



UNIT-11

Environmental Risk Management

Learning Outcomes

By the end of this unit, the student will be able to

- ✓ understand Environmental Risk Management.
- ✓ outline the benefits of Environmental Risk Management.
- ✓ discuss Environmental Risk Management techniques.

Unit 11

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Introduction to Environmental Risk

For most companies, environmental risk results in reduced bottom-line performance from loss of reputation, brand name, and market share from an environmental incident; increased regulation on energy consumption; loss of market share to more environmentally aware competitors with marketing campaigns displaying social responsibility; increased operating costs from the effects of global warming; and higher fuel costs, as natural resources are depleted. Environmental risk for companies operating in regulated industries includes fines due to prosecution for breach of the regulations, reduced profit caused by exposure to pricing restrictions, operating restrictions, and investment obligations.

An organisation can suffer from fines imposed by organisations like the Environment Agency, the inability to draw customers or the loss of existing customers from the publication of deficiencies in environmental performance, or the increased operating costs due to compliance with government legislation.

Environmental risk has a different meaning for government regulators and environmental activists, yet both refer to damage to the environment or placing public health at risk usually because of a man-made environmental offence which is - more often than not - pollution.

Environmental Risk Management can help avoid

- criminal sentences, non-compliance prosecutions, and enforcement notices.
- health and environmental incidents or a decline in incidents and their impact.
- reputation and brand damage.
- enforcement actions for remedial work.
- civil claims.
- higher insurance premiums and resource costs.
- stakeholder pressure.
- increasing demands for environmentally responsible suppliers from business partners and customers.
- increasing premiums from insurers as losses increase or invalidation of insurance coverage due to noncompliance with legislation.
- deterioration in the goodwill or brand value.
- loss of staff pride, health, and safety.
- stricter bank - lending criteria.

Scope of Environmental Risk

Sources of environmental risk for businesses are considerable and can include, but are not limited to, the following:

- Land, water, or air pollution, as defined, for instance, by the Environmental Protection Act of 1990
- Greater operational costs and increased regulations or red tape
- Severe weather conditions resulting in destruction of facilities or negative impact on manufacturing
- Loss of oil production, which results in higher energy costs. The events of hurricanes Katrina and Rita in the United States in 2005 led to a reduction in oil production, which, in turn, resulted in higher fuel costs across Europe. As reported in *The Times*, London-listed food processing companies warned of higher input costs and stated that over and above the known increase in power bills are the less transparent pressures on packaging and transportation costs (Klinger 2005)
- Prosecution stemming from noncompliance of rules set by a regulatory body
- Reduced customer base and reputational risk from adverse publicity after a pollution event

Benefits of Environmental Risk Management

Some business benefits from Environmental Risk Management are:

- Marketing initiatives are stimulated to promote products and brands in the context of the environment, preservation of natural resources, sustainability, and renewable energy.
- Business continuity and issues arising from possible climate change events can be evaluated.
- The risks of hostile environmental incidents and response actions to them, if they should occur, can be examined more closely.
- Prosecution may be minimized.
- Management is forced to focus on revenue generating activities rather than fire-fighting bad publicity.
- It encourages management actions that prevent attracting regulatory supervision and intrusion.
- It increases competitor advantage where customers prefer supporting businesses with a better environmental performance.

The Implementation of Environmental Risk Management

Creating an effective Environmental Risk Management System depends on a number of issues, including the following:

- The Risk Management System should not slow down the decision - making processes down or limit the volume of business.
- The managers of the individual business units should be different from the implementers of the risk management strategy.
- A culture should be encouraged whereby disclosure of risk when discovered is rewarded rather than being hidden.
- Risks must be controlled at an appropriate level in the company.

The New Environmental Environment

In the current era of environmental awareness, governments are also learning to create incentives for companies to innovate and improve environmental performance, control and quality. Through innovation, the use of power, natural resources, and production materials can be reduced. Companies that really focus on their internal operations will find ways to develop effective environmental management processes. Those processes not only reduce liabilities and risks as less pollution is produced, they also improve the profits when resources are used more efficiently and effectively. Informed consumers will be more likely to buy existing products or services, even at a higher per unit price.

The chief of ASDA (the UK subsidiary of Wal-Mart), Andy Bond, says “green is the new black” and he states that he wants ASDA to be Britain’s greenest grocer.

