BUSINESS & SUSTAINABILITY

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Foreword

When I started off teaching about sustainability on the MBA course, I found that there was so much to cover in the lectures and experiential learning sessions that, judging from the reflections and follow-up queries, students were still hungry to absorb more on the intriguing concepts and ideas related to the subject!

Interestingly, it was not just about knowing more about topics like water or energy or why the world's society is so unequally divided but rather more to do with what they - as students and young people - could do themselves about sustainability i.e., how to ensure that there really is a viable future for all of us.

This is primarily a book for those students and others, who one day will no doubt become business leaders and company CEOs, so that they can embed the values that they have embraced into their personal journeys and, as they eventually end up in leadership positions, they can truly make a positive difference in the world.

In this book, I have taken the liberty to share my findings and experience of 30 years working as a sustainability consultant and corporate director as well as an academic, which I hope that you will find useful as a snapshot of what is happening right now in front of our eyes.

My further wish is that armed with this understanding, you will be motivated to act. There is a lot to do to heal our current problems and to prevent new ones from arising.

The future could be sustainable but it's up to you.

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Chapter 1. What is Sustainability and Why is It Important?

1.1 Introduction

We often hear the term “sustainability”, coined as the “ability to be sustained, supported, upheld, or confirmed”. Sustainability is also used in the ecological sense, i.e., “the quality of not being harmful to the environment or depleting natural resources, and thereby supporting long-term ecological balance”. So, in essence, sustainability is the way to ensure that a viable future lies ahead for us all.

Why should we pay attention to sustainability? It is not a topic that you often find taught in business schools, and there are no professional qualifications universally recognised for a sustainability professional. But the importance of sustainability is increasing in circles within governments and the business sector as natural resources become depleted, air and water pollution levels increase and the effects of climate change become felt across the world.

Yet for all the scientific evidence of how important sustainability is, we are making few changes in our behaviour or policies to avert the long-term possibilities of a disastrous outcome to mankind. Some of this is due to lack of awareness, but in part some of this is due to unwillingness to change.

In this textbook, important information is provided on sustainability – starting with its meaning and history – for you to learn in order to make informed choices about what you should be aware of when you make decisions later in business or in your personal choices of living.

1.2 Definitions

Sustainability has been practised ever since mankind has been in existence. It is essentially the art of survival. How to retain generations, their systems, their beliefs, their sustenance and their cultures. But we first come across the official definitions as:

> *"A process of change in which the exploitation of resources, the direction of investments, the orientation of technological development and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations"*
>
> (Source: The World Commission on Environment and Development[i])

"The capacity to improve the quality of human life while living within the carrying capacity of the Earth's supporting eco-systems."

(Source: International Union for Conservation of Nature[ii])

"Sustainability is about stabilizing the currently disruptive relationship between earth's two most complex systems—human culture and the living world."

(Source: Paul Hawken[iii], Environmentalist)

These are some of the popular definitions. But the crux of the matter lies in providing a better future for the next generation. Sadly, this is not always the priority of the current incumbents.

1.3 History of Sustainability

1.3.1 Brundtland Report

In order to understand sustainability better, we need to go back to 1980 when the challenge was to find the means to continue economic growth without undue harm to the environment.

To address the urgent needs of developing countries, the worldwide body, United Nations, saw a need to strike a better balance of human and environmental well-being. This was to be done by redefining the concepts of "economic development" in terms of "sustainable development". What this meant was a rethink of the "growth at all costs" approach in the minds of corporations who, with the blessing of governments, were determined to expand markets and sell consumer goods in order to secure a profitable and prosperous economy.

A body, the Brundtland Commission, was thus set up to help nations come to a common understanding of sustainable development so that some countries did not feel that they were being exploited at the expense of others. The Chairperson of the Commission, Gro Harlem Brundtland, a former Prime Minister of Norway was chosen due to her background in public health. The Brundtland Commission released Our Common Future, later to be known as the Brundtland Report, in October 1987. The report defined sustainable development or sustainability as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs[iv]".

In the report, it was recognised that sustainable development could not be achieved without consideration of human development such as poverty reduction, gender equity and wealth

redistribution. It also recognised that that environmental limits as well as economic limits in industrialised and industrialising societies existed.

As such, the Report offered two key concepts:

- *The concept of "needs", in particular the essential needs of the world's poor, to which overriding priority should be given; and*
- *The idea of limitations imposed by the state of technology and social organisation on the environment's ability to meet present and future needs."*

Source: Our Common Future (1987)

In June 1992, following further international discussions, 178 countries adopted Agenda 21[v] at the Earth Summit in Rio de Janeiro, Brazil. This was the first global plan of action to bring countries together in partnership for sustainable development to improve human lives and protect the environment. It was also the first time the world faced the reality that the current way of existence had to be changed in order to survive and leave something for the future. But today, despite the accumulation of scientific evidence and knowledge that we are off course and the solutions that are available, we ignore this information at our peril.

1.3.2 Tragedy of commons

To get to the heart of we do what we do i.e. human behaviour, we have to look at the Tragedy of the Commons[vi], which describes how people take advantage of resources that are freely available to them. Often, people ignore the fact that if everyone uses the resource excessively, this will lead to negative effects for everyone, including themselves.

An example would be pastureland that people use to graze their cattle. Herdsmen who operate under the Tragedy of the Commons don't consider how excessive grazing or adding additional cattle to their herd will impact other herdsmen or everyone as a whole in the long run. The more herdsman who only consider their own herd and profit, the more the pasture is run down and the more all of the herds suffer.

Source: Hardin (1968)

"The commons" therefore covers any natural resources that are not owned by an individual or corporation. Rather, these resources are available for public use such as pasture land, lumber, oil, the oceans, the atmosphere, wildlife and fish, and many other common resources.

Overfishing is a perhaps a pertinent topic. Many bodies of water including oceans, lakes, and rivers, are open to the public for fishing. This has led to many species of fish becoming endangered and many fisheries finding themselves in trouble. Increased regulations and privatisation of certain bodies of water has led to improvements in this area but the depletion of fishing stocks worldwide is already leading to disputes over marine territories.

Pollution and climate change are further examples of the Tragedy of the Commons. The atmosphere is regarded as a global resource, and if people fail to limit the amount of pollution they produce, everyone is affected by the resulting deterioration in air quality. Other problems connected to the Tragedy are deforestation, overpopulation, depletion of gas and oil reservoirs, and ground water contamination. Some examples are:

- The world burns 1.2 billion tonnes of coal per year, mostly thanks to growth in India and China. (Source: International Energy Agency)
- Each year, the world consumes 2 billion tonnes of iron ore, 33 billion tonnes of concrete, 23 million tonnes of copper and 3.4 million cubic meters of timber.
- In terms of plastics, 500 billion plastic cups, 480 billion plastic bottles, one trillion single-use plastic bags, half a billion plastic straws and 141 million tonnes of plastic packaging are used each year.
- According to the Food & Agricultural Organisation, the world consumes 115 million tonnes of pork, 68 million tonnes of beef and 108.7 million tonnes of poultry per year.
- Between 1990 and 2016, the world lost 1.3 million square km of forest, according to the World Bank.
- Nearly 90 percent of the world's marine fish stocks are now fully exploited, overexploited or depleted.

1.3.3 Millennium Development Goals

As awareness of dwindling resources increased, a series of global initiatives were undertaken at the turn of the century, led by the member states of the United Nations. The Millennium Declaration at the Millennium Summit was adopted in September 2000 at the UN Headquarters in New York giving rise to eight Millennium Development Goals[vii] (MDGs) with an aim to reduce extreme poverty by 2015.

Two years later in 2002, the Johannesburg Declaration on Sustainable Development[viii] and the Plan of Implementation, was adopted at the World Summit on Sustainable Development in South Africa, reaffirming the global community's commitments to poverty eradication and the environment, and Agenda 21 and the Millennium Declaration were strengthened by including more emphasis on multilateral partnerships.

By June 2012, at the United Nations Conference on Sustainable Development (Rio+20)[ix] in Rio de Janeiro, Brazil, member states adopted a report entitled "The Future We Want" in which a set of Sustainable Development Goals or SDGs were established to build upon the MDGs leading to the setting up of the UN High-level Political Forum on Sustainable Development. The Rio +20 conference also proposed other measures, including mandates for future programmes of work in development financing, small island developing states and more.

1.3.4 Sustainable Development Goals

So eventually in 2015, the 2030 Agenda for Sustainable Development[x] was adopted by all the United Nations Member States. There are 17 SDGs included in the Agenda aimed at ending poverty and other deprivations as well as strategies to improve health and education, reduce inequality, and spur economic growth whilst tackling global issues like climate change and preserving our oceans and forests. The SDGs build on decades of work by countries and the UN bodies such as the UN Department of Economic and Social Affairs.

Figure 1.1 The Sustainable Development Goals (Source: United Nations)

Currently, the Division for Sustainable Development Goals[xi] in the United Nations Department of Economic and Social Affairs provides support and capacity-building for the SDGs and their related thematic issues, including water, energy, climate, oceans, urbanisation, transport, science and technology. While the SDGs provide guidance for governments in how to run sustainable societies, criticism has been raised that companies find the guidelines more difficult to implement in running businesses. We look at this more closely in Chapter 6.

1.3.5 The Three Pillars of Sustainability

To help businesses better understand how sustainability works, it is worth looking in detail at the three fundamental components to sustainable development namely: environmental protection, economic growth and social equity. Sustainable development focuses on finding strategies to promote economic and social advancement in ways that avoid environmental degradation, over-exploitation or pollution.

The interdependence between these three so-called pillars is such that none can exist without the others. In developing sustainability standards and certification systems, the three pillars serve as the fundamental concepts. Essentially, a responsible approach – that businesses can adopt - needs to be taken that minimizes the negative environmental impact, while trying to maintain balance between all three pillars.

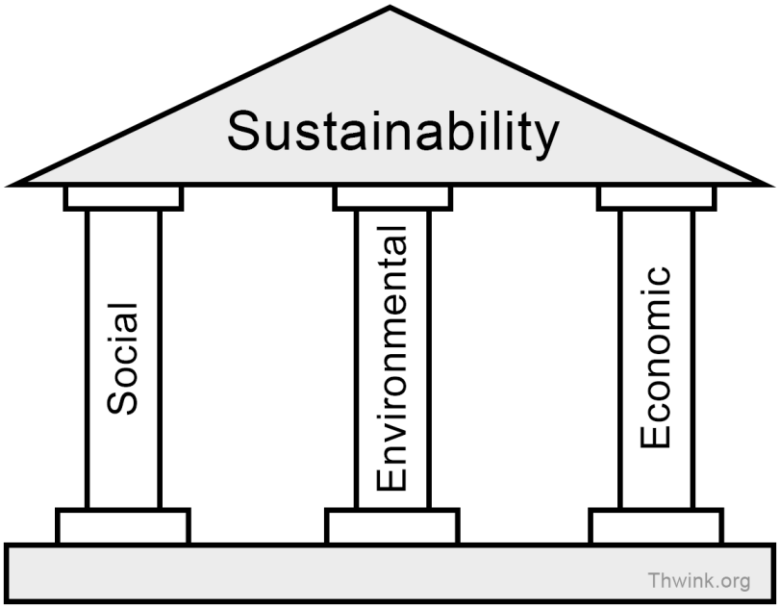


Fig. 1.2 Three Pillars of Sustainability

A sustainable approach is thus a systems-based approach that seeks to understand the interactions which exist among environmental, social, and economic pillars in order to better understand the consequences of our actions. Ideally, businesses and society should seek sustainable solutions that protect the environment, strengthen our communities and foster prosperity.

Therein lies the problem. What is considered sustainable in some societies may not be the same in others. Developing countries want to be economically prosperous to be able to lift their population out of poverty. To do so means compromising natural resources like forests and rivers. Does this make them the villains of the piece? Richer nations want rain forests so that biodiversity can be retained but are unwilling to pay for this. Where does the fault lie? And how does business fit in with all this?

To make the three pillars clearer, we should take specific examples of what the pillars represent. An excellent set of examples can be found on the Environmental Protection Agency website (www.epa.gov) *:*

Environmental measures	***Economic measures***	***Social measures***
• *Protect, sustain, and restore the health of critical natural habitats and ecosystems* • *Design chemical products and processes to: eliminate toxic hazards, reuse or recycle chemicals, and reduce total lifecycle costs.* • *Attain and maintain air-quality standards and reduce the risk from toxic air pollutants* • *Reduce exposure to contaminants in water systems and infrastructure (including protecting source waters), optimizing aging systems, and next*	• *Strengthen and maintain current and future jobs* • *Promote incentives that work with human nature to encourage sustainable practices.* • *Promote fully informed accounting and market practices to promote environmental health and social prosperity.* • *Improve understanding and quantification of ecosystem services in cost benefit analysis.* • *Positively impact costs of processes, services, and*	• *Protect health of communities over-burdened by pollution by empowering them to take action to improve their health and environment* • *Protect, sustain, and improve human health* • *Use open and transparent processes that engage relevant stakeholders* • *Enhance the education about sustainability of the general public, stakeholders, and potentially affected groups.* • *Protect, maintain, and restore access to basic resources (e.g.*

generation treatment technologies & approaches. • *Reduce effects by stressors (e.g. pollutants, greenhouse gas emissions, genetically modified organisms) to the ecosystem and vulnerable populations*	*products throughout the full lifecycle* • *Promote cost structures that reduce risk and premium for new technologies.*	*water, food, land, and energy) for current and future generations* • *Promote the development, planning, building, or modification of communities to promote sustainable living*

Figure 1.3 The Three Pillars of Sustainability (*Source: US Environmental Protection Agency)*

Each of the bullets can create barriers and opportunities for bulleted items in the other columns. Environmental improvements can affect jobs that are needed for community cohesion. But we need to look more closely at the tensions that need resolution in a more comprehensive view.

1.4 Summary

In this chapter, we learnt about the basics of sustainability:

- Sustainability or sustainable development is defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs".
- In the 1980s, the United Nations saw a need to strike a better balance of human and environmental well-being. This was to be achieved by redefining the concepts of "economic development" as the new idea of "sustainable development"
- The Tragedy of the Commons describes how people take advantage of resources that are freely available to them. Often, they don’t consider the fact that if everyone over-uses the resource, this will lead to negative effects for everyone, including themselves. Resources available for public use include public pasture land, timber, oil, the oceans, the atmosphere, wildlife and fish, and many other common resources.
- In 2015, the 2030 Agenda for Sustainable Development was adopted by all United Nations Member States. There are 17 Sustainable Development Goals (SDGs) included in the Agenda ending poverty and other deprivations as well as strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests.
- The three fundamental components to sustainable development are environmental protection, economic growth and social equity. The concept of sustainable development focuses on finding strategies to promote economic and social advancement in ways that avoid environmental degradation, over-exploitation or pollution. These three pillars are interdependent, and in the long run, none can exist without the others.
- A sustainable approach is a systems-based approach that seeks to understand the interactions which exist among environmental, social, and economic pillars in an effort to better understand the consequences of our actions. Businesses can play a key role in all of the above.

Chapter 2. How the World is Changing

2.1 Introduction

The world is changing. It is an old adage but without a doubt, our existence has brought about numerous changes in society and the environment. The human race has multiplied to become the dominant species on this planet. Our patterns of living have shifted from nomadic hunters to agrarian farmers to urban dwellers with adjustments each time to maintain our consumptive lifestyles. Technology has played a key role in our evolution in the industrial transitions from manual to automation and in advances like healing diseases to a quality of life enabled by the Internet.

But where are we heading? We know that change is inevitable but are we ready for this? In addition, has our thinking made ourselves so arrogant in our status that we have failed to recognize the threats to ourselves?

Sustainability is about future proofing what we have. But with megatrends, it is also necessary to adapt to whatever changes are occurring and to be resilient in the face of adversity. Hence, sustainability must also include preparing for the future.

In this chapter we look at some of the major changes taking place, which include:

- Urbanisation
- Population growth
- Climate change
- Technology
- Ageing populations

All of these influence companies and businesses in some way or another, and these can be regarded as challenges – or turned into opportunities.

2.2 Urbanisation

According to the United Nations, the world has been urbanizing rapidly. In 1950, only 30 per cent of the world's population lived in urban areas, this grew to 55 per cent by 2018. The global urbanisation rate differs across geographic regions with Northern America being the most urbanized region, where 82 per cent of its population reside in urban areas, whereas

Asia is approximately 50 per cent urbanised, and Africa remains mostly rural with 43 per cent of its population living in urban areas[xii].

By 2030, urban areas are projected to house 60 per cent of people globally and it is estimated that one in every three people will live in cities with at least half a million inhabitants.

> *At the turn of the century in 2000, there were 371 cities with 1 million inhabitants or more worldwide. By 2018, the number of cities with at least 1 million inhabitants had grown to 548 and in 2030, a projected 706 cities will have at least 1 million residents. Cities with more than 10 million inhabitants are often termed "megacities". Globally, the number of megacities is projected to rise from 33 in 2018 to 43 in 2030. In 2018, 48 cities had populations between 5 and 10 million. By 2030, 10 of these are projected to become megacities. A minority of people reside in megacities—529 million, representing 6.9 per cent of the world's population in 2018. Yet, as these cities increase in both size and number, they will become home to a growing share of the population. In 2030, a projected 752 million people will live in cities with at least 10 million inhabitants, representing 8.8 per cent of the global population.*
>
> *Of the world's 33 megacities—that is, cities with 10 million inhabitants or more—in 2018, 27 are located in the less developed regions or the "global South". China alone was home to 6 megacities in 2018, while India had 5.*
>
> *Source: United Nations (2018)*

Nine of the 10 cities projected to become megacities between 2018 and 2030 are located in developing countries.

The world's ten largest cities in 2018 and 2030				
City size rank	City	Population in 2018 (thousands)	City	Population in 2030 (thousands)
1	Tokyo, Japan	37 468	Delhi, India	38 939
2	Delhi, India	28 514	Tokyo, Japan	36 574
3	Shanghai, China	25 582	Shanghai, China	32 869
4	São Paulo, Brazil	21 650	Dhaka, Bangladesh	28 076
5	Ciudad de México (Mexico City), Mexico	21 581	Al-Qahirah (Cairo), Egypt	25 517
6	Al-Qahirah (Cairo), Egypt	20 076	Mumbai (Bombay), India	24 572
7	Mumbai (Bombay), India	19 980	Beijing, China	24 282
8	Beijing, China	19 618	Ciudad de México (Mexico City), Mexico	24 111
9	Dhaka, Bangladesh	19 578	São Paulo, Brazil	23 824
10	Kinki M.M.A. (Osaka), Japan	19 281	Kinshasa, Democratic Republic of the Congo	21 914

Figure 2.1 **The World's Cities in 2018 (Source: United Nations)**

Urbanisation came about as a natural evolution from rural dwellings as people found more advantages in being together in dense compact societies. Sharing of utilities, space and infrastructure favoured this development as did the pooling of resources and talent. Companies love cities as the clustering of so much economic activity offers opportunities for business.

Cities are popular for migrants as they offer a wide range of economic opportunities. Millions of city dwellers are non-native to the city itself or even to the country the city is based in. Mobility of labour has played a large role in the development of cities which has generated great successes – not just from an economic perspective - stemming from diversity. However, this can also lead to negative situations arising from discrimination and racism. In such cases, we return to the underlying question, who does prosperity benefit and are the benefits equally distributed?

As mentioned earlier, the compactness of cities is an advantage for inhabitants in terms of economies of scale, sharing of resources and mobility. But on the other hand, cities are also susceptible to disasters because of the closeness of the population and buildings sometimes leading to devastating results.

In some cities, population decline occurs in response to a natural disaster. This has been the case, for example, in New Orleans, United States, which lost populations after Hurricane Katrina in 2005, and in Sendai, Japan, following the 2011 earthquake and tsunami.

Of the 1,146 cities[xiii] with at least 500,000 inhabitants in 2018, 679 (59 per cent) were at high risk of exposure to at least one of six types of natural disaster, namely cyclones, floods, droughts, earthquakes, landslides and volcanic eruptions. Taken together, cities of 500,000 inhabitants or more facing high risk of exposure to at least one type of natural disaster were home to 1.4 billion people in 2018. One hundred and eighty-nine cities—most located along coastlines—were at high risk of exposure to two or more types of natural disaster; 26 cities—including megacities Manila, Osaka and Tokyo—faced high risk of exposure to three or more types of disaster.

Economic contraction also contributes to population decline in some places. For example, Buffalo and Detroit, both located in the United States, experienced population decline associated with the loss of industry and jobs. In most cases, however, declining or stagnating populations have been associated with persistent low fertility rates, particularly in Europe. The 52 cities with declining populations were home to 59 million people in 2018, down from more than 62 million in 2000.

An increasing sinister threat facing cities is that of pandemics[xiv]. Although cities enjoy the advantages of compactness and connectivity, these work adversely in the event of infectious diseases. The Spanish flu pandemic of 1918, the deadliest in history, infected an estimated 500 million people worldwide—about one-third of the planet's population—and killed an estimated 20 million to 50 million victims. The 1918 flu was first observed in Europe, the United States and parts of Asia before swiftly spreading around the world mostly through human movement and then subsequently affecting the populations of cities. Since 1918, there have been several other influenza pandemics, although none as deadly.

In 2003, SARS, or severe acute respiratory syndrome affected over 8,000 people in 26 countries leading to 774 deaths. Although the slow reporting of initial SARS cases helped the illness spread, globally-enforced medical practices eventually helped end the outbreak. The novel coronavirus pandemic of 2020 is spreading around the world as countries race to find a cure for COVID 19 and citizens shelter in place in an attempt to avoid spreading the disease, which is particularly deadly because many carriers are asymptomatic for days before realizing they are infected.

