2 The drivers of change

- Issues of global survival
- Social and environmental impacts of 'business as usual'
- The business case for sustainability
- Conclusion

Issues of global survival

On 6 February 2006, UN Secretary General Kofi Annan remarked:

> The world remains locked into short-term thinking, from election cycles in politics to profit-taking in the business world. Sustainable development cries out for a long-term perspective. The world remains captive to the old idea that we face a choice between economic growth and conservation. In fact, growth cannot be sustained without conservation. One of two jobs worldwide – in agriculture, forestry and fisheries – depends on the sustainability of ecosystems.[1]

Sustainability is now widely held to be the desirable path forward for organizations. The notion has an increasing purchase on legitimacy. Yet there is still little agreement on what sustainability means or how we can achieve it. Consequently, governments and corporations are struggling with issues of survival and renewal – for themselves, for the human community and for the ecosphere.

We see five key issues pressuring corporations to become more responsible global citizens:

- The first issue is poverty. There are still 1.2 billion poor people in the world.[2]
- Second, much of the material wealth is owned by the major corporations of the developed world.
- Third, the negative effects of globalization and industrialization are

loss of traditional localized cultures and community life.[3] There has been a pattern of special pleading and avoidance on the part of some self-interested nations and corporations which has both limited the ability of international agreements to address these inequities and increased the social pressure on corporations to be more responsible citizens.

- Fourth, the failure of the international community of nations and individual corporations to address these concerns is now a subject of intense interest to an increasingly aware and communicative global audience. Society is less willing to take lack of scientific evidence as a reason for inaction in the cause of environmental and social well-being. A wider range of stakeholders is demanding much more from the corporation, particularly those stakeholders who have come together under the broad banner of sustainability.
- Finally, national governments are experimenting with ways to use market and legislative mechanisms to encourage change toward more corporate accountability and innovation for sustainability.

The findings of the 2004 *Living Planet Report* clearly indicate that existing policies have failed to deal with the planetary impacts of industrialization and globalization. Figure 2.1 for instance shows the trends in population of terrestrial, freshwater and marine species worldwide. These declined by 20 per cent between 1970 and 2000. Figure 2.2 shows the use of renewable natural resources by humans measured in number of planets. It shows that the human demands on the biosphere are two and a half times larger in 2001 than in 1961, exceeding the biocapacity by 20 per cent. This depletion is not reversible.

The benefits of raising more people out of poverty than ever before in human history are manifest. Even the sceptics agree we should be able to do better than create a world where 800 million people are actually starving[4] and where the number of people living in extreme poverty is still 1.2 billion (a figure little changed since 1990).[5]

It is true that the positive effects of industrial development in East and South East Asia are striking in terms of literacy rates and life span, for example the average life span in China has gone from thirty-five to seventy years in two decades. But these landmark achievements have come at an environmental cost so large that China's leadership publicly recognizes it will impede the continuing economic development of that country. Shi Guangsheng is chairman of the Chinese Association of

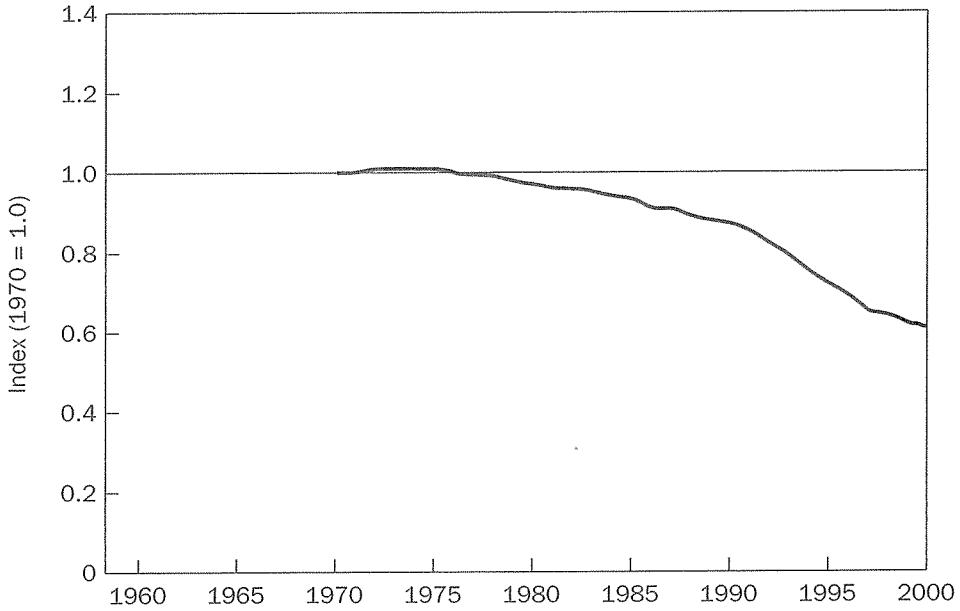

Figure 2.1 ***Living Planet index, 1970–2000***

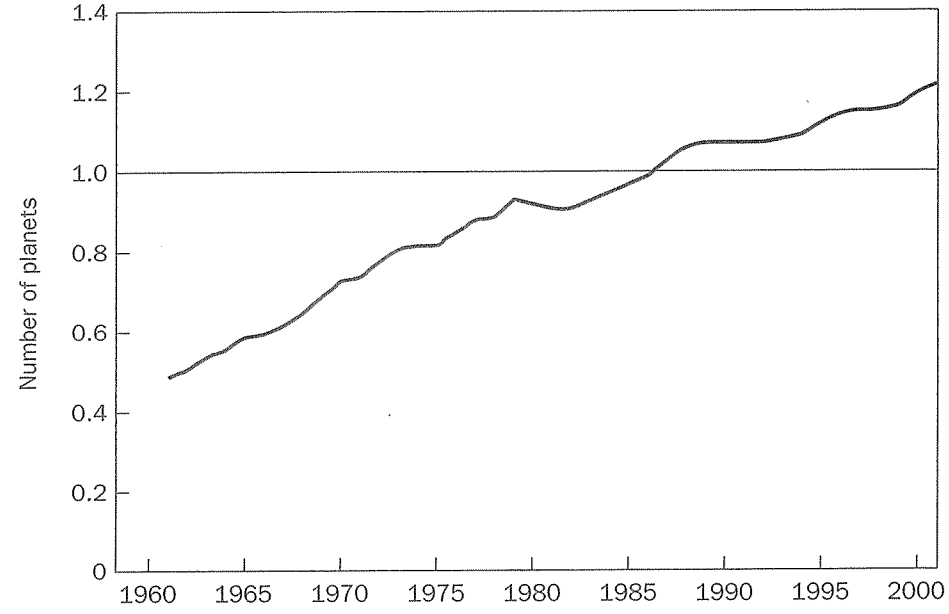

Figure 2.2 ***Humanity's ecological footprint, 1961–2001 (taken from WWF, Living Planet***

He called for foreign companies to help China with problems of growing income disparity and environmental pollution. He stated that one-seventh of the country suffers from acid rain, half the country's rivers are seriously polluted and one-fourth of Chinese citizens do not have clean drinking water. He added that China represents a huge consumer market for foreign firms, who should therefore help China address such issues.[6] The Chinese environmental watchdog acknowledges that mass protests over pollution in China have been mushrooming, increasing at the rate of 30 per cent per year. There has been an environmental incident every other day in China since the disastrous spill of benzene and nitrobenzene on the Songhua river in 2005 which forced authorities to turn off the water supplies for millions of people.[7] Chinese meteorologists say that crippling dust storms are occurring as a result of increased temperatures, poor construction practices, overgrazing and high emission levels from transport. They are now frequent in north and north-western China, including the capital Beijing.[8]

The destructive environmental and social side effects of the combination of population growth and increased consumption have contributed to these issues of global survival. How do we address these issues? What role should corporations, governments and individuals play in creating a more desirable future? Central to the resolution of these issues is the need for all sectors of society to co-operate in changes designed to promote human and ecological sustainability. In this book we support the position that the health of the natural environment does not have to be traded for the sake of human and economic development. If corporations integrate human and ecological sustainability into their business planning, then community, marketplace and workplace concerns can be addressed alongside those of the planet.

