The Role Of Government Policy In Achieving Sustainable Development(Dubai Municipality Experience 2013-2016)

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Abstract:
The study dealt with the concept of sustainable development, the theoretical descriptive framework, and the experience of Dubai Municipality in achieving sustainable development as a successful experience
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Introduction:

Over the years, Dubai − UAE has achieved undoubtedly fascinating development in city styles and construction. The desert has been transferred to an advanced modern city with the tallest buildings in a considerable time. It has always encouraged achieving healthy and sustainable development in all sectors, explicitly building construction. It has and still working towards maintaining the balance between socio-economic development and environmental protection. It has been announced and put within the national vision that it is of priority for the Government to transform Dubai into a smart city with an eco-friendly economy. This is under the aim to make it the most sustainable city in the world by 2021. The other Emirates are also trying to build their own fully sustainable cities. A sustainable plan is "a building that reduces its environmental impact by decreasing energy and water use and reducing the waste production. Dubai's Green Building Regulations and Specifications encourage all contractors to build toward an eco-friendlier tomorrow, maintaining the future cohorts without negatively impacting the resident's health. It covers a wide range of topics related to green building design, including ecology planning, building vitality, resource efficiency in energy, water, materials, and waste management. Dubai has made the environment a part of its overall strategic plan, including many sub-plans, initiatives, and projects to improve the emirate's environmental conditions and reduce energy use. Dubai's strategic plan to become a green metropolis includes green buildings and green building materials. The difficulties that sustainable urban development presents are considerable. They are working on various techniques to lead today's urbanisation toward sustainability, including urban planning, transportation infrastructure, quality of life, and renewable energy use, to name a few. Green construction and green towns are part of a long-term national drive in the UAE to promote a green economy with the tagline "A green economy for sustainable development". This paper is highlighting the advanced initiatives, technologies, materials, strategies, difficulties and challenges that Dubai has been through to achieve sustainable smart city goals.

Search Objective

provide the best quality services to the community and to make Dubai the best city in the world to live and work in

2.Sustainable Development
2.1.Origin Of The Concept Of Sustainable Development

Many of the ideas that are now embedded in the idea of sustainable development have been around for a long time − from as long ago as the work of Malthus on population growth in the late 1700s. But the concept appears really to have emerged during debate in the early 1970s following of a range of key publications drawing attention to man's over-exploitation of the environment, focusing on economic development and the growing global concern about development objectives and environmental constraints, and examining the inextricable links between environment and development. Some notable examples include:

- How to be a Survivor: A Plan to Save Spaceship Earth (Paul Erlich 1971);

- The Limits to Growth (Meadows et al. 1972) by the Club of Rome;
- A Blueprint for Survival (The Ecologist, 1972) promoting a movement for man to live 'with' nature and calling for a stable (and sustainable) society with a diversity of physical and social environments ;
- Only One Earth (Barbara Ward and Rene Dubos, 1972) for the UN Conference on the Human Environment in Stockholm in that year; and
- Small is Beautiful (Schumacher 1973).

Barbier (1987) distinguishes two strands of debate at this time about economic development: one focusing on basic needs with emphasis on helping the poor; the other stressing that real development was impossible without consideration of the environment and without taking into account local social and cultural values and enabling stakeholder participation.

The gradual emergence of the concept of sustainable development has also built on a range of other concepts, e.g. 'sustainable yield'. 'eco-development', 'deep ecology',

2.2.Definitions

Whilst earlier literature discussed a wide range of issues around the emerging concept of sustainable development, the following statement from the World Conservation Strategy (IUCN/WWF/UNEP, 1980) appears to be the first actual attempt to define sustainable development:

"For development to be sustainable, it must take account of social and ecological factors, as well as economic ones; of the living and non-living resource base; and of the long-term as well as the short-term advantages and disadvantages of alternative action".

The World Conservation Strategy was frequently criticised for being concerned mainly with ecological sustainability rather than sustainable development *per se*. The most universally quoted definition is that produced in 1987 by the World Commission on Environment and Development (WCED), otherwise known as the Brundtland Commission (after its Chairperson, Gro Harlem Brundtland, Prime Minister of Norway):

"Economic and social development that meets the needs of the current generation without undermining the ability of future generations to meet their own needs".

