Business for Sustainable Development
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Business for Sustainable Development

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UNIT 1
CONCEPTS IN SUSTAINABLE BUSINESS

UNIT STRUCTURE

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1.1 INTRODUCTION

In this unit, you will be introduced to concepts associated with sustainable business and sustainable development. It is vital for you to be familiar with these key concepts since these will be thoroughly discussed in the units to come. The historical evolution of the sustainable development movement is also presented for you to gauge the increasing importance that the movement is garnering. Some findings of the Brundtland Report (1987) are also discussed. In addition, the different theories of economic growth in the context of sustainable development are presented. We also explain the important subtle differences in meaning between the terms “sustainable” and “green”. A list of most of the international conventions, standards and agreements is also presented so that you can familiarise yourself with these conventions at the outset.

You will appreciate that sustainable development is an evolving and growing field; this unit will set the tone, but you are strongly encouraged to consult the literature to gain greater insight into the emerging issues and discussions.

1.2 LEARNING OUTCOMES

By the end of this unit, you should be able to do the following:

1. Define the concept of sustainable economy.
2. Identify the three pillars of sustainable economic development.
3. Explain the major theories of economic growth in the context of sustainable development.
4. Distinguish between the terms “green” and “sustainable”.
5. Identify the international conventions, standards and agreements.

1.3 HISTORICAL EVOLUTION

Du Pisani (2006), Plato (5th century BC), Strabo and Columella (1st century BC) and Pliny the Elder (1st century AD) expressed their concerns about environmental degradation due to activities such as logging, mining and farming. Roman civilisations, ancient Egyptians, and Greeks also reported problems related to deforestation, loss of fertility, and salinisation.

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In 1798, Thomas Robert Malthus (1766–1834), a demographer, country pastor in England, as well as a political economist, wrote *An Essay on the Principle of Population*. According to Malthus, a time would come when the world’s population will not have sufficient food to eat (Rogers, Jalal and Boyd, 2008)².

After the Industrial Revolution, between the years 1800 and 1970, the world’s population tripled from around 978 million to 3,632 million. This led to unprecedented economic growth with world manufacturing production increasing by approximately 1,730 times during the same period. Such a wave of high growth also took place during the long boom period of the 1950s and 1960s.

However, this unprecedented growth witnessed during the long boom of the 1950s and 1960s was also accompanied by an exponential growth in the consumption of resources. It would appear that one of the fundamental assumptions made during those years was that resources that are depleted for the sake of development would be replaced with the help of new technology. Unfortunately, this did not materialise.

In fact, economic development has always been harmful to our planet. Several publications have reported the negative impact of human activities on our environment. The most cited studies include Rachel Carson’s *The Silent Spring* (1962), Paul Ehrlich’s *The Population Bomb* (1968), Edward Goldsmith’s *A Blueprint for Survival* (Goldsmith et al. 1972) and Fritz Schumacher’s *Small is Beautiful* (1973). Ecological disasters have also been publicised. Further sensitisation came with the celebration of Earth Day for the first time in 1970; Greenpeace and Friends of the Earth were also established around the same time.

It is worth noting that various researchers have defined “development” differently. We cite a few definitions below:

Development had been defined as “an evolutionary process in which the human capacity increased in terms of initiating new structures, coping with problems, adapting to continuous change, and striving purposefully and creatively to attain new goals” (Committee on Comparative Politics of the United States Social Science Research Council cited in Peet 1999, p. 77)³.

According to the modernisation theory that favours free enterprise and the market economy as positive forces of progress, “development means assuming the mental models of the West (rationalization), the institutions of the West (the market), the goals of the West (high mass consumption), and the culture of the West (worship of the commodity)” Peet (1999, p. 85–86).

According to the dependency theory that focuses on the economic domination of the international capitalist system and which is based on Marxist analysis, Western development is “predicated on the active underdevelopment of the non-European world” (Peet 1999, p. 107).

The United Nations Conference on the Environment and Development (UNCED), held in Rio de Janeiro (Brazil) in 1992, was also another landmark. 114 heads of state, as well as 10,000 representatives from 178 countries and 1,400 non-governmental organisations attended the conference. This conference, also commonly referred to as the Rio Earth Summit, produced the document, Agenda 21, which focuses on quality of life, protection of the global commons, efficient use of natural resources, management of human settlements, and sustainable economic growth. Countries were encouraged to prepare their national sustainable development strategy.

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The next historical event was the 1997 Kyoto conference on climate change. Most of the developed countries agreed to reduce their emissions of greenhouse gases in a phased manner. This resulted in the general framework referred to as the Kyoto Protocol. It is worth noting that the United States (US) agreed to stabilise emissions only, rather than cutting them. The European Union (EU) called for a cut of 15%. Eventually, industrialised countries committed to reduce their emissions of greenhouse gases to 5.2% below the 1990 levels. 84 countries signed the Protocol with the US refusing to ratify it. In the year 2030, according to Camhis (2006)\(^4\), the emissions of CO\(_2\) by the US and EU are expected to increase from their 1990 figures.

189 countries signed the historic Millennium Declaration in September 2000 at the United Nations Headquarters. They committed to achieve a set of eight goals that are commonly referred to as the Millennium Development Goals (MDGs). These goals ranged from halving extreme poverty and hunger to promoting gender equality and reducing child mortality by the target date of 2015. In this regard, it is worth noting the MDG1: Eradicate extreme poverty and hunger, and MDG7: Ensure environmental sustainability. However, achievements have not always been the same in the different countries.

The World Summit on Sustainable Development (WSSD) held in Johannesburg in 2002 played a key role in forging partnerships between governments, the United Nations (UN), businesses and NGOs to gather resources for addressing global challenges. The WSSD addressed the gap in Agenda 21 and the MDGs as well as emerging issues, and it included concepts related to sustainable development throughout its deliberations.

In June 2012, the Rio+20 conference, held in Rio de Janeiro, initiated the process of developing a new set of Sustainable Development Goals (SDGs) and in September 2015, member states of the UN adopted the 2030 Agenda for Sustainable Development (referred to as Agenda 2030) which delineated 17 SDGs that must be achieved by all countries by 2030. It is worth noting that the SDGs have laid greater emphasis on sustainability than did the MDGs. We shall discuss these SDGs in more detail in Unit 2.

### 1.4 INTRODUCTION TO THE CONCEPT OF SUSTAINABLE DEVELOPMENT

The term “sustainability” was first used to propose the sustainable use of German forest resources by Hans Carl von Carlowitz in *Sylvicultura Oeconomica* in 1713 (Du Pisani, 2006)\(^5\).

According to Van Zon (2002), although the terms *durabilité* and *durable* in French, *Nachhaltigkeit* in German and *duurzaamheid* and *duurzaam* in Dutch have all been used for centuries, “sustainability” and “sustainable” only appeared in the *Oxford English Dictionary* during the second half of the 20th century.

After the 1969 Santa Barbara oil spill, and the resulting industrial pollution, the United States Government came up with the National Environmental Policy Act and as a result, the US Environmental Protection Agency (EPA) was established in 1970.

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In 1972, representatives of 113 States and 19 international organisations met in Stockholm (Sweden) to discuss the various environmental issues. United Nations Environmental Program (UNEP) was created as a result of this conference, with the overarching mission “to provide leadership and encourage partnership in caring for the environment by inspiring, informing, and enabling nations and peoples to improve their quality of life without compromising that of future generations”.

In 1972, the global think tank, Club of Rome, requested a group of researchers (Meadows, Meadows, and Randers) to analyse the effects of a growing world population. The result of this research was published in a book titled *The Limits to Growth* that used the term “sustainable” in the modern sense (Cleveland & Ruth, 1997).

John Lezzy, in a 1992 World Bank Report, reported 30 different definitions of sustainability that he found in peer reviewed academic journals (Pezzy, 1992). The published definitions have certain common elements including environmental concerns, scarcity of resources, degradation of the ecosystem, and endangered future generations. The differences were mainly related to what it means (or does not mean) to be sustainable as well as what constitutes development.


22 people from developed and developing countries were commissioned by the UN to identify long-term environmental strategies for the international community. This resulted in the report entitled “Our Common Future” by the World Commission on Environment and Development (WCED), better known as the Brundtland Commission. This report, published in 1987, also gave the most cited definition of sustainable development, which is that “Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987, p. 43).

Furthermore, according to Romeiro (2012), sustainable development is a process of improvement of human well-being based on a material/energy production that ensures the comfort that is deemed appropriate and that has been stabilized at a level consistent with the thermodynamic limits of the planet. Therefore, it implies a Steady State in which consumption growth as a factor of social emulation gives way to cultural, psychological and spiritual growth; a development process as freedom, a process of permanent improvement in the conditions necessary for the full realization of “an individual’s capacity to flourish”. (p. 84)

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1.5 **PILLARS OF SUSTAINABLE DEVELOPMENT: SOCIAL EQUITY, ECONOMIC GROWTH AND ENVIRONMENTAL MAINTENANCE**

The Brundtland Report (1987) aimed at securing a safe and prosperous planet, where human beings can achieve their basic needs by redistributing resources towards poorer nations. The principle at the centre of this paradigm shift is that social equity, economic growth and environmental maintenance can happen simultaneously. The report highlighted the three fundamental components of sustainable development — the environment, the economy, and society — which later became known as the *triple bottom line* (TBL).

The report highlighted the necessity to develop integrated and sustainable solutions to problems related to population, biodiversity, agriculture and food security, energy choices, and industry. The Brundtland Report concluded that the tension between economic growth and environmental protection could be reduced through the adoption of sustainable development practices. It is worth quoting the following extracts of this report:

“Environmental degradation, first seen as mainly a problem of the rich nations and a side effect of industrial wealth, has become a survival issue for developing nations. It is part of the downward spiral of linked ecological and economic decline in which many of the poorest nations are trapped.” (WCED, 1987, p. xi).

“The downward spiral of poverty and environmental degradation is a waste of opportunities and of resources. In particular, it is a waste of human resources. These links between poverty, inequality, and environmental degradation formed a major theme in our analysis and recommendations. What is needed now is a new era of economic growth — growth that is forceful and at the same time socially and environmentally sustainable.” (WCED, 1987, p. xii).

1.6 **THEORIES OF ECONOMIC GROWTH IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT**

This section presents the theories of economic growth related to sustainable development. These theories help to chart the approach to be adopted to attain the goal of sustainable development.

1.6.1 **Neoclassic Response to Economic Growth in Sustainable Development**

The neoclassic economic viewpoint purports that the condition of human beings cannot be uplifted without economic growth and to that end, one could argue that the Brundtland Report does provide support to the neoclassical economic theory. According to the Nobel Laureate Robert Solow, a staunch proponent of the neoclassical economic theory, the State must pay for depleting natural resources. In turn, these payments should be used to meet the intergenerational requirement of sustainability. Thus, both current and future generations shall benefit equally. Clearly, this relies on the belief that infinite substitutions of capital are possible and that the total amount of production capital does not decrease (Solow, 1993).

1.6.2 **The Steady State Economy**

Unlike neoclassical economists, the steady state economists believe that the world has a finite amount of resources and a fixed flow of energy. Consequently, economic growth is limited because resources can be depleted and energy needs can exceed availability of energy flows. According to this theory, energy from non-renewable sources will be depleted, leaving only a fixed flow of energy from renewable sources such as solar energy. A steady flow of energy leads to a steady state economy (Daly, 1996). Therefore, sustainable growth is an oxymoron. According to Daly (1996), *sustainable growth*, defined as quantitative expansion,
is limited and may not always be possible, whereas sustainable development, defined as qualitative improvement, remains possible. Therefore, consumption of energy from non-renewable sources must be reduced.

Georgescu-Roegen prescribes eight suggestions for enabling an economy of least consumptions:
1. No war or related activities.
2. Poorer nations should be supported to improve their states.
3. Population growth must be regulated so that it can be supported by organic farming.
4. Use energy from renewable sources such as solar energy.
5. End extravagance.
7. Enhance durability of goods while promoting reuse and recycling.
8. A good life relates to increasing amounts of leisure spent in an intelligent manner (Georgescu-Roegen, 1975)\(^\text{11}\).

1.6.3 De-growth/\textit{Décroissance}

According to the proposition of \textit{Décroissance} or de-growth, sustainable development can be achieved through de-growth. De-growth, which is strongly influenced by Marxism, focuses on quality of life while promoting solidarity among people. Some of the features of de-growth currently being implemented in France include reduction in labour hours and socialisation of public services such as health care (Martinez-Alier, Pascual, Vivien, & Zaccai, 2010)\(^\text{12}\). Proponents of de-growth theory question the nature of wealth, its distribution, its use, and misuse while reducing production and consumption in order to achieve SDGs.

1.6.4 Green v/s Sustainable

The terms “sustainable” and “green” are often used interchangeably. However, it is important to note that “green” and being “sustainable” are not the same thing.

“Green” refers mostly to products and services that have a lower negative impact on the health of people and on the environment compared to similar products and services used for the same purpose.

“Sustainability” can be represented as a three-legged stool: one leg for environmental responsibility, the second for social responsibility and the third for financial responsibility.

To understand the difference between “green” and “sustainable”, consider a popular “green” product like bamboo flooring. Without doubt, a lumber product made from a renewable resource is green. But most bamboo flooring is made in China and transported to end users in the US on ships and trucks that burn diesel fuel. This is not sustainable because our supply of fossil fuel is finite and burning this fuel contributes to global climate change.

In general, sustainable products and activities are subject to a higher standard of performance because of “future” factors. A car can be considered “green” simply because it manages to deliver 40 miles per gallon of petrol. But it is not sustainable for us to be extracting fossil fuels from the earth and burning them at current rates.


In the next section, we provide an overview of international conventions and standards associated with sustainability.

1.6.5 International Conventions, Standards and Agreements\textsuperscript{13}

The activities of clients/investees may be regulated under international conventions and may be subject to various international sustainability standards and certifications. For instance, a financial institution should have knowledge about which of these apply to its clients/investees.

Similarly, international conventions, agreements and bans have been adopted by governments around the world in order to protect people and the natural environment. If a particular country is a signatory to an international convention, agreement or ban, it would have enacted national laws to regulate the issue.

While they are not regulated through a country’s regulatory framework but driven by consumer or market demand, various international sustainability standards and industry certifications have been established to promote more sustainable business practices.

In this regard, governments around the world have adopted international conventions, agreements and bans in the following areas:

1. Climate change.
2. Bans on pharmaceuticals, pesticides/herbicides, ozone depleting substances and persistent organic pollutants.
3. Pollution and hazardous materials.
5. Labour and human rights.

We shall now elaborate on these:

1. International Conventions and Agreements on Climate Change:

- **UN Framework Convention on Climate Change, 1992**: Encourages the stabilisation of greenhouse gas (GHGs) concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.

- **Kyoto Protocol to the Framework Convention on Climate Change, 1997**: Sets binding reduction targets for 39 industrialised countries and the EU for four greenhouse gases (carbon-dioxide, methane, nitrous oxide and sulphur hexafluoride); requires other countries to commit to reducing emissions by an average of 5% of their 1990 baseline levels over a five-year period (2008 to 2012).

2. International Bans on Pharmaceuticals, Pesticides/Herbicides, Ozone Depleting Substances and Persistent Organic Pollutants:

- **UN Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, 1996 and 1998**: Controls the use and trade of pesticides and industrial chemicals that have been banned or severely restricted.

\textsuperscript{13} For details, visit First for Sustainability’s page: International Conventions and Agreements. Retrieved from https://firstforsustainability.org/resources/international-conventions-and-standards/international-conventions-and-agreements/
• **UN Vienna Convention for the Protection of the Ozone Layer, 1985:** Establishes a framework for international efforts to protect the ozone layer by controlling human activities found to cause stratospheric ozone depletion through the use of chlorofluorocarbons (CFCs).

• **Montreal Protocol on Substances that Deplete the Ozone Layer, 1987:** Phases out the production and use of substances which deplete the ozone layer by requiring parties to commit to taking action to reduce and eliminate emissions of chlorofluorocarbons (CFCs), halons, carbon tetrachloride, methyl chloroform, hydrochlorofluorocarbons (HCFCs), hydrobromofluorocarbons (HBFCs) and methyl bromide.

• **UN Stockholm Convention on Persistent Organic Pollutants, 2001:** Eliminates or reduces the release of Persistent Organic Pollutants (POPs), which can be pesticides, industrial chemicals or by-products that remain intact for exceptionally long periods of time.

3. **International Conventions and Agreements on Pollution and Hazardous Materials:**

• **International Convention for the Prevention of Pollution from Ships (MARPOL) 1973 and 1978:** Requires the minimisation of accidental discharges of oil, noxious liquid, substances carried in bulk, harmful substances carried in packaged form, sewage, and garbage from ships into the marine environment.

• **UN Basel Convention on the Control of Transboundary Movements of Hazardous Waste and their Disposal, 1989:** Seeks to minimise hazardous waste generation, and regulates the transport and disposal of hazardous substances.

• **African Union Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa, 1991:** Reduces the generation of hazardous wastes and prohibits the import of any hazardous waste (including radioactive waste).

• **London Protocol to the Convention for the Prevention of Pollution from Ships, 1996:** Prohibits all dumping in the marine environment except for acceptable wastes such as dredged material, sewage sludge, fish wastes, vessels and platforms, inert, inorganic geological material (such as mining wastes), organic material of natural origin, bulky items (comprising iron, steel and concrete), and carbon-dioxide streams from carbon-dioxide capture processes for sequestration.

4. **International Conventions and Agreements on Wildlife, Biodiversity and Natural Heritage:**

• **African Convention on the Conservation of Nature and Natural Resources, 1968:** Requires parties to adopt measures necessary to ensure conservation, utilisation and development of soil, water, flora and fauna in accordance with scientific principles; requires parties to use resources wisely, to manage populations and habitats, to control hunting and fishing, and to prohibit the use of poisons, explosives and automatic weapons in hunting.

• **Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar Convention), 1971:** Promotes the conservation and sustainable utilisation of wetlands through local and national actions and international cooperation.

• **UN Convention Concerning the Protection of the World Cultural and Natural Heritage, 1972:** Protects unique natural and cultural areas on the World Heritage List of sites of exceptional cultural or natural value.

• **IUCN Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), 1973:** Ensures that international trade of flora and fauna does not threaten the survival of more than 33,000 listed species of animals and plants.
• UN Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention), 1979: Requires parties to protect terrestrial, marine and avian migratory species threatened with extinction by conserving or restoring the places where they live, mitigating obstacles to migration, and controlling other endangering factors.

• UN Convention on Biological Diversity (Biodiversity Convention), 1992: Promotes the conservation of biological diversity; sustainable use of the components of biological diversity; and fair and equitable sharing of the benefits arising out of the utilisation of genetic resources.

5. International Conventions and Agreements on Labour and Human Rights:

• UN Universal Declaration of Human Rights, 1948: Promotes human rights, social progress, better standards of life and larger freedom for all people.

• UN Convention Concerning Forced or Compulsory Labour, 1957: Eliminates all forms of forced or compulsory labour by requiring parties to commit to taking measures to abolish forced or compulsory labour.

• UN Convention Concerning Discrimination in Respect of Employment and Occupation, 1958: Eliminates all forms of discrimination associated with employment, including hiring practices and equal treatment in the workplace.

• International Convention on the Elimination of all Forms of Racial Discrimination, 1965: Promotes the elimination of all forms of racial discrimination and encourages understanding among all races.

• Convention on the Elimination of All Forms of Discrimination against Women, 1979: Commits parties to end discrimination against women by incorporating gender equality into domestic legislation, repealing all discriminatory provisions in laws, and enacting new provisions to guard against discrimination against women.


• UN Convention Concerning Indigenous and Tribal Peoples in Independent Countries (C169), 1989: Recognises the human rights and fundamental freedoms of indigenous peoples and encourages the involvement of indigenous and tribal peoples and their traditional organisations in the planning and implementation of development projects.

• ILO Declaration on Fundamental Principles and Rights at Work, 1998: Commits parties to respect and promote principles and rights including freedom of association and recognition of the right to collective bargaining, elimination of all forms of forced or compulsory labour, abolition of child labour, and elimination of discrimination in respect of employment and occupation.

• UN Convention Concerning the Prohibition and Immediate Action for the Elimination of the Worst Forms of Child Labour, 1999: Prohibits and eliminates the worst forms of child labour, including all forms of slavery or practices similar to slavery, commercial sexual exploitation of children, and the use or procurement of a child by others for illegal activities such as for trafficking or production of drugs.

• UN Declaration on the Rights of Indigenous Peoples, 2007: Sets standards for the treatment of indigenous peoples to eliminate human rights violations against indigenous people and assist them in combating discrimination and marginalisation.
6. International Standards

Various international sustainability standards and industry certifications have been established, which may apply to a financial institution’s client/investee. For instance, international industry certifications have been established, to manage the world’s forests and fisheries, encourage businesses to market products and services that are kinder to the environment, improve the global supply chain, and reduce the environmental impact of production sites.

- **Forest Stewardship Council (FSC):** The FSC is a non-governmental, non-profit organisation established to promote the responsible management of the world’s forests by certifying the practices of companies, organisations, and communities. FSC’s certification system consists of ten principles and 57 criteria that address legal issues, indigenous rights, labour rights, multiple benefits, and environmental impacts associated with forest management.

- **Marine Stewardship Council (MSC):** The MSC is a non-governmental, non-profit organisation established to promote the responsible management of the world’s fisheries. MSC provides guidelines for certification and eco-labelling of programmes to establish environmental standards for sustainable fishing and chain of custody standards for seafood traceability.

- **European Eco-Label:** The European Eco-Label is a voluntary standard to encourage businesses to market products and services that are kinder to the environment. It covers a wide range of products and services within the EU, including cleaning products, appliances, paper products, textile, home and garden products, and lubricants, as well as services such as tourist accommodation.

- **Business Social Compliance Initiative (BSCI):** The BSCI is a European non-profit organisation that focuses on the improvement of social compliance in the global supply chain. It offers a common social management system to retailing, branding, and importing companies to improve working conditions in supply chains worldwide and includes a monitoring and qualification system that covers all products sourced from any country.

- **Oeko-Tex Standard 100:** This standard provides a testing, audit, and certification system for environmentally friendly production sites by assessing the effectiveness of a company’s actions to minimise the environmental impact of its production site(s).

- **ISO-International Organization for Standardisation:** The International Organization for Standardisation (ISO) has developed over 18,500 International Standards on a variety of subjects and some 1,100 new ISO standards are published every year. Of particular relevance to environmental and social issues are ISO 9000, ISO 14000, ISO 22000, and ISO 31000 on quality management systems, environmental management systems, food safety management systems, and risk management respectively.

- **ASTM International:** ASTM International is a globally recognised leader in the development and delivery of international voluntary consensus standards. Some 12,000 ASTM standards are used around the world to improve product quality, enhance safety, facilitate market access and trade, and build consumer confidence. Standards are used for materials, products, systems and services used in construction, manufacturing and transportation.

- **Occupational Safety and Health Administration:** The U.S. Occupational Safety and Health Administration (OSHA) was created to ensure safe and healthful working conditions for working men and women by setting and enforcing standards, and by providing training, outreach, education and assistance.

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14 See: [https://firstforsustainability.org/resources/international-conventions-and-standards/international-standards/](https://firstforsustainability.org/resources/international-conventions-and-standards/international-standards/)
CDC-The National Institute for Occupational Safety and Health: The National Institute for Occupational Safety and Health provides guidance for preventing workplace illnesses and injuries in a variety of industry sectors as well as topics ranging from safety and prevention, to hazards and exposures, chemicals, and emergency preparedness and response.

1.7 UNIT SUMMARY

The concerns regarding the degradation of the environment have always existed. Depletion of resources, overdependence on sources of energy from non-renewable sources, increasing consumption and production as well as an increasing population have a negative impact on environmental maintenance and social equity. There is increasing public awareness of the need to leave a prosperous and healthy planet for future generations. To that end, it is vital to consider the international frameworks, regulations and standards.

The Brundtland Commission and neoclassic economists purport that growth leads to the reduction of poverty, enhancing of quality of life while embarking on more environmentally sensitive production. The steady state economists suggest that nations must adjust to a steady state. The de-growth movement promotes less production and consumption and a simpler life.

The framework of international rules, regulations, agreement and standards can only serve to help to move faster from theorisation to actualisation. However, the work that needs to be done in sustainable development should not only be theory related. There is a dire need to actualise and implement concrete actions. The global inequities in income are increasing, leading to conflicts in the Middle East and Near-East Muslim countries. There is still relatively little movement to shift away from fossil fuels, and renewable energy technologies are still embryonic. In addition, large national deficits are threatening future generations’ chances at prosperity. As such, there is a need for swift and effective measures to counteract these trends.

1.8 ASSESSMENT

1. Which of the theories discussed in this unit will be suitable for the sustainable development of small islands such as Mauritius? Discuss the merit of the theories.

2. The Brundtland Commission Report’s discussion of sustainability is both optimistic and vague. Discuss.

3. According to critics, “implementing the principles of equity and living within ecological limits can only be accomplished if social, political, and economic systems have the flexibility to be redirected towards sustainability as well as integrated with each other and the environment” (Prizzia, 2007, p. 21)15. Discuss.

4. Compare MDGs and SDGs.

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### 1.9 VIDEOS

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### 1.10 REFERENCES

2.1 Introduction

In this unit, we discuss the social, economic and environmental challenges that the world is facing so that you can better appreciate the importance of the 17 Sustainable Development Goals (SDGs) that are presented. We also look at the business opportunities that emerge out of the SDGs.

2.2 Learning Outcomes

By the end of this unit, you should be able to do the following:

1. Discuss the social, economic and environmental challenges that the world faces.
2. Clearly explain all the 17 SDGs and the role of the UN in their implementation.
3. Assess the relevance and complexities of the SDGs.
4. Analyse the interrelationship among the SDGs.
5. Discuss business opportunities that SDGs create.

2.3 Terminology/Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>CPI</td>
<td>Corruption Perception Index</td>
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<tr>
<td>UNICEF</td>
<td>United Nations International Children’s Emergency Fund</td>
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<td>IMF</td>
<td>International Monetary Fund</td>
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<td>MDGs</td>
<td>Millennium Development Goals</td>
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<td>UN</td>
<td>United Nations</td>
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<td>LDC</td>
<td>Least Developed Country</td>
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<td>SDG</td>
<td>Sustainable Development Goal</td>
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<td>NAFTA</td>
<td>North American Free Trade Agreement</td>
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<td>TPP</td>
<td>Trans Pacific Partnership</td>
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<td>WHO</td>
<td>World Health Organisation</td>
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<td>COP</td>
<td>Conference of the Parties</td>
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2.4 SOCIAL, ECONOMIC AND ENVIRONMENTAL CHALLENGES OF THE WORLD

Today’s world is characterised by social, economic and environmental turbulence, and crises arise in almost all spheres of our lives. We discuss some of these challenges here.

2.4.1 Social Challenges

Although we have made great strides in many domains such as science and technology, and although we have achieved significant progress in terms of productivity, we remain plagued by several social problems. These social scourges range from poverty, hunger, and lack of access to education, to poor statehood, corruption and unemployment.

A social problem is an issue that affects society and causes prejudice to conditions of life such as well-being, health, and freedom. It is most often a problem that impacts a group of people rather than an individual. Social challenges are largely distinguished from economic issues, although sometimes they do overlap, for example in the case of immigration.

One of the main social challenges that almost every economy on the planet faces is the issue of employment. Many industrial towns in England were booming in the mid-20th century because of their shipbuilding and mining industries, but when the latter were closed in the 1980s, the closures led to the highest unemployment rate in British history. The lack of money and economic opportunity stunted social development in these areas.

We discuss some social problems in the sections that follow.

Poverty

Poverty can be defined as the scarcity of, or the lack of, resources to pursue one’s life to the extent that this lack is debilitating. There are two generic forms of poverty: absolute poverty and relative poverty. Absolute poverty denotes people having no means to sustain their living, while relative poverty signifies people not having the same living standards as the rest of the population or the majority of the populace. In relative poverty terms, there is a marked difference in living standards, but this difference is not fixed; it varies from country to country.

Constraints on a government’s ability to provide specific services can include such factors as corruption, tax avoidance, and debt and loan conditions. Strategies of increasing income to meet basic needs include welfare state, economic freedom and the provision of financial services.

The World Bank estimates that 767 million people around the world lived in poverty in 2013, down from 1.85 billion in 1990 — falling below 10% for the first time. The UNICEF estimates that half of the world’s poor people are children (UNICEF Data September 2017).

Surprisingly, it has been posited that the neoliberal policies of the IMF and World Bank are actually compounding the twin problems of inequality and poverty. According to a 2012 estimate, considering a poverty line of $ 1.25/day (World Bank 2015 updated threshold is $ 1.90/day), 1.2 billion people live in poverty worldwide (World Bank Group 2016).
Unemployment

Unemployment is the state of being without work to earn one’s livelihood, whether one is educated or not.