Emerging forces driving sustainability

The Earth Summit in 1992 endorsed the need for a positive relationship between the environment and business and introduced the concept of 'sustainable development'. Sustainable development is generally understood to mean development which meets the needs of the present generation without compromising the ability of future generations to meet theirs. Since then, integrating the social, environmental and economic dimensions of sustainability into a holistic process has proven a major challenge to business managers, community activists, politicians,

This chapter examines the pressures on corporations to meet the challenge of adopting a more socially and responsible position rather than continuing to disregard the social and environmental impacts of 'the business as usual' approach to economic development. The public is becoming increasingly aware of the potentially catastrophic impact of climate change which is only one result of industrialization. These pressures come from stakeholders vital to the corporation's prosperity such as governments, community members, consumers, customers, other corporations, industry associations, and other non-government organizations. Other driving forces are corporate leaders and change agents who see sustainability as a competitive advantage for the firm. Marketing, human resource and operations managers are now making decisions influenced by sustainability factors.[9] Employees, shareholders and investment companies are assessing the firm's performance against sustainability criteria such as the maintenance of intellectual, knowledge and social capital, commitment and values, risk management and, increasingly, an innovative corporate culture. These are all factors supporting the long-term survival of the firm in the new economy.[10]

Many corporate leaders are also driven by a sense of moral purpose that goes beyond rational utility and business advantage. They have an increasing sense of responsibility: to future generations and to the health of the planet. Leading writers talk of new models for corporations that will dictate a novel way of doing business. For these writers, the firm, like any other 'cell' of society, is a living organism in an interconnected ecological community, where caring for others and for the biosphere is the ongoing function of each community member.[11]

Social and environmental impacts of 'business as usual'

Climate change

A 2006 report[12] prepared for the Australian government by the Australian National University (ANU) shows that climate changes could be much more drastic than previously expected. Climate change science has made important advances even since the most recent report by the Intergovernmental Panel on Climate Change's (IPCC) Third Assessment Report (TAR). Among the factors which scientists now believe add more urgency are: the effects of aerosols which act in opposition to greenhouse

albedo or the reflectivity of ice and snow where it has melted because of global warming, and a range of other organic processes, such as the oxidation of organic matter previously buried under the snow. The overall impact of these factors has led many climate scientists to revise upward the speed and degree of global warming due to the release of more carbon into the atmosphere.

According to the ANU report:

> Although much uncertainty still surrounds the timing, rate and magnitude of these effects, they all operate to amplify the initial greenhouse warming. Thus, there is now perceived to be a greater risk that the upper end of the well known IPCC Third Assessment Report (TAR) estimate that a 1.4 to 5.8°C temperature rise will be reached or exceeded by 2100.

In developed countries there are expected to be major impacts in three major industry sectors: water and primary industries, tourism and infrastructure and insurance. In Australia, for instance, Table 2.1 shows examples of negative expected effects in the three sectors for temperature rises 1–4 °C.[13]

Table 2.1 ***Effects of climate change on selected industry sectors in Australia (modified from Preston and Jones. See note 13)***

Temperature rise	*Tourism*	*Water and primary industries*	*Infrastructure and insurance*
4 °C	Most vertebrates lose 90%–100% of core habitat	Extreme rainfall in some states increases by 25%	180 days a year above 35 °C in some states
3 °C	Distribution of Great Barrier Reef shrinks by 95%	55% loss of eucalyptus core habitat[a]	Temperature-related deaths of people over 65 rise by 144%–200%
2 °C	80% of World Heritage Kakadu freshwater wetlands lost	Pasture growth slows by 31%	Road maintenance costs in Australia rise by 17%
>1 °C	Vertebrates in World Heritage wet tropics lose 90% of their habitat	40% loss of eucalyptus core habitat	Double the number of people exposed to flooding in Australia and New Zealand
<1 °C	Vertebrates in World Heritage wet tropics lose half their habitat	Droughts in state of New South Wales 70% more frequent and more widespread	18% more days above 35 °C in state of South Australia

The weather-related damage associated with global warming has the most disastrous effects on the poorer, uninsured nations. In the floods of 1998, for instance, two-thirds of Bangladesh was submerged.[14] Even critics of the Kyoto Protocol on Climate Change agree that global warming has massive costs and that the 'developing countries will be hit much harder' by the rises in temperature.[15]

An assessment by the Intergovernmental Panel on Climate Change

- *Overall, climate change is projected to increase threats to human health, particularly in lower-income populations, predominantly in tropical/subtropical countries.*
- *Populations that inhabit small islands and/or low-lying coastal areas are at particular risk of severe social and economic effects from sea-level rise and storm surges.* Many human settlements will face increased risk of coastal flooding and erosion, and tens of millions of people living in deltas, in low-lying coastal areas and on small islands will face the risk of displacement. Resources critical to island and coastal populations such as beaches, fresh water, fisheries, coral reefs and atolls and wildlife habitat would also be at risk.
- *The impacts of climate change will fall disproportionately upon developing countries and the poor persons within all countries, and thereby exacerbate inequities in health status and access to adequate food, clean water and other resources.* Populations in developing countries are generally exposed to relatively high risks of adverse impacts from climate change. In addition, poverty and other factors create conditions of low adaptive capacity in most developing countries.
- *Ecological productivity and biodiversity will be altered by climate change and sea level rise, with an increased risk of extinction of some vulnerable species (high to medium confidence).* Significant disruption of ecosystems from disturbances such as fire, drought, pest infestation, invasion of species, storms, and coral bleaching events is expected to increase. The stresses caused by climate change, when added to other stresses on ecological systems, threaten substantial damage to, or complete loss of, some unique systems and extinction of some endangered species.[16]

Christian Aid has calculated, on the basis of statistics from the United Nations, the insurance industry and other sources, that between 2000 and 2020:

- Half the world's population, most of them living in poor countries,

- The world could face a bill of £6,500 billion (£6.5 trillion) for climate-related disasters – equivalent to the cost of 6,000 space shuttles or 8,600 Millennium Domes.
- There could be as many as 245 climate-related catastrophes.[17]

In its report Christian Aid estimated that as many as 182 million people in sub-Saharan Africa could die of diseases related directly to climate change.[18] A World Bank publication also emphasizes the inequitable effects of climate change, pointing to other effects such as the spread of tropical diseases, more frequent and more intense droughts in Asia and Africa and the large number of people likely to be displaced by a rise in the sea level – including tens of millions in Bangladesh alone, as well as entire nations inhabiting low-lying islands such as those in the Caribbean Sea and the Pacific Ocean. But according to The World Bank:

> Most threatening is the fact that, according to current understanding, the global climate is a finely tuned mechanism that can be pushed out of balance and irreversibly set on a course toward catastrophic consequences that scientists can't even fully predict. These risks are hard to evaluate, but they appear credible enough to demand urgent attention.[19]

There is some good news that change is happening in response to public concern and a rapidly developing consensus particularly on the realities of climate change and the damaging effects of chlorofluorocarbons (CFCs) on the protective ozone layer. The UN recently reported that more than 120 climate change mitigation projects implemented since 1991 have avoided an estimated 1.2 billion tonnes of carbon dioxide and that developed countries have reduced their consumption of CFCs by 99 per cent since 1987.

