2. THE SUSTAINABLE DEVELOPMENT CONTEXT

My government's commitment to create a people-centred society of liberty binds us to the pursuit of the goals of freedom from want, freedom from hunger, freedom from deprivation, freedom from ignorance, freedom from suppression and freedom from fear….[9]

2.1. Sub Problem One and Hypothesis One

Sub problem: What are the key aspects of the international and local context of sustainable development useful in understanding how buildings and construction can support sustainable development?

Hypothesis: The international and local context of sustainable development can inform the development of a specification for an assessment tool that aims to integrate sustainable development into building briefing and design processes.

2.1.1. Introduction

This chapter reviews the international and local sustainable development context in order to understand this. It establishes the current international consensus position on sustainable development. In order to understand the differences between developed and developing countries national responses to sustainable development and development in South Africa and the UK are compared. The chapter aims to capture key international sustainable development issues and important developing country priorities in order to draw on these in the development of a specification in Chapter five. This chapter does not review the theoretical or academic aspects of sustainability; this is carried out in the Chapter three.

This context is important as this provides a picture of what the international community, within the sustainable development arena, see as the most concerning trends within this area. It also describes agreements on approaches as to how these trends should be addressed. The review enables important aspects and differences in the outlook and approaches of developing countries and developed countries to sustainability and development to be identified.

The chapter will initially review the international position on sustainable development under the heading of International Context. This will be followed by a review of country approaches to sustainable development under the heading Local Contexts. Included in this chapter is an initial description and review of the sustainable development indicator systems used in a national context. This is reviewed in more detail in Chapter four, Review of Existing Sustainability Assessment Systems. The findings provided by these reviews will be discussed

[9] Office of the President. 1994. p 6

in order to develop an outline description of international and local consensus positions and attitudes to sustainable development.

2.1.2. The International Context

In order to describe the current international position on sustainable development, five documents have been reviewed. These are Agenda 21[10], The Rio Declaration on the Environment and Development[11], The Millennium Goals[12], Global Challenges Global Opportunities[13], and World Summit on Sustainable Development, Plan of Implementation[14]. These are reviewed because it is argued that these are the key documents that reflect the recent and the current international position on sustainable development. In addition many of the documents are cross-referenced; it is therefore useful to review the full suite of documents rather than limited selection of these.

2.1.3. The United Nations Conference on Environment and Development (UNCED)

Agenda 21 and the Rio Declaration on Environment and Development were developed for the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil in December 1992. These were developed by the United Nations and have been adopted by 178 governments. It was agreed at the conference to review progress on implementation of these agreements at a 5 yearly interval. Progress was therefore evaluated in 1997 and in 2002 at the World Summit on Sustainable Development (WSSD) held in Johannesburg, South Africa.

Agenda 21[15]

Agenda 21 was developed in response to increasing international concerns about the environment and development. In particular, economic disparities between, and within nations, worsening poverty, hunger, illiteracy and the continuing deterioration of ecosystems are mentioned.[16] The conference suggested that if these concerns are addressed in an integrated fashion a number of outcomes were possible. These outcomes could include fulfilment of basic needs, improved living standards for all, better protected and managed ecosystems and a safer, more prosperous future.

Responsibility for the implementation of Agenda 21 is placed with national governments, which are required to ensure that implementation occurs through national strategies, plans, and policies. Agenda 21 however suggests that implementation should include broad public participation and the involvement of groups such as non-governmental organisations.

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[10] http://www.un.org/esa/sustdev/indisd/english/worklist.htm 19/12/02 09:00
[11] http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm 02/02/03 10:30
[12] http://www.un.org/millennium/sg/report 19/12/02 09:00
[13] http://www.johannesburgsummit.org/index.html 11/11/02 10:30
[14] http://www.johannesburgsummit.org/index.html 11/11/02 10.32
[15] http://www.un.org/esa/sustdev/agenda21text.htm19/12/02 09:00

Developing countries, it declares, should be given particular attention because of the state of transition that these are in. These suffer particular problems in transforming their economies as a result of social and political tensions.

The preamble of the Agenda states that document is a framework outlining actions, which will be addressed differently, by different countries. It states that actions required of countries, and the Agenda, are likely to change over time:

Agenda 21 is a dynamic programme. It will be carried out by the various actors according to the different situations, capacities and priorities of the regions in full respect of the principles contained in the Rio Declaration on Environment and Development. It could evolve over time in the light of changing needs and circumstances.[17]

The Agenda consists of 40 chapters. A list of these is provided in Appendix two. Each of these chapters has an introduction that provides the reasoning, or 'Basis for Action' behind why change is required. Where relevant, reference is also made to existing UN or other international agreements. This is followed by a description of the objectives of the programme; for instance, the objectives of the programme 'Combating Poverty' are listed as:

- To provide all persons urgently with the opportunity to earn a sustainable livelihood;
- To implement policies and strategies that promote adequate levels of funding and focus on integrated human development policies, including income generation, increased local control of resources, local institution-strengthening and capacity-building and greater involvement of non-governmental organizations and local levels of government as delivery mechanisms;
- To develop for all poverty-stricken areas integrated strategies and programmes of sound and sustainable management of the environment, resource mobilization, poverty eradication and alleviation, employment and income generation;
- To create a focus in national development plans and budgets on investment in human capital, with special policies and programmes directed at rural areas, the urban poor, women and children.

This is followed by a list of activities that, it states, will help achieve the objectives described. In some cases these lists are highly detailed and include suggested actions for a wide range of stakeholders including local government and communities. In order to monitor progress, the UN recommends that programmes be evaluated. To support this Agenda 21 provides a detailed list of indicators. These are reviewed in Chapter four.[18] Finally under the heading

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[16] Preamble http://www.un.org/esa/sustdev/agenda21chapter1.htm 02/01/03 08:30
[17] Preamble http://www.un.org/esa/sustdev/agenda21chapter1.htm 02/01/03 08:30
[18] http://www.un.org/esa/sustdev/indisd/english/worklist.htm 02/01/03 10:30

'Means of Implementation'; detail is provided of the estimated costs and capacity requirements of implementing the programme.

Agenda 21 provides a useful basis for government to begin to implement sustainable development. It is highly detailed and provides a range of concrete actions that should be implemented. It places clear responsibility for implementation with governments. However it is vague in a number of areas. For instance, in many developing countries, implementation and even the development of new policy is difficult due to lack of capacity. Agenda 21 does not provide an adequate response for this problem. Similarly, while it argues that the responsibility for implementing Agenda 21 lies with government it also states that assistance will be required from other parties. However there is little guidance on how these parties should be involved by government.

The Agenda acknowledges the diversity of countries by suggesting that the implementation of the programme may vary from country to country, depending on local circumstances. It declares however, that implementation should be aligned to a set of principles developed alongside Agenda 21. These are referred to as the Rio Declaration on Environment Development.

Rio Declaration on Environment and Development[19]

The Rio Declaration on Environment and Development provide a set of principles that countries should use in implementing Agenda 21. The declaration consists of 27 broad principles. These are listed below:

Principle 1

Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature.

Principle 2

States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

Principle 3

The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations.

[19] http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm 02/01/03 08:30

Principle 4

In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it.

Principle 5

All States and all people shall cooperate in the essential task of eradicating poverty as an indispensable requirement for sustainable development, in order to decrease the disparities in standards of living and better meet the needs of the majority of the people of the world.

Principle 6

The special situation and needs of developing countries, particularly the least developed and those most environmentally vulnerable, shall be given special priority. International actions in the field of environment and development should also address the interests and needs of all countries.

Principle 7

States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem. In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command.

Principle 8

To achieve sustainable development and a higher quality of life for all people, States should reduce and eliminate unsustainable patterns of production and consumption and promote appropriate demographic policies.

Principle 9

States should cooperate to strengthen endogenous capacity-building for sustainable development by improving scientific understanding through exchanges of scientific and technological knowledge, and by enhancing the development, adaptation, diffusion and transfer of technologies, including new and innovative technologies.

Principle 10

Environmental issues are best handled with the participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and

participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided.

Principle 11

States shall enact effective environmental legislation. Environmental standards, management objectives and priorities should reflect the environmental and developmental context to which they apply. Standards applied by some countries may be inappropriate and of unwarranted economic and social cost to other countries, in particular developing countries.

Principle 12

States should cooperate to promote a supportive and open international economic system that would lead to economic growth and sustainable development in all countries, to better address the problems of environmental degradation. Trade policy measures for environmental purposes should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade. Unilateral actions to deal with environmental challenges outside the jurisdiction of the importing country should be avoided. Environmental measures addressing transboundary or global environmental problems should, as far as possible, be based on an international consensus.

Principle 13

States shall develop national law regarding liability and compensation for the victims of pollution and other environmental damage. States shall also cooperate in an expeditious and more determined manner to develop further international law regarding liability and compensation for adverse effects of environmental damage caused by activities within their jurisdiction or control to areas beyond their jurisdiction.

Principle 14

States should effectively cooperate to discourage or prevent the relocation and transfer to other States of any activities and substances that cause severe environmental degradation or are found to be harmful to human health.

Principle 15

In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

Principle 16

National authorities should endeavour to promote the internalisation of environmental costs and the use of economic instruments, taking into account the approach that the polluter

should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment.