Since the world has not recovered entirely from the 2008 economic meltdown, unemployment rates across countries are still a cause for concern. To progress economically, a country needs to maintain sustainable employment for its people. Due to the rapidly changing nature of work and work environments, prolonged unemployment can cause skills to become irrelevant. These factors have been shown to reduce people’s life expectancy by up to 7 years. Xenophobia and protectionism are by-products of high rates of unemployment, as indigenous people start fearing that foreigners will compete for the same jobs. Countries can then start to implement legal obstacles against those deemed as outsiders, such as barriers to immigration, as well as trade barriers against foreign competitors.

A high unemployment rate can also exacerbate levels of crime if people have limited opportunities to obtain satisfactory sources of income. Because of societal pressures, and the fact that they cannot make ends meet, unemployed individuals are at a higher risk of suicide, as well. In fact, the 2015 Lancet study posits a yearly suicide rate of 45,000 owing to unemployment. In this sense, unemployment can indirectly lead to greater social problems.

Corruption

Corruption is a form of unethical behaviour by a person holding office or in a position of authority, usually to acquire personal benefit. It may consist of bribery, embezzlement or a myriad of other forms of corruption. Corruption in the world today is a persistent and widespread social problem. It stunts the progress of society because it hinders the very advancement of meritocracy and fairness in a nation. In some countries, corruption is so ingrained that it hampers good governance itself. In other countries, corruption can also be so institutionalised that a particular form of corruption known as legal corruption can occur, whereby corruption occurs within legal confines. Other forms of corruption include political corruption, police corruption, judicial corruption and educational corruption.

Transparency International, arguably the most widely used corruption index, uses a corruption metric known as the Corruption Perception Index (CPI) to gauge corruption in different countries. CPI is measured on a scale of zero to 100, where zero stands for high corruption and 100 for the lowest corruption levels. Finland, Denmark, Sweden and New Zealand are among the top countries with the highest CPI scores while Sudan, Somalia and North Korea are among those with the lowest scores which are the highest perceived levels of corruption (2017).

2.4.2 Economic Challenges

There are also several economic challenges that the world currently faces and which may potentially hamper growth. Some of these will be discussed here.

Energy Security

Energy security can be defined as the uninterrupted supply of energy sources at a reasonable price. It comprises two main aspects: long-term and short-term. Long-term energy security is concerned with investment in energy sources according to economic and environmental forecasts. Short-term energy security focuses on adjusting the energy sources by power companies, which are usually nationalised, to respond quickly to changing energy demand. Power companies usually buy crude oil, natural gas, nuclear power and renewable sources as fuel.
Developing economies such as India and China and other Southeast Asian countries are becoming increasingly energy-hungry. They account for nearly two thirds of the global population. Household energy power, the increase in car ownership, and the high paced industrialisation of the Asian countries are increasingly impacting the limited energy supply. Big financial players such as banks, private equity and hedge funds are now investing in renewable energy start-ups that are leveraging the use of technology into producing better and more efficient ways of producing power using renewable energy sources.

**Growing Income Inequality**

Increasingly, the gap between the rich and the poor is widening and reaching worrying levels. The richest eight men own as much wealth as US $ 3.6 billion globally, more than that of half of the global population, according to a 2017 Oxfam study. Such a gap is expected to widen in the future, as the rich will continue to get richer, mostly at the expense of the poor. This can instigate social tensions and scourges such as drug abuse and increasing crime rates. Richard Reeves (2017) in his book, *Dream Hoarders: How the American Upper Middle Class Is Leaving Everyone Else in the Dust, Why That Is a Problem, and What to Do About It*, describes that the gap between the upper middle class and the rest of the population of the US is increasing. This gap is then reflected on lifestyles, structure of family, living standards and education, creating increasingly unequal societies.

**Disruptive Technology**

Technological advances have, in the past, made many employees across various industries redundant. However, these incidences are expected to increase at an exponential rate. Disruptive technologies such as blockchain, artificial intelligence, and machine learning are all revolutionising the way people, and organisations communicate between themselves. Blockchain, for example, is a shared Distributed Ledger Transaction (DLT) platform where data are being decentralised, and this technology has the potential to disrupt several industries, mainly in the Banking and Finance sectors.

A decade ago, the main global employers were predominantly oil and gas companies — such as Exxon Mobil, PetroChina, and General Electric — but now the balance has shifted to technology-oriented companies. The top five global employers are now Google, Facebook, Amazon, Microsoft and Alphabet. Technology companies have, within a short period of time, shaped the world we live in today and, without doubt, they will continue to do so.

**Rising Protectionism**

The international trade mechanism which has been established for decades is now under severe threats. One of the main reasons behind this is the election of Trump as the President of the US. During his presidential campaign, he vowed to put “America first” as he thinks Americans are at the receiving end of badly negotiated trade deals. The North American Free Trade Agreement (NAFTA) involving Canada, Mexico and the US, and also the Trans Pacific Partnership (TPP), have both been called for renegotiation by President Trump. The risk of a trade war with China is increasing with the rise of nationalism in the US but this war can be very harmful for both parties and international trade in general. Protectionism is also very popular in India and Russia: both countries seek to protect their domestic markets from international competition. Europe on the other hand is adopting a more open economy policy and is adopting more trade barrier reduction policies in comparison to their counterparts. This is depicted by the chart that follows (fig. 2.1).
2.4.3 Environmental Challenges

There are numerous environmental challenges faced by the planet. The three main environmental issues are discussed below:

- Climate Change.
- Extinction of Species and Loss of Biodiversity Including Ocean Life.
- Deterioration of Air Quality Owing to Industry.

Climate Change

Global warming is the observed century-scale increase in the average temperature of Earth’s climate system. From paleoclimate records to the current century, it has been shown that there is an unprecedented rise in the temperature record of Earth. These changes have been triggered to a large extent by human activities such as the large-scale emission of greenhouse gases including carbon-dioxide, methane and nitrous oxide.

The main challenge posed by this problem is the climate challenge itself. Weather patterns are changing, ushering in effects like El Niño and La Niña. Hurricanes are becoming more devastating, droughts more severe, and floods more frequent among other effects. The melting of ice caps has also begun with global warming, which threatens to cause a dangerous increase in sea levels. Carbon-dioxide is also causing the acidification of oceans. Hence, the environmental challenge posed by global warming is very serious, and presents an undeniable threat to sustainable ecosystems. The Paris Agreement or COP21 is trying to get countries to cut emissions in order to keep the temperature rise below 2 degrees Celsius, but we might fail to achieve this milestone.

Extinction of Species and Loss of Biodiversity Including Ocean Life

Today, loss of biodiversity is such a serious environmental challenge that environmentalists warn that we might be experiencing a mass extinction of species across the world. We are facing an ongoing extinction of species worldwide, some reversible, but some, unfortunately, that are irreversible. This is a predicament that is fast getting out of control as the effect of human activities becomes so dramatic on the environment that it poses an immediate threat to food security and ecosystems. The current rate of extinction is estimated to be 1,000 times higher than the background extinction rate, which is a natural rate of extinction.
The following are causative factors that lead to loss of biodiversity:

1. Habitat Degradation.
2. Climate Change.
3. Overexploitation of Natural Resources (e.g. Overfishing).

**Deterioration of Air Quality Owing to Industry**

Air pollution is caused by the release of harmful particulates into the atmosphere that threaten public health, causing diseases, allergies and even death of humans. It may also cause harm to agriculture and damage the built environment. Human activity in the form of both, the by-products of industries and exhaust gases, and natural processes, can cause air pollution.

According to a 2014 WHO report, air pollution accounted for the deaths of 7 million people worldwide with countries such as Nigeria, Pakistan and Iran having the world’s leading air pollution levels. Acid rain can be a consequence of a hazardous level of air pollution and constitutes an example of the nefarious effects of air quality on the environment. Acid rain has a direct impact on soil and vegetation. Photochemical smog is another example of a deleterious effect of air pollution. This usually occurs as a result of exhaust gases and can lead to ailments.

### 2.5 SUSTAINABLE DEVELOPMENT GOALS (SDGS)

The above sections have provided a background to enable you to better understand the context from which has arisen the dire need for SDGs. This section will provide you with an understanding of the SDGs and their various implications.

On 25 September 2015, countries adopted a set of goals that acts as a plan of action until 2030. It contains 17 SDGs and 169 targets. They are meant to be a continuity of the MDGs and were built on the deficiencies of the latter’s goals. It was essentially a plan of action to ensure the longevity of the planet, its resources and the people. A number of challenges, be it social, economic or environmental, have been happening around the globe and these may be addressed if willingness and unwavering determination are present among all stakeholders.

Each of the 17 goals and a small account of their respective targets are described below. For further information, the UN SDGs website would be a good reference: [https://sustainabledevelopment.un.org/sdgs](https://sustainabledevelopment.un.org/sdgs).

**Goal 1: No Poverty**

The first goal for the 2030 Agenda for Sustainable Development by the UN is to end poverty in all its various forms by 2030. Extreme poverty as defined by the World Bank is living below the poverty line of $1.90 per day. Poverty, while mainly depicting the lack of financial resources, has also many other socio-economic implications and scourges attached to it — namely starvation, lack of water, poor health, poor sanitation and premature death, to name only a few.

Ending poverty has often been seen as highly utopian, but, according to the Chief Economist and UN senior adviser, Jeffrey Sachs, it is a possibility. It would require a mobility of resources of about $175 billion per year, which is a figure that accounts for approximately 1% of global wealth.

The UN seeks to promote equal rights of access to economic resources and to appropriate social protection systems for all, through the correct policies and frameworks. It aims to build the resilience of the poor and the vulnerable, especially for people dwelling in the LDCs, by providing adequate means and appropriate programmes and policies. It also aims to create sound policy frameworks at national, regional and international levels to boost accelerated investment in poverty eradication actions. Through enhanced development cooperation and mobilisation of resources from various sources, the UN aims to close the poverty gap for good.
**Goal 2: Zero Hunger**

Hunger and food security are also fundamental for all countries, governments and large organisations. It is important to address the entire model of how farmers produce and distribute food but also to monitor our consumption. At the current rate of exploitation of resources, our soils, oceans, freshwater and biodiversity are being depleted at an alarming rate. A considerable chunk of tropical rainforests such as the Amazon and the Indonesian rainforests are being cut down, inducing a snowball effect on biodiversity where an increasingly large number of species risks extinction. Civilisations which rely on forests and nature reserves for their survival are directly threatened, and face alienation and persecution from the big industrialists who want to seize their lands in the name of consumerism and capitalism.

The Sustainable Development Goal 2 has, as its primary objective, to achieve zero hunger worldwide by 2030 by providing the poor and vulnerable, especially children, access to safe, nutritious and sufficient food all year round. It also aims to end all forms of malnutrition, and to sufficiently cater to the nutrition requirements of adolescent girls, pregnant and lactating women, and older persons. Goal 2 seeks to double the agricultural output and earnings of small-scale producers, especially women, indigenous people, family farmers, pastoralists and farmers by 2030. To preserve food security, the UN intends to maintain the genetic diversity of cultivated plants and farmed animals. It will also adopt measures to ensure the proper functioning of food commodity markets and to correct and prevent trade restrictions in world agricultural markets.

**Goal 3: Ensure Healthy Lives and Promote Well-being for All at All Ages**

Good health and well-being for all people of all ages are essential for a society to prosper and to sustain itself. Considerable progress has been made by science and technology in increasing life expectancy and containing severe diseases such as malaria, tuberculosis, polio and the spread of HIV/AIDS. However, efforts must be sustained especially in developing countries to contain the spread of such diseases, given that poor sanitation and lack of clean water unfortunately facilitate the propagation of such diseases.

However, there are other paradigms of health that should be considered, especially of mental health. Statistics show that mental illnesses such as anxiety, depression, and schizophrenia are increasing at an exponential rate and that these conditions are more prevalent in developed countries.

To foster global health of the world population and to enhance the general well-being, a number of salutary targets have been delineated by UN SDG Goal 3. The first is to reduce the global maternal mortality ratio and to end preventable deaths of newborns and children. The second objective is to end the epidemics of AIDS, tuberculosis, malaria, and hepatitis, among others. Further, this goal seeks to curtail premature mortality from non-communicable diseases by one third, and promote mental health and well-being. It also seeks to strengthen the prevention and treatment of substance abuse, including narcotics use and overconsumption of alcohol as well as to halve the number of deaths and injuries from road accidents. Moreover, the UN aspires to achieve universal worldwide health coverage and universal access to sexual and reproductive healthcare services.
Goal 4: Ensure Inclusive and Quality Education for all and Promote Lifelong Learning

Education is said to be the passport to life, and a highway to achieving dreams. As globalisation increases the competition for resources on multiple levels, the need for a quality education has grown drastically. The gap in standards of living between the “educated” and “non-educated” is widening, as can be evidenced by societies where illiteracy is rampant, such as Sub-Saharan Africa, compared to the educated parts of the world. It is estimated that out of the children who have not enrolled in school, more than half of them reside in poor regions of Sub-Saharan Africa.

Through Goal 4, the UN has as primary objective the need to ensure that boys and girls complete free, equitable and quality primary and secondary education and have access to quality early childhood development and pre-primary education. It seeks to promote equal access to affordable and quality technical, vocational and tertiary education for all women and men. It aims to eliminate gender disparities in education and to foster inclusion of people at all social levels, accessibility needs and economic statuses. The goal promises to build and upgrade education facilities that are child-, accessibility- and gender-sensitive, and to substantially expand the number of scholarships available to developing countries globally.

Goal 5: Gender Equality

Although it can be argued that the legacy of the MDGs on achieving greater gender equality and women’s empowerment has been successful to a certain extent, it is also known that women and girls are still facing ongoing discrimination and violence in various regions of the world. Basic necessities such as education, healthcare, the right to vote, a bigger representation of women in politics and the corporate world are sine qua non to achieving sustainable economies.

With Goal 5, the UN moves towards ending all forms of discrimination against women and girls and towards ensuring gender parity. It will ensure women’s full participation and equal opportunities for leadership as well as equal access to economic resources such as land, property, financial services, and inheritance. It seeks to eliminate all forms of violence against women, and to halt exploitation of women and girls such as trafficking, sexual exploitation, and child, early and forced marriage. Goal 5 recognises and values unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household. It also aims to democratise access to technology in order to empower women and to legislate in favour of gender equality and general empowerment of women.

Goal 6: Ensure Access to Water and Sanitation for All

From early civilisations such as the Indus Valley or the Egyptians, the importance of clean water for a thriving society is well documented. The planet has vast water resources, whether freshwater or seawater (which can be converted to drinking water by desalination). However, due to poor infrastructure, and lack of political willingness, millions of people and children die from diseases caused by poor sanitation. Prolonged droughts in certain parts of the world worsen their plight.

Through Goal 6, the UN has as its main purpose to achieve universal and equitable access to safe and affordable drinking water for all. By 2030, it also aspires to achieve access to adequate and equitable sanitation and hygiene for all and to end open defecation while paying special attention to women and girls. The aim is also to improve water quality by reducing pollution of aquifers and eliminating dumping and release of hazardous chemicals and materials. By 2030, it seeks to increase water use efficiency across all sectors and to implement integrated water resources management as well as to protect and restore water-related ecosystems. It endeavours to expand international cooperation to support developing countries in water and sanitation related programmes including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies.
Goal 7: Affordable and Clean Energy

Energy in its various forms, especially electricity, is the backbone of progress for any economy. The various consequences of global warming are being felt in various parts of the world. Leaders, regrouped at the COP21 meeting in Paris in 2016, strengthened their commitment to combating climate change, and agreed to an accord which gave them clean energy targets to achieve. This has led to increased investments in new energy sources which have nearly quadrupled since the last decade. New energy mega projects are now being built in countries such as India, China, and Saudi Arabia.

UN Sustainable Goal 7 aims at ensuring universal access to affordable, reliable and modern energy services to all and to substantially increase the share of renewable energy in the global energy mix. It seeks to double the global rate of improvement in energy efficiency and enhance international cooperation to facilitate access to clean energy research and technology. Through SDG 7, the UN will expand infrastructure and upgrade technology in order to provide modern and sustainable energy services to developing countries and LDCs.

Goal 8: Promote Inclusive and Sustainable Economic Growth, Employment and Decent Work for All

A key ingredient of economic prosperity and general well-being is that people are able to find decent jobs to support their families and themselves. The middle class around the globe is rising and becoming richer. However, the income inequality gap is widening around the globe and job creation is not growing at the same rate as the labour force. The main victims are young graduates, who are finding it extremely difficult to find employment after the completion of their studies. Over 200 million people are currently jobless around the world. The UN has established that Goal 8 is about promoting inclusive and sustainable economic growth, employment and decent work for all. The UN aspires to achieve this by sustaining per capital economic growth and specifically by reaching a target of at least 7 per cent Gross Domestic Product (GDP) growth per annum in the LDCs. By fostering diversification, technological upgrading and innovation, it aims to achieve higher levels of economic productivity. The focus will also be increased towards high value-added and labour-intensive sectors. Development-oriented policies will be promoted that support productive activities. Global resource efficiency will be maximised, and economic growth will be decoupled from environmental degradation in greater measures. SDG 8 aims to substantially reduce the number of youth in unemployment and to ensure productive work for men and women across all age groups. Goal 8 also seeks to eradicate forced labour, end modern slavery and human trafficking, and secure the prohibition and elimination of the worst forms of child labour.

Goal 9: Industry, Innovation and Infrastructure

Infrastructure development in areas such as water management, transport, energy and information and communication technology are key to the sustainable development of a country. It has long been established that growth in income, productivity, education and health are all directly correlated with the development of good, reliable infrastructure. Such infrastructures are severely lacking in developing countries which are often plagued by rampant corruption. Approximately 2.6 billion people do not have access to electricity, mostly in Asian and Sub-Saharan Africa. Some 1 billion people still do not have access to phone networks and services.

Besides the basic infrastructural need of a community such as health care, sanitation and transport, technological infrastructure is key to competing in this globalised world. Additionally, adequate amenities for health care, sanitation and transport as well as universal access to the internet have become crucial for nations to compete in a globalised world. The goal also aims at buttressing scientific research and innovation in LDCs. The UN wants to enhance the role of sustainable industrialisation and increase the share the latter has in national GDP of both developed and developing countries.
Goal 10: Reduce Inequality Within and Among Countries

Combating poverty is a global issue that every nation is trying to fight. However, the most vulnerable nations, such as the small island development states, and the landlocked countries, do not have the same resources and relative advantages that other countries possess. Therefore, one of the major targets is to reduce inequality within and among countries, by providing resources and expertise to fight the different scourges of society. Economic growth, as can be seen from historical data, has not entirely resolved the problem of poverty but has caused growth in income inequality.

One of the negative side effects of economic growth is that it tends to cause growth in income inequality. Goal 10 targets to boost the growth of the bottom 40% of the population by a higher rate than the national average. It also seeks to promote inclusion of all — be it social, political or economic. Through the implementation of the right fiscal, wage and social protection measures, it aims to achieve greater equality. Another way that it can use to reduce inequality is better regulation of the global financial markets and better monitoring of financial institutions. Ensuring safe migration and mobility of people as well as encouraging enhanced representation of developing countries are means through which Goal 10 aims to safeguard the interests of those who find themselves at the bottom of the ladder.

Goal 11: Sustainable Cities and Communities

Cities and communities are the lifeblood of a country’s economy. They are hubs designed to ensure that society progresses economically and socially. Cities must be designed in a way that maximises the resources available while reducing common externalities such as pollution, congestion, and a declining infrastructure. Areas inhabited by rampant poverty, poor infrastructure and no hygiene such as slums would be destroyed and replaced by new buildings. It is estimated that about half of the global population lives in cities. The developing countries are set for an unprecedented expansion of urban cities.

The focus of the UN would also be to help countries make better informed decisions on how to invest in infrastructure in a way that reduces the impact that natural calamities and force majeur events have on society at large. Ideally, cities need to provide all their inhabitants with the same access to basic needs, and provide equal opportunities. The way to achieve this would be to develop safe and affordable housing and sustainable transport, protect the natural and cultural heritage, support positive links between cities and peripheral regions, safeguard the environment and mobilise resources to combat calamities and disasters.

Goal 12: Responsible Consumption and Production

Responsible consumption and production in broad terms entail maximising the efficient use of resources while minimising the waste products. Due to the highly industrialised nature of production cycles, where goods are being produced in large numbers, a very high percentage of the resources used often goes to waste, usually released in the air or in nearby water lands. By 2030, the UN wants to considerably decrease waste generation through different action guides such as prevention, reduction, and recycling. Throughout the production life cycle, they hope to achieve environmentally friendly management of wastes and chemicals, so that they have a minimum impact on the environment. According to UN estimates, about one third of the global food production goes to waste, which is equivalent to 1.3 billion tonnes of wastes costing about US $ 1 trillion per year (The UN SDG 12 Target and Info, 2017). This includes household and industrial waste.

The UN, hence, aims to foster responsible consumption and production by maximising the efficient use of resources and minimising waste products, while at the same time promoting safe and environmentally friendly recycling. One of the targets is to halve per capita food waste which tends to manifest at alarming levels because of food losses. The aim is also to promote environmentally sound management of chemicals and preclude the release of toxic substances into the atmosphere and the natural environment. One of the laudable targets of the UN is to support developing countries and LDCs in strengthening their scientific and technological capacity to achieve more sustainable patterns of production in order to minimise the impact of economic growth on the environment.
Goal 13: Urgent Action to Combat Climate Change and Its Impact

Climate change is the most urgent global issue humankind has to face. The main cause of global warming is the ill effects of greenhouse gases. A layer of greenhouse gases consists mainly of water vapour, carbon-dioxide, methane and other harmful gases. The layer is growing in thickness and the heat that is usually radiated back to space from Earth is trapped. This causes the global temperature to rise. Several impacts can be felt, such as rising sea levels, increased temperatures, and melting of polar ice, among others. Countries gathered during the COP 21 Paris Agreement 2016, formally recognised their obligations to start adopting policies to limit the rise of global temperatures to 2 degrees.

The UN SDG Goal 13 proposes to tackle climate change head-on and to mitigate climate change related hazards by reinforcing resilience and adaptive capacity and integrating climate change measures into national policies, strategies and planning. To enhance mitigation, the aim is to improve education, raise awareness and strengthen institutional capacity. The UN Framework Convention on Climate Change seeks to mobilise $100 billion annually to address the needs of developing countries in terms of mitigation strategies in order to fortify them against the hazards of climate change and related disasters.

Goal 14: Conserve and Sustainably Use the Oceans, Seas, and Marine Resources

Oceans are vital to sustaining life on this planet. They drive the currents, regulate temperature and are hosts for biodiversity. However, exploitation of the sea through overfishing and by throwing industrial wastes in lagoons has caused much damage to life under water. Fisheries subsidies would be subject to review and cut off if it is found that they contribute to unregulated and illegal fishing. The UN wants to combat such types of pollution and to protect the marine ecosystem. It seeks constant improvement in marine technology that enables further discovery of the deep ocean and helps unravel the mystery of the creatures that inhabit it. The UN wants to combat marine pollution, littering and marine nutrient pollution, to minimise ocean acidification and to curtail overfishing and illegal harvesting. In addition, it seeks to implement measures which foster scientific cooperation at all levels and to implement science-based plans to effectively manage marine ecosystems to avoid further damage and pollution. Furthermore, it seeks to prohibit certain forms of fisheries subsidies which contribute to overfishing. Finally, it also aims to empower small island developing states to achieve increasing economic benefits from the sustainable use of their marine resources geared towards fishing, tourism and aquaculture.

Goal 15: Life on Land

Extensive human activities and exploitation of resources are severely impacting forest life. Deforestation, including that of the Amazon, is on the rise due to massive exploitation of wood. This is negatively impacting the biodiversity of the forest, where the homes of many animals are being hacked down and several species are facing extinction if no remedial actions are taken. The UN wants to protect natural lands by promoting sustainable management of all the highly deforested areas of forests and to increase the rate of reforestation across the globe. Poaching and illegal trafficking are also being tracked down heavily and actions to curb the demand and supply of tusks and other prized parts of animals should be implemented as quickly as possible.

The UN SDG Goal 15 has to, as its main objective, be the guardian of terrestrial, inland and freshwater ecosystems such as forests, wetlands, mountains and drylands. It wants to reinforce international agreements to promote the sustainable management of forests, to stop deforestation in its tracks and to restore degraded forests by increasing afforestation and reforestation. It also aims to combat desertification and to preserve mountain ecosystems and rainforests. It seeks to take urgent action to halve the degradation of natural habitats, to end poaching and trafficking of protected species and to curtail the impact of invasive alien species on land. In doing so, the UN wants to safeguard biodiversity on land, forests and natural habitats to preclude the otherwise devastating effects of biodiversity loss and extinction.
Goal 16:  Promote Just, Peaceful and Inclusive Societies

While murder rates globally have been reduced, the rate of violent conflicts has risen. Violent conflicts can take the form of domestic violence, racism, verbal abuse, rapes and other types of violent conduct. Goal 16 has to, as its primary aim, significantly reduce all forms of violence and conflicts worldwide. In order to ensure a fair and equitable society for everyone, the aim is to promote worldwide peace. The promotion of the rule of law plays an important role at national and international levels, especially in developing and least developed countries, where corruption and bribery undermine the true potential of the economy.

To promote worldwide peace, the UN seeks to uphold and further the rule of law, at national and international levels, and ensure equal access to justice for all. One of its more laudable targets is to considerably bring down illicit financial and arms flows in order to fight all forms of organised crime. It also intends to substantially reduce corruption by developing accountable and transparent institutions at all levels. In order to help developing countries, Goal 16 seeks to further their participation and involvement in instances of global decision-making and governance and foster participatory decision-making.

Goal 17: Partnerships for the Goal

Goal 17 is employed to ensure that countries and organisations cooperate instead of compete in order to further the cause of international cooperation. The aim is to develop multi-stakeholder partnerships to share knowledge, expertise, technology and financial support, which are critical to the overall success of the SDGs. On the financial front, the UN seems to petition developed countries in fulfilling their official development assistance commitments to developing countries and LDCs. On the technological front, the UN wants to foster the development, dissemination, transfer and diffusion of technology, especially environmentally sound technology, to aid the LDCs. As for systemic issues, the UN wants to enhance global macroeconomic stability and policy coherence for sustainable development. In order to increase monitoring and accountability, it also aims to generate better metrics to gauge levels of progress on sustainable development. Increasing international cooperation is seen as vital to achieving each of the 16 previous goals. Goal 17 is included to ensure greater cooperation among countries and organisations. Developing multi-stakeholder partnerships to share knowledge, expertise, technology and financial support is seen as critical to the overall success of the SDGs. Public-private partnerships that involve civil societies are specifically mentioned.

2.6 CHALLENGES AND COMPLEXITIES OF SDGS

The SDGs can be qualified as bold, ambitious and even, perhaps, utopian. The aim is to end poverty in all its various forms, empower women all over the world striving towards gender equality, protect the environment and the different forms of life on land and sea, and ensure decent living standards for everyone. These goals have, nonetheless, a precedent: the eight MDGs. Under MDGs, significant progress had been achieved on several issues: reduced poverty rates, and the reduction of annual global deaths of children by half during the 15 years of MDGs. However, some experts claim that MDGs had limited influence on these figures, as much of it could be attributed to the economic growth of developing countries such as that of China. Following is a list of complexities and potential challenges which nations may face while implementing the SDGs:

1) Numerous Goals and Different Countries’ Capacity to Adopt Them

The total of 17 SDGs chalked out by the UN does not take into consideration the fact that they might be too numerous. The goals could have been condensed and simplified into a shorter series in order to increase focus and facilitate implementation. Furthermore, different countries do not have the same resource bases to participate in the different goals, and have diverse national interests. Aligning these national interests to the SDGs is a very delicate task, as the SDGs are not binding
rules. Moreover, governments have not shown great appetite in funding the SDGs. Strong words, but a minimum amount of resources, have been pledged at the UN Financing for Development.

2) **Conflicting Goals and Benefits**

Some of the goals can contradict each other. For instance, achieving high GDP growth to boost food security and end poverty might undermine environmental agendas. Increasing wages and fighting unemployment can compete against reducing the cost of living.

In achieving the SDGs, some benefits will have to be sacrificed for others. Biodiversity could be undermined if forests are cut down to expand agriculture. Food security could be adversely affected if food crops are used for biofuel production to ensure energy security. Intensifying agriculture could impact water resources negatively. Achieving the SDGs will require astute balancing trade-off acts to ensure that the losses do not exceed the gains.

3) **Very High Cost of Implementation**

According to an estimate from *The Economist*, achieving the 17 goals will require approximately US $2-3 trillion per year over the next 15 years, which is an extremely high cost of implementation. This alone tends to make the goals unrealistic and unachievable. Governments alone would not be able to mobilise the capital and resource requirement. The business sector needs to be convinced that SDGs will not be achieved unless they partner with the appropriate authorities. The matter extends beyond corporate social responsibility and the corporate world should understand that their interests will be preserved by tackling climate change and the other various goals.

4) **The Challenge of Integration**

Organisations involved in working towards the SDGs need to be efficient and integrated. In other words, a multidisciplinary and “cross-sector” approach is needed, since, so far, these organisations have been functioning in a rather isolated way. To achieve sustainable development, the three sectors need to come together: economic, social and environmental. High levels of coordination and integration become very important.

