2 TOWARDS AN UNDERSTANDING
OF THE CONCEPT OF GLOBALISATION

In any discussion about globalisation very few of the debate's participants deny the existence of the phenomenon. It is widely accepted that we all live in a globalising world. The debates and protests emphasise how important it is to measure globalisation. Without doing so, it is impossible to assess the severity or benefits of its effects and how it should be managed – if, in fact, it can even be managed. The winners and losers from structural changes that globalisation seems to accelerate are the prime political actors in the debates. As mentioned previously, globalisation became a prominent topic from the early 1980s. Until that time, the topic was irregularly discussed. While deindustrialisation in developed economies has long been a concern, it is moot as to why the most recent wave of globalisation has been such a hot issue.

According to Held et al. (1999), there are three dominant views on the historical analysis of globalisation: the sceptical view, the hyper-globalist view and the transformationalist thesis. The sceptics argue that internationalisation and global connections are by no means novel phenomena. By placing cultural, economic, political, social and technological developments on an evolutionary time-line, the sceptics argue that globalisation has existed for centuries and that the sum of recent developments only changes the scale and scope of globalisation and not the intrinsic characteristics of the phenomenon itself. The hyper-globalists, on the other hand, do not deny the importance of previous bouts of globalisation, but identify an historical juncture after which contemporary globalisation emerged. The previous eras are sometimes described as pre-globalisation or as periods of internationalisation. According to the hyper-globalists, contemporary globalisation is fundamentally associated with the erosion of the power and authority of the nation-state. The transformationalist thesis in some sense represents a compromise between the views of the previous two. The transformationalists argue that globalisation is the major force underlying the rapid, widespread social, political and economic changes that are currently reshaping and reconstituting modern societies and the world order. The nation-state still has an important, albeit transformed role.

Each perspective on globalisation emphasises different factors as the key elements behind the contemporary impact of this phenomenon. Moreover, they each presuppose a different definition of globalisation. In our opinion, rather than attempting to define globalisation and determine its effects by emphasising particular aspects or factors, it would be far more useful to adopt a more multi-dimensional, pluralistic approach. This will prevent an over-simplification of the complexities involved in understanding globalisation, while permitting a flexible definition of contemporary globalisation.

It is stating the obvious to declare that globalisation has not suddenly appeared out of the blue. An understanding of the type of factors and events that shaped globalisation will enable a better understanding of the overall context of

the contemporary discussions about it. In this chapter, globalisation is described and measured by identifying key economic, political, technological, socio-cultural and environmental landmarks that have accelerated the process of globalisation over a relatively short time span in several societal domains. To preview, different aspects that underlay globalisation are identified. These are: capitalism, technology, politics, the environment and social and cultural life. We restrict the number of key landmarks for the sake of clarity. This is not to say that other factors, events, processes and developments do not also influence globalisation or would not also serve as appropriate key landmarks. The selection of the key landmarks serves, however, to constitute a sufficiently multi-dimensional and pluralistic approach.

2.1 Capitalism as the incubator of contemporary globalisation

In current debates on globalisation, controversy rages about the historical dating of the phenomenon. Nobel laureate Amartya Sen (2002) argues that globalisation is *at least* a few thousand years old and that the West played a very minor role in its early phases. Sen rejects the commonly-made association of globalisation with *Westernisation*. At the other extreme, some scholars regard globalisation as being post-World War I. It is characterised by the unprecedented speed of change; in fact, change has been "turbo-charged" (Friedman, 1999). Other researchers are more wont to focus on events post-World War II. Economic globalisation in the post-World War II era has been spurred by the successive rounds of trade liberalisation under the auspices of the General Agreement on Tariffs and Trade (GATT), the forerunner to the WTO.

Freer trade of goods and services is promoted by the reduction or elimination of trade taxes or tariffs. Newly-negotiated free trade areas and customs unions, which lower average levels of trade protection, also promote greater trade. Taken in conjunction with the rapid declines in transportation costs, due in particular to the development of containerisation for ocean shipping, trade was able to recover after World War II.

Some globalisation sceptics argue that the Industrial Revolution was the breeding ground for globalisation, while others point to the period of European colonialism that dates from 1492 when Christopher Columbus discovered America. This latter period was also the era during which Vasco da Gama sailed around the Cape of Good Hope and the Spanish conquistadors conquered Latin America.

In contrast to the different views on the historical dating of globalisation, most historical and sceptical analyses of globalisation, as well as hyper-globalist and transformationalist descriptions, acknowledge that globalisation is largely driven by economic incentives. As Michael Hardt and Antonio Negri (2000) point out in their book *Empire*, modern globalisation can be distinguished from its earlier incarnations by its explicit foundation on capitalism rather than international trading.

Marxists argue that capitalism is driven by the accumulation of capital by means of a production system in which labour adds surplus value to the product. Only labour that adds a monetary value during the production process is considered productive. Other economic systems make no distinction between productive and non-productive labour. "*Only labour that generates material or non-material use value is produced according to the content*" (Dierckxsens, 2000). Since labour adds value to the capital employed, it is possible to accumulate capital by using productive labour. Modern wage labour, which receives a monetary reward instead of goods or services, was largely absent from earlier economic systems.

Another characteristic that distinguishes capitalism from other economic systems is the non-productive accumulation of reinvested capital (Giddens, 2000). Earlier economic systems were not characterised by capital investment and insurance on such a large scale. Rather than being reinvested, surplus money was saved or spent on consumption goods, prestigious buildings or works of art, such as churches, paintings and jewellery.