Principle 17

Environmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority.

Principle 18

States shall immediately notify other States of any natural disasters or other emergencies that are likely to produce sudden harmful effects on the environment of those States. Every effort shall be made by the international community to help States so afflicted.

Principle 19

States shall provide prior and timely notification and relevant information to potentially affected States on activities that may have a significant adverse transboundary environmental effect and shall consult with those States at an early stage and in good faith.

Principle 20

Women have a vital role in environmental management and development. Their full participation is therefore essential to achieve sustainable development.

Principle 21

The creativity, ideals and courage of the youth of the world should be mobilized to forge a global partnership in order to achieve sustainable development and ensure a better future for all.

Principle 22

Indigenous people and their communities and other local communities have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognize and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development.

Principle 23

The environment and natural resources of people under oppression, domination and occupation shall be protected.

Principle 24

Warfare is inherently destructive of sustainable development. States shall therefore respect international law providing protection for the environment in times of armed conflict and cooperate in its further development, as necessary.

Principle 25

Peace, development and environmental protection are interdependent and indivisible.

Principle 26

States shall resolve all their environmental disputes peacefully and by appropriate means in accordance with the Charter of the United Nations.

Principle 27

States and people shall cooperate in good faith and in a spirit of partnership in the fulfilment of the principles embodied in this Declaration and in the further development of international law in the field of sustainable development.

These principles provide a useful guide for how sustainable development should be implemented. They are however too abstract to be easily applied to the building and construction sector. There is therefore a requirement to translate these into a more directly applicable guide, or set of objectives, for building and construction. This developed in Chapter five.

Millennium Goals[20]

The Millennium Goals were developed and agreed at the United Nations Millennium Summit held in New York on 6-8 September 2000. The Summit reviewed the mission of the United Nations and provided a number of a number of clear goals that member nations were asked to adopt. These are described under a number of headings including: ‘Freedom from Want’, ‘Freedom from Fear’, ‘A Sustainable Future’ and ‘Renewing the United Nations’. The goals listed under ‘Freedom from Want’ and ‘A Sustainable Future’ are relevant to this study and are listed below:

Freedom from Want - the Development Agenda

Poverty: To halve, by 2015, the proportion of the world's people (currently 22 per cent) whose income is less than one dollar a day.

Water: To halve, by 2015, the proportion of people who do not have access to safe drinking water (currently 20 per cent).

[20] http://www.un.org/millennium/sg/report 19/12/02 09:00

Education: To narrow the gender gap in primary and secondary education by 2005; and to ensure that, by 2015, all children complete a full course of primary education.

HIV/AIDS: To halt, and begin to reverse, the spread of HIV/AIDS by 2015 by:

- Adopting as an explicit goal the reduction of HIV infection rates in persons 15 to 24 years of age – by 25 percent within the most affected countries before the year 2005, and by 25 percent globally before 2010.
- Setting explicit prevention targets: by 2005 at least 90 percent, and by 2010 at least 95 percent, of young men and women must have access to the HIV-preventive information and services.
- Urging every seriously affected country to have a national plan of action in place within one year of the Summit.

Clearing the slums: to endorse and act upon the 'Cities Without Slums' plan launched by the World Bank and United Nations to improve the lives of 100 million slum dwellers by 2020.

Youth employment: to develop strategies to reduce joblessness among youth.

Building digital bridges: to review their policies in order to remove regulatory and pricing impediments to Internet access, to make sure people are not denied the opportunities offered by the digital revolution.

Private sector: to develop strong partnerships with the private sector, at both national and international levels, to combat poverty in all its aspects.

Developed countries in particular are urged:

Trade access: to grant free access to their markets for goods produced in poor countries - and, as a first step, to be prepared to adopt a policy of duty-free and quota-free access for essentially all exports from the least-developed countries at the UN Conference on the Least Developed Countries in March 2001.

Debt relief: to implement the expansion of the debt relief program for Heavily Indebted Poor Countries agreed last year without further delay, and to be prepared to cancel all official debts of the heavily indebted poor countries, in return for those countries making demonstrable commitments to poverty reduction.

ODA: to grant more generous development assistance, particularly to those countries that are genuinely applying their resources to poverty reduction.

HIV/AIDS: to work with the pharmaceutical industry and other partners to develop an effective and affordable vaccine against HIV; and to make HIV-related drugs more widely accessible in developing countries.

Africa: to make special provision for the needs of Africa, and to fully support Africans in their struggle to overcome the continent's problems. Specifically, experts and foundations are urged to tackle the problem of low agricultural productivity in Africa.

A Sustainable Future - The Environmental Agenda

Climate change: To adopt and ratify the Kyoto Protocol, so that it can enter into force by 2002, and to ensure that its goals are met, as a step towards reducing emission of greenhouse gases.

Green accounting: To consider incorporating the United Nations system of "green accounting" into their own national accounts, in order to integrate environmental issues into mainstream economic policy.

Ecosystem assessment: To provide financial support for, and become actively engaged in, the Millennium Ecosystem Assessment, a major international collaborative effort to map the health of the planet.

Earth Summit +10: To prepare the ground for the adoption of concrete and meaningful actions by the world's leaders at the ten-year follow-up to the Earth Summit in 2002.

These goals are important as they represent the immediate sustainable development priorities that the UN and many development organisation and funding agencies (such as the Department for International Development (DFID)[21] and the World Bank[22]) have agreed to address. The fact that there are a limited number of goals which have been presented in a very simple way and have an immediacy as a result of their targets and deadlines, may have contributed to their widespread adoption.

2.1.4. The World Summit on Sustainable Development

'Global Challenges, Global Opportunities' and the **'**World Summit on Sustainable Development Plan of Implementation' are reviewed as they are an up-to-date reflection of the current international position on sustainable development. The United Nations World Summit on Sustainable Development was held in Johannesburg between 26 August and 4 September

[21] DFID. 2000. p.12
[22] http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/0,,contentMDK:20040558~menuPK:34559~pagePK:34542~piPK:36600,00.html? 23/04/2003 16:57

2002. It reviewed progress in terms of Agenda 21 (the sustainable development plan agreed in the previous World Summit held in 1992) and aimed to develop, and agree, further plans for international sustainable development policies and programmes.

Global Challenges, Global Opportunities

The report was developed by the United Nations to provide a context for the World Summit on Sustainable Development (WSSD) held in Johannesburg. In particular it provides information on the key trends and projections that should be acknowledged and addressed at the Summit.

The preface of the document suggests that a new development paradigm has emerged since the last Earth Summit held in Rio in 1992. The new model integrates economic growth, social development and environmental protection as interdependent and mutually supportive elements of long–term development. It suggests that sustainable development also has a strong emphasis on:

…*participatory, multi-stakeholder approach to policy making and implementation, mobilising public and private resources for development and making use of the knowledge, skills and energy of all social groups concerned with the future of the planet and its people.*

The preface also refers to the importance of participation from all members of society:

…*mobilising people in their various social roles to promote sustainable development for present and future generations*

The document is divided into the following sections: Population, Poverty and Inequality, Food and Agriculture, Freshwater, Forests, Energy, Climate Change, Health and Water, Health and Air Pollution, with a section at the end which provides reference to documentation where greater detail can be obtained.

Population

The trends highlighted in this section include the increase in the world population, the increasing density of populations, the increase in smaller families and the impact of HIV/AIDS in Africa. It suggests that the World population will grow from its current size of about 6 billion to 8 billion in 2025. This increase will almost entirely occur in developing countries. The increasing population will lead to increasing pressures on agricultural land as this is developed for human settlement. A positive trend, the report suggests, is the reduction in the average size of families. This not only leads to reduced population growth but also to increased investment in education, nutrition and health care for children. The HIV/AIDS epidemic in Africa, however, it is suggested, is undermining sustainable development in Africa. This is negatively affecting families, who have additional health care and funeral expenses and businesses, which experience disruption and reduced productivity.

Poverty and Inequality

The trends highlighted include reduced income poverty, reduced levels of hunger, continuing high levels of inequality, and increased standards of living in Asia. The report suggests that there are about 1.2 billion people living in poverty (defined as living below $1, a day). This number has been declining in all areas of the world except in Sub Saharan Africa. It is suggested that a number of regions including East Asia and Latin America will reach Millennium Development Goals of halving the number of people who suffer from hunger by 2015. This however, will not be achieved in Sub Saharan Africa. High levels of inequality continue to exist in Latin America and Africa. This is a concern, it is suggested, as inequality tends to reduce the effect that economic growth has on poverty reduction. Standards of living have improved in South Asia, however this trend does not exist in sub-Saharan Africa and Latin America.

Food Production and Agriculture

Trends described include increasing production and consumption of food, limitations in further increases in food production and increased agricultural trade. The report suggests that whereas most areas of the world have limited potential for expansion or increased agricultural productivity, this was not the case for Sub-Saharan Africa and Latin America. Increased consumption in developing areas such as North Africa, West Asia and South Asia will lead, it is suggested, to increased food imports from developed countries to these countries.

Freshwater

The trends highlighted include increasing consumption of water and water shortages. Agriculture and industry are major consumers of water and both are increasing consumption. This, it suggests, will result in nearly half of the global population experiencing water shortages by 2025.