In a number of countries, corporations, state and local governments are addressing the lack of action by national governments on climate change. In the United States, for instance, the mayors of more than 200 cities have signed the US Mayors' Climate Protection Agreement, and nine eastern states have established the Regional Greenhouse Gas Initiative, while California, in a landmark initiative, has passed tough automobile emission controls.[20] Emission trading aimed at achieving environmental outcomes via the international financial markets has been estimated to be worth $US10 billion-plus in 2005. Table 2.2 shows examples of carbon trading schemes around the world:[21]

More firms are taking initiatives to meet these challenges. One example

Table 2.2 **Examples of carbon trading schemes**

International mandated schemes	*Intra-national schemes*	*Voluntary schemes*
Kyoto Protocol	Australia-NSW Greenhouse Gas Abatement Scheme	California Climate Action Registry
European Union Greenhouse Gas Emissions Allowance Trading Scheme	Regional Greenhouse Gas Initiative (RGGI) – north-east states of the US	Chicago Climate Exchange

PricewaterhouseCooper (PWC). It has made a global commitment to reduce its greenhouse gas emissions because it makes environmental and business sense, according to the firm's Australian infrastructure director. The Australian office alone has spent A$1 million over six months to upgrade the lighting in its 32,000 m^2 of office space in Sydney, where 2,400 staff work. Installation of a new lighting system means that each day, when the first staff member walks out of the lift and to his or her desk, sensors pick up the movement and turn on the lights. When no movement has been detected for more than twenty minutes the lights go out. The lighting redesign for this office alone will save 630 tonnes of carbon dioxide a year, equivalent to the greenhouse gas emissions generated by 140 cars. Estimates are that it will take PWC five years to recoup the A$1 million spent on the system, but in the four months since its installation the firm has already cut its energy use by 15 per cent.[22]

In another example of enlightened business leading government, we report in Chapter 9 on the Australian Business Roundtable on Climate Change, made up of the CEOs of six leading Australian companies. The group has commissioned its own research into the effects of cutting emissions on economic growth. It has concluded that Australia could cut its emissions by 60 per cent from 2000 levels by 2050 and still have strong economic growth. At the launch of the round table, David Morgan, CEO of Westpac Banking Corporation, recounted an anecdote concerning his recent conversation with the head of the General Electric Company in the United States, Jeff Immelt. According to Morgan:

> He [Immelt] said to me he was virtually certain that the first action of the next President of the United States would be to initiate urgent action on climate change. And he wasn't saying that as a casual political statement . . . he is [allocating] billions of dollars' worth

Globalization

Globalization has opened markets, dispersed capital and grown investment and has been endorsed by most leaders of developing and developed countries. The UN figures show that international trade has increased from 35 per cent in 1974 to almost 50 per cent in 2002. Increases are in all regions but strongest in East Asia.[24]

But globalization is also reinforcing and extending inequities in human living standards and exacerbating climate change. Sub-Saharan Africa is expected to see further industrial decline as a result of the ending of the textile quota system.[25] Global activity, such as increased trade, movement of skilled workers and financial flows, disproportionately benefits the richer countries. For example, the expansion in the British health service in recent years has been possible only with the migration of foreign-trained workers from, among other countries, Malawi, Zambia, Sierra Leone, Botswana and Ghana, and 12 per cent of all doctors in United Kingdom have been trained in India.[26]

The globalization of food

Figures from the New Economics Foundation illustrate the extent to which food products move back and forth across international boundaries and highlight the possible environmental impacts. In 2004:

- UK imported 465 tonnes of gingerbread and exported almost the same volume, 460 tonnes
- UK sent 1,500 tonnes of fresh potatoes to Germany and brought in 1,500 tonnes of fresh potatoes back from the same place
- UK imported 44,000 tonnes of frozen boneless chicken cuts and exported 51,000 tonnes of fresh boneless chicken
- UK sent 10,200 tonnes of milk and cream to France and imported 9,900 tonnes from France
- UK imported 391,432 tonnes of chocolate and exported 170,652 tonnes[27]

In another example of the negative impacts of globalization, the United States receives two-thirds of all international investment while most developing countries receive little.[28]

Inequities of this magnitude feed social unrest, which in turn exacerbates

Executive Director of the United Nations Environment Program (UNEP), Klaus Toepfer, has pointed out: 'Fifty percent of the world's peoples now live in cities and often the most toxic element in the environment is poverty.'[29] The implication for corporations becomes only too apparent. Do they defend and take part in this system that contributes to these social and environmental problems or do they shift their mind set and activities to become part of the solution?

'Globalization from above'

Two sets of actors have emerged on the global stage in reaction to these adverse social and environmental effects of globalization and industrialization. From above, government representatives are negotiating international agreements, such as the response to diminishing world oil reserves, the nuclear non-proliferation treaties, GATT, the World Economic Forum, the World Trade Organization and the inter-governmental agreements on the environment.[30] However, national governments experience difficulty in co-operating in the implementation of the intergovernmental agreements concerning sustainability for various reasons, including unemployment, economic conditions and the activities of various interest groups. Some governments, like that of the United States under President George W. Bush, refuse to co-operate or work to actively undermine these developments. This puts the onus on multinational corporations to take more responsibility for their actions.

The World Commission on Environment and Development (WCED) was established by the United Nations in 1983 and was chaired by Gro Harlem Brundtland. The WCED report *Our Common Future* was the first attempt by an intergovernmental body to promote global dialogue on sustainability.[31] The report takes appropriate sustainable development or progress to be development which 'meets the needs of the present without compromising the ability of future generations to meet their own needs'.[32]

This view of appropriate development was promoted at the Second United Nations Conference on the Environment and Development (UNCED), held in 1992 in Rio de Janiero. It was the largest ever heads of government meeting, with more than 170 countries represented. The conference endorsed the major action plan Agenda 21. The 400 page Agenda 21 has been widely taken as a blueprint for the implementation

environmental responsibility. Since then the international community has developed a range of treaties and agreements, which are designed to monitor 'progress' largely according to this definition. Ten global treaties and hundreds of regional and bilateral agreements have been negotiated.[33]

Responses to 'globalization from above'

In actual fact some of these treaties do not result in effective action and often preserve existing inequities that favour the interests of the already privileged nations. Corporate and government irresponsibility and equity issues in the development of treaties and agreements are putting business under pressure to implement voluntary sustainability measures to supplement the international agreements.[34]

In Chapters 3 and 9 we discuss some of the voluntary codes that industry organizations, multi-stakeholder arrangements and individual organizations have developed to restore their credibility. They include the *Valdez* Principles, the US Business Principles for Human Rights of Workers in China and the Business Charter for Sustainable Development. Other corporations have taken part in the creation of measurement and reporting systems. For instance, the ISO 14000 series for systems of environmental management was created by the collaboration of ninety standard-setting groups from 100 different countries. Figure 2.3 shows the rate of increase in ISO 14000 registered sites in the United States. Another group, the Coalition for Environmentally Responsible Economies (CERES), in partnership with the United Nations Environment Programme (UNEP), has convened the Global Reporting Initiative (GRI) to develop indicators to assess corporations in terms of their economic, environmental and social performance.

A precautionary model for development

The difficulty encountered so far in ensuring social and environmental health in the face of global capitalism is also putting pressure on the United Nations to take on broader and more binding responsibilities. At the World Economic Forum in Davos in 1999 UN Secretary General Kofi Annan challenged business to support a Global Compact he called 'Globalization with a Human Face'.[35] The compact is intended to promote

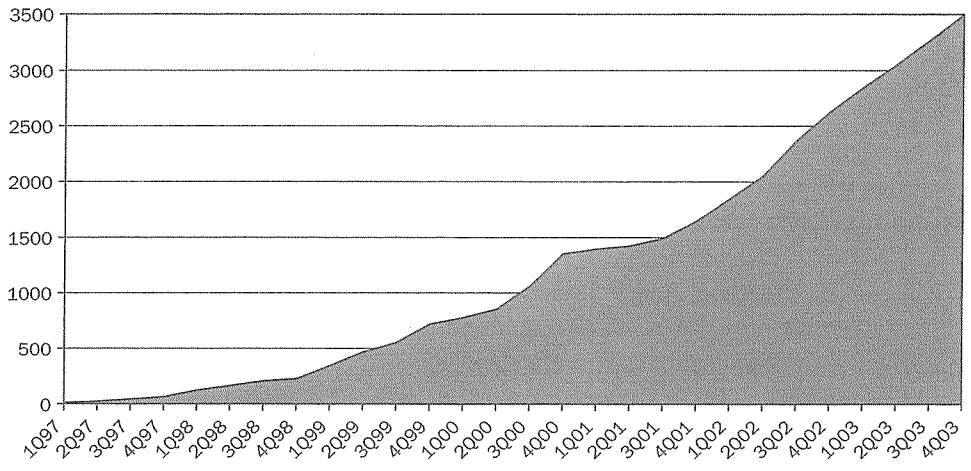

Figure 2.3 ***Rates of registration under ISO 14001 in the United States***
Source: 'Environmental Systems Update', www.qsuonline.com/Submission Instructions/ESUjuly04.pdf (accessed 18 June 2006), provided by Capaccio Environmental Engineering, 31 January 2004.

marks an attempt by the United Nations to lead both the private and public spheres in the direction of a more equitable and ecologically sustainable model of development. In 2006 there are many hundreds of companies throughout the world which have signed the Compact. Although the 'globalization from above' movement has to date demonstrated a limited capacity to implement sustainability,[36] there is evidence of corporations co-operating proactively to lend more support to the sustainability movement. Some world and corporate leaders are showing that they are willing to push for development which is more cautious and self-reflective. As well, an equally powerful force is welling up from below.