If one takes these differences between capitalism and earlier economic systems seriously, one implication is that the emergence of globalisation coincides with the emergence of capitalism. For example, the establishment and expansion of the first global trade networks of the Dutch and English colonial trading companies would not have been possible without a system of capital reinvestment, private ownership and commercial insurance. Two critical landmarks can therefore be identified in the predevelopment phase of globalisation. The first is the discovery of America, which symbolises the emergence of colonialism. The second landmark is the emergence of the first multinational, which can be identified as a symbol of the early establishment of capitalism as the world's dominant economic system. This occurred in 1602 when the Dutch United East India Company (VOC) was founded. At its apogee, this trading organisation operated internationally, consisted of more than one hundred trading vessels and employed thousands of people working around the globe.

2.2 Technological innovation as the engine of globalisation

Technological innovations, particularly those in transport and communications technology, form a second primary foundation of globalisation. According to Langhorne (2001), globalisation originates in the second stage of the Industrial Revolution, with James Watt's invention of the steam engine in 1765 being pivotal. Langhorne distinguishes three phases of technological innovation that marked the process of globalisation. The first phase is characterised by the application of the steam engine to land and sea transport and the invention of the electric telegraph. Steamboats and steam locomotives significantly reduced transportation time and increased transport volumes. The steamship was introduced in 1807, while the first successful test of the steam locomotive was not until 1825. The construction of railroads connected cities, regions, nations and continents to each

other, accelerating the pace of transportation. Moreover, this development increased the scope of industrial activities, thereby increasing the quantity of goods, the distances that goods could be shipped and people transported. It also made the distribution of information faster and less costly. The invention and improvement of the electric telegraph by Gauss, Weber and Morse between 1830 and 1850 separated the speed of communication from traditional forms of transportation for the first time. The latter represents an historical turning point in the development of globalisation, since distances in space and time decreased significantly. Nation-states were able to react and to learn more quickly from the events that occurred in their national territories, including those in remote colonies. When the first Trans-Atlantic telegraphic cable was laid in 1865, it also sped up international communication. The invention of the telephone and automobile further enabled the nation-state to increase control over its territories (Langhorne, 2001). The technological empowerment of the nation-state led to an homogenisation between different regions within the nation's territory. Examples of this are the introduction of standardised clock times and national newspapers. Although this phase had its most profound impact on the nation-state, it also made international trade and financial contracting easier. Because of the technological homogenisation processes, nation-states commenced trading with larger and disparate geographical regions. In addition, international standards, such as Greenwich Mean Time, were introduced which improved timetabling and communication for international activities (Mackenzie and Wajcman, 1999).

The second phase began during World War II when German engineers working on the V-2 project invented rocket propulsion. After the War, the intense technological competition between the Soviet Union and the United States accelerated the development of rocket and satellite technology. The technological ability to launch rockets into space made it possible to launch orbiting satellites into outer space. Thus, a truly global and reliable communication system was established for the first time in human history. Although international telephone communication was previously possible, the connections were usually of poor quality. The widespread use of the telephone was therefore in large part restricted within national boundaries. Hence, the introduction of satellite communication exists as a bellwether in the improvement of international communication (Langhorne, 2001).

The last phase is the invention of the computer. Although the invention of the computer dates from as early as 1942, the capacities of the first computer barely exceeded the capability of today's hand-held calculator. However, the invention of the microchip in 1971 by Intel increased the speed, processing volume and efficiency of computers. Similar to the introduction of the electric telegraph, the invention of the microchip can be considered a major turning point in the development of globalisation. The microchip forms the core of contemporary information and communication technologies. The development of ICT has led to a similar revolution, reducing distances in space and time, as the electric telegraph had done more than a century ago (Castells, 1997; Harvey, 1989). Further innovations and applications of the microchip have led to the emergence and widespread use of the internet and other computer communication systems. More importantly, the inven-

tion of computer technology and the microchip made it possible to construct global data networks that function as the hardware for the global financial capital market. According to Langhorne, the invention of the computer and its widespread applications characterise the current phase of globalisation.

Another important technological development has been the innovations in transport technology, such as container transport and passenger aircraft. Since the end of World War II, the international mobility of people and the international tradability of varieties and quantities of goods have increased dramatically. Although the rapid growth of international passenger flights and transport increased over a longer time span, a concentration of growth can be discerned in the 1970s.[4]

Overall, it needs to be noted that while Langhorne provides a convincing analysis of the role of technology in the process of globalisation, his argument is technologically deterministic. By stressing the role of technology, Langhorne obfuscates the other factors and domains that also play a key role in the process.

2.3 Political dimensions of globalisation

Although the interaction between the emergence of capitalism and technological innovation arguably formed the foundation for globalisation, political dimensions cannot be ignored. Globalisation is integrally a political process, since governments may shape or severely limit possibilities for private entrepreneurship. This *internationalisation* is distinct from the "exogenous" process of globalisation. By the mid-nineteenth century Great Britain was the main political and economic power that adhered to laissez-faire and free trade politics. This political direction fostered the expansion of international economic activities. As a result, other countries, such as the Netherlands, also shifted towards free trade politics. This led to an increase in national income, Gross Domestic Product (GDP), as well as World GDP. In addition, international production chains and networks expanded, leading to the emergence of a world economy (Bergesen, 1980).