Forests

Trends identified include decreases in forest area, decreased bio capacity, as well as improvements in management and protection of forests. Deforestation has been highest in Africa, with forests decreasing at a rate of 7% per decade. Deforestation has been largely due to expansion in agriculture. Loss of forests is leading to many associated services being diminished. These include water and soil conservation, flood control and climate change mitigation. However there have been increases in forest management, with about 2% of forests worldwide now certified as managed for a sustainable yield. In addition, the there have been increases in the area of nature reserves and associated eco-tourism industries.

Energy

Trends described include increased consumption of energy and increases in renewable and biomass as sources of energy. The report particularly draws attention to the links in developing countries between biomass use (for instance the use of wood for cooking) and health problems.

Climate Change

Trends highlighted include increased consumption of fuel and increased CO_2 emissions as well as a range of climate change trends. Global climate change trends include global average surface temperature increasing by 0.6^{o}C since 1900; sea level increases of 1cm a decade and Arctic sea ice thickness declining 40% in the last 40 years. There are increased frequencies of droughts in Asia and Africa and flood and storm damage insurance payouts increasing from $2billion annually in the 1980's to $30billion annually in the early 1990's.

Health and Water

Trends described include causes of mortality and access to safe water. The report suggests that many deaths and illnesses are due to communicable, environment–related diseases, and suggests that many of these diseases can be prevented through simple and inexpensive technologies. A large proportion of the world's population still do not have access to safe drinking water and sanitation. Most of these people are in Africa and Asia. Mortality rates from malaria have been decreasing in most area, except Africa where they have been increasing. This is a result of the decreasing efficacy of the anti-malarial drug chloroquine and the development of dams and irrigation schemes, deforestation, and global warming.

Health and Air Pollution

Trends described include deaths from respiratory diseases, and decreasing urban air pollution in middle and high-income countries. The report suggests that more than three million people a year die of air pollution, with most of this caused by indoor air pollution as result of burning biomass for heating and cooking. Urban air pollution is increasing in developing countries and decreasing in developed countries. With the result that in most large cities in the developing world, air-borne particulate levels are five times higher than in developed countries.

The brief description of the main trends hi-lighted in the report provides a useful context for the study as it provides a list of areas that are seen as priorities. The report was used to provide background for the development of the Plan of Implementation, a plan developed by the Summit to implement Sustainable Development. This is described below.

2.1.5. World Summit on Sustainable Development Plan of Implementation

The Plan of Implementation was developed to provide a plan of action that countries at the World Summit had debated and agreed on. The plan built on commitments developed at the

previous summit, the United Nations Conference on Environment and Development held in Rio de Janeiro in 1992. In addition, it reaffirmed commitments established in other UN conferences and international agreements such as The Programme for Further Implementation of Agenda 21 and the Millennium Declarations.

The plan contains 145 statements describing actions that should be taken by countries to support sustainable development. The plan suggests that the following are the key objectives and essential requirements for sustainable development:

- Poverty eradication
- Changing unsustainable patterns of production and consumption
- Protecting and managing the natural resource base of economic and social development

The WSSD Plan of Implementation appears to contain a comprehensive set of actions to support sustainable development. A detailed review of this plan reveals however that the number and complexity of the statements make it difficult for their relevance and application to buildings and construction to be easily ascertained.

The study therefore proposes to extract the most relevant statements for buildings and construction and summarise these. Statements from the WSSD plan are interpreted into objectives, enabling the implications of these, for buildings and construction to more readily understood. The results of this analysis are in Appendix three. The relationship between these objectives and buildings and construction is explored further in Chapter five, Specification for a Building Assessment System.

2.1.6. Review of International Sustainable Development Context

Through the review of the international and local Sustainable Development context a number of patterns and characteristics can be detected that are relevant to the study. These are described below:

The shift from environmental impact to sustainability: It is argued that there has been a shift in emphasis from the environment to the broader concept of Sustainability during the ten years between the Rio Summit and the Johannesburg. This is reflected in the structure and content of the declarations from these summits. For instance, in Agenda 21, social and economic issues are described separately (under Social, and Economic Dimensions) from environment issues (which are described under Conservation and Management of Resources), whereas in the WSSD Plan of Implementation the distinction between these aspects is not made. Another example is the emphasis placed in the Rio Declaration on the Environment and Development on environmental impact assessment and internalisation of

environmental costs.[23] In the WSSD plan this has changed to suggesting that countries develop and use indicators of sustainable development.[24]

The understanding of social and economic aspects of Sustainable Development however still appears to be developing. For instance, there are detailed descriptions of actions required to address environmental problems whereas these tend to be more vague when it comes to addressing social issues. An example of this is the very limited guidance as to how countries should create employment or deal with HIV/AIDs orphans.[25]

This aspect is reflected in recommendations made to countries in terms of the types of assessment and monitoring carried out. Even with the increasing emphasis on Sustainable Development the WSSD plan suggests that a range of environmental assessments should take place in developing countries without making reference to social or economic impact analysis or modelling.[26]

Both Agenda 21 and the WSSD plan place a strong emphasis on the collection and use of information to support the design and implementation of programmes. They suggest that a difficulty in many developing countries is that relevant, current data is not available. This makes it difficult to plan effectively:

While considerable data already exist, as the various sectoral chapters of Agenda 21 indicate, more and different types of data need to be collected, at the local, provincial, national and international levels, indicating the status and trends of the planet's ecosystem, natural resource, pollution and socio-economic variables. The gap in the availability, quality, coherence, standardization and accessibility of data between the developed and the developing world has been increasing, seriously impairing the capacities of countries to make informed decisions concerning environment and development.

… There is a general lack of capacity, particularly in developing countries, and in many areas at the international level, for the collection and assessment of data, for their transformation into useful information and for their dissemination. There is also need for improved coordination among environmental, demographic, social and developmental data and information activities. [27]

This suggests that an important requirement in developing countries in terms of this study will be capturing and making available information on building performance in relation to

[23] Principle 15 and 16, http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm 02/02/03 10:30
[24] Item 119, http://www.johannesburgsummit.org/index.html 11/11/02 10.32
[25] Item 46, http://www.johannesburgsummit.org/index.html 11/11/02 10.32
[26] Item 104, http://www.johannesburgsummit.org/index.html 11/11/02 10.32
[27] http://www.un.org/esa/sustdev/agenda21chapter40.htm 02/02/03 10:30

sustainable development. This idea is explored further in Chapter five and incorporated as a recommendation in the final chapter of the study.

The science of sustainability: The WSSD report makes reference to the 'science of sustainability' and hints at the characteristics of this. For instance, it suggests that an important aspect of this is the requirement for multi-disciplinary teams. There is however little evidence that a scientific approach has been used in developing the Plan of Implementation. There seems to be no prioritisation in terms of what objectives are most important and which should be implemented first. Is air pollution more, or less important, than soil erosion? These are important questions that developing countries face and need to address with limited budgets. It could be argued that the document may in many ways have been put together in an arbitrary way and may have been influenced more by lobbying than by science. This, it is suggested, weakens the document and makes it more difficult to implement.

The difference between developed and developing countries: Explicit, in documents from both summits, is the realisation that different approaches are required for countries in differing stages of development. This is recognised in the proposed flexible application of Agenda 21 and through the inclusion of separate chapters for Africa and developing small island states.[28] It is also reflected in the principle of differentiated responsibilities.[29]

A concerning aspect that emerges from the review is the trend for Africa, as a continent consisting of developing countries, to perform extremely poorly in terms of sustainable development. According the report 'Global Challenges, Global Opportunities' it has many of the worst health and poverty problems and is unlikely to meet any of the Millennium Development Goals. This suggests that these goals are a particular priority and should be addressed within the building and construction industry where possible. This will be explored further in Chapter five, where the study investigates how sustainable development objectives should be prioritised and incorporated in an assessment tool.

Technology: Both Agenda 21 and the WSSD report recommend that technology from developed countries be transferred to developing countries. The technology referred to generally seems to be of a small scale, alternative type. There is little reference to transferring highly sophisticated, large-scale technology or highly resource and energy efficient technology. There is also little reference to enabling developing countries to develop environmentally sound technology locally. This may implicitly reflect concerns that developing countries may compete in the same technological markets as developed countries. This omission should be addressed as it is argued that new resource efficient, labour intensive and renewable energy technologies are particularly appropriate for developing countries which often have raw materials, plentiful renewable energy (such as sunlight) and a obligation to

[28] Preamble, http://www.un.org/esa/sustdev/indisd/english/worklist.htm 19/12/02 09:00

create as many jobs as possible. There also seems to be no acknowledgement that useful knowledge and technology may also be transferred from developing countries to developed countries. It can be argued that there are a wide range of technologies, processes and approaches to life and work that exist in developing countries that are more sustainable than those in developed countries.