'Globalization from below'

Organized by transnational NGOs and spread largely on the internet, 'globalization from below' is an initiative directed against the perceived self-seeking manipulations of elite nation states and transnationals driving 'globalization from above'.[37] The aims of 'globalization from below' are diffuse and the vision of the future is not clearly specified. But the message is clear on two counts. The 'globalization from below'

events of September 2001, indicate the extent to which some constituent groups in society are opposed to Western developmentalism. Second, influential environmentalists, such as Paul Hawken and Dr Vandana Shiva, whose books and articles have a worldwide audience, are leading anti-globalization protesters in support of decentralized decision making on human and ecological sustainability issues.[38] In this debate, many multinationals have been targeted by demands to deliver more sustainable outcomes.

According to Vandana Shiva:

> Food hazards have increased with industrialisation of food production and processing. On a global scale, new diseases are emerging and more virulent forms of old diseases are growing as globalisation spreads across factory farming and industrial processing and agriculture.[39]

Organizations such as OXFAM have considerable influence in the world media. The 2006 Oxfam *Offside! Labor Rights and Sportswear Production in Asia* report, for instance, has been well publicized. The report raises questions concerning the large sums paid to sports stars to market sports brands compared with the tiny wages paid to workers in developing countries. This report cites numerous cases whereby it is common practice for abuse, violence and instant dismissal to be exercised on workers who attempt to organize or negotiate for better work conditions, higher pay and their employee entitlements under domestic law.

Offside! Labor Rights and Sportswear Production in Asia[40]

In this report Oxfam examines the steps twelve international sports brands – Adidas, ASICS, FILA, Kappa, Lotto, Mizuno, New Balance, Nike, Puma, Reebok, Speedo and Umbro – have taken to ensure their suppliers in Asia allow workers to organize in trade unions and bargain collectively for better wages and conditions. It concludes that all sportswear companies need to take a more serious approach to workers' right to freedom of association – although some companies such as Nike and Adidas have made major advances through developing transparency measures and codes of practice for their many suppliers. The report finds that sportswear manufacturer FILA, owned by Sports Brands International (SBI), has taken the least action to improve respect for trade union rights in its Asian supplier factories. It concludes that 'FILA has failed to adequately

address serious labor rights abuses when they have been brought to the company's attention and since February 2005 has ignored multiple attempts by labor rights groups and trade unions to communicate with the company about labor issues'. Research conducted by Oxfam in 2004 into one of FILA's Indonesian factories, PT Tae Hwa, found that there was a denial of trade union rights, high levels of sexual harassment and intrusive procedures for women wishing to claim their legally entitled menstrual leave. One female worker reported to Oxfam that when she attempted to organize a strike against the requirement that they work through the night when orders are high, the factory hired violent thugs to break up the protest. Women who work in the sewing department in PT Tae Hwa reported that management threw production materials at them and called them names like 'pig' and 'donkey'. The report also highlights shifts of production by sportswear producers away from countries which have ratified International Labour Organization Conventions recognizing core labour standards fundamental to the rights of human beings at work. For example, Nike has subtly shifted its sourcing to countries where trade union and workers' rights don't have legal force – whilst in 1998 52 per cent of its shoe production was in countries which gave force to worker freedom of association, that figure has fallen to 38 per cent in 2005. The report concludes that only limited progress has been made to adequately undertake effective programmes which will address the issue of human rights and workers' rights abuses in Asian sportswear factories.

The business case for sustainability

The networked society

'Globalization from below' highlights two important points for corporations. First, globalization and the information revolution have also given the general public the means for self-critique and self-transformation. As awareness of the limitations of our traditional institutions spreads, we are moving towards what Hazel Henderson has termed 'the networked society'. Henderson argues that the most noticeable current political trend has been the advance of citizen organizations and movements. They are now a distinct third sector in the world, holding the private and public sectors more accountable. More access to information has helped empower citizens, consumer choice, employees and socially responsible investors. 'The information society has created new winners – and morphed into the "age of truth"'.[41]

Second, increased public awareness of sustainability issues and

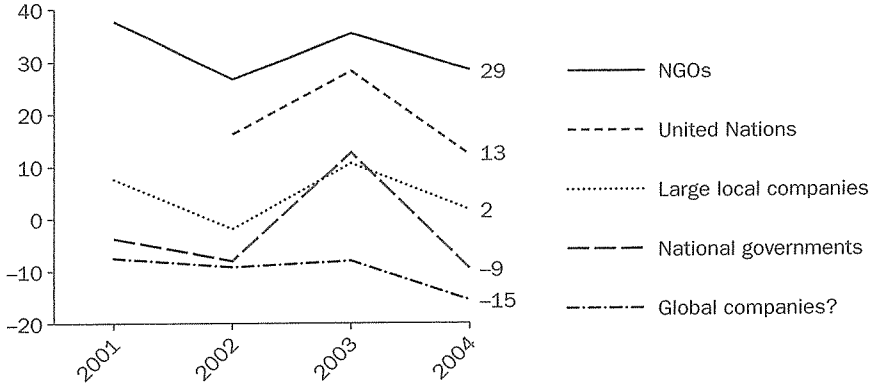

Figure 2.4 ***Overall changes in trust, 2001–05 (average of fourteen tracking countries)***
Source: GlobeScan survey of trust in governments, corporations and global institutions. Reprinted with permission of GlobeScan® Incorporated.
Note The fourteen countries that were tracked are: Argentina, Brazil, Canada, Germany, Great Britain, India, Indonesia, Italy, Mexico, Nigeria, Russia, Spain, Turkey and the USA.

creating market expectations of more responsible corporate behaviour and sustainable products and services. The 2005 survey by GlobeScan carried out for the World Economic Forum in twenty countries, interviewing more than 20,000 citizens, indicates the extent to which trust is declining. It shows that trust in a range of institutions has dropped significantly since January 2004 to levels not seen since the months following the 11 September 2001 terrorist attacks.[42]

Alliances for sustainability

Another force driving the corporate shift to sustainability is the formation of new alliances in the name of sustainability. In this new global reality, alliances and networks are forming between social and natural scientists, business, local government, community and other social actors whose allegiances cross established boundaries. The media, information systems and *ad hoc* 'coalitions of opposites', such as those between NGOs and business organizations, are increasingly influential in all aspects of society. The Global Reporting Initiative, for instance, gathers input from environmental, human rights and industry association NGOs. Consumer action and mass boycotts and protests are forcing corporations to defend their actions. The open-ended nature of the sustainability ethic gives it the power to bring together, at least to the discussion table, people and

supporters advocate greening of business models which work within the current model of capitalism and democracy and support continuing technological innovation and economic growth.[43] Others argue that this approach merely encourages the continuing exploitation of ecological resources, rather than guiding us towards a more harmonious relationship with nature.[44] Other critics argue that reliance on technical solutions for sustainable development and their diffusion to the countries of the South represents just another exploitative, special-interest-based relationship between North and South.[45] Still others take the long-term value of life on earth to be the crucial component of the sustainability ethic; an approach incompatible with the standard approach from economics of discounting the future.[46] 'Social ecologists', on the other hand, argue that human beings will continue to exploit nature if they continue to exploit each other, as in current conditions of global capitalism.[47]

Because of the capacity of sustainability to bring together different factions of society, a wide range of environmental and human rights organizations have emerged as a powerful force for corporate change, operating at both national and international levels in co-operation with corporations. Some have become heavily involved as gatekeepers of national deregulatory reforms and in co-operative arrangements at the international level.[48]