Both SARS and COVID 19 are suspected to have arisen from the mutation of viruses that originated from animal species. Similar postulations have been made about various H1N1 strands of viruses related to avian flu and swine fever. Sadly, this points to the encroachment of humans into new habitats as yet another consequence of urbanisation and the rise of fatal zoonotic diseases.

2.3 Population Growth

It took hundreds of thousands of years for the world population to grow to 1 billion – then in just another 200 years or so, it grew sevenfold. Mankind has become the truly dominant species on this planet thanks to technology, industrial development and science.

In 2011, the global population reached the 7 billion mark, and today, it stands at about 7.6 billion. More than three-quarters of the world's population lives in Africa (17 percent) and Asia (60 percent). The median age of the global population, that is, the age at which half the population is older and half is younger, is 30 years. 50.4 percent of the world's population is male and 49.6 percent is female.

According to the United Nations[xv] the world's population is growing by 1.10 percent per year, or approximately an additional 83 million people annually. The global population is expected to grow to around 8.5 billion in 2030, 9.7 billion in 2050, and 10.9 billion in 2100. Of this, Africa's share of the global population is projected to reach 26 percent in 2050 and could reach 40 percent by 2100.

Why is this? The growth of the world's population has been driven largely by increasing numbers of people surviving to reproductive age, and has been accompanied by major changes in fertility rates, urbanisation and migration. These trends will have far-reaching implications for generations to come.

While the developed world argues over the ethics of issues like birth control and family planning, the poor continue to experience unprecedented population growth.

> *From 2017 to 2050, it is expected that half of the world's population growth will be concentrated in just nine countries: India, Nigeria, Democratic Republic of the Congo, Pakistan, Ethiopia, the United Republic of Tanzania, the United States of America, Uganda and Indonesia (ordered by their expected*

contribution to total growth). China (1.41 billion) and India (1.34 billion) remain the two most populous countries of the world, representing 19 and 18 percent of the world's population, respectively. In 2024, both countries are expected to have roughly 1.44 billion people.

In some parts of the world, international migration due to labour movement and conflict has become a major component of population change. Between 2010 and 2020, 36 countries or areas are experiencing a net inflow of more than 200 thousand migrants; in 14 of those, the total net inflow is expected to exceed 1 million people over the decade. For several of the top receiving countries, including Jordan, Lebanon and Turkey, large increases in the number of international migrants have been driven mostly by refugee movements, in particular from Syria.

Source: United Nations (2019)

Population growth in itself is a sign of a robust society. More people means more opportunities for business. However there are repercussions on consumption of resources and living space. Much of the reason why less developed countries have higher birth rates is due to the need to survive by ensuring that the next generation will be adequate in numbers to support the preceding generation. This in turns causes burdens on food security, healthcare and education. Overpopulation furthermore exacerbates natural phenomenon like flooding and food shortages.

Recognizing this dilemma, we need to strive to balance the opportunities available to both developed and less developed economies to ensure that there is sufficient for all.

2.4 Climate Change

Climate change, the long-term shift in global or regional climate patterns, is portrayed as one of the biggest challenges the world is facing in modern times. Climate change refers specifically to the rise in global temperatures from the mid-20th century to present[xvi].

Climate is different from weather because it is measured over a long period of time, whereas weather can change from day to day, or from year to year. The climate of an area includes seasonal temperature and rainfall averages, and

wind patterns. Different places have different climates. A desert, for example, is referred to as an arid climate because little water falls, as rain or snow, during the year. Other types of climate include tropical climates, which are hot and humid, and temperate climates, which have warm summers and cooler winters.

Climate change is the long-term alteration of temperature and typical weather patterns in a place. Climate change could refer to a particular location or the planet as a whole. Climate change may cause weather patterns to be less predictable. These unexpected weather patterns can make it difficult to maintain and grow crops in regions that rely on farming because expected temperature and rainfall levels can no longer be relied on. Climate change has also been connected with other damaging weather events such as more frequent and more intense hurricanes, floods, downpours, and winter storms.

In polar regions, the warming global temperatures associated with climate change have meant ice sheets and glaciers are melting at an accelerated rate from season to season. This contributes to sea levels rising in different regions of the planet. Together with expanding ocean waters due to rising temperatures, the resulting rise in sea level has begun to damage coastlines as a result of increased flooding and erosion.

Source: National Geographic

In a science-based view of the world, the cause of current climate change is attributed mainly to human activity, like burning fossil fuels, such as gas, oil, and coal. Burning these materials releases what are called greenhouse gases into Earth's atmosphere. There, these gases trap heat from the sun's rays inside the atmosphere causing Earth's average temperature to rise. This rise in the planet's temperature is called global warming. The warming of the planet impacts local and regional climates.

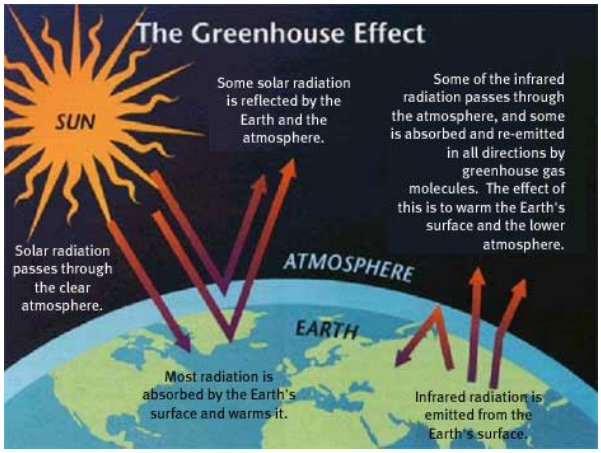


Figure 2.2 The Greenhouse Effect (Source: World Resources Centre)

Throughout Earth's history, climate has continually changed. When occurring naturally, this is a slow process that has taken place over thousands of years. Human influenced climate change however is occurring at a much faster rate due to our demands for energy.

Carbon dioxide constitutes only 3.6 percent of total greenhouse gases out of which 0.12 percent is attributed to human activities. Carbon dioxide is not the only contributing gas towards climate change. Other gases[xvii] like methane and nitrous oxide have far greater properties than carbon dioxide alone in causing global warming.

According to the Forestry and Agricultural Office, the concentration of carbon dioxide in the atmosphere over the last half century has increased by 30 percent due to burning of fossil fuels. Land use change and deforestation further contributes 25-30 percent of carbon dioxide[xviii] emissions. Over the next 20 years, global warming is expected to increase by 0.2 degree per decade[xix].

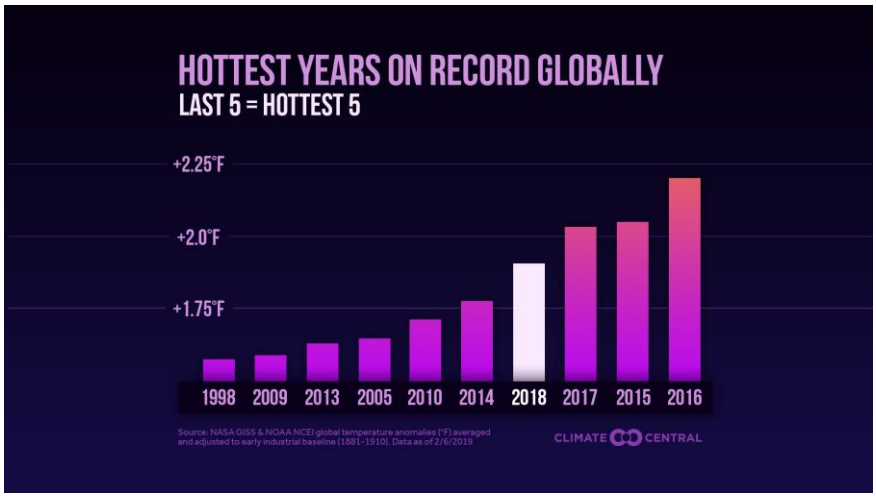


Figure 2.3 Hottest Years on Record Globally (Source: https://www.climatecentral.org/)

The rising temperatures will cause more deaths not due to natural reasons but as a result of overheating and rapid spread of deadly diseases.

Effects of climate change:

- Climate change is causing coastal and river flooding and displacement of people. Floods further cause major damages by injuring and killing people. They can further cause deadly diseases by spreading infection and vector borne diseases.
- According to a recent report by Oxfam[xx], climate change could push food prices by 50-60 percent more by 2030.
- According to the World Food Program[xxi,xxii] , weather-related disasters pushed 29 million people around the world into acute food insecurity - in essence, often chronically hungry people with little access to a dependable food supply other than through humanitarian assistance.
- Climate change affects the social and environmental determinants of health – clean air, safe drinking water, sufficient food and secure shelter. Between 2030 and 2050, climate change is expected to cause approximately 250 000 additional deaths per year, from malnutrition, malaria, diarrhoea and heat stress[xxiii].
- Due to water shortages, the transportation of water will cause it to contaminate and make it even more deadly by spreading diseases.

- In 2018, natural catastrophes, which included typhoons, cyclones, flooding, wildfires and heatwaves, caused overall losses of US$ 150bn, with insured losses of about US$ 5.2bn[xxiv].
- Businesses will be impacted either directly through damages caused to assets by severe weather or extremes, and indirectly through the impacts to supply chains, customers and communities.

Scope 1 – All Direct Emissions from the activities of an organisation or under their control. Including fuel combustion on site such as gas boilers, fleet vehicles and air-conditioning leaks.

Scope 2 – Indirect Emissions from electricity purchased and used by the organisation. Emissions are created during the production of the energy and eventually used by the organisation.

Scope 3 – All Other Indirect Emissions from activities of the organisation, occurring from sources that they do not own or control. These are usually the greatest share of the carbon footprint, covering emissions associated with business travel, procurement, waste and water.

Types of Greenhouse Gas Emissions

Yet with all this evidence, we are still - as a human race – ignoring the warnings and continuing in our profligate use of energy from fossil fuel sources. Energy is essential for our existence. But we must be circumspect in how we source it, use it and conserve it. There is a global movement across the world that is aligning to these principles at government and business levels. But the pace is slow and ponderous.

Perhaps it will take a global crisis for world leaders to really wake up to the problem.

2.5 Technology

Disruptive technologies—like the semiconductor microchip, the Internet, or steam power in the Industrial Revolution—have transformed the way we live and work, enabling new business models and providing an opening for new players to upset the established order.

Some examples include:

- The Internet of Things - networks of sensors and actuators for data collection, monitoring, decision making, and process optimisation
- Cloud technology - use of computer hardware and software resources delivered over a network or the Internet as a service.
- Increasingly capable robots with enhanced senses, dexterity and intelligence used to automate tasks or augment humans.
- Next-generation genomics - fast low-cost gene sequencing, advanced big data analytics, and synthetic biology (i.e. “writing” DNA).
- Advanced materials designed to have superior characteristics (e.g., strength, weight, conductivity) or functionality.

It is important to consider these changes in the context of the Fourth Industrial Revolution, commonly known as Industry 4.0.

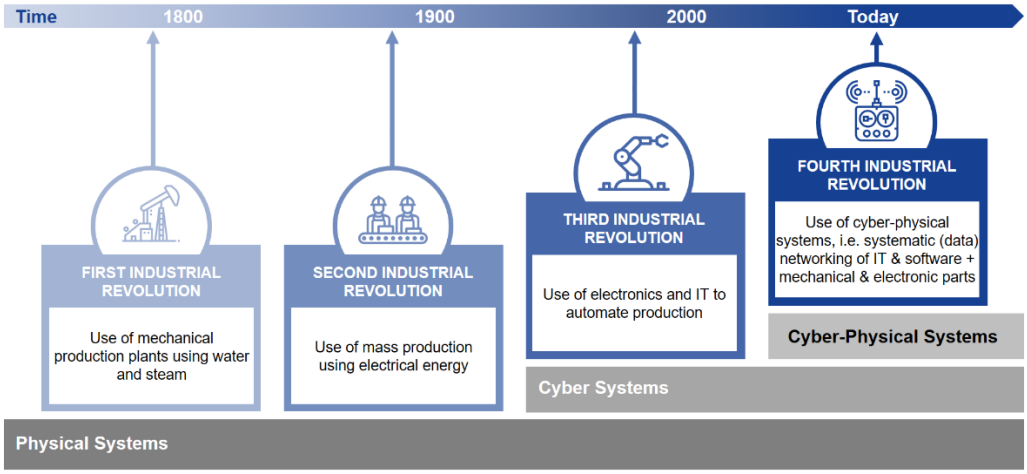


Figure 2.4 Fourth Industrial Revolution

The First Industrial Revolution is widely taken to be the shift from our reliance on animals, human effort and biomass as primary sources of energy to the use of fossil fuels and the mechanical power this enabled. The Second Industrial Revolution occurred between the end of the 19th century and the first two decades of the 20th century, and brought major breakthroughs in the form of electricity distribution, both wireless and wired communication, the synthesis of

ammonia and new forms of power generation. The Third Industrial Revolution began in the 1950s with the development of digital systems, communication and rapid advances in computing power, which have enabled new ways of generating, processing and sharing information.

The Fourth Industrial Revolution can be described as the advent of "cyber-physical systems" involving entirely new capabilities for people and machines. While these capabilities are reliant on the technologies and infrastructure of the Third Industrial Revolution, the Fourth Industrial Revolution represents entirely new ways in which technology becomes embedded within societies and even our human bodies.

Source: World Economic Forum (2016)

The roots of all four revolutions have a common core – the substitution of energy intensity for human engagement and the empowerment of those who create benefit for themselves through disruption over those who can't keep up.

By 2020, the Fourth Industrial Revolution will have brought us advanced robotics and autonomous transport, artificial intelligence and machine learning, advanced materials, biotechnology and genomics. It is said that these will transform the way we live, and the way we work. Some jobs will disappear, others will grow and jobs that don't even exist today will become commonplace. What is certain is that for businesses, the future workforce will need to align its skillset to keep pace.

According to the World Economic Forum[xxv], the nature of the change will depend very much on the industry itself. Global media and entertainment, for example, has already seen a great deal of change in the past five years. The financial services and investment sector, however, has yet to be radically transformed. Those working in sales and manufacturing will need new skills, such as technological literacy. Some advances are ahead of others. Mobile internet and cloud technology are already impacting the way we work. Artificial intelligence, 3D printing and advanced materials are still in their early stages of use, but the pace of change will be fast.

What skills will we need in the future[xxvi]?

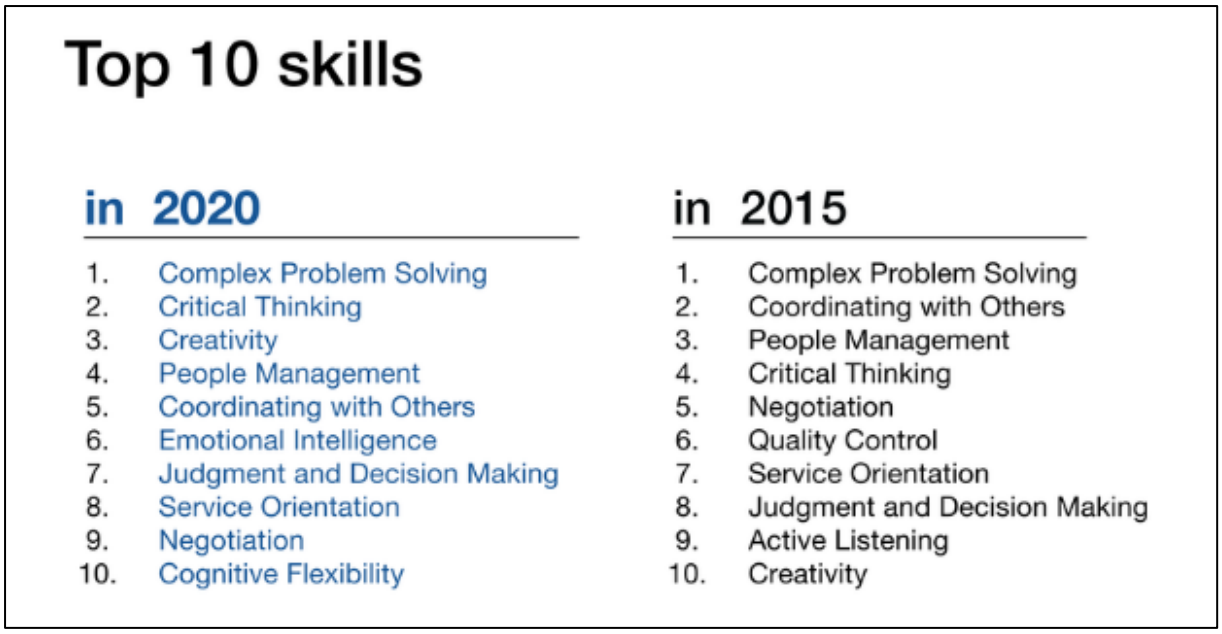


Figure 2.5 Future of Jobs (Source: World Economic Forum 2016)

From a business perspective, despite the growing trend of replacement of humans by machines, it is evident that human skills will still be necessary in the future. Creativity for example will become one of the top three skills workers will need in the future. With the avalanche of new products, new technologies and new ways of working, workers are going to have to become more creative in order to benefit from these changes.

As machines using masses of data begin to make our decisions for us using artificial intelligence, it is plausible that negotiation and flexibility will begin to decrease in importance. However emotional intelligence will still be one of the required skills as not all decisions can be made based on facts and information alone. The hope is that ethical consideration will also feature in guiding human decision making. Lastly, compassion and care, our most important human traits, can never be replaced by computers no matter what the level of machine learning developed.

2.6 Ageing Populations

Like a growing population, the successful ageing of a population should be seen as a triumph for mankind. However, this does present certain problems as the demand for proper care for that age group also increases. Currently, not only are the numbers of older persons increasing substantially, they are also living longer lives due to higher standards of living and

advancements in healthcare. Today, for the first time in history, most people can expect to live into their sixties and beyond.

> *Today, 125 million people are aged 80 years or older. By 2050, there will be almost this many (120 million) living in China alone, and 434 million people in this age group worldwide.*
>
> *Between 2015 and 2050, the proportion of the world's population over 60 years will nearly double from 12 percent to 22 percent. By 2020, the number of people aged 60 years and older will outnumber children younger than 5 years.*
>
> *By 2050, the world's population aged 60 years and older is expected to total 2 billion, up from 900 million in 2015 and 80 percent of all older people will live in low- and middle-income countries.*
>
> *Source: World Health Organisation*[xxvii]

All countries face major challenges to ensure that their health and social systems are ready to deal with this demographic shift. A longer life brings opportunities, not only for older people and their families, but also for societies as a whole. Additional years provide the chance to pursue new activities such as further education, a new career or pursuing a long-neglected passion. Older people can also contribute in many ways to their families and communities. Yet the extent of these opportunities and contributions depends heavily on one factor: health.

Common conditions in older age include hearing loss, cataracts and refractive errors, back and neck pain and osteoarthritis, chronic obstructive pulmonary disease, diabetes, depression, and dementia. Furthermore, as people age, they are more likely to experience several life changes at the same time. Beyond biological transitions, ageing is also associated with other life shifts such as retirement, relocation to more appropriate housing and the death of friends and partners. Public health approaches to contend with ageing must not only address the losses associated with older age, but also ones those that offer recovery, adaptation and social growth.

Globalisation, technological developments (e.g. in transport and communication), urbanisation, migration and changing gender norms are influencing the lives of older people

in direct and indirect ways. For example, although the number of surviving generations in a family has increased, today these generations are more likely than in the past to live separately. It is speculated that Perhaps urban design can be deployed to provide more intergenerational settings to arrest this decline of the family unit. However, it should be noted that relationships are subject to change as people age.

Health systems hence need to be better organized around older people's needs and preferences, designed to enhance older peoples' intrinsic capacity, and integrated across settings and care providers. Systems of long-term care require governance systems, infrastructure and workforce capacity, and age-friendly cities and communities for older people to live out their lives comfortably and usefully.

For businesses, an ageing population represents an ageing workforce. In itself, this is an opportunity to enrich the knowledge of the company as workers bring rich work experience and wisdom. However, the down side is that the capability of physical tasks like construction labour or manual dexterity in complex industries start to diminish with ageing. Succession planning furthermore becomes a challenge if there is no young blood for leadership replacement in the future.

2.7 Summary

In this chapter, we learnt about megatrends like urbanisation, population growth, climate change, technology and ageing populations, that are shaping our future.

- By 2030, urban areas are projected to house 60 per cent of people globally and one in every three people will live in cities with at least half a million inhabitants. Cities are places of economic opportunity and economies of scale. However, they are also vulnerable to disaster like earthquakes and pandemics because of the compactness and interdependence of public systems.
- The global population stands at about 7.6 billion. More than three-quarters of the world's population lives in Africa (17 percent) and Asia (60 percent). According to the United Nations, the world's population is growing by 1.10 percent per year, or approximately an additional 83 million people annually.
- Climate change, caused by the burning of fossil fuels and other manmade activities, affects the social and environmental determinants of health – clean air, safe drinking

water, sufficient food and secure shelter. In 2018, natural catastrophes, which included typhoons, cyclones, flooding, wildfires and heatwaves, caused overall losses of US$ 150bn, with insured losses of about US$ 5.2bn.

- The Fourth Industrial Revolution has brought us advanced robotics and autonomous transport, artificial intelligence and machine learning, advanced materials, biotechnology and genomics. These developments will transform the way we live, and the way we work. Some jobs will disappear, others will grow and jobs that don't even exist today will become commonplace.
- Although the successful ageing of a population should be seen as a triumph for mankind, it does however present certain problems as the demand for proper care for that age group also increases. Not only are the numbers of older persons increasing substantially, they are also living longer lives due to higher standards of living and advancements in healthcare. Today, for the first time in history, most people can expect to live into their sixties and beyond.