5) **Progress Evaluation**

Many nations still have to work on how to institutionalise the goals. Figuring out how to measure progress will also be a difficult task. Appropriate metrics, data and indicators need to be developed in order to gauge how much progress is being achieved in order to meet the 2030 Agenda. Certain institutional structures and mechanisms will invariably need to be reviewed.

6) **Reaching Across**

Although the SDGs focus on tackling problems people can easily identify with, the awareness of the 17 SDGs is low globally. In a recent estimate, only 12% of the people of Denmark, for example, are aware that the UN has etched out a 2030 Agenda to achieve these goals (Ministry of Foreign Affairs of Denmark, 2017). The UN needs to do a better job of reaching out to its stakeholders and boosting its communication lines.

7) **Right Stakeholders**

Sustainable development requires different stakeholders operating together. National governments, international corporations, local and international NGOs and small villages have to be able to work together. For example, in relation to energy distribution, different stakeholders will need to be involved in order to decide on the installation of specific technologies, on ensuring sustainable energy systems and on achieving affordable pricing. This applies to the 16 other goals as well.
2.7 SDGS AND BENEFITS OF GOALS-BASED PLANNING

As organisations grow, they often evolve into a goals-based planning model. This model focuses on the major opportunities and challenges facing the organisation. Usually, the organisation begins by properly defining its vision and mission as well as core values before assessing its strengths and weaknesses. Once a thorough situational analysis is completed, the team begins to set goals and objectives that will fulfil the mission or mandate of the organisation.

There are usually three steps in carrying this out:
1. Identify the action steps needed to reach the goal, including who will be responsible for executing this part of the plan and what resources are needed.
2. Determine the strategies that will be employed in reaching the set out goal.
3. Agree on the metrics that will be used to track and measure the organisation’s progress towards reaching the goal.

At regular intervals (e.g. every quarter), officials gather and draw out conclusions on what has been achieved and what adjustments need to be made in order to reach the targets.

Within the context of the UN SDGs, a goals-based planning approach ensures that the targets are properly spelt out and that they have a specific time frame to them. A strategy is defined for each target and extensive planning goes into achieving each milestone.

The UN, in adopting a goals-based approach, takes a very structured approach to achieving its objectives:
1. They are well-defined and not ambiguous.
2. They are simple and easily relatable.
3. Progress, in relation to the different objectives, is measurable.

Having discussed the merits of goals-based planning, we now proceed to delineate the merits of the SDGs and the importance of the role of the UN as its upholder.

1. They are ambitious and make bold targets which are good for the world, especially for the critical problems we face. The UN is a unique platform with a special mandate, which garners the support of many countries. Without its intervention in critical issues such as sustainable development, climate action and poverty eradication, the world would probably face severe coordination issues in the face of the challenges posed by global crises.
2. With sustainability at the forefront of its agenda, the UN makes a poignant statement about the nature of development that the world would like to see. All too often, economic growth takes precedence over sustainability principles such as inclusion, equality and environmental stewardship.
3. The UN wants to increase the effectiveness of the various initiatives on climate change by more strictly regulating emissions and simultaneously buttressing investment in clean and renewable sources of energy. The COP21 is the main arm that spearheads such changes, and consensus has already been obtained from the signatories for specific targets to be met to limit the global temperature rise by 2 degrees Celsius.
4. The UN is working towards the promotion of environmentally friendly technologies in a way that no other organisation is. Many of the world’s most pressing problems, such as pollution, require the use of technology that is as clean as possible. With the SDGs, the UN moves to incentivise the private sector to employ environmentally sound technologies.
5. The SDGs require the synchronisation and coordination of many stakeholders in order to achieve set targets. The public sector will have to partner with the private sector. National, regional and transnational organisations will work together, creating a synergy unlike any in the past. In fact, Goal 17 states very clearly that it seeks multi-stakeholder partnerships to share knowledge, expertise, technology and financial support in order to achieve its targets.
6. The planet is undergoing a period of rapid change but all too often we find that this takes place at the cost of natural habitats and ecosystems. Deforestation for timber has led to the decimation of the Amazon rainforests, which are known to be the lungs of the planet. The UN SDGs intervene in order to curtail the deforestation, preserve natural habitats on land and boost afforestation and reforestation. The SDGs aim
to conserve and restore the use of terrestrial ecosystems such as forests, wetlands, drylands and mountains by 2020. Halting deforestation is also vital to mitigating the impact of climate change. Urgent action will be taken to reduce the loss of natural habitats and biodiversity which are part of our common heritage.

7. A special mention has been made about life in oceans, rivers and lakes. With UN SDG Goal 14, the UN assumes a unique stance in recognising the role played by the oceans in maintaining balance in the water ecosystem of Earth. The oceans even play a vital role in regulating climate. Over 3 billion people depend on the marine ecosystems and biodiversity for their livelihoods. The UN adopts an inclusive approach and seeks to safeguard the ecosystem of the ocean which is vital for Earth and its people.

8. One of the more ambitious goals of the SDGs is to eradicate absolute poverty by intelligently redirecting resources and implementing the requisite policies to support vulnerable communities. The UN, with its SDGs, wants to utilise its platform to bring international cooperation to grapple with poverty, now quantified by the availability of less than $1.25 per day for living.

9. Inclusion seems to be the vogue word with the UN SDGs 2017. To foster gender equality, increased and representational participation of women is going to be sought in instances of decision-making. The voice of minorities, the vulnerable and the under-privileged is also going to be taken on board in instances of global governance. A special emphasis is given to the participation of developing and least developed countries in organisations of global action such as the World Trade Organization (WTO), WHO, and the World Bank, among others.

10. The UN is arguably the only platform in the world which enables countries to take decisions on issues of an international and global nature. Usually, the objective that is sought cannot be achieved by a single nation acting alone. The very establishment of the SDGs is proof that international cooperation is not a myth and that there is indeed a guiding blueprint for the actions of the UN.

11. The world is plagued by conflicts of all sorts and instability among nations vying against each other. The UN acts as a platform for dialogue among countries and more often than not, this stunts the possibility of unnecessary military action. In so doing, the cause of peace is advanced across the world. Instances such as the International Court of Justice and other instances of global arbitration provides for the reign of international justice as well. This bodes well for a world that wants to unite in peace and prosper.

2.8 INTERRELATIONSHIP BETWEEN SDGS

The implicit logic of the 2030 SDGs is their interconnectedness despite how broad and diverse the goals are. Social, environmental and economic issues are all represented in the clearly defined 17 SDGs and policy makers should adopt them as a whole. If the overlaps are ignored by countries and each goal is addressed separately, countries risk perverse results. For example, using fossil fuels to improve energy access (Goal 7) in Southeast Asian countries would contribute to worsening climate change and may affect life in sea and on land, which contradicts Goals 13, 14 and 15.

If, however, goals that complement each other are identified and proper policies are implemented, a synergy can be created where the trade-offs are minimised, and the benefits maximised. For example, a greater percentage of an educated female population (Goal 4) would lead to better health and well-being (Goal 3), better chances of getting out of poverty (Goal 1) and also bridge the gender equality gap (Goal 5).

The fundamental problem of achieving this synergistic benefit and multiplier effect is that policy makers, government authorities and decision-makers, all operate in silos. Each ministry usually handles one aspect of national interest such as health, energy, sports, or economy. Reconciling these objectives is already unlikely, and reconciling their operating mechanisms seems utopian. In addition, the different stakeholders do not possess the required tools to identify which interactions are more important and how to tackle them.

Figure 2.2 shows a classification of SDGs into three categories:

1) Well-being
2) Infrastructure
3) Natural Environment
The people-centred inner circle of what is called the “well-being goals” has as its objective the welfare of people at both the individual and collective levels. To achieve this, ease of access to education on a continuous basis, and education for all without discrimination are deemed extremely significant.

The contribution of external factors is of paramount importance for the well-being concept to be achievable, and this includes clean water for drinking and washing purposes, food production, waste disposal systems and the provision of adequate sanitation services. The latter elements which constitute the middle circle “infrastructure goals” contain all the necessary networks and mechanisms for production, delivery, sale and distribution which support the “well-being” inner circle. Infrastructural development can take the forms of sanitation services, road and sea routes, electricity infrastructure, telephone and communication lines and grids.

Figure 2.2: Classification of the SDGs

The “natural environment goals” of the outer circle of the model bring to light the importance of the proper management of the environment and its concomitant resources with a view to ensuring their availability to future generations. They are concerned with the management of global natural resources such as land and oceans as efficiently and sustainably as possible.

Interestingly, the above diagram sets out a framework for policy makers. For instance, the institutions responsible for delivering the “well-being” and “infrastructure” part are clearly defined and well-established from the past; they are mainly health, welfare and education. They have the same core governance structure with great potential for synergy. However, they still exist in silos, and better cooperation and coordination among them are needed.

In the outer layer, the “natural environment goals” framework is not as clearly defined as the other two segments. The delivery mechanism by institutions is still relatively new and not as well-defined. Despite the fact that the COP21 Paris Agreement consolidated the need for institutions to prioritise the conservation and preservation of the environment, it is, nonetheless, an accord that is not legally binding. A country might challenge or opt out of the accord, just as the US has done under President Trump’s administration.
Infrastructure development can also be a source of conflict since it draws from the same natural resources to complete the projects; steel used for building a stadium could be used for building railways. Under the “infrastructure goals” umbrella, a variety of conflicts and lack of synergy are often aggravated by governance issues which usually characterise infrastructure development. Decisions are taken usually by elites and experts of the particular field and they would not always act in the best interests of the populace. A combination of private interests and weak form of transparency often shifts the onus from maximising social benefits to, instead, increasing private benefits of some corrupted individuals; a conspicuous occurrence in developing countries.

It can be concluded that a responsible governance of the SDGs can open the door for many opportunities while minimising the risk involved. Special care and attention should be given to developing the “infrastructure goals”. If authorities do not embark on proper planning of their infrastructural goals in a transparent way, it may adversely impact the “general well-being goals” and “environmental goals”.

## 2.9 BUSINESS OPPORTUNITIES WITHIN SDGS

In the past, sustainability was viewed by stakeholders, especially businesses, as something constrained to “green issues” but hardly as an integral part of a company’s business. That perspective is slowly changing. Companies in different sectors and in different parts of the world are confronting new disruptive forces: globalisation, increasing integration of technology, competition for resources and climate change. All these factors have led businesses to adopt new business models.

Sustainability has, as a result, moved from the company’s backstage, to its mainstream. Both the viability and existence of the company in the long term are threatened by concerns such as uncertain energy costs, increasing regulation on carbon emission, outright competition for resources, increasing global temperatures and availability of water, if they do not reshape their business models. Social media have further increased that need. Companies are increasingly being scrutinised as to how they are treating their workforce, and what kinds of practices they are involved in. Consumers are more likely to respond to a company that adopts good and sustainable business practices. It would also make sense from a marketing perspective for companies to adopt and portray to their client-base that their businesses follow sustainable practices.

The SDGs of the UN help those businesses avail themselves of a framework, a cohesive way to guide them towards environmental, social and economic sustainability. SDGs might seem like a continuation of MDGs of the UN, but they are very different for the most part. They are much more elaborate than MDGs and are relevant to companies to help build their sustainable business models. Businesses can better collaborate with the authorities, with both parties delineating their policy actions based on the SDGs. Investors are also more sensitive to companies that have sustainable risk profiles and understand the new sustainable business opportunities.

The Business & Sustainable Development Commission published a report in 2017, stipulating that a total of $12 trillion of revenue and business savings could be generated by SDGs across four main sectors by 2030: food and agriculture, energy, health and well-being, and sustainable cities. It also highlights 60 important market opportunities that can be achieved by implementing SDGs, such as sustainable mine reconstruction and sustainable farming; approximately 380 million new jobs could be created in the next two decades.

### 2.9.1 Energy and Finance

One way to understand how sustainable development shapes new business opportunities is through analysing the investment into sustainable energy. Figure 2.3 portrays global green energy investments, which have been computed by Bloomberg New Energy Finance, which has established itself as an authoritative source for green and sustainable data of green energy.
In 2004, global investments in clean energy amounted to 61.7 billion dollars and they kept rising every year, albeit they dipped slightly in 2016. To that end, various countries and large oil companies have increasingly invested significantly into renewable energy infrastructures such as new solar power plants, wind farms and other renewable technologies. China, India, and the developed countries such as Japan, Germany, UK, and USA are adopting new sustainable policies and are at the forefront of shifting from a fossil fuel-based economy to a low-carbon one by driving investments into renewable technology. It is worth noting that the cost of installation and running costs of renewable sources of energy are rapidly declining. The dip in 2016 of global investments can be explained by the cool-down of the Chinese and Japanese economies which had reduced their investment into new projects while they focussed on existing ones.

Although SDGs have much wider scopes and implications than energy investments, they are nonetheless a good way to gauge how resources are now being diverted into renewable sources, highlighting the growing importance of SDGs.

Figure 2.4 is a chart that depicts how each industry can impact the SDGs. It is unsurprising that most industries have the most important impact on the employment opportunities (Goal 8). Growth in any sector represents job opportunities for the population. Businesses and companies would normally invest in sustainable practices in which they have comparative advantages or relevant know-how and expertise. The chemicals industry, for example, will have the most impact on environmental goals such as climate change (Goal 13) and clean water and sanitation (Goal 6). It also has a huge part to play in fostering responsible consumption and production (Goal 12) and it needs to ensure that the use of fertilisers and waste disposal are reduced considerably, thereby enhancing the health and well-being of the population (Goal 3). The same construction can be given to the other industries and the different goals they have the most impact on can be shown in the chart that follows.
2.9.2 Examples of Sustainable Practices in Industries

Many of the established brands and large companies have modified their business plans to adopt sustainable practices. Below are a few examples (for more information on the examples provided hereunder, please visit the relevant websites of the companies):

**Nike:** The sports-gear multinational now uses sustainable design and chooses materials that are more environmentally friendly across its various products. The “Making app” has also been designed to gather an index of data of materials’ sustainability and they make such information available to the general public. This has the snowball effect of allowing designers and suppliers of the industry to make informed decisions about sustainable materials and designs, hence producing environmentally friendly products.

**Starbucks:** The CEO, Howard Schultz, asserts that Starbucks has doubled the efforts to engage with local producers and small communities in countries where they operate. The company has increased its research and development expenses into new sustainable farming techniques and has ultimately succeeded in reaching the goal of sourcing all of its coffee beans sustainably.

**Tesla:** It is arguably one of the staunchest promulgators of sustainability. In addition to the various policies which governments usually impose on car makers such as “increasing energy efficiency” and “lowering carbon emissions” to reduce their carbon footprint, Mr Elon Musk, the founder of Tesla — who views such an approach as minimalist — has geared the company’s business model to prove that driving electric vehicles is not a compromise but an opportunity. The company has, over the years, developed state-of-the-art battery technology and an electric powertrain that powers the Model S which is now used as a reference in the electric vehicle category. Besides manufacturing electric vehicles, Tesla also wants to build the new infrastructure Powerwall. It is a self-powered home that can independently power households during an entire day as well as the night. Tesla also wants to conquer space by its venture called Space X, which aims to revolutionise space technology.
2.9 UNIT SUMMARY

The SDGs, drawing from the legacy of the MDGs of the UN, have promulgated an agenda that will go up to the year 2030. The SDGs may be regarded as a framework to be worked upon by authorities and other stakeholders, in response to the social, economic and environmental challenges that the planet Earth faces. The SDGs are, however, not short of criticisms and challenges. Diverse national interests, high costs of implementation, conflicting goals, no appropriate and standard tools to measure progress, and few commitments to resources despite strong political speeches, are among some of the obstacles that may hinder the progress of achieving these goals.

However, SDGs have the merit of identifying and establishing goals and targets, to build a framework that will help guide authorities and businesses. To that end, the SDGs represent huge business opportunities if properly leveraged. While companies are expected to contribute to the sustainable cause under the umbrella of corporate social responsibility, global multinational companies such as Tesla, and Starbucks have developed entirely new business models with sustainability being at their core. SDGs also have the potential to boost employment, to enhance living standards, to protect the environment, and ultimately to save the planet and the human race, if the authorities and businesses work towards the same goals synergistically and in a collaborative manner.

2.10 SUGGESTED ASSIGNMENTS

1. Are the SDGs the answer to promoting sustainable development in different countries? Discuss.
2. What are the implications of SDGs on business, and how could businesses leverage them?
3. What are the probable difficulties facing the implementation of the SDGs?

2.11 SUGGESTED ASSESSMENT

Critically analyse five SDGs and discuss how businesses can profit from exploiting them. (25 marks).

2.12 REFERENCES

- Janse, K. A. (November 01, 2017), How to manage the top five global economic challenges, In Knowledge@Wharton, Retrieved from http://knowledge.wharton.upenn.edu/article/what-are-the-top-five-challenges-for-international-organizations
UNIT 3 STRATEGIES AND TOOLS FOR SUSTAINABLE BUSINESS

UNIT STRUCTURE

3.1 Introduction
3.2 Learning Outcomes
3.3 Terminology
3.4 Sustainable Strategic Management as a Conceptual Idea
3.5 Strategic Managers and Sustainable Strategic Management
3.6 Environmental Analysis
3.7 Corporate Sustainability Strategy
3.8 The Value Chain and Sustainability
3.9 Sustainability Balanced Scorecard
3.10 Unit Summary
3.11 Suggested Assessments
3.12 References and Additional Readings

3.1 INTRODUCTION

This unit considers the fundamental aspects of sustainability from a business strategy perspective. In particular, the notion of sustainability is based on the principles of profit, people and planet, and these need to be integrated when formulating business strategies. As such, this unit considers the different issues related to the integration of social and environmental aspects within corporate strategies.

3.2 LEARNING OUTCOMES

By the end of the unit, you should be able to do the following:

1. Explain the relevance of strategic management in the context of a sustainable business.
2. Discuss the roles and responsibilities of strategic managers.
3. Discuss the issues pertaining to environmental analysis for a sustainable business.
4. Assess the competitive level strategies under Porter’s Five Forces Model within the context of sustainability.
5. Assess the strategies under the value chain model, integrating social and environmental considerations.
6. Assess the issues underlying the Sustainability Balanced Scorecard.

3.3 TERMINOLOGY

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainable Development</td>
<td>Adopting business strategies and activities that satisfy the needs of the business and its stakeholders today while protecting, sustaining and improving the human and natural resources that will be required in the future.</td>
</tr>
<tr>
<td>Sustainable Corporation</td>
<td>A business that builds up profit for its shareholders while caring for the environment and enhancing the lives of those with whom it interacts.</td>
</tr>
<tr>
<td>Sustainable Strategic Management</td>
<td>Strategies and related processes linked with the permanence of better performance from both market and environmental perspectives.</td>
</tr>
<tr>
<td>Sustainable Balance Scorecard</td>
<td>Scorecard which incorporates concepts linked to the TBL, profits, people and the planet to evaluate the company’s performance based on the traditional four perspectives (customer, internal process, learning/innovation and financial).</td>
</tr>
<tr>
<td>Corporate Sustainable Strategies</td>
<td>Strategies which incorporate the TBL, profit, people, planet in line with the business vision and mission.</td>
</tr>
</tbody>
</table>
3.4 SUSTAINABLE STRATEGIC MANAGEMENT AS A CONCEPTUAL IDEA

According to the International Institute for Sustainable Development (IISD)\textsuperscript{16}, for the business enterprise, sustainable development means adopting business strategies and activities that meet the needs of the enterprise and its stakeholders today while protecting, sustaining and enhancing the human and natural resources that will be needed in the future.

As we regulate the environment, costs are incurred, and these constrain the economic development of a business. In particular, there is a trade-off between a healthy environment and the sustained growth of a business. However, with new forms of strategic thinking processes, it is possible to simultaneously achieve the triple bottom line in terms of environmental protection, social well-being and economic development. Such strategies can only serve to contribute towards a sustainable business.

In the early 19th century, with the advent of industrialisation, businesses’ focus was mainly geared towards fostering efficiency — doing things right rather than on doing the right things — in order to maximise their profits. But, successful managers have to be both efficient and effective. However, according to Stead and Stead (2008), “Doing the right things in the right ways clearly begs the ethical question: ‘What is right?’”. Such an analogy has led to the consideration of ethics in business practices. The emergence of ethics is a key ingredient, which needs to be considered by the various stakeholders when formulating strategies. In traditional business models, the mission was to focus on shareholders’ interests as being the only stakeholders whose needs must be satisfied. However, with the need to have ethical considerations in businesses, this has now led to the reflection of one’s business strategies on other stakeholders. It has thus become obvious that not considering the needs and interests of other stakeholders such as customers, employees, communities, and societies may render the long-term prospect of the business bleak. In a similar vein, the social and ecological considerations began to take shape in the 1970s, where organisations realised that their performance was linked to the external environment.

As such, according to an independent advisory firm, Sustainable Business Strategies, established in Boston by Andrew Savitz\textsuperscript{17}, for businesses, sustainability is a powerful and defining idea: a sustainable corporation is one that creates profit for its shareholders while protecting the environment and improving the lives of those with whom it interacts. It operates so that its business interests and the interests of the environment and society intersect. A sustainable business stands an excellent chance of being more successful tomorrow than it is today, and remaining successful, not just for months or even years, but for decades or generations\textsuperscript{18}.

To this effect, it is imperative for businesses to develop strategies which will transform environmental and social responsibility into opportunities rather than costs for them. If these strategies are carefully crafted to take on board all different stakeholders, there will be a win-win situation for everyone.


3.5 STRATEGIC MANAGERS AND SUSTAINABLE STRATEGIC MANAGEMENT

Strategic managers are key change agents since they can transform the mission and strategic goals of a business from a traditional profit-oriented organisation into a sustainable business which pursues social and ecological objectives. Collectively, strategic managers decide on the welfare of society and the environment. It is thus important that they take an active role in bringing the required changes that will help establish a balance in the economic, social and environmental systems which, in turn, will be sustainable in the long run. The strategic managers will need to affirm their strong values and beliefs in the organisation to bring a transformational change in the mindsets of individuals, communities and other stakeholders. In particular, the strategic managers should perceive individuals, communities and other stakeholders as living entities which can add value to their organisation rather than as consumption-production machines. Nature and humankind should not be viewed as usable and exploitable. Specifically, strategic managers should lead their organisation by bringing a transformational change in business processes, a change that moves towards sustainable strategic management, taking into account profitability, people and the planet.

To bring such a change from traditional strategic planning to sustainable strategic management, the following conditions must be met:

1. Strategic managers should play a proactive role, and should have the required support.
2. The change needs to be team-based, collaborative and participative rather than directive or coercive where stakeholders are forced to accept the change.
3. The culture of the business, that is the norms and values, should also be an integral component of the change.

Given these basic requirements, strategic managers must then consider, and adopt, strategies which simultaneously improve the triple bottom line: economic success, ecological gains and social responsibility. To this effect, with regards to sustainable strategic management, leadership is fundamental for driving the business to meet the triple bottom line objectives. However, for effective leadership to materialise, the different roles of the strategic managers, according to Senge (1990), can be categorised as designers, stewards and teachers.

Designers should be able to craft ideas which will be geared towards a purpose. The strategic managers must be able to envision ideas which will allow them to pursue their aspirations towards meeting sustainable strategic goals. According to Collins and Porras (1994), “having a great idea or being a charismatic visionary leader is time telling”. Building a company that can prosper far beyond the presence of any single leader and through multiple product life cycles is “clock building”. The builders of visionary companies are clock builders, not time tellers.

Strategic managers acting as stewards are known to be servant leaders. They serve the company’s long-term interests rather than their own short-term personal gains. These strategic managers inspire trust from others as they are committed to the long-term survival of the firm.

Strategic managers should also act as teachers in that they should be able to create processes and structures within the organisation to facilitate learning. Creating an appropriate environment for learning among organisational members is vital as it allows for open discussions and fosters an interchange of ideas for the organisation to succeed.

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The main roles and functions of the strategic managers with regards to sustainable strategic management can be as follows:

| Imparting Core Values | Strategic managers need to impart core values which will shape the vision, mission and strategies of the business. The vision or the mission should integrate the social and environmental concerns of internal and external stakeholders. They should explicitly state that their businesses strongly stand for sustainability. As an example, based on Porsche Sustainability Report 2016, it is stated that “… sustainable action is a central business objective of the Porsche Strategy 2025. As a cross-sectoral issue, sustainability is firmly anchored in all areas of the company. Responsibility for this matter lies directly with the Chairman of the Executive Board. For Porsche, the assumption of responsibility for people, the environment and society is a central task of the company”. |
| Stakeholders Management | Stakeholders have different needs and power in the organisations. Managers must be able to manage them to ensure the survival and success of their business in the long run. They must be able to design organisational strategies to attend to the needs of each stakeholder group. As an example, shareholders might have legitimate expectations in terms of profit maximisation while workers have expectations in terms of job satisfaction and promotion. There could also be stakeholders such as communities or governments who may be concerned with the environment. For promoting sustainability, managers must be able to manage the expectations of the different stakeholders by reconciling the balance among profit, people and planet. |
| Changing Culture | Strategic managers act as change agents who are responsible for leading the change in the organisational culture. To lead such transformational change, the strategic managers must set up the learning structures which will motivate and inspire employees to contribute to this change towards sustainable long-term values. |
| Fostering Spiritual Intelligence | Strategic managers must foster the use of spiritual intelligence to allow employees to think outside the box. According to Stephen Covey (2004), “Spiritual intelligence represents our drive for meaning and connection with the infinite. Spiritual intelligence also helps us discern true principles that are part of our conscience…” (p. 53). Fostering such types of intelligence creates a sense of self awareness and inclination to give something back to society and the planet. This type of behaviour can only drive a sustainable firm. |

3.6 ENVIRONMENTAL ANALYSIS

Businesses very often have to tackle changing circumstances as a result of ever-evolving environmental changes. However, such changing patterns, albeit challenging for the firms, also do offer various opportunities from which the companies may benefit. Nonetheless, the environment is becoming more and more complex as evolutionary forces create unexpected turbulences for businesses. During the last four decades, there have been a number of environmental mishaps which have impacted the way organisations do business. One example is the Arab Oil Embargo in the early 1970s which established the importance of natural resources in the international market, and which paved the way for an economic global race. Another example is technological advancements which altered the way people work, the way they communicate and the general way of life. In addition, there has been the emergence of green consumers with high expectations on ecological considerations which have impacted the way business decisions are taken. These environmental turbulences have indeed questioned the traditional environmental scanning and have called for dimensions of sustainability to be integrated when assessing the environment.

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3.6.1 Macroeconomic Analysis

Traditional strategic management considers the political, legal, economic, technological, socio-cultural and demographic factors when assessing the environment. Indeed, the convergence of these forces provides opportunities and/or threats to businesses. For instance, the average population age is lower in developing countries than in developed countries. This provides greater opportunities for businesses in the labour market in developing countries, mainly in terms of having a young and dynamic labour force at their disposal. Society is indeed an important macro environmental force but one has to note that nature and humankind are highly interconnected. As such, when formulating sustainable strategies, the inclusion of the ecological sector is critical. For instance, Stead and Stead (2014), argue that “the ecological sector would entail understanding the ecological impacts of the firm on natural environment, including gathering pertinent data on resource depletion, pollution, energy use and climate change” (p. 63).

There are three variables, namely, population growth, economic growth and technological advances, which interact to impact the environmental changes related to human activities. The interaction of these variables can be explained by the following arguments. Specifically, as world population grows, there is increasing pressure to augment production and consumption, with the resulting positive impact of promulgating growth. However, at the same time, with technological support, the rate of production and consumption increases and this impacts the environment in terms of depletion of natural resources, leading to more environmental damage. In the same vein, Stead et al. (2004) argue that, “… like a wheel, the environmental issues faced today begin with the interactions among these three central variables and radiate out into the larger ecosystems” (pp. 34). As such, to be able to understand the ecological considerations from a macro perspective on the business, Stead et al. (2004) use the following wheel diagram to delineate the interactions of these three variables on the environment.

Figure 3.1: The Wheel Issue

Based on Figure 3.1, Stead and Stead (2004) argued that the three variables — population growth, economic growth and technological advances — lead to a first layer of increased production and consumption. The consequences of increased production and consumption lead to resource depletion and increase in pollution. This is represented by the second layer. The third layer shows the final possible effects on the environmental damage caused.

### 3.6.2 Industry and Competitive Analysis

One common traditional industry analysis framework remains Porter’s Five Forces Model (1979). According to Stead et al. (2004), this model, like any traditional model, implicitly assumes a static perspective on “what is” within the industry which means focusing only on the present state of the industry and assuming that the nature of the industry does not change over time. Stead et al. (2004) report that “like so many other models used to make strategic decisions today, the implicit assumption of this model is that the industry is operating within an economy closed to the greater society and ecosystem” (p.72). This traditional model assumes that there are industry boundaries and these boundaries are well-defined. The following diagram shows the traditional industry analysis based on Porters’ Five Forces.