Dynamic partnerships between these newly recognized stakeholders are bringing about major shifts in corporate attitudes and practices. The Global Reporting Initiative, as mentioned, is one. In another instance, the NGO Global Forest Watch provides maps indicating the whereabouts of old growth forests and other data for the Ikea corporation to enable purchasing of forest products according to sustainable criteria. Another example is the partnership formed between the World Wide Fund for Nature (WWF) and the Unilever corporation, at the time the world's largest supplier of frozen fish, with the aim of developing incentives to support sustainable fishing. The Marine Stewardship Council was developed as a result of this alliance.[49] The community-based Landcare movement in Australia, which aims to foster sustainable natural resource management, has formed many partnership arrangements with corporate supporters such as the major mining firm Rio Tinto, the resources company BHP and Fuji Xerox. Sponsorship agreements can influence corporate support for sustainability. Examples include more precautionary labelling on paint tins for safe disposal and the development of an approved environment policy by the manufacturer of own-brand paints.[50]

The Play Fair Alliance

The Play Fair Alliance – a network of organizations including the Clean Clothes Campaign, the International Confederation of Free Trade Unions and the International Textile, Garment and Leather Workers' Federation (ITGLWF) and eleven Oxfams – proposed in 2004 that the World Federation of Sporting Goods Industries (WFSGI) and sports companies co-operate in a programme of work to improve respect for labour rights in the industry. Major recommendations include:

- Confidential and accessible means for workers to report exploitation and abuse.
- Independent education and training for workers concerning their rights at work.
- Transparency regarding company supply chains and efforts to improve conditions.
- Purchasing practices which allow suppliers to respect labour standards (including stable business relationships and reasonable prices and delivery times).
- A framework agreement between the ITGLWF and the WFSGI to facilitate freedom of association and collective bargaining.

In addition, this report recommends that sports brands should:

- Prioritize retaining unionized factories in the companies' supply chain.
- Ban, or severely restrict, the employment of workers on short-term contracts.[51]

Corporations are learning from relations with other sectors. They are learning to be mission- and board-led, and their employees are learning the value of social cohesiveness and a shared sense of responsibility. They can gain in legitimacy while keeping to their central business focus.[52] They are recognizing the growing demand from across society for more participatory decision making and accountability.[53] In the process they have learnt the value of strategic alliances and of sustainability.

The mining industry faces new challenges

A new and independent study group, Mining, Minerals and Sustainable Development (MMSD), has been established with the aim of assisting the mining industry to solve the problem of how to satisfy demand for minerals while addressing the social, environmental and community impact of their industry. MMSD has established an assurance group comprising twenty-five representatives from the mining industry, the union movement, investment houses and NGOs, including environmental activists,

who will evaluate the integrity of the project. So far, the group has established eight areas of priority attention. These include environmental and land management issues, national economic development, sustainable markets and consumption patterns.[54] The International Council of Mining and Minerals has now developed a set of ten guiding principles of sustainable development designed to assist mining companies and their employees to operate in accordance with sustainability principles and practices.[55]

The dangers of 'greenwash'

The UK Turnbull report emphasized the need to build reputational capital, pointing out that 'a company's social, ethical and environmental working practices can make or break a brand name and affect share prices'.[56] The implications for share price, and thus for investment decisions by large investment funds, and for employee perceptions of corporate trustworthiness and values make reputation a powerful driver of change. Shareholders are increasingly concerned at the loss in value of their stocks in cases of failure to meet government regulations or community expectations. The Asian financial crisis, the Nike child labour issues, the Lockheed bribery scandal and the alleged involvement of Shell in the internal political situation in Nigeria have all contributed to corporate leaders shifting their attitude to sustainability away from a narrow focus on technical aspects of environmental problem solving to a more holistic approach which includes social concerns such as human rights and community impacts. In the emerging discourse of corporate citizenship, sustainability, reputation and performance are inextricably linked. The big corporate brands are particularly vulnerable.

Coca-Cola under pressure

Coca-Cola's Indian operations have put its famous brand in the spotlight for neglecting the concerns of local communities and the sustainability of the natural resources upon which they depend. Bottling plants in India have been in world news because of accusations that the company's use of powerful pumps that reach down into deep-water aquifers through large-bore wells within its premises. Local villages, angered at the lowering of the water table at a time of extreme drought, have drawn in environmental activists and government experts to support and broadcast their case.[57] As well, the Kerala State Pollution Board shut down the $US25 million dollar Coca-Cola bottling plant in the remote Kerala village of Plachimada. Chairman of the KSPCB, G. Rajmohan, said the closure was ordered because the plant 'does not have adequate waste treatment systems and toxic products from the plant were affecting drinking water in nearby villages' and that the plant 'has also not provided drinking water in a satisfying manner to local residents'.[58] Even before the ruling, Coca-Cola sales had already dropped 14 per cent in the April–June 2005 quarter. Much publicity had surrounded the case, with Indian NGOs and politicians as well as global environmental groups drawn in to the high-profile investigation and exposure of the presence of pesticides in colas manufactured in India. Plachimada is likely to be seen as a signpost struggle on the role that local communities and NGO action can have in protecting natural resources.

Pressure from investors

More informed shareholders are demanding a role in corporate decision making. Not only can shareholder activism be extremely damaging to the reputation of the corporation, but shareholders are now using sustainability as a measure of financial success. Sustainability indices such as the Dow Jones Sustainability Index are outperforming other indices.[59] The financial markets are generally requiring more information on standards of accountability, and the financial services industry is now under considerable pressure to provide for ethical investment.[60] Currently, the ethical investment sector in the United States represents 13 per cent of all dollars under management, with more than US$13 trillion invested.[61] The socially responsible investment (SRI) industry is a major growth sector of the financial services industry, growing by a factor twelve times that of the broader managed funds sector.[62]

In April 2006 UN Secretary General Kofi Annan was joined by the heads of leading institutional investors managing combined assets worth more than US$2 trillion to launch Principles of Responsible Investment. Many of these are public pension funds accounting for 35 per cent of total global investment.[63]

The UK government has passed legislation to regulate pension funds so that they have to take account of the environmental, social and ethical impact of their investments. The funds are evidently prepared to take a strong stance on these issues. In a survey of the twenty-five largest UK pension funds, around 70 per cent of the funds said that they would

who will evaluate the integrity of the project. So far, the group has established eight areas of priority attention. These include environmental and land management issues, national economic development, sustainable markets and consumption patterns.[54] The International Council of Mining and Minerals has now developed a set of ten guiding principles of sustainable development designed to assist mining companies and their employees to operate in accordance with sustainability principles and practices.[55]

The dangers of 'greenwash'

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boycotting specific industry sectors such as tobacco and alcohol.[64] According to former US Vice-President Al Gore, the cult of short-termism is leaving investors, businesses and society short-changed. The argument of Gore and others involved in the growing sustainable investment market is that sustainable investing is really about examining a company's ability to survive through protection of revenues in the longer term and securing sustainable competitive advantage. Issues that influence the sustainability of the firm from this perspective range from macro issues such as demographic change, global warming and geopolitical tensions to more micro issues such as how companies attract and retain employees, corporate governance and community relations.[65]

National governments: new approaches to change

Since the Brundtland report and the Rio conference, business has been drawn into a system of co-regulation, where government, business and community are all expected to play a part in sustainable development and pollution prevention. Many members of the public, and increasing numbers of industry and government leaders, recognize that government alone cannot bear the responsibility for decisions taken by industry. Corporate capture has remained an issue[66] but is increasingly challenged.

During the 1990s co-regulation also meant the development of new forms of legislation designed to integrate sustainability principles into business decision making. Many governments are examining incentives to prompt business recognition of the new reality that moral and ethical responsibility can coexist with financial success. The 'user pays' principle has emerged as a key driver of corporate change. In essence, governments are now working towards ensuring that those who create the risks pay for them.[67] Taxes such as consumer fees for the disposal of appliances (applied in Japan), legislation on producer responsibility (in Sweden and the Netherlands) and pollution taxes in many countries are examples.[68] In the United States, Superfund represents an early attempt by government to force corporations to internalize environmental costs.

Incentives-based and 'polluter pays' strategies include load-based licensing and tradable permits to encourage reduction of pollution. In load-based licensing, companies are charged licence fees which vary according to the amount of pollution they discharge. Other economic policy tools include tradable rights to natural resources to encourage

Examples of such incentives include vehicle emission quotas, landfill taxes and 'green taxes', such as carbon taxes (as in Denmark), congestion taxes (as in Singapore) and vehicle return bonuses.

