The recent scourge of defective Chinese-made products has highlighted the perils of a poorly monitored supply chain. Too many companies have been forced to learn the hard way that, whether you like it or not, your suppliers’ issues are also your own.

BY RON STOKES
Identifying the Risks
The first step in this mission is to identify the cost of risk attributable to the supply chain, including the values at risk within the chain at specific locations and times. To do this, the risk manager should carefully analyze the process with the objectives of:

1) Understanding the flow of goods and services
2) Identifying key exposures and values
3) Documenting the process to accurately describe it to management and third parties
4) Reviewing supply chain insurance coverage
5) Developing recommendations to management on existing or proposed risk management techniques
6) Assisting individuals involved in the supply chain with risk identification and risk control practices.

As the risk manager carries out this analysis, factors such as vendor and customer information, contracts and agreements, ownership and sub-contracting issues, shipping routes and values will also need to be researched in order to understand the overall exposure.

In addition, reviewing the insurance portfolio will reveal the available coverage and limits. The risk manager can find areas of cost savings, whether it is through improved policy wording, higher limits, additional coverage or even by raising the quality of the underwriting submission to enhance insurers’ understanding of the risks and the structure of the supply chain.

In order for a supply chain analysis to be effective, the risk manager must gain the support of those that directly control all elements of the chain. The risk manager should inform the participants about the objectives of the exercise and stress its overall benefit. A completed analysis will give the organization a better understanding of the inherent risks in the supply chain, develop an appropriate risk management policy and make recommendations to improve the effectiveness of the supply chain.

Starting the Analysis
The first step in the analysis is to develop a supply chain flow chart showing major parties and values. The following items should be studied:

1) Parties in the supply chain including customers, vendors, contractors and other suppliers of goods and services
2) Contracts and agreements relating to the supply chain, including purchase orders and agreements, manufacturing agreements, contracting agreements and lease agreements
3) Ownership of the goods or services at each point in the process
4) Countries of origin and end user
5) Major shipping routes and means of transport
6) Costs of the goods and services leading to the proposed selling price

The goal of the supply chain flow chart is to understand the structure of the supply chain and the components that make it work. It is important to determine where supply chain exposure begins. This can range from the shipping point or origin to the point of receipt at a contracted manufacturing plant. The analysis should include the direct and contingent business interruption exposures and values created by these different scenarios. By working with the managers responsible for sourcing the product or developing the service, a list can be made of the major suppliers and the values that flow through their operations. The insurance company providing business interruption and extra expense coverage may also be able to help identify and quantify this exposure.

In Chart 1, for example, a Canadian retailer buys clothing directly from a Chinese exporter. The clothing is designed, manufactured and shipped by the exporter directly to the customer. The retailer adds a sales margin to the landed cost price to cover operating costs and profit, issues purchase orders based on the spring or fall catalog of the exporter, and covers the shipping, insurance and clearing costs.

In this case:

1) The supplier is the Chinese exporter
2) The customer is the Canadian retailer
3) The sale is covered by a purchase order and a letter of credit
4) Ownership, and therefore risk, transfers to the retailer once the clothing is on the aircraft (FOB shipping terms)
5) The goods are shipped from Shanghai to Toronto by air freight
6) The average cost per garment is $50.00, average 100 garments per shipment
7) The landed cost is $75.00; the sales price $150
8) Warehouse and store inventory averages 500 garments, $37,500 at landed cost and $75,000 at retail selling price
9) Annual average shipping volume: 50 shipments x 100 garments per shipment x $50 at cost = $250,000 or $375,000 at landed cost

The risk manager now has the basic facts relating to individual shipments, normal inventory and annual values, and can use the data to determine property insurance and business interruption values if a shipment is lost or a replacement market is needed.

The chart can be modified, however, to meet different supply chain scenarios. Corporations may need more intricate and detailed flow charts to correctly map out their individual situations. Here are two specific examples:

1) **Multiple manufacturing parties**: In place of a single exporter, the corporation uses contractors to supply and assemble components (Chart 2).