Corporate Responsibility

Regardless of whether an organisation is large or small, it is imperative that it focuses very seriously on its individual role in the protection of the environment, whether or not it is involved in a pollution causing industry.

Sustainability in Business

Businesses should work toward protecting the environment by implementing the highest standards in technology and good management practices, which will ultimately benefit the society as a whole and make businesses more profitable. Theories of management show that the best way to achieve this is through a combination of informal and formal corporate measures, including a comprehensive corporate policy on the environment and follow-up procedures, such as environmental audits.

Reviewing procedures and processes will not only make them more reliable environmentally but will also improve their efficiency. Companies all over the world have experienced the cost effectiveness of processes aimed at reducing energy consumption and generation of waste. Using low energy technology and improved insulation, recycling materials, and plugging leaks can all lead to substantial savings.

Sustainability

Financial and human resources are important aspects when it comes to budgeting available resources for future growth and forward planning for any organisation. Management should create a *green budget* in its effort to support a reliable environmental protection policy, maintain a high marketing profile and attract public support for on-going activities. Management standards are becoming a feature of business life.

The ISO 14001 is now ingrained within business organisations. As important as quality, certifiable standards are being extended into areas like the environment. In a way, the EU's Eco-Management and Audit Scheme is another example of this trend, although with some unique aspects.

Indirect Environmental Risks

The impact of human activities is huge, yet the risks are largely unrecognised. There are also indirect risks which are increasing exponentially because of the following:

- Unequal distribution of the remaining resources, especially water
- Greater use of resources through consumption per person and population growth
- Reduction of numbers or extinction of species
- Chaotic environmental and climatic changes
- Land use degradation from deforestation and desertification
- Organisations' direct and indirect impact upon the following:
 - ✓ Air, leading to climate change and damage to the ozone layer
 - ✓ Land, habitat loss, waste disposal and pollution affecting all species' health and DNA
 - ✓ Water, marine life mutations have increased, breeding cycles have been effected and there are high levels of metal poisoning of fish being recorded. For example, it is estimated that 5500 children die each day from diseases linked to polluted food, air and water (WHO quoted in *State of the World*, 2003).

General Environmental Risk Management Techniques

In order to protect the environment, the development of an environmental policy and processes that ensure performance towards the following aims is essential:

- Activation of an environmental policy and plan, identifying which employees are responsible for various activities
- Management of the reduction and safe disposal of waste, especially hazardous waste
- Management of dangerous pollutants
- Measurement of air emissions
- Holistic management of water resources, use and waste emissions

- Efficient methods of managing energy sources
- Combating of climate change through energy efficient practices
- Creation of policies for raw material purchasing
- Reduction of noise, light, odour, and other peripheral pollution levels
- Product design and production efficiency
- Products and waste that can be recycled when possible
- Promotion of reduction of waste among business processes and suppliers
- Protection of land resources and wildlife habitats
- Encouragement of sustainable use of land resources and wildlife diversity

Analysis of Environmental Risk

Environmental Incident Risk

Examination of environmental incidents risk shows that

- environmental incident risk is 1.3% of the market value of the top 500 EU and US companies.
- good risk management techniques (the risk reduction/management factor) can reduce risk exposure from 1.8% of market value. Environmental incidents are defined as one-off acts of corporate negligence or wrong doing, where the negative impact on the environment is immediately perceived.

For example:

- ✓ Major impact on biodiversity associated with activities, products, and services on land, freshwater, and marine environments
- ✓ Significant spills of chemicals and oil, as well as incidents resulting in fines for non-compliance and legislative infringements
- ✓ Chemical fires or vehicle crashes that result in chemicals being released into the environment

Risks Resulting from Air Pollution

The effects of air pollutants include:

- The hole in the ozone layer is expanding and is now at its largest on record according to U.S. government scientists. "From September 21 to 30, the average area of the ozone hole was the largest ever observed, at 10.6 million square miles (27.4 square kilometres)," says Paul Newman of NASA's Goddard Space Flight Centre. Residents of Punta Arenas, the most southerly city in Chile, are warned to stay indoors on occasions now. Localised air pollution is responsible for large numbers of deaths, mostly as a result of transport generated fumes. There is an increasing body of legislation and market mechanisms being applied to this problem and the trend will continue.

More cities around the world will establish congestion charging zones and subsidies for greener transport.