**Figure 3.2: Traditional Industry Analysis**

![Traditional Industry Analysis Diagram](Source: Stead et al. (2004), Sustainable Strategic Management.)

Based on the above, we notice that it is the structure of the environment which has an impact on the conduct and performance of the firm. However, integrating the dimensions of sustainability within an industry analysis, we may assume that this relationship becomes bi-directional since the environment can also change, following the conduct and performance of the firm. Within the concept of sustainable strategic management, there is the idea of a co-evolutionary industry where there is no well-defined boundary for the industry and where we refer to a community of firms evolving together. In that case, firms compete as well as cooperate for the best interests of society and the environment. Interdependent relationships among firms dealing in complementary products are created within a co-evolutionary industry and firms which are adversaries recognise the need to work together, taking into account the interests of common stakeholders. For instance, a community of firms will cooperate towards sustainable development through the use of renewable energy. Based on Stead et al. (2004), the industry analysis will not only be “what is” but also “what can be”. The following diagram illustrates the “what can be” industry, taking into account the social and ecological factors.
In Figure 3.3, the firm has its own traditional business process ranging from input, suppliers, manufacturing, and marketing, to an output. A firm’s output needs to bring value to be able to compete in the industry. However, at the same time, it needs to cooperate with different stakeholders and other competitors for the industry to be sustainable in the long run. In this respect, stakeholders’ and competitors’ networks are important to create a sustainable ecosystem within the industry.

### 3.7 CORPORATE SUSTAINABILITY STRATEGY

The development of a corporate sustainable strategy requires first and foremost the support of the CEOs, senior management executives and the board of directors. The senior management should be able to agree on a given policy towards sustainability and what resources are needed to achieve the corporate sustainable goals. The company should then proceed with the identification of the different areas where it can have the most significant impact.

According to Epstein & Buhovac (2014), the social, environmental, and economic issues impacting a company generally fall into three categories:

1. General sustainability issue: Issues that are important to society, the environment, and the economy, but which the company is not able to influence.
2. Value chain sustainability impacts: Issues that are affected by the company’s activities.
3. Sustainability dimensions of competitive context: Issues in the external environment that affect the drivers of competitiveness where the company operates (p. 54).

Given the above, a company should be able to identify the issues which have the most important impact on sustainability. Once this is done, it can formulate a sustainability strategy in line with its missions and values.
There are three stages through which sustainability strategies can be developed. These are as follows:

1. **Regulatory Compliance**: The first stage relates to the management of regulatory compliance. At this particular stage, companies formulate regulatory compliance strategies to ensure that they conform to the various social, environmental, and economic regulations in the country. In particular, the aim is to develop strategies which meet the regulatory standards rather than to seek new strategies which might increase competitiveness but decrease the impact of sustainability. The company must also identify possible legal risks if social and ecological issues are ignored. For instance, a corporate environmental policy statement should minimise the risks of failing to comply with the environmental laws. Similarly, the social dimension of sustainability could be taken care of by the development of a transparent and equitable recruitment policy. These policies should minimise any risk of litigation and help the company to move towards global sustainability standards.

2. **Competitive Advantage**: In stage 2, according to Epstein & Buhovac (2014), “substantial competitive advantages can be achieved through improved sustainability performance” (p. 55). The companies can improve their sustainable performance through different means. For instance, by setting strong safety and new environmental technology standards, they can use their resources more efficiently, improve the quality of their products and gain competitive advantages.

3. **Social, Environmental, and Economic Integration**: At this stage, the company focuses on sustainability planning rather than on compliance. Based on Epstein & Buhovac (2014), “…companies create profits from antipollution efforts, ‘closed-loop’ production, improved operational and employee efficiency and effectiveness, and improved products and services. They recognize that long-term economic growth must be socially, environmentally, and economically sustainable” (p. 56).

### 3.8 THE VALUE CHAIN AND SUSTAINABILITY

Based on Porter’s Value Chain Model, companies could integrate the TBL of profit, planet and people within their primary and support activities. The following diagram illustrates the areas where sustainability can be promoted within the organisation.

**Figure 3.4: Value Chain Model and Sustainability**

![Diagram of Value Chain Model and Sustainability](source: Epstein and Roy (1998), “Managing Corporate Environmental Performance” and adapted from Porter (1990) The Competitive Advantage of Nations.)
In particular, the functional areas of the business entail that the business has a procurement system from suppliers who adhere to the ideologies of sustainability and who have some ecological and social concerns. With regards to inbound logistics, once the supplier has been chosen, and the raw materials have been procured, the firm must ensure that their storage and transportation systems have the least environmental impact. With regards to operations, firms must use energy-efficient methods of production and must take into account health and safety issues of all stakeholders. As for outbound logistics, the business must ensure that there is a waste disposal policy, and that both the packaging and distribution of goods are completed using environmentally friendly means. The marketing of the products must also be carried out by the firm, highlighting the ecological features of the products and using e-marketing methods rather than traditional marketing techniques. The after-sales service provided by the company could involve the development of a policy of exchange or recycling of defective or used products. The firm’s infrastructure can be eco-friendly with the use of solar energy as an example of sustainable support activities. The firm can also invest in research and development to be able to adopt innovative methods of production and processes which have minimal impact on society and the environment. Finally, the firm can inculcate a culture of sustainability among its employees to increase environmental awareness.

For more ideas, or an illustrative example, we consider the following video, available from YouTube: https://www.youtube.com/watch?v=cpYhgqPRivw. This video provides a brief illustration of the value chain and sustainability at Unilever.

3.9 SUSTAINABILITY BALANCED SCORECARD

According to Kaplan & Norton (1992, p. 5), the balanced scorecard allows managers to look at the business from four important perspectives. It provides answers to four basic questions:

1. How do customers see us? (customer perspective)
2. What must we excel at? (internal business perspective)
3. Can we continue to improve and create value? (innovation and learning perspective)

The sustainable balance scorecard integrates concepts linked to the triple bottom line — profits, people and planet — to assess the company’s performance based on the above four perspectives.

According to Figge et al. (2002), “… environmental and social aspects can be integrated in the balance scorecard in three ways. Firstly, environmental and social aspects can be integrated in the existing four standard perspectives. Secondly, an additional perspective can be added to take environmental and social aspects into account. Thirdly, a specific environmental and/or social scorecard can be formulated”22 (p. 73).

The first approach integrates social and environmental aspects within the four perspectives of the traditional balance scorecard. As such, there are KPIs which are included within the four perspectives, taking into account the environmental and social dimensions. However, one criticism of this approach, according to Figge et al. (2002), is that “exchange processes and resource flows outside the market mechanism are hardly considered” (p. 73). A second approach considers the addition of a new non-market perspective in the balance scorecard. The idea is that not all environmental and social aspects are considered by the market mechanism. There are externalities which spill over through non-market systems. Hence, it is proposed that a non-market perspective to the traditional balance scorecard is added. The third approach consists in the building of an environmental/social scorecard based on the traditional balance scorecard. However, this scorecard will depend on the traditional perspective of the balance scorecard. According to Kaplan & Norton (2001), “deriving such a scorecard can serve to clarify the relationship of an internal service unit with the strategic business units and their scorecards” (p. 48).

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The choice of which approach is the most suitable is not taken at the start but rather during the process of building a sustainable balance scorecard. To this effect, according to Figge et al. (2002), there are three major steps for building a sustainable balance scorecard. These are as follows:

1. Choose the strategic business unit.
2. Identify the environmental and social aspects.
3. Assess the strategic relevance of ecological and social considerations of the SBUs.

The following diagram summarises the steps, as mentioned above, for building a sustainable balance scorecard.

**Figure 3.5: Process of Formulating a Sustainable Balance Scorecard**

3.10 UNIT SUMMARY

This unit has considered key issues which are important for a business to consider when formulating strategies which take into account the elements of sustainability. In particular, the triple bottom line — profit, people and planet — must be integrated within the mission and vision of the business. In this endeavour, the roles of strategic managers are essential in promoting the right values and culture within the organisation. Firms must be able to understand the key variables which impact their environment. With regards to industry analysis, firms must alter their mindsets from “what is” the industry to “what can be” the industry, while taking into account the social and ecological factors. Furthermore, a company should be able to identify the issues which have the most important impact on sustainability, and it should be able to formulate a sustainability strategy in line with its missions and values. Moreover, based on Porter’s Value Chain Model, companies could integrate the TBL of profit, planet and people within their primary and support activities. Finally, firms could use the sustainability balanced scorecard to develop strategies which integrate social, environmental and economic considerations.
3.11 SUGGESTED ASSESSMENTS

Assessment 1

“Cars have a considerable impact on people, the environment and society. They use up resources when they’re being made and when they’re being used. They emit pollutants, make noise, take up space. They have to be repaired and somewhere along the line they have to be recycled. What’s clear against this background is that we shoulder a very particular corporate social responsibility.” Within this context, it is further argued that “Sustainability managers must seize the opportunity that digitalisation brings and engage in the process at an early stage. This is the only way to safeguard its positive effects for mankind and the environment.” (Porsche Sustainability Report of 2016)

Discuss the role of those managers in formulating strategies which abide by the ideologies of sustainability at Porsche.

Hint:

1. Consider the following web link to download the sustainability report
2. Word limit: 3,000 words

Assessment 2

According to the Stock Exchange of Mauritius (SEM), the “SEMSI tracks the price-performance of those companies listed on the Official Market or the Development & Enterprise Market which demonstrate strong sustainability practices”. As of 2017, there are 13 companies which have been able to meet the criteria set by the SEM on sustainability practices.

You are required to briefly write a report on the sustainable strategies of those 13 listed companies and assess how far their strategies bring value to the environment and society.

Hint:

1. Consider the following web link to look for the constituents of SEMSI and download the sustainability report from the company’s website. [http://www.stockexchangeofmauritius.com/about-semsi/](http://www.stockexchangeofmauritius.com/about-semsi/)
2. Word limit: 3,000 words.

3.12 REFERENCES AND ADDITIONAL READINGS

UNIT 4 INTEGRATED REPORTING

UNIT STRUCTURE

Part I

4.1 Introduction
4.2 Learning Outcomes
4.3 The Existing Financial Reporting Framework and the Problems Surrounding It
4.4 Components of General Purpose Financial Statements and Their Usefulness
4.5 The Qualitative Characteristics of Useful Financial Information
4.6 Users of Accounting Information
4.7 Definitions and Recognition Criteria of Elements in Financial Statements
4.8 Problems with Traditional Financial Reporting
4.9 The Need for Integrated Reporting
4.10 References

Part II

4.11 Components of the Integrated Reporting Framework Proposed by the International Integrated Reporting Council
4.12 The New Integrated Reporting Framework
4.13 Key Components
4.14 The Challenges in Implementing Integrated Reporting
4.15 Assessment
4.16 References

Part I

4.1 INTRODUCTION

Over the years, annual reports have compiled and disclosed an increasing array of corporate information. However, financial analysts, investors, independent observers, academics and researchers denounce a perceived information overload without necessarily a corresponding increase in reporting quality, understandability and usefulness. Indeed, many experts across the globe observe that current financial reports provide investors with limited forward-looking information surrounding the company’s strategies, activities, risks and basis for its competitive advantage. And this is why this unit will discuss the Integrated Reporting Framework of 2013 which attempts to bring together, under one consolidated and integrated report, not only the financials of the firm, but also the environmental, social and governance dimensions that are equally important to ensure sustainable performance and the survival of the firm.

The aim of this unit is to first provide an insight into the existing financial reporting framework and the concerns raised regarding the usefulness of the information produced by the existing reporting framework, and second to discuss the Integrated Reporting Framework proposed by the International Integrated Reporting Council (IIRC) in 2013 and its implementation problems.

4.2 LEARNING OUTCOMES

By the end of this unit, you will be able to do the following:

1. Explain who the main internal and external users of accounting information are, and their specific information needs.
2. Compare the existing reporting framework with the 2013 Integrated Reporting Framework proposed by the IIRC.
3. Describe what is meant by a conceptual framework of accounting.
4. Explain how to apply the recognition criteria to recognise assets, liabilities, income and expenses.
5. Discuss what is meant by relevance and faithful representation, and describe the qualities that enhance these characteristics.
6. Discuss the problems with traditional financial reporting.
7. Explain the need for Integrated Reporting.
9. Discuss the challenges surrounding implementation of Integrated Reporting.

4.3 THE EXISTING FINANCIAL REPORTING FRAMEWORK AND THE PROBLEMS SURROUNDING IT

4.3.1 Introduction to the Conceptual Framework

The basis for any financial reporting framework is a conceptual framework. A conceptual framework consists of a set of fundamental principles which underpins financial accounting, and, as such, it provides a sound theoretical basis for the development of accounting standards.

The “IASB Framework for the Preparation and Presentation of Financial Statements” was introduced in 1989 and is currently being replaced by a revised conceptual framework entitled “Conceptual Framework for Financial Reporting”. This is the result of an IASB/FASB joint project which is being carried out and worked upon in phases. The first phase of the new conceptual framework saw the publication in 2010 of Chapter 1 “The Objective of General Purpose Financial Reporting” and Chapter 3 “Qualitative Characteristics of Useful Financial Reporting”. Chapter 2 “The Reporting Entity” is yet to be issued, and Chapter 4 embodies the existing text of the 1989 framework, and covers elements of financial statements, recognition and measurement criteria.

In May 2015, the IASB issued an exposure draft of “The Conceptual Framework for Financial Reporting”. It proposes revisions to the definition of elements in the financial statements and revisits the recognition criteria for recognising assets, liabilities, income and expenses in the financial statements.

4.3.2 The Objective of Financial Statements, General Purpose Financial Reporting and its Underlying Assumptions

The aim of financial statements is to provide information about the reporting entity that is useful to existing and potential investors, lenders and other creditors in making decisions about providing resources to the entity. It can be observed that the term “information” in the above statement is not constrained to just financial information but it also encompasses all information about the reporting entity that will allow investors to make economic decisions. Traditional financial reporting tends to limit itself to backward-looking financial information about the financial position, performance and changes in financial position.

The conceptual framework makes it clear that financial information should be prepared on an accruals basis (not a cash basis, using the recognition criteria for recognising income, assets, expenses and liabilities) and a going concern basis (i.e. the firm will not curtail the scale of its operations in the foreseeable future). The going concern assumption in itself embodies the sustainability principle of the firm in the sense that the firm will adopt strategies and governance mechanisms to ensure its long lasting survival and that it will present its reports that reflect continuity of the business.
4.4 COMPONENTS OF GENERAL PURPOSE
FINANCIAL STATEMENTS AND THEIR USEFULNESS

4.4.1 Statement of Financial Position

The financial position of the company (also known as the balance sheet of the firm) is affected by the economic resources it controls, its financial structure, its liquidity and solvency, and its capacity to adapt to changes in the environment in which it operates. The statement of financial position of a firm is deemed to be useful in predicting the ability of the enterprise to generate cash and cash equivalents in the future. Indeed, the fact that the statement shows the asset base or resource base of the firm will provide users with an indication of the potential of the firm in generating future cash flows. Readers’ attention is directed towards the section which defines an asset, as this is relevant to understanding the ability of the firm to generate future cash flows.

Information about the entity’s economic resources and the claims against it — its financial structure (the proportion of the assets of the firm that are financed by equity investors and debt investors)—helps users to assess the firm’s liquidity and solvency together with its likely need for additional financing.

Liquidity refers to the availability of cash in the near future after taking into account financial commitments over the same period (Can the company pay end-of-month salaries, interest charges, … ?)

Solvency refers to the availability of cash over the longer term to meet financial commitments as they fall due (Does the company have access to funds to finance its longer term commitments such as capital investment or the reimbursement of a loan?). The capital structure will be useful to equity investors (a high level of gearing increases financial risk borne by equity investors and results in greater variability in the return for the equity investor) and also employees (if gearing is too high, the risk of bankruptcy and of employees losing their jobs might be increased).

4.4.2 The Statement of Profit or Loss and Other Comprehensive Income for the Period

The statement of profit or loss and other comprehensive income for the period provides information about the performance of the firm — its profits and the variability of its profits from one year to the next.

Since profits increase net assets, the company has more resources under its control which in turn means that it can generate more future cash flows. Information about performance and variability in performance is therefore deemed to be useful in:

- assessing potential changes in economic resources that the enterprise is likely to control in the future
- predicting the capacity of the enterprise to generate cash flows from its existing resource base
- evaluating the efficiency with which the enterprise might employ additional resources.

The problem with having two sections (profit or loss section and the other comprehensive section) in this income statement is that the conceptual framework is unclear as to the underlying principles governing the types of income that would be reported under the profit or loss section and those that would be reported under the other comprehensive income section. At the moment, we need to refer to guidance in the accounting standards to understand how to classify income in the two sections but the conceptual framework itself is silent on the matter. For instance, revaluation gains on property, plant and equipment are, according to IAS16, classified under other comprehensive income, but fair value gains arising on equity financial assets are usually classified, according to IFRS 9, within profit or loss even though the equity financial assets have not been sold at balance sheet date.

The statement of cash flow also helps users to assess changes in the firm’s economic resources (via the cash flows generated in operating activities, investing activities and financing activities), the quality of the
firm’s profits (i.e. the ability of the firm to convert operating profits into operating cash flows), and also the ability of the firm to generate future cash flows.

A complete set of general purpose financial statements will therefore contain:

1. A Balance Sheet (or Statement of Financial Position)
2. An Income Statement (or Statement of Profit or Loss and Other Comprehensive Income)
3. A Statement of Changes in Equity (to capture owner-based changes)
4. A Cash Flow Statement (primarily to show changes in financial position)
5. Notes to the Financial Statements.

4.5 THE QUALITATIVE CHARACTERISTICS OF USEFUL FINANCIAL INFORMATION

The 2010 Conceptual Framework categorises qualitative characteristics into two groups, namely, Fundamental Qualitative Characteristics and Enhancing Characteristics.

4.5.1 Fundamental Qualitative Characteristics

Relevance: Relevant financial information has the ability to influence economic decisions of users by helping them evaluate past, present or future events or confirming or correcting their past evaluations. The relevance of information is affected by its nature and materiality.

Information is material if its omission or mis-statement could influence the economic decisions of users on the basis of the financial statements. It should be noted that the more timely the information, the more relevant is the information.

Faithful representation: This means that financial information must faithfully represent the phenomena that it purports to represent. According to the “Conceptual Framework for Financial Reporting” (revised and renamed in September 2010), three characteristics must be present for there to be faithful representation: completeness, neutrality and error-free.

Therefore, reliability depends on:

- **Substance over form**: Faithful representation implies that transactions are recorded to reflect their economic reality and not merely their legal form (see Activity at the end of session).
- **Neutrality**: Information contained in the Financial Statements (FS) must be free from bias. FS are not neutral if they are presented in such a way as to deceive users.
- **Free from error**: There should be no errors or omissions in the description of the economic information and also no errors in the process by which financial information was produced. This implicitly means that the financial information in the FS is reliable and verifiable. The greater the verifiability of the financial information, the more likely that it will be error-free.
- **Completeness**: An omission can cause information to be false or misleading and thus put into question its reliability.

**Tutorial Note:** The Conceptual Framework no longer includes the concept of Prudence which stated that assets and income should not be overstated, and liabilities and expenses should not be understated. It would be obvious to you that if elements in the FS are overstated or understated, then the FS would not be free from error, and therefore would not embody the principle of faithful representation. Faithful representation, therefore, is deemed to take care of the concept of Prudence.

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23 Based on the revised “Conceptual Framework for Financial Reporting” issued in September 2010
24 “timeliness” means having information available to decision-makers in time to be capable of influencing their decisions.
4.5.2 Enhancing Qualitative Characteristics

- **Comparability**: Useful financial information should be comparable with financial information of the entity that relates to a different period, and with financial information relating to other entities. In practice, comparability is achieved by a combination of consistency and disclosure.

- **Users**: Users must be informed of the accounting policies employed in the preparation of FS, any changes in those policies and the effects of such changes. This is why it is important that FS show corresponding information for preceding periods.

- **Understandability**: Useful financial information should be understood by users with a reasonable knowledge of business and accounting.

- **Timeliness**: Information may become less useful if there is a delay in reporting it. There needs to be a balance between timeliness and the provision of reliable information.

4.6 USERS OF ACCOUNTING INFORMATION

4.6.1 Who Are the Internal Users of Accounting Information?

<table>
<thead>
<tr>
<th>Users</th>
<th>What decision?</th>
<th>Information requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Owner-manager</td>
<td>• Has the company been employing its resources in the most effective way to maximise shareholder wealth?</td>
<td>• Profit for the whole enterprise</td>
</tr>
<tr>
<td>Directors/ executives/</td>
<td>• Has the company been a good corporate citizen?</td>
<td>• Profit margins for individual products</td>
</tr>
<tr>
<td>functional managers</td>
<td>• Are all our product lines profitable?</td>
<td>• Costs absorbed in 1 unit of output</td>
</tr>
<tr>
<td></td>
<td>• How many units should we sell to break even?</td>
<td>• Incremental future cash flows of a project and the cost of capital</td>
</tr>
<tr>
<td></td>
<td>• Should we invest in a new machine or undertake XYZ project?</td>
<td>• Sales by region</td>
</tr>
<tr>
<td></td>
<td>• Make or buy decisions</td>
<td>• Available resources (physical and intangible)</td>
</tr>
</tbody>
</table>

4.6.2 Who Are the External Users of Accounting Information?

<table>
<thead>
<tr>
<th>Users</th>
<th>What decision?</th>
<th>Information requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>External</td>
<td>• Shareholders/ investors</td>
<td>• Overall profits of the enterprise</td>
</tr>
<tr>
<td></td>
<td>• Employees</td>
<td>• Resources available</td>
</tr>
<tr>
<td></td>
<td>• Suppliers</td>
<td>• Cash flow position of the enterprise</td>
</tr>
<tr>
<td></td>
<td>• Lenders</td>
<td>• Business strategies of the firm</td>
</tr>
<tr>
<td></td>
<td>• Tax Authorities</td>
<td>• What is the competitive advantage of the firm?</td>
</tr>
<tr>
<td></td>
<td>• Buy, sell or hold shares?</td>
<td>• What is the firm’s investment in intangible assets?</td>
</tr>
<tr>
<td></td>
<td>• Will the company provide attractive remuneration, career path and retirement benefits?</td>
<td>• How does the firm discharge its corporate social responsibility?</td>
</tr>
<tr>
<td></td>
<td>• Is the business credit worthy and can it settle its debts as and when they are due?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Will interest and principal be repaid?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• What is the taxable profit of the company?</td>
<td></td>
</tr>
</tbody>
</table>
4.7 DEFINITIONS AND RECOGNITION CRITERIA OF ELEMENTS IN THE FINANCIAL STATEMENTS

The definitions and recognition criteria in this section are based on the 1989 conceptual framework, not on the exposure draft to the new conceptual framework.

Assets are resources controlled by an entity as a result of past events and from which future economic benefits are expected to flow to the entity. The central point here is that something may be an asset to the firm without the firm having to own it. The operative word in the definition of an asset is control not ownership. An asset is recognised when: (i) it is probable (reasonable certainty) that future economic benefits will flow to the enterprise (i.e. the firm controls access to future economic benefits) and (ii) the asset has a cost or value that can be measured reliably.

Liabilities are present obligations of an entity arising from past events, the settlement of which is expected to result in an outflow of resources. Therefore, a liability has three salient features: (i) there is a present obligation; (ii) which arises from a past event; and (iii) the settlement of the obligation in the future is expected to result in an outflow of resources.

A liability is recognised when: (i) it is probable (reasonable certainty) that there will be an outflow of resources embodying future economic benefits to settle the obligation; and (ii) the liability can be measured reliably.

Equity or ownership interest is the residual amount found by deducting all of the entity’s liabilities from the entity’s assets.

Income is recognised when there is an increase in future economic benefits related to an increase in assets or a decrease in liabilities which can be measured reliably. Indeed, since income is defined in terms of an increase in assets or net assets, it follows that recognition of income would occur simultaneously with the recognition of increases in assets or decreases in liabilities. As mentioned earlier, the income should be capable of being measured reliably and should have a sufficient degree of certainty. In other words, income is recognised when it is probable that future economic benefits will flow to the enterprise and these benefits can be measured reliably.

Similarly, expenses are recognised in the income statement when a decrease in future economic benefits related to a decrease in assets or an increase in liabilities has arisen which can be measured reliably. Note that expenses are recognised in the income statement on the basis of a direct association between costs incurred and the earning of specific items of income. This process is known as the matching of costs with revenues.

4.8 PROBLEMS WITH TRADITIONAL FINANCIAL REPORTING

The main concerns about traditional reporting that will be addressed in this section are based on the ACCA’s research report entitled “Re-assessing the Value of Corporate Reporting”, published in Accountancy Futures in January 2012.

• The Growing Complexity of Corporate Reports

47% of the 500 respondents surveyed (stakeholders in UK, USA and Canada spanning capital providers, customers, suppliers and staff) stated that the reports were too long. Indeed, with the growing complexity in accounting standards, annual reports are becoming longer and increasingly difficult to understand even for the experts, let alone the typical investors and readers of reports. These results confirm those of Hutton (2004) who stated that the release of ever-increasing amounts of information made it difficult for investors to arrive at correct intrinsic valuation of the company’s shares.

ACCA’s survey results are even more disturbing, because 50% of the respondents confirmed that the annual report was either their main source of information or their only source of information. Given this fact, it is important, if not vital, to address the criticisms of existing traditional financial reports.

- **Corporate Reports Are Too Backward-Looking**

  35% of the respondents shared the view that annual reports were backward-looking. This sentiment is confirmed by the research findings of the Governance Institute and Board Intelligence of the Institute of Corporate Secretaries and Administrators (ICSA) which revealed, in December 2017, that board packs were too backward-looking and focused too much on internal and operational matters which did not allow board members to engage in discussions involving the business strategies of the firm. According to Jennifer Sundberg, Co-CEO of Board Intelligence:

  “The purpose of a board pack is to enable boards to discuss the important issues and take the decisions that have a bearing on the long-term success of their organisation. This research suggests that in many organisations, board papers are a barrier to such discussions, rather than an aid. Too often they are dominated by inward and backward-looking detail, rather than the sort of information that will help the board to plan its future strategy. Furthermore, the sheer volume of information that board and committee members are presented with makes it unlikely they can read it all, let alone absorb it or pick out the key issues.”

- **Corporate Traditional Reports Are Too General Purpose**

  40% of the respondents revealed that annual reports were too general purpose and did not fit their specific needs. The ACCA survey highlighted the information requirements of investors and stakeholders which are yet to be compiled and delivered by traditional reports:

  1. 71% of respondents were of the view that firms should report more on the different risks that could affect their performance. This information would have a direct bearing on the future performance of the firm.
  2. A natural corollary of this result is that users would need to understand and evaluate the strategies that a firm would adopt to mitigate the risks. Firms should clearly provide greater emphasis on how these risks, together with the risk-mitigation strategies, are communicated in the reports.
  3. 63% of respondents shared the view that companies should provide more information on their future plans and prospects, and 59% of respondents also stated that companies should disclose information on key performance indicators.

These findings tally with those of Prof. Baruch Lev at New York University’s Stern Business School, whose 2016 book entitled *The End of Accounting: The Path Forward for Investors and Managers* discusses the need to provide other types of information to investors and managers that go well beyond “past-looking” traditional financial reporting. Lev stresses that business strategy information, investment in intangibles/strategic assets (which basically is the way business and management is conducted; some could call this Governance) and non-accounting data are of paramount importance for investors and managers.

In this regard, you can watch the video on YouTube by Baruch Lev: *The End of Accounting, A Conversation with Martin Fridson* (7 August 2016) at https://www.youtube.com/watch?v=hrQ2PvgEMgU to better understand the issues and concerns raised by Prof. Baruch Lev regarding the problems with traditional financial reporting. The apparent failings of traditional financial reports call for a framework of reporting that is more coherent, useful and integrated.

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4.8.1 A Comment on the New Corporate Governance Code for Mauritius and its Relevance to Reporting and Sustainable Reporting

The “Apply AND Explain” approach of the new Code breaks away from the previous “Comply or Explain” approach to governance in the old Code. From a principle point of view, this is not a cosmetic change. The message is very clear. Although the National Code is principle-driven, as opposed to rule-driven, it no longer gives the firm the “option” to explain away its non-compliance in a seemingly “compliant” manner.

One’s reading of the National Code is that now the firm wishing to comply does so by “applying all the 8 principles27 and providing an explanation on how these principles have been applied” (p. 14), according to the Ministry of Financial Services, Good Governance and Institutional Reforms.

The following eight corporate governance principles have been designed to be applicable to all organisations covered by the Code and have been extracted from “The National Code of Corporate Governance for Mauritius (2016)”:

**Principle 1: Governance Structure**

All organisations should be headed by an effective board. Responsibilities and accountabilities within the organisation should be clearly identified.

**Principle 2: The Structure of the Board and its Committees**

The board should contain independently minded directors. It should include an appropriate combination of executive directors, independent directors and non-independent non-executive directors to prevent one individual or a small group of individuals from dominating the board’s decision-taking. The board should be of a size and level of diversity commensurate with the sophistication and scale of the organisation. Appropriate board committees may be set up to assist the board in the effective performance of its duties.