2) **Multiple distribution channels**: In place of a single retail channel, the corporation has export, wholesale, depot and retail divisions (Chart 3).

**Establishing Values**

In order to establish values, the risk manager should consult with various departments:

1. **Purchasing** provides information on purchase orders issued including values, shipping and payment terms.
2. **Costing** establishes the cost values that are shown for each item of inventory at each location for each accounting period. Recovery of inventory can be incorporated into the valuation clause of the insurance contract.
3. **Logistics** defines the flow of goods and detailed flow charts to correctly map out their individual situations.

For this example and simplicity, the business interruption exposure is taken as the sales margin.
and services within the supply chain and the means of transport employed.

4. Marketing and retail have price lists that can help establish sales margins.

5. Accounting has the book value of the assets invested in the supply chain including fixed assets by location and the reported monthly, quarterly or annual inventory values.

6. Treasury can define payment terms from letters of credit.

It is also important to check the insurance policy to determine the value that can be claimed in the event of a loss. Using the flow chart and the price analysis, the risk manager can ensure that this value has been verified. The valuation clause in the insurance policy may need to be revised to ensure it reflects the planned recovery.

Additional Systems and Reports

Once the risk manager has completed the analysis and reviewed the results with management to confirm that the risk management policy is in accordance with the corporation’s goals, additional systems or reports may be needed to monitor supply chain value and location exposure.

Depending on the size of the deductible for the property or stock throughput policy it may be best to have a system that tracks the self-insured retention. This will regularly highlight changes in the overall exposure amount and may result in corrective action to reduce inventory levels or find alternate locations to reduce the exposure.

Tracking of insured values is also advisable and may take the form of a monthly or quarterly inventory report. This report will help monitor location and concentration risk within the supply chain.

Another value-tracking method is to find a definitive approach for establishing the margin that would be lost in the event of a claim. This could be determined by the standard mark-up applied when establishing selling prices—particularly when the range of products is limited—or from the actual margin achieved in each quarter based on the accounting records when there are a broad range of products and multiple distribution channels.

Supply Chain Coverage

A wide range of insurance policies can be used to protect against supply chain risks and an insurance broker can be an excellent source of knowledge. First, however, some key areas should be considered.

Usually, a well-designed all-risks property, goods-in-transit or stock throughput policy should be able to cover the physical risks of the supply chain. The risk manager should be aware of the specific location risks that may require further attention, however, including political or natural disaster risks. Alternate locations may need to be considered depending on the vulnerability of inventory in these areas.

The corporation’s commercial general liability policy should be sufficient to cover the liability risks, but a review of the individual contracts with suppliers and vendors may establish exposures that need to be covered separately. These can involve indemnities for lost or damaged inventory under the custody and control of these third parties.

Crime coverage should also be carefully reviewed to determine which parties are responsible for loss. High-value merchandise may need special security arrangements.

Trade credit insurance should be reviewed and any corporations with global programs should review the need for admitted paper or any local placement that may be required.

Finally, although not part of the insurance portfolio, a business recovery plan is vital to the overall supply chain and the business as a whole. The plan can be developed internally or with specialized service providers. The analysis is a good time to run through the plan to determine that it is up-to-date and to consider any alternate sources of supply.

A sound plan is an essential part of the corporation’s defenses against a catastrophic loss, as recovery involves not only the replacement of lost assets and income through insurance proceeds, but the delivery of quality goods and services to the corporation’s customers. The loss of customers to the competition following a major disruption can potentially be more damaging to the business than the loss of the product itself.

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Chart 2
Multiple Manufacturing Parties

In this example, the corporation designs the components and takes ownership at the component manufacturing level.

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Chart 3
Multiple Distribution Channels

In this example, the corporation has major export customers to whom it ships product directly and has multiple depots to supply smaller wholesale customers. It also ships directly to its own retail locations direct or via the depots. This ensures product differentiation between its customers to avoid retail competition.