Vulnerable groups: In both documents there is a strong emphasis on ensuring that people are encouraged to participate in the implementation of the programmes. In Agenda 21 this includes farmers and business people as well as women and youth.[30] In the WSSD plan a much stronger reference is made to the poor and ensuring that their needs are addressed with less emphasis on specific roles that individuals and groups of people should play.[31]

Participation and empowerment: It is suggested that there is an increasing awareness that an emphasis on participation is not enough and vulnerable groups, especially the poor, must be more actively empowered by being provided with access to finance, information, information technology, education and infrastructure. For instance, in Agenda 21 participation is described in the following way:

One of the fundamental prerequisites for the achievement of sustainable development is broad public participation in decision-making.[32]

And

Empower community groups, non-governmental organizations and individuals to assume the authority and responsibility for managing and enhancing their immediate environment through participatory tools, techniques and approaches embodied in the concept of environmental care.[33]

This changes to an increasing emphasis on access to infrastructure and information in the WSSD report:

…building rural infrastructure, diversify the economy and improve transportation and access to markets, market information, and credit for the rural poor.[34]

And

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[29] Principle 7, http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm 02/02/03 10:30
[30] Chapters 25, 26, 27, 28, 29, 30 and 31, http://www.un.org/esa/sustdev/indisd/english/worklist.htm 19/12/02 09:00
[31] Item 6, http://www.johannesburgsummit.org/index.html 11/11/02 10.32
[32] http://www.un.org/esa/sustdev/agenda21chapter23.htm 02/02/03 10:30
[33] http://www.un.org/esa/sustdev/agenda21chapter7.htm 02/02/03 10:30
[34] Item 6 http://www.johannesburgsummit.org/index.html 11/11/02 10.32

These programmes should empower poor people and reflect their priorities and enable them access to productive resources, public services and institutions, and in particular land, water, employment opportunities, credit, education and health.[35]

The WSSD statements are interesting because they depart from conventional environmental and sustainability wisdom by suggesting two things. The first is that infrastructure development is required and should be undertaken. The second is that poor people should dictate the type of development that happens around them. These ideas are relevant for this study and will be explored further in Chapter five.

The WSSD plan also make suggestions on how decisions on global public interest issues should be made. It suggests that these should be discussed in open, transparent and inclusive workshops.[36]

Education: Both Agenda 21 and the WSSD plan emphasize the importance of education. For instance, Agenda 21 states:

Education is critical for promoting sustainable development and improving the capacity of people to address environment and development issues. [37]

Within education there is also a discernable shift between Agenda 21 and the WSSD plan. This changes from an emphasis on 'capacity development' to a broader concept of education including 'education for all', 'lifelong learning' and 'education appropriate to context'.[38] There is also a much stronger emphasis on the right of children to access education, probably as a result of the influence of the Millennium goals.[39] Education, it would appear is an essential component of sustainable development in developing countries. The implications of this for building and construction will be investigated further in Chapter five.

Infrastructure: The attitudes to infrastructure in Agenda 21 and the WSSD report are different. In Agenda 21 there is a begrudging acceptance for the need for infrastructure, with an emphasis on housing and sanitation. This changes in the WSSD report where there is a clear acceptance and understanding of the role that infrastructure can play in development. The WSSD report appears to strongly support infrastructure development in areas that support developing country economies, such as roads and access to markets. An interesting aspect of Agenda 21 is the recommendation that Overseas Development Aid is used for infrastructure development as this generally generates the most impact by drawing in local funding and by creating what is referred as an 'enabling environment':

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[35] Item 6 http://www.johannesburgsummit.org/index.html 11/11/02 10.32
[36] Item 106 http://www.johannesburgsummit.org/index.html 11/11/02 10.32
[37] Chapter 36 http://www.un.org/esa/sustdev/agenda21chapter36.htm 02/02/03 10:30
[38] Item 115 and 116, http://www.johannesburgsummit.org/index.html 11/11/02 10.32
[39] Item 6 http://www.johannesburgsummit.org/index.html 11/11/02 10.32

……On the other hand, available information indicates that technical cooperation activities in the human settlement sector generate considerable public and private sector investment. For example, every dollar of UNDP technical cooperation expenditure on human settlements in 1988 generated a follow-up investment of $122, the highest of all UNDP sectors of assistance…This is the foundation of the "enabling approach". [40]

The idea that infrastructure can act as a catalyst for beneficial development is useful and will be explored further in Chapter five of the study.

Production and consumption: Both Agenda 21 and the WSSD report make strong statements about changing patterns of consumption and production. There is however a clear lack of will when it comes to implementing and monitoring this. For instance, in 'Global Challenges and Global Opportunities', the document meant to set the context for the WSSD, there is little mention about the continuing wasteful patterns of production and consumption that exist in developing countries. The summit itself appears to have deflected interest and action from this area by concentrating on poverty in developing countries. This is unfortunate because it may be argued that while poverty is a priority that must be addressed, wasteful consumption and production patterns in developed countries have caused, and continue exacerbate many of worst global environmental problems.

Structural changes: Even though the WSSD plan has extremely ambitious goals it seems to have a very piecemeal plan for achieving these. The plan of implementation does not seem to have any scientific basis and is not coherent. There are also many assumptions implicit in the plan that are not questioned. For instance, it can be argued that current economic systems are incompatible with sustainable development. This concern was raised in Agenda 21:

Growing recognition of the importance of addressing consumption has also not yet been matched by an understanding of its implications. Some economists are questioning traditional concepts of economic growth and underlining the importance of pursuing economic objectives that take account of the full value of natural resource capital. More needs to be known about the role of consumption in relation to economic growth and population dynamics in order to formulate coherent international and national policies.[41]

The WSSD plan however does not question any aspects the current economic system other than to express a concern that globalisation does not negatively impact developing countries.[42] It is suggested that structural changes in social, environmental and economic systems may be required in order to support sustainable development and that the WSSD

[40] Chapter 7 http://www.un.org/esa/sustdev/agenda21chapter7.htm 02/02/03 10:30
[41] Chapter 4 http://www.un.org/esa/sustdev/agenda21chapter4.htm 02/02/03 10:30
[42] Item 43, 90, http://www.johannesburgsummit.org/index.html 11/11/02 10.32

plan does not go far enough. This is argued in more detail in the next chapter, Chapter three. This finding, it is suggested, should influence the development of the specification in Chapter five. It is recommended that the while the specification may draw heavily on the WSSD plan, it should not be restricted by this and should go beyond this if thought appropriate especially in relation to economic aspects.

2.1.7. The Local Context

In order to develop an understanding of the difference in national perspectives on sustainable development between a developed country and developing country, government policy and reports from the United Kingdom and South Africa are reviewed.

In both cases policy documents that describe national development priorities and approaches are reviewed. These describe aspects of development that are seen as urgent priorities and provide a framework as to how these priorities should be addressed. In addition, the measures used by these countries to assess progress towards achieving national sustainable development goals are also reviewed in outline. A more detailed review of sustainable development indicators and assessment is carried out in Chapter four.

Policy and indicators from the United Kingdom are reviewed, followed by those from South Africa. These are then contrasted in order to highlight differences in perspective of the different countries. This it is suggested will support a stronger understanding of the dynamic nature of sustainable development and how this can be supported in developing countries.

2.1.8. The United Kingdom

A Better Quality of Life – A Strategy for Sustainable Development for the UK[43]

A Strategy for Sustainable Development for the UK was developed in order to ensure that sustainable development was integrated into government policy and addressed effectively. It is linked to a range of targets and indicators that are assessed in order to measure progress towards sustainable development. The strategy indicates a move away from the conventional assessments of development such as Gross Domestic Product (GDP) to a more holistic, and wider range, of indicators. These indicators have been selected to assess, in particular, quality of life. Tony Blair, the British Prime Minister, describes this shift in the following way:

…Success has been measured by economic growth- GDP- alone. We have failed to see how our economy, our environment, and our society are all one. And that delivering the best possible quality of life for all of us means more that concentrating solely on economic growth. That is why sustainable development is such an important part of this Government's programme. We must ensure that our economy thrives. So we can deliver the schools and hospitals we want , the jobs we need and provide opportunities for all. But we must ensure

that economic growth contributes to our quality of life, rather than degrading it. And that we can all share in the benefits.

The strategy for sustainable development has four main aims. These are:

- **Social progress, which recognises the needs of everyone.** Everyone should share in the benefits of increased prosperity and a clean and safe environment. We have to improve access to services, tackle social exclusion, and reduce the harm to health caused by poverty, poor housing, unemployment and pollution. Our needs must not be met by treating others, including future generations and people elsewhere in the world, unfairly.

- **Effective protection of the environment.** We must act to limit global environmental threats, such as climate change; to protect human health and safety from hazards such as poor air quality and toxic chemicals; and to protect things which people need or value, such as wildlife, landscapes and historic buildings

- **Prudent use of natural resources.** This does not mean denying ourselves the use of non-renewable resources like oil and gas, but we do need to make sure that we use them efficiently and that alternatives are developed to replace them in due course. Renewable resources, such as water should be used in ways that do not endanger the resources or cause serious damage or pollution

- **Maintenance of high and stable levels of economic growth and employment,** so that everyone can share in high living standards and greater job opportunities. The UK is a trading nation in a rapidly changing world. For our country to prosper, our businesses must produce the high quality goods and services that consumers throughout the world want, at prices they are prepared to pay. To achieve that, we need a workforce that is equipped with the education and skills for the 21st century. And we need business ready to invest, and an infrastructure to support them

These aims are guided by ten principles, including:

- **Putting people in the centre.** Sustainable development must enable people to enjoy a better quality of life. In the words of the Rio Declaration, ‘human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature’.