**Principle 3: Director Appointment Procedures**

There should be a formal, rigorous and transparent process for the appointment, election, induction and re-election of directors. The search for board candidates should be conducted, and appointments made, on merit, against objective criteria (to include skills, knowledge, experience and independence, and with due regard for the benefits of diversity on the board, including gender). The board should ensure that a formal, rigorous and transparent procedure be in place for planning the succession of all key office holders.

**Principle 4: Director Duties, Remuneration and Performance**

Directors should be aware of their legal duties. Directors should observe and foster high ethical standards and a strong ethical culture in their organisation. Each director must be able to allocate sufficient time to discharge his or her duties effectively. Conflicts of interest should be disclosed and managed. The board is responsible for the governance of the organisation’s information strategy, information technology and information security. The board, committees and individual directors should be supplied with information in a timely manner and in an appropriate form and quality in order to perform to required standards. The board, committees and individual directors should have their performance evaluated and be held accountable to appropriate stakeholders. The board should be transparent, fair and consistent in determining the remuneration policy for directors and senior executives.

**Principle 5: Risk Governance and Internal Control**

The board should be responsible for risk governance and should ensure that the organisation develops and executes a comprehensive and robust system of risk management. The board should ensure the maintenance of a strong internal control system.

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Principle 6: Reporting with Integrity

The board should present a fair, balanced and understandable assessment of the organisation’s financial, environmental, social and governance position, performance and outlook in its annual report and on its website.

Principle 7: Audit

Organisations should consider having an effective and independent internal audit function that has the respect, confidence and cooperation of both the board and the management. The board should establish formal and transparent arrangements to appoint and maintain an appropriate relationship with the organisation’s internal and external auditors.

Principle 8: Relations with Shareholders and Other Key Stakeholders

The board should be responsible for ensuring that an appropriate dialogue takes place among the organisation, its shareholders and other key stakeholders. The board should respect the interests of its shareholders and other key stakeholders within the context of its fundamental purpose.

Two important considerations emerge from the above: first, if firms do not apply and explain all the eight principles, unless one or more principles are not applicable to the firm, this would be perceived by the market as non-compliance. Second, communication and reporting of the principles (or as it may turn out, the lack or absence of governance principles) are therefore as important as the organisation’s embodiment of the principles themselves. And unsurprisingly, “Reporting with Integrity” has been included as one of the eight principles, no doubt a very important and pervasive principle because this will “signal” to outsiders how the principles of governance are upheld and practised in the firm, failing which the firm should state specifically, in a “self-contained statement”, that it has not complied with the Code. But more importantly, on the reporting aspect, the Code lays emphasis on the importance of communicating truthfully and holistically on a range of performance dimensions and therefore “validates” the concept of Integrated Reporting and the need for providing information to investors that is useful in assessing the sustainability of the firm.

4.9 THE NEED FOR INTEGRATED REPORTING

4.9.1 Introduction to Integrated Reporting and Financial Reporting

Financial Reporting (FR) cannot provide enough insight for investors on business performance and business resilience, especially after the economic crisis. Other stakeholders are inclined to look for a clearer understanding of how companies create value. External factors exist and are likely to impact the business model of firms both in the medium term and long term in the firms’ quest for sustainable value creation. Thus, to be able to identify whether a business can deliver its strategic aims, investors and other stakeholders have started to adopt a more “integrated” approach to their internal and external reporting.

Organisations are also starting to see internal advantages of adopting a more “integrated thinking” which was confirmed through a survey by PWC (2017) whereby 74% of CEOs believe that evaluating and reporting non-financial impacts add up to long-term success28. In December 2013, the IIRC issued a framework and provided companies with a starting point for shifting towards integrated thinking along with reporting in an integrated style.

Integrated Reporting (IR) has been termed as a modern way of communicating value in the 21st century which carries along material information about a firm’s strategy, governance, performance and success in a manner that reproduces the commercial, social and environmental circumstances within which it works. It also provides a clear and succinct picture of how a firm illustrates stewardship and how it creates and upholds value. Therefore, the primary reporting vehicle of an organisation should be an integrated report.

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28 See 17th Annual Global CEO survey: Fit for the Future (2010). As a consequence, some stakeholders are demanding both financial and non-financial information in a single report which is shown in the studies by Eccles and Krzus (2010) and Serafeim (2015).
Traditional reporting, also known as financial reporting (FR), has widely been criticised in the literature. Traditional FR encompasses several sets of piecemeal reports (financial statements, environmental report, social reports, among others) as discussed by Jensen & Berg (2012). FR is usually published for shareholders and fund providers, thereby serving different intended purposes; however, it fails to provide ample information on business activities, showing pitfalls in terms of transparency and lack of communication to stakeholders as illustrated by Smith (2016).

4.9.2 Reasons for Companies to Adopt IR in Contrast to FR

Given the issues mentioned earlier, several companies around the world have begun to adopt IR in contrast to FR due to several factors which are mostly attributed to inadequacies in FR. Short-term performance and value creation are the major arguments put forward in support of using IR instead of FR. Cabedo & Tirado (2004) and Serafeim (2015) are of the view that FR provides financial statements which lack enough disclosure regarding risks and uncertainty. Many companies felt that FR is not significant enough in satisfying stakeholders’ demand for business information required by them. Thus, many companies have presented different types of reports such as sustainability reporting, environmental reporting, corporate social responsibility (CSR) reporting and triple bottom line reporting which were unfortunately costly and still did not satisfy the demand of each individual stakeholder. As a result, in 2006, the Global Reporting Initiatives (GRI) developed the Integrated Reporting Framework which is a single report encompassing both financial and narrative information, along with non-financial information. Therefore, as IR brings financial and non-financial measures in a single report, it also demonstrates the link between financial and non-financial metrics.

4.9.3 Factors Contributing to the Difference Between IR and FR

Several different factors have been identified when explaining the difference between IR and FR.

- In terms of trust, current FR provides narrow disclosures, whereas, IR comprises greater transparency and accessibility to corporate reporting. The voluntary disclosure provided by IR results in enhanced disclosures which increase an investor’s trust and confidence and the inflow of financial capital, thereby reducing the cost of capital; also, there is a reduction in information asymmetry compared to FR.

- FR covers a shorter time frame compared to IR which includes short-, medium- and long-term time frames. Regarding adaptability, FR is bounded by rules, whereas IR is responsive to individual circumstances.

- FR focuses on past historical financial performance, while IR focuses on past and future financial data along with focus on the firm’s strategy of bringing greater clarity on important risks, opportunities and factors related to the organisation’s operations and business model. Moreover, FR has been observed to be too long and complex, while IR has been observed to be concise and material, where the reader should have enough information to understand the organisation’s strategy, business model and goals. The conciseness of IR should not consist of unrelated details.

- Therefore, a concise IR should:
  - consist of carefully presented procedures on materiality determination,
  - set clear structure of the report and avoid repetition,
  - explain important concepts with clarity and avoid technical and complicated terms,
  - disclose specific information to the organisation while avoiding generic sentences.

- IR is heavily technology driven as it connects to regional and international networks and brings together knowledge and experience from other stakeholders in an attempt to describe the firm’s value creation process. In addition, IR provides more meaningful internal and external communications with stakeholders compared to FR.

- The cultural system in IR and FR might be a main factor that explains the difference between IR and FR. In IR, there is an internal culture where there is greater transparency and genuine dialogue with stakeholders compared to FR where there is lack of transparency and disclosure.
• Moreover, today’s culture in organisations is to adopt long-term value creation through IR as compared to FR where there are short-term horizons.

• In a similar vein, IR involves “integrated thinking” due to the connectivity of information which aids in enhancing available information to enable efficient and productive allocation of capital, both between and within businesses. Connectivity of information is established through increased interconnection across various types of information which includes content elements of an IR that provides a holistic image of the happenings in an organisation, comprehensive accounts of the activities of the firm over time, the capital which includes stocks and their role in the value creation process, inclusion of KPI linking both quantitative and qualitative information in financial information, and information on management, board information and outward directed information. Thus, this cohesion and efficiency in reporting stipulates integrated thinking as a method to break down internal silos, decrease repetition and inculcate positive behaviours over a long-term period; organisations should, then, communicate — in a comprehensive manner — their performance, strategy, governance and prospects. On the contrary, FR has been viewed as “silenced thinking” or isolated thinking, as it does not take into account the relationships between a company’s various operating and functional units which could create value for the firm. Besides, companies adopting FR have detected weaker cross-functional communications and fewer productive dialogues among employees at all steps in the business activities.

Another prominent factor contributing to the difference between IR and FR is the issuing of FR which is mandatory for publicly listed companies while for IR it may either be voluntary or mandatory depending on circumstances. In the same line of thought, FR should follow Financial Accounting Standards Board and General Accepted Accounting Procedures while IR goes in line with IIRC and the Sustainability Accounting Standards Board.

Likewise, IR provides the opportunity to discuss the external environment and the challenges and opportunities which it may bring, compared to FR which does not take into consideration the external environmental aspect when reporting. Thus, such external environmental issues help investors to gain access to necessary information to evaluate the organisation’s position to address risks, choose strategies that may be used to mitigate risks, and also help in managing future expectations.

Typically, research such as by Serafeim (2015), has confirmed that IR manipulates behaviour. In general, the benefits associated with IR include a broader explanation of performance than FR. IR makes a clearer vision of an organisation’s use and dependence upon various types of resources. Further, IR leads to a consequential review of the long-term feasibility of the firm’s strategy and business model. Also, it helps to meet the information needs of investors and other stakeholders and finally plays a vital role in the efficient allocation of scarce resources.

### 4.9.4 Advantages of IR

Correspondingly, the benefits of using IR comprise greater clarity with respect to the relationship between financial and non-financial performance and how value creation is affected during this process. Further, there is better internal decision-making for a sustainable strategy leading to higher firm performance. Also, there are enhanced evaluation and control systems for non-financial information.

In the same manner, IR provides a platform for the organisation to communicate its mission and vision by providing a framework for the organisation’s culture, ethics, values, ownership and operational structure, among others. Also, external environmental conditions tend to create the platform within which the organisation operates and therefore lead to a value creation exercise by the organisation. In addition, IR can provide information on a firm’s governance structure and remuneration structures. In the same vein, there is lower reputational risk since there is a reduction in the expectation-reality gap between the company and external parties, given that the company communicates in a holistic and transparent manner about the performance, position, philosophy, vision and mission of the organisation and this has been discussed by Smith (2015). Ultimately, IR attracts long-term investors through building confidence among investors and has the ability to build sustainable value.
4.9.5 Shortcomings of IR

Conversely, the downsides of IR comprise principally the preparation costs related to the collection and analysis of new data. In addition, new infrastructure investments in innovative information systems and data sets may prove to be disadvantageous. New processes and control systems may be difficult to handle. To be able to handle complex analytical tools, people with analytical skills are required and assurance from third parties may also be needed. Lastly, probable proprietary disclosure costs and revelation of competitive information may prove to be an additional cost if IR is used.

4.9.6 Challenges in the Adoption of IR

The execution of IR depends on the global adoption of the practice by all publicly listed companies. However, there exist a number of challenges in this regard. One of the key challenges is the requisite support from senior leadership, where IR entails a strong commitment by the CEO who is eventually responsible for the information that the company is providing to all its stakeholders. The board of directors has a vital role to play as members are elected by shareholders of the company and IR’s main objective is to ensure long-term value creation and greater transparency for the shareholders. As a consequence, support would be required from the board of directors and the CEO for the successful adoption of IR. In order to mitigate these challenges, there is a need for more communication with senior management and shareholders.

Similarly, leadership may be another challenge for IR where there needs to be coordination between managers and investors to make the right decisions. Businesses work on a level playing field where decisions are taken based on competitive advantage.

Arguably, it is a challenge to operate in a global environment with various differing legislative frameworks. A business will thus be able to survive if it makes the right strategic decisions which lead to access to capital, with sustainable decisions for the business as well as for society at large. Successful businesses will be those that take informed and fast decisions that are beneficial to the society and communities within which they operate. Performance and remuneration in IR may be a challenge since there may be a mismatch between short-term financial performance and long-term value of the business.

Besides, lack of universally accepted standards to communicate value creation may be another challenge for the adoption of IR. In order to report financial information, long-term procedures and processes have to be established. Non-financial information involves more diverse areas which fluctuate by sector and comprise a panoply of quantitative and qualitative information. With the lack of guidance and generally accepted standards for quantifying and reporting non-financial information, companies may struggle to evaluate and communicate information that is important for the holistic view of the value creation inside the organisation. In order to mitigate this issue, companies should follow the proposed standards and metrics provided by the Sustainability Accounting Standards Board (SASB), the World Federation of Exchanges (WFE) and the IIRC.

Similarly, the challenges associated with the implementation of IR include primarily understanding materiality which is one of the most challenging features of IR implementation. The onus is on management to take informed decisions with respect to the type of information its providers of financial capital would require. Such an assessment is firm-specific and thus each firm needs to build up an efficient planned process on how these matters will be defined.

Similarly, comparability across reports or Integrated Assurance may be another challenge for the implementation of IR. IR may be deemed more appropriate if and when they are reliable and comparable to financial reports. In FR, reliability and comparability may be associated to audit. Reliability is derived from objectivity brought by a third party that has reviewed the report ensuring that it has been prepared in accordance to relevant accounting standards such as IRFS and US GAAP. On the other hand, comparability refers to comparing information derived from the same accounting standards and audit procedures which have been used. Thus, in order to ascertain reliability and comparability of IR, an assurance opinion is necessary where currently assurance opinions state that there is nothing wrong with the report but ideally, the report should have presented a true and fair view of the information provided by the company.
Finally, the data quality of IR may prove to be a challenge where internal controls over non-financial data may not be as efficient as internal controls over financial data. Thus, data quality may hamper reporting of some non-financial information and as a result this is a challenge to independent auditors who have to provide assurance on non-financial information.

4.9.7 Adoption of IR from a Global Perspective Across Countries

In the current landscape, several companies around the world are adopting IR which has been encouraged by social reporting requirements driven by local regulatory bodies and stock exchanges. IR is mandatory in South Africa and Brazil and other countries such as Australia, Finland, UK and Netherlands are following the trend of IR. South Africa remains the first country to adopt IR where all listed companies are required to adopt it, and they have to put forward the reasons if they have not adopted IR.

In addition, New Zealand Post Group adopted the IR Framework in 2013 where this new approach had strengthened the group’s strategic thinking and the way their plans are executed. The benefits communicated by NZ Post Group include highlighting the connectivity across the business, providing a simple and clear view of the business, enhancing the understanding of the value of non-financial assets, facilitating long-term view of the business, focusing on materiality of the business and the provision of a short accessible report.

In a similar vein, the KPMG survey (2013) shows that Australia’s top companies are shifting towards Integrated Reporting. There are positive signs for the adoption of IR in Australia, where substantial progress among 1,600 companies has been observed. Over 50% of Australian organisations have moved on to discussing non-financial performance disclosure where companies are showing performance against targets and budgets, and they are using measurable KPIs. While it is encouraging to observe Australian companies tilting in the direction of IR, there is still a long way to go. According to the report, IR has been seen as dynamic lucidity and alignment across the organisation procedures put in place for creating and preserving long-term value creation. Regarding the 50 Australian companies listed on the Australian Stock Exchange, 70% of companies have been observed to communicate information related to environmental, social and governance issues affecting their business. As such, one can argue that, given that traditional reporting has been accused of lacking responsiveness, therefore, many companies are shifting towards IR.

4.9.8 Concluding Statement

It can be argued that FR does not demonstrate compliance with business models and business strategies, and it also ignores other stakeholders while showing the positive aspect of the business. IR provides a holistic picture and long-term perspective of a business. With the financial crisis, it has been noted that FR is not adequate to answer the required needs as it provides only past information to stakeholders. As such, there is a need to inculcate the integrating aspect in businesses so as to better educate them.

4.10 REFERENCES


• Imanet.org (2016), Integrated reporting, Retrieved from https://www.imanet.org/-/media/0830fcd907cd41a7bd760b890067b94.ashx


PART II

4.11 COMPONENTS OF THE INTEGRATED REPORTING FRAMEWORK PROPOSED BY THE INTERNATIONAL INTEGRATED REPORTING COUNCIL

4.11.1 Overview

The IIRC is a global coalition of regulators, investors, companies, standard setters, the accounting professionals and NGOs. This coalition is of the view that communication about value creation should be the next step in the evolution of corporate reporting. The council agrees that corporate reporting should shift from the traditional bottom line to covering the full range of factors which enables an organisation to create value over the short, medium and long term. In addition to the traditional financial or manufactured capital, business relies on human, intellectual, social and relationship, and natural capitals to do business in this modern era. The IR Framework has been developed to meet this need and it provides a foundation for the future (Deloitte, 2017; Deloitte, 2013).

4.12 THE NEW INTEGRATED REPORTING FRAMEWORK

The IIRC released the International Integrated Reporting Framework (Framework) on 9 December 2013. The Framework is the culmination of the IIRC’s process over the last two years to develop globally accepted IR guidance. The Framework will be updated further intermittently as additional research is undertaken and practical application matures thereof (EY, 2014).

The Framework establishes principles and concepts that govern the overall content of an IR. An IR sets out how the organisation’s strategy, governance, performance and prospects lead to the creation of value. There is no benchmarking for the above matters and the report is aimed primarily at the private sector but it could be adapted for public sector and not-for-profit organisations also.

4.12.1 What Is an Integrated Report?

According to the IIRC (2013), “An integrated report is a concise communication about how an organisation’s strategy, governance, performance and prospects, in the context of its external environment, lead to the creation of value over the short, medium and long term” (p. 7). An Integrated Report is not a report which compiles the financial statements or annual report and a sustainability report into a single document. It explains the inter-link between the various components of the report in the process of value creation.

4.12.2 Purpose

The primary purpose of an IR is to explain to providers of financial capital how an organisation creates value over time. An IR benefits all stakeholders interested in a company’s ability to create value, including employees, customers, suppliers, business partners, local communities, legislators, regulators and policy makers, although it is not directly aimed at all stakeholders. Providers of financial capital can have a significant effect on the capital allocation. Attempting to aim the report at all stakeholders would be an impossible task and would only serve to reduce the focus and increase the length of the report. This would be contrary to the objectives of the report, which is value creation (ACCA, 2016).
4.12.3 Principle-Based Framework

The IIRC has set out a principle-based framework rather than specifying a detailed disclosure and measurement standard. This enables each company to set out its own report rather than adopting a checklist approach. The culture change should enable companies to communicate their value creation better than the often boilerplate disclosures under IFRS. The report acts as a platform to explain what creates the underlying value in the business and how management protects this value. This gives the report more business relevance rather than the compliance led approach currently used.

IR will not replace other forms of reporting, but the vision is that preparers will pull together relevant information already produced to explain the key drivers of their business’s value. Information will only be included in the report where it is material to the stakeholder’s assessment of the business. There were concerns that the term “materiality” had a certain legal connotation, with the result that some entities may feel that they should include regulatory information in the integrated report. However, the IIRC concluded that the term should continue to be used in this context as it is well understood.

The integrated report aims to provide an insight into the company’s resources and relationships that are known as the capitals, and how the company interacts with the external environment and the capitals to create value. These capitals can be financial, manufactured, intellectual, human, social and relationship, and natural capital, but companies need not adopt these classifications. The purpose of this Framework is to establish principles and content that governs the report, and to explain the fundamental concepts that underpin them. The report should be concise, reliable and complete, including all material matters, both positive and negative in a balanced way and without material error.

4.13 KEY COMPONENTS

IR is built around the following key components:

1. Organisational overview and the external environment under which it operates
2. Governance structure and how this supports its ability to create value
3. Business model
4. Risks and opportunities, how they are dealing with them and how they affect the company’s ability to create value
5. Strategy and resource allocation
6. Performance and achievement of strategic objectives for the period and outcomes
7. Outlook and challenges facing the company and their implications
8. The basis of presentation needs to be determined, including what matters are to be included in the integrated report and how the elements are quantified or evaluated.

The Framework does not require discrete sections to be compiled in the report but there should be a high level review to ensure that all relevant aspects are included. The linkage across the above content can create a key storyline and can determine the major elements of the report such that the information relevant to each company would be different (ACCA, 2015).

In addition to explaining the key components of an IR report, the following section shows how students can apply the knowledge gained in previous management subjects when preparing an IR.

4.13.1 Organisational Overview and the External Environment

What does the organisation aim to do? Who are the major stakeholders? Where is it located? How is it structured? What external events will affect it the most?

Fairly obviously, the organisation’s mission, stakeholder analysis, organisation chart and a PESTEL analysis would be relevant to this section of the IR. Think of this section as setting the context of the organisation and providing some background details (ACCA, 2016).
4.13.2 Risks and Opportunities

These must cover both internal and external matters. The traditional SWOT analysis usually categorises opportunities and threats (risks) as external, but it is essential to also investigate internally. A weakness (for example, arising from gaps in new product development) is a risk to future revenues. Similarly, a strong brand name creates greater opportunities for future revenue streams. Historically, the board of companies would tend to emphasise a company’s opportunities, but investors cannot make an informed decision about an investment without an appreciation of the associated risks. Some risks can be quantified (for example, by sensitivity analysis) but it is unlikely that quantified amounts would appear in an IR. A qualitative indication should be provided about both the internal and external risks. The report should also mention how the risks are being managed and mitigated (ACCA, 2016).

4.13.3 Strategy and Resource Allocation

Does the organisation intend to develop new products, to set up new factories or to expand to new markets? Perhaps it intends to move up-market to escape the fierce competition it currently faces at the lower end. This section of the IR can make extensive use of Porter’s generic strategies, Ansoff’s Matrix and the value chain. In the UK at the moment, many supermarket chains are re-assessing their long-term strategies in response to cheaper foreign supermarkets that have opened. In addition, there is a change in shopping habits because more and more customers now prefer to go more frequently to local stores rather than to a very large store on the edge of town once a week. It would be valuable to investors to be told how their company is going to respond to these changes in the market, how much it might cost to implement the new strategies, and by when the strategic shifts would be achieved (ACCA, 2016).

4.13.4 Business Model

An organisation’s business model is “its system of transforming inputs, through its business activities, into outputs and outcomes that aim to fulfil the organisation’s strategic purposes and create value over the short, medium and long term” (IIRC, 2013, p. 25). The value chain is particularly relevant here: it explicitly sets out inputs, processes and outputs, and requires organisations to understand how value is added so that profits can be made. If a company does not understand where it adds value, then the company is existing in a temporary state of good fortune. It is making profits now, but does not understand why, so chances of continued success must be low.

Inputs relate to the sources of capitals (financial capital, manufactured capital, intellectual capital, human capital, social capital and natural capital) which the organisation taps into to generate outputs. Outputs are the key products and services. The business activities include not just the manufacturing process, but also how the company innovates, carries out its marketing, what its after-sales services are, how it delivers its goods and how it acquires, trains and retains staff (ACCA, 2016).

4.13.5 Future Outlook

An integrated report should be able to answer the following question: What challenges and uncertainties is the organisation likely to encounter in pursuing its strategy, and what are the potential implications for its business model and future performance (IIRC, 2013)?

PESTEL and a Five Forces Analysis are both likely to be particularly relevant here. For example, if you are a stakeholder in a conventional television company, you may want to know how the company will address the challenges posed by internet-based companies such as Netflix (ACCA, 2016).
4.13.6 Form of Report and Relationship with Other Information

According to the IIRC (2013), “An integrated report should be a designated identifiable communication. An integrated report may either be a stand-alone report or be included as a distinguishable, prominent and accessible part of another report or communication” (p. 8). Therefore, an integrated report is more than a summary of information in other communications, but can also provide an entry point to more detailed information in other communications.

4.13.7 Responsibility for an Integrated Report

An integrated report should include a statement from those responsible for governance issues. This statement includes:

• An acknowledgement of their responsibility to ensure the integrated report’s integrity and that they have applied their collective minds to the integrated report’s preparation and presentation
• Their opinion or conclusion on whether the integrated report is presented in accordance with the Framework (EY, 2014).

If such a statement is not included, the role played by those responsible for governance in the preparation and presentation of the report must be explained. The steps taken and the time frame allotted to include the statement must be mentioned, and this should occur no later than the third report that references the IR Framework (Deloitte, 2013).

4.13.8 Value Creation

Value created by an organisation over time manifests itself in increases, decreases or transformations of the capitals caused by the organisation’s business activities and outputs. That value has two interrelated aspects – value created for:

• The organisation itself, which enables financial returns to the providers of financial capital
• Others (i.e., stakeholders and society at large).

Providers of financial capital are interested in the value that an organisation creates for itself, and they are also interested in the value an organisation creates for others when it affects the ability of the organisation to create value for itself, or relates to a stated objective of the organisation (e.g., an explicit social purpose) that affects their assessments (IIRC, 2013).

4.13.9 Capitals

All organisations depend on various capitals. The capitals are stocks of value that are continually increased, decreased or transformed through the organisation’s activities and outputs.

The Framework defines six capitals:

1. Financial (pool of funds obtained through financing for use in the production of goods and services, e.g. debt or equity capital)
2. Manufactured (manufactured physical objects for use in the production of goods or services, e.g. equipment)
3. Intellectual (organisational knowledge-based intangibles, e.g. patents)
4. Human (peoples’ competencies, capabilities and experiences)
5. Social and Relationship (institutions and relationships within and between communities, e.g. values, brand, reputation)
6. Natural (environmental resources, e.g. water, biodiversity).
While these six capitals have been defined, organisations preparing an integrated report are not required to adopt this categorisation. Regardless of how an organisation categorises the capitals for its own purpose, the categories that are defined in the Framework are to be used as a guideline to ensure that the organisation does not overlook a capital that it uses or affects. However, not all capitals are equally relevant or applicable to all organisations. Where an organisation’s interaction with a capital is minor or indirect, it does not need to be included in the IR (IIRC, 2013).

4.13.10 Reporting Boundary

The boundary for an integrated report should be based on:

- The financial reporting entity
- Risks, opportunities and outcomes attributable to or associated with other entities/stakeholders beyond the financial reporting entity that have a significant effect on the ability of the financial reporting entity to create value (IIRC, 2013).

4.13.11 Examples of Emerging IR Practice

The IIRC has an emerging IR database of various annual and integrated reports that illustrate specific Guiding Principles and Content Elements. The database is accessible at www.theirc.org.

According to Deloitte (2013), emerging IR practice reporters referred to by the IIRC include: Marks & Spencer Group Plc (on governance), Lawson, Inc. and Sasol (on business model), Schipol (risks and opportunities), New Zealand Group and Goldfields (strategy), Stockland and Nedbank Group (financial performance) and ARM holdings Plc and Novo-Nordisk (outlook).

4.14 THE CHALLENGES IN IMPLEMENTING INTEGRATED REPORTING

We now proceed to delineate the challenges of IR. The embryonic IR developments present both theoretical and practical caveats that will be addressed to help inform improvements in policy and practice. The driving objective of IR was to address the disconnect between mainstream and sustainability reporting (Hopwood et al., 2010). IR provides a more holistic approach to the two forms of corporate reporting by integrating the multiple strands of social, environmental and economic actions, outcomes, impacts, and risks. However, the following issues and challenges have been raised at both practical and academic levels.

4.14.1 Low Acceptance of the IR

While Integrated Reporting is expected to provide a more transparent view of the company’s strategy, only 3% of firms in the USA are currently using the IRs (KPMG, 2013). Through a series of interviews (19 panellists) of both practitioners and academics, Burke & Clarke (2016), highlight that many firms in the USA are still unaware of IR, its benefits and how to embark on the Integrated Reporting journey. This low acceptance of IR is attributed to the lack of knowledge of its benefits and also the somewhat drastic change required to gauge and report about value creation. IR calls for a cultural shift to support the paradigm shift as rooted in the company’s processes and practices in the utilisation of the six capitals (Busco et al., 2016). On the other hand, there are also a number of countries such as South Africa that have embraced IR (Cheng et al., 2014).

4.14.2 Focus on Providers of Financial Capital

A key concern addressed in the draft was the focus on the providers of capital (IIRC, 2013b, p. 8). From a practical perspective, and from the point of view of preparers of integrated accounts, it is a challenge to achieve a balanced view of all the various capitals. It is argued that it should not be merely a “tick-box” exercise, but instead, should reflect the holistic and integrated approach of value creation/destruction by the synthesis of the various capitals in the pursuance of corporate value creation (Accountancy SA, 2015, p. 48). IR prompts for a new way of thinking and requires a different approach embedded in daily management.
4.14.3 Transitional Process

Another practical challenge of preparing the IR is the transitioning process from the traditional quantitative annual report to a more holistic value creation communication artefact that not only embeds the various capitals but also amalgamates both the quantitative and qualitative dimensions in a coherent manner. The production process of the integrated report represents many procedural changes that move away from conventional financial metrics. While the corporate annual report has been prepared in line with a generally accepted reporting framework, the reporting of incremental non-financial information, calls for a reassessment of the current manner of doing business and of the way that information is recorded and communicated. This, in turn, requires a change in organisational culture but also in a set of complementary credible metrics to gauge the other dimensions henceforth required. This morphed approach calls for a combined/balanced approach to both the quantitative and qualitative information.