Chapter 3. The Role of Responsible Businesses

3.1 Introduction

In this chapter, we look at the role of business in society, in particular the meaning of 'responsible' businesses. In life, many of us will go on to join companies or even lead companies, it is important to acknowledge the importance of businesses and how they can contribute – or detract from – sustainability.

3.2 Purpose of Business

According to classical economic theory, the primary purpose of business is to make money. A business may sell a product or provide a service in its effort to make money for its owner or owners. As long as the proceeds of running a business exceed the costs, then a company is said to be profitable and successful. But is this sustainable? It may not be for a number of reasons.

Businesses function in different guises: a sole proprietorship operated by a single person, a partnership owned by two or more individuals or companies, or a corporation owned by thousands or even millions of shareholders. No matter the organisational structure, as stated above, profit is the ultimate goal in business. Non-profit businesses are not technically in business to turn a profit, although they attach monetary value to their desired outcome and use this when measuring their worth.

> *"There is one and only one social responsibility of business–to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition without deception or fraud."*
>
> Milton Friedman in Capitalism and Freedom (1962)[xxviii]

But does this mean that business can do what it chooses so long as it makes profits and keeps within the law?

Profit at all costs can take the line too far when human and environmental costs are involved. Businesses can go too far if left unchecked. Three examples of business going awry follow.

Minamata Bay (1956)

In 1908, the Chisso Corporation opened a chemical factory in Minamata producing about a third of Japan's total acetaldehyde production. The chemical reaction to produce acetaldehyde had a side reaction which led to the production of an organic mercury compound, methylmercury which was released into Minamata Bay from 1951 until 1968.

In 1956, people in Minamata developed convulsions and symptoms of difficulty in walking and speaking. Researchers found that the Minamata disease was caused by heavy metal poisoning entering the human body mainly through fish and shellfish.

Chisso withheld information on its industrial processes, leaving researchers to speculate what products the factory was producing and by what methods.

Following a court ruling in 1965, Chisso was ordered to make one-time payments of ¥18 million (US $66,000) for each deceased patient and from ¥16 million to ¥18 million (US $59,000 to US $66,000) for each surviving patient. The total compensation of ¥937 million (US $3.4 million) was the largest sum ever awarded by a Japanese court.

Minamata disease remains an important issue in contemporary Japanese society.

Bhopal (1984)

The Union Carbide India Limited Bhopal factory was built in 1969 to produce the pesticide carbaryl using methyl isocyanate (MIC) as an intermediate. On 2 December 1984, water was believed to have entered a side pipe and a tank which contained 42 tons of MIC that had been there since late October. The introduction of water into the tank resulted in a runaway exothermic reaction.

About 40 metric tons of MIC vaporised and escaped from the tank into the atmosphere.

The gases blown towards Bhopal killed thousands of people by the following morning. Primary causes of deaths were choking, reflexogenic circulatory collapse and pulmonary oedema. 170,000 people were treated at hospitals and temporary dispensaries, and 2,000 buffalo, goats, and other animals were collected and buried. Supplies, including food, became scarce owing to suppliers' safety fears.

Legal proceedings started immediately after the catastrophe. The Indian Government passed the Bhopal Gas Leak Act in March 1985. The following year, Union Carbide proposed a settlement figure of US $350 million. The Government refused the offer and claimed US $3.3 billion. Eventually, in an out-of-court settlement reached in February 1989, Union Carbide agreed to pay US $470 million for damages.

Exxon Valdez (1989)

The Exxon Valdez, an oil tanker owned by Exxon Shipping Company, bound for Long Beach, California struck Prince William Sound's Bligh Reef, Alaska on 24th March 1989.

According to official reports, the ship was carrying 200 million litres of crude oil of which about 40 million litres were spilled into the Sound. The oil spill covered 2,100 km of coastline and 28,000 square km of ocean.

More than 11,000 Alaska residents, along with some Exxon employees, worked throughout the region to try to restore the environment. Despite civilian insistence for a complete clean-up, only 10 percent of total oil was actually completely cleaned. Exxon was widely criticized for its slow response to cleaning up the disaster.

In 2006, an Anchorage jury ruled that Exxon should pay punitive damages of US $5 billion, later reduced to US $2.5 billion. Exxon appealed on the grounds that damages greater than US $25 million were not justified because the spill resulted from an accident, and because Exxon spent an estimated US $2 billion cleaning up the spill and US $1 billion to settle related civil and criminal charges. In December 2009, Exxon paid US $507.5 million in damages, including lawsuit costs, plus interest.

In the documentary, the Corporation[xxix], the narrative notes:

> *"The corporation's legally defined mandate is to pursue, relentlessly and without exception, its own self-interest, regardless of the often harmful consequences it might cause to others."*

Joel Bakan, The Corporation: The Pathological Pursuit of Profit and Power

Businesses haves learnt the hard way that pursuit of profit at all cost to the environment and society is not acceptable.

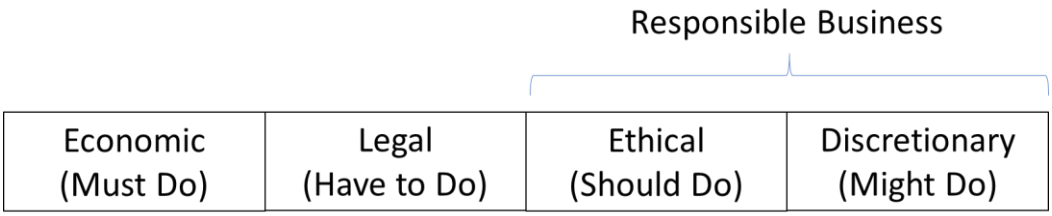
3.3 The Evolution of a Responsible Business

There are many companies that have realigned their principles to follow business strategies, in which they seek to benefit both society and the environment while still making a profit from the sale of their goods or services. This is sometimes called a "values-based" approach where values represent social and environmental concerns both locally and globally.

A responsible business can be said to be one that behaves ethically, considers the impacts of its direct and indirect actions on society and the environment and sees its future inextricably linked to the sustainability of the community and the planet. Companies embed this form of corporate responsibility into their codes of conduct, often as part of business ethics. The aim is to go beyond just compliance with regulations but to impose their own sense of responsibility towards a community or a location where the company is based.

This culture of doing right can be guided by codes of practice, but it is best exemplified by the leadership of the business.

Archie Carroll (2012) depicts this in the following schematic:



Source: Corporate Responsibility: The American Experience[xxx].

In this simple model, the responsible business has the choice of "should do" based on ethical principles or "might do" if it felt this could promote the image of the business or make employees take pride in the company. We talk more about business ethics in Chapter 3.

3.4 Triple Bottom Line

In Chapter 1, we talked about the three pillars of sustainability: society, economy and environment. Today, businesses have taken these three pillars and refer to them as the "triple bottom line" as articulated by John Elkington (1997) in his book "Cannibals with Forks: the Triple Bottom Line of 21st Century Business[xxxi]."

For companies, the triple bottom line aims to measure the financial, social, and environmental performance over time. This principle maintains that if a company focuses too much on finances alone and does not examine how it interacts socially, that company cannot see the whole picture, and thus cannot account for the full cost of doing business.

According to triple bottom line theory, companies should be working simultaneously on these three bottom lines:

- Profit: the traditional measure of corporate profit—the profit and loss account.
- People: measures how socially responsible an organisation has been throughout its operations.

- The Planet: measures how environmentally responsible a firm has been.

Figure 3.1 The Triple Bottom Line (Source: Resource Management Association)

By focusing on these three interrelated elements, triple-bottom-line reporting can be an important tool to support a firm's sustainability goals. Profits do matter in the triple bottom line—but just not at the expense of social and environmental concerns.

In practice, companies try their best to report on the triple bottom line through consideration of the environmental and social impacts of their business. But monetising these costs is difficult if not impossible at times so with all the best intentions, companies are unable to calculate their true triple bottom line. Such costs e.g. the cost of the damage caused by air pollution or the health costs of affected populations due to contaminated water are real but regarded as 'externalities' and not disclosed on the corporate balance sheet. We will look more closely at this under ESG (environmental, social and governance) reporting in chapter 5.

3.5 Creating Shared Value

We "create shared value" based on linking societal and economic progress linking the competitiveness of a company to the health of the communities around it in a mutually dependent relationship.

First coined in 2011 by Michael Porter and Mark Kramer in an article in the Harvard Business Review[xxxii], the concept of creating shared value sparked a global movement to redefine the role of business in society based on a simple but powerful idea: a company's success and social progress are interdependent. In the past, companies operated in an outdated approach

to value creation, viewing it as optimizing short-term financial performance while missing the most important customer needs and ignoring the broader influences that determine their longer-term success.

To create shared value, companies needed to realign products and markets to provide appropriate services and satisfy unmet needs. For example, the provision of low-cost cell phones develops new market opportunities as well as new services for the poor. Another example is reducing excess packing in product distribution to reduce cost and environmental degradation. Lastly, local clusters could be developed by improving the external framework that supports the company's operations, for example by upskilling suppliers.

Shared value hence involves creating economic value in a way that also creates value for society by addressing its needs and challenges.

Figure 3.2 Creating Shared Value

In theory, creating shared value is a win-win situation. Many companies recognise the merit of this approach and are attempting to shift business models accordingly. However, the real obstacle to the shred vale concept is the trust factor between the parties, which is commonly undermined by prevailing self-interests. This is unfortunate but inevitable.

There may be further benefit in shared value in that shareholders (or owners) incur greater risk if business activities do not incorporate risks for stakeholders i.e. the owners of the global commons. Much of the willingness for the private sector to think that sustainability matters

come from an asset risk management point of view. In that sense, companies don't have to become more ethical (though that is critical for the ability to recruit and retain the best workforce) but they do need to look at scenarios that evolve from unsustainable behaviours and how that affects their portfolio value and liability.

We will look further at this as part of corporate social responsibility in Chapter 5.

3.6 Summary

In this chapter, we learnt about the role of business in sustainability.

- According to classical economic theory, the primary purpose of business is to make money. A business may sell a product or provide a service in its effort to make money for its owner or owners. But does this mean that business can do what it chooses so long as it makes profits and keeps within the law?
- A responsible business can be said to be one that behaves ethically, considers the impacts of its direct and indirect actions on society and the environment and sees its future inextricably linked to the sustainability of the community and the planet. Companies embed this form of corporate responsibility into their codes of conduct, often under business ethics. The aim is to go beyond just compliance with regulations but to impose their own sense of responsibility towards a community or a location where the company is based.
- For companies, the triple bottom line aims to measure the financial, social, and environmental performance over time. The principle holds that if a company focuses on finances only and does not examine how it interacts socially, that company cannot see the whole picture, and thus cannot account for the full cost of doing business.
- Creating shared value is based on linking societal and economic progress linking the competitiveness of a company to the health of the communities around it in a mutually dependent relationship. Shared value hence involves creating economic value in a way that also creates value for society by addressing its needs and challenges.

Chapter 4. Impacts of Globalisation

4.1 Introduction

We cannot escape from globalisation as we encounter multinational brands and products every day in our lives, in addition to the fact that we most likely work for companies that have a presence in more than one country, or we know friends and relatives who do so. The scale of globalisation and the influence of business are unmistakable. In this chapter we look at globalisation and its impacts.

Whilst we acknowledge how interconnected the world has become, are we really aware of the effect globalisation is having on the environment and society? Let's have a closer look at this and how our choices can make a difference.

4.2 What is globalisation?

Globalisation is the process by which the world is becoming increasingly interconnected as a result of massively increased trade and cultural exchange. The biggest companies are no longer national firms but multinational corporations with subsidiaries in many countries. Globalisation has resulted in the increase of goods and services. worldwide

Globalisation effects include:

- Increased international trade
- Companies operating in more than one country
- Greater dependence on the global economy
- Freer movement of capital, goods, and services
- Distinguishable global brands like Starbucks, McDonalds and Nike.

The increase of free trade and communication between nations, along with access to technology, media, education, healthcare, consumer goods, and other resources are often touted as the advantages of globalisation. However, some say that there is a darker side which includes exploitation of developing countries, cultural homogenisation and negative impacts on local economies and the environment.

Globalisation has also led to a rise in expectations fed by media and advertising. One might think of companies like Amazon and Alibaba as a way for people to know what they could

have in addition to what they need and a means of efficiently connecting economic nodes through information and supply chains.

There is no doubt that globalisation is a complex issue, and while some argue that it reduces global poverty, others argue that wealth disparities worldwide are the consequences.

But for all the supporters and the critics of globalisation, one fact remains. Globalisation is not going to go away and if anything will get larger as nations seek to exploit opportunities from each other and, more importantly, as human curiosity to learn and explore prevails. Like many of the other complex subjects in this book, it depends on what path we end up taking, collaboration for better outcomes or wilful self-destruction.

4.3 Environmental Impacts

Increased consumption – which is good for business - leads to an increase in the production of goods, which in turn puts stress on the environment , which is ultimately unsustainable for all of us.

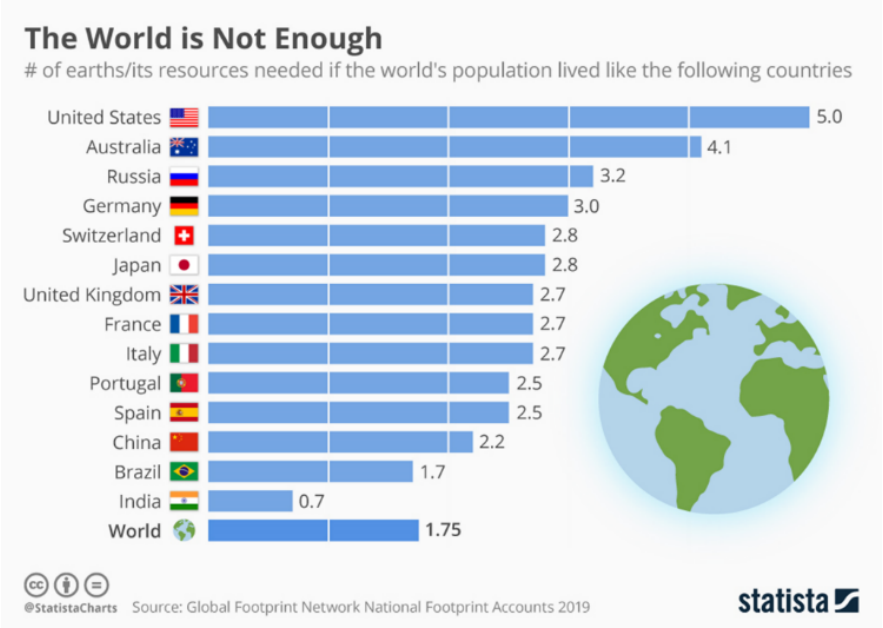


Figure 4.1 Resources needed to feed the world (Source: Statistica)

There has also been an increase in the transportation of raw materials and food from one place to another. In the past, people used to consume locally-grown food, but with globalisation, people consume products that have been produced in foreign countries. The amount of fuel that is consumed in transporting these products has led to an increase in the

pollution levels in the environment. In addition, the consequences of the introduction of boutique crops (think almonds and orchids), require a large amount of water to grow in places that were before semi-arid resulting in agriculture versus urban conflicts over water supply in a region that faces severe shortages.

We look at environmental impacts that may be directly or indirectly linked to globalisation.

4.3.1 Air Pollution

The main cause of manmade air pollution today is the combustion of fossil fuels. Products of combustion include carbon dioxide, carbon monoxide, sulphur oxides, nitrogen oxides and other trace materials, all of which have a harmful effect on human beings. Globalisation and related activities are responsible for a large degree of air pollution as businesses need energy to drive their processes as well as for transportation of goods from place to place.

The release of particulates and chemicals during manufacturing, is a further hazard. These substances combine with ozone in the air to produce smog, which causes breathing difficulties. Chemicals that are common in industrial air pollution include volatile organic compounds (VOCs), such as methane benzene, toluene, and xylene, from industrial processes and evaporation of fuel and chemicals. Another form of air pollution is the generation of particulate matter from industrial processes like construction, mining or grinding.

Other forms of air pollution occur indoors when air ventilation is poor or dirty exposing inhabitants and workers to dust and indoor chemical fumes.

4.3.2 Water Pollution

Water pollution is the contamination of water bodies, such as lakes, rivers, oceans, aquifers and groundwater, usually as a result of industrial or human activities. Water pollution results when contaminants are introduced into the natural environment. For example, releasing inadequately treated wastewater into natural water bodies can lead to degradation of aquatic ecosystems. In turn, this can lead to public health problems for people living downstream who may use the same polluted river water for drinking or bathing or irrigation.

Water pollution also comes from a wide range of chemicals and pathogens released from manmade activities. Contaminants may include organic and inorganic substances. Elevated temperatures can also lead to polluted water. A common cause of thermal pollution is the

use of water as a coolant by power plants and industrial manufacturers. Elevated water temperatures decrease oxygen levels, which can kill fish and alter food chain composition, reduce species biodiversity, and foster invasion by new thermophilic species. Pollution is the result of the cumulative effect over time. All plants and organisms living in or being exposed to polluted water bodies can be impacted. The effects can damage individual species and impact the natural biological communities they are part of.

We class inland water pollution as surface water or groundwater pollution. Marine pollution and nutrient pollution are further subsets of water pollution. Water pollution comes from either point sources or non-point sources. Point sources have one identifiable cause of the pollution, such as a storm drain or a wastewater treatment plant while non-point sources are more diffuse, such as agricultural runoff.

Water-borne diseases cause by water pollution is the leading worldwide cause of death and disease.

4.3.3 Energy Consumption

Industry uses more energy than any other end-use sector, consuming about 54 percent of the world's total delivered energy. We categorise the industrial sector by three distinct industry types: energy-intensive manufacturing, non-energy-intensive manufacturing, and non-manufacturing.

The mix and intensity of fuels consumed in the industrial sector vary across regions and countries, depending on the level and mix of economic activity and on technological development. Energy is used in the industrial sector for a wide range of purposes, such as process and assembly, steam and cogeneration, process heating and cooling, and lighting, heating, and air conditioning for buildings. Industrial sector energy consumption also includes basic chemical feedstocks. Natural gas feedstocks for example are used to produce agricultural chemicals. Natural gas liquids and petroleum products (such as naphtha) are both used for the manufacture of organic chemicals and plastics, among other uses.

In the International Energy Outlook 2019[xxxiii], worldwide industrial sector energy consumption is projected to increase by an average of 1.2 percent per year.

4.3.4 Waste

Businesses create waste in manufacturing processes. However, the general trend is to minimise waste where possible so industry aims to re-use or recycle materials during manufacturing. However, the main problem lies in post-consumer waste, where consumers are encouraged – as a factor of globalisation - to buy as many of the products as they can and the resulting obsolete products are discarded adding to the waste burden.

The objective of the "circular economy" is to link up waste as it is generated so that it can be returned back into the economy as recycled or reusable products.

> *"In a circular economy, economic activity builds and rebuilds overall system health. The concept recognises the importance of the economy needing to work effectively at all scales – for large and small businesses, for organisations and individuals, globally and locally."*
>
> *Source: Ellen MacArthur Foundation*[xxxiv]

Based on circular economy principles, businesses have an obligation to design out waste and pollution, keep products and materials in use and regenerate natural systems.

Areas where industry can improve on include:

- **Food:** Over 1/3 of all food produced globally goes to waste[xxxv], the annual value of food wasted globally is US $1 trillion, and it weighs 1.3 billion tonnes[xxxvi], and 25% of the world's fresh water supply is used to grow food that is never eaten[xxxvii]. Transportation of food waste is another problem due to the moisture content adding to the weight to be transported.
- **Plastics:** World plastic production has increased exponentially from 2.3 million tons in 1950 to 162 million in 1993 to 448 million by 2015. As of 2015, more than 6.9 billion tons of plastic waste had been generated. Around 9 percent of that was recycled, 12 percent was incinerated, and 79 percent accumulated in landfills or environment. The largest market for plastics today is packaging materials. That trash now accounts for nearly half of all plastic waste generated globally—most of it never gets recycled or incinerated. More than 40 percent of plastic is used just once, then discarded[xxxviii].

- **Chemicals**: The use of chemicals has changed our lives whether through life-saving drugs to everyday use for improvement of household chores all the way to large-scale usage of agricultural chemicals to bolster crop yield. However, if handled improperly or discharged irresponsibly, chemicals released to the environment can have a deleterious effect. Toxic chemicals can have a devastating effect on our water courses and land resources if released.

4.3.5 Loss of Biodiversity

We define biodiversity as the totality and variety of life on Earth, including genetic diversity within species, the variety among species, and the range of ecosystems within which life exists and interacts. Of the total 63,837 species globally assessed plants and animals, the International Union for Conservation of Nature (IUCN) classified 81 as extinct, 63 as extinct in the wild, 3,947 as critically endangered, 5,766 species as endangered and 10,104 as vulnerable[xxxix].

Although tens of thousands of plant species can be grown for food, just 12 crops supply 80 percent of the world's food supply[xl]. The crops that take precedence are selected for yield rather than nutrition or diversity, meaning that many beneficial crops are underutilized.

As you can see, the environmental effects that can be attributed to globalisation are massive, much of which can be attributed back to businesses. As well as the impact caused at the source of manufacturing, supply chains also play a large part in this. Once products are shipped halfway around the world, there is no incentive to bring back the used goods as the problem is no longer belonging to the source country but the recipient country. We look at the role of responsible supply chains in Chapter 6.

