrix, the next step is to develop alternative risk management techniques to handle the risks.

## **Developing Risk Management Techniques for Loss Exposures**

Once you have identified a loss exposure's appropriate cell in the Loss Exposure Matrix, the next step is to identify and examine the alternatives for risk control and risk financing appropriate for the identified exposure.

### **Identifying and Examining Alternative Techniques**

#### **Risk Control Alternatives**

##### Exposure Avoidance

This is the elimination of the chance of a particular loss occurring. Exposure avoidance is the decision to eliminate a particular activity, operation, or asset because of the high severity/high frequency loss factor. Exposure avoidance also includes the decision where a port decides not to undertake a new activity, operation, or asset. A port could not exist if it avoided all risks.

##### Loss Prevention

Loss prevention decreases the probability of loss. An example would be adopting an employee safety and health program.

##### Loss Reduction

This reduces the severity of losses after they have occurred. An example of loss reduction would be the installation of automatic sprinklers to reduce the amount of loss after a fire has started.

##### Segregation or Separation of Exposures

This includes removing an operation, activity or asset to a segregated site so as to eliminate exposures to adjacent operations.

## Pooling

Pooling is a combination of the risks of homogeneous or similar entities to achieve economies of scale for coverage, pricing, and credibility.

## Non-insurance (Contractual) Transfer

This transfer technique is a sixth form of loss control, which will be discussed in depth in the section on risk financing that follows below.

## **Risk Financing Alternatives**

### Retention

(Retention includes: expensing of losses; unfunded loss reserve; funded loss reserve; borrowing to pay for losses; and using a captive insurer). Even with a loss prevention program, losses are still likely to occur. In anticipation of these losses, a port must consider the various risk financing techniques that are available. The first form of risk financing is retention, which can range from the application of deductibles to the establishment of a captive insurance company. However funded, the port is paying all or a portion of its own losses. The types of losses that a port should be willing to retain are those that it can absorb without jeopardizing its financial stability.

There are certain loss exposures that should not be retained because of their unique or catastrophic nature – these should be transferred outside the organization. There are two transfer techniques commonly used: contractual transfer and insurance.

### Contractual Risk Transfer

Risk can be transferred to others by a contract or by the purchase of insurance. In either case, the transaction is viable only if the assuming organization has the financial ability to satisfy all losses arising from the transferred risk. For this reason, you should know the financial rating of the insurance companies you use. In addition, you should require the parties to whom you have contractually transferred risk to meet their obligation with insurance in appropriate amounts from a company having a satisfactory financial rating. Although several services offer insurance company ratings, the most widely used one is "Best's Insurance Reports" which provides evaluations of 3,000 Property/Casualty and 1700

Life/Health Insurance Companies. Best's apply two types of rating opinions – Best's Rating and Best's Financial Performance Ratings (FPR) based on qualitative and quantitative evaluations of the financial strength, operating performance and market profile – as well as an indication of the financial size based on capital, surplus, and conditional reserves. (See Exhibit A in Appendix B, page B--1.)

This section of your guidebook will provide a general checklist and guidelines for your use in:

- Establishing prudent terms and limits of insurance for your program.
- Determining types and limits of insurance to require of those parties to whom you have transferred risk by contract.

### Insurance Required of Others (Risk Transferees)

In all cases insurance requirements must include the specification that all policies be issued by insurance companies satisfactory to your organization, e.g., companies having an A.M. Best rating of "B+, FPR 6, FSC VIII" or better. (See Exhibit A in Appendix B, page B--1.)

Your organization must be included as an *additional insured* on all liability policies and, the insurance must be *primary and non-contributory* with your policies (require a copy of the policy endorsements granting you these conditions). Note: Additional insured status provides coverage only as broad as that granted by the policy to which you are added, is on a shared limits basis, and may be subject to impaired or exhausted aggregate limits.

Where work is being performed for you by others, a separate *Owners and Contractors Protective Liability Policy (OCP)* with limits equal to your contractual requirements may be used as a substitute for or supplement to additional insured status. Exclusive limits are available to protect your organization but are not in addition to those provided to you as an additional insured. Note: To avoid the "other insurance" clause of the OCP involving your insurance policies, the same primary/non-contributory wording should be required as part of the OCP policy.

