

Fundamentals of Risk Management from an Environmental Perspective

Cassandra M. Dillon,
Systran / UTA ETI

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Cassandra Dillon,
MS, CESCO, SHEP, CSSM



Objectives

- What is Risk Management?
- What is your role in implementation of risk management principles?
- Why is important to look at Risk Management?
- Why is business continuity important?

Risk Management

Risk Management

- Definition

- ISO 31000 is simply defined as the effect of uncertainty on outcomes.
- Outcomes can have negative ramifications to a company's goals/objectives which can be seen with the degradation of a company's economic, environmental, safety and social structure.

Risk Framework

- Identification
- Assessment
- Prioritization

In return these competencies help build world class companies which exhibit strong EHSS cultures and high returns on investments.

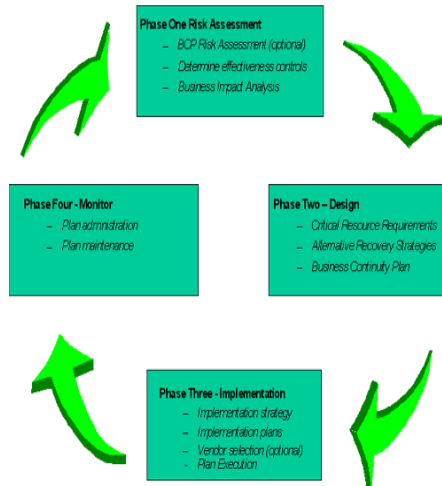
Identification

- The first step in the risk management process is to identify risks throughout the organization.
- Once the risks are identified, one must determine the severity and likelihood of an occurrence.

Identification

		Potential severity of harm		
		Slightly Harmful 1	Harmful 2	Extremely Harmful 3
Likelihood of harm occurring	Highly unlikely 1	Trivial 1	Tolerable 2	Moderate 3
	Unlikely 2	Tolerable 2	Moderate 4	Substantial 6
	Likely 3	Moderate 3	Substantial 6	Intolerable 9

Risk Assessment



Risk Assessment

- In most cases, the risks that have the highest probability are handled first in the mitigation process.
- Furthermore, risk can be broken down into the categories of hazard, operational, and financial

Risk Control Techniques

- Avoidance
- Loss prevention
- Loss reduction
- Separation
- Duplication
- Diversification

Risk Financing

- Transfer
 - Insurance
 - Noninsurance risk transfer
 - Hold-harmless (indemnity) agreements
- Retention

Business Case

Management Leadership & Commitment

- Participates in development of appropriate actions regarding environmental audits and inspection findings
- Participates in the investigation of environmental incidents.
- Participates to ensure disciplinary process is enforced and consistent.
- Participates to encourage employee participation and promotes ethical behavior in regards to environmental practices.

S-M-A-R-T Goals

- Specific
- Measurable
- Actionable
- Realistic
- Time-oriented

Reasons for a Business Case

- Rank of Project Initiatives - value and relative priority compared to alternative initiatives
- Integrated Approach – EHSS/ Operations / Quality
- Evaluate the company's capability to deliver the objectives and stated benefits
- Usually a company's dedicated resources are usually reserved for the projects that yield the highest return on investment

Source Wikipedia

Business Case

- Project Proposal – EHSS Projects integrated into budget
- How much money should we spend? (Payback)
- Why should we spend the money? (Benefits)
- Financial impact – Pros vs. Cons

Business Case

- Establish baseline activities
- Outcomes for continuous improvement
- Activities – incidents, spills and/or releases
- Indicators – leading and lagging

Business Case

- Rate of Return – Internal / External
- Payback Period- how long will it take to recover initial investment.
- Cost Avoidance

Environmental Performance Programs

- Companies can generate a Return on Investment from its Environmental Performance.
- Effective programs can minimize costs associated with workplace incidents and improve business performance.
- Lack of programs can impose a heavy cost/burden on a company.