4.4 Social Impacts

Businesses, whether local or global, require labour. Although globalisation has created millions of jobs, there are some drawbacks.

- A majority of the 3.3 billion people employed globally in 2018 have inadequate economic security, material well-being and equality of opportunity. 2 billion workers are in informal employment. One in five young people (under 25) are not in employment, education or training, thereby compromising their future employment prospects. (Source: International Labour Organisation[xli])

- In the world's poorest countries, 1 in 4 children are engaged in child labour, the highest number of whom (29 percent) live in sub-Saharan Africa. Child labour refers to the exploitation of children through any form of work that deprives children of their childhood, interferes with their ability to attend regular school, and is mentally, physically, socially or morally harmful. (Source: UNICEF[xlii])
- There were 46 million people worldwide enslaved in 2016 in the form of human trafficking, forced labour, debt bondage, forced marriage or commercial sexual exploitation. Modern slavery is a multibillion-dollar industry with annual estimates of up to $35 billion generated.[xliii]

Fair trade was introduced in response to exploitation of developing countries by developed countries.

Fair trade is an institutional arrangement designed to help producers in developing countries achieve better trading conditions. Fair trade advocates the payment of higher prices to exporters, as well as improved social and environmental standards. The movement focuses in particular on commodities, or products which are typically exported from developing countries to developed countries, but also consumed in domestic markets (e.g. Brazil, India and Bangladesh) most notably handicrafts, coffee, cocoa, wine, sugar, fresh fruit, chocolate, flowers and gold. The movement seeks to promote greater equity in international trading partnerships through dialogue, transparency, and respect.

Examples include:

Almost half the world's coffee is produced by smallholder farmers. While initially sold at small scale, currently multinationals like Starbucks and Nestlé use fair trade coffee.

Fair trade textiles are primarily made from fair trade cotton. By 2015, almost 75,000 cotton farmers in developing countries have obtained Fairtrade certification. The minimum price that Fair trade pays allows cotton farmers to sustain and improve their livelihoods.

Labour is different for textile production than for agricultural commodities because textile production takes place in a factory, not on a farm. Children provide a source of cheap labour, and child labour is prevalent in Pakistan, India, and Nepal. Fair trade cooperatives ensure fair and safe labour practices, including disallowing child labour.

In 2014, Fair Trade USA created its Capture Fisheries Program that led to the first instance of Fair Trade fish being sold globally in 2015. The program "requires fishermen to source and trade according to standards that protect fundamental human rights, prevent forced and child labor, establish safe working conditions, regulate work hours and benefits, and enable responsible resource management."

Source World Fair Trade Organisation

4.4.1 Poverty and Inequality

According to the World Bank[xliv], the international poverty line is $1.90 a day based on 2011 prices. Just over 900 million people globally lived under this line in 2012 (based on the latest available data), and it is projected that in 2015, just over 700 million are living in extreme poverty.

The Global Multidimensional Poverty Index[xlv], developed by the U.N. Development Program, looks beyond income to measure a person's healthcare, education, and living standards to determine poverty levels. Within the categories of health, education, and living standards, there are 10 key indicators of multidimensional poverty that include nutrition, child mortality, years of schooling, school attendance, cooking fuel, sanitation, drinking water, electricity, housing, and assets. If a person is experiencing deprivation in three of more of these standards, then he or she is multidimensionally poor.

Poverty is further exacerbated by rights of land tenure; this remains a largely unresolved social problem for the poor making their own reinvestment in their communities risky.

4.4.2 Digital divide

Popularized in the 1990s, the term “digital divide” refers to the irregular and imbalanced access to information and communication technology (ICT). There are two levels of digital divide – the first-level divide refers to the unequal access that different sections of society have to technology, while the second-level divide refers to the unequal usage of such technology. The digital divide has become a tool of measurement for understanding the telecommunication infrastructure in various countries as well as the ability of individuals and businesses to optimize its opportunities. But as we see, the post-industrial world has witnessed a reinforcing of social inequalities because of the digital divide through the increasing knowledge gap between different socio-economic groups and imbalanced education rights.

4.4.3 Food security

The World Food Summit of 1996[xlvi] defined that “food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and preferences for an active life.” Food security is built on four pillars: food availability; food access; food use; and food stability. When one of these pillars is unstable or non-existent, people can live in a state of food insecurity. Up to 500 million small farms provide up to 80 percent of food for most of the developing world. An estimated 400 million smallholder farmers are undernourished. Poverty and drought are the most common causes of food shortages in the world. A recent UN report[xlvii] said climate change has already cut into the global food supply, with global crop yields beginning to decline. The report predicts that climate change will cause fish catches in some parts of the tropics to fall by as much as 60 percent.

So we can note that globalisation not only impacts the environment but has also exacerbated the divide between rich developed countries and the poorer less developed countries. Rich countries often have the infrastructure and technology to deal with environmental problems as well as welfare systems to help the underprivileged. Poor countries do not. Businesses do not help the situation when they exploit cheap labour or lax regulatory requirements in developing countries in the pursuit of profits.

It must be stressed though that globalisation in itself is not a bad thing, but if there is no governing oversight in place the distribution of benefits will remain uneven.

4.5 Summary

In this chapter we look at globalisation and its impacts.

- Globalisation is the process by which the world is becoming increasingly interconnected as a result of massively increased trade and cultural exchange. Increased free trade and communication between nations, along with increased access to technology, media, education, healthcare, consumer goods, and other resources are often considered advantages of globalisation.
- Globalisation has also led to an increase in the consumption of products. Increased consumption leads to an increase in the production of goods, which in turn puts stress on the environment. Earlier, people used to consume locally-grown food, but with globalisation, people consume products that have been developed in foreign countries. Globalisation is responsible for much of the depletion of natural resources on this planet.
- In addition, globalisation and related activities cause air pollution, water pollution, waste, energy consumption and loss of biodiversity.
- Globalisation is a complex issue, and while some argue that it reduces global poverty, others argue that it actually increases wealth inequality worldwide. Globalisation is also linked to labour exploitation, food insecurity and digital inequality.

Chapter 5. Corporate Sustainability

5.1 Introduction

In the previous chapters we looked at the concept of sustainability and how it represents a means for our existence in the future. There are many challenges to sustainability, not least the actions and behaviour of businesses and our adaptation to the changing patterns in the world.

In this chapter, we explore how corporate sustainability has become a way of how companies are responding to sustainability issues.

5.2 Principles for Corporate Responsibility

Corporate responsibility can be broadly described as a business approach that creates long-term consumer and employee value by creating a "sustainable" strategy aimed toward the natural environment and taking into consideration every dimension of how a business operates in the social, cultural, and economic environment.

5.2.1 Business Ethics

In section 3.3, we looked at Archie Carroll's model of corporate responsibility.

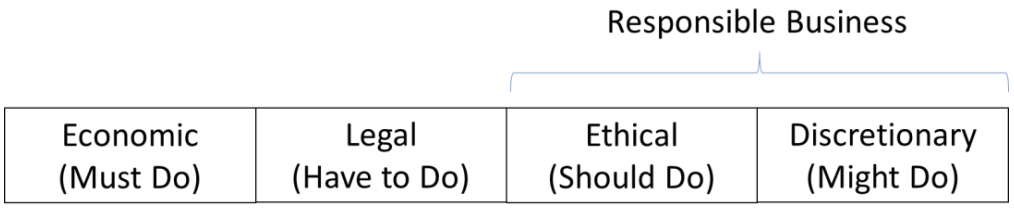


Figure 5.1 Source: Corporate Responsibility: The American Experience[xlviii].

Underpinning this model and corporate responsibility are the company's ethics and values.

In business ethics, companies refer to contemporary organisational standards, principles, sets of values and norms that govern the actions and behaviour of an individual in the business organisation. The range and quantity of business ethical issues is a reflection of how much profit-maximizing behaviour has to take non-economic concerns into account. Laws and regulations are used to control business behaviour. Laws are the written statutes, codes, and opinions of governments by which citizens, businesses, and persons present within a jurisdiction are expected to govern themselves or face legal sanction. Sanctions for violating

the law can include civil or criminal penalties, such as fines, loss of licenses, probation, imprisonment, or a combination thereof.

Ethics hence implicitly regulates areas and details of behaviour that lie beyond governmental control. Ethics applies to all aspects of business conduct and is relevant to the conduct of individuals and entire organisations. During the 1980s and 1990s, interest in business ethics accelerated dramatically both within major corporations and within academia. Today, most major corporations promote their commitment to non-economic values under headings such as ethics codes and social responsibility charters.

However, some businesses still believe that they are not bound by ethics other than abiding by the law.

> *The duty of the business leaders is to make as much money as possible while conforming to the basic rules of the society, both those embodied in the law and those embodied in ethical custom.*
>
> *Thomas Friedman*

We cannot discuss ethics without reference to 'fairness', the quality of being just, equitable, and impartial. Fairness can involve trading practices & conditions, financial contracting, sales practices, consultancy services, tax payments, internal audit, external audit and executive compensation. Often, fairness is spoken of in terms of social justice related to human capital such as workers' rights, working conditions, child labour and human trafficking. Incorporation of these considerations is increasing, as consumers and procurement officials demand evidence of a business' compliance with national and international initiatives, guidelines, and standards.

For companies, a code of ethics furthermore governs standards of professional conduct expected of all in the field. Codes are useful to force people in a company think through their mission and the important obligations they as a group and as individuals have to the company, to each other, to their clients and customers, and to society as a whole. Codes are useful for new employees at all levels to think in moral terms about their actions, and the importance of developing the virtues appropriate to their position. In addition, codes may include policies which contain specific behavioural requirements to identify the company's expectations of

workers and to offer guidance on handling some of the more common ethical problems that might arise in the course of doing business.

Without strong ethical values we find that companies easily stray into dangerous legal areas where bending and breaking the law leads to lawsuits and indictments. When citizens and governments are aggravated by irresponsible, unethical business behaviour, greater regulation and bureaucratic red tape is the result. Furthermore, investors will shun a company that is not responsible and ethical. Recent market declines have partly resulted from concerns about unethical accounting practices. In an era of virtual corporations, partnerships, and extended enterprise, no company is self-sufficient. Successful partnerships are built on trust and trustworthiness. Companies that tolerate unethical practices in today's era, will almost certainly be exposed, then boycotted and punished in the marketplace.

Benefits of ethical behaviour for companies include:

- People work best in an open, creative, ethical environment. Companies that have a poor reputation have difficulty attracting and retaining top talent.
- Customers are looking at the reputation of the company. Quality, cost, availability, and other factors are not enough to maintain customer loyalty.
- Company leaders and employees can take genuine pride in their accomplishments knowing they didn't bend rules, cut corners, or hurt people to accomplish their goals.

Acting ethically is more than a tool for achieving results. However, unless leaders are truly committed to do the right thing regardless of consequences, ethics may be seen as manipulative.

Examples of ethics transgressions in business include:

- **Finance**: creative accounting, earnings management, misleading financial analysis, insider trading, securities fraud, bribery/kickbacks and facilitation payments.
- **HR**: egalitarian workplace, the dignity of labour, collective bargaining, discrimination, workplace safety, immigration, trade policy, globalisation and trade unionism.
- **Marketing**: include marketing redundant or dangerous products/services, transparency about product risk, respect for consumer privacy and autonomy, advertising truthfulness and fairness in pricing & distribution.

- **Intellectual Property**: patent infringement, copyright infringement, trademark infringement, patent and copyright misuse, submarine patents, biological patents, patent, copyright and trademark trolling, bioprospecting, biopiracy and industrial espionage, digital rights management.

But where do we draw a line in ethics? It is said that ethics represents black and white. Research has shown though that individuals will lie if they think that the outcome is a positive one for their friends or family or for society as a whole. In another instance, acts of goodwill such as offering gifts are construed as bribery thus offending certain customs and cultures in the world. Unfortunately, sometimes the rigidity of ethical behaviour can repel good people whose concern is for human betterment rather than for the sake of following rules that disregard people's emotions and needs.

5.2.2 Corporate Governance

Corporate governance is an umbrella term that includes specific issues arising from interactions among senior management, shareholders, boards of directors and other corporate stakeholders[xlix]. As a minimum, we find that corporate governance includes:

- Upholding of shareholder rights
- Independent non-executive directors
- Role of board committees (especially audit, nomination and compensation)
- Disclosure of information from listed companies
- Institutional investors acting as check against management

For companies, as part of the governance model, directors have a fiduciary duty to the shareholders, who in turn nominate and appoint directors who are accountable for the stewardship of the company. The relationship between the directors and the shareholders is represented as a contract so that checks and balances are in place.

As part of their fiduciary duty, directors must not make a secret profit out of their position in their companies, and any conflicts of interest must be disclosed during discussion of board matters. There are different director roles involved:

- Executive Director - Member of the Board employed by company

- Associate Director - Normally title given to employees as reward for performance
- Non-Executive Director - Member of the Board not employed by company
- Shadow Director - Significant shareholder who wields power over company affairs whilst not actually being on the Board

As governed by company law[i], conforming companies must be properly incorporated, listed on a company register and must file periodic returns and financial reports. Such companies must have Articles of Association which include formal set of rules by which company is run (including voting, notice of AGM etc), which can be amended by resolution approved by company members as well as registering with regulatory authorities at time of incorporation. An annual general meeting must be convened and attended by voting equity shareholders and a statutory function must be set up to approve annual accounts, appointment of directors and confirmation of auditors. Listed companies are accountable to disclose ongoing information on a timely basis. If listed in more than one jurisdiction, the disclosure must be released identically and simultaneously. Full dissemination of information is required and must not be misleading.

5.2.3 Corruption

Corruption is the abuse of entrusted power for private gain[ii]. We classify corruption as grand, petty and political, depending on the amounts of money lost and the sector where it occurs. Corruption sadly corrodes the fabric of society. It undermines people's trust in political and economic systems, institutions and leaders. It can cost people their freedom, health, money – and sometimes their lives.

Corruption occurs at all levels but the most perfidious is within companies. In some places an agreement to behave corruptly is an essential part of gaining a "license to operate" in economic activity. This is an exceedingly difficult issue to address in many places both internationally and locally where there is not a robust rule of law. In the US for example, contract corruption – both granting and managing - is starting to form a type of competitive advantage.

The 1MDB fund: From Malaysia to Hollywood

Authorities estimate that more than US$4 billion was embezzled in what is one of the world's biggest corruption schemes, 1MDB.

In 2009, the government of Malaysia set up a development fund, 1Malaysia Development Berhad (1MDB). Chaired by the former prime minister, Najib Razak, the fund was originally meant to boost the country's economy through strategic investments. But instead, it seemed to have boosted the bank accounts of a few individuals, including the former prime minister himself, a fugitive financier and a US rapper.

Through a network of shell companies and layers of transactions, billions of dollars of development money was allegedly spent on luxury real estate in New York, paintings and gifts for celebrities, among other things.

More than US$700 million may also be held in Razak's private account, despite his claims that the money was a "donation" from a Saudi prince. Razak is currently facing charges for misappropriation of public funds.

Source: The Guardian (2019)

FIFA's football parallel universe

The indictments on 27 May 2015 of nine current and former Fédération Internationale de Football Association (FIFA) officials on charges of racketeering and money-laundering changed the sporting landscape overnight. Suddenly a system of "rampant, systemic and deep-rooted corruption" was brought starkly into global focus.

The surprising re-election of FIFA president, Sepp Blatter, who presided over a culture of impunity, exposed just how much football exists in a parallel universe without accountability. It is easy to understand why public trust in FIFA fell to an all-time low.

In 2017, Transparency International and Forza Football, a football fan opinion platform with more than 3 million subscribers, completed a survey of 25,000 fans from over 50 countries to find out what they thought. At the time, 53 per cent of fans had no confidence in FIFA and only a quarter of fans globally thought that newly re-elected president, Gianni Infantino, restored trust in FIFA.

Source: Transparency International

Myanmar's dirty jade business

Myanmar is a tragic example of how rich natural resources are often exploited by the corrupt while causing social and environmental disasters that affect ordinary people.

In 2015, a report revealed that corrupt military officials, drug lords and their cronies, had been illegally exploiting jade mines in northern Myanmar and smuggling the stones to China.

In total, more than US $31 billion in jade stones were extracted in 2014 alone – the equivalent of half of Myanmar's GDP that same year. Yet, the majority of people living in the mining regions and working in the mines did not see any of this money and as much as US$6.2 billion was lost in taxes.

At the same time, areas rich in jade have been shaken by armed conflicts, while aggressive exploitation has led to environmental damages and mining accidents that have cost hundreds of lives. Despite efforts of the Myanmar governments to reign in the illicit jade business, mining still poses a serious risk to the environment and the people living in the region.

Source: Aljazeera (2015)

Paradise Papers: where the rich & powerful hide their money

Countries lose around US$500 billion per year in corporate tax and further billions from individuals. That's enough to pay for the UN's aid budget twenty times over and bring many nations out of poverty.

In 2017, a major investigation exposed a vast, secret parallel financial universe based on a huge leak of documents from the Bermuda-based elite legal firm, Appleby. Dubbed the Paradise Papers, the investigation shed light on the widespread use of secretive tax havens by 120 politicians, royals, oligarchs and fraudsters.

The Paradise Papers shows how corporations use these havens to reduce their taxes drastically, and in some cases, commit crimes. For example, offshore secrecy put the commodities giant, Glencore, in a position to bribe the former president of the Democratic Republic of Congo, Joseph Kabila, while it negotiated for mining licenses.

The leak helped expose this and other criminal investigations, accelerated EU action against tax havens and inspired citizens around the world to demand an end to the paradise havens that make life difficult for ordinary citizens.

Source: International Consortium of Investigative Journalists

Due to its nature, the scale of corruption is impossible to measure with complete accuracy. The Corruption Perceptions Index (CPI) was established by Transparency International[lii] (1995) as a composite indicator used to measure perceptions of corruption in the public sector in different countries around the world. The calculation process incorporates a strict quality control mechanism which consists of parallel independent data collection and calculations conducted by two inhouse researchers and two independent academic advisors.

SCORE	COUNTRY/TERRITORY	RANK
87	Denmark	1
87	New Zealand	1
86	Finland	3
85	Singapore	4
85	Sweden	4
85	Switzerland	4
84	Norway	7
82	Netherlands	8
80	Germany	9
80	Luxembourg	9
78	Iceland	11
77	Australia	12
77	Austria	12
77	Canada	12
77	United Kingdom	12
76	Hong Kong	16
75	Belgium	17
74	Estonia	18
74	Ireland	18
73	Japan	20
71	United Arab Emirates	21
71	Uruguay	21
69	France	23
69	United States of America	23
68	Bhutan	25
67	Chile	26
66	Seychelles	27
65	Taiwan	28
64	Bahamas	29
62	Barbados	30
62	Portugal	30
62	Qatar	30
62	Spain	30
61	Botswana	34
60	Brunei Darussalam	35
60	Israel	35
60	Lithuania	35
60	Slovenia	35
59	Korea, South	39
59	Saint Vincent and the Grenadines	39
58	Cabo Verde	41
58	Cyprus	41
58	Poland	41
56	Costa Rica	44
56	Czech Republic	44
56	Georgia	44
56	Latvia	44
55	Dominica	48
55	Saint Lucia	48
54	Malta	50
53	Grenada	51
53	Italy	51
53	Malaysia	51
53	Rwanda	51
53	Saudi Arabia	51
52	Mauritius	56
52	Namibia	56
52	Oman	56
50	Slovakia	59
48	Cuba	60
48	Greece	60
48	Jordan	60
47	Croatia	63
46	Sao Tome and Principe	64
46	Vanuatu	64
45	Argentina	66
45	Belarus	66
45	Montenegro	66
45	Senegal	66
44	Hungary	70
44	Romania	70
44	South Africa	70
44	Suriname	70
43	Bulgaria	74
43	Jamaica	74
43	Tunisia	74
42	Armenia	77
42	Bahrain	77
42	Solomon Islands	77
41	Benin	80
41	China	80
41	Ghana	80
41	India	80
41	Morocco	80
40	Burkina Faso	85
40	Guyana	85
40	Indonesia	85
40	Kuwait	85
40	Lesotho	85
40	Trinidad and Tobago	85
39	Serbia	91
39	Turkey	91
38	Ecuador	93
38	Sri Lanka	93
38	Timor-Leste	93
37	Colombia	96
37	Ethiopia	96
37	Gambia	96
37	Tanzania	96
37	Vietnam	96
36	Bosnia and Herzegovina	101
36	Kosovo	101
36	Panama	101
36	Peru	101
36	Thailand	101
35	Albania	106
35	Algeria	106
35	Brazil	106
35	Cote d'Ivoire	106
35	Egypt	106
35	North Macedonia	106
35	Mongolia	106
34	El Salvador	113
34	Kazakhstan	113
34	Nepal	113
34	Philippines	113
34	Eswatini	113
34	Zambia	113
33	Sierra Leone	119
32	Moldova	120
32	Niger	120
32	Pakistan	120
31	Bolivia	123
31	Gabon	123
31	Malawi	123
30	Azerbaijan	126
30	Djibouti	126
30	Kyrgyzstan	126
30	Ukraine	126
29	Guinea	130
29	Laos	130
29	Maldives	130
29	Mali	130
29	Mexico	130
29	Myanmar	130
29	Togo	130
28	Dominican Republic	137
28	Kenya	137
28	Lebanon	137
28	Liberia	137
28	Mauritania	137
28	Papua New Guinea	137
28	Paraguay	137
28	Russia	137
28	Uganda	137
26	Angola	146
26	Bangladesh	146
26	Guatemala	146
26	Honduras	146
26	Iran	146
26	Mozambique	146
26	Nigeria	146
25	Cameroon	153
25	Central African Republic	153
25	Comoros	153
25	Tajikistan	153
25	Uzbekistan	153
24	Madagascar	158
24	Zimbabwe	158
23	Eritrea	160
22	Nicaragua	161
20	Cambodia	162
20	Chad	162
20	Iraq	162
19	Burundi	165
19	Congo	165
19	Turkmenistan	165
18	Democratic Republic of the Congo	168
18	Guinea Bissau	168
18	Haiti	168
18	Libya	168
17	Korea, North	172
16	Afghanistan	173
16	Equatorial Guinea	173
16	Sudan	173
16	Venezuela	173
15	Yemen	177
13	Syria	178
12	South Sudan	179
9	Somalia	180

Figure 5.2 Transparency International (Corruption Perception Index 2019)

Corruption as we can see is a destructive force in society and the economy. Corruption can be eradicated in organizations with the right governance systems and whistleblowing mechanisms so that the company is under external and internal scrutiny to behave in a proper manner. But what happens when corruption is institutional as shown in the table above? This

can be abetted by cronyism and nepotism. The result is that corrupt countries are shunned by other countries and companies avoid doing business there, unless these companies have malpractices of their own. In the end, the people suffer. Corruption is one of the many negative forces along with greed and self-interest that have gotten us into the situation we are in now.