All contractors, vendors, suppliers, tenants, and other suppliers of goods or services should, in all

cases, be required to furnish satisfactory evidence of the following insurance:

1. *Statutory Workers' Compensation and Employers' Liability* – including, if appropriate, coverage for Federal Employees Liability Act (FELA), the Jones Act, the Federal Longshore and Harbor Workers' Compensation Act (USL&H). (If self-insured, evidence of compliance with applicable statute.) Note: In states allowing employers to opt out of workers' compensation, evidence of other insurance protecting their employees should be required. Remember: Employees of non-complying employers working for you have the option of suing their employer at common law, or being covered under your workers' compensation policy or self insurance as if they were your employees.

2. *Commercial General Liability* – coverage to include their operations for you on-site or off-site to include at least:

- Premises and operations with all of the included coverages in the Insurance Services Office (ISO) form
- Products liability
- Completed operations liability
- Contractual liability
- Additional insured endorsement
- Notice of cancellation or non-renewal to you (requires endorsement)

Separate aggregate limits per location is an advisable supplemental requirement for larger contractors.

3. *Business Automobile* – Coverage to include all owned, non-owned and hired automobiles (ISO symbol 1)

4. *Professional Liability* – (Physicians, lawyers, engineers, etc.) additionally, certain contractors, tenants and others will have exposures unique to port operations for which coverage should be evidenced, including:

- United States Longshore and Harbor Workers' Compensation Act (USL&H)

- Jones Act
- Protection and indemnity for vessel operations. Crew coverage with prudent limits can be utilized in lieu of Jones Act
- Stevedores' liability for loading/unloading vessels
- Warehousemen's liability for storage of good of others
- Wharfingers' liability for safe berthing and tie down operations

Note: Common sense dictates that the nature and scope of the job, the exposures arising from the job, the availability of coverage and the cost of insurance be considered in the determination of the types and amounts of insurance required of others.

After a port has examined the risk control and risk financing alternatives, the next step is to select the appropriate alternative for each.

## SELECTING THE MOST APPROPRIATE RISK MANAGEMENT ALTERNATIVES

After examining the available risk management alternatives, the risk manager must select the best alternatives.

A port should always use some form of loss control and loss financing. The intent is to first reduce the frequency and severity of loss; then finance those losses that do occur, in the most cost-effective manner.

A rational basis for determining the selection of risk control and risk financing techniques should include:

- Forecast of frequency and severity of expected losses.
- Asking how will various risk control and financing techniques affect frequency, severity, and predictability of losses.
- Forecasting the total costs and benefits of each of these techniques.

**Figure 2**  
**Loss Exposure Tools Matrix**

<p><b>Cell A</b></p> <ul style="list-style-type: none"> <li>▪ High Severity</li> <li>▪ High Frequency</li> </ul> <p>RM Tools: Avoidance &amp; Non-insurance Transfer</p>	<p><b>Cell C</b></p> <ul style="list-style-type: none"> <li>▪ Low Severity</li> <li>▪ Low Frequency</li> </ul> <p>RM Tools: Self-Retention</p>
<p><b>Cell B</b></p> <ul style="list-style-type: none"> <li>▪ Low Severity</li> <li>▪ High Frequency</li> </ul> <p>RM Tools: Loss Control</p>	<p><b>Cell D</b></p> <ul style="list-style-type: none"> <li>▪ High Severity</li> <li>▪ Low Frequency</li> </ul> <p>RM Tools: Self-Retention &amp; Insurance</p>

"RM" = Risk Management

To determine what alternatives or combination of alternatives best serve the interests of the port, the risk manager should go through a formal decision analysis whereby he or she sees how each alternative will affect the port in both the short and long run. Some criteria to judge the effect of each alternative are required to perform this analysis. For a port operating as a public entity, the effect on cash flow is an acceptable criterion. For privately owned ports, the effect on profit is an appropriate criterion. The important point is that a criterion should be chosen which accurately satisfies a port's philosophy. After a port has selected the most appropriate alternatives based on its criterion, the next step is implementation.