[43] http://www.sustainable-development.gov.uk/uk_strategy/content.htm 17/12/0217 10:00

- **Taking a longer terms perspective.** Sustainable development thinking cannot restrict itself to the life of a Parliament, or the next decade. Radical improvements have to begin now to safeguard the interest of future generations. At the same time we must meet today's needs – for example, people need warm homes, which, at present means using predominantly fossil fuels

- **Taking account of costs and benefits.** Decisions must take into account a wide range of costs and benefits, including those, which cannot easily, be valued in money terms. In pursuing any single objective, we should not impose disproportionate costs elsewhere. Public values, the timing of costs and benefits and risks and uncertainties should be taken into account.

- **Creating and open and supportive economic system.** Sustainable development requires global economic systems, which supports economic growth in all countries. We need to create conditions in which trade can flourish and competitiveness can act as a stimulus to growth and greater resource efficiency.

- **Combating poverty and social exclusion.** Eradicating poverty is indispensable for sustainable development. We must help developing countries to tackle widespread abject poverty. In this country, everyone should have the opportunity to fulfil their potential, through access to high quality public services, education and employment opportunities, decent housing and good local environments.

- **Respecting environmental limits.** Serious or irreversible damage to some aspects of the environment and resources would pose a severe threat the global society. Examples are major climate change, overuse of freshwater resources, or collapse of globally significant fish stocks. In this case, there are likely to be limits which should not be breached. Defining such limits is difficult, so precautionary action needs to be considered.

- **The precautionary principle.** The Rio declaration defines the precautionary principle as 'where there are threats of serious or irreversible damage, lack of scientific certainty shall not be used a reason for postponing cost effective measures to prevent environmental degradation' Precautionary action requires assessment of the costs and benefits of action, and transparency in decision making.

- **Using scientific knowledge.** When taking decision, it is important to anticipate early on where scientific advice ore research is needed, and to identify sources of information of high calibre. Where possible, evidence should be reviewed for wide-ranging set of view points

- **Transparency, information, participation and access to justice.** Opportunities for access to information, participation in decision-making and access to justice should be available to all.

- **Making the polluter pay.** Much environmental pollution, resource depletion and social costs occurs because those that are responsible are not those that bear the consequences. If the polluter, or ultimately the consumer, is made to pay for those costs, that gives incentives to reduce harm, and means that costs do not fall on society at large. At the same time, it may not always be possible for everyone to bear all such costs, particularly for essential good and services.

The strategy has a number of aspects that are relevant to the study. The first is the acknowledgement that developed countries are in a different position to developing countries with respect to sustainable development and therefore may not have the same problems:

….This country does not have problems on such a scale. But we cannot stand aside from these issues…

The second is the use of indicators to measure progress towards sustainable development. These measures are made an integral part of the strategy and the strategy suggests that these should be used to judge the effectiveness of government:

Talking about sustainable development is not enough. We have to know what it is, to see how our policies are working on the ground. We must hold ourselves to account- as a government, but also as a country.[44]

Another aspect is the description of linkages between indicators. This suggests that development must be thought of, and addressed, in a holistic way. It also suggests that there are precursors that must be in place to ensure that development takes place.

There are many links between indicators. For instance, the economy will not grow unless we modernise out education system and our infrastructure. We need to think about the location of our housing, as well as its quality, to reduce the need for car travel and to encourage urban regeneration. The links between transport, health and the environment show how we can all too easily reinforce damaging trends. Such links underline the need for integrated polices, rather than tackling issues individually.[45]

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[44] Forward, http://www.sustainable-development.gov.uk/uk_strategy/quality/life/09.htm 17/12/0217 10:00
[45] Item 3.8. http://www.sustainable-development.gov.uk/uk_strategy/quality/life/09.htm 17/12/0217 10:00

Progress in terms of the Strategy for Sustainable Development is captured in annually in a report titled 'Quality of Life Counts' issued by the Department of Environment, Transport and the Regions.

Quality of Life Counts[46]

The report reports on 15 'headline' indicators, which give a broad overview of trends and provide detail on 150 detail indicators that focus on specific issues. It builds on a previous report developed in 1996, which mainly documented environmental issues, by including a wide range of new indicators on social, economic and international issues. These are shown below:

Table One: Headline Indicators in the UK Sustainable Development Strategy

Themes, issues and objectives	**Headline indicators**
Maintaining high and stable levels of growth and employment	
Our economy must continue to grow	Total output of the economy (GDP and GDP per head)
Investment (in modern plant and machinery as research and development) is vital to our future prosperity	Total social investment as a percentage of GDP
Maintain high and stable levels of employment so everyone can share greater job opportunities	Proportion of people of working age who are in work
Social progress which recognises the needs of everyone	
Tackling poverty and social exclusion	Indicators of success in tackling poverty and social exclusion (children in low income households, adults without qualifications and in workless households, elderly in fuel poverty)
Equip people with the skills to fulfil their potential	Qualifications at the age of 19
Improve the health of the population overall	Expected years of healthy life
Reduce the proportion of unfit (housing) stock	Homes judged unfit to live in
Reduce crime and people's fear of crime	Level of crime
Effective protection of the environment	
Continue to reduce our emissions of	Emissions of greenhouse gases

[46] Department of the Environment, Transport and the Regions. UK. 1999.

greenhouse gases now and plan for greater reductions in longer term	
Reduce air pollution and ensure air quality continues to improve through the longer term	Days when pollution is moderate of higher
Improve the choice of transport; improve access to education, jobs, leisure and services; reduce the need to travel	Road traffic
Improving river quality	Rivers of good or fair quality
Reverse the long term decline in populations of farmland and woodland birds	Populations of wild birds
Reusing previously developed land in order to protect the countryside and encourage urban renewal	New homes built on previously developed land
Prudent use of natural resources	
Move away from disposal of waste towards waste minimisation, reuses, recycling and recovery	Waste arisings and management

Progress on these indicators is reported in a graphical way allowing trends to be determined easily. These include coloured dots, which indicate progress made towards achieving objectives: green dot – significant change, yellow dot – no significant change and red dot, significant change away from achieving objective.[47]

Since the initial report on indicators published in 1999, a comprehensive website has been developed. This includes an updated indicator framework with a range of additional indicators. This is included in Appendix four.[48]

2.1.9. South Africa

The policies reviewed for South Africa include the Reconstruction and Development Programme (RDP) and the Growth, Employment and Redistribution Strategy (GEAR) and the State of the Environment (SoE) Report. The RDP and GEAR are key programmes that set out the South African government's position on development and are designed to inform all other policy developed by government. Both policies are an attempt to address key developmental priorities in South Africa and the inequity that developed during the Apartheid era. The State of the Environment report, also reviewed in this section, attempts to develop a picture of the sustainable development in South Africa.

[47] Department of the Environment, Transport and the Regions. 1999. p 26 and 27
[48] Department of the Environment, Transport and the Regions. 1999. p 291

The Reconstruction and Development Programme[49]

The Reconstruction and Development Programme was published in 1994 and aimed to support transformation and social and economic progress in South Africa. It had the following aims:

- Developing strong and stable democratic institutions
- Ensuring representation and participation
- Ensuring our country becomes a dully democratic, non-racial, and non-sexist society
- Creating a sustainable and environmentally friendly growth and development path

The role of the RDP is described by President Nelson Mandela in his inaugural address to a joint sitting of parliament on 24 May 1994 in the following way:

My government's commitment to create a people-centre society of liberty binds us to the pursuit of the goals of freedom from want, freedom from hunger, freedom from deprivation, freedom form ignorance, freedom from suppression and freedom from fear. These freedoms are fundamental to the guarantee of human dignity. They will therefore constitute part of the centrepiece of what this government is trying to achieve, the focal point on which our attention must be continuously focused. These things we have said constitute the true meaning, the justification and purpose of the Reconstruction and Development Programme, without which it would lose all legitimacy

The Reconstruction and Development Programme was developed to support transformation and social and economic progress in South Africa.[50]

The RDP places a strong emphasis on participation. It suggests that this is key to the development of South Africa and, in particular, the implementation of the RDP programme:

…*the RPD, which has developed through a process of consultation and joint policy formulation, will continue to encourage organisations within civil society to take responsibility for the effective implementation of the Programme.*[51]

The Principles of the RDP[52]

The RPD lists a number of principles that should inform the design and implementation of the RDP programmes. These are described below:

Integration and sustainability: The RDP programme should be integrated and goals should be achievable and sustainable financially.

[49] Office of the President. 1994.
[50] Office of the President. 1994. p 6
[51] Office of the President .1994. p. 7

People-driven: The implementation of the programme should be inclusive and transparent. It suggests that development is about active involvement of citizens. This is described in the following way:

Development is not about the delivery of goods to a passive citizenry. It is about the involvement and growing empowerment

Peace and security: The programme suggests that is important that there is a peaceful and secure environment, as this will encourage investment and development. This is will be addressed through transformation of the security forces and judiciary to ensure these reflect the gender and racial composition of South Africa and will uphold human rights and the constitution

Nation building: The programme will ensure that there is a framework that enables all parties to be involved in government. This is described as follows:

We are a single country, with a single economy, functioning within a constitutional framework that establishes provincial and local powers, respect and protection for minorities, and a process to accommodate those wishing to retain their cultural identity. It is on the basis of our unity in diversity that will consolidate our national heritage.