4.14.4 Forward-Looking Information

In line with the afore-mentioned challenges, another requirement of the integrated report calls for the provision of forward-looking information based on the consumption of the various capitals which may represent a challenge to the traditional historical way of reporting. This gives rise to additional and more detailed collection and provision of forward-looking information that organisations tend not to disclose publicly. The integrated report should be viewed as a story-telling of the way forward for the business, and the value creation/destruction it has been involved in, in the utilisation of the six capitals and how, by embedding this in daily operations and processes, it is planning its long-term sustainable consumption and hence ensuring its legitimacy.

4.14.5 Connectivity of Information

Connectivity of information is presented by the Integrated Reporting Framework as a way of translating the integrated thinking into action (IIRC, 2013b). Connectivity is defined as “the combination, interrelatedness and dependencies between the components that are material to the organisation’s ability to create value over time” (IIRC, 2013a, p. 18). This principle is considered to be the key and a central element in providing the holistic approach — the interrelatedness between the various “partial” reports (financial, non-financial, qualitative, quantitative, and capitals, among others) to explain the organisational value creation over time. According to Eccles & Krzus (2010, p. 84), the integration between these various reports is required for integrated thinking and reporting. A number of frameworks have been proposed for this purpose both by standard setters and academics (Hutton, 2004; Burgman & Ross, 2007; Pedrini, 2007; Kolk & Pinske, 2010). The IR frameworks support supplementing additional or “partial” reports and communication to meet the information needs of various users (IIRC, 2013a, p. 9). The objective of connectivity and the inclusion of other “partial” reports fail in the Integrated Reporting Framework’s quest for a holistic approach to value creation. The result will be disconnectedness in what is, but also in how it is, being represented. There will be a lack of coherent flow in linking the various capitals to all the aspects of the business, highlighting the synergy from all the various components of the organisation in the value creation process. Furthermore, there is the added challenge of how these partial reports can be combined to construct an Integrated Report and also how to avoid redundant information (IIIRC, 2013a, p. 21). The process of integrating these various reports is complex for it entails changes in the organisation structure, its information systems and hence reporting.

4.14.6 Better Communication Aid?

There is a lot of scepticism about whether the integrated report will indeed provide “concise communication” on “an organization’s strategy, governance, performance and prospects” (IIRC, 2013b, p. 8) that will enable investors and stakeholders to assess the ability of the firm to create value in a sustainable manner. While the IR conceptual model broadens the scope of reporting by referring to the utilisation of the six capitals to generate value and how the business model integrates these strategies and capitals, there is silence as to the process of achieving these capitals and more importantly about the synergising process involved and required to achieve this end.

4.14.7 Additional Resources

Another challenge relates to the lengthy process involved and resources needed for the collection, preparation and production of the IR. In this regard, Jeff Hubbard, CFO of Liberty Holdings Ltd (2015) argues, based on the company’s four years of producing integrated reports, that there is a need to structure and to plan the process required for compiling the integrated reports well in advance since he acknowledges that the time taken for preparing an IR may be much longer than anticipated.

4.15 ASSESSMENT


4.16 REFERENCES

5.1 INTRODUCTION

The volume of world trade has grown at an unparalleled speed in the 20th century. From 1960 up to the global financial crisis (GFC) in 2008, global trade in goods and services has increased at an average of about 6 per cent a year, almost doubling real GDP growth during the same period (Figure 5.1). Such an increase was sustained by reductions in barriers to trade through changes in policy such as reductions of tariffs as well as trade costs due to technological developments pertaining to transport and ICT in particular.

The 1930s and 1940s eras of the Great Depression and World War II were characterised by an era of protectionism. The US imposition of the Smoot-Hawley tariffs, and the international retaliatory response in the 1930s led to the near halting of international trade. In the aftermath of the War, 23 countries, led primarily by the US, Canada, and the UK, negotiated the General Agreement on Tariffs and Trade (GATT). The goal was to create an agreement that would ensure post-war stability and avoid a repetition of the mistakes of the past, including the Smoot-Hawley tariffs and retaliatory responses, which had contributed to the poor economic climate. The objective of the GATT — the main legal and institutional framework for multilateral free trade — was to eliminate or substantially reduce trade tariffs and other impediments to trade, on the basis of reciprocity and mutual advantage. The GATT lasted over the last 50 years. During this time, the members have undertaken eight negotiating rounds to expand the domain of the GATT over international trade.

In general, the objectives of these rounds were to reduce tariffs and non-tariff barriers on the flow of goods across national boundaries. Within this arrangement, each country reserved the right to establish its own policies regarding health, safety and environmental protection. Over the next 47 years, more countries signed the GATT, and further trade liberalisation negotiations ensued. Between 1947 and 1994, the GATT contracting parties concluded eight separate negotiating rounds of voluntary trade liberalisation. However, by the 1980s, certain inadequacies began to put severe pressure on the system. The primary inadequacies were in the areas of the proliferation of non-tariff barriers. The last of these completed rounds was the Uruguay Round, which ended the GATT era in 1994. By then, the GATT membership had simultaneously expanded from an initial 23 contracting parties to 128 participating countries. The GATT eventually culminated in the agreement establishing the World Trade Organisation (WTO) having two main objectives: liberalisation of international trade and the settlement of trade disputes between members. With a number of new members acceding to the WTO since its 1995 inception, more than 150 countries have signed the agreement. Although a great deal of substantive international trade law has changed since 1947, the cornerstone principle of progressive trade liberalisation remained the same, and promoted an era of free trade and globalisation.
Globalisation can be defined as the increased interconnectedness and interdependence of peoples and countries, and generally includes two interrelated elements: the opening of international borders to flow of goods, services, finance, people and ideas; and the changes in institutions and policies at national and international levels that facilitate or promote such flows.

## 5.2 LEARNING OUTCOMES

By the end of this unit, you should be able to do the following:

1. Explain the role trade plays in economic development.
2. Define sustainable trade.
3. Identify the benefits of sustainable trade.
4. Identify the drivers of sustainable trade.
5. Define green economy.
6. Explain the concept of Sustainable Trade Index.
7. Discuss the opportunities and challenges linked to trade pertaining to sustainable development.
8. Explain the policy instruments which can be used to promote sustainable trade.

## 5.3 TERMINOLOGY

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Global Value Chains (GVC)</td>
<td>International production, trade and investments are increasingly organised within so-called Global Value Chains (GVCs) where the different stages of the production process are located across different countries.</td>
</tr>
<tr>
<td>Green Economy</td>
<td>An economy that leads to improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities (World Bank, 2017).</td>
</tr>
<tr>
<td>Gross Domestic Product (GDP)</td>
<td>Gross Domestic Product (GDP) is a monetary measure of the market value of all final goods and services produced in a period of time, usually one year.</td>
</tr>
<tr>
<td>Environmental Kuznets Curve (EKC)</td>
<td>The Environmental Kuznets Curve is a hypothesised relationship between environmental quality and economic development: various indicators of environmental degradation tend to get worse as economic growth occurs until a certain income level is reached over the course of development before starting to improve.</td>
</tr>
<tr>
<td>Triple Bottom Line</td>
<td>Triple Bottom Line (TBL) is a concept which seeks to broaden the focus on the financial bottom line by businesses to include social and environmental responsibilities.</td>
</tr>
<tr>
<td>Green Growth Strategy</td>
<td>A Green Growth Strategy aims to promote economic growth and development, while addressing four key environmental challenges: climate change, unsustainable use of natural resources, loss of biodiversity and ecosystem services, and unsustainable materials management (OECD, 2011).</td>
</tr>
</tbody>
</table>
5.4 TRADE AS AN ENGINE OF DEVELOPMENT

The decline in trade costs has enabled the development of Global Value Chains (GVCs), which have contributed to improved productivity since the early 1990s. In developed economies as well as emerging and developing economies, the higher level of affluence that accompanied greater trade openness gave credibility to the view of trade as a key engine of economic growth (IMF, 2017). Trade is thus considered to be a powerful tool to increase productivity, growth and improve living standards. Greater trade openness leads to a more efficient allocation of natural resources. Accounting for a significant share of low-income countries’ GDP, international trade can also be an important source of finance (especially for developing countries) and it promotes technological transfer.

5.5 STRIKING A BALANCE: ECONOMIC GROWTH AND SUSTAINABILITY

Economic growth, proxied by the level of GDP, is broadly speaking a measure of the level of economic activity of a nation which is considered to represent its level of prosperity. This is certainly one of the reasons why GDP growth has been one of the most important policy goals for nations around the globe for most of the last century. Such a drive for economic growth is unsurprisingly appealing for the world’s poorest nations while in the richer nations, where subsistence needs are largely met, further proliferation of consumer goods adds to material comfort.

International trade, therefore, has a critical role to play. The movement of goods and services across borders, as well as flow of technology, ideas and people, all enable progress towards improving economic growth and providing job opportunities, reducing global inequality and ending poverty. But trade’s relevance does not stop there. In fact, one of the more interesting ways in which trade can contribute to development is, for example, by being sustainable and by promoting responsible consumption and production.

The link between growth and the environment has received much attention in the economics literature and the EKC which represents the long-term relationship between environmental degradation and growth/level of development has been widely used and referred to.

The initial stages of a country’s development tend to be characterised by increasing environmental degradation. After a threshold level of per capita income is reached, environmental degradation is expected to start decreasing, thus depicting an inverted U-shaped curve as shown in Figure 5.2.

Figure 5.2: Environmental Kuznets Curve (Kuznets, 1955)
The most common explanation of the EKC is based on the transition of countries along the different stages of development. At the early stages of development, people and even governments are more interested in the creation of jobs and the production of goods rather than environmental quality, which, unfortunately, imposes a greater demand for natural resources. The focus on rapid growth results in greater use of natural resources and emission of pollutants. The countries are either too poor to pay for abatement and/or simply disregard the environmental consequences of such growth. However, at higher levels of development, more resources start to be directed towards environmental quality. As the population starts to enjoy a higher standard of living, institutions, regulations and policies are established to protect the environment and more modern and environmentally friendly industrial processes are developed. Economic growth is here considered as the solution for environmental issues. By stimulating growth and income levels over time, trade can thus help to increase demand for a better environment.

However, there is recognition that beyond a certain point, the continued pursuit of economic growth may even impede human welfare. In particular, the question is how — and for how long — is continued growth sustainable, given that the ecological limits and the reserves of the finite resources of the planet are being depleted at a very fast pace (WTO, 2017)?

Indeed, an important sustainable development challenge arises from unsustainable consumption and production patterns around the world. In addition, for many developing countries, much of their growth tends to stem from increasing revenues from the trade of natural resources such as fuels and minerals, thus depleting their natural resources. In addition, the proceeds from such trade do not necessarily benefit the majority of the populations in these exporting countries (World Bank, 2017), thus widening the inequality divide.

### 5.6 SUSTAINABLE TRADE

Given the above, it may be argued that the need to link trade to Sustainable Development thus arose mainly due to the following reasons (World Bank, 2017):

- An expanding global market and increasing use of technology leading to unsustainable production methods and trade patterns
- Natural resource depletion and environmental degradation and biodiversity loss
- Pollution from industrialisation and international transportation, and increasing GHG emissions leading to global warming contributing to climate change
- Escalating environmental footprint of countries
- Widening inequalities within and across countries.

This leads us to the concept of sustainable trade, which is, at times, inaccurately thought to include only environmental issues. In fact, the definition of sustainability encapsulates a much wider scope (as seen in Unit 1), and includes the following three pillars:

1. Economic growth
2. Social equity
3. Environmental protection.

This has come to be known as the triple bottom line (TBL) namely: profits, people, and planet. These aspects were discussed at length in Unit 2.

As discussed previously, the first framework of sustainability to be presented was the pioneering report on sustainable development by the Bruntland Commission in 1987. In a similar vein, one could also argue that international trade is being considered more and more as a potentially important contributor to sustainable development. For instance, the contribution of trade to sustainable development has been recognised in different UN conferences such as in Rio in 1992 and in Johannesburg in 2002 (UN report). The 2030 Agenda for Sustainable Development (paragraph 68) as well as the Addis Ababa Agenda of Action (paragraph 82) also recognise international trade as an engine for inclusive economic growth, poverty alleviation and a significant medium to attain the SDGs.
5.6.1 The Case for Sustainable Trade

- First, trade boosts a country’s income generating capacity, which is one of the essential prerequisites for achieving sustainable development (in line with SDG target 17.11). Higher levels of income associated with trade can increase the population’s demand for a better quality of environment as seen previously. In addition, demand for an improved environment can provide incentives for firms to improve production technologies, to adopt greener production methods and to develop greener products and services.

- Trade openness leads to a more efficient use of resources by enhancing production efficiency through specialisation, exploitation of economies of scale, technology transfer and enhanced competition. Trade can, thus, play an important role in the protection of the environment since it may be viewed as a means for green technology transfer by promoting the development of green goods, services and technologies, for instance, to reduce pollution or energy use, or improve their access. Openness to trade can also provide access to a larger variety of imported goods and services involving environmentally friendly technologies at a lower cost for consumers by increasing the size of the markets for the manufacturers, and increasing the returns from innovation for those involved in the production of green goods. The ability to market innovations globally makes it possible to increase specialisation, and provides incentives to produce green goods requiring intensive research and large capital requirements.

- Countries and supranational organisations such as the WTO can encourage trade policies to be aligned with SDG 8: promote sustained, inclusive, and sustainable growth, full and productive employment, and decent work for all; and also promote sustainable consumption and production, and support the development of rules for sustainable trade leading to an integration of national and international initiatives for green trade and sustainable development.

- Trade also encourages participation in international and regional supply chains; sustainable trade can thus help to improve resource efficiency and create jobs by promoting “green” international value chains.

- Sustainable trade can foster economic diversification and reduce dependence on extractive industries and add more value especially to developing countries’ exports.

- Sustainable trade can help to promote the development and harmonisation of environmental standards across the globe.

- Sustainable trade can promote social inclusion and economic empowerment of minorities and women.

5.6.2 The Drivers of Sustainable Trade

The SDGs stress the significant role that trade and investment play in promoting sustainable development. There have also been noteworthy developments in the international trade arena, which have impacted the sustainable development agenda.

For instance, the WTO offers a supporting framework for sustainable development and the green economy through its objectives and monitoring of potential trade protectionism, its enforcement mechanisms and rules and regulations (WTO, 2011). WTO rules seek to achieve a crucial balance: on the one hand, they support the right of WTO members to take measures to advance legitimate goals, such as the protection of the environment and, on the other hand, they ensure such measures are not applied arbitrarily and are not disguised protectionism. Through negotiations, the WTO also aims to remove environmentally harmful trade-distortionary measures, and promote greater access to environmental goods and services at a cheaper cost.

In addition, the expansion of areas of Regional Trade Agreements (RTAs) and other international associations, in particular BRICS, could provide another important impetus for change. The US, Canada, and the EU were forerunners that linked and integrated sustainable development and trade in their agreements. In recent years, an increasing number of states have started joining the ranks of the US, Canada, and the EU in incorporating sustainability provisions in their RTAs. For example, the European Free Trade Association (EFTA) has adopted a new model for its RTA agreements that contains a
comprehensive chapter on trade and sustainable development. Moreover, some previously negotiated agreements that did not contain a sustainable development chapter are being renegotiated, such as the EFTA-Canada RTA.

5.6.3 Measuring Progress: Sustainable Trade Index

Sustainable trade policies aim to balance the long-term resilience and the short-term goals of a country through a diversified export mix, investment in technology, and promotion of low barriers to trade. A sustainable trade policy would reduce over-reliance on natural resources, and limit air and water pollution by including high environmental standards in trade agreements. It would also aim to strengthen social capital by promoting a high quality educational system, providing for better labour standards, and aiming for lower income inequality.

So, which countries have succeeded in getting it right when it comes to sustainable trade? A tool has been developed to throw some light on this issue. The Hinrich Foundation Sustainable Trade Index, developed by the Economist Intelligence Unit (2016), has classified 19 Asian countries using the US as a benchmark, across a variety of indicators under each of the three pillars of sustainability namely, economic, social, and environmental.

The Index thus defines “trade sustainability,” or “sustainable trade,” as participating in the international trading system in a way that promotes the long-term goals of economic growth, environmental protection and consolidation of social capital.

Singapore was ranked first by the 2016 edition of the index, with South Korea second. While Singapore’s economic development strategies have been widely admired, its commitment to developing human capital and environmental stewardship have helped to push it to the top of the Index. South Korea’s targeted development strategies, especially with regard to heavy industries and consumer electronics, have also produced impressive economic results, but the country has also been committed to strengthening the social capital for its citizens. Indeed, South Korea was ranked number one on the social pillar, due to a low level of income inequality, high levels of educational attainment as well as high labour standards, while China was the most noteworthy under-performer, partially due to the environmental challenges its rapid growth has brought.

5.6.4 Sustainable Trade Opportunities for Developing Countries

1. Development of Environmental Markets and Green Growth

The expansion of the environmental goods and services market provides opportunities for the diversification of the economy and the development of a green economy. A Green Growth Strategy aims to promote economic growth and development, while addressing four key environmental challenges: climate change, unsustainable use of natural resources, loss of biodiversity and ecosystem services, and unsustainable materials management (OECD, 2011).

During the period 2007–2011, the growth of the world’s imports of environmental goods and services — in particular renewable energy — and key environmental goods — for instance waste management and treatment and water management — has significantly exceeded the increase of the total goods imports. Furthermore, international trade in environmental goods and services has fuelled the creation of jobs. By becoming part of the mainstream markets, green products and services can also create opportunities for developing countries to become part of global green production and trade value chains in different industries such as agriculture, fisheries, forestry and manufacturing.

2. Greening of Trade

Extractives such as fossil fuels and ores and metals tend to dominate developing countries’ exports, especially in Africa. In order to create a comparative advantage in the production of goods and services that are green, significant reduction of material intensities (i.e. an increase in efficiency of resource use) and lower emissions associated with trade flows is required from these countries. Greening of trade flows can attract new investments in manufacturing and value-added services for countries that are currently involved in the production of no or low value-added goods.
3. Trading in Renewable Energy
The global market in low-carbon and energy-efficient technologies, which include renewable energy supply products such as solar photocells and solar panels, is projected to nearly triple to $2.2 trillion by 2020 (WTO, 2017). The growing market for renewable energy products and carbon credits thus holds potential for expanding trade.

4. Promoting Ecotourism for Enhanced Trade
A green economy generates trade opportunities for goods and services that embody “green” attributes. One such example is ecotourism. Ecotourism provides a niche or higher value-added product that is attractive to many tourists. It facilitates trade of other goods and services, enhances revenue generated from tourism and creates job opportunities which might be an important contribution to poverty alleviation in certain regions.

5. Promoting Inclusive Green Growth in the Agriculture Sector Through Trade
Increased demand for organically produced food and awareness of environmental issues among consumers can be exploited. In addition to being a prospective niche and higher value-added market as compared to conventional farming, the returns from organic products have proven to be more inclusive and more economically profitable as well as more environmentally friendly and sustainable in terms of the production and processes. Developing countries have the potential to capture this niche area as they hold significant amounts of agricultural land with little to no use of agrochemicals.

A green economy also promotes ethical trade through Fair Trade production chains which ensure that small developing country producers receive fairer terms of trade and better prices for their goods. Fair trade ensures that the proceeds of sale of goods and services trickle down to the small producers or minorities involved in the production. The sale of Fair Trade certified products such as cotton, coffee, and cocoa are on the rise around the world, directly benefiting farmers and workers, especially in developing countries. Fair Trade principles can be expected to be applied more widely in a green economy.

Finally, trade can create opportunities for women’s empowerment and well-being but can also amplify prevailing gender-based inequalities. The Addis Ababa Action Agenda of the Third International Conference on Financing for Development by the United Nations (UN) links issues for sustainable development to trade and gender issues and aims to promote social justice through measures to help women harness the benefits and opportunities of trade integration. These include, for instance, targeted, gender-sensitive subsidies, the strengthening of women associations such as cooperatives, microcredit schemes and training and mentoring (UNCTAD, 2016).

5.6.5 Trade and the Challenges of Sustainable Development

Although there is growing awareness about the need to integrate environment and development priorities into policy and marketplace decisions on trade, significant obstacles remain. One of the major obstacles is the lack of consensus during policy discussions between countries. Other challenges are discussed hereunder.

1. Energy-driven Growth and Development, and Trade in a Low-Carbon Economy
The shift to a low-carbon economy is part of the transition to a more sustainable, resource-efficient and green economy. While energy is tradable like any other goods and services, it is nonetheless also widely used in the production and distribution of other goods and services. The challenge to reduce emissions becomes even more formidable when combined with the rapid growth in global demand for energy, spurred by the increase in consumption patterns in fast-growing and developing economies such as China and India.
International trade also contributes to global CO\textsubscript{2} emissions which are responsible for global warming. The International Transport Forum (ITF) estimates that growth in trade and trade liberalisation will result in a significant emissions growth in the years to come unless actions are taken (OECD, 2016).

2. Use of Natural Resources

Another important sustainable development challenge arises from unsustainable consumption and production patterns that have evolved in developed countries, a pattern that is being followed more and more by developing and emerging countries. Mining and the burden on natural resources, have chiefly been motivated by international demand, especially from the developing and emerging countries in the last decades. Under existing tendencies, annual global material extraction has been projected to reach 183 billion tonnes by 2050 (Schandl et al, 2015), more than double the amount recorded in 2015. Of the 17 SDGs\textsuperscript{30}, 12 of them directly depend on the sustainable economy-wide management of natural resources. Trade in materials have a bigger effect than directly traded volumes due to significant material requirements for the upstream production chains, which generate waste and emissions in the country that produces the traded goods.

5.6.6 Making Trade-led Economic Growth Sustainable

- National Actions to Promote Green Growth

Good governance and strong institutions to develop and implement coherent policies are important for the transition to inclusive green growth in order to create an enabling environment at the domestic level which, coupled with greater openness of green markets, can promote increased investment and the transfer of skills and technologies needed to build green supply capacities for domestic and export markets.

Several instruments can be used to promote the transition to a green economy at a national level. Market mechanisms, such as taxes and tradable permit schemes, can be used to put a price on pollution or on the overexploitation of natural resources. Such measures can also encourage consumers and producers to make choices that result in less pollution, less waste or a less rapid depletion of natural resources. Such measures also provide firms with incentives to find innovative ways of tackling environmental challenges.

Countries can also use environmental requirements — by setting technical specifications to improve energy efficiency or emissions performance, minimise waste or protect natural habitats of wildlife — to improve the use of resources and to reduce pollutants. Government support also plays an important role in fostering innovation and in the distribution of green technologies. Public procurement is also increasingly being utilised by nations to promote their environmental objectives.

However, green economy measures, for instance to promote a low-carbon economy, tend to be quite complex in nature. Furthermore, these domestic measures can have an impact on international trade, for example by segmenting markets or protecting local producers from international competition. There is some concern that green economy measures could be used to validate or camouflage trade protectionism by certain countries.

\textsuperscript{30} Goal 1: No Poverty; Goal 2: Zero Hunger; Goal 3: Good Health and Well-being; Goal 4: Quality Education; Goal 5: Gender Equality; Goal 6: Clean Water and Sanitation; Goal 7: Affordable and Clean Energy; Goal 8: Decent Work and Economic Growth; Goal 9: Industry, Innovation and Infrastructure; Goal 10: Reduced Inequality; Goal 11: Sustainable Cities and Communities; Goal 12: Responsible Consumption and Production; Goal 13: Climate Action; Goal 14: Life below Water; Goal 15: Life on Land; Goal 16: Peace and Justice, Strong Institutions; Goal 17: Partnerships to Achieve the Goal
• **New Green Protectionism**

The so-called new “green protectionism” concerns measures which promote the transition to a green economy. Green protectionism measures tend to discriminate against “brown” goods that do not meet green regulations and standards, and it usually considers developing countries as the standard-takers and developed countries as the standard-makers. In the previous section, reference was made to a series of policy instruments that countries could implement to promote the reallocation of resources away from brown activities towards greener ones. Some of those measures — such as local content, preferential financing, subsidies, and carbon taxes — are similar to those used in traditional industrial policies, which seek to promote local sourcing of goods and services at the expense of imports. Special consideration is thus required in the design and implementation of domestic policies and regulations, so that discrimination against foreign sourcing of goods and services is prevented or at least minimised in line with national treatment which is one of the cornerstones of WTO trade regulations. National treatment is a basic principle of GATT/WTO that prohibits discrimination between imported and domestically produced goods with respect to internal taxation or other government regulation.

• **International Actions to Support Green Growth**

A successful shift along the green growth development path requires overcoming significant challenges, especially by developing countries that lack sufficient financial, technical and human capital to transform their economies. International cooperation and supranational organisations, such as the WTO and the World Bank, can play a significant role in providing assistance for capacity-building, technology transfer and financial support. International cooperation on research and development is also required, for instance, to bring green technologies into the public domain and to promote green technology transfer in both developed and developing countries.

It is also a priority for developing countries to create a conducive domestic environment in order to attract private investment in green projects and sectors consistent with the country’s own development objectives. However, there will be many developing countries that have little or no ability to attract private investments towards green projects and sectors. These countries could be targets for international financial support. International assistance could also be provided to developing countries to build their green goods and services sectors in order to increase their participation in the global green economy trade, and thus benefit from the various opportunities.

Some green economy domains in which developing countries could be provided with assistance include green technology transfer, climate change mitigation and adaptation, biodiversity conservation, building export capacity development in green sectors, capacity-building in international standards and assistance in mainstreaming green economy policies into national economic, employment and trade policies.

**VIDEO**

Debate: trade and sustainable development [https://www.youtube.com/watch?v=Ly5FsL_dpbl](https://www.youtube.com/watch?v=Ly5FsL_dpbl)

Question for Class Discussion: What opportunities and challenges does the issue of sustainable development and trade create for the members of the WTO?

**VIDEO**

Does Africa have the right trade policy for sustainable growth? [https://www.youtube.com/watch?v=1QFk708OvnM](https://www.youtube.com/watch?v=1QFk708OvnM)

For questions, refer to Case Study.
5.7 CASE STUDY

Insights about Africa’s Global Trade: Risks to its Future Growth?

According to data from the International Trade Centre, the 2016 global trade of the African continent had increased by a significant 238% to reach US $ 794.7 billion from $ 235.4 billion in 2001. Moreover, during those last 16 years, Africa received a cumulative amount of $ 5.8 trillion for its exports. This has definitely helped the African countries to grow.

However, looking at a granular level, we find that trade is in fact on a decline. From 2001 to 2012, the African global trade had increased steadily to reach a peak of $ 1.2 trillion (a 427% increase), but from 2012 to 2016, trade declined significantly by 36%. At its peak, Africa exported $ 660.1 billion in 2012 (476% increase from 2001), but subsequently, exports declined, to reach $ 335 billion in 2016 (49% drop from 2012). As a result, this decline is exposing the many weaknesses of the African economic model.

Previously, the continent was highly dependent on trade with developed countries. Trade with the EU and the US represented 52.3% and 13.7% in 2001 respectively. Since then, Africa-Asia trade has risen to represent 36.9% in 2016, from 24.8% in 2001. This resulted in a drop in the combined share of the EU and the US to 40% in 2016. As the Asian economies, particularly China and India, continue to grow, the Africa-Asia trade will continue to rise. In fact, the Africa-Asia trade is already more important than the Africa-EU trade.

Highly Dependent on Commodities

While Africa has largely benefited from its global trade, it is a matter of great concern that most African economies are still based on primary industries that are mainly related to agriculture and mining, as well as oil and gas. When prices of commodities were high, and trade was booming, many countries thought that their natural resources were god-sent and that revenues from this trade would never end. Their respective governments have therefore not seized the opportunity to diversify their economies and develop other high-potential industries.

The top African exports are oil and gas, bringing about revenues of $ 120.6 billion in 2016. With the drop in oil prices since 2012, many oil-dependent countries were affected significantly. According to Bloomberg data, the price of Brent crude dropped by 53% — from just over $ 110 per barrel at the beginning of 2013 to about $ 52 in 2018. Major oil producers like Angola, Algeria and Nigeria, as well as smaller ones like Equatorial Guinea and Gabon, were greatly affected and are still suffering from the decline in oil prices.

Even for agricultural commodities, prices have been volatile. Côte d’Ivoire and Ghana are the world’s largest and second-largest producers (respectively) of cocoa. Both benefited from relatively high cocoa prices over the last few years, but with a decline in world demand, coupled with a higher cocoa production recently, prices have dropped. Being dependent on agricultural commodities means that their economies are subjected to not only the vagaries of climate, but also market uncertainties like a bumper harvest in other parts of the world that could eventually affect prices.