5.3 Role of Management

How should companies respond to the challenges of corporate sustainability? Leadership and management are key. We look at the different systems and approaches in place for businesses.

5.3.1 Environmental Management Systems

Environmental impacts are the most visible effects that companies have. Having a system to manage these impacts assists managers to understand the issues, set targets and manage accordingly. Originally for manufacturing and extractive industries, environmental management systems like ISO 14001 were adopted and eventually were accepted as the universal standard for industry.

An Environmental Management System (EMS)[liii] is a framework that helps an organisation achieve its environmental goals through consistent review, evaluation, and improvement of its environmental performance. The assumption is that this consistent review and evaluation will identify opportunities for improving and implementing the environmental performance of the organisation. The EMS itself does not dictate a level of environmental performance that must be achieved; each organisation's EMS is tailored to the its own individual objectives and targets.

We can find that an EMS helps an organisation address its regulatory demands in a systematic and cost-effective manner. This proactive approach can help reduce the risk of non-compliance and improve health and safety practices for employees and the public. An EMS can also help address non-regulated issues, such as energy conservation, and can promote stronger operational control and employee stewardship. Importantly, an EMS should be integrated into financial risk management, brand risk and corporate communications.

The five main stages of an EMS, as defined by the ISO 14001 standard[liv], are described below:

- **Commitment and Policy** - Top management commits to environmental improvement and establishes the organisation's environmental policy. The policy is the foundation of the EMS.
- **Planning** - An organisation first identifies environmental aspects of its operations. Environmental aspects are those items, such as air pollutants or hazardous waste, that can have negative impacts on people and/or the environment. An organisation then determines which aspects are significant by choosing criteria considered most important by the organisation. Once significant environmental aspects are determined, an organisation sets objectives and targets. The final part of the planning stage is devising an action plan for meeting the targets which includes designating responsibilities, establishing a schedule, and outlining clearly defined steps to meet the targets.
- **Implementation** - A organisation follows through with the action plan using the necessary resources (human, financial, etc.). An important component is employee training and awareness for all employees. Other steps in the implementation stage include documentation, following operating procedures, and setting up internal and external communication lines.
- **Evaluation** - A company monitors its operations to evaluate whether targets are being met. If not, the company takes corrective action.
- **Review** - Top management reviews the results of the evaluation to see if the EMS is working. Management determines whether the original environmental policy is consistent with the organisation's values. The plan is then revised to optimize the effectiveness of the EMS. The review stage creates a loop of continuous improvement for a company.

5.3.2 Health and Safety in the Workplace

Some industries operate under dangerous conditions found in sectors like mining, oil & gas and construction sectors. Companies have an obligation to protect their employees in situations where the latter may be exposed to risk of harm. Now with the occurrence of disasters like natural typhoons, earthquakes and flooding, safety has become an imperative

that reaches out to office and commercial workplaces. Other factors to consider are terrorist attacks, fire and outbreaks of pandemics.

Much like environmental management systems, safety has its equivalents in the form of ISO 45001[lv], OHSAS 18001[lvi], the International Labour Organization's ILO-OSH Guidelines[lvii], various national standards and the ILO's international labour standards and conventions.

Workplace wellness is a further challenge for work environments that are healthy for staff. Employees are spending more and more time at work or in work-related activities. Many do not have the time to devote to health and wellness pursuits leading to work-related stress and mental impairment. Wellness programmes such as increasing employee awareness of their health factors and health topics, implementing behavioural change programs, and company policies that focus on health-related objectives are now being adopted. Benefits of workplace wellness programmes include decreased rate of absenteeism, fewer sick days, decreased amount of health/insurance claims, lower insurance costs, improvement of workers' performance and productivity and lower employee turnover rate.

A paper by McKinsey[lviii] shows that work induced stress is largely due to people feeling that they are not appreciated and that many workplace health and well-being programs are not that effective in addressing this. The report concluded that organisational health is an integral part of forward-looking leadership and tying financial incentives to accomplishing health goals to embed the right behaviours in the organisation.

5.3.3 Diversity and Inclusion

Diversity is the range of human differences, including but not limited to race, ethnicity, gender, gender identity, sexual orientation, age, social class, physical ability or attributes, religious or ethical values system, national origin, and political beliefs. Inclusion is involvement and empowerment, where the inherent worth and dignity of all people are recognized. An inclusive organisation promotes and sustains a sense of belonging; it values and practices respect for the talents, beliefs, backgrounds, and ways of living of its members.

Workplace diversity is understanding and accepting valuing differences between people including those of different races, ethnicities, genders, ages, religions, disabilities, and sexual orientations with differences in education, personalities, skill sets, experiences, and knowledge bases. Research by Deloitte[lix] finds that diversity is perceived differently by

generations. Millennials view workplace diversity as the combining of different backgrounds, experiences, and perspectives, and they believe taking advantage of these differences is what leads to innovation. Gen Xers and Boomers, on the other hand, view workplace diversity as equal and fair representation regardless of demographics without necessarily considering diversity's relationship with business results.

Diversity and inclusion best practices[lx] include fair treatment, equal access to opportunity, teamwork and collaboration, a focus on innovation and creativity, organizational flexibility, responsiveness, and agility, conflict resolution processes that are collaborative, evidence of leadership's commitment to diversity (e.g., appointing a Chief Diversity / Equality Officer), representation of diversity at all levels of the organization, representation of diversity among internal and external stakeholders and diversity education and training.

5.3.4 Stakeholder Management

We define stakeholders as groups or individuals who, not only are affected by, but can also directly affect the actions of a company. Business stakeholders are often limited to the most obvious (i.e. investors, employees, suppliers, customer, etc.) however the community in which the business operates is sometimes overlooked as a key business sustainability stakeholder.

Proactive community stakeholder engagement is important and can yield business opportunities as companies become more directly tied to the sustainability of the community in which they operate. In business and community development, solutions can be generated by partnerships between NGOs and companies. The best partnerships are based on shared interest, trust, win/win outcomes, commitments to the local community and local supplier bases. Forum for the Future[lxi] advises that successful partnerships are when community activities have strong links to a company's core business, its brands and its products/services. Outcomes are measured rather than just inputs of community-related activities and initiatives are designed to add value both to the community and to the business and they are delivered via mixed investments of time, finance, knowledge and skills.

According to Network for Business Sustainability[lxii], an important first step is considering the type of relationship the organization wishes to pursue. For example, research points to a continuum spanning various types of engagements:

- Transactional: "giving back" through community investment
- Transitional: "building bridges" through two-way communication
- Transformational: "changing society" through deep interactions with strategic community partners

5.3.5 Corporate Social Responsibility

For companies, corporate social responsibility (CSR), broadly speaking, is the act of incorporating environmental and social concerns into a company's business. The aim of [corporate] social responsibility is to contribute to sustainability whereby … "an organisation's performance in relation to the society in which it operates and to its impact on the environment has become a critical part of measuring its overall performance and its ability to continue operating effectively[lxiii]."

First coined as a term in 1953[lxiv], CSR is demonstrated by responsible companies through establishing clear standards of behaviour in the way they treat and respect their staff and other stakeholders, as well as minimizing the 'footprint' imposed on the environment by their activities. By establishing systems and procedures to manage environmental impacts, labour practices to ensure fair treatment of workers and relationships with its supply chains companies aim to deliver goods in an environmentally and socially responsible manner. As well as managing the external impacts of their business, such companies would have internal staff well-being programs looking at work life balance, career development, employee engagement and community outreach. Issues such as diversity and inclusion also fall under the remit of CSR[lxv].

Often known as 'giving back', corporate philanthropy through donating to charities is another measure associated with CSR. Charitable donations help improve a community, and the public will notice if a company is making a real effort to improve its surroundings. Such donations can also improve workplace culture with increased employee involvement and a positive general attitude. Businesses that practice philanthropy are some of the most powerful in the world. For example, Apple matches employee donations, and has donated more than $78 million to charities through 2015.

Volunteering is another way of companies giving back to communities and society. According to a study on volunteering by Deloitte[lxvi], millennials were "twice as likely to rate their

corporate culture as very positive" if their company participated in workplace volunteer activities.

Interestingly, in Europe sustainability is subsumed within the CSR paradigm – a responsible company is one that chooses to be sustainable. In other places, CSR is a function of a Sustainable Enterprise. In yet other places they idea of giving back is an outward facing function of Boards and sustainability is an inward facing function of risk management.

Getting it right

For CSR to work, you need:

- *A clear definition of what CSR means and who it is directed at.*
- *A culture of doing right. This can be guided by codes of ethics, but it is best exemplified by the leadership.*
- *Boldness to forego profits. CSR costs both in investing time and money as well as opportunity costs.*
- *Develop the right 'giving' model. What works best for one industry does not always work for another.*
- *Giving can be in the form of cash, time, materials and knowledge, but choose the right method for the most effective outcomes.*
- *Willingness to serve, accompanied by a cheerful spirit.*
- *Spreading the word, tell a great story but even better get your staff to do the telling for you.*

Source: Thomas Tang

Examples of CSR for different sectors where companies can realise business opportunities while doing good include:

- For oil & gas and mining companies, CSR means getting communities on their side and keeping stakeholders satisfied by explaining that extractive operations are for the common good and that those affected would be compensated.

- In light manufacturing industries, operations are highly labour-intensive requiring workers with good eyesight and nimble fingers. Many young women migrate from rural areas to factories for this opportunity, as this is the window in their lives when they can earn enough to save up for homes and families before they lose their dexterity.
- The banking sector has used innovative ways of applying CSR to extend their offerings by reaching into local communities and providing low cost loans and financial advice; once engaged, the likelihood of the average individual to choose a particular bank is high and will remain so for the long term. Extending free financial education to schools is also sound, whereby students will eventually become customers on graduation and they are likely to will bring their parents in at some stage.

CSR can also boost a company's stock price. A study by Harvard Business School[lxvii] looked at market data from the US and examined how sell side analysts reacted to CSR announcements by the companies they are following. The results showed that a company's CSR strategies are seen as a value creating activity, leading analysts to recommend them more often, leading to subsequent rises in their stock value. The study found that a company's communication of its CSR strategies also affects analysts' perceptions. Analysts are aware that socially responsible individuals are spread over a number of stakeholders, including regulators, investors, consumers and employees, and thereby view a stock more favourably as long as there is adequate CSR information for each of these significant stakeholder communities.

5.4 Reporting and Disclosure

Company reporting is mandatory for all listed companies. Even those which are not listed also file company accounts as a requirement of registration as a private company. The practice of producing sustainability reports is still in its early phases mainly due to its non-accounting nature which makes some issues difficult to quantify.

Sustainability reporting has a history going back to environmental reporting. The first environmental reports were published in the late 1980s by companies in the chemical industry which had serious image problems. The other group of early reporters was a group of committed small and medium-sized businesses with very advanced environmental management systems. Additionally, the tobacco industry adopted such reporting much

earlier than the rest of the corporate world, in an attempt to attract new investors at a time when ethical investing was growing in interest.

We can see that sustainability reports today contain a component of “materiality”, meaning that the report should focus mainly on those issues that are most important to the business and its shareholders. For example, a manufacturer can save electricity in two ways: by keeping restroom lights turned off when not in use, and by rescheduling production lines to be more efficient. The second method has greater materiality, because it has a far greater impact on business costs. It should therefore be reported in greater detail than the first[lxviii].

Reporting and disclosure will undoubtedly continue to grow, driven by ever-lower barriers to information access, higher public interest and regulatory changes.

5.4.1 ESG Reporting

We find that many companies’ sustainability reports take into account environmental, social, and governance (ESG) criteria based on a company’s performance on social responsibility, environmental stewardship and corporate ethics.

Environmental criteria consider how a company performs as a steward of nature. Social criteria examine how it manages relationships with employees, suppliers, customers, and the communities where it operates. Governance deals with a company’s leadership, executive pay, audits, internal controls, and shareholder rights.

ESG is becoming an increasingly popular way for socially conscious investors to evaluate companies in which they might want to invest. Threat of climate change and the depletion of resources has grown, so investors have to factor sustainability issues into their investment choices. The issues often represent externalities, such as influences on the functioning and revenues of the company that are not exclusively affected by market mechanisms. ESG criteria can also help investors avoid companies that might pose a greater financial risk due to their environmental or other practices. Concern on human rights is widening as well to include such considerations as the impact on local communities, the health and welfare of employees and a more thorough examination of a company's supply chain. Underpinning environmental and social factors is corporate governance looking into the rights and responsibilities of the management of a company through its board, shareholders and the various stakeholders in that company.

More recently, however, some investors have come to believe that environmental, social, and governance criteria have a practical purpose beyond any ethical concerns. By following ESG criteria they may be able to avoid companies whose practices could signal a risk factor which would have an effect on the companies' stock prices. No single company may pass every test in every category, so investors need to decide what is most important to them. Currently 24 international stock exchanges have made ESG reporting as a requirement for companies wishing to list on their exchanges[lxix].

There are in some instances, opportunities for less expensive borrowing by using ESG. Blue like an orange company[lxx] is an example of a group that is raising lending capital and associating availability with SDG outcomes.

5.4.2 Reporting Standards for ESG

It is important to note that performance standards are essential for companies in reporting ESG, otherwise reports would be done in isolation or worse, be falsified.

The Organisation for Economic Co-operation and Development (OECD) Guidelines for Multinational Enterprises[lxxi] provides a comprehensive international standard on responsible business. The guidelines reflect the expectation from governments to businesses on how to act responsibly. They cover all key areas of business responsibility, including human rights, labour rights, environment, bribery, consumer interests, as well as information disclosure, science and technology, competition, and taxation.

The United Nations Global Compact is based around 10 principles involving human rights, labour, anti-corruption and the environment. To follow these principles, organisations are expected to demonstrate high-level commitment and to produce an annual Communication on Progress[lxxii] - could be part of a sustainability or annual report - that outlines their efforts to operate responsibly and support society. These communications are published on the UN website.

The International Organization for Standardization (ISO) 26000, International Standard for social responsibility[lxxiii] provides guidance for all types of organization, regardless of their size or location, on integrating, implementing and promoting socially responsible behaviour throughout the organization as well as identifying and engaging with stakeholders. ISO 26000 is intended to assist organizations in contributing to sustainable development to go beyond

legal compliance. When applying ISO 26000, organizations should consider societal, environmental, legal, cultural, political and organizational diversity as well as differences in economic conditions, while being consistent with international norms of behaviour.

The Global Reporting Initiative[lxxiv] (GRI) is the best recognised reporting method that many organisations have adopted.

- Based on a set of sustainability reporting standards, the reporting process begins with the organization identifying 'material' topics to report on that reflect the organization's significant economic, environmental, and social impacts and that are important to its stakeholders.
- An organization's material topics might be related to its activities and operations. Data privacy, for instance, might be material for a telecommunications company to report on, while child labour might be material for a garment company with extensive supply chains.
- Topic-specific GRI standards are used to report on an organization's impacts in relation to its material topics, and how it manages these impacts. For instance, an organization can use the GRI standard on water and effluents to report on the impacts it has on the environment because of its water withdrawal from areas facing water stress, and how it manages these impacts.
- Universal GRI standards support the organization in identifying its material topics, and lay out important principles to use when preparing a report such as the organization's size, activities, governance, and stakeholder engagement.

Other standards include:

- The EU[lxxv] has set up guidelines on the types of ESG indicators companies should be following including energy efficiency, GHG emissions, staff turnover, training & qualification, maturity of workforce, absenteeism rate, litigation risks, corruption and revenues from new products. Sector specific indicators are also applied.
- The Sustainability Accounting Standards Board or SASB has developed a complete set of 77 industry standards to enable businesses around the world to identify, manage and communicate financially-material sustainability information to their investors. In 2018[lxxvi], SASB published these standards, providing a complete set of globally

applicable industry-specific standards which identify the minimal set of financially material sustainability topics and their associated metrics for the typical company in an industry. SASB also provides an engagement guide for investors to consider questions to discuss with companies regarding financially material issues as well as an implementation guide for companies which explains issues and approaches to consider when implementing SASB standards.

- AccountAbility's AA1000 Series of Standards[lxxvii] are principles-based Standards and Frameworks used by a broad spectrum of organizations – global businesses, private enterprises, governments and civil societies – to demonstrate leadership and performance in accountability, responsibility and sustainability. Impact is also included to support results-based management and accountability. The standards are aligned with other sustainability-related frameworks and standards.

As can be seen, ESG reporting is becoming widespread as more and more companies are embracing the idea not just to be open and transparent on their performance but also to attract investment and talent who want to invest in or work for a reputable company. However, again, like many such activities, there is the potential for cheating or 'greenwash' or just to do the bare minimum to secure funds and investment. If that is the case then the commitment to improve is sadly absent. External verification is important to make sure that the company is doing what it says but even that has its shortcomings as independent consultants or other parties can only verify what the company is prepared to give them. Reaching out to stakeholders may provide an alternative view and is to be encouraged.

In addition, companies tend to be at the tip of the iceberg of a network of supply chains that meets the company's needs. Often the truth lies hidden in the water where most of the damage is done through suppliers that use forced labour or embark on many environmentally damaging activities to deliver their products. In reading ESG reports and the like, it is incumbent on the reader to get to the untold stories behind the report to truly understand a company's ESG commitment.

5.5 Summary

In this chapter, we explore how corporate sustainability has become a means of how companies are responding to sustainability issues.

- Ethics implicitly regulates areas and details of behaviour that lie beyond governmental control. Ethics thus applies to all aspects of business conduct and is relevant to the conduct of individuals and entire organisations.
- Corporate governance is how companies address specific issues arising from interactions among senior management, shareholders, boards of directors and other corporate stakeholders.
- Corruption is the abuse of entrusted power for private gain.
- The role of management is to identify and avoid damage to the company through management systems, protecting workers, maintaining diverse workforces and managing stakeholders.
- Corporate social responsibility is the act of incorporating environmental and social concerns into a company's business.
- Disclosure in the form of sustainability reports take into account environmental, social, and governance (ESG) criteria based on a company's performance on social responsibility, environmental stewardship and corporate ethics.

Chapter 6. Responsible Best Practices

6.1 Introduction

Companies engage in many business practices from manufacturing to sourcing to distribution, all of which have impacts on the environment and society. Because of the wide spectrum of activities, it is difficult to come up with universal best practices for responsible business as the nature of each activity can be quite different in terms of its effects, stakeholders and context.

In this Chapter we look at some of the tools and best practices that are applied today.

6.2 Value Chain Analysis

Back in Chapter 1, we encountered the Sustainable Development Goals or SDGs. One model derived from the SDGs that we can apply to companies is the SDG Compass's value chain analysis[lxxviii], which looks at a business from the supply base and inbound logistics, across production and operations, to the distribution, use and end-of-life of products as the starting point for assessing impact and defining priorities. Companies are encouraged to start this impact assessment by doing a high-level mapping of their value chain to identify areas with high likelihood of either negative or positive impacts on the issues that the SDGs represent. Due consideration should be given to both current impacts and the likelihood of future ones.

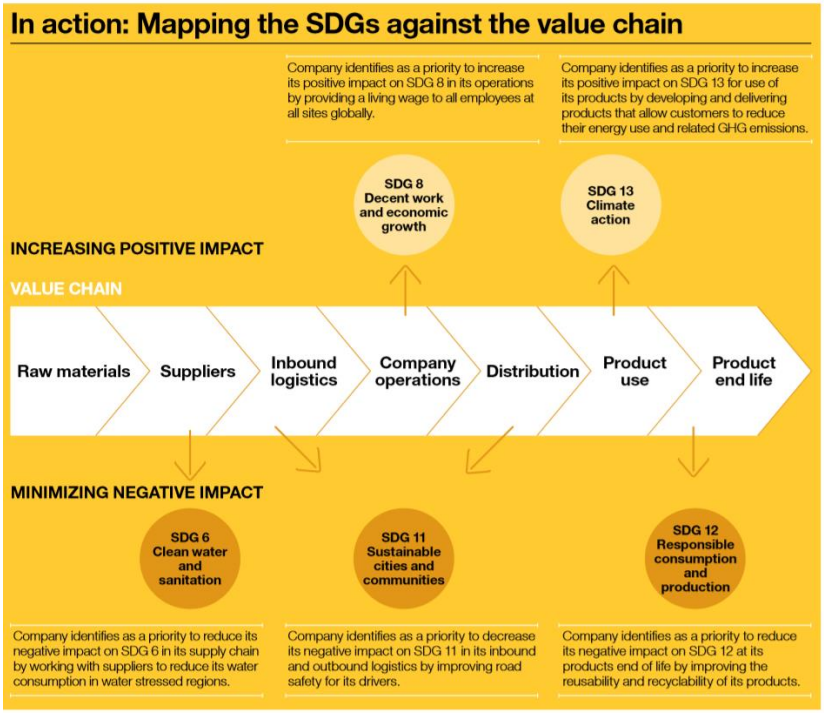


Figure 6.1 SDG Compass Value Chain Analysis

6.2.1 B-Corporations

B Corporation certification is a private certification issued to for-profit companies by B Lab[lxxix], a global non-profit organization. To be granted certification, companies must receive a minimum score on an online assessment for "social and environmental performance", and satisfy the requirement that the company incorporates B Lab commitments to stakeholders into company reports or other governing documents. Companies must re-certify every three years to retain their B Corporation status.