After World War I, most national economies directed their attention to rebuilding their economies. Many governments focussed on establishing strong national economies and decreasing economic dependency. Mines, railways and power stations were nationalised, tariff barriers were raised to protect the national economy, various restrictions were placed on financial transactions and speculation was proscribed. The 1944 Bretton Woods Conference resulted in the Bretton Woods Agreement, which established the international Bretton Woods system and foreshadowed the establishment of the World Bank, the IMF and the international gold standard.

During the interregnum between the World Wars, many governments realised that international co-operation was essential to minimise the possibility of another War. Although international organisations were not a new phenomenon (e.g., the International Telecommunication Union, 1865; the International Telegraph Union

---

[4] Recall that this period is when the microchip was introduced.

and Universal Postal Union, 1874), many influential international and supra-national organisations were founded shortly after both World Wars. The League of Nations was founded after the Paris Peace Conference of 1919. Among the League's explicit objectives was dispute resolution between countries through negotiation, diplomacy and the improvement of global welfare. The League became the very first global "government of governments". In the 1920s, the League ultimately proved incapable of preventing aggression by the Axis Powers in the 1930s. The onset of World War II made it clear that the League had failed in its primary mission – to avoid future world wars. The UN replaced it after World War II and inherited a number of agencies and organisations founded by the League.

Just before the establishment of the UN, most industrialised countries had signed the Bretton Woods Agreement. This agreement led to the emergence of an international monetary political system. In 1944, the IMF was founded, followed shortly thereafter by the establishment of the World Bank in 1945 and the GATT in 1947. In addition, the establishment of the European Economic Community (EEC) in 1957, the Organisation of Petroleum Exporting Countries (OPEC) in 1960 and the Organisation of Economic Co-operation and Development (OECD) in 1961 also increased and intensified international and supra-national political and economic co-operation.

It was not only economic and political power-related issues that shaped the process of global politics. The foundation of the United Nations Educational, Scientific and Cultural Organisation (UNESCO) in 1945, the United Nations International Children's Emergency Fund (UNICEF) in 1946 (permanent status in 1952), as well as the emergence of various international non-governmental organisations (NGOs), such as Amnesty International in 1961 and Greenpeace in 1970, drew international attention to social, cultural and environmental issues, such as human rights and global climate change. The establishment of these global organisations was an important factor underlying the emergence of global social, cultural and environmental politics, such as the Rio Conference on Global Environmental Change in 1992.

The political dimensions of globalisation are clearly important. The extent to which some national governments may feel pressured to adapt their economic policies to the neo-liberal ideologies that interact with the dynamics of global capitalism is an obvious manifestation. Paradoxically, at an individual level, some commentators have argued that nation-states have come to have considerably less influence on globalisation than other factors. As with the economic dimensions, researchers have to be circumspect about laying over-arching emphasis on the political dimensions of globalisation.

2.4 The Global Village and the social and cultural aspects of globalisation

So far we have mainly discussed economic, political and technological factors as the driving forces of globalisation. However, the late 1960s also witnessed remarkable socio-cultural changes. The rise of the flower power generation, anti-Vietnam pro-

tests, the sexual revolution and movements for the emancipation of women, non-whites, homosexuals and other "minorities" represent only the tip of the iceberg. For example, the emergence of pop art also marked the change to a post-modern culture (Harvey, 1989). Moreover, the publication of Marshall McLuhan's *The Medium is the Massage* in 1967, in which the world is described as becoming a "global village", is one of the first socio-cultural landmarks that points at the existence of globalisation. Considering these circumstances, it is impossible to regard globalisation as purely an economic, political or technological phenomenon.

The increased influence of the media on our daily lives has not only changed our way of perceiving the world and our consumption patterns, it has also affected local cultures. In the view of the cultural pessimists, the United States (particularly Hollywood) has established a global culture, arguably at the cost of traditional and local ones (Bourdieu, 1998). Youth the world over have especially embraced this culture, emphasising the freedom of choice that this global culture often advocates.

The introduction of the television in the 1950s, for example, has had a profound impact on people's daily lives. Moreover the invention of information and communication technologies has also influenced a lot of people's lives with its introduction of e-mail, chat rooms and blogging. As long as the technological facilities are available, personal communication between individuals is possible, regardless of the distance separating them.[5] However, the world has not only become practicably smaller – new spaces, such as the internet, have simultaneously shaped a new dimension in our lives. Castells (1997) refers to the present era as the information age. The emergence of the information super-highway and international and global media networks such as BBC-World, CNN or Al-Jazeera, as well as national and local media connected to global media networks, provide us daily with news from all over the globe (Kellner, 1995). The world is increasingly becoming a global village because people's lives – irrespective of their specific location – are connected with other parts of the world through the media. The news of oppressed Afghan women in burkas does not leave us unaffected. Less than sixty years ago the average citizen may barely have known that Afghanistan existed.

At the local level, globalisation has not led just to what some commentators argue to be an "Americanisation" of traditional cultures. It has also increased interpersonal international cultural exchanges via migration, tourism and exchange studentships. Many homogeneous societies have been transformed into multicultural communities in which people from different cultural backgrounds and ethnicities live together.

The development of multicultural societies has certainly not been without its problems, or its detractors. The unsettling re-emergence of extremist political parties, the segregation of cultures and even ethnic riots, illustrate the problematic side of socio-cultural integration at the local level. In a world in which financial capital and many goods can be moved freely from one country to another, the tightening of immigration laws seems to be "deglobalising". Socio-cultural factors

---

[5] For example, this monograph has been written by three authors living continents apart.

therefore not only change as a result of globalisation, they can be causes, as well as challenges to the process of globalisation itself.