Due to the 2008 GFC that pushed the developed countries into a recession, the global economy contracted. For China, it launched a $ 586 billion economic stimulus package that helped support not only its economic growth, but also its demand for commodities. Without this stimulus, the decline in demand for African commodities would have already started then.

This $ 586 billion stimulus eventually created a huge overcapacity in the industrial sector, as well as asset bubbles in China. From 2010 onwards, at the expense of its high economic growth, the Chinese government subsequently undertook some economic reforms that curbed market speculation and demand for commodities, leading to a big drop in prices. Being highly dependent on commodities, Africa has therefore been greatly impacted.
Moving up the Global Value Chain

Most African countries that are rich in natural resources, are now feeling the effects of the “resource curse” phenomenon, since they are mainly dependent on a mono-economy. As they have not made a deliberate effort to diversify their economies during the good times, not only are they receiving less revenues from commodities trading, putting them in fiscal deficit, but they are also facing the pain of economic restructuring.

Need to Develop Africa’s Manufacturing Sector

The recent commodities downturn has shown how dependent many African economies are on their natural resources. Hence, for their future economic development, they have to focus on shifting away from basic commodities and on developing other high-potential industries.

While Africa is a major crude oil-producer and exporter, it is also a major importer of other refined petroleum and petrochemical products. This is because Africa does not have enough oil refineries to transform its own crude oil and cater to all its needs. The problem is that many oil-producing countries have not created the right environment and economic policies to foster the growth of these higher value-added capital intensive industries. Côte d’Ivoire and Ghana have spent many years developing their cocoa industry to eventually become the world’s largest and second-largest producers. Yet, it is only recently that they are looking into further developing the higher value-added chocolate manufacturing for export purpose. Similarly, Burkina Faso and Mali are Africa’s largest and second-largest cotton producers, but neither have extensive textile manufacturing activities.

Prices of commodities may not recover to their previous peaks in the near future, and the commodity exports from Africa may continue declining. If African governments do not rectify and reform their respective economies, the decline in exports may not only exacerbate their fiscal position, but may put their future growth prospects at risk.

Hence, there is an urgent need to develop the right economic policies to attract foreign investments that can develop other higher value-added industries. It is through diversification and an emphasis on sustainability that African countries can strengthen their economic growth and build more resilience.


5.8 QUESTIONS

1. Critically discuss Sub-Saharan Africa’s development path.
2. Why is sustainable trade important?

5.9 ASSESSMENT

Discuss about the opportunities and the challenges that sustainable trade represents for Mauritius.

5.10 UNIT SUMMARY

Trade is considered to be a powerful tool to increase productivity, economic growth and to improve living standards. GDP growth is one of the most important policy goals of both developed and developing countries.

The EKC is a representation of the long-term relationship between environmental degradation and growth/level of development which is depicted by an inverted U curve. According to the EKC hypothesis, environmental degradation is expected to rise at lower levels of income and after a threshold level of per capita income is reached, environmental degradation is expected to start decreasing. Economic growth is thus seen as the solution to environmental problems.
However, the pursuit of economic growth leading to unsustainable consumption and production patterns is detrimental to the planet and ultimately to human welfare. To that end, sustainable trade can be an engine for inclusive economic growth, poverty alleviation and a significant medium to attain the SDGs. Sustainable trade includes the three pillars: economic growth, social equity and environmental protection.

There have also been developments in the international trade arena that have implications for the sustainable development agenda. A sustainable trade policy aims to balance the long-term resilience with the short-term goals of the country through a diversified export mix, investment in technology, and promotion of low barriers to trade.

Sustainable trade provides several opportunities as well as challenges, especially for developing countries. Policy decisions and actions can be taken at the national and international levels to promote sustainable trade and green growth.

### 5.11 ADDITIONAL READINGS


### 5.12 REFERENCES

- International Monetary Fund; World Bank; World Trade Organization (2017), Making trade an engine of growth for all: The case for trade and for policies to facilitate adjustment, Retrieved from [https://openknowledge.worldbank.org/handle/10986/26389](https://openknowledge.worldbank.org/handle/10986/26389)


UNIT 6
ADOPTING A SUSTAINABLE BUSINESS MODEL

UNIT STRUCTURE

6.1 Introduction
6.2 Learning Outcomes
6.3 Environmental and Social Problems
6.4 Sustainable Business
6.5 Sustainable Business Models
6.6 People
6.7 Place
6.8 Product
6.9 Unit Summary
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6.1 INTRODUCTION

Businesses can no longer ignore the interdependencies between human beings and nature. The industrial processes that produce the goods aimed at meeting our physical needs should not be depleting the natural resources unnecessarily. Human prosperity can only be sustainable in a healthy natural world. To that end, businesses must use innovative practices to link profits, people and the planet. As such, to ensure that future generations benefit from a prosperous planet while businesses remain profitable, an interdisciplinary approach is vital.

There is an urgent need to make people understand that the current business model (TBL) will harm our people and the planet. Therefore, businesses have to operate in a more responsible or sustainable manner. Sustainability must be embedded in everyday processes. We must encourage responsible social and environmental actions. This unit aims at prompting you as a student in the field of business, to think differently.

6.2 LEARNING OUTCOMES

By the end of this unit, you will be able to do the following:

1. Discuss the environmental and social problems caused by unsustainable business models.
2. Explain the concept of triple bottom line (TBL).
3. Assess the relevance of the environmental and social issues related to sustainable businesses.
4. Discuss the business opportunities that emerge when adopting sustainable business practices.
5. Examine sustainable business models.
6. Identify the components of a sustainable business model.
7. Describe the different business models or dashboards used to capture economic, social and environmental considerations.
8. Discuss the importance of product, people and places in the development of sustainable businesses.

6.3 ENVIRONMENTAL AND SOCIAL PROBLEMS

For centuries, most businesses have focused on profit-making. The idea was to maximise profit using all means available. Such intense focus on profit-making has often been at the expense of environmental concerns. As a consequence, we now have rising temperature, flash floods, heat-related deaths, wildfires, melting polar sea ice and rising sea level. These phenomena are becoming more and more common. It is only now that we are understanding the extent of our responsibility towards the destruction of natural resources with devastating effects on people, animals and nature in general. For example, in Mauritius, we are experiencing increasing flash floods that have, unfortunately, also caused fatalities.
Clearly, the negative effects of climate change are not only environmental in nature but also economic and social as well. Addressing climate change issues should be at the top of our agenda because clearly it leads to unprecedented consequences. For instance, extreme climatic conditions are affecting crops and farmers. Extreme droughts in one place and floods at another are affecting the production of agricultural goods. According to Carleton31 (2017), global warming is responsible for 59,300 suicides in India, especially during the agricultural growing season when heat decreases crop production. According to this research, for temperatures above 20 °C, a 1 °C increase in a single day’s temperature causes an increase in the volume of crop failure in the country. As a result of such losses in revenue, India has witnessed a rise in suicide rate among farmers — around 70 suicides, on average, per year. Food safety concerns are rising with the growing number of food recalls. Decrease in food production often leads to malnourishment, especially among children.

According to the World Bank32 (2016), in 2013, 767 million people are estimated to have been living below the international poverty line of US $ 1.90 per person per day. Climate change is worsening the situation of the people living in poverty who have to bear the brunt of the negative impact of climate change such as extreme floods and droughts. People in cities who cannot afford air-conditioning also suffer from heat-related ailments.

Small Island Developing States (SIDS) are particularly vulnerable to rising sea levels and face the brunt of the adverse effects of climate change. At the beginning of 2014, Vunidogoloa, Fiji’s first village to relocate, moved 1 km further inland as a part of the country’s climate change programme, because seawater had already begun to flood residents’ homes. It is expected that 34 other villages would also have to be moved as Fiji grapples with eroding coastlines and increased flooding. The entire nation of Kiribati, a small island state in the Pacific, is expected to become uninhabitable due to sea level elevation and the country has recently bought land in Fiji in order to relocate. This means entire ways of life that have existed for centuries will be relocated and changed forever.

According to the 12th edition of “The Global Risks Report” published by the World Economic Forum in 2016, a cluster of environment-related risks — notably extreme weather events and failure of climate change mitigation and adaptation as well as water crises — have emerged as a consistently central feature of the global risk landscape over the last decade (Figure 6.1). The report also states that the environmental concerns are more prominent than ever, with the risks in this category assessed as being above average for both impact and likelihood. Moreover, the environment-related risks are strongly interconnected with many other risks such as conflict and migration (Figure 6.2).


Figure 6.1: The Global Risks Landscape

The Global Risks Landscape 2017

What is the impact and likelihood of global risks?

Figure 6.2: The Global Risks Interconnections Map

The Global Risks Interconnections Map 2017

How are global risks interconnected?

Source: Global Risks Report 2017, World Economic Forum

Survey respondents were asked to identify between three and six pairs of global risks they believe to be most interconnected. Read more about the methodology.


The same report published the global risks and the impact that these risks have. Figure 6.3, published in the report (Page 4), shows how environment-related risks are becoming prominent over time. It is worth noting that in the year 2007, none of the climate-related risks were among the top five global risks, whereas in the year 2017, four environment-related risks are among the top five global risks.
Assessment 1

Brainstorm how social and environment-related issues may affect businesses.

Hint: Businesses must reduce greenhouse gas emissions and consider the effects of climate change. Consider the following impacts on business: price of products and services due to additional tax, transportation routes (e.g. ice roads), ground pollution, lack of water resources, access to affordable insurance, and/or availability and security of energy. Companies must invest in technological innovation and renewable energy solutions. Soil degradation harms agricultural productivity. Unhealthy workforce affects productivity.
6.4 SUSTAINABLE BUSINESS

Businesses have to shift their focus from the “bottom line” to the “triple bottom line” (TBL) modus operandi. The “bottom line” refers to the profit generated by the business and this is usually included in the last line of an income statement. As mentioned in the previous unit, the TBL refers to profit, people and planet. This means sustainable (or green) businesses do not only consider profit but also consider the impact of their activities on people and the environment. The TBL is also referred to as “Environment, Economy, Equity” or “Human Capital, Natural Capital, Financial Resources”. Land, air, water, living creatures, and the biosphere constitute the natural capital.

Sustainability has been defined in several ways. Fortunately, all the definitions tend to converge. The aim of all definitions is to ensure that both the current and future generations have a good quality of life. The present generation and businesses should not jeopardise the existence of the future ones by causing irreparable damage to the ecosystem. If the current generation depletes the resources of our planet, there will be not much left for the future generations and businesses.

The consumption pattern has led to the development of an industrial era that has put a lot of pressure on the environment. We have been producing several items including foodstuffs and gadgets while significantly increasing our travelling. We are consuming resources at an alarming rate with little regard for the long-term consequences.

6.5 SUSTAINABLE BUSINESS MODELS

The model proposed by Desjardins & Willis (2011)\(^3\) is presented in Figure 6.4. This model acknowledges that economic, market and other external conditions have always impacted competitiveness, risk and resilience. The figure also shows that key environmental issues, stakeholder trust and relationships, and an evolving environmental, social, legal and regulatory landscape are interconnected and also impact the strategy for competitiveness, risk and resilience.

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Wanamaker (2017)\textsuperscript{34} describes the three interconnected spheres of sustainability depicting the relationship between the environmental, economic, and social aspects. These spheres are a related set of concepts that, when taken together, constitute a solid ground from which major decisions and actions can be made. Examples of such decisions could include land use planning, surface water management, building design and construction, and even law making. When the concepts contained in the three spheres of sustainability are applied to real world situations, everybody wins. Natural resources are preserved, the environment is protected, the economy is not harmed, and the quality of life for people is improved or maintained.

The figure below shows the three spheres and how they are related.

**Figure 6.5: Three Spheres of Sustainability**

Scott & Stahel (2013)\textsuperscript{35} have proposed a 7P Model (Figure 6.6). The 7Ps refer to

1. Preparation
2. Processes
3. Preservation
4. People
5. Place
6. Product
7. Production.

1. **Preparation**: Think differently. Sensitise all stakeholders including employees. Convince stakeholders to accept financial implications, as it will be fundamental to reap profit in a prosperous world in the long term.

2. **Processes**: Develop sustainable business processes and reduce waste. Adopt business models that help match a company’s offerings with customer demands and best practices.

3. **Preservation**: Ensure that there is a collection and display of sustainability measures in real-time. Ensure compliance with laws, legislations and standards.

4. **People**: Ensure that people have the right environment to perform and that they are not exposed to hazards. They must be trained continuously so that they can use technology and adopt sustainable practices.

5. **Place**: Ensure that there is the right balance between sustainable business practices and productivity. Avoid air pollution and land contamination.

6. **Product**: Production of goods and services must be accompanied by low volume of non-hazardous waste and toxins. Promote reuse and recycling. Dispose of hazardous wastes as per norms and standards.

7. **Production**: Adopt sustainable physical, biological, chemical, and mechanical processes. Eliminate waste.

Figure 6.6: 7P Model

**Internal Forces** (forces that primarily affect the interior of the business)

- **Focus:** Setting new standards, objectives, policies and goals
- **Focus:** Employee acceptance/ involvement
- **Focus:** Waste elimination and prevention
- **Focus:** Measurement

**Strategy**

- **PREPARATION**
- **PROCESSES**
- **PRESERVATION**

**The Catalyst**

- **PEOPLE**

**Tactics** (Application)

- **PLACE**
  - **Focus:** (inside the building): Waste elimination; Productivity increases

- **PRODUCT**
  - **Focus:** Waste elimination; Profit maximization; Cost savings

- **PRODUCTION**
  - **Focus:** Lean thinking (Waste elimination); Efficiency increases

**External Forces** (forces that affect the business)

- **Focus:** Market force changes and goals
- **Focus:** Resource scarcity
- **Focus:** Political climate / realities
- **Focus:** Resource extension (closed-loop economics)
- **Focus:** Laws and Legislation
- **Focus:** Market optimization
- **Focus:** Inclusive business and CSR

**Internal**

- (focus on actions that primarily affect the interior of the business)

- **External**
  - (focus on actions that primarily affect external business forces)

Drawing upon the global risk landscape portrayed at the beginning of this unit, the following section sets out some important environmental and social issues that companies must consider in identifying those most relevant to them. In assessing the relevance of these environmental and social issues, it is important to appreciate their interconnectedness and how they can give rise to business opportunities as well as risks.

### 6.6 PEOPLE

People remain at the heart of all changes. Sustainable businesses cannot be successful if employees, customers, managers, leaders and all stakeholders do not change their behaviour. Sustainability, thus, is a behavioural issue. Moreover, it is not sufficient for one or a few people to adopt sustainable business practices. The entire team must embrace sustainable practices. Employees at all levels of the hierarchy must be sensitised about sustainability. Every employee must have thorough training and must be fully empowered to transform an existing business into a sustainable one. They must be fully involved in all stages of the transformation process. The benefits that all the employees as well as their future generations will derive must be made clear to all of them. People remain the main competitive advantage of any business.

#### 6.6.1 Rights of Workers

The pursuit of economic growth and protection for basic rights of workers should go hand in hand. The workforce remains one of the most valuable assets. Every business must strengthen the worker-management relationship in order to ensure the long-term sustainability of the enterprise, boost worker commitment and retention and reduce the chances of labour strikes.

Establishment of a sound worker-management relationship encompasses the following aspects:

1. Businesses must establish a policy that sets out their approach to managing employees in line with regulations. For example, in Mauritius, the National Remuneration Orders, Pay Research Bureau Reports, and the Employment and Industrial Relations Act provide information about employees’ rights related to wages, conditions, and benefits.
2. All employees must be regularly informed about working conditions and terms of employment: salaries, benefits, hours of work, overtime arrangements and compensation, as well as leaves.
3. Employers should allow workers to set up or to join employees’ organisations, and employers should not discriminate or retaliate against workers who unionise.
4. Employers must allow workers to voice reasonable workplace concerns.
5. Employers should not indulge in child and forced labour.
6. Employers should not deal with suppliers that are involved in unfair labour and unsustainable business practices.

#### 6.6.2 Occupational Health and Safety

Every employee must operate within a safe and healthy work environment that is free from physical, biological, chemical and radiological hazards. No effort should be spared to prevent accidents to, injury to, and illness of workers while they are performing their duties.

Sustainable businesses must:

1. Eliminate hazards at workplaces and ensure that facilities are structurally safe and floors are properly maintained.
2. Design safe work systems and control measures as well as prevent fires and injuries due to ergonomic factors.
3. Ensure that workers have protective equipment, first-aid facilities, safe workspaces, and that they are exposed to acceptable levels of noise, have lavatory facilities, sufficient potable water supply and lighting, as well as adequate clean eating places, and clear emergency exits.
Assessment 2

1. Discuss: “Life isn’t easy when you place a high value on sustainability.”
   
   Hint: Consumption patterns. Individuals can reduce use of plastic and improve home energy efficiency. Promote farmer’s markets, community gardens and mixed-use development. Consider foods that truly grow wild, or grow with very little support. Avoid foods that are heavily dependent on pesticides. Use of renewable energy resources. Use solar cookers.

2. What is cleaner production financing?

   Hint: Use technology to cut manufacturing costs. Reduce consumption of resources such as energy, water or raw materials. Reduce waste. Choose cleaner production initiatives. Cleaner production also has the potential to improve quality, resulting in higher value-added products and improved competitiveness.

3. Discuss, by providing examples, how we can transform existing businesses into sustainable businesses.

   Hint: For example, consider wastewater and habitat management for shrimp farms in Honduras; use of renewable resources in construction by Spier Estate in South Africa; or Philippine’s CEPALCO. Eco-industrial parks in Denmark (Kalundborg), Texas (Brownsville and Pasadena), New Hampshire (Londonderry), and Mexico (Matamoros).

4. Discuss the processes of building a team that will adopt sustainable business practices.


5. Discuss how we can reduce CO₂ emissions from buildings as well as implement measures that can be taken to reduce both interior and exterior pollution.

   Hint: See the paper by Meggers, Leibundgut, Kennedy, Qin, Schlaich, Sobek, and Shukuya, 201137 available at https://architecture.mit.edu/sites/architecture.mit.edu/files/attachments/lecture/Reduce%20CO₂%20from%20buildings_SustCitiesSoc.pdf

   See also: http://www.eesi.org/files/climate.pdf

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Unlike our ancestors, most of our activities are conducted inside buildings. Unfortunately, most of our buildings are not green. Buildings use around 35% of the energy in the world and are directly responsible for approximately 35% of global emissions. Two thirds of global electricity production is through building operations. When we include construction and maintenance, it becomes clear that buildings consume approximately 55% of global resources. They also cause more than 50% of global waste production (Roodman & Lenssen, 1995; Meggers, Leibundgut, Kennedy, Qin, Schlaich, Sobek, & Shukuya, 2011).

As a result, indoor pollution levels may be approximately five times higher than outdoor levels due to dust and fumes from interior building materials, cleaning solutions, production processes, central heating and cooling systems, radon gas, pesticides, paint, glue, carpets and so on. In the USA alone, nationwide building-related productivity losses and illnesses resulting from toxins can cost businesses $60 billion annually (Scott & Stahel, 2013). Moreover, other places, such as farms, must also ensure that they adopt sustainable business practices including controlling the use of pesticides that contaminate the soil.

The costs to companies and economies continue to rise due to air pollution. According to a report from the OECD published in 2016, air pollution will cause 6 million to 9 million premature deaths annually and cost 1 percent of global GDP by 2060. Sources of air pollutants can generally be classified into three categories: Point Sources are emissions located in a specific geographical place; Fugitive Sources are emissions that are distributed over a wider geographical location; and Mobile Sources are emissions associated with vehicles and aircrafts.

Many countries including Mauritius depend on tourism and air transport, given their distant locations from the main markets such as Europe, US, and China. If only over half of the international travellers arrive at their destination by air, a significant majority of the tourists visiting Mauritius (for example) use airplanes. Tourism contributes significantly to the GDP of Mauritius. In 2016, the direct contribution of this sector to the GDP was US$1 billion, representing 8.4 per cent of total GDP. Moreover, the total contribution of tourism to GDP was US$3.1 billion representing 25.6 per cent of GDP in 2016. In the same year, 45,500 people were working in this sector (this represents 8.2 per cent of total employment).


Given the above discussed prominence of the tourism sector, it is imperative for businesses to contribute towards the protection and conservation of biodiversity that include ecosystems and habitats. A reduction in biodiversity decreases the capacity of ecosystems to maintain a sustainable supply of clean air and water.

**Assessment**

1. **How does air pollution affect businesses?**

   Hint: Consider the impact of air pollution on human health, agriculture, forests, water resources, and lakes. Control the quantity of pollutants emitted into the environment. These regulations can impact the timing of approvals for new facilities and operations.

2. **What is “cleaner production”?**

   Hint: Cleaner production is the introduction of revised processes, management, and housekeeping practices through the business cycle with an emphasis on reducing waste and pollution at the source.

3. **How can businesses be affected by a reduction in water supply?**

   Hint: Consider extractive industries, beverage producers, agriculture growers, bottlers, and semi-conductor producers. Employees and communities require drinking water. Consider water price hike.

4. **How can businesses reduce water use?**

   Hint: Manage water consumption to avoid cost increases. Identify opportunities for reducing water through water reuse, improved equipment maintenance and better process design. Consider repairing leakages and installing water saving devices. Freshwater use in cooling systems can also be reduced by replacing it with treated water. In some cases, large quantities of water may be used by steam systems but water use can be reduced through steam recovery systems and improved systems operations.

5. **How can businesses be affected by unsafe water?**

   Hint: Diarrhoeal diseases caused by unsafe water and poor sanitation are the second biggest child killer — 315,000 young lives are extinguished annually worldwide. Many of these illnesses and premature deaths represent future customers and employees.

**6.8 PRODUCT**

The production processes must be reviewed regularly to ensure that they consume fewer materials and energy, and hence become more efficient. Moreover, waste generated during production must be reduced significantly. Industries must strike the right balance between the time it takes to re-design products and processes and the financial gain derived from such re-engineering. Consumers must also be sensitised to avail of products and services that emanate from sustainable practices. Not only products and services, but the production processes must be efficient as well.

In this industrial era, the vast majority of operations needed to manufacture goods use a lot of energy for the smooth running of processes such as heating and cooling; auxiliary systems such as motors, pumps and fans; generating compressed air; heating, ventilation and air-conditioning systems; lighting systems or other industry-sector specific processes. We still rely heavily on non-renewable resources such as crude oil, coal and natural gas, which are collectively called fossil fuels.
Furthermore, during the production processes, energy losses must be avoided. Energy loss is often caused by excessive parasitic loads as well as by lack of insulation, overcooling, poor refrigeration system design, and poor piping. Moreover, industrial processes should have proper management of wastewater because the wastewater may contain several pollutants like acids, bases as well as soluble organic chemicals, suspended solids, nutrients (phosphorus and nitrogen), heavy metals (such as cadmium, chromium, copper, lead, mercury, nickel and zinc), cyanide, toxic organic chemicals, oily materials and volatile materials that can be harmful to both the environment and the health of workers. The costs of the treating process of wastewater can be significant.

Production processes must also make efficient use of water. Washing machines, rinsing, building facility operations, cooling systems, and water jets or sprays to keep conveyors clean or to cool products, all unfortunately use a lot of water.

**6.8.1 Hazardous Materials Use**

Many industrial processes must reduce the use of hazardous materials that constitute a risk to the environment, health of living creatures, and fauna, due to their physical or chemical characteristics. Instead, non-hazardous substitutes must be used and materials such as pesticides must be avoided.

**6.8.2 Waste**

Waste is one of the by-products of manufacturing processes. Obsolete commercial products that can no longer be used and that require disposal also lead to waste. It can be hazardous or non-hazardous. It can be solid, liquid, or contain gaseous material. Businesses must have proper waste disposal practices since waste often contaminates the ground water.

Proper waste management includes waste management planning as well as identification of opportunities to reduce waste, reuse it, recycle it and prevent pollution. Efforts should be geared towards minimising the volume of waste generated at the stage of designing processes. It is also vital to use less hazardous raw materials and those that generate less waste. In cases where waste is unavoidable, the waste material should be properly treated and disposed of. Hazardous waste should be properly stored in order to not affect the health of human beings. The possibility of accidental release of hazardous materials should be reduced completely. On-site and off-site transportation of waste should be conducted as per established regulations.

Land contamination, especially due to hazardous materials and release of waste, should be avoided at all costs. This contamination affects ground water as well as surface water that can seriously damage human health.
6.8.3 Assessment 4

1. How does the supply of energy affect businesses?
   Hint: Consider energy-related environmental and social issues, energy availability, cost, production, security, and transportation. Technological innovation and investment must be promoted when the cost of conventional energy sources is rising. Adopt alternative energy sources. Reduce costs by reducing energy demand.

2. How can companies reduce energy losses?
   Hint: By identifying opportunities to reduce energy losses. Prefer energy from renewable resources like solar power, wind power, hydropower, biomass and nuclear fission and fusion. Reduce dependency on non-renewable resources like crude oil, coal and natural gas, which are collectively called fossil fuels. Using renewable forms of energy can reduce emissions of pollutants and greenhouse gases (GHGs).

3. Discuss energy efficiency financing.
   Hint: Invest in energy-efficient systems that can generate substantial economic and environmental benefits while promising increasing financial returns. Consider energy efficiency financing to reduce energy consumption, increase productivity and create products/services without an increase in energy consumption. Identify opportunities, e.g. improvements in heating and cooling equipment. Use solar water heaters.

4. How can businesses improve waste management practices?
   Hint: Consider product design and packaging, production processes and waste disposal practices. Promote “doing more with less”, consume fewer materials and generate less waste without jeopardising product quality. Promote recycling and reuse of products.

5. How can companies prevent or reduce wastewater generation?
   Hint: Monitor the quality, quantity, sources and discharge points of liquid effluents and wastes. Discharges of wastewater should not result in contaminant concentrations in excess of the effluent discharge quality standards. Avoid, minimise and control adverse impact on human health, safety and the environment from wastewater generation by practising wastewater management, water conservation and reuse.

6. What are the measures that businesses should take while handling hazardous materials?
   Hint: Prevention and control measures. Protect the workforce and surrounding communities. Reduce the releases of hazardous materials. Prevent accidents such as fire and explosions, or leaks and spills.

7. How can land contamination be avoided?
   Hint: Establish prevention and control measures. Proper management of contaminated lands should be managed to avoid the risk to human health and ecological receptors. Business operations should implement the necessary measures to prevent releases of hazardous materials, waste, or oil into the ground.

8. How can businesses prevent/reduce biodiversity losses?
   Hint: Businesses need to avoid or mitigate threats to biodiversity arising from their operations as well as sustainably manage renewable natural resources. Prevent accidental or unintended introductions of any alien species with a high or known risk of invasive behaviour.
6.9 UNIT SUMMARY

Businesses cannot ignore the social and environmental problems emanating from climate change. They must re-think the processes and proceed with the “greening” of unsustainable practices. To that end, the 7Ps should be considered thoroughly. Stakeholders must be consulted when designing sustainable businesses, and businesses must ensure that there is a competent team that is able to adopt new regulations and standards, use latest technology, and other disruptive changes to develop sustainable businesses. Both effective workforce management as well as waste management play a pivotal role in achieving the goals of sustainability. Even if sustainable business practices may differ from one sector to another, the overall aim is to ensure that the future generations have a safe, secure and healthy planet.

6.10 VIDEOS

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<tbody>
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<td>What Are Sustainable Business Models and Why Are They Important?</td>
<td><a href="https://www.youtube.com/watch?v=u9eV8Cy5eNs">https://www.youtube.com/watch?v=u9eV8Cy5eNs</a></td>
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<tr>
<td>Feb 24, 2015</td>
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<td>3 Minute Introduction to Strongly Sustainable Business Model Canvas</td>
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<td>Sustainable Business Models, a Case Study</td>
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6.11 REFERENCES


UNIT 7
SUSTAINABLE CONSUMPTION AND PRODUCTION (SDG 12)

UNIT STRUCTURE

7.1 Introduction
7.2 Learning Outcomes
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7.1 INTRODUCTION

In previous units, we discussed the key concepts in sustainability, the Sustainable Development Goals (SDGs) developed by the UN, sustainable business models and indicators, and sustainable trade and economic growth. In this unit, we will focus on Sustainable Consumption and Production (SDG 12). Sustainable consumption and production essentially relates to the minimisation of the use of natural resources and of the production of waste materials which also implies the efficient use of raw materials. In this unit, you will learn about the concept and fundamentals of sustainable consumption and production as well as the trends and policy opportunities that exist in sustainable consumption and production.

7.2 LEARNING OUTCOMES

By the end of this unit, you will be expected to:

1. Apply the concepts of sustainable consumption and production.
2. Apply sustainability to different business areas including infrastructure, planning, waste management, public procurement and tourism.
3. Identify policy opportunities related to sustainable consumption and production.