The B Corporation Declaration of Interdependence

We envision a global economy that uses business as a force for good.

This economy is comprised of a new type of corporation - the B Corporation - which is purpose-driven and creates benefit for all stakeholders, not just shareholders.

As B Corporations and leaders of this emerging economy, we believe:

- *That we must be the change we seek in the world.*
- *That all business ought to be conducted as if people and place mattered.*
- *That, through their products, practices, and profits, businesses should aspire to do no harm and benefit all.*
- *To do so requires that we act with the understanding that we are each dependent upon another and thus responsible for each other and future generations.*

Source: B Lab (2014)

6.2.2 Green Buildings

According to the World Green Building Council[lxxx], a 'green' building is "a building that, in its design, construction or operation, reduces or eliminates negative impacts, and can create positive impacts, on our climate and natural environment."

There are a number of features we can incorporate to make a building 'green'. These include:

- Efficient use of energy, water and other resources

- Use of renewable energy, such as solar energy
- Pollution and waste reduction measures, and the enabling of re-use and recycling
- Good indoor environmental air quality
- Use of materials that are non-toxic, ethical and sustainable
- Consideration of the environment in design, construction and operation
- Consideration of the quality of life of occupants in design, construction and operation
- A design that enables adaptation to a changing environment

Green building certification is common for building owners to display commitment to social and environmental performance of their assets. Leadership in Energy and Environmental Design (LEED) has been developed by the US Green Building Council and used worldwide and includes a set of rating systems for the design, construction, operation, and maintenance of green buildings, homes, and neighbourhoods to help building owners and operators be environmentally responsible and use resources efficiently. Many national organisations also have their own local green building certification systems.

However, research is still lacking on the collective cost/benefit of green building standards although there are clearly definable benefits on carbon emissions. But human health is largely overlooked and cynics sometime note that it is odd that buildings that are is inaccessible by public transportation can still receive Gold Awards. Often companies are accused of using green awards like LEED as a 'tick in the box' solution with no real meaning or purpose behind the effort.

In response to the health factor mentioned earlier, the International WELL Building Institute set up the WELL Building Standard[lxxxi] to focus on how buildings, interior spaces and communities could incorporate features that support and advance human health and wellness. With a people-focus, the WELL standard combines the environmental criteria of green buildings with scientific and medical research and literature on environmental health, behavioural factors, health outcomes and demographic risk factors that affect health.

The Global Real Estate Sustainability Benchmark[lxxxii] or GRESB is the ESG benchmark for real estate and infrastructure assets established by investors, notably large pension funds, who wanted to access comparable and reliable data on the ESG performance of their investments. GRESB is currently used by more than 100 institutional and financial investors to make

investment decisions. GRESB assessments hence are based on what investors and the industry consider to be material issues in the sustainability performance of real estate asset investments and are aligned with international reporting frameworks. Participants receive reports on where they stand against their peers, a roadmap with the actions they can take to improve their ESG performance and a communication platform to engage with investors. A further benefit is that GRESB avoids the costs of green certification.

6.2.3 Product Responsibility

In business, it is the duty of producers to ensure that their products meet the expectations of consumers and not injure or harm them. Product liability refers to a producer or seller being held liable for placing a defective product into the hands of a consumer. Responsibility for a product defect that causes injury lies with all sellers of the product who are in the distribution chain.

A current trend is for the producer to take responsibility for the entire life-cycle of the product and for the take-back, recycling and final disposal. Known as producer responsibility, this is now used to decrease the product's impacts by embedding sustainability, without compromising performance, into every aspect of the product throughout its lifecycle including its ingredient responsibility, human health and environmental impact.

The Sanlu Tainted Milk Scandal

> *In April 2004, there were reports that hundreds of babies in China, mostly from poor families, were suffering from malnutrition as they had been fed on fake or inferior quality baby formula. In December 2007, the customer service department of Sanlu Milk Company received complaints from consumers that some babies had fallen ill after being fed with the baby formula made by the company. However, the customer service department did not report these complaints to their top executives until May 2008. On June 30, 2008, Sanlu received complaints that children from the Hebei province had developed kidney stones after being fed with its baby formula.*
>
> *On September 12, 2008, the Hebei provincial government ordered Sanlu to stop production after preliminary investigation confirmed that melamine*

contaminated baby formula was the reason for kidney stones among children. The company was also ordered to stop sales of all brands of its baby formula, recall its products, and destroy all the products that were unsold and recalled. It was alleged that from August to September 2008, Sanlu had produced 904 tonnes of baby formula and sold 813 tonnes, earning US$6.9 million.

Top executives of Sanlu were arrested. Government officials who were found guilty were also sacked. China's dairy industry announced that the affected children and their families would get compensation from the responsible dairy firms. As a result of this scandal, many countries like Hong Kong, Taiwan, Singapore, South Korea, Australia, and Indonesia banned Chinese dairy products.

Several foreign companies which sold China made products or products which used Chinese ingredients recalled their products. The scandal severely affected the reputation of China as one of the leading food products exporting country.

Source: Time Magazine[lxxxiii]

6.3 Responsible Sourcing

We find that companies that practice responsible sourcing meet their needs for goods, services, utilities and works not on a private cost–benefit analysis, but with a view to maximizing net benefits for themselves and the wider world. Responsible sourcing thus involves looking beyond short-term needs and considering the longer-term impacts of each purchase.

In responsible sourcing, we see that purchasing reflects broader goals linked to resource efficiency, climate change, social responsibility and economic resilience, and a higher degree of collaboration and engagement is fostered between all parties in a supply chain.

Examples of responsible sourcing

Managing supply chains

Walmart is committed to promoting the dignity of men and women in our supply chains. We collaborate across industries and organizations around the world to help combat forced and underage labour, address unsafe working conditions, and promote the dignity of women.

To this end, we monitor for and investigate issues in the supply chain, embed responsible sourcing practices into buying decisions, and engage in initiatives to find root cause solutions that can transform entire supply chains.

We are one actor among many, but together – with our suppliers, other companies, governments and non-profit organizations – we can drive responsibility in our supply chain, and to lead and inspire others to do the same.

Source: Walmart

Supplier code

In order to ensure that supply chain accountability standards are cascaded throughout our supply chain, we expect suppliers to consistently monitor and enforce these standards in their own operations and supply chain, as well as make improvements to meet or exceed our expectations and those of our customers as reflected in our Supplier Code.

Suppliers are required to disclose any subcontractors or labour agents upon request. They are also expected to hold their subcontractors, and labour agents to the standards and practices covered by our Supplier Code.

Suppliers with subcontracted production are required to work with their subcontractors to adopt and raise awareness of this Supplier Code. We

recognize that suppliers in deeper tiers of the supply chain and suppliers in informal sectors may take more time to align with these standards.

We are committed to working with suppliers to help them understand our policies. While we expect these suppliers to meet all applicable aspects of the Supplier Code, the size and structure of the suppliers (e.g., family farms, smallholders, homeworkers), will be taken into consideration when implementing these requirements.

Source: Amazon

Care and respect for the people, planet and oceans

Nestle staff sources with care and respect for the people, planet and oceans where materials and services are produced.

Tier 1 Suppliers apply good labour standards in recruiting, compensating, and caring about their workforce. Preserving natural resources and conducting business in an ethical and collaborative way is ensured.

Intermediaries operate with the same principles of value, transparency and respect as their suppliers and clients, nurturing traceability and preserving information.

Origins, farmers and fishers, continuously improve their ways of working in:

- *Optimizing yield through conservative agriculture, preservation of soil biome and rationalization of agrochemical inputs,*
- *Caring and respecting the workforce, animals, land, water and forests that they work with.*

Supply Chain Tiers work in compliance with applicable regulations, continuously monitor, disclose, and improve against the Standard

Source: Nestle

6.4 Sustainable Finance

We define sustainable finance as any form of financial service integrating environmental, social and governance (ESG) criteria into the business or investment decisions for the lasting benefit of both clients and society at large. A sustainable financial centre is a financial marketplace that, as a whole, contributes to sustainable development and value creation in economic, environmental and social terms. Hence for companies, especially those that do not produce tangible products, the use of sustainable finance is more appropriate in how their investment decisions can be taken.

Activities that fall under the heading of sustainable finance, to name just a few, include responsible investment, sustainable funds, green bonds, impact investing, microfinance, active ownership, credits for sustainable projects and development of the whole financial system in a more sustainable way.

6.4.1 Responsible Investment

Based on the belief that addressing ESG issues will protect and enhance portfolio returns, responsible investment is rapidly becoming a mainstream concern within the institutional industry. In 2008, a study by Oxford University[lxxxiv] concluded that there was a relationship between social responsibility and financial performance. The evidence towards such a relationship is becoming greater and the combination of fiduciary duty and a wide recognition of the necessity of the sustainability of investments in the long term has meant that environmental social and corporate governance concerns are now becoming increasingly important in the investment market.

By late 2016, over a third of institutional investors based in Europe and Asia-Pacific said that ESG considerations played a major or primary role in refusing to commit to a private equity fund, while the same is true for a fifth of North American institutional investors. In reaction to investor interest in ESG, private equity and other industry trade associations have developed a number of ESG best practices, including a due diligence questionnaire for private fund managers and other asset managers to use before investing in a portfolio company.

We now find that there are many companies that now track ESG performance of companies such as FTSE 4 Good, MSCI ESG Index and Dow Jones Sustainability Index.

Principles for Responsible Investment[lxxxv] (PRI) is a global organisation that encourages and supports the uptake of responsible investment practices in the investment industry. Companies can join the organisation by signing up and committing to incorporating ESG issues into investment analysis and decision-making processes as well as ownership policies and practices. Signatories to the principles are mainly pension funds, sovereign wealth funds, foundations, endowments, insurance and reinsurance companies and other financial institutions that manage deposits.

6.4.2 Impact Investment

Other companies are exploring niche markets like impact investments or investments made with the intention to generate positive, measurable social and environmental impact alongside a financial return. Impact investments can be made in both emerging and developed markets, and target a range of returns from below market to market rate, depending on investors' strategic goals.

The growing impact investment market provides capital to address sectors such as sustainable agriculture, renewable energy, conservation, microfinance, and affordable and accessible basic services including housing, healthcare, and education. Venture philanthropy[lxxxvi] is a type of impact investment that takes concepts and techniques from venture capital finance and business management and applies them to achieving philanthropic goals.

Investments are intended to generate a measurable social and environmental impact alongside a financial return. Many investors are entering the impact investing market for the following reasons:

- **Investment opportunities:** Banks, pension funds, financial advisors, and wealth managers can offer opportunities to both individuals and institutions with an interest in general or specific social and/or environmental causes.
- **Leveraging assets:** Institutional and family foundations can leverage their assets to advance their social and environmental goals, while maintaining or growing their overall endowment.
- **Evidence-based impact:** Government investors and development finance institutions can provide evidence of financial viability for private-sector investors while targeting specific social and environmental goals.

According to the Global Impact Investing Network (GIIN), some investors intentionally invest for below-market-rate returns, in line with their strategic objectives. Others pursue market-competitive and market-beating returns, sometimes required by fiduciary responsibility. Around 69 percent of investors surveyed in GIIN's 2019 Annual Impact Investor Survey[lxxxvii] pursue competitive, market-rate returns.

6.4.3 Microfinance

We refer to microfinance as a category of financial services targeting individuals and small businesses who lack access to conventional banking and related services. Microfinance thus includes microcredit, the provision of small loans to poor clients; savings and checking accounts; microinsurance; and payment systems, among other branches. Microfinance services are designed to reach excluded customers, usually poorer population segments, possibly socially marginalized, or geographically more isolated, and to help them become self-sufficient. Often, this is an untapped business opportunity that offers win-win outcomes for all parties.

Microfinance includes a range of financial tools (loans, savings, money transfers, etc.) provided by microfinance institutions and designed for people who do not have access to the traditional banking system. Microcredit covers to small loans from a microfinance institution granted to lower income entrepreneurs in developing and emerging market countries. These loans contribute to the development of local economies and therewith contribute to creating jobs and reducing poverty.

Use of Blockchain to help the Poor

The application of blockchain technology in supply chains is growing due to the transparency and accuracy of the tool in data tracking and monitoring transactions between multiple parties. Blockchain is also relevant in empowering disadvantaged communities, especially in societies seeking social fairness and access.

The poor are typically disconnected from banking and credit facilities. In less developed countries, people may not even have any form of documentation, which means that they cannot prove their identity or title to property, and

cannot access basic services. Blockchain offers the means to use digital tokens for the poor to pay their bills or to secure microloans to buy goods. Blockchain's decentralized nature assists microfinance institutions in removing the need for middlemen. The use of blockchain furthermore helps people in trusting each other rather than centralized institutions to obtain loans. With blockchain microfinance, small businesses can access loans by having a digital identity with efficient payment of loans through contracts based on appropriate terms and conditions specified for repayment.

Impact Oxygen Protocol, a Hong Kong-based organization has created a platform for communities to build their own capacity in financial and data literacy instead of having to turn to external aid or intervention. This enables communities to foster local informal economies through social finance solutions that are linked to impact measurement and consensus-based outcomes. The ultimate goal is to allow communities to form their own development finance organization (either as centralized or decentralized or a hybrid), according to local economic situations or cultural values that have their own unique systems of trust.

In partnership with Bolavan Farms, a sustainable agriculture social enterprise in Laos, and GrainPro, a low-tech seed storage solution company, Impact Oxygen is piloting a Decentralized Seed Bank with 20 plus village cooperatives to tokenize seeds in storage for financing. Although most farmers practice seed storage in their village communal spaces, they have been unable to leverage these seeds as valuable collateral for financing. With blockchain, building on existing practices of seed storage in the villages, the farmers have been able to turn the 'banked seeds' into tokens for financing.

Source: Fourth Leap[lxxxviii]

6.4.4 Green Bonds

A green bond is a type of fixed-income instrument used by companies that is specifically earmarked to raise money for climate and environmental projects. These bonds are typically

asset-linked and backed by the issuing entity's balance sheet, so they usually carry the same credit rating as their issuers' other debt obligations. Most green bonds are plain vanilla treasury-style retail bonds (with a fixed rate of interest and redeemable in full on maturity).

If raised by authorities, it is common for green bonds to come with tax incentives such as tax exemption and tax credits, making them a more attractive investment compared to a comparable taxable bond. These tax advantages provide a monetary incentive to tackle prominent social issues such as climate change and a movement to renewable sources of energy. To qualify for green bond status, they are often verified by a third party such as the Climate Bond Standard Board[lxxxix], which certifies that the bond will fund projects that include benefits to the environment.

For investment in green bonds to take off, both asset managers and their principals must be able to identify the bonds that actually have environmental or climate-related benefits. There are global initiatives such as the Task Force on Climate-Related Financial Disclosures (TCFD)[xc] to make environmental information readily available as well as the ICMA Green Bond Principles[xci] which provide "voluntary process guidelines" that outline general criteria that most certification schemes follow. The Principles provide prospective issuers with guidance on the key components of green bond issuance, namely: the use of proceeds for environmentally sustainable activities; a process for determining project eligibility; management of the proceeds in a transparent fashion that can be tracked and verified; and annual reporting on the use of proceeds.

The Equator Principles

The Equator Principles are a risk management framework, adopted by financial institutions, for determining, assessing and managing environmental and social risk in projects and is primarily intended to provide a minimum standard for due diligence and monitoring to support responsible risk decision-making.

The Principles are applied globally, to all industry sectors and to four financial products

- *Project Finance Advisory Services*

- *Project Finance*
- *Project-Related Corporate Loans*
- *Bridge Loans.*

Currently there are 94 Equator Principles Financial Institutions (EPFIs) in 37 countries that have officially adopted the Equator Principles, covering the majority of international project finance debt within developed and emerging markets.

EPFIs are committed to implementing the Equator Principles in their internal environmental and social policies, procedures and standards for financing projects and will not provide Project Finance or Project-Related Corporate Loans to projects where the client will not, or is unable to, comply with the principles.

Source: *The Equator Principles*

We can see that there are many pathways to change organizational behaviour in companies from examination of value chains to sustainable finance, all of which poke at the heart of businesses. It is thus important that taking on this challenge, companies are committed as it is easy to give up halfway through when the expected results are not forthcoming. This brings into call leadership and motivated followers who can see the true value of sustainability not just in cosmetic effects in the company operations but digging deep into the company's values and culture. Shareholders and investors must be patient too, as change is often not fast and tangible outcomes not immediate. The essence of becoming a responsible company, apart for the factors noted above, is courage.

6.5 Summary

In this chapter, we explore how best practices can be employed in sustainability.

- Value chain analysis looks at a business from the supply base and inbound logistics, across production and operations, to the distribution, use and end-of-life of products.

- As we spend the majority of our time in the built environment, buildings, interior spaces and communities need to be designed to support and advance human health and wellness as well as environmental performance.
- GRESB is the ESG benchmark for real estate and infrastructure assets established by investors, notably large pension funds, who wanted to have access to comparable and reliable ESG data on their investments.
- It is the duty of producers to ensure that their products meet the expectations of consumers and not injure or harm them. This is producer responsibility.
- Responsible sourcing involves looking beyond short-term needs and considering the longer-term impacts of each purchase. In responsible sourcing, purchasing reflects broader goals linked to resource efficiency, climate change, social responsibility and economic resilience, and a higher degree of collaboration and engagement is fostered between all parties in a supply chain.
- Sustainable finance refers to any form of financial service integrating ESG criteria into the business or investment decisions for the lasting benefit of both clients and society at large.

Chapter 7. Sustainability and Innovation

7.1 Introduction

In this chapter we explore the concept of innovation. What is innovation and why is it so important? Innovation sometimes referred to as the "process of creating value from ideas". The idea may be new, often it is the application of an old idea to a new problem that is the creative part comes from. Innovation is not an accident, as some people think, it is the result of applied creativity and can actually be learned and developed. We look at how innovation works initially and then how we can achieve sustainability in business using creativity and innovation, and the opportunities that this brings.

7.2 How Innovation Works in Practice

Openness to new experiences strongly correlates with innovation. There are several rational and unconscious processes that enable us to incubate ideas so we need to be open to new information which challenges our insights.

We define creativity as the use of imagination or original ideas to create something and this is closely linked to innovation. We all possess creativity to some degree but we do not always have the opportunity to release it. However, there are ways of harnessing creativity to come up with innovative ideas.

7.2.1 Redefining Problems

Associating is a powerful driver; often it is not about having to come up with new ideas but associating tried solutions that have been successful in the past to new and more challenging issues. But the challenge is how find these problems which are ill-defined and complex. Hence it is worth spending time on the reframing of such problems in order to obtain higher quality creativity. Redefining a problem may sometimes be about seeing things that others do not notice.

Some guidelines for redefining problems according to Goller and Beasant[xcii] include:

- Developing useful strategies through imagined problems that might emerge in the future
- Creating a 'safe' space within which people can explore potential problems through scenario thinking

- Generating possible ideas about the nature of the problem and its dimensions and then testing them out through exploring and elaborating.

It is true that getting the questions right first is imperative, coupled with an understanding that the essence of science is to challenge tradition. How do we frame questions in ways that allow progress in the face of challenging tradition? Trying to be certain is expected of most but we know today that we need to constantly scan the knowledge horizon for the new. The companies that have first mover advantage when things change will be successful.

7.2.2 Who are the Innovators?

Innovators are opportunists who can take advantage of ideas and fit them to problems. We refer to them as 'boundary spanners' i.e. they span across different areas of interest like industry sectors or stakeholder groups to realise the potential of discoveries in one area to meet the needs of another.

More often than not, innovators are the users of the innovation developed. This is perfectly understandable as they have a high incentive to get the results that suit them best. Other advantages include:

- Willingness to experiment through prototyping and problem exploring
- Tolerance of failure
- Openness to sharing and improving ideas with others
- Ability to build co-creation communities

As stated in the last point above, user-led innovation often involves a community which creates and uses innovative solutions on a continuing basis. Public sector applications of this idea are growing as citizens act as user-innovators for the services which they consume.

Crowdsourcing is a common form of seeking ideas from communities through an open call to a large network to provide voluntary input or to perform some function.

7.2.3 Effective Teams

Innovation is rarely a solo act. Teams can be agents of extraordinary achievements by combining their different skills and talents into something more than the sum of the parts.

Teams with a high task orientation and one which involves challenging themselves towards excellence perform best. It is important to note that it is not necessarily happy teams that are

successful, rather it is the internal struggles and their constructive resolution which matters; teams with a high score on harmonic social contacts are rarely able to produce great outcomes, because the tendency is to agree with one another all the time.

Effective teams try to strike a balance between group effects which act towards conformity (groupthink, consensus, etc.) and conflict where too much diversity and minority views may end up dividing the team.