2.5 Globalisation and the environment

Globalisation need not necessarily have a deleterious effect on the environment. However, some of the manifestations of globalisation, such as the expansion and intensification of air traffic, car, truck and sea transport, waste and increased consumption of water and fossil energy have profound impacts on the natural environment. These processes affect the environment on various scales, ranging from the local to the global. For instance, the demand for hardwood and wood-chips in developed countries, such as Japan and the Netherlands, accelerates deforestation, soil impoverishment and a loss of local biodiversity in less-developed parts of the world, such as Brazil and Indonesia. The effect of local deforestation does not always remain local, but can also have regional and even global effects (e.g., global climate change). Although global disasters are yet to be fully realised, major changes in the natural environment, caused by the polluting side effects of consumerism, for example, are affecting our world. At local levels this is becoming increasingly apparent through soil impoverishment, desertification and water and air pollution. The UN High Commissioner for Refugees has highlighted the plight of refugees who fled their homes due to environmental disasters (UNHCR, 1997).

Since the publication of Meadows' *The Limits to Growth* for the Club of Rome in 1972, there has been a growing awareness of the exhaustion of the natural environment through human activities on local, regional and global levels. In addition, from the late 1970s, global warming has become an environmental problem of global political and scientific concern (Martens and Rotmans, 1999). As historical landmarks, the publication of *The Limits to Growth*, the first World Climate Conference organised by the World Meteorological Organisation (WMO) and the UN Conference on Environment and Development in Rio de Jañeiro in 1992 symbolise the growing concern about the devastation of the global environment driven by the processes of globalisation described in the previous sections. Some examples of changes in the global environment closely linked with globalisation are climate change, ozone depletion and a loss of biodiversity.

Global climate change: The majority view of climate scientists is that the continued accumulation of heat trapping greenhouse gasses in the troposphere will induce changes in global patterns of temperature, precipitation and climatic variability over the coming decades. A rise of one to three degrees Celsius over the coming half-century, greater at high than at low latitudes, would be a faster rate of increase than any encountered by human-kind since the inception of agriculture around ten thousand years ago. The UN's Intergovernmental Panel on Climate Change and various other national scientific panels have assessed the potential consequences of this scenario of climate change for health, agriculture, water, ecosystems and the economy, for example.

Stratospheric ozone depletion: Higher in the atmosphere, depletion of stratospheric ozone is already occurring by human-made gasses such as chlorofluorocarbons (CFCs). Ambient ground-level levels of ultraviolet irradiation are estimated to have consequently increased by up to ten per cent at mid-to-high latitudes over the past two decades, with consequences for human health (e.g., skin cancer) and biodiversity. By virtue of the Montreal Protocol of 1987, updated in the 1990s, the release of many of these gasses has been curtailed. However, a problem remains with black-market sales and with the escalating production of halons by China and other low-income countries temporarily exempted from the production ban.

Biodiversity loss and invasive species: As human demand for space, materials and food increases, populations and species of plants and animals are increasingly exhausted. An important consequence for humans is the disruption of ecosystems such that "natural goods and services" decline (Martens et al., 2003). Biodiversity loss also means that we are losing, prior to their discovery, many of nature's chemicals and genes – of the kind that could potentially confer enormous medical and health improvement benefits. In the meantime, "invasive" species are spreading around the world into new non-natural environments via intensified human food production, commerce and mobility.

Although environmental factors should not be ignored when analysing globalisation, they differ from the other dimensions of globalisation. In contrast, environmental factors usually appear as the consequence of globalisation, rather than as a separate driving force. However, many environmental factors, such as global climate change, may become driving forces in the future. Consider, for example, an increase in the numbers of ecological refugees. The rising sea levels due to global warming are predicted to engulf and submerge many South Pacific islands and communities. The eventual necessity to relocate Pacific Islanders may require international intervention, as presently unaffected countries set other priorities.