Following the publication of the Brundtland report, there was a rapid escalation of alternative definitions of sustainable development and lists are given by several authors provided lists (e.g. Pezzey 1989, Pearce et al. 1989, and Rees 1989). Mitlin (1992) notes that, in general, definitions involve two components: the meaning of development (i.e. what are the main goals of development: economic growth, basic needs, rights, etc.); and the conditions necessary for sustainability. Despite the wealth of references to the Brundtland definition, it is not supported by professional consensus. As Banuri (1999) observes, "there is considerable professional disagreement about this definition, mostly on how to put the idea of sustainable development into operation, but also to do with questions of definition and on its claims to synthesis".

2.3.Building High-Level Commitment

Over the past two decades, sustainable development has emerged as the preferred way of dealing with the rapid degradation of the natural environment. The first global meeting on this issue, the U.N. Conference on the Human Environment in 1972, focused mainly on the environmental issues that were most evident in the wealthy nations, and associated with industrial development and a rapid growth in consumption, e.g. pollution and waste. Much less attention was given to the needs of lower income countries in the South for stronger and more stable economies, as well as environmental improvement. Although the need to combine development and environment goals was becoming evident, more emphasis was placed on the "limits to growth" arising from shortages in resources such as metals and fossil fuels.

The new concern for what later became labelled "sustainable development" is evident in the Cocoyoc Declaration of 1974, which addressed the issue of how to respect the "inner limit" of satisfying fundamental human needs within the "outer limits" of the Earth's carrying capacity. But it was the World Conservation Strategy of 1980 that launched sustainable development into the international policy arena, stressing the importance of integrating environmental protection and conservation values into the development process. Subsequently, the Brundtland Commission paved the way for the UN Conference on Environment and Development (UNCED), otherwise known as the Earth Summit, in 1992 in Rio de Janeiro. This conference approved a set of five agreements:

- Agenda 21: a global plan of action for sustainable development, containing over 100 programme areas, ranging from trade and environment, through agriculture and desertification to capacity building and technology transfer.
- The Rio Declaration on Environment and Development - a statement of 27 key principles to guide the integration of environment and development policies (including the polluter pays, prevention, precautionary and participation principles).
- The Statement of Principles on Forests - the first global consensus on the management, conservation and sustainable development of the world's forests.
- The Framework Convention on Climate Change - a legally-binding agreement to stabilise greenhouse gases in the atmosphere at levels that will not upset the global climate system.
- The Convention on Biological Diversity - a legally-binding agreement to conserve the world's genetic, species and ecosystem diversity and share the benefits of its use in a fair and equitable way.

2.4.Implementing the Idea

Now that high-level legal and political commitments have been made to sustainable development. The Brundtland Commission's definition, whilst widely used, provides little guidance of how to implement sustainable development. The absence of a clear definition has allowed some to claim that they are practising sustainable development, while essentially repackaging 'business as usual' approaches.Part of the problem lies in the confusion that surrounds what is actually "sustained" by "sustainable development". Although the term "sustainable" is most widely used to refer to the maintenance of ecological systems and resources, it has also been applied to the economic, social and even cultural spheres. This broad application of "sustainability" is perhaps not surprising, since sustainable development is by nature an interdisciplinary concept, drawing on social and

physical sciences, as well as law, management and politics. It is also a dynamic approach which, according to the Brundtland Commission, is "a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations".

2.5. Meeting the goals of sustainable development

A commitment to meet the needs of present and future generations has various implications. "Meeting the needs of the present" means satisfying:

- Economic needs - including access to an adequate livelihood or productive assets; also economic security when unemployed, ill, disabled or otherwise unable to secure a livelihood.
- Social, cultural and health needs - including a shelter which is healthy, safe, affordable and secure, within a neighbourhood with provision for piped water, drainage, transport, health care, education and child development, and protection from environmental hazards. Services must meet the specific needs of children and of adults responsible for children (mostly women). Achieving this implies a more equitable distribution of income between nations and, in most cases, within nations.
- Political needs - including freedom to participate in national and local politics and in decisions regarding management and development of one's home and neighbourhood, within a broader framework which ensures respect for civil and political rights and the implementation of environmental legislation.
- Meeting such needs "without compromising the ability of future generations to meet their own needs" means:
- Minimising use or waste of non-renewable resources - including minimising the consumption of fossil fuels and substituting with renewable sources where feasible. Also, minimising the waste of scarce mineral resources (reduce use, re-use, recycle, reclaim).
- Sustainable use of renewable resources - including using freshwater, soils and forests in ways that ensure a natural rate of recharge.
- Keeping within the absorptive capacity of local and global sinks for wastes - including the capacity of rivers to break down biodegradable wastes as well as the capacity of global environmental systems, such as climate, to absorb greenhouse gases.