New reporting requirements and concepts

The 'Porter hypothesis' is that better designed regulation can lead to greater innovation, reduce uncertainty, raise corporate awareness and signal areas of potential resource inefficiency. Because this argument was advanced by a person widely regarded as the leading thinker in corporate strategy, it has been influential in the debate during the late 1990s concerning the framing of the environment–competitiveness relationship.[69] Although many writers have taken issue with Porter's perspective on the government–corporate relationship, the debate overall has created support for the idea that a properly designed and strictly regulated framework can prod managers to abandon ingrained ways and static models of thinking and operate for a more innovative approach to sustainability.

Accompanying the push for greater regulation is increased pressure on corporations to employ better assessment and measurement techniques in activities relevant to sustainability.[70] Accordingly, governments have become involved in the setting of sustainability targets, indicators, reporting requirements, standards and a variety of other initiatives designed to effect change in corporate behaviour. Research indicates that government initiatives have been responsible for an increased rate of publishing of health and safety and environmental reports in all countries except the United States. Bigger companies, with a higher public profile or under regulatory pressure from a number of countries, are also more likely to report. Further pressure is also placed on organizations to report by voluntary sector-specific agreements such as the Responsible Care programme of the chemicals sector.[71]

Ecological modernization

Porter's argument that regulation can force or 'enlighten' corporations to employ the environment as a 'competitive opportunity' has been taken up by some governments in northern Europe and Japan.[72] These

of a specific sector, which focuses on the development of green technology, or environmental services. This powerful approach, termed 'ecological modernization' by academic writers, sees scientific and technological advances as an answer to the dilemma of how to provide for continued economic growth without negative impact on the environment. The basic argument is that we do not have to create a new political economy to achieve sustainability. It is enough to ensure that innovative environmental goods and services become a source of profit.[73] This approach is also co-regulatory, its proponents arguing that market, government and NGOs all have a role to play in industrial transformation incorporating more ecologically friendly principles.[74] Indeed, many of the governments, such as Japan, Sweden, Norway and Germany, which have been most successful in shifting the economy away from dependence on unsustainable production technology towards green production technology have a tradition of close associative relations between industry, business and government.[75]

As a result of applying these strategies, the eco-industry sector in Europe now provides up to 3.5 million jobs. Currently, the core eco-industries in the European Union, not including renewable energy and energy efficiency equipment and services, supply around half the world market of €300 billion per year. With massive expansion forecast for regions such as China, South America and South East Asia, the world market is expected to increase to €740 billion by 2010.[76]

Globalization and the information society, informed consumers and shareholders, and new roles and policy making on the part of NGOs and national governments are major external pressures on corporations to take a more ethical stance in their business dealings in terms of respect for the rights of current and future generations. The traditional distinction between external and internal drivers is useful to highlight another set of pressures, to do with efficiency, risk management and business advantage. We can think of these pressures as the internal drivers of sustainability.

Increased pressure from consumers is evident in the Ethical Consumer Report, which acts as a barometer of ethical spending in the United Kingdom, shows that in 2004 UK consumers spent a total of £25.8 billion in line with their values, an increase of 15 per cent on the previous year. Over the same period, UK household expenditure increased by only 3.7 per cent.[77]

environmental governance programme at the University of Hong Kong, many companies in Asia are taking up CSR principles. According to Welford these companies are often relatively unknown suppliers of the large brand-name companies, and so the shift may not be so publicly recognized. In addition, because of the migrant labour shortage in China, Chinese companies are adopting CSR strategies in order to attract workers. In this recent interview, Welford quoted the following examples of companies following CSR principles in Asia.

- Unilever's engagement with its own farmers down the supply chain in Indonesia has helped farmers produce more, guaranteed them better incomes and at the same time has generated a secure quality product for Unilever itself – it is a win–win situation.
- The Mass Transit Railway in Hong Kong has a long history of being proactive on environmental issues. It has been rated Hong Kong's most respected company and has won many awards for its sustainability reports.
- The Tata conglomerate in India has seen its reputation increase because of its commitment to CSR and that company now provides an example to others in India.[78]

Traditionally government and other external actors have been the major forces for corporate sustainability. More recently, internal factors are putting pressure on companies to reconsider their product design, human resource development, marketing and operations management strategies in light of business ethics and environmental and social responsibility. Each of these internal factors can be analysed in terms of business value. In a 1998 survey of 481 companies, the consulting firm Arthur D. Little found that 83 per cent of these companies saw business value in implementing sustainable initiatives.[79]

The costs of non-compliance

The most obvious internal pressure on managers in this context is cost avoidance. But the firm now needs to consider potential costs to its reputation in the eyes of its employees as well as external stakeholders such as shareholders, suppliers and consumers. The costs of non-compliance can be devastating for corporations, a point emphasized by a survey which showed that 85 per cent of US manufacturers have a corporate policy requiring compliance with the environmental standards

Being competitive means reducing costs. As we have indicated, governments are still experimenting with measures to ensure increased sustainability. As we have shown above, most governments impose penalty measures for non-compliance. Corporations which do not address social and environmental requirements face fines, workers' compensation cases, criminal convictions and payment of clean-up costs. The potential for damage liability can make non-compliance a significant business risk. Some examples:

- In the United States, the total corporate liability costs for asbestos-related diseases has been estimated at US$30 billion, far more than the product ever earned its manufacturers. In a court decision in South Africa, more than 300 workers in an asbestos mine were awarded damages. Claims by the multinational company that it could not be held accountable for the actions of subsidiary companies were discounted. A major concern of the workers' lawyers was that if larger settlements were won, there appeared a strong likelihood that the company would be bankrupted.[81]
- The Swiss pharmaceutical firm Roche put 8,000 of its workers through training programmes to ensure they follow national and international laws, as a result of some of the world's largest pharmaceutical companies being fined more than US$700 million for operating an illegal price-fixing cartel.[82]

The *Exxon Valdez*

Most managers would have a broad recollection of the 1989 *Exxon Valdez* spill of 10.8 million gallons of crude oil into Prince William Sound and along 2,000 km of beach in south central Alaska. They could probably recall the sad scenes of the deaths of 250,000 birds, 2,800 sea otters and 300 harbour seals. They may remember that the following investigation revealed that the supertanker's captain was inebriated. They may not realize the extent of the fines and damage claims faced by Exxon, some of which are still being resolved. Exxon was fined $150 million, the largest fine ever imposed for an environmental crime in the United States. Although the court forgave $125 million of that fine in recognition of Exxon's co-operation in cleaning up the spill and paying certain private claims, Exxon has argued that the clean-up cost to the firm exceeded $2 billion. The clean-up involved 10,000 workers, 1,000 boats and 100 planes and helicopters. As restitution for the injuries caused to the fish, wildlife and land of the spill region Exxon agreed to pay $100 million. This money was divided evenly between the federal and state governments. The civil settlement took the form of an agreement for Exxon to pay $900 million with annual payments stretched over a ten-year period.[83] The US Justice Department and Alaska in reaching this agreement with Exxon agreed that the state and federal governments had fifteen years to ask for more money. With that time period nearly up, federal and state lawyers are arguing that the remaining oil is still interfering with the ecology of the shore and ocean although the extent of the impact is impossible to calculate. To address residual impacts of the oil, the lawyers are requesting another $92 million from Exxon.[84]

Developing and measuring intangible value

Performance measurement and the management of intangibles are emerging as a key driver of organizational sustainability. The Sustainability Balanced Scorecard, for instance, is an instrument that builds on the well established Balanced Scorecard, adding social and environmental perspectives to the existing financial, customer, business process and learning and development perspectives and linking the perspectives with cause and effect chains.[85]

Westpac Banking Corporation is an example of a leading organization now including intangibles such as CSR, environmental performance and reputation into its strategizing. Figures 2.5 and 2.6 illustrate Westpac's view on the values linkages for customers and employees of these intangibles.