2.6 Framing globalisation by its timeline

Figure 2.1 shows a parsimonious representation of various historical landmarks of globalisation, many of which were discussed before. Various developments are "clustered" in time. These clusters may indicate processes in which various factors reinforce each other and consequently push the process of globalisation further. Thus, identifying clusters can help to identify different phases of the globalisation process. This is not to say that globalisation is an evolutionary process, which evolves according to a deterministic pattern. However, taking the extensiveness, intensity, velocity and the impact of contemporary globalisation into account, it is legitimate to assume that the processes underlying it have the potential to change over time, in a possibly nonlinear way, characterised by periods of progress, stabilisation and temporary decline.
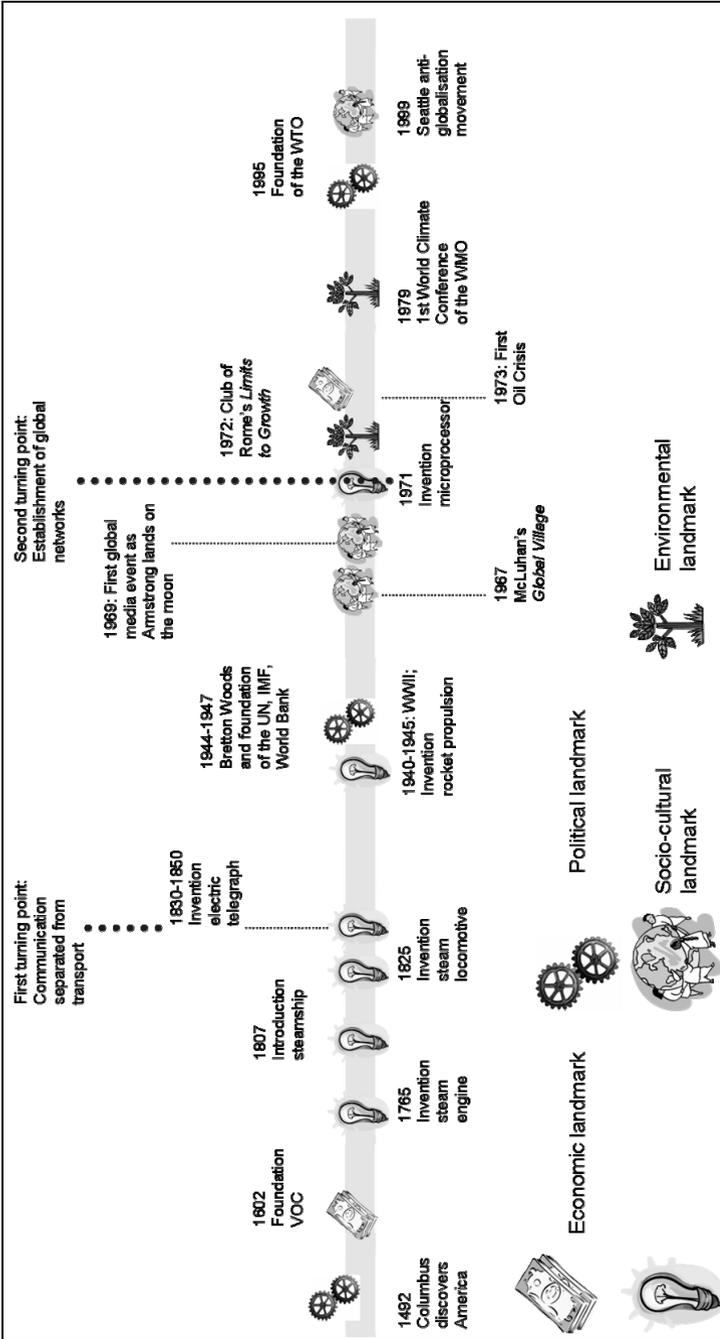
Figure 2.1 The Globalisation Timeline

The thick dotted lines in Figure 2.1 illustrate new phases, or major turning points in the globalisation process. Note that the time span between historical landmarks is relatively short in the late 1960s and early 1970s. The second turning point designates the change towards contemporary globalisation because this period was also characterised by a high concentration of social, cultural and environmental developments that also became important factors that together shaped globalisation. Taking this into account, two definitions of globalisation seem self-evident. If globalisation is conceptualised by reconstructing and identifying historical landmarks before the second turning point, observe that the landmarks are predominantly economic, political or technological in character. Hence, from an historical point of view, globalisation is intrinsically an economic, political and technological process. However, this definition refers to the emergence of globalisation and not to its current state.

From the 1960s, socio-cultural developments have become increasingly key factors in the process and nature of globalisation. Therefore, the historical definition of globalisation would be incomplete in contemporary contexts. Consequently, we propose a contemporary definition of globalisation that more accurately describes its current state. The difference between the historical process of globalisation and its current state is too complex to be reduced to a single definition. The use of an historical and contemporary definition thus prevents a simplification of the complexities involved in approaching globalisation. Above all, the historical development of globalisation is not the same as the actual phenomenon in its present form, e.g., the introduction of the steam engine is distinct from the introduction of the steam locomotive.

The second definition of globalisation thus refers to this process in its current incarnation, including social, cultural and environmental factors. Hence, contemporary globalisation is defined as the intensification of cross-national interactions that promote the establishment of trans-national structures and the global integration of cultural, economic, environmental, political, technological and social processes on global, supra-national, national, regional and local levels.

2.7 Digression: The challenge of sustainable development in a globalising world

Sustainable development is a complex concept. There are scores of different definitions, but consider one of the more frequently applied and better-known ones:
"*Sustainable development is development which meets the needs of the present without compromising the ability of future generations to meet their own needs*" Brundtland Committee (1987).

The lowest common denominator of the different definitions and interpretations of sustainable development share four common characteristics (Grosskurth and Rotmans, 2005). The first is that sustainable development is an inter-generational

phenomenon, and therefore, any meaningful analysis of sustainable development must span at least two generations, i.e., about 25–50 years.

The second common characteristic is the *level of scale*. Sustainable development is a process played out on several levels, i.e., global, national, regional and local. For instance, what may be considered sustainable at a national level is not necessarily sustainable at an international level. Cross-border pollution is an obvious example.

The third common characteristic is that of *multiple domains*. Sustainable development consists of at least three: the economic, the ecological and the socio-cultural domains. Although sustainable development can be defined in terms of each of these domains alone, the significance of the sustainability concept lies precisely in the inter-connections between them.

Note that the three different aspects of sustainable development need not in theory conflict, but in practice, they often do. The underlying principles are also essentially different. For sustainable economic development, economic and allocational efficiency are primary; for sustainable social development, justice and equity are central, and with sustainable ecological development, the concepts of resilience or capacity for recovery are fundamental.

The fourth common characteristic concerns the *multiple interpretations* of sustainable development. Each definition demands a projection of current and future social needs and how these can be provided for. Of course, estimation may be objective and, somewhat inevitably, inherently uncertain.

Sustainable development therefore involves reconciling the potential conflict between economic growth and the environment, in addition to the other issues more traditionally associated with economic development. According to the 2005 World Summit Outcome Document, sustainable development refers to economic development, social development and environmental protection. Accordingly, it is fundamentally affected by globalisation and bears directly on internationalisation.