7.2.4 Psychological Safety

We use the term psychological safety for a group that shares the belief that it is safe for interpersonal risk taking and that the team will not embarrass, reject, or punish someone for speaking up. This confidence stems from mutual respect and trust among team members. We can see that trust is a belief about the other person, psychological safety on the other hand is a group norm belief. Information exchange is the basic process of psychological safety and trust is a core element in creating psychological safety but they are conceptually quite distinct from one another.

We find that psychological safety works best when the group shares a common vision and support one another in refining and improving on ideas with constructive challenges when decision-making. For this to be effective, individuals must have a shared commitment to excel and find the best way of working together which enable this. Good leadership helps support this.

Furthermore, “room” for introverts or those less competitive to get their ideas out into the mix to express themselves is vital. This group is most likely to be the ones thinking because they are not competing to talk.

7.2.5 Design Thinking

Design thinking is an extension of how innovation is based on the needs of the user. In design thinking, we can see that innovation is developed best in teams; group processes are vital to conduct the iterations for a successful innovation.

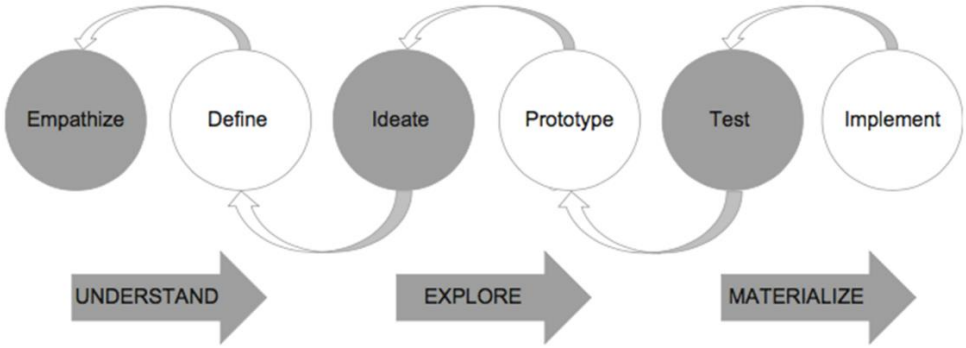


Figure 7.1 Design Thinking Model (Source: IDEO)

Design thinking comprises:

- **Empathy** - understanding how people behave in a situation and what their experiences are to a problem in their context
- **Definition** - redefining the problem in different ways through root cause analysis, process mapping and levels of abstract thinking to get to a successful outcome at the end
- **Ideation** – brainstorming, allowing for challenge and debate, building on group competences and maximising the range of experience and domain expertise through diversity within the group
- **Prototyping** – working with half-formed ideas and 'boundary objects' to allow for learning and further possibilities
- **Testing** - rapid cycles of experimentation to test the hypothesis and learning through build-test-refine-loops
- **Implementation** - putting the idea into practice to allow for refinement and improvement and identifying other dimensions of the problem to spread the innovation.

7.2.6 Frugal Innovation

Innovation does not have to be elaborate but can be simple as well as sustainable. Shortage of resources often leads to ingenious solutions and simplicity allows widespread diffusion. The underlying principle of frugal innovation is to simplify products and services so that they can meet widespread needs and not be wasteful

We see therefore that frugal conditions force a clear and challenging goal around which teams can focus their problem-solving efforts. Some of the most inspiring ideas emerge from contexts which seem to close off mainstream ways of solving problems to force thinking in new directions

Core principles of the frugal approach are:

- Simplify
- Focus on value – avoid overshoot, avoid waste
- Don't reinvent the wheel – adopt, adapt, reuse, recombine
- Think horizontally – open up the innovation process, with more minds on the job
- Platform thinking – build a simple frugal core and then add modules
- Continuous improvement

Crises stimulate innovation and crisis conditions are clearly a strong negative motivator. When disaster strikes, we need innovation fast as mainstream solutions are often blocked and there is a need for radical alternatives and improvisation. Crisis-driven innovation is characterized by a radical rethink of solution approaches, potentially opening up new directions for innovation, greater user participation in configuring solutions and rapid prototyping and diffusion.

These types of innovation are a combination of urgency, configuration of appropriate solutions by engaged users, and resource backing from major aid agencies to drive adoption to scale. Examples could be: easily assembled emergency shelters using lightweight durable materials, 3-D printing to make essential parts, simple low-cost hygiene products, novel healthcare solutions, cash-based options to give people resources, 'instant' banking to provide money to buy food supplies, and crisis mapping, and emergency communications to reunite displaced persons.

All of these concepts can be applied to business. Equally, aspects of sustainability can be incorporated. We see how in the following section.

7.3 Applications to Sustainability

7.3.1 Rationale

In the first chapter we spoke of the "Tragedy of the Commons" and how business as usual meant that companies as well as humans were utilising resources beyond the means of the planet to replenish resources. In time, disaster looms as we will gradually run out. Our current pattern of thinking cannot sustain ourselves hence innovation is becoming necessary for sustainability.

The main reasons for innovation are:

- The scale of problems is increasing caused by mankind's voracious appetite for resources
- Previously unregulated practices and products are now subject to new controls and legislation
- Past activities have caused legacies of pollution and contamination that now have to be cleaned up
- New problems are arising due to changes in society (e.g. ageing populations) and environment (e.g. renewable energy to replace fossil fuels)
- Dependence on eco-systems whereby failure in one will lead to catastrophic disaster in others
- The way that we live is placing increased demand for different lifestyle solutions (like urban mobility and smart buildings)
- A growing clamour from current generations of stakeholders for businesses to take a more responsible stance in sustainable practices and not just striving for profits all the time
- As the frequency of disasters caused by man-made activities increases, there is a growing need to manage risk and to build resilience in the communities we live in.

There are numerous examples of innovation to meet sustainability purposes. We have selected the following based on:

- The potential to be a game changer
- Interconnected solutions

- Boldness and leadership
- Sustainability

7.3.2 Circular Economy

The opposite of a linear economy is a 'circular' economy whereby materials are re-used or recycled back into mainstream processes and applications. A good example of this the photocopying industry. Companies that produce photocopiers are designing their equipment to be reusable after parts wear out by having easily removable parts (like toners) and keeping the shell. Design for Environment (DfE)[xciii] is the basic principle behind this. Many companies are looking at ways of reusing used materials through post-consumer collection systems and more cost-effective ways of incorporating secondary materials instead of raw materials in production.

However due to the current comparatively low cost of raw materials, the economics of this production method are unattractive and reversing the supply chain is not viable due to the involvement of too many players in the chain who are not coordinated. This may change over time however and, in the meantime, novel solutions like leasing products - so that there is a vested interest from the manufacturer of the products concerned in maintenance - may help the circular economy.

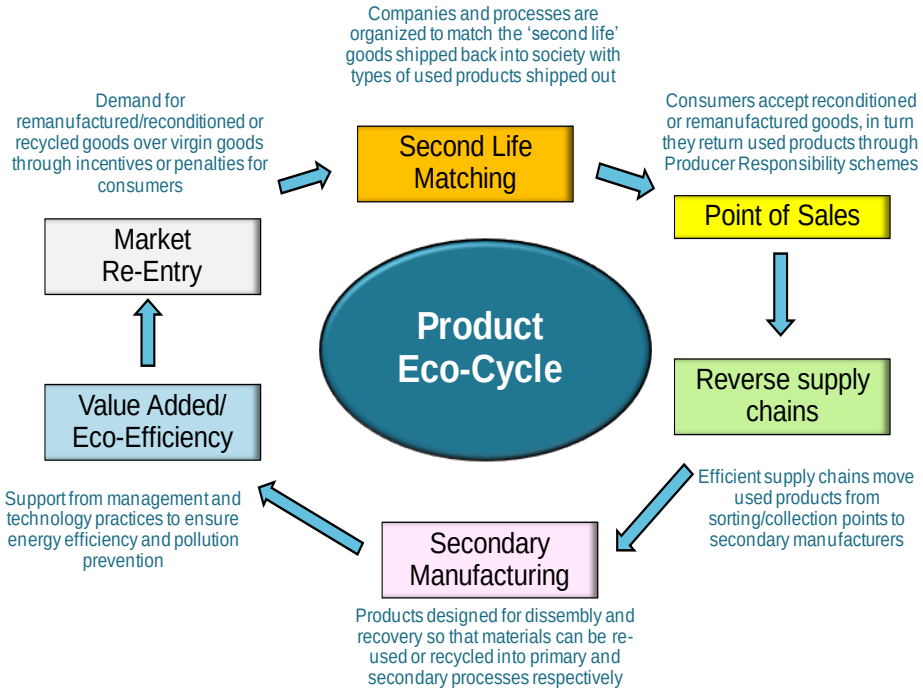


Figure 7.2 The Circular Economy (Source: Tang 2016)

Companies also must take ownership of this issue – in the form of Producer Responsibility[xciv] – but not many are keen to do so right now.

7.3.3 Solar Home Systems

Technologies in developing countries are "leapfrogging" generations to deliver solutions at a rapid pace. A good example is the telecommunications sector. In many less advanced economies, infrastructure has gone digital instead of building physical assets like telephone exchanges and fixed lines and consumers are relying on mobile services.

This leapfrogging has led to solutions like digital currency and blockchain (explained in Chapter 6) and connecting this mechanism of payment to solar leasing.

Solar home systems[xcv] are leased systems whereby entire systems from the solar panels to household appliances like lighting and refrigerators are provided to households or neighbourhoods at affordable rates payable online. With the advancement of energy storage facilities to retain the energy produced in the daytime, this has become a burgeoning market to service those living in poor economies but with plentiful access to sunlight. This has the added advantage not only of cheap renewable energy but also the avoidance of having to build new power stations or expand existing ones together with grid connections and transmission and distribution systems.

7.3.4 Urban Mobility

Connectivity in urban cities is vital for trade and communities to connect. However, urban density on roads leads to more traffic congestion – which is incredibly wasteful both in resources and productivity losses - and is the cause of deteriorating air quality from vehicle emissions. The solutions for urban mobility have been plenty ranging from public transport systems to more bicycles to electric vehicles.

Electric vehicles (EVs) is the one that has captured the imagination. EVs rely on charged batteries to propel the vehicle. Although the technology has been available since the 1950s, it is only recently that companies like Tesla have made EVs fashionable and not just for environmental reasons. The power for EVs still comes from power stations, most of which are fossil-fuel based, however once on the road EVs are zero emission. Alternatives to fossil fuels have been proposed such as putting hydrogen fuel cells[xcvi] on individual vehicles so that energy can be produced by the chemical combining of hydrogen and oxygen.

The more interesting proposition is to use a smart grid for the vehicles to charge from. A smart grid[xcvii] is a grid that is able to transmit electricity from power sources to users and, if users have surplus electricity, back into the grid to other users. The current challenge for smart grids is to ensure that enough electricity is produced and used as the energy cannot be stored. The aim is to put electricity to use for EVs where it could be stored in the vehicle batteries and - when the vehicle was not in use – put back into the grid for others to use. In theory this should be possible; in practice issues with connections and working out scheduling programmes of when to take out and when to put in energy into the grid still remain a challenge.

7.3.5 Biomimicry

Biomimicry is the multi-disciplinary innovation practice of learning from and emulating solutions found in nature to solve human design challenges. Species have evolved over millennia to survive in their local environment. Those that didn't adapt and evolve have gone extinct. Thus, the species and systems we find today can provide examples of proven long-term solutions. By applying the lessons learned - the design principles - to our own designs, we can begin to create solutions that are better adapted to life on this planet.

In biomimicry we also look at the deepest patterns found across all species that define the rulebook for sustainable and resilient living on Earth, such as using life-friendly chemistry, materials and energy efficiency, and adapting to changing conditions. We use these deep patterns both as an additional innovation tool during brainstorming and as an evaluation tool throughout the design process. Use of these deep patterns helps to engage a design team in systems thinking to understand and improve upon the broader impact of a design.

In cities, when looking to biomimicry in systems, architects are rethinking how buildings can mimic the upper canopy's impact on slowing down precipitation and evaporation rates to contribute to sustaining local water cycles. Other examples include the application of swarm intelligence to design logistics software to determine the most efficient delivery routes, prevent collisions and improve traffic signal timing, and use of the algorithms of slime mould in choosing the best paths from point A to point B to design highway systems.

7.3.6 Modern Agriculture

The Green Revolution in the late 1960s increased agricultural production worldwide through the adoption of new technologies, such as high-yielding varieties of crops in association with

chemical fertilizers and pesticides and new methods of cultivation, including mechanisation. The dangers of using chemicals which result in contamination of water bodies has spurred more innovative ways of increasing production using technology in crop raising. Better crop monitoring through the use of drones and GPS coordinates has increased the efficiency in how to irrigate and apply specific treatment rather than just wastefully spraying crops. Smart tractors for instance can share information with each other. When multiple machines are working a field, they communicate by telling other tractors exactly where they've already applied water or fertilizer.

Modern farms are still subject to the unpredictable nature of weather. However, using algorithms can turn weather data into more sophisticated and better localised forecasts. Rain, humidity, wind, and temperature can be more accurately measured using models and simulations to influence farming decisions.

As land resources become more valuable, finding new ways of producing crops in urban settings will be necessary. Already we are seeing urban farms on rooftops and vertical structures. In time, these will become the norm with buildings able to grow enough crops and vegetables for their own needs. These will be supplied with fertiliser generated from the organic waste produced by the inhabitants of the building and watered through rainwater and water recycling systems, also incorporated within the building.

7.3.7 Healthcare

As populations age, we will be seeing advances in healthcare to extend the quality of lives as people get older and, at the same time, technology to assist the less able as they become frail. Robotics are being used to carry out some of the physical tasks of care givers and telemedicine is a fast-emerging field for the aged. The challenge will be to get the elderly familiar with the technology as well as reconfiguring homes for the future whereby living spaces will most likely have to be designed to cater for inhabitants as they progress through different life phases to remain active as they age.

There is a lot of interesting work taking place in distributed nursing so that one professional can monitor more people at a distance. Smart refrigerators are designed to send alerts if medications are being consumed and with IT/AI this will be more powerful and have a direct effect on how healthcare and nursing home industries will need to adapt.

Drug technology furthermore will be enhanced by studies of genome science, but equally strains of genes from wild species of plants found in diverse setting like rainforests will be sources of new medicines. This presents a strong case for conservation of biodiversity, which is possible provided we do not wantonly clear natural forests to plant mono-species crops. A study of the economics of biodiversity[xcviii] has estimated that about US$2-5 trillion-worth of biodiversity value is lost each year as a result of public ignorance on this subject.

7.3.8 Advanced Materials

Advanced materials refer to all new materials and modifications to existing materials to obtain superior performance in one or more characteristics that are critical for the application under consideration. The development of advanced materials can lead to the design of completely new products. Examples include ceramics, glass, metals, composites, semiconductors and polymers.

Another type of advanced materials are composites, a combination of polymer matrix resin and fibre reinforcement such as glass, carbon, Kevlar, aramid or other reinforcing material. Composites are lightweight, have high strength (can be designed to be stronger than aluminium or steel), design flexibility (can be moulded into complicated shapes more easily than most other materials) and are corrosion resistant.

Examples in sustainability include:

- Lightweight materials that can be used for vehicles and aeroplanes to reduce the quantity of fuel needed to power transportation.
- Durable and resilient building materials to be used in walls, roofs and floors that are energy efficient and reusable
- Coatings that confer properties on glass to automatically regulate the temperature and light in buildings
- Others types of coatings on walls that have catalytic properties to breakdown pollutants in the air
- Bio-materials that are degradable over time that can be used to replace plastics
- Application of nano-materials in hydrogen storage and the development of efficient hydrogen-powered vehicles, enhanced and cheaper photovoltaics or solar power

technology, the development of new batteries and supercapacitors and fuel efficiency.

7.3.9 Appropriate Technologies

The concept of appropriate technology was promoted by EF Schumacher[xcix] from the 1950's. The term is used to describe a technology to address the needs of developing areas, and as a socially and environmentally acceptable technology in industrialised nations. An important distinction of appropriate technologies is that it refers to tools and technology that are significantly more effective than traditional methods, but still an order of magnitude cheaper than developed world technology. Such items are generally within the means of poor people, and can lead to greater productivity with minimal social dislocation. This technology can also be built and serviced largely using locally available materials and knowledge, with minimal input from outside, to be conducive to decentralization, compatible with ecology, efficient in its use of scarce resources, and designed to serve humans where machines may not be available.

Some examples of appropriate technologies include:

- Solar powered phone chargers that entrepreneurs can use to sell cheap electricity to people living in remote villagers
- Drinking straws that have micro-filters that can clean lake or river water so that the water is potable
- Solar cookers that use concave mirrors to focus solar rays to heat up pots or other food containers
- Self-adjustable spectacles that can correct vision
- "Hippo roller" is a barrel container used as a roller and equipped with pushing handles for transporting water
- "Light in a bottle[c]" is a simple technique using a plastic bottle filled with water mounted in the roof of a room or enclosure that has no lighting or windows. Daylight enters the room via the bottle and the water refracts the light to diffuse across the space lighting up the interior.
- Concrete mix is poured into discarded individual plastic bottles so that when the concrete sets, these bottles can be used as bricks for constructing houses

- Prosthetics made from basic materials making them much cheaper and affordable than artificial limbs made from expensive metallic materials

Many of these technologies are aimed at consumers who live in poorer areas in the world where affordability is key. These people are sometimes described as those living at the "bottom of the pyramid", i.e. the poorest two-thirds of the economic human pyramid, a group of more than four billion people living in abject poverty. More broadly, the bottom of the pyramid refers to a market-based model of economic development that promises to simultaneously alleviate widespread poverty while providing growth and profits for multinational corporations[ci].

7.4 Summary

- Innovation sometimes referred to as the "process of creating value from ideas". The idea may be new, often it is the application of an old idea to a new problem that is the creative part comes from.
- Openness to new experiences strongly correlates with innovation. There are several rational and unconscious processes that enable us to incubate ideas so we need to be open to new information which challenges our insight.
- Innovators are opportunists who can take advantage of ideas and fit them to problems. Often innovators are 'boundary spanners' i.e. they span across different areas of interest like industry sectors or stakeholder groups to realise the potential of discoveries in one area to meet the needs of another.
- Innovation is rarely a solo act. Teams can be agents of extraordinary performance by melding their different skills and talents into something more than the sum of the parts. Psychological safety is a term for a group that shares the belief that it is safe for interpersonal risk taking and that the team will not embarrass, reject, or punish someone for speaking up.
- Design thinking is an extension of how innovation is based on the needs of the user. In design thinking, innovation is developed best in teams; group processes are vital to conduct the iterations for a successful innovation.
- Our current pattern of thinking cannot sustain ourselves hence innovation is becoming necessary for sustainability.

- For innovation to meet sustainability purposes, some of the criteria include: the potential to be a game changer; interconnected solutions; boldness and leadership; and sustainability over time.
- There are a number of areas where innovation is a means of addressing problems that traditional means cannot such as appropriate technologies, biomimicry, advanced materials, circular economy, telemedicine and urban mobility.

Chapter 8. Sustainability and Education

8.1 Introduction

In this chapter we look at how education plays a role in sustainability. Education helps us to act responsibly based on the understanding that what we do today can have implications on the lives of people and the planet in future.

8.2 Educating the Young

We find that understanding how young children learn enables us adapt our teaching to meet their needs more effectively[cii]. Young children learn holistically, which means they learn from everything all at the same time. They are also good at connecting one experience with something else seemingly unrelated and form a link which builds context and meaning. Teaching young children about sustainability is best done hence at an early age.

Children learn best through active learning i.e. doing; play is the best way of offering them these hands-on experiences. Whether reconstructing real situations or building imaginary worlds, children develop their thinking, language, imagination, speaking and listening skills through creative play.

They also learn a huge amount through their senses which become finely tuned long before they may have mastered speaking or reasoning skills. Hence children need lots of opportunities to explore the objects and materials around them with all of their senses to help them construct and test theories, make decisions, overcome challenges, foster empathy, build resilience and solve problems for themselves so that they can become independent and confident individuals.

We know that families are children's first educators and, as such, children's home experiences and the natural predispositions that they are born with play an important part in what and how they learn. As a result, education programmes for the young on sustainability need to take into account the context, the actions and the people involved. An effective early learning environment encompasses a diversity of experiences to stimulate and nurture children's curiosity in the world.

In addition, designing a learning strategy includes fostering children's capacity to value and respect the broader environment and appreciate the interdependence between people,

plants, animals and the land. This helps involve them in sustainable practices already existing in the community and connecting with the local indigenous community that support a deeper connection to the land. This can be applied to families as well. Most recycling habits, for example, started with education that children would bring home to their parents, thus changing purchasing habits and home disposal behaviours

Example projects include:

- Creating edible gardens for sharing and/or cooking produce
- Implementing an energy saving policy including heating, cooling, lights, appliances
- Practising green cleaning
- Being active citizens for sustainability in local community projects
- Collecting natural materials for play ethically, only taking a few and using respectfully
- Installing a solar hot water system
- Reusing and repurposing materials for play
- Creating a second-hand children's book or clothing exchange for families
- Using forest-friendly paper products
- Avoiding disposable, single use items
- Investigating local indigenous environmental knowledge
- Implementing a sustainable purchasing policy including local products and minimised packaging

Interview of a young person.

"*So, as a young person, tell us what does 'sustainability' mean to you?*"

> *Sustainability is such a broad area as it includes almost everything like biodiversity, air, water, conservation and so on. My definition of sustainability though is being able to preserve what you have now. It's about intergenerational equity so that our grandchildren can experience what we experience.*
>
> *I think the main issue facing us is having to grow up in a city landscape. There has been a huge shift in development where forests have been replaced by concrete jungles. They say you should be able to get acclimatised to this but I*

disagree. We should not just accept the loss in natural resources and put up with issues like traffic and others. But the thing is that people used to living in cities don't notice these problems, however those living outside cities tend to be more aware. We all have to be alert to the challenges caused by urbanization.