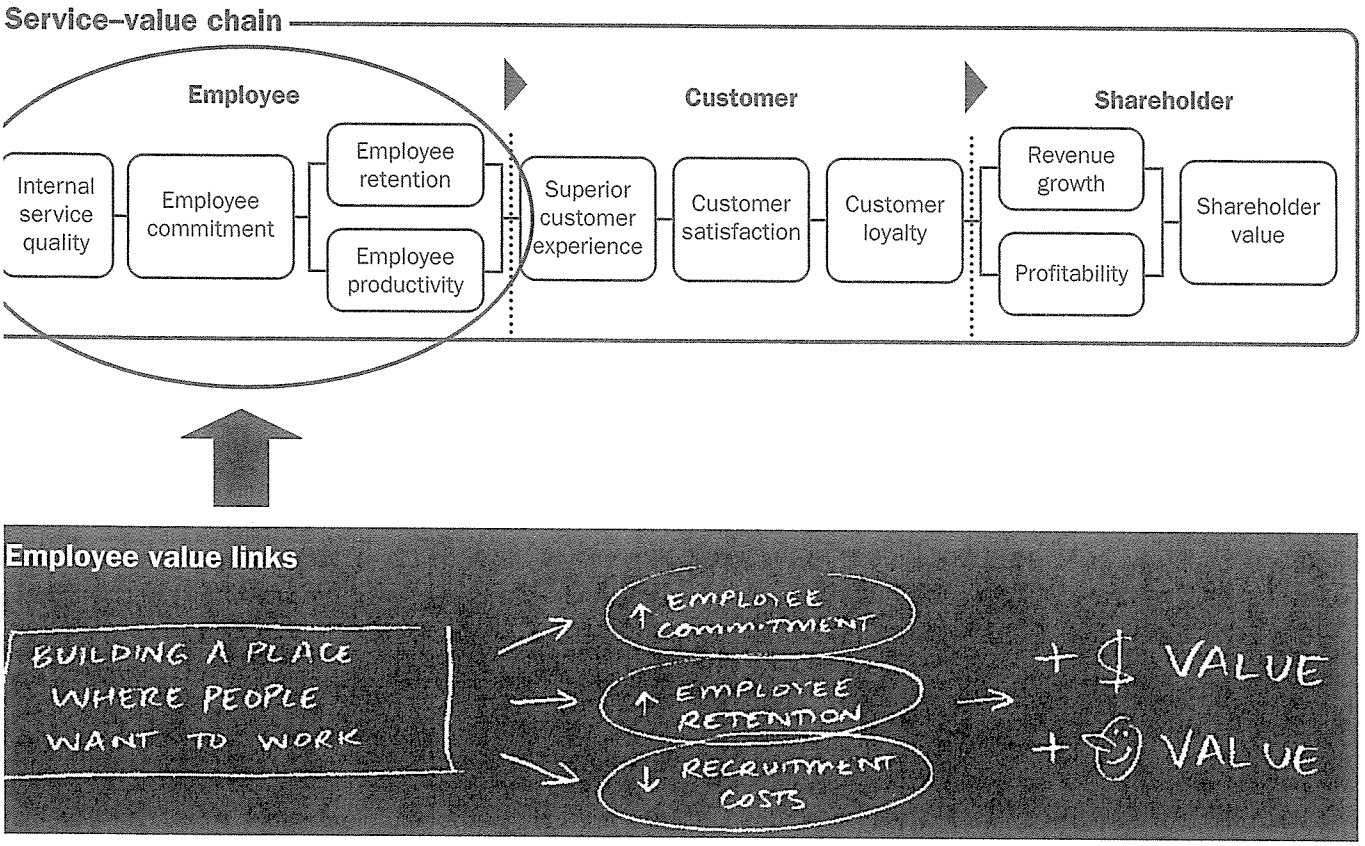
Leadership and risk management

Key trends in risk management now include:

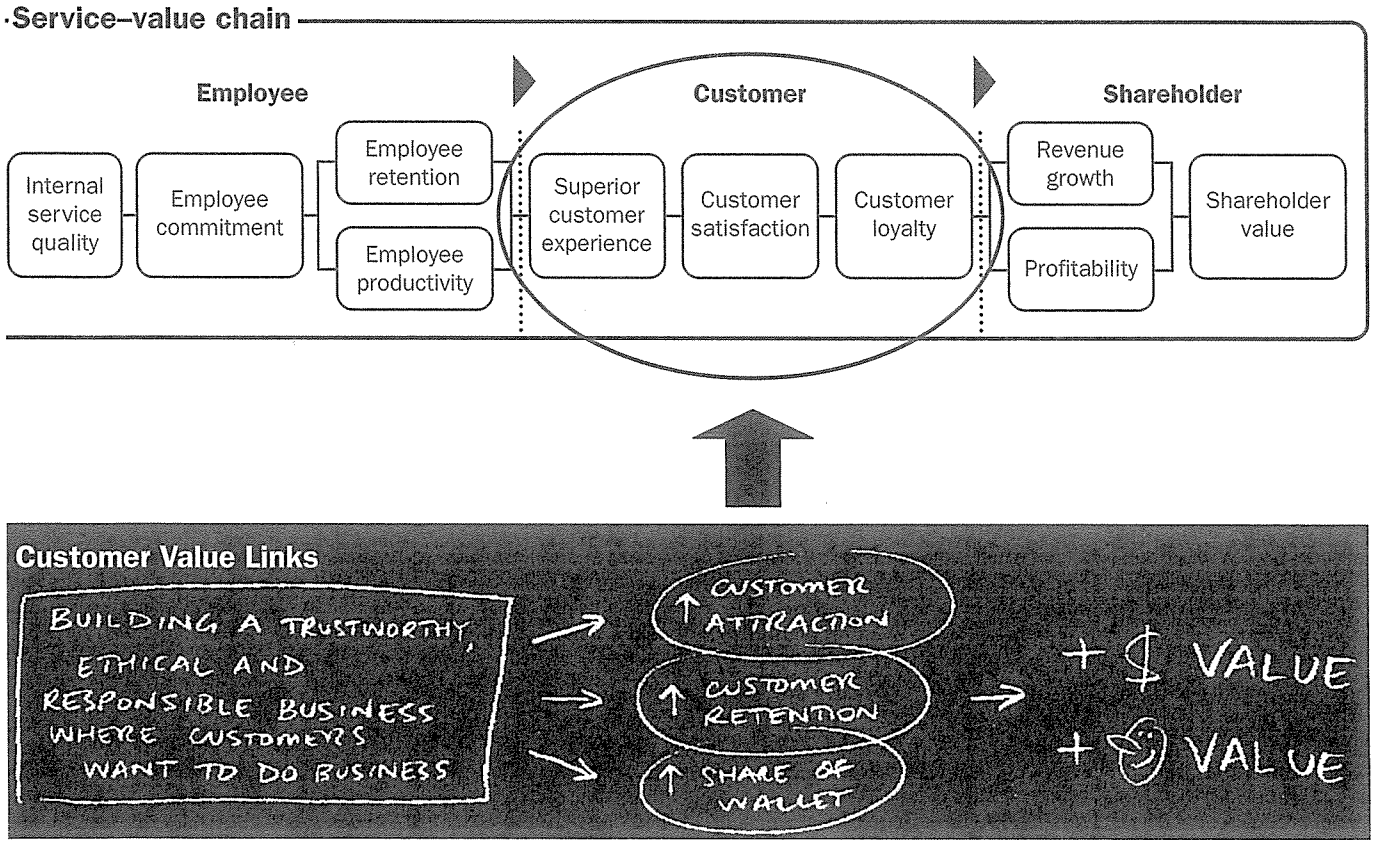
- The need for public trust.
- The need for a partnership approach.
- The role of personal leadership and workforce involvement.
- The use of the law as a lever for safety management.
- The public demand for a risk-free world.[86]

Public opinion often appears to be only the opinion of a few activist NGOs, but it is now also the opinion of many employees and shareholders. It has become very costly to operate companies which are not socially responsible.

Maintaining awareness of the precautionary principle and consultation



gure 2.5 ***Westpac intangibles and value linkages: employees***
urce: Reprinted with permission of Westpac Banking Corporation.



gure 2.6 ***Westpac intangibles and value linkages: customers***
ource: Reprinted with permission of Westpac Banking Corporation.

can deliver business advantages. Reinhardt, for instance, describes a situation where plans for timber harvesting and the building of a pulp mill using chlorine bleaching in the forest areas of northern Alberta were modified according to demands made by local farmers, aboriginal residents and environmental activists. The modified plans, which included forest management plans and reduced pollution levels, cost little compared with the gains in the long-term stability of the project. Reinhardt argues that the 'environmental goods' traded were well worth it in return for 'an insurance policy against regulatory difficulties, sour community relations, business interruptions and related cost shocks'.[87] This issue highlights the importance of leadership in taking a strategic view of shifting corporations towards sustainability.