Meeting basic need and building infrastructure: The RPD aims to integrate development with redistribution. A key component of this is an infrastructure programme that aims to provide access to services such as electricity, water, telecommunications, transport, health, education and training for everyone. The RDP envisaged not only being able to help meet basic needs but also supporting the opening up of previously suppressed economic and human potential in urban and rural areas.

Democratisation: The RDP states that people must participate in decision-making. This will be done through the restructuring of government and transformation in civil society.

Assessment and accountability: The goals of the RDP must be clearly defined and integrated. This will require organised structures and co-ordinated action, which can be measured in order to assess progress in achieving goals.

The Programmes of the RPD[53]

The RDP consists of five main programmes. These are described below:

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[52] Office of the President. 1994. p. 8-9
[53] Office of the President. 1994. p. 9-10

Meeting basic needs: The basic needs of people described include job creation, land reform and agrarian reform, water, sanitation, energy supplies, transport, nutrition, health care, the environment, social welfare and security. The RDP suggests that people should be actively involved in the design and management of infrastructure:

In creating the infrastructure to meet these needs the RDP will encourage and support the participation of people in key decisions about where projects should be and how they should be managed.

Developing human resources: The RPD states that people should be involved in the decision-making process and implementing the RPD. It suggests however that this will only succeed if there are appropriate training and education programmes.

Building the economy: The RDP aimed to support the development of the economy through making the government more efficient and through trade and other initiatives.

Implementing the RDP: The procedures for implementing the RDP aim to mobilise the participation of as many social organisations and institutions as possible.

The RDP provides limited information on activities and programmes to be undertaken. It also provides little contextual, quantifiable information on the issues it will address. Its use, therefore, mainly seems to be in the provision of a broad set of guiding principles for development in South Africa. It requires further policy and programmes in order to be implemented. This is acknowledged in the Growth Employment and Redistribution Strategy.

The Growth Employment and Redistribution (GEAR)[54]

The Growth Employment and Redistribution (GEAR) is a macro-economic programme developed by the South African Department of Finance. This aimed to transform the South African economy in order to achieve the following:

- A competitive fast-growing economy, which creates sufficient, jobs for all work seekers;[55]
- A redistribution of income and opportunities in favour of the poor;
- A society in which sound health, education, and other services are available to all; and
- An environment in which homes are secure and places of work are productive.

It was designed to be in line with the Reconstruction and Development Programme and, through a integrated economic strategy, aims to address many of the issues outlined in the

[54] Department of Finance. 1998.

RDP, including meeting basic needs, developing human resources and increasing participation in democratic institutions.

The strategy is designed to integrate many aspects of development and includes the following components relevant to sustainable development:

- A renewed focus on budget reform to strengthen the redistribute thrust of expenditure[56]
- A reduction in tariffs to contain input prices and facilitate industrial restructuring, compensating partially for exchange rate depreciation
- Tax incentives to stimulate new investment in competitive and labour absorbing projects
- An expansionary infrastructure programme to address service deficiencies and backlogs
- A strengthened levy systems to fund training on a scale commensurate with needs

Although both the RDP and GEAR mention monitoring, few detailed indicators are provided. This makes progress in achieving the aims of the RDP and GEAR difficult to measure. There is however a move towards a national monitoring and evaluation system through the State of the Environment Reports developed by the Department of the Environment and Tourism (DEAT).

National State of the Environment Report

The National State of the Environment Report was initiated in 1999 in order to understand the condition of the environment and underlying causes of environmental change in South Africa. The report is consistent with an international move towards State of the Environment reporting. This enables countries that have adopted Agenda 21 to report on sustainable development progress. The report provides detailed information on the current state of the biophysical components of the environment and on the social, economic and political activities that impact on these resources.

The aims of the report are listed as follows:

- Provide access to environmental information that has been integrated, analysed and interpreted for government and other agencies to enhance decision making and sustainable development planning
- Provide information for global environmental monitoring and assessment
- Increase public awareness of environment and development issues

[55] Department of Finance. 1998. p 1
[56] Department of Finance. 1998. p 2.

- Enhance understanding of environmental issues, rights and responsible actions; thereby encouraging individuals, communities and organisations improve their quality of life.

The initial 1999 State of the Environment report provides a summary table of key aspects describing the state of the environment. This is provided below.

Table Two: South Africa State of the Environment Report, 1999 [57]

Ecosystem Component	**State**
Habitats	25% of terrestrial habitats have been transformed for cultivation of crops, forestry and human settlements 50% of wetlands have been transformed for cultivation of crops, forestry and human settlements 5% of terrestrial habitats have been degraded through over-use and poor management 8% of terrestrial and riparian habitats have been heavily infested by alien vegetation
Biological resources	15% of plant species are threatened 14% of bird species are threatened 24% of reptile species are threatened 18% of amphibian species are threatened 37% of mammal species are threatened 22% of butterfly species are threatened
Physical Resources	Only 8.6% of the annual rainfall is available as surface water All major rivers have been dammed or modified to meet the demand Demand for water is projected to increase by 50% in the next 30 years Forestry uses 3% of mean annual run-off Alien vegetation uses 7% of mean annual run-off 17 million ha of cultivated areas are afflicted by erosion Soil is lost 8 times faster than it is being generated
Chemical processes	Carbon dioxide, nitrous oxide and methane levels are increasingly slightly Levels of sulphur dioxide are stable UVB radiation exposure levels are dangerously high for most of the year 2.6 million m^3 of waste domestic and commercial water is treated everyday

[57] http://www.ngo.grida.no/soesa/

	Over 42 million m^3 of solid waste is generated every year A shortage of landfills sites in 5 provinces is predicted in the next 10 years Over 5 million m^3 of hazardous waste is generated every year, most of which never reaches a proper disposal site Most rivers have eutrophication problems Toxic pollutants from sewage and industrial effluents are accumulating in the food chain
People	The total population was 40.6 million in 1996 The populations is growing at 2% a year 50% of South Africans live in towns and cities Nearly 50% live in informal dwelling 45% do not have access to clean water Only 60% have access to electricity 24% of the workforce was unemployed in 1996 Approximately 16% of South Africans are functionally illiterate 20% of households have incomes less than R500 per months Clinic:patient ratios across the country are 1:22,000 Nearly 20% of the workforce is HIV positive Inflation rate is 6% Growth in GDP was 0.5% in 1998

Since the original State of the Environment Report was developed in 1999 a more comprehensive framework has been developed. This has been included in Appendix five.[58]

Review of Local Context

A review of the national policies and indicators is illuminating for a number of reasons. Firstly, this provides an understanding of the different priorities that governments in developing countries have compared with developed countries. Secondly, it provides a picture of the likely trends and changes in priority that may occur as a country becomes more developed. Finally, it provides an understanding of the context, and problems, that interventions designed to support sustainable development in developing countries, will need to address. These aspects are explored in more detail below.

Defining sustainability and the role of government: In the policies reviewed it is useful to note the differences in the way governments see their role and define sustainable development. The UK suggests that a key aspect of sustainable development is quality of life. It then states that it is government's role to improve the quality of life for its citizens. It makes itself accountable for this role by developing indicators and reporting progress in relation to

[58] http://www.environment.gov.za 17/12/0217 15:30

this. The policy also suggests that government should be sending out the right messages by reporting on: the 'greenness' of its own operations, the number of women employed in senior posts, the level of overseas development aid provided, and number of international environmental treaties signed.

This is different in South Africa where there are a range of policies on development and on the environment, but none, as yet on sustainable development. The role that government ascribes for itself in the RDP is as a facilitator of transformation. It aims to restructure many aspects of the society, the economy and government in order to ensure that this is more representative of society and equitable. Government however does not appear to want to take responsibility for development and suggests that this needs to undertaken by civil organisations. There are also limited, publicly available, targets or indicators that can be used to assess the impact or effectiveness of government.

In order to implement sustainable development effectively it therefore appears that South Africa requires a policy on sustainable development that links social, economic and environmental aspects and has a set of indicators. Government should also make themselves accountable, as a whole, for progress in terms of these indicators. Without this it is difficult to see how different sectors of government and the private sectors will work together to implement effective and integrated programmes that support sustainable development.