We live in a period of technology advancement so anything that reduces carbon emissions or improves on green performance is welcomed. This may come as a surprise to you but I think young people, who many assume are accustomed to new technology, are actually quite technology detached. Urban dwellers obviously are more exposed but there is still a digital divide within rural populations. We need to overcome this divide to really enable innovation to make us more sustainable.

I am a strong believer in public systems and I also support any infrastructure that encourages more pedestrianisation and cycling. We are far too reliant on cars and we must make the conscious break from this if we are to be sustainable. I know many environmentalists are critical of infrastructure as they believe this defaces the cityscape and encourages more pollution, but infrastructure is ok provided it follows the principles of sustainable development. Green buildings, green roofs and upcycling are all part of sustainable infrastructure. Green cities can exist, provided we apply integrated design. We cannot run away from concrete jungles but we can adapt by preserving urban green spaces and applying proper planning to land use.

Talking as a young person involved in community work, I think we should work bottom up if we are looking for sustainable growth. One area is to work with schoolchildren. There are lots of opportunities to be hands-on with them and educate them to be future responsible citizens. Another important group is social enterprises. They are very aware of the social and environmental issues caused by urbanization and they know how to turn them into business opportunities.

At a personal level, I believe we should adopt good and sustainable behaviours. For instance, I bring my own coffee flask when I buy coffee. This has saved

numerous paper cups and reduced waste. Such small actions can have a butterfly effect and lead to bigger impacts down the line if everyone followed suit.

Source: Interview with an 18-year old (*Source: KL Centre for Sustainable Innovation*)

8.3 Education for Sustainable Development

The United Nations Educational, Scientific and Cultural Organization's (UNESCO)[ciii] has a goal to "improve access to quality education on sustainable development at all levels and in all social contexts, to transform society by reorienting education and help people develop knowledge, skills, values and behaviours needed for sustainable development." Sustainability issues, such as climate change and biodiversity, are embedded into teaching and learning so that individuals can be motivated to resolve challenges, respect cultural diversity and contribute to creating a more sustainable world.

UNESCO is responsible for the coordination of the Global Action Programme on education for sustainable development (ESD), incorporating many important aspects including access, relevance, equity and inclusivity. As such, ESD is more than teaching knowledge and principles related to sustainability, it is education for social transformation with the goal of creating more sustainable societies.

ESD intentionally touches every aspect of education including planning, policy development, programme implementation, finance, curricula, teaching, learning, assessment, administration and aims to provide a coherent interaction between education, public awareness, and training.

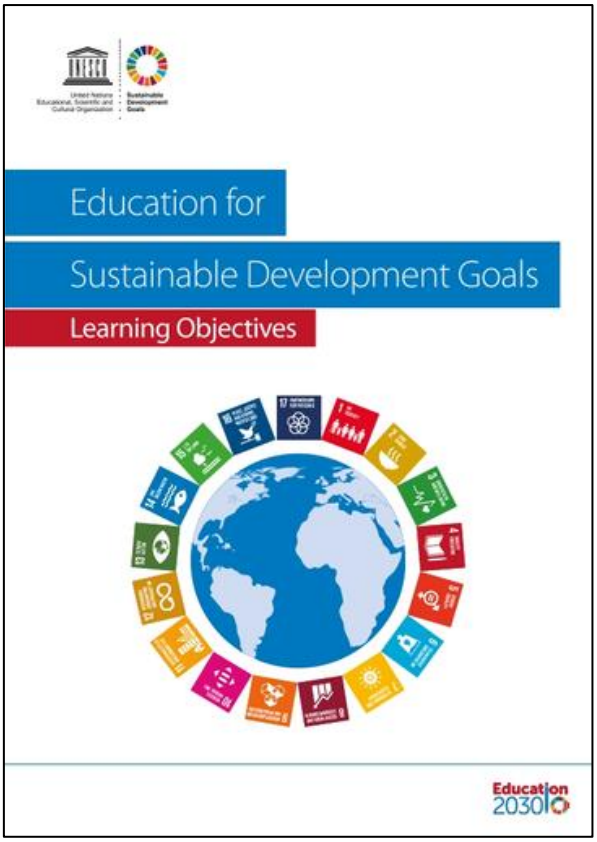


Figure 8.1 Education for Sustainable Development (Source UNESCO)

There are four important areas:

- Improving access and retention in quality basic education to help pupils gain knowledge, skills, values and perspectives that encourage sustainable livelihoods and support citizens to live sustainable lives.
- Reorienting existing educational programmes to address sustainability – making education future-oriented so that pupils will acquire creativity as well as analytical and problem-solving skills.
- Increasing public understanding and awareness of sustainability – fostering a widespread community education and responsible media that are committed to encouraging an informed and active populace to learn throughout life.
- Providing training to all sectors of the workforce - both public sector and private sector employees receive ongoing vocational and professional training to make decisions and work in a sustainable manner.

8.4 Ways of Engagement

Youth are a special case as they are the frontline pioneers of change. Apart from the formal curriculum, we note that there are other ways of engaging them.

8.4.1 Experiential Learning

We define experiential learning as "learning through reflection on doing". Hands-on learning can be a form of experiential learning, but may not necessarily involve students reflecting on their product. Experiential learning is thus distinct from rote or didactic learning, in which the learner plays a comparatively passive role.

Examples would be: youth camps, treks to remote areas, work placements, beach cleaning, community projects and other activities with a sustainable theme.

8.4.2 Volunteerism

Volunteerism differs from the other activities in that it involves a level of commitment from the individual or groups of individuals to carry out regular activities for a period of time. Many find that volunteer work comes in phases, early on during youth and later on in retirement; the common factor being availability of time. For some, they might be able to sustain volunteering activities throughout their lifetime usually for a cause that they have a personal passion for such as wildlife or in some cases a family connection like the loss of a loved one to a particular disease.

Volunteerism imbues a sense of positivity and fulfilment in individuals[civ], as well as bonding within groups. In companies, volunteerism has been shown to increase employee retention, attraction, morale and team building. Rates of volunteerism vary from 25 percent in the US[cv] and Western countries compared to around 15 percent in Asia[cvi].

8.4.3 Online Learning

Online learning has made a huge change in the education system and opened great opportunities for everyone who wants to learn something. The wide accessibility of online learning has made knowledge available to all. The education sector has always been trending towards online teaching and research. MOOCs, which stands for massive open online courses, are popular open enrolment courses that offer education to the masses. Companies like Coursera[cvii] have popularised this method of learning to enter the domain of academic learning institutions and the majority of institutions are now offering online courses and

recorded lectures as part of their curricula. Online exam invigilation and intellectual content validation and protection will probably be some of the challenges faced by learning institutions of the future.

8.5 Corporate Learning

8.5.1 Company Training

Companies recognise the value of training their staff. We find that good training inspires confidence, builds capacity and imparts valuable skills to employees. Having a trained workforce means that workers are learning new skills that can improve production quality, cut time spent in production or service, reduce production costs, reduce mistakes, build workforce confidence and create a better working environment.

However, there are still many companies that are reluctant to invest in their employees often for cost reasons. Apart from the expense of hiring third parties to conduct job training, there will be missed time and unbillable hours from staff released to be trained. Another reason why businesses are unwilling to train employees is because of past training experiences. Sometimes the training was done poorly, or the topics were not suited to company needs.

That said, managers are faced with the challenge of whether training staff in sustainability matters is justified or not. The arguments for include:

- Improved brand image and competitive advantage.
- Increased productivity and reduce costs.
- Increased business ability to comply with regulation.
- Attracting employees and investors.
- Reduced waste.
- Satisfying shareholders

Training managers who are decision-makers may require a different level of training. Apart from the points highlighted above, managers further need to be convinced of the value of training. Caught between sometimes conflicting goals of making profits and implementing company values, managers veer towards short-term objectives. Training hence has to be angled at addressing different interests in order to be meaningful and sustainable. As such, training must be aligned to performance metrics by which managers are measured. These metrics (often known as key performance indicators or KPIs) must be value-driven - one of

which must be sustainability-related - for the training to be effective and learning to take place. This is important in cases where middle management can sometimes be barriers for change and young people in organizations pushing up new ideas and energy face middle management pressure pressing back down because they don't want to deal with the risk of change.

There are a number of methods by which this can be achieved such as management by objective[cviii], balanced scorecard[cix] and total quality management[cx].

8.5.2 Organisational Learning

Organisational learning occurs where "insight developed by an individual or a group results in systematic transformation of the organization's work practices and values". For organisations to learn, they need to be able to sustain critical reflection on established norms and practices; such that learning at that level has an impact on the organisational level processes and structures.

It is undoubtedly easier for sustainability to take root in such organisations where:

- Employees can grow intellectually
- Learning organisations give people hope that things can be better
- Supportive communities are encouraged
- Learning organisations provide a playground for creative ideas
- A safe place is provided to take risks with new ideas and behaviours and the challenges needed to stretch beyond perceived limits

In learning organisations everyone's opinions are valued and the amount that people can contribute is not determined by position in the organization. We find that leadership is a key requirement to success where leaders must be able to learn and teach, act as a coach or a mentor, stimulate curiosity in workers and respond with sensitivity to the opinion of workers.

8.5.3 Systems Thinking

Systems thinking[cxi] is a holistic approach to analysis that focuses on the way that a system's constituent parts interrelate and how systems work over time and within the context of larger systems. Systems thinking is a major departure from the old way of business decision-making in which you would break the system into parts and analyse the parts separately.

Supporters of systems thinking believe that the old way is inadequate for a dynamic world, where there are numerous interactions between the parts of a system, creating the reality of a situation. According to systems thinking, if we examine the interactions of the parts in a system, we will see larger patterns emerge. By seeing the patterns, we can begin to understand how the system works. If the pattern is good for the organization, we can make decisions that reinforce it; but if the pattern is bad for the organization, we can make decisions that change the pattern.

The entire system success needs a performance management system that is leaning above the level of individual systems and their operative leadership. Factors may include group or team-level goal-setting, development, inducements, communication, reviews, rewards, and responsibility.

The purpose is to concentrate on what fixes individuals together and what binds systems together rather than functional silo performance.

8.6 Summary

- Education helps us to take action responsibly based on the understanding that what we do today can have implications on the lives of people and the planet in future.
- Young children learn holistically, which means they learn from everything all at the same time. Something they learn from one experience will connect with something else seemingly unrelated and form a connection which builds context and meaning. Teaching young children about sustainability can hence start at an early age.
- Designing a learning strategy includes fostering children's capacity to value and respect the broader environment and appreciate the interdependence between people, plants, animals and the land, involving them in sustainable practices already existing in the community and connecting with the local indigenous community that support a deeper connection to the land.
- UNESCO is responsible for the coordination of the Global Action Programme on education for sustainable development (ESD), incorporating many important aspects of education on the whole, including access, relevance, equity and inclusivity. ESD is education for social transformation with the goal of creating more sustainable societies.

- Experiential learning is "learning through reflection on doing". Volunteerism differs in that it involves a level of commitment from the individual or groups of individuals to carry out regular activities for a period of time. The wide accessibility of online learning has made knowledge available to all.
- Companies recognise the value of training their staff. Management training requires a different level of training.
- Organisational learning occurs where insight developed by an individual or a group results in systematic transformation of the organization’s work practices and values.
- Systems thinking is a holistic approach to analysis that focuses on the way that a system's constituent parts interrelate and how systems work over time and within the context of larger systems.

Chapter 9. Conclusions

9.1 Introduction

In this final chapter, we provide our thoughts and conclusions on sustainability and business. Much of what has preceded this chapter has talked about how business can be a positive – and negative – force for change. We state the challenges and the possible solutions.

9.2 Challenges and Business Implications

9.2.1 Managing Our Resources

In 1900, the world's population was around 2 billion people. Despite two world wars, various pandemics and other global catastrophes, the population increased to about 4.5 billion by 1950. Today, we number around 7.8 billion and increasing. This raises the question of how can we be sustainable if we continue to grow and consume more than we can produce? A useful indicator is provided by Global Footprint Network which estimates that we are consuming 1.75 times the amount that the Earth can provide for our needs.

For businesses, this means that resources are not infinite and, at some point, will reach critical levels whereby we have to come up with new business models to do more with less. Even with applying principles of the circular economy (see section 4.3.4), we can slow down the descent of our path towards exhaustion of resources but we cannot stop reaching our final destination. The key to resources has to be in managing behaviour and returning materials back to nature as soon as possible.

Here are the business case arguments for doing so:

- **Curbing excesses** – we produce more than we need because that is a sign of economic progress. Yet much of what we produce is wasted and does not go to the right places. Food is a good example as a third of food is wasted, yet hunger and starvation still occur in developing countries.
- **Changing consumer behaviour** – consumer behaviour is fuelled by marketing and advertising in part as a result of globalisation but also through business practices to encourage profit at all costs. This does not have to be so. With better information, consumers can make more responsible choices if they were aware of the social and environmental impacts of their purchases and lifestyles.

- **Returning materials back to nature** – if materials cannot be returned to nature then the resource cycle is broken. Plastics are a good example of how this has occurred on a global scale. Because plastics are durable and will not breakdown, millions of tonnes of this material have entered our eco-systems causing massive disruption.
- **Protecting biodiversity** – encroachment of humans into natural resources like forests and wetlands have destroyed species of plants and animals that will never reappear. This loss has severe repercussions on our defences to disease and climate change[cxii].

9.2.2 Climate Change

We have already touched on climate change in section 2.4. The debate on this topic is still ongoing as to how the world – and business - should react. Climate modellers have weighed in with their estimates of times and deadlines on when there is a tipping point of no return, but even that is open to challenge by climate cynics.

But what is emerging is:

- The exposure of how vulnerable we are – affected populations in developing countries are exposed most to climate disasters like typhoons and droughts; even developed economies are counting the costs of disasters like bushfires, hot summers and flooding.
- Even if not directly affected, how climate change has a knock-on effect through supply chains and other interconnected systems in our businesses and lives.
- The dubious profiteering of organisations said to be mitigating climate change through clean energy that is not really clean. A good example of this is biomass, which is purported to be renewable[cxiii].
- An intergenerational dilemma of what type legacy to leave for the next generation, which is becoming increasingly vocal and critical about business's reticence and delaying behaviour to change.

The actions to stem climate change are riddled with politics and vested interests, which is why we cannot rely on governments to provide the solution. Civil society has made its position clear on the need and urgency for solutions, but businesses have sadly dragged their feet in coming forward, which is ironic as actually businesses are the only ones who are properly equipped to tackle climate change.

9.2.3 Pandemics

In 2020 the world was gripped in a global pandemic of COVID-19, the scale of which had not been seen since the Spanish Flu of 1950. In between, there were other pandemics like SARS and H5N1 bird flu. What these situations reveal is how perilous pandemics are to mankind due to our tampering with nature and the unintended consequences, coupled with how quickly pandemics spread due to urbanisation and global interconnectedness.

For businesses, the economic costs of pandemics can run into the millions if not trillions of dollars. The social costs of unemployment and reduced workforces also impact companies. Technology can help salve some of these issues but the real loss is the disruption and the ability to start up again, if able to do so.

Businesses need to build resilience and also to help communities around build resilience as well.

9.2.4 Resilience

Resilience is commonly broken down into preparedness, response and recovery. To protect human lives and assets, disaster preparedness is possible by establishing a risk and hazard profile of the community, determining the types of resources and actions needed to deal with hazards, knowing which populations are likely to be at risk, developing contingency action plans and providing incident management procedures. In the event of a disaster, emergency response procedures should be well documented involving securing impacted areas, warning the population, evacuating the impacted areas, conducting search and rescue for the injured, providing food and emergency care, and sheltering evacuees.

Resilience is also about the ability of communities to recover and rebuild after disaster strikes. Immediate relief actions include restoration of access and critical facilities to affected areas and provision of emergency community services - but in the long term, the goal is to rebuild houses and major structures like bridges, roads and buildings and re-establish economic activities. As governments tend to take on the responsibility of short-term measures, it is often left to the private sector to lead in the reconstruction process. In many cases, a ‘build back better’ approach is undertaken to restore livelihoods as well as establishing hardier infrastructure.

Crucially, resilience understates but does not overlook disaster prevention. The National Institute of Building Sciences[cxiv] estimates that one dollar spent on mitigation avoids the cost of 6 dollars later in climate-related damages.

Businesses need to play a role in helping societies build resilience whether in facing natural disasters, pandemics or other catastrophes.

Understanding the risks involved is a starting point.

- First the risk needs to be identified. Having an organisational culture of accountability, transparency and staff involvement is beneficial as staff and suppliers can act as risk detectors and feedback on early warning signs.
- Benchmarking performance based on a company's activities enables you to identify areas of risk.
- Company policy and procedures must be reviewed to ensure values are consistent – procurement, recruitment, training, appraisals and exit interviews.
- Providing feedback questionnaires for employees, customers and suppliers shows that the organisation is living its values.

9.2.5 Quality of Life

Quality of life is subjective and differs from society to society. In some circles, quality of life can mean "the different range of life's quality". Quality of life is an averaging term that is mostly perceived by those that "have." They would not want the qualities of the lives around them.

Standards that are used include:

- Clean environment
- Green living spaces
- Economic opportunities
- Safety and public security
- Caring society
- Reliable public services
- Affordable housing and costs of living
- Good education systems

- Mobility

Much is vested upon governments to provide the above. However, despite the best efforts of the public sector, it cannot or sometimes is reluctant to cede too much. As elected politicians have a limited timespan to get things done, much is left to be desired if one political leader starts an initiative only to see if dismantled by the next incoming leader.

Can businesses change all this? Business and politics are never far apart. Companies rely on political favour to advance, sometimes not always for the right moral reasons. But a renaissance in business thinking could be on the horizon if companies understand that investing in sustainability is an investment for their future as well as others.

What are the top 10 dislikes about cities?

1 *Bureaucracy and corruption*
2 *Work-related stress*
3 *Cost of living*
4 *Pollution/waste*
5 *Discrimination (age, gender, religion, sexual orientation)*
6 *Crime*
7 *Traffic jams*
8 *Uneven distribution of wealth*
9 *Lack of leisure and cultural facilities*
10 *Lack of recognition at work*

Source: ASEAN Work Life Balance Workshop, 24 February 2016

9.3 How does the MBA course help?

9.3.1 Leadership training

There are many excellent MBA courses worldwide. The programmes and learnings provided are delivered by world-class lecturers and the exchange of ideas between students, experts and themselves is profound. Finance, strategy, business analytics, human resources, e-business and other subjects are all geared to equip the budding young manager with the right knowledge for a bright career.

What about leadership? There are different ways of training young people to be leaders. There is the knowledge about leadership traits, equally there are skills that can be coached like communication, empathy and decisiveness.

Values and principles are important too. In my MBA classes, the following are related-topics:

- Corporate governance
- Business ethics
- Risk management

Coupled with the understanding of change management and corporate culture, these are the tools for leaders to understand the challenges and take action. So in theory, there is no reason why MBA graduates should not be the best advocates of sustainability as there is a sound business case and morally this is the right thing to do.

But leadership is more than the above. Leadership is about challenging the norm and stating that there is a problem. Leadership is about courage to say that business as usual is not going to help and we must change what we are doing or face dire consequences.

9.3.2 Being an Effective Manager

An effective manager gets things done. But some of the techniques to do so are not explicit in MBA programmes. Here are some suggestions:

- Internal change
    - Get senior support for change, without this it will be impossible.
    - Work with budgets – this tends to rule the company
    - Treat change as a project, with an end goal in sight
    - Measure performance and report on the positive (and negative) impacts created
    - Use training as a means of investing in staff who will later be your supporters
    - Be transparent and open
- External change
    - Establish power-based networks so that you have access to influencers outside of your organisation
    - Clearly state your position and don't flip flop
    - Be masterful in communicating with the media

    - Promote thought leadership and become one with your chosen subject
    - Don't overtly seek recognition but accept it gracefully when it does occur, on the other hand be generous in recognising others
- Personal change
    - Remain positive
    - Practice mindfulness for self-reflection on what is right and wrong
    - Be assertive in getting things done
    - Pay attention to your blind spots, get honest feedback whenever you can

9.3.3 What happens next?

After MBA students graduate, many go on to pursue careers, armed with new knowledge and skills that will give them an advantage over their colleagues and peers. Some even become leaders in their chosen profession as they use the soft skills learnt in the programme combined with a steely purposefulness nurtured by the hours put into assignments and study. This is commendable and to be admired.

But my wish is that they balance these qualities with a respect for society and the environment. If sustainability is rooted in their minds, decisions and actions that follow will make a difference. That is the only way we are going to leave a decent world for future generations.

9.4 Summary

- For businesses, resources are not infinite and, at some point, will reach critical levels whereby we have to come up with new business models to do more with less.
- Businesses have dragged their feet in coming forward to address climate change, which is ironic as actually businesses are the only ones who are properly equipped to tackle climate change.
- Businesses need to play a role in helping societies build resilience whether in facing natural disasters, pandemics or other catastrophes. Understanding the risks involved is a starting point.
- Business and politics are never far apart. Companies rely on political favour to advance, sometimes not always for the right moral reasons. But a renaissance in

business thinking could be on the horizon if companies understand that investing in sustainability is an investment for their future as well as others.

- There is no reason why MBA graduates should not be advocates of sustainability as there is a sound business case and morally this is the right thing to do. But they have to be true leaders. Leadership is about challenging the norm and stating that there is a problem. Leadership is about courage to say that business as usual is not going to help and we must change what we are doing or face dire consequences.

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