The costly effects of climate change are increasingly being recognized as an aspect of company value. However, the potential risks and opportunities associated with environmental impacts are not straightforward and differ markedly from sector to sector, as illustrated in Table 2.3 showing the sector-related effects of climate change.

The knowledge-based organization

In the information-based economy, corporations are looking to long-term survival through the development of knowledge systems, stores of social capital and a culture of innovation. These aspects of human sustainability in turn enable the firm to take a position of more environmental responsibility. A position of corporate sustainability requires a firm both to be responsible to employees and to look to its own needs for long-term survival. In this context, managers are being influenced by a significant body of research which indicates that organizations last longer if they have clearly identified their values and goals.[88] The work of Collins and Porras is particularly notable in this regard. In their study of a number of visionary companies, these writers found that, compared with non-visionaries, these companies had an ideology which was made up of core values and purpose. It is this sense of core values which employees identified with and to which they developed commitment. Profit was important but it was not the defining feature of these visionary companies.[89] According to this research, an organization which has a clear sense of its mission for sustainability will more than survive – it can become a visionary

Table 2.3 ***Effects of climate change on various sectors***

Sector	*Weather-related risk*	*Regulatory related risk*	*Potential opportunities*	
	Short-term			*Long-term*
Property and Construction	Higher insurance costs	Higher insurance costs or inability to get insurance Decrease in asset value due to changes in flood levels or poor energy performance Increased construction costs due to changes in building codes	Minimum energy performance standards Inclusion of energy intensive construction materials into ETS	Growth market for energy efficiency/ management products and services Growth market for energy efficient construction materials Property energy performance used as differentiation to attract key clients
Transport and infrastructure	Increased maintenance and insurance costs due to increased storms and flooding Increased variability in water supply	Increased construction costs due to changes in civil engineering standards	Minimum energy transport performance standards Inclusion of aviation in fuel and airline industry in ETS	New water infrastructure Alternative fuels
Tourism and tourism related	Destruction of major tourist attractions	Destruction of major tourist attractions Increase in tropical diseases impacting attractiveness as destination		

Table 2.3 ***(continued)***

Sector	*Weather-related risk*	*Regulatory related risk*	*Potential opportunities*	
	Short-term			*Long-term*
Retail and consumer discretionary	Increased volatility in earnings of weather exposed or season-dependent products due to increased weather variability	As for short-term	Compulsory energy performance standards for consumer	Growth in demand for energy-efficient consumer goods
General	Increased business interruption due to extreme weather events	As for short-term	Need to include ETS related assets and liabilities in financial accounts Increased electricity price	

Source: I. Woods and M. Wilder, *Climate Change and Company Value*, Sydney: AMP Capital Investors and Baker McKenzie, 2005.

Knowledge management is also drawing attention to the value of an organization's human resources.[90] Motivation, qualifications and commitment, when combined with a significant store of 'corporate memory', are a major asset to the corporation. Companies are increasingly dependent on employees who can work co-operatively and contribute to the social capital of the organization.[91] Social capital is fundamental to the successful working of the new organizational forms such as the network organization and communities of practice.

As prized employees hunt for the firm with a strong sense of values, there are real rewards in becoming an employer of choice. Firms need

are sufficiently motivated by the company's mission and prospects to stay and aspire to higher levels of productivity. The importance of teamwork, loyalty and skills is becoming doctrine in almost every industry.'[92]

Recent work also indicates a relationship between human resource policies, the successful implementation of the environmental management system (EMS) and its maintenance as a strategic business and risk management tool. This research concludes that EMS programmes are more successful if factors such as training, empowerment, teamwork and rewards are addressed.[93]

Natural capitalism: the business advantage

The perspective of 'natural capitalism' has been much publicized. If firms persist with the win–win business logic of 'natural capitalism', profiting from increasing the productivity of natural resources, closing materials loops and eliminating waste, shifting to biologically inspired production models, providing their customers with efficient solutions, and reinvesting in natural capital, they can gain a commanding competitive advantage.[94]

Business advantage is also offered through the organizational restructuring required by following the principles of industrial ecology. Tracking material and energy flows over the whole producer/consumer cycle reduces the likelihood of 'suboptimal solutions' and 'unintended consequences'.[95]

At Hewlett-Packard, for example, their Environmental Strategies and Solutions programme 'confirmed that sustainability does offer companies a strategic competitive advantage'.[96] This conclusion was based on the premise that the planet is a closed system which will eventually face limits. In these circumstances, the firm would be in a new social and economic situation, and would have to deal with the challenges of a new business environment. According to Hewlett-Packard, incorporating sustainability into its core business strategies would 'enable HP to transform potential environmental liabilities such as climate change, resource exhaustion and the energy crisis into strategic business opportunities and competitive advantage'.[97]

A culture of innovation

Managers are also recognizing the links between an organizational culture of innovation and one designed to deliver sustainability. Practices designed to enhance human sustainability and social capital within the organization (such as empowerment, teamwork and continuous learning) are linked with the capacity to innovate and escape from rigid models of operation and production. Arguably, implementing more sustainable practices creates an organizational culture that facilitates both resource productivity and product differentiation.[98]

A number of companies have been successful in employing a strategy of environmental product differentiation. Reinhardt points out that such a strategy will be successful if consumers are prepared to pay more, if the benefits can be communicated readily and if the innovation is unique long enough for a profit to be made.[99] Corporations face an accelerating rate of change and an increasingly complex society. For these business conditions, innovation depends on cultural and structural characteristics of the organization. Both sets of characteristics are linked with the organization's capacity to engage with sustainability. Cultural factors such as those associated with the learning organization also underpin a culture of precaution. Structural factors such as an internal network culture, employee participation and the ability to develop community partnerships also support human sustainability. In other words, innovation, business concept redesign and sustainability can be readily linked in a dynamic relationship aimed at delivering long-term business advantage.

Importantly, such qualities enable the corporation to be more responsive to the external drivers of change. An organization geared to innovation is ready to take up government incentives for 'ecological modernization'; that is, it can readily translate social and moral issues into market issues and can exploit the potentially huge market that ecological sustainability, in particular, represents. But more than that, such an organization can more critically reflect on the possibilities of new relationships between nature, society and technology that will mark a new, more sustainable age.[100]

Conclusion

This chapter began by asking why managers are moving to address the challenges of human and ecological sustainability. In large part, the answer is that the new reality for managers is that business success and sustainability are inextricably linked. Social and environmental health are essential aspects of corporate survival. Some managers are reacting primarily to the reputational and litigious risks associated with the increasingly global reach of corporations, to the actions of internationally mobilized human rights and environmental activists and to international and national agreements and regulations concerning environmental protection and social and environmental justice. International and national governments are experimenting with a variety of policy incentives and models of governance to ensure corporate accountability.

But many other managers are also taking proactive measures in the struggle to conserve resources, minimize waste and contribute to social and ecological renewal. More companies are moving beyond compliance with government regulations to accreditation under voluntary schemes such as ISO 14001. This delivers benefits from recognition by the community, customers and other stakeholders. Importantly, corporations are increasingly influenced by new alliances being formed across the range of corporate stakeholders. Community representatives and NGOs are working with firms to develop the knowledge and social capital required for the shift to sustainable products and processes.

Shareholders and investors are also looking to more than financial success in the assessment of performance. Their selection of investments increasingly takes into account reputation and performance on the longer-term factors of social and ecological sustainability. Investors are also placing more value on the human abilities and commitment that the organization has built. In the new economy the building of knowledge systems, social capital and other strategies designed to increase and sustain human capability are vital to corporate performance.

More and more employees have strong expectations of workplace safety and heightened environmental awareness; they are searching for more meaningful work, particularly for work that makes a social and ecological contribution as well as providing an income.

In this context, the principles of industrial ecology, of community, interconnectedness and co-operation can be seen as a model for the way