The socio-cultural, economic and ecological interactions are depicted in Figure 2.2, using the framework of multiple capital models (e.g., Munasinghe, 1993; Spangenberg and Bonniot, 1998). Social aspects are related to the behaviour of the various actors (i.e., the individuals, institutions or communities). These are all closely-linked to the stocks of human capital (i.e., both the health and acquired skills of individuals) and social capital (i.e., institutions, cultural cohesion and collective knowledge). Economic aspects relate to the production and consumption of the energy, agriculture, industry and services sectors. Ecological aspects relate to the nature of the ecosystem, viz., the physical, chemical and biological processes, climate change and biodiversity.
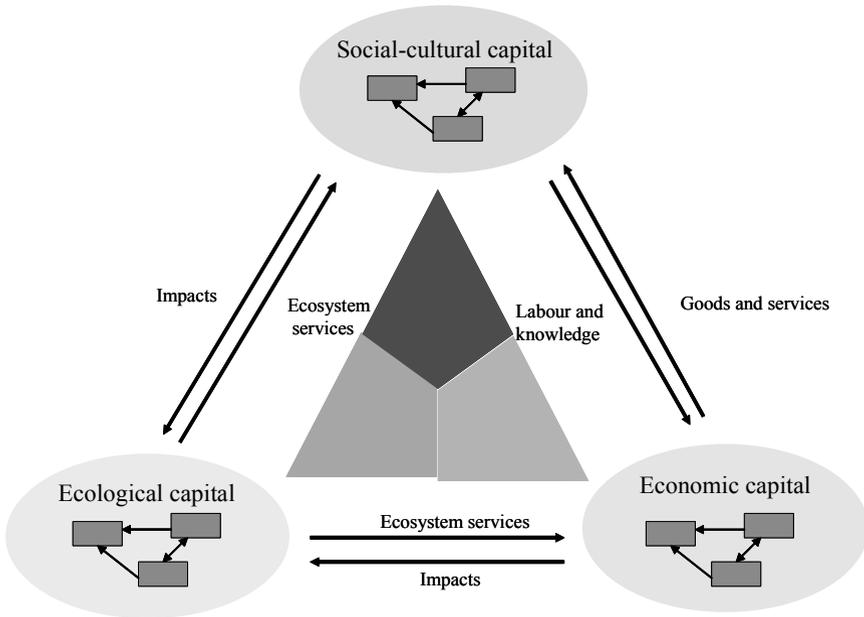
Figure 2.2 The Triangular Model (source: Martens and Rotmans, 2005)

A global assessment is provided by the four scenarios developed by the Intergovernmental Panel on Climate Change (IPCC, 2000) to estimate the emissions of greenhouse gasses over the next century (see Box A). These scenarios focus on changes in economic, technological and demographic trends and energy use as major drivers for global climate change. Specifically, they explore the global and regional dynamics that may result from changes at a political, economic, demographic, technological and social level. The different scenarios vary along two dimensions. The first relates to the extent of regional economic convergence and socio-cultural interactions. The second has to do with the balance between economic objectives and environmental and equity objectives. There are four scenario *families*, each of which contains a number of specific scenarios.

Box A The IPCC Special Report on Emission Scenarios (SRES)

The **A1** scenario is characterised by rapid economic growth, low population growth and the rapid introduction of cleaner and more efficient technologies. Social concerns and the quality of the environment are subsidiary to the primary objective of achieving economic prosperity. Underlying themes combine economic and cultural convergence and the development of economic capacity with a reduction in the gap between rich and poor. Regional differences in per capita income decrease in relative terms.

A2 also envisages a future in which economic prosperity is the main goal, but prosperity is now expressed in more heterogeneous terms. Underlying themes include the reinforcement of regional identity with an emphasis on family values and local traditions. Technological changes occur more slowly and in a more fragmented way compared to the other scenarios. This is a world in which there is greater diversity and regional differences.

In **B1**, economic prosperity is subordinate to the search for solutions to environmental, social and equity problems. While the pursuit of global solutions results in increased globalisation and fast-changing economic structures, this is accompanied by the rapid introduction of cleaner technologies and a shift away from material values. There is a transformation towards a more service and information-based economy.

B2 describes a world that advances local and regional solutions to social, economic and ecological problems. This is an heterogeneous world in which technological development is more moderate and where considerable emphasis is placed on initiatives and innovation from local communities.