- Acid rain and eutrophication occur when sulphur dioxide and nitrogen oxides create sulphuric acid and nitric acid in rainfall. Acid rain can kill birds, fish, trees, and entire water ecosystems, especially lakes and ponds, where acidity concentrations build up.
- Climate changes result from events such as the six greenhouse gases that trap the infrared radiation radiated from the earth's surface. Flooding of low-lying land, more vicious storms, increased desert spread, massive economic fallout and hundreds of millions of refugees are just some of the repercussions of climate change.
- Human health impacts: In the UK alone there are over 24 000 people dying too early due to poor air quality because of avoidable air pollution. Many air-borne pollutants affect human health, such as cancer causing dioxins, PM-10 particles, nervous system damage from mercury and lead, and breathing problems.

Companies are at risk from prosecution for breaching environmental legislation and pollution. The Environment Agency regularly obtains prosecutions for air, water and noise pollution.

The incidents described below occurred during 2004 and 2005. A metal shredding plant was prosecuted for air pollution after local residents complained of skin and eye irritation and tightness in their chest, and a biodiesel producer, which turns chip fat into diesel, was prosecuted for noise pollution. Watercourse Pollution appears to be a more prevalent form of pollution. It is an offence for anyone to cause or knowingly permit pollution of surface waters and groundwater namely: the entry into surface waters or groundwater of solid waste matter, or of poisonous, noxious or polluting matter, or the discharge of trade and sewage effluent into surface waters or groundwater without prior consent from the Environmental Regulator. A water utility company was fined £50,000 and costs for allowing raw sewage to overflow into a watercourse killing more than 8,000 fish.

A woodchip producer was fined £60,000 and costs for allowing oil and untreated effluent to enter a watercourse. A more severe case was where the owner of a slaughterhouse was jailed for six months and banned from working in the food industry for seven years after permitting animal blood and waste to flow into the nearby watercourse.

An airport firm was fined £30 000 when it polluted a watercourse with chemicals used to clear rubber and oil from the runway, resulting in the death of 8,000 fish across 14 species. In another incident, liquid fertiliser leaked from a tank on a farm into the nearby river and again killed thousands of fish. The supplier was charged £47,000 in fines and costs and the farmer was fined £5,000 with costs. In most cases, the Agency issues businesses with multiple warnings prior to a prosecution.

Global Warming

The key environmental challenge facing the world is today is *climate change*. The impact on the climate from increasing concentrations of greenhouse gases in the atmosphere is being recognised through

scientific consensus. The greenhouse effect is the natural process to warm the Earth sufficiently to support life through the atmosphere, trapping some of the Sun's energy. Judging from press reports, it appears that most mainstream scientists believe a human-driven increase in *greenhouse gases* is artificially increasing the effect. These gases include carbon dioxide, which is emitted by burning fossil fuel, through methane released from rice paddies, landfill sites, and deforestation.

Impact on Business

Global Warming and its effect on current - and future - legislation is likely to have an impact on production in anticipated and unanticipated ways. The struggling coal industry looks especially vulnerable, with several operators reportedly considering closing their coal-fired plants altogether (Walsh, 2004). The government's requirement to find energy supplies from greenhouse-gas-free sources could open up new exploitable opportunities for businesses. However, wind power has proved more expensive to generate than anticipated.

Governments argue that an enlarged renewable energy sector will create jobs. However, multinational corporations, which supply global markets, are moving production plants to countries where emission levies and energy costs are far less, if the respective governments do not change their policies for a number of years. For instance, it has been noted that the motor industry has claimed that car manufacturers may move to less stringent regimes in Europe, which undermines the environmental benefits and robs the UK of jobs in the process.

Carbon Trust

The Carbon Trust is an independent organisation funded by the UK government. It assists the business and public sector organisations to reduce carbon emissions and benefit from commercial opportunities of low carbon technologies in order to help the UK to move to a low carbon economy. The Trust also provides free, practical advice for decreasing energy use. Saving energy saves money and helps slow climate change by reducing carbon emissions.

The 2003 UK Government's Energy White Paper set an aspiration for the UK to reduce carbon emissions by 60% and create a low carbon economy by 2050. The Trust believes this can be achieved through a change in energy efficiency and the development and greater use of low carbon technologies, for example, renewables and hydrogen. It also feels there is a need for sustained action to remove the technical, economic, and regulatory barriers that make it difficult to move to a low carbon economy. In the short and medium term, the Trust wants to minimise carbon emissions through energy efficiency and carbon management and, in the medium to long term, through investment in low carbon technologies. The Trust meets its objectives through best practice programmes, to inform and influence behaviour and to build skills and resources.