The economy: The policies of both the UK and South Africa consider the economy as a vehicle for improving people's lives. They both suggest that economies and approaches should become more people centred. They however differ in approach. The UK has an emphasis on making business more sustainable through encouraging business to adopt ethical trading codes and environmental management systems. This aspect seems to be largely absent in South Africa where the emphasis is strongly on growth and employment. For instance, an objective of GEAR is to provide:

Tax incentives to ensure stimulate new investment and in competitive and labour absorbing projects.[59]

There seems to be openness in the UK policy to questioning economic models. For instance, the policy suggests that GDP is a poor indicator of progress and that changes in economic systems could encourage resource efficiency:

Sustainable Development requires global economic systems, which supports economic growth in all countries. We need to create conditions in which trade can flourish and competitiveness can act as a stimulus to growth and greater resource efficiency. [60]

[59] Department of Finance. 1998. p 2

This is different in South Africa where the main concern appears to be developing correct survival techniques with which to the weather the negative consequences of the international economic systems. For instance, an objective of GEAR is to reduce the impact of exchange rate depreciation.[61]

Indicators: There are strong differences in the approaches developed by South Africa and the UK to using indicators**.** In the UK the overarching aim of the Sustainable Development Policy 'To improve quality of life" is broken down into a number of objectives such as "Doing more with less" and "Economic stability" and "Competitiveness". Attached to each of these objectives are indicators that can be used to measure the rate of progress towards the achievement of objectives. The indicators in the South African State of the Environment report generally appear to be designed to capture existing states, rather than to measure progress in a particular direction. They also appear to assess negative aspects of the environment, the economy, and society. For instance, many of the society indicators are organised under the heading of 'Vulnerability'. This reinforces the perspective that developing countries have many problems and needs rather than suggesting that there are opportunities, which can, and should be, used to move South Africa to a more sustainable state.

The UK indicators are also closely linked to a policy on sustainable development. This is not the case, in South Africa where the State of the Environment report does not appear to relate to any particular South African policies and is only loosely related to Agenda 21. It is particularly odd that these indicators do not align with the RPD and GEAR as these are meant to inform all aspects of development in South Africa. For instance, both the RDP and GEAR list employment and the support of small businesses as a priority. The State of the Environment report includes only one indicator for this area. This compares to the UK report, which provides a wide range of indicators, including the following:

- New business start-ups net of closures
- Labour productivity
- Proportion of people of working age who are in work
- Proportion of people of a working age in workless households
- Proportion of people of a working age out of work for more than two years
- Proportion of lone parents
- Long-term-ill and disabled people who are economically active
- People in employment working long hours
- Low pay
- Work fatalities and injury rates

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[60] http://www.sustainable-development.gov.uk/uk_strategy/quality/life/09.htm 17/11/0217 15:30
[61] Department of Finance. 1998. P. 1

- Working days lost through illness
- Ethnic minority employment and unemployment.

The emphasis in the selection of indicators for the South African State of the Environment report appears to be heavily in favour of environmental indicators, some of which appear to be of little value. For instance, of the 19 sets of indicators listed, only 2 sets appear to be directly related to social aspects and none to economic aspects. Another example is the inclusion of an indicator of the contribution to job creation of conservation areas. The value of this indicator, given its significance in terms of a proportion of the total employment market, is questionable. A number of the indicators also appear to be difficult to measure, for instance there is an indicator of government capacity for environmental management. It is unclear how this is measured.

The type of the society: Both UK and South African policy make statements about the type of society that they aim to develop. The UK policy aims to have no social exclusion, poverty, poor housing and unemployment. In addition, it aims to protect aspects that are seen to improve the quality of life such as wildlife, landscapes, historic buildings and access to culture and sport.[62]

South African policy paints a picture of a democratic, non-racial and non-sexist society that is actively involved in the development of the country. A fundamental aspect of picture is that there is freedom, and that people's essential needs are met.

An interesting aspect of the UK policy is the consideration given to all citizens. This states that access should be given to a range of facilities in order for people fulfil their potential:

Everyone should have the opportunity to fulfil their potential through access to high quality public services, education and employment opportunities, decent housing and good local environments[63]

There is also an indicator on the consumer information, which aims to empower people in encouraging change in the market. In addition there are indicators for access to services in rural areas, and by disabled people. Communities and social interaction are assessed through indicators on voluntary activities and community spirit.

Education: Both the UK and South Africa policy regards education as important. In the UK this is seen as key to maintaining a competitive edge:

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[62] http://www.sustainable-development.gov.uk/uk_strategy/quality/life/09.htm forward 17/11/0217 15:30
[63] http://www.sustainable-development.gov.uk/uk_strategy/quality/life/09.htm forward 17/11/0217 15:30

….. we need a workforce that is equipped with the education and skills for the 21st century [64]

The UK encourages businesses to support education through its 'Investors in People' award and have developed a number of indicators that reflect levels of awareness of sustainable development within the general public. South Africa places a strong emphasis on enabling access to education and through a levy, aims to support increased levels of training and education in the workforce.

Role of infrastructure & technology: There are different perspectives in relation to the human environment. In the UK there is an emphasis on the quality of the environment. There are, for instance, indicators for the quality of the environment and energy efficiency in housing. In South Africa the emphasis is on security and productivity:

An environment in which homes are secure and places of work are productive [65]

Both countries view infrastructure as a mechanism for supporting development. There are differences, however, in emphasis. In the UK, infrastructure is seen as part of a productive machine that supports the economy. It is therefore important that the right type of infrastructure is developed to support competitive industries:

…*we need businesses ready to invest and an infrastructure to support them* [66]

It is also important that this infrastructure is of good quality and efficient. For instance, there are indicators on the thermal efficiency of housing stock, household water usage and municipal water wastage. This extends to the technology used in infrastructure; for instance, there are indicators for the efficiency of appliances and motor vehicles.

In the UK policy there also appears to be growing awareness of the long-term impact of infrastructure. This has lead to an increased interest in urban design and planning and an increasing requirement for denser more efficient development. There are, for instance, indicators on new homes built on previously developed land, and new retail floor space in town centres and out of town. There is also a wish to ensure that existing infrastructure is managed well and used efficiently. This has lead to indicators being developed for vacant land and properties, for derelict land, and for working days lost through illness.

In South Africa the development of infrastructure is seen as necessary in order to address inequitable distribution of services. The RDP aims to provide everyone with access to electricity, water, telecommunications, transport, health, education and training. Infrastructure

[64] http://www.sustainable-development.gov.uk/uk_strategy/quality/life/09.htm forward 17/11/0217 15:30
[65] Department of Finance. 1998. p 1
[66] http://www.sustainable-development.gov.uk/uk_strategy/quality/life/09.htm forward 17/11/0217 15:30

is also seen as a means of growing and shaping the economy by opening up previously suppressed economic and human potential and by providing jobs.

There is little reference to the quality of the infrastructure to be developed other than this should be 'secure' and 'productive'. However there are guidelines about how this should be developed. Infrastructure programmes should actively involve citizens who will participate in making the key decisions:

..the RDP will encourage and support the participation of people in key decisions about where projects should be and how they should be managed [67]

This aspect is in line with UN recommendations.[68] However it is concerning to note that there is no mention of complementary scientific and rational planning processes. The sole use of participatory process is likely, it is suggested, to lead to the development of poorly planned, and managed, infrastructure.

The selection of the indicators for South African State of the Environment report is biased heavily towards environmental issues. For instance, there are indicators for green space in settlements, contaminated land, and housing density. The indicators however do not appear to take into account the quality and safety of the environment from the user perspective. For instance there are no indicators on safety and security in settlements or for the affordability of energy and transport.

The science of sustainability: In the UK it appears that there is a growing awareness of the science behind sustainable development. This science recommends that design of interventions and development should be carefully considered because of the importance of the order, and of the many interlinked aspects, of sustainable development:

…For instance, the economy will not grow unless we modernise our education system and our infrastructure. We need to think about the location of our housing, as well as its quality, to reduce the need for car travel and to encourage urban regeneration. The links between transport, health and the environment show how we can all too easily reinforce damaging trends. Such links underline the need for integrated polices, rather than tackling issues individually[69]

In South African policy the emphasis seems to be on addressing immediate needs as quickly as possible and there does not appear to be a strong attempt made to develop highly interlinked and coordinated programmes. There also does not seem to be much consideration

[67] Office of the President. 1994. P. 6
[68] http://www.johannesburgsummit.org/index.html 11/11/02 10.32 (see also appendix three)
[69] http://www.sustainable-development.gov.uk/uk_strategy/quality/life/09.htm

given to the long-term impact of development. Thus although the policy may provide immediate remedies to some of the existing problems, it may also result in infrastructure that is, in the long term difficult, to sustain.

2.2. Addressing Hypothesis One

An initial review of the context of sustainable development vindicates Hypothesis one, by indicating that there are important and useful concepts within this field for the study. These concepts are discussed below and summarised in the conclusion section that follows this.

The structure of policy: In order to support sustainable development it appears that policy needs to be structured in a particular way. There appears to be a requirement for two components namely, a policy document, and a system of indicators. The policy document should include a definition of sustainable development, which informs the development of a clear overarching aim. This aim should then be broken down into a set of objectives. Each of these objectives can then have programmes with specific timelines, deliverables and responsibilities linked to them. These objectives should also have linked indicators, which can be used to measure progress in the achievement of objectives.

It is important that the policy has a clear vision of what a ‘state of sustainability’ is and expresses this clearly. This should also be used to inform the development of indicators that assesses progress down this path to this state of sustainability. For example the vision for the ‘state of sustainability’ may be that all farming is to be organic – this requires an indicator that assesses progress towards achieving this objective. It is important to realise that current knowledge does not allow this ‘state of sustainability’ to be fully described given the complexity of interactions between human and biophysical systems. However it is important to ensure that this is described in adequate detail to ensure that development moves in broadly the right direction.