2.6.Balancing Objectives

Sustainable development aims to reverse these downward trends. There is a growing consensus that sustainable development means achieving a quality of life that can be maintained for many generations because it is:

- socially desirable, fulfilling people's cultural, material and spiritual needs in equitable ways.
- economically viable, paying for itself, with costs not exceeding income, and
- ecologically sustainable, maintaining the long-term viability of supporting ecosystems.

Sustainable development will entail integration of these three objectives where possible, and making hard choices and negotiating trade-offs between objectives where integration is not possible. These negotiations will be greatly influenced by factors such as peace and security, prevailing economic interests, political systems,

institutional arrangements and cultural norms. For example, the role of women in shaping policies and actions may be more restricted in muslim countries, and the ability of the public to participate in this process may be more limited under authoritarian systems. There is no blueprint for sustainable development. It needs to be defined to meet and respect the particular needs and circumstances of individual countries, societies and cultures. Traditionally, societies have attempted to set social, economic and environmental goals, but often in isolation from one another. Thus, nature conservation targets have been set without regard to the goals for economic growth or poverty reduction. The result has been the creation of short-lived 'green islands' in a sea of unsustainability. Decision-makers are now becoming aware that environmental goals can only be achieved by integrating them into mainstream social and economic policy-making.

3. The Emirate Of Dubai And Its Ambitious Pathway To A Sustainable Development

The Emirate of Dubai has experienced a rapid and dramatic transformation like no other city on Earth. From humble beginnings as a desert city with an estimated population of 10,000 in 1900, it has burgeoned into a mega-city, with a population of over 2.1 million people and between 8-10 million annual visitors. UAE Vision 2021, and the according National Agenda, aims to make the UAE one of the best countries in the world. In order to translate this vision into reality, its pillars have been mapped into six national priorities, which represent the key focus sectors of government action over the coming years. Te pillars are: a cohesive society and preserved identity; a safe, public and fair judiciary; a competitive knowledge economy; a first-rate education system; worldclass healthcare; and sustainable environment and infrastructure. Tese are supported by the UAE National Agenda, which includes a set of national indicators to measure performance outcomes in each of the priority areas, across the education, healthcare, economy, police and security, housing, infrastructure and government services sectors,Dubai is heading towards being one of the most sustainable cities in the world and it's moving faster towards this goal every day. Since he launched the UAE Green Growth Strategy in 2012 under the slogan "A Green Economy for Sustainable Development", Dubai has changed its course and has been moving with high speed towards a sustainable economic and social model. Within this development, Dubai Municipality has stated its mission to plan, develop and manage an excellent city that provides the essence of success and sustainable prosperity. Tis can be seen in so many areas of our nation's recent development, from the rationalisation and efficient use of resources, to energy and water consumption, social welfare and economic diversification, as outlined in the Dubai Plan 2021, which describes the future of Dubai in sustainable terms. Specific projects include the introduction of a zero waste to landfill strategy and the opening of several new recycling centres, as well as waste-to-energy projects whereby energy is generated from the incineration of waste. Te Green Building Regulations and Specifications have been implemented – a set of specifications and guidelines for regulating the criteria of structures that allows for efficiencies in the consumption of electricity, water and renewable energy as part of the Green Buildings project – and in the move towards becoming a smart city, 450 e-services have been instituted. Initiatives such as the Mohammed Bin Rashid Al Maktoum Solar Park are examples of how serious Dubai is in terms of energy-mix diversification, with the goals outlined in the Dubai Integrated Energy Strategy 2030 (DIES), which was deployed in 2011 to set the strategic direction of Dubai towards securing sustainable supply of energy and enhancing demand efficiency of water, power and fuel. Further, a robust legislative

framework is being developed to encourage energy-efficient behaviour and community-oriented initiatives are ensuring this is an Emirate-wide effort. In addition, Dubai is providing leadership within the region for a long-term push toward economic diversification, primarily through tourism, international finance, trade, and alternative energy endeavours.