Its objectives are to:

- improve UK business competitiveness by means of resource efficiency.
- make sure that UK business and the public sector meet the targets set for CO₂ emissions.

- help develop a UK industry sector that takes advantage of innovative and commercial low carbon technologies. The Trust declares on its website (www.thecarbontrust.co.uk) that it is developing and implementing programmes that will accelerate the transition to a low carbon economy.
- deliver independent information and impartial advice on energy saving and carbon management to the business and public sector.
- promote the government's energy efficiency Enhanced Capital Allowances Scheme to encourage investment by businesses in qualifying energy saving technologies and products, and managing the Energy Technology List of qualifying energy saving equipment.
- invest in the development of low carbon technologies in the UK.
Fund research and development to encourage innovation in the low carbon sector.
- Create Technology Acceleration Projects for specific technologies and markets with significant carbon reduction potential and where the Carbon Trust can be material.
- Direct help for pre-commercial and commercial organisations with low carbon technologies through the Carbon Trust's Incubator Programme and Venture Capital.

Environmental Sustainability

Sustainable and *sustainability* are now key trigger words in the advertising world meant to create positive, emotive images related to words like *green*, *wholesome*, *justice*, *goodness*, and *environment*. They are used to sell holidays, cars, and even, lifestyles. Businesses are capitalising on the advanced movement towards sustainability. Marketing reflects the national and international moves towards preserving natural resources and the environment.

The birth of these initiatives was the United Nations *Earth Summit*, where the term *sustainability* became popular. The term suggests that social, economic, and environmental issues are related and must be managed together, rather than in the fragmented way that they have been dealt with so far. The Summit was perhaps the first time many countries realised and admitted that our way of life is not sustainable in the long term. The global community had come together to create objectives for sustainable development based on the growing concern over environmental pollution and long-term sustainable use of environmental resources.

A lack of attention to environmental and sustainability issues will pose a risk to potential growth. Ottman (2000) suggests the following green marketing strategies in order to get the message across. This can occur by

- adoption of a thorough approach to corporate greening. This includes all functions of the business, everything from being energy efficient to introducing environmentally friendly fuel.
- appointment of a highly visible Chief Executive Officer (CEO) with environmental leanings and make him/her the centrepiece of the corporate social image, e.g., Anita Roddick of the Body Shop.

- being transparent and allowing the stakeholders access to information so that they know exactly the levels of potential health risks associated with various projects.
- Working cooperatively with third parties, such as government agencies and environmental pressure groups.
- Vigorously communicating the company's commitment to accountability and on-going improvement. This can include Cause-related Marketing. For example, the UK supermarket giant Tesco works with a different charity every year.

Using the same services more efficiently is the best way for Risk Management to address these issues, as follows:

- Reclaim CO₂ by creating sinks to absorb the company's greenhouse gases.
- Increase efficiency by elimination of waste, more efficient products, providing services from a specific energy input, and more efficient power generation and transmission.
- Change products, services and premises as well as using substitutions and making lifestyle changes, from high energy to low energy services, assuming they have the same or better utility. For example, use video-conferencing as a substitute for tiring and expensive business trips.
- Re-engineer the systems by substituting high carbon forms of energy with low carbon sources. For example, use natural gas instead of coal, and then move from gas to zero carbon sources, such as renewable energy and possibly nuclear energy.
- Implement strict measures to control the release of ozone depleting materials from old refrigerator units and the following items:
 - ✓ Solvents: CFC 113 can last up to 90 years in the atmosphere; also carbon tetrachloride solvents
 - ✓ Aerosols, foam air conditioning and refrigeration units: CFC 11 and 12, which can last up to 73 years
 - ✓ Fire extinguishers: these can contain Halon 1301, which has an ozone depleting life of 110 years

Further Reading:

- ✓ *Peter P. Calow, (1998), Handbook of Environmental Risk Assessment and Management*
- ✓ *Paul Pritchard, (2000), Environmental Risk Management*
- ✓ *Sonia Labatt, Rodney R. White, (2012), Environmental Finance: A Guide to Environmental Risk Assessment and Financial Products*
- ✓ *John Voorhees, Robert A. Woellner, (1998), International Environmental Risk Management: ISO 14000 and the Systems Approach*