7.3 TERMINOLOGY

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tr>
<td>Acceptance Duty</td>
<td>The obligation of an original manufacturer to take back their goods once these end up as waste</td>
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<tr>
<td>Anaerobic Digestion</td>
<td>Degradation of organic matter in the absence of oxygen by a microbial consortium to produce biogas (carbon-dioxide and methane) and a by-product called digestate</td>
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<tr>
<td>Cleaner Production</td>
<td>Initiative taken at industrial level with the main goal being waste and pollution reduction while maximising production output</td>
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<tr>
<td>Composting</td>
<td>Degradation of organic materials in the presence of oxygen by a microbial consortium to produce carbon-dioxide, water and a humus-like product called compost</td>
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### Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Environment Protection Fee</td>
<td>A tax levied on some products to be subsequently used to manage the product when it becomes waste material</td>
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<td>Extended Producer Responsibility</td>
<td>A concept whereby the environmental costs of goods are included in their initial prices and this extra amount is then used to manage the goods once they become waste material</td>
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<tr>
<td>Gasification</td>
<td>Thermal conversion of organic matter in sub-stoichiometric amount of oxygen to produce a syngas (carbon monoxide, hydrogen and methane) and a solid residue</td>
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<tr>
<td>Industrial Symbiosis</td>
<td>Concept of using the wastes or by-products of one industry as raw materials for another industry</td>
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<tr>
<td>Landfilling</td>
<td>Act of disposing waste in an engineered facility while minimising environmental impacts associated with leachate and methane gas formation</td>
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<tr>
<td>Pyrolysis</td>
<td>Thermal decomposition of organic matter in an oxygen-free environment to produce solid, liquid and gaseous fraction</td>
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<tr>
<td>Recycle (for waste material)</td>
<td>Processing of waste material into its original or new forms</td>
</tr>
<tr>
<td>Reuse (for waste material)</td>
<td>Using “waste” material over and over again without any processing</td>
</tr>
<tr>
<td>Sustainable Consumption</td>
<td>Minimising the use of natural resources and increasing the efficiency of natural resource utilisation</td>
</tr>
<tr>
<td>Sustainable Infrastructure</td>
<td>Conception, construction and utilisation of structures with consideration of the economic, social and environmental aspects of sustainability</td>
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<tr>
<td>Sustainable Lifestyle</td>
<td>A lifestyle making use of goods and services that have no or minimal impacts on the environment throughout their life cycle, that is from raw materials to becoming waste material</td>
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<tr>
<td>Sustainable Production</td>
<td>Reducing the production of waste materials and other pollutants</td>
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<tr>
<td>Sustainable Public Procurement</td>
<td>Procurement of goods or services by public authorities taking into consideration the three pillars of sustainability namely economic, environmental and social</td>
</tr>
<tr>
<td>Sustainable Tourism</td>
<td>Practice of visiting a particular place without negatively impacting the environment, economy and social life of the host country or place of visit</td>
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<tr>
<td>Sustainable Waste Management</td>
<td>Management of waste materials in line with the waste management hierarchy prioritising waste prevention and minimisation, reuse and recycle followed by waste-to-energy and ultimately landfilling</td>
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### 7.4 INTRODUCTION TO SUSTAINABLE CONSUMPTION AND PRODUCTION

Increased industrialisation, higher economic growth, and increases in population and living standards have all resulted in a considerable change in consumption and production patterns. All these factors have caused a rapid increase in the consumption of natural resources such as fossil fuels, freshwater and land. Higher consumption is inevitably followed by higher production of waste materials and pollution. The increased consumption of fossil fuels due to rapid industrialisation and population growth, for instance, not only results in rapid depletion of the available reserves but also results in the emission of greenhouse gases (for
example, carbon-dioxide). With a higher atmospheric carbon-dioxide level, global warming increases, and the impacts of climate change become more severe. Likewise, the continued felling of trees decreases carbon-dioxide absorption capacity and this again accentuates global warming and the resulting impact of climate change. Since it is anticipated that industrialisation, economic growth, population growth as well as living standards will continue to increase, it is unavoidable that consumption of natural resources will also escalate as will the production of waste and pollutants. However, such a predicted trend is not sustainable in the long run.

You will recall that sustainability is founded on three pillars namely environmental, social and economic aspects, and that it is the only way forward for a better tomorrow. Based on these three aspects, the UN has developed 17 goals (discussed in detail in Unit 2), also referred to as Sustainable Development Goals (SDGs), in an attempt to make the world a better place to live in (United Nations, 2015a). One of the SDGs developed by the UN, also referred to as Sustainable Development Goal 12, is to “Ensure Sustainable Consumption and Production Patterns” and it consists of a series of targets (United Nations, 2015b). Some of these targets comprehensively addressed in this unit are focused on the following areas:

- Cleaner and Safer Production
- Lifestyles
- Infrastructure, Cities and Urban Planning
- Waste Management
- Public Procurement
- Tourism

### 7.5 DEFINITION OF SUSTAINABLE CONSUMPTION AND PRODUCTION

One of the most widely accepted definitions of sustainable consumption and production was developed at the Oslo Symposium in 1994 (Norwegian Ministry of Environment, 1994, cited by UNEP, 2010) as:

> “the use of services and related products, which respond to basic needs and bring a better quality of life while minimizing the use of natural resources and toxic materials as well as the emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardize the needs of future generations.”

From this definition, three key aspects may be highlighted:

1. **Depletion of Natural Resources:** Due to the continued utilisation of natural resources such as fossil fuels, land and minerals, the needs of future generations will be severely affected. Fossil fuels, for instance, still account for a major fraction of the world’s total primary energy requirement. Consequently, while the shift towards renewable energy is encouraged since it is more sustainable, fossil fuels still represent a necessary evil. The uncontrolled use of fossil fuels will result in the depletion of available reserves, resulting in price increases as well as increasing emissions of greenhouse gases. A rise in fossil fuel prices and level of greenhouse gas emissions impact two pillars of sustainability, namely the economic and environmental aspects. Besides, future generations will face the risks of disintegrating economies due to a depletion of natural resources (fossil fuels, water, minerals, ores, etc.) as well as increasing risks of social conflicts. Minimising the current utilisation of natural resources through sustainable consumption may be achieved through sustainable lifestyles and proper planning of cities and infrastructures, and this will help save sufficient resources for the future.

2. **Use of Toxic Materials:** Dealing with toxic or hazardous materials results in several consequences such as impacts on the environment as well as human health. As such, such materials directly impact two pillars of sustainability, namely the environmental and social aspects. As a result, it is crucial that such use of hazardous or toxic materials in the manufacturing of other products is followed throughout the life cycle of the product including when it ends up as waste material. To minimise the use of toxic
materials, cleaner production and material substitution may be applied while a sustainable waste management system is also essential to deal with any hazardous or toxic wastes so as to eliminate its negative impact on both the environment and on human health.

3. **Emissions of Waste and Pollutants**: Emissions of waste and pollutants constitute one of the major issues of any production activity. Waste generation may be from domestic, commercial or industrial activities. Managing waste and pollutant production is key to sustainable production. This can be achieved through an integrated waste management system prioritising the most favourable options of the waste management hierarchy while the emission of pollutants can be minimised through cleaner production as discussed in subsequent sections.

### 7.6 FUNDAMENTALS OF SUSTAINABLE CONSUMPTION AND PRODUCTION

For sustainable consumption and production to be possible, there are two concepts that are fundamental, namely the relationship with poverty and that with the life cycle of a product or service (UNEP, 2015).

- **Connection with Poverty**: Sustainable consumption is directly linked to poverty. On the one hand, sustainable consumption is encouraged through minimisation of the use of natural resources but on the other hand, minimising the utilisation of natural resources has a major impact on the people who are already suffering from lack of natural resources. Common examples of these resources include lack of water, energy insecurity issues in poor countries, and no access to new products, among others. Likewise, sustainable production is also related to poverty. While developed countries are mostly responsible for the production of waste and pollutants, it is often the least developed or developing countries (poorer countries) that suffer the most. A simple example is the higher emission of greenhouse gases by industrialised countries as opposed to small island developing states (SIDS). Yet, these small economies are most vulnerable to the impacts of climate change caused by increasing levels of greenhouse gases. Sustainable consumption and production can help create a more even distribution of natural resources between poorer and richer countries while also reducing the negative environmental impacts. Some examples include a higher availability of resources to poor countries due to a reduction in their utilisation by richer countries, a cleaner and healthier environment with reduced waste and pollutants, and job creation in sustainable areas of development (UNEP, 2015).

- **Interplay with the Life Cycle of a Product or Service**: Whenever a product is manufactured or a service is delivered, there exists a complete process behind it. The manufacturing of any product follows a sequence of stages from raw materials to the final product. In between, there are intermediate compounds that are produced, and in addition to the end-product, other waste materials and pollutants are also generated. After the product has been manufactured and has been used, it is often discarded. As such, the life cycle of the product refers to a series of changes that have occurred from the procurement of the raw materials to the point when an end-product is discarded as waste material. Similarly, when a service is delivered, there are several activities that take place, and the life cycle of a service would thus be defined as the series of changes that have occurred from the first stage to the moment the service has been delivered. Sustainable consumption and production must thus consider the life cycle of a product or service. This includes the consumption of natural resources and the production of waste and pollutants during raw materials procurement, during the manufacturing process, during usage of the end-product and when the end-product is discarded as waste material. Common examples of consumption of natural resources include energy and freshwater usage, cutting down trees for wood and deforestation for project development while production of wastes and pollutants includes wastewater production, emission of gaseous pollutants as well as the production of solid and hazardous wastes.
7.7 TRENDS IN PRODUCTION AND CONSUMPTION

Cleaner production is in line with sustainable production with the main goal being waste and pollution reduction while maximising production output. For a specific amount of raw materials or natural resources, maximised production output (owing to cleaner production) implies enhanced resources consumption efficiency. Consequently, cleaner production is also correlated with sustainable consumption, since enhancing resource conversion efficiency minimises its consumption for the same amount of production output. Common examples of cleaner production strategies include the following:

• **Improved Process Efficiency**: Improved process efficiency can be achieved through equipment modification, process instrumentation and control, as well as waste minimisation. Improved process efficiency may be achieved at two levels:
  1. raw materials consumption and production output, and
  2. energy consumption.

At the level of raw materials or natural resources consumption, wastage must be minimised. This can be performed through a waste audit which identifies the quantities and types of waste generated at each stage of a production process. After an identification of the quantities and types of waste generated, a waste reuse or recovery programme can then be initiated. At the level of energy consumption, replacing equipment with high energy usage by those that are less energy intensive can help achieve improved energy efficiency. Energy consumption at each stage of a manufacturing process can be determined through an energy audit. This gives an account of all energy flows in a particular process for every unit operation and assists in the reduction of energy wastage. Furthermore, the use of more efficient equipment may also result in less emission and thus, less pollution.

• **Raw Materials or Resources Substitution**: Raw materials substitution is simply replacing raw material that is potentially hazardous or toxic with one that is less hazardous or toxic. As a consequence, any waste materials generated can be expected to be less hazardous and thus pose a lower risk to the environment. Non-renewable resources may also be substituted by renewable ones. Energy from fossil fuels, for instance, may be substituted by renewable energy as far as possible. Raw materials substitution may also be extended to the concept of industrial symbiosis as explained in subsequent sections.

• **Waste Reuse or Recycle**: As previously mentioned, waste minimisation is an important component of sustainable production and waste minimisation is only possible after a waste audit is conducted. Waste can be in solid, liquid or gaseous forms; irrespective of their forms, they need to be appropriately treated or managed in an environmentally sound manner prior to disposal. However, prior to disposal, the potential for reuse or recycling of this waste must be investigated within any industrial process. Solid waste materials may often be recycled or reused while wastewater that is not heavily contaminated or polluted may be recycled within the industrial process or reused for cleaning purposes, thereby reducing freshwater consumption.

Safer production concerns mainly the health and safety of people involved in the manufacturing of the intended products or in the provision of the requested services. Safer production ensures that the health and safety of workers are fundamental when dealing with or handling hazardous or toxic materials either as raw material or as end-product. Similar to cleaner production, safer production also implies that the production of toxic or hazardous waste is minimised as far as possible. Safer production also ensures that all potential risks or hazards are identified and can be linked with risk assessment. For further information, consult the Occupational Safety and Health Act 2005.
### 7.7.1 Sustainable Lifestyles

As previously mentioned, improving living standards and subsequently lifestyles is one of the reasons for increased consumption of resources and unfortunately leads to increased emissions of waste and pollutants. Adopting a sustainable lifestyle includes acquiring goods and services that have minimal or no impact on the environment throughout their life cycle, from raw materials to becoming waste material. Sustainable lifestyles must not only satisfy the environmental criteria but must also meet the two other pillars of sustainability, namely economic and social.

Simple examples of sustainable lifestyles are:

- Adopting the concept of rainwater harvesting and then using the rainwater for irrigation or floor washing instead of freshwater
- Adopting a lifestyle with minimum waste generation at home. For organic waste, practice composting and favour the use of compost over chemical fertilisers
- Walking or using a bicycle instead of cars as far as possible
- Buying in bulk to minimise waste generation
- Adopting the practice of reuse as far as possible
- Purchasing electronic goods that are energy saving and efficient
- Using solar water heaters instead of liquefied petroleum gas or electric heaters to heat water.

### Self-Assessment Activity 1

How can cleaner production be achieved at the household level?
(Hint: Water consumption and wastage, energy consumption and domestic waste generation).

### 7.7.2 Sustainable Infrastructures, Sustainable Cities and Urban Planning

Sustainable infrastructure refers to the conception, construction and utilisation of structures while due considerations are given to the economic, social and environmental aspects of sustainability. Some examples of sustainable infrastructures are as follows:

- **Clean Water and Sanitation** (SDG 6; United Nations, 2015a): Clean water and sanitation are fundamental to the social aspect of sustainability. These must be an essential component of sustainable infrastructure development as the lack of water and poor sanitation negatively impact life.

- **Affordable and Clean Energy** (SDG 7; United Nations, 2015a): Clean energy, in the form of renewable energy, must be a part of sustainable infrastructures and cities/urban planning at the expense of non-renewable energy sources such as fossil fuels. With clean energy, the negative environmental impacts are diminished and natural resources such as fossil fuels are conserved for the needs of future generations. However, clean energy must be affordable. Otherwise, it will not be in line with the economic aspect of sustainability.

- **Transportation:** Road infrastructures and means of transport are two key components of transportation. Inadequate infrastructures limit access to a variety of opportunities including education, jobs, and health, among others (United Nations, 2015c). Undeveloped and narrow road networks result in unnecessary traffic jams and loss of precious time. Polluting transport systems such as old buses are also not in line with sustainability.

### Self-Assessment Activity 2

Can solar photovoltaic panels be considered an example of “Sustainable Lifestyle”? Discuss.
Similar to sustainable infrastructures, the three pillars of sustainability are given due consideration in sustainable cities and sustainable urban planning. Sustainable infrastructures (SDG 9) are directly linked to sustainable cities (SDG 11) and urban planning, as the former make up the latter. Sustainable cities must consider all the afore-mentioned sustainable infrastructures during planning, construction and operation. Essentially, a sustainable city must be self-sustaining and not depend on the external world. Some elements of a sustainable city include:

- Production of its own food
- Rainwater harvesting for meeting part of its water requirements
- Meeting its energy requirements from renewable energy sources
- Sustainable management of the waste generated
- Creation of green jobs
- Proximity between the place of work and the residence of the employees
- An internal transport system prioritising walking and use of bicycles instead of cars
- Green spaces for encouraging walking and jogging.

### Self-Assessment Activity 3
Consider the Light Rail System (Metro) currently being implemented in Mauritius. Can such a transport system be considered a “Sustainable Infrastructure”? Consider the social, environmental and economic aspects of the project.

### 7.7.3 Sustainable Waste Management

A sustainable waste management system is based on the waste management hierarchy which prioritises waste prevention and minimisation, reuse and recycle (including composting) followed by waste-to-energy (anaerobic digestion, incineration, gasification, pyrolysis) and ultimately, landfilling. Any sustainable waste management system must adopt an integrated approach; the “waste” problem cannot be solved with only one technology.

1. **Waste Prevention and Minimisation:** Prevention and minimisation of waste (solid or liquid) must be prioritised over the other techniques at every level of a process or an activity (domestic, commercial or industrial). Waste prevention and minimisation can be achieved by minimising resource consumption.

   Some common examples of waste prevention and minimisation or reduction are:
   - Buying in bulk
   - Using electronic documents instead of printed ones that would have to be discarded afterwards
   - Applying cleaner production (improved process efficiency, equipment modification) to reduce waste generation.

2. **Waste Reuse:** Reuse implies using the “waste” material over and over again without any processing. One simple example of reuse is glass bottles that can be used again.

3. **Recycling of Waste:** Recycling can be defined as the processing of waste material into its original or new forms. Common examples of recycling are:
   - Reprocessing of broken glass into new glass products
   - Reprocessing of wood and plastics to make pallets
   - Reprocessing of polyethylene (PET) bottles into polyester to make fabric.

4. **Composting:** Composting is the degradation of organic materials in the presence of oxygen by a microbial consortium to produce carbon-dioxide, water and a humus-like product called compost. Composting can be used to treat wastes with high organic matter content such as food wastes, yard wastes, animal manure, paper, and bagasse, and cannot be used to treat waste such as non-
biodegradable plastics or rubber products. The composting process is more suitable for treating waste with moisture content ranging from 50 to 60% (Gajalakshmi and Abbasi, 2008). The compost that is produced as a result of the aerobic bio-degradation of organic waste can be used as a soil conditioner owing to the following benefits:

- It improves the water retention capacity of the soil.
- It acts as a buffer to the soil pH.
- It increases the nutrient content of the soil such as nitrogen (N), phosphorus (P) and potassium (K) content.
- It improves the resistance of plants to common diseases.

5. **Anaerobic Digestion:** Anaerobic digestion is the degradation of organic matter in the absence of oxygen by a microbial consortium to produce biogas (carbon-dioxide and methane) and a by-product called digestate. The biogas, after cleaning and upgrading, can be combusted to produce electrical energy while the digestate can be separated into a solid part (fibrous digestate or biosolids) and a liquid part (supernatant or fugate). The fibrous digestate can be used as feedstock or substrate to the composting process while the liquid part can be applied as bio-fertiliser. Similar to the composting process, the anaerobic digestion process is employed to treat only organic wastes such as food wastes, yard wastes, animal manure, slaughterhouse wastes, and agricultural residues, and cannot be used to treat waste such as non-biodegradable plastics or rubber products. Unlike the composting process, the anaerobic digestion process can be used to treat wastes with very high moisture content including wastewater and sludge.

6. **Thermal Waste-to-Energy:** There are three main thermal waste-to-energy technologies that can be applied for waste management, namely incineration, gasification and pyrolysis.

   - **Incineration** is the thermal oxidation of organic materials with an excess of oxygen to produce ash and a hot flue gas that can be used to produce steam in a boiler for subsequent production of electrical energy.

   - **Gasification** is the thermal conversion of organic matter in sub-stoichiometric amount of oxygen to produce a syngas (carbon monoxide, hydrogen and methane) and a solid residue. The syngas, which is a combustible gas, can be used to produce energy.

   - **Pyrolysis** is the thermal decomposition of organic matter in an oxygen-free environment to produce a solid, liquid and gaseous fraction. The different fractions are high energy content materials and may be used as fuels for bio-energy production. All the thermal waste-to-energy techniques are used to treat high organic content waste including food waste, yard waste, paper, plastics, rubber, and wood, among others. As opposed to the composting and anaerobic digestion processes, the three thermal waste-to-energy technologies are not suitable for waste having high moisture content.

7. **Landfilling:** Landfilling is the act of disposing waste in an engineered facility while minimising environmental impacts associated with leachate and methane gas formation. The only landfill in Mauritius is located at Mare Chicoise and it accepts waste with a moisture content of less than 80 per cent. The Mare Chicoise landfill accepts, on average, 1,200 tonnes/day of waste consisting of domestic, commercial and industrial waste. Operating since 1997, the landfill is nearing saturation. Considering land unavailability in Mauritius coupled with the fact that landfilling is the least favoured option in the waste management hierarchy (and therefore not a sustainable system), and since the design, construction and operation of another landfill is not an option for Mauritius, other sustainable waste management techniques such as minimisation, reuse, recycle, composting and anaerobic digestion must be favoured and practised.
7.7.4 Sustainable Public Procurement

Sustainable public procurement is the procurement of goods or services by public authorities taking into consideration the three pillars of sustainability, namely economic, environmental and social. As a direct consequence of sustainable public procurement, provision of goods and services will be made with minimal consumption of natural resources and production of waste or pollutants. Furthermore, any projects under sustainable public procurement will necessarily identify and minimise or eliminate any potential impacts on the environment or social lives. The elements of sustainable public procurement can be introduced in the terms and conditions of the contract with the potential contractor or service provider, and this will therefore be binding. Evaluation of bids or proposals must then consider the three pillars of sustainability, namely economic, environmental and social. Some of the elements of sustainable public procurement may include:

- Impacts on ecosystem
- Consumption of natural resources
- Health-related impacts
- Social acceptability of the project
- Level of job-loss and green jobs creation
- Diversification of local/regional economy.

7.7.5 Sustainable Tourism

Sustainable tourism refers to the practice of visiting a particular place without negatively impacting the environment, economy and social life of the host country or place of visit. Sustainable tourism is not limited to the impacts at the moment of visit but also includes the environmental impacts associated with the whole tourism industry. For example, whenever a tourist travels to a particular location by plane, the emissions generated by the consumption of jet fuel impact the environment negatively. As a sustainable approach, an amount can be charged on the tourist’s fare, and this money can be used for environmental projects (for example, plant a tree in the host country). Another example is the construction of hotels in different locations without consultation with the indigenous residents. Since these directly impact the daily activities of the local populace, the latter need to be consulted and must be agreeable to any such proposed project. As one of the requisites, there needs to be the generation of local linkages being developed between the hotels and the local inhabitants, and these may be by way of improved infrastructures and by the creation of direct and indirect jobs. Sustainable tourism must also lead to or foster reduced consumption of natural resources and emissions of waste. Very often, the tourism industry is regarded as one of the highest generators of food waste. Hotels need to therefore plan their activities to ensure that they generate the least amount of waste. Furthermore, this waste must also be managed in an environmentally sound manner using sustainable technologies such as composting for organic waste and recycling for recyclable components of their waste. As an added benefit of proper planning, the reduction of waste generated implies that a lower amount of natural resources is consumed. Another example of sustainable tourism is that hotels may generate their own electricity through renewable energy sources such as solar power (solar photovoltaic cells). Hotels should also produce their own freshwater through desalination processes. Finally, hotels may promote the sale of artisanal products made from recyclable materials, as this is in line with both sustainable consumption and production.

**Self-Assessment Activity 4**
Compare and contrast the Anaerobic Digestion and the Composting Process.

**Self-Assessment Activity 5**
Discuss some of the elements to be considered in a Waste-to-Energy project under Sustainable Public Procurement.
7.8 INDUSTRIAL SYMBIOSIS

Industrial symbiosis is the concept of using the waste or by-products of one industry as raw materials for another industry. Industrial symbiosis is a concrete application of sustainable consumption and production. When the waste from industry “X” is used as raw materials for industry “Y”, waste minimisation is practised in industry “X” while reduction in the consumption of natural resources is practised by industry “Y”, thereby achieving sustainable consumption and production. An example of industrial symbiosis is the sugar factory. The by-products from sugar production are bagasse and molasses. Bagasse is used for combustion in cogeneration plants to produce electrical energy, while molasses is used in distilleries for the production of ethanol. Furthermore, the concept of industrial symbiosis is not limited to the use of waste as raw materials, but it also includes the sharing of common infrastructures within an industrial network. For instance, part of the electrical energy produced from the combustion of bagasse is used for running the sugar factory. Likewise, common transportation may be used for industries within close proximities so as to reduce overall cost of transportation. All these aspects of industrial symbiosis result in a reduction in the consumption of natural resources while also minimising waste or pollution.

7.9 POLICY OPPORTUNITIES

Several policies can be adopted in order to promote sustainable consumption and production. Some of these policies that already exist in Mauritius include:

• Subsidy on solar water heaters to reduce liquefied petroleum gas consumption at the domestic level
• Subsidy on home compost bins to encourage home composting of organic waste and thus, reducing the amount of waste left to be landfilled
• Application of the Environment Protection Fee on certain goods and services as specified in the eighth schedule of the Environment Protection Act (2002) of Mauritius
• Implementation of distributed generation systems by the Central Electricity Board as feed-in-tariff and net-metering systems whereby small and medium scale producers are allowed to generate electrical energy through solar, wind and mini-hydro power systems. Under the feed-in-tariff system, the producer is awarded a financial reward for any excess electrical energy sold to the grid, while under the net-metering system, the producer may use the excess electrical energy produced during one particular month in any other month when consumption exceeds production capacity.

Other policy opportunities that can be adopted in an attempt to boost sustainable consumption and production include:

• Promotion of the purchase of energy-efficient and eco-friendly goods through tax rebates while taxing goods that are highly energy intensive and are harmful to the environment
• Extension of the Environmental Protection Fee to other goods such that the amount collected through this “tax” may be used to manage the goods when these become a waste. This is also in line with the Polluter Pays Principle or the Extended Producer Responsibility whereby the environmental costs of
goods are included in such goods’ initial prices and this extra amount is then used to manage these goods once they become a waste product.

- Implementation of acceptance duty or take-back obligations for goods sold on the market. This implies that once these goods are no longer used and become waste material, the original manufacturer has a duty or an obligation to take back this waste and manage it in an environmentally sound manner.
- Implementation of a solid waste strategy favouring material recovery and recycling.
- Implementation of a renewable energy strategy with fixed targets on renewable energy share/contribution in the total primary energy requirement of a country.

**Self-Assessment Activity 8**
List some of the goods and/or services for which an Environmental Protection Fee is currently being applied in Mauritius.

### 7.10 UNIT SUMMARY

This unit provided an overview of the key aspects of sustainable consumption and production which have a major influence on our daily lives and which could potentially have a major bearing on the lives of future generations. The concept of sustainable consumption and production does not limit itself to the domestic level but also includes commercial and industrial activities. At the domestic level, emphasis is mostly laid on sustainable lifestyles. At the industrial and commercial levels, focus is geared towards cleaner and safer production, sustainable waste management as well as sustainable tourism. Other trends of sustainable consumption and production, as outlined in this unit, include sustainable public procurement and sustainable cities, infrastructures and urban planning. While this unit overviewed some of the policies that already exist in Mauritius and which promote sustainable consumption and production, it also provided an outline of some potential policy prescriptions that may be adopted for a more sustainable Mauritius.

**Case Study: Sustainable Consumption and Production**

An existing hotel is planning some major overhauls in order to be recognised as being sustainable and to subsequently attract a wider customer base. Currently, the hotel consumes a considerable amount of freshwater, all of which is supplied by the Central Water Authority. Freshwater is mainly consumed at the hotel for cooking purposes, personal hygiene, doing laundry, cleaning and irrigation purposes. Concurrently, the hotel also generates a huge amount of wastewater from cooking, personal hygiene, washing and cleaning. All this wastewater is currently treated prior to discharge into the sewer network. Besides freshwater consumption, a lot of foodstuff is also used in the hotel on a daily basis for cooking. As a result, a considerable amount of food waste is generated during cooking (for example, fruit and vegetable peels).

Furthermore, since the hotel normally serves a buffet, a considerable amount of food is left at the end of each buffet and this is currently discarded as food waste to the landfill. The hotel also spends a considerable amount of money on electricity consumption with all the electricity consumed being purchased from the Central Electricity Board.

Based on the plans of the hotel to overhaul, discuss the possible actions that the hotel may take in order to become sustainable. Consider the consumption of natural resources and the production of waste.

**Elements of Answer**

**Freshwater Consumption: All of which is supplied by the Central Water Authority**

- Install a desalination plant whereby seawater is desalinated to produce freshwater for consumption within the hotel.
- Implement a rainwater harvesting scheme whereby rainwater can be collected to be subsequently used for cleaning or irrigation purposes.
Wastewater Generation: Treated prior to discharge into the sewer network

- Implement ways and means to minimise freshwater consumption so as to decrease wastewater generation.
- While it is difficult to sensitise the tourists to decrease freshwater consumption, other actions may be implemented. For instance, wastewater can be treated to meet standards for irrigation purposes. This treated water can then be used for irrigation instead of freshwater.

Food Waste Generation

- It is recognised that a considerable amount of food must be cooked and this generates a lot of food waste, either during cooking or as leftovers. The hotel may however devise a proper cooking plan based on number of guests and from previous experience to minimise food waste generation.
- Even if food waste is generated, this must be composted instead of landfilled. The compost produced can then be used for any green spaces in the vicinity of the hotel.

Electricity Consumption: All of which is obtained from the Central Electricity Board

- Install solar photovoltaic panels for electricity generation instead of purchasing same from the grid.
- Use energy-efficient equipment to minimise electricity consumption.
- Use sensors to adjust lighting accordingly and thus minimise electricity consumption.

7.11 REFERENCES


7.12 FURTHER READINGS

3. “Sustainable consumption and production: Best practices in Mauritius”, Ministry of Environment and Sustainable Development in collaboration with UNEP.
5. UNEP (2015), Sustainable consumption and production indicators for the future SDGs, UNEP Discussion Paper-March 2015.