Measuring Environmental Performance

- What gets measured, gets done
- What gets measured, gets managed

Return on Investment

- Ratio of the total cost to the total benefits gained
- = $\frac{\text{Total Benefits} - \text{Total Costs}}{\text{Total Costs}}$
- Payback
- Paid in Dollars and Lives

Direct and Indirect Costs

- Direct
 - Occurs immediately as the result of a particular cause of incident/accident
- Indirect
 - Cost that results from, but is not directly caused by the incident/accident

Direct & Indirect Costs



Insured Costs

- Medical
- Compensation insurance
- Legal fees

Uninsured and Hidden Costs

- Uninsured medical costs covered by company
- Employee morale
- Time lost from work by the injured employee
- Employee's loss in earning power
- Economic loss to the injured person's family
- Lost time by fellow workers
- Loss of efficiency due to interrupted schedule
- Cost of breaking in a new worker
- Failure to fulfill customer commitments
- Overhead costs while work is disrupted
- Reduced company competitiveness
- Time lost defending lawsuits
- Extra cost of overtime work
- Cost of wages paid to supervisors for time spent on investigations
- Wage cost caused by decreased output of injured worker after return to work
- Miscellaneous costs

Cash flow and ROI statement				
BENEFIT DRIVERS	YEAR			
	0	1	2	3
Greater margin driven by higher production capacity		\$500,000	\$1,000,000	\$1,250,000
Improved cycle time benefits:				
Reduced energy cost due to less running time		125,000	125,000	125,000
Reduced labor cost due to less running time		500,000	500,000	500,000
Fewer accidents, resulting in less workers' compensation		100,000	100,000	100,000
Improved quality benefits:				
Fewer defects, resulting in less rework		250,000	300,000	300,000
Fewer customer returns, resulting in less reprocessing costs		50,000	75,000	75,000
Reduced time spent handling customer complaints		50,000	75,000	75,000
<Benefit driver>				
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Total annual benefits		<i>\$1,575,000</i>	<i>\$2,175,000</i>	<i>\$2,425,000</i>
Implementation filter		85%	90%	95%
Total benefits realized		<i>\$1,338,750</i>	<i>\$1,957,500</i>	<i>\$2,303,750</i>

Costs	Year 0	Year 1	Year 2	Year 3
Total	\$1,650,000	\$125,000	\$125,000	\$125,000

Benefits	Year 0	Year 1	Year 2	Year 3
Annual benefit flow	(\$1,650,000)	\$1,213,750	\$1,832,500	\$2,178,750
Cumulative benefit flow	(1,650,000)	(436,250)	1,396,250	3,575,000

Discounted benefit flow	Year 0	Year 1	Year 2	Year 3
Discounted costs	\$1,650,000	\$108,696	\$94,518	\$82,190
Discounted benefits	0	1,164,130	1,480,151	1,514,753
Total discounted benefit flow	(1,650,000)	1,055,435	1,385,633	1,432,563
Total cumulative discounted benefit flow	(1,650,000)	(594,565)	791,068	2,223,632

Initial investment	Year 0	Year 1	Year 2	Year 3
Initial investment	\$1,200,000	\$0	\$0	\$0
Implementation costs	400,000	0	0	0
Ongoing support costs	0	100,000	100,000	100,000
Training costs	50,000	25,000	25,000	25,000
Other costs	0	0	0	0
Total costs	\$1,650,000	\$125,000	\$125,000	\$125,000

ROI measures				
Cost of capital	15%			
Net present value	\$2,223,632			
Return on investment		66%	143%	215%
Payback (in years)	1.24			

Continuous Improvement

- Raise the bar
- Goals– increase in increments
- Benchmark other companies
- Shouldn't be proprietary



Business Continuity

Business Continuity Model



Business Preparedness

- Contingency Plans
 - The Law
 - SPCCC
 - Hazardous Waste Classification
 - OSHA
 - Just the Right Thing to Do

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Summary

- Risk management is only as good as the people researching the possibilities and implementing the solutions.
- An organization's willingness to act can directly affect employee morale, economic stability and regulatory compliance.

Questions



Thank you

Cassandra M. Dillon

Compliance and Training Advisor

cdillon@systraninc.com



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