The A1 and B1 families emphasise successful economic convergence and social and cultural interaction; while A2 and B2 focus on diverse regional developments. Finally, while A1 and A2 stress economic development and leave only a subsidiary role for environmental and social concerns, B1 and B2 reverse those priorities.
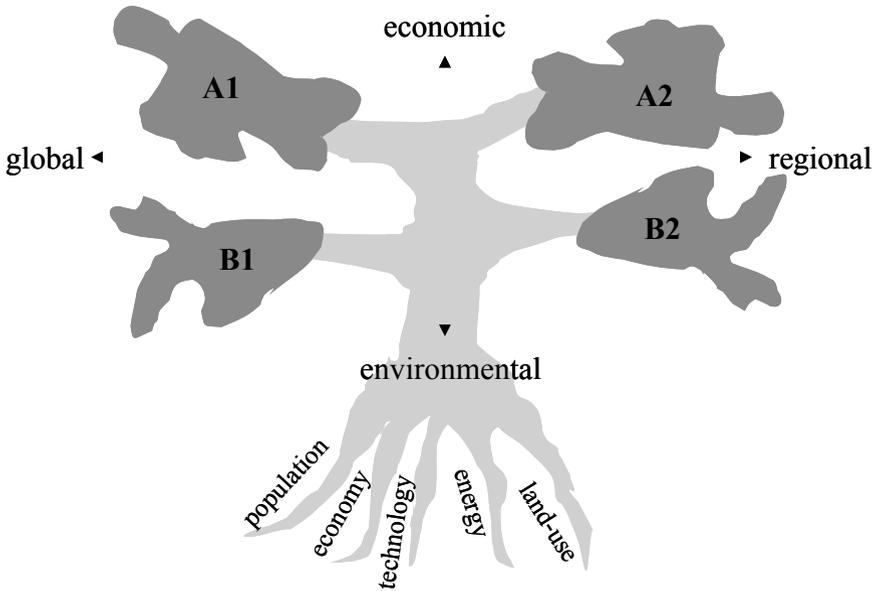
Figure 2.3 The IPCC SRES scenarios as branches of a two-dimensional tree

Note: The dimensions indicate the relative orientation of the different scenarios in relation to economic or environmental concerns as well as global and regional development patterns (IPCC, 2000).

While the IPCC scenarios (see Figure 2.3) unquestionably influence many of to-day's policy-makers, they have obvious drawbacks. They narrowly focus on population growth, technological and economic development as the main drivers of global change. More significantly, the scenarios are essentially static and thus need to be more responsive to global dynamics (see Table 2.1 and Figure 2.4).
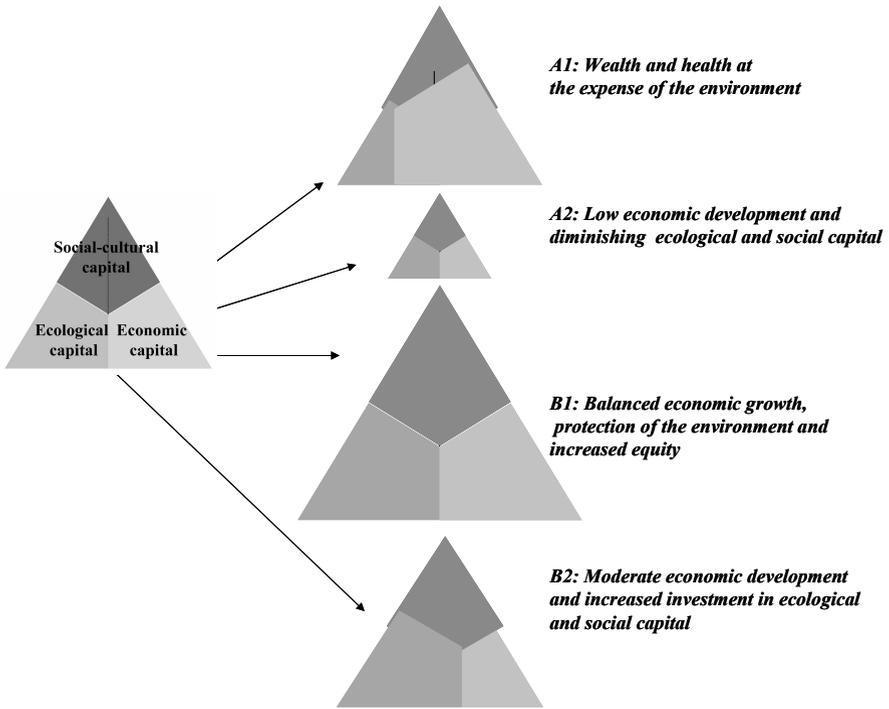
*A1: Wealth and health at
the expense of the environment*

Social-cultural
capital

*A2: Low economic development and
diminishing ecological and social capital*

Ecological   Economic
capital   capital

*B1: Balanced economic growth,
protection of the environment and
increased equity*

*B2: Moderate economic development
and increased investment in ecological
and social capital*

Figure 2.4 Future developments and the dynamics of capital stocks

Table 2.1 Issues linked with the IPCC-SRES scenarios

SRES scenario	Water	Biodiversity	Health	Tourism*
A1	◊	↘	↗	◊
A2	↘	↘	↘	↘
B1	↗	↗	→	↗
B2	→	→	↗	↗

Legend: ↗ favourable development; ↘ unfavourable development;

→ moderate or no change, ◊ mixed.

* considering a wide variety of impacts (see Martens and Rotmans, 2002, for additional details).

In the world depicted by the A1 scenario, globalisation develops rapidly. Economic growth is pursued at the expense of the environment. Economic growth and rapid technological progress lead to better living standards. Tourism grows quickly. Developing regions are integrated into the global economy, allowing technologies to diffuse rapidly. However, economic growth leads to increasing demand for water and many developing regions experience water shortages. Carbon dioxide emissions increase significantly and the tourism sector becomes prominent. Significant reductions in biodiversity continue. Overall human health and social conditions improve and GDP per capita rises. Yet short term gains in economic growth, health and wealth are offset in the longer term by severe reductions in the quality of natural resources.

In an A2 world, the prospects are bleaker. There is greater self-reliance in terms of resources and less emphasis placed on interactions between regions. Economic growth is skewed and the gap between rich and poor fails to narrow. Pressures on key natural resources such as biodiversity and water are exacerbated. These scenarios describe a rapidly globalising world without global governance, with falling world prosperity and with environmental degradation. The downward spiral of poor economic growth and environmental degradation – combined with the diminution of social capital – leads to worsening health and well-being.