### IMPLEMENTATION OF SELECTED ALTERNATIVES

This step must be based on the underlying, common sense principle that each technique considered can be successfully implemented and monitored. Implementation involves:

- Technical decisions – determined by the technical expertise (selection of appropriate insurer, proper limits and deductible, equitable price) and based on the line authority of the risk manager.
- Managerial decision – the success of this aspect of implementation will depend on the ability of the risk manager to persuade other

managers of the logic and advisability of their support and cooperation in carrying out the chosen plan of action. This function is based on the risk manager's staff or advisory authority.

### MONITORING AND IMPROVING THE SELECTED ALTERNATIVES

Once implemented, a risk management program needs to be monitored to ensure that it is achieving the expected results and adjusted for changes in exposures and availability or costs of alternative techniques.

1. Standards (while difficult to establish in consideration of the high degree of chance affecting loss results) are necessary to evaluate the risk manager's performance.
  - A. Results standards – establishing a realistic specific goal for losses is difficult, if not, impossible, because of the effect that "chance losses" and occurrences, over which the risk manager has no control (earthquake, flood, explosion at adjacent premises), have on final costs. Also, it is possible that luck – either good or bad – can affect loss performance.
  - B. Activity standards are based on the quality and quantity of tasks performed by the risk management department. These may be considered by management as being different from the standards of "contribution to bottom line" by which other managers are judged and might result in the conclusion that the risk manager's contributions to the organization are not the same as other managers.
  - C. A carefully designed standard comprised of targeted results, activities, and directions of change – ideally adjustable to occurrences beyond control or foreseeability by the risk manager – would represent a viable basis for judging performance. The speed and effectiveness of adjustments to the program, as required, is another standard of performance.

2. Correction of substandard performance requires determination of the cause, which will dictate the appropriate response. If loss frequency increases, prescribed loss prevention activity may be inadequate, and enforced compliance is indicated; if retained losses are growing alarmingly, risk control procedures being performed should be determined and changed if necessary, or the retention levels adjusted if all other factors involved are functioning properly. If the operations of the organization change, appropriate adjustments should be made and communicated promptly.

## THE ROLE OF THE RISK MANAGER

The risk manager should know more about the port's risk management program than any other executive, employee, or outside consultant. Therefore, the overall structure of the program and its effectiveness in carrying out its objectives rest directly in that person's hands. [Page 2--8 contains a more detailed discussion.]

Loss prevention, while it may or may not fall within the risk manager's purview, is probably the most effective tool to reduce the organization's cost of risk. It is difficult to measure and document the direct savings from loss-producing accidents which are prevented by developing and enforcing safe work procedures. Even more elusive, though no less real, are identifying and quantifying the indirect benefits of uninterrupted operations and the efficiency realized because of the continued availability of regular, experienced employees who are not injured because accidents have been prevented.

## MANAGEMENT'S ROLE IN RISK MANAGEMENT

Management's endorsement and full support is indispensable for the effectiveness of any risk management program.

A practical method of initially securing this support is the formulation of a written Sample Risk Management Policy Statement (see page 2--3) for use in communicating to others both the pur-

pose of the risk management program and the actions which others throughout the organization can take to contribute to the program's success. The text of the proposed statement should be offered to senior management for review and revision before distribution. A well formulated written risk management policy statement offers the following advantages to the organization:

- Establishes the general goals and objectives of the risk management program within the organization.
- Defines the duties and authority/responsibility relationships of the risk management department.
- Coordinates the treatment of loss experience on a reasonably standardized basis among various organizational subdivisions.
- Establishes and/or improves existing communication channels and management information systems.
- Provides for program continuity and facilitates transition during times of personnel changes in the risk management department.

Maintaining management's support and understanding of the risk management program is a challenge in view of the many issues competing for attention. An annual risk management report to management is an effective reminder of the program as well as a vehicle to present current information and summarize the past year's performance. A sample outline for an annual report is included as Exhibit B (on page B--2).

## CONTINUING EDUCATION

To be effective, the risk manager must be familiar with the current status and aware of impending changes in the many areas of business which affect his or her performance.

As a member of organizations such as the American Association of Port Authorities (AAPA), the Risk and Insurance Management Society (RIMS), and Public Risk Management Association (PRIMA), you may attend workshops and seminars on work-related subjects where you will have the opportunity to meet others with similar responsibilities.