In order to implement policy, a clear strategy with roles, responsibility and accountability must be provided. Within this there must be an iterative mechanism that monitors progress towards particular objectives and enables changes to be made where progress is not being achieved. Where a wide range of stakeholders are expected to support and participate in implementing a policy it is particularly important that policy is easy to understand and provides clear direction as to what actions are to be taken. For instance, if adult literacy is seen as important, there could be an indicator that assesses the accessibility of adult education classes. This would enable progress towards achieving accessible adult education to be measured. Expressing the objective and the indicators clearly can help in drawing other parties in and encourage them to contributing to objectives set.

Placing people at centre: Both the sustainable development policies reviewed refer to the concept of placing people at the centre. This means seeing development, the environment, the economy and society from the perspective of citizens and understanding the needs of people. It requires an understanding of what is seen as ‘fulfilment’ by people. This must be understood from the perspective of a wide range of people including old people, youth and disabled and uneducated people. In addition to understanding these perspectives, research must be taken to understand the obstacles that should be overcome in order to address needs and enable fulfilment. When these obstacles are understood programmes and policy should be developed to ensure that these obstacles are removed where they currently exist and are considered and addressed in new developments. This aspect is important to note in the study because it suggests that ‘placing people at the centre’ may be an important concept to address in ensuring that buildings and construction support sustainable development. It also provides some guidance on how this concept could be included in building and construction processes.

The science of sustainability and infrastructure: It is clear that a science of sustainability is emerging. This is providing the flesh to the vision of a ‘state of sustainability’ mentioned above and includes recommendations about how we should live and work. It is especially relevant for the design and management of infrastructure and can increasingly guide this. However there may be conflicts between scientific recommendations and what people may desire. For instance people may want to live in low-density suburbs whereas high-density apartment living may be scientifically shown to be more sustainable. How this conflict be addressed, especially, if having ‘people at the centre’ is acknowledged as a key tenet of sustainable development becomes important.

There are a range of implications for infrastructure beginning to emanate from the science of sustainability. This suggests that infrastructure is an integral component of the economy. If designed and managed correctly, infrastructure can, not only make the economy more competitive by reducing costs, but also more resource efficient. In a similar way towns. if designed correctly, can not only reduce commuting costs, but also improve the quality of life by, for instance, enabling adults and children to walk safely to work and schools.

From the science of sustainability it emerges that not only should interventions to support sustainable development be of a certain type, but that the sequence of these interventions is also important. This has strong implications for how development programmes should be designed and implemented. It may mean that development and interventions should take into account the perspective of a wide range of stakeholders including people that will be directly affected and surrounding communities. It also suggests that the needs and opportunities within the area need to be properly understood. Once this has achieved, a likely response is the development of a multi-strand programme that has the strong support of the people that it

will be addressing. This programme will consist of a range of integrated interventions designed to support the development of an intricate network of mutually supportive elements, which ultimately lead to sustainable state.

A scientific approach to sustainability suggests that a holistic approach is important. For instance, not only must the design performance of new developments be addressed. It is also important to ensure that the eventual management and maintenance processes of infrastructure are also considered at an early stage of a development. Existing developments must also be efficiently used. This is reflected in the UK indicators for derelict land and unused buildings.

The stages of sustainability: Sustainable development can be described as the path towards a state of sustainability. Moving along this path is a dynamic process, which passes through a range of different stages. Each of these stages requires issues to be addressed before progress can be made to the next stage. Different countries are at different stages in terms of progressing towards a sustainable state. More developed countries are not necessarily at a more advanced stage than developing countries in terms of this progression. Developed countries have addressed their population's basic needs but may have developed infrastructure and processes that are unsustainable in the long term because they are highly wasteful or reliant on non-renewable resources. This must be addressed through redesign and reconstruction, technological interventions and organisational change before the country can progress to a more advanced staged in the path towards sustainability. Developing countries may on the other hand be at a very similar 'distance' away from a sustainable state as developed countries but are moving towards this from a different location. Developing countries may not have developed highly wasteful infrastructure yet but they also are likely not to have addressed the basic needs of their populations. Therefore in order for these countries to move to a more advanced stage of sustainability the basic needs of their resident populations must be addressed as a priority.

There are a number of implications from this for the study. Firstly, different countries need to address different aspects of their context and stage of development before they can move along a path towards a state of sustainability. A second aspect is that the path towards a state of sustainability is not the same for all countries; developing countries do not have follow the same developmental route as developed countries, they can take a different, more direct, route towards achieving a state of sustainability. Thus, it is important for developing countries to begin to chart a different developmental route so as not to make the same mistakes as have been made by developed countries. The challenge for developing countries is that charting this route, and progressing along this, will require different processes and tools than those used by developed countries.

The implication for this study is that the priorities that construction and buildings need to address in order to support sustainable development in developing countries are different from those in developed countries. This implies that the type of tools, processes, indicators and emphasis in application may also be different.

2.3. Concluding Hypothesis One

The hypothesis that the international and local context of sustainable development can inform study is demonstrated through the development of a number of key concepts which will be used in Chapter five to develop the specification of an assessment tool. These concepts are listed below:

Policy context: An understanding of the policy context is important. This is required for the study because any interventions suggested by the study will have to take into account government and international policy and work with this. This may mean supporting the implementation of policy that supports sustainable development or addressing gaps in existing policy and implementation. In many cases sustainable development policy is not easily applied to buildings and construction, work therefore needs to be done in order to understand the implications of policy for buildings and translate these into practical, and easily implemented, actions. It is important however that interventions designed to support sustainable development are not constrained by existing policy. For instance, if sustainability within a current economic system is deemed impossible, interventions should be made to support a move towards more sustainable models, even if this is not acknowledged, or supported by, current policy.

Interpretation and application of policy: Existing UN policy on sustainable development is generic and complex. In order to apply this to the building and construction field it needs to be simplified and interpreted. The World Summit on Sustainable Development Plan of Action can be interpreted and simplified in to a set of social, economic and environmental sustainable development objectives. These are:

Social Sustainable Development Objectives[70]

- **Access:** Ensure that development supports increased access to land, adequate shelter, finance, information, public services, technology and communications, where this is needed.
- **Education**: Ensure that development improves levels of education and awareness, including awareness of sustainable development.
- **Inclusive:** Ensure that development processes and benefits are inclusive.

[70] A table showing the development of these objectives from the WSSD Plan of Implementation is provided in Appendix three.

- **Health, safety and security:** Ensure that development considers human rights and supports improved health, safety and security.
- **Participation:** Ensure that development supports partnerships, social interaction and involves, and is influenced by, the people that it affects.

Economic Sustainable Development Objectives

- **Employment and self employment:** Ensure that development supports increased access to employment and supports self employment and the development of small enterprises.
- **Efficiency and effectiveness:** Ensure that development (including technology specified) is designed and managed to be highly efficient and effective, achieving high productivity levels with few resources and limited waste and pollution.
- **Indigenous knowledge and technology:** Ensure that development takes into account and draws on, where appropriate, indigenous knowledge and technology.
- **Sustainable development accounting:** Ensure that development is based on a scientific approach which measures and monitors social, environmental and economic impacts and this is used to guide development.
- **An enabling environment:** Develop an enabling environment for sustainable development through the development of transparent, equitable and supportive policies, processes, and forward planning.
- **Small-scale, local and diverse economies:** Ensure that development supports the development of small scale, local and diverse economies.

Environmental Sustainable Development Objectives

- **Size, productivity and biodiversity:** Ensure that development conserves or increases the size, biodiversity, and productivity of the biophysical environment.
- **Resource management:** Ensure that development supports the management of the biophysical environment to ensure that this is not adversely affected.
- **Resource extraction and processing:** Ensure that development minimises the use/support of environmentally damaging resource extraction and processing practices.
- **Waste & pollution:** Ensure that development manages the production of waste to ensure that this does not adversely affect the biophysical environment.
- **Water:** Ensure that development manages the extraction, consumption and disposal of water in order not to adversely affect the bio-physical environment
- **Energy:** Ensure that development manages the production and consumption of energy in order not to adversely affect the biophysical environment.

Interventions: There appears to be a particular set of components and structure required for intervention frameworks or plans of action designed to support sustainable development. These includes a simple overarching goal that is cascaded into a set of integrated objectives. These in turn are linked to a set of indicators that are used to monitor on progress towards the achievement of the objectives. Intervention frameworks must be carefully designed in order to ensure that interventions planned occur in the right order and are mutually supportive. This is because sustainable development is incremental and holistic.

Developed countries and developing countries: There appears to be clear difference in the context, priorities and policies of sustainable development between developed countries and developing countries. The implications of this are that interventions to support sustainable development in developing countries should be different from those used in developed countries. It also appears that there is an opportunity to avoid making the same mistakes as developed countries by developing a sustainable development path that 'short cuts' many of the problems (in relation to sustainability) of conventional development paths. This sustainable development path for developing countries however has not been clearly defined and developed.

Developing country sustainable development priorities: A key sustainable development priority in developing countries is to ensure that the basic needs of its citizens such as food, safety and employment, are met. It is also important that development designed to meet these needs involve, educate, and empower, people in order to ensure that impact can be multiplied, and is sustainable.