In a B1 world there is rapid change and convergence. Economic development is balanced, an effective welfare system prevents social exclusion and the protection of the global environment becomes a priority. Tourism develops at a moderate rate, but without significant pressure on the environment. In contrast to the A1 scenario, more effort is made to tackle global environmental issues such as loss of biodiversity and water scarcity. The transition to lower fertility and mortality levels is enhanced due to increased investments in social and ecological capital. Here, economic developments are consistent with ecological and social objectives. In B2, education and welfare programmes reduce mortality rates in several regions. There is a favourable climate for community initiative and social innovation. There is genuine concern for the environment. Due to the high education levels and the enhanced organisation within communities, the pressure on water and biodiversity is significantly reduced, although the regional differences remain. The development of tourism is slow but well-planned.

Drawing conclusions from the IPCC's global assessment is bound to be a subjective exercise. Despite record rates of global economic growth, disparities in wealth between the developed countries and the developing world remain. Focussing attention to the developing world reveals even greater disparities between more successful countries and those that remain the least developed. Many in the latter group seem progressively less able to participate in the current global economic system.

With hindsight, global development has had its successes as well as failures. Many problems identified in earlier "doom scenarios" remain, but have certainly not destroyed the planet. Threats such as global cooling, fossil fuel and mineral exhaustion have receded, while others have proved susceptible to effective policy intervention, such as population pressure and industrial pollution. On the other

hand, new and unexpected threats have emerged, such as the proliferation of nu-
clear weapons, global terrorism, global climate change and the global threat of in-
fectious diseases. Overall, it is clear that the overly gloomy and overly rosy pre-
dictions regarding the earth's future are unreliable, ill founded and misleading as
well as being politically counter-productive.

The increasing complexity of global society means that sustainable develop-
ment cannot be addressed from a single perspective, country or scientific disci-
pline. Planning for sustainable development is an extremely complex task. Sus-
tainable development requires innovative methods that balance the short term and
long term, the objective and value-laden, the quantitative and qualitative, the cer-
tain and uncertain. Part of this necessitates measuring the impact that global de-
velopments have.

It is the interactive co-evolution of multitudinous technological, cultural, eco-
nomic, political, social and environmental trends on all conceivable spatio-
temporal scales. Despite controversies about the historical evolution and the na-
ture of globalisation, the major forces at stake are primarily economic, political
and technological. This does not imply that social, cultural and environmental fac-
tors are not also important, but these latter forces are not always clearly distin-
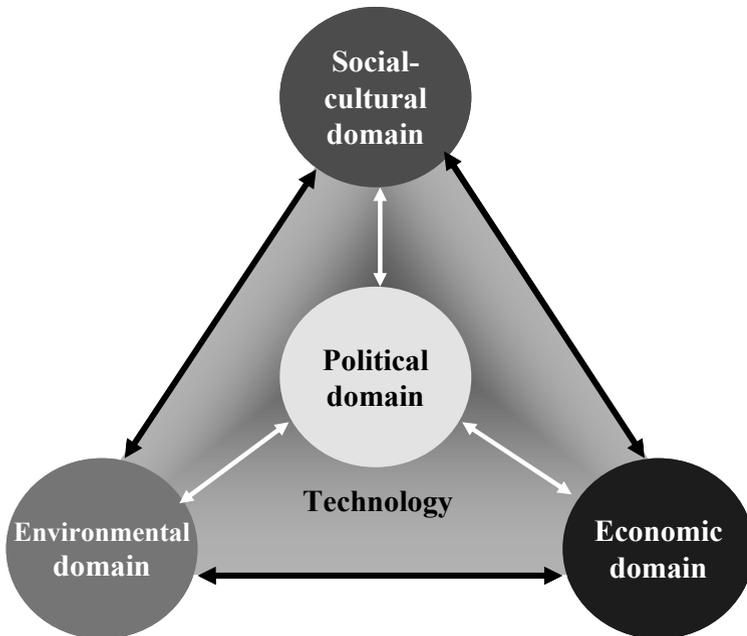guishable.

Figure 2.5 A pluralistic approach to globalisation

In addition, the boundaries between the various dimensions – better referred to as domains – are not fixed. Rather, they are inter-connected and affect each other in various ways. Figure 2.5 presents a multi-domain model, which shows the interaction between the various domains and dimensions of globalisation. In this model, technology occupies a mediating role since the application, functioning and innovative impulses of technological developments are always an integral part of economic, environmental, political and socio-cultural practices. The widespread application of the internet is a good example of this. While the internet has its origins in the U.S. military-industrial complex, it became commercially attractive and transformed into a mass medium.

This multi-domain, pluralistic approach enables us to perceive globalisation as a phenomenon, or an over-arching process in which many different processes simultaneously take place in many domains. Consequently, the term globalisation is a collective label and not one giant process in itself (Martens and Rotmans, 2002). After all, not all factors that underlie or shape globalisation, or all the consequences of this process have yet been identified. Acknowledging the pluralistic character of the forces that drive globalisation and its consequences are an essential step in describing the phenomenon.

To summarise, it seems sensible to adopt a pluralistic approach, analysing past and current processes taking place in multiple domains. Using the globalisation timeline and the multi-domain model prevents a simplification of the complexities involved in approaching globalisation, while permitting a flexible definition of contemporary globalisation.

Measuring Globalisation
Gauging Its Consequences
Dreher, A.; Gaston, N.; Martens, P.
2008, XVI, 224 p., Hardcover