3.1. Dubai Municipality Origin And Development

Dubai Municipality is one of the many departments under the Government of Dubai. Te department has a long history, stretching back to 1957, with a major restructure in 1980 that institutionalised the Municipal Council by appointing 32 members headed by H.H. Sheikh Hamdan bin Rashid Al Maktoum the Deputy Ruler of Dubai and Minister of Finance of the UAE, who remains the Chairman today. Te Municipality's operations are headed by H.E. Eng. Hussain Nasser Lootah, who was appointed Acting Director General in February 2006 and Director General in January 2009. He has been supported by the Deputy Director-General, Mr. Essa Al Maidoor, since 2012.

Table- 1 members headed- Dubai Municipality

1954 – 1957	**Mr. Abdullah bin Jumaan**
1957 – 1961	Mr. Ali Al Bustani
1961 – 1985	Mr. Kamal Hamza
1985 – 2006	Mr. Qassim Sultan
2008 – 2016	Eng. Hussain Nasser Lootah

Source: https://www.cda.gov.ae/

the Municipality employs over 11,000 people working in 32 departments under six sectors, each headed by an Assistant Director General. Tis comprehensive organization has been a major driver of Dubai's phenomenal development over the last 50 years. It manages aspects of urban planning, development and management, touching the lives of all of Dubai's resident(https://www.dm.gov.ae/) .

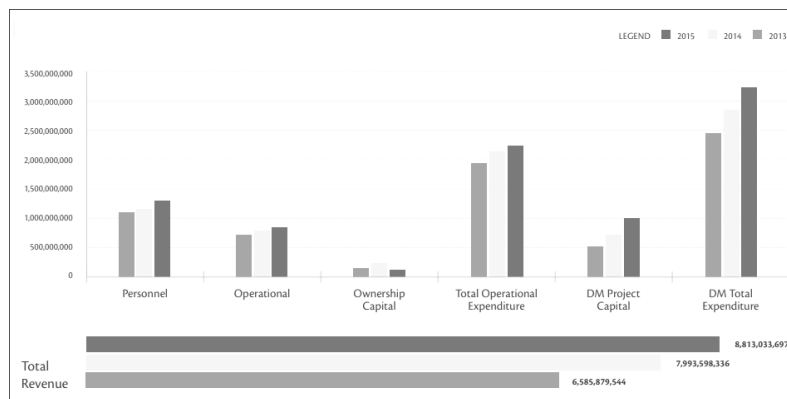## 3.2.Dubai Municipality's Strategic Sustainable Development Goals

Following in the footsteps of the Dubai Government, Dubai Municipality recognizes that environmental issues must be integrated with economic development in order for the Emirate of Dubai to prosper and meet the needs of the population, without compromising the ability of future generations to meet their own needs. To this end, the Municipality has developed a set of 14 strategic sustainable development goals, to guide future development and support the Government's overarching vision. Dubai Municipality is committed to achieving concrete outcomes in sustainability terms, ensuring the Emirate is a clean, green and economically successful place to live and work.

1. Study, revise and evaluate sustainability policies in the Emirate of Dubai relevant to buildings cities, green hotels, green economy and others.

2. Develop and update the Municipality s strategic vision of sustainability, ensuring its integration with the strategic plan of Dubai, continue applying it and resolve all problems and obstacles

3. Identify all problems and solutions that come in the way of applying green building standards and the continuity of application.

4. Set rules, regulations and standards specific to the certification of compliance to green buildings in the Emirate of Dubai, according to the green buildings standards.

5. Prepare a media plan to raise awareness about the adopted policies in the Municipality related to sustainability and highlight its importance in the preservation of national income, public health and the environment ensuring the continuity of its application.

6. Establish the necessary mechanisms to evaluate the current buildings in the Emirate of Dubai and the extent of its realization of the sustainability standards and following up on the application procedures of those mechanisms with the concerned parties.

7. Suggest, coordinate and revise sustainability specific studies and research and the development of necessary programmers and plans to certify publish and apply the resulting recommendations in coordination with the concerned parties.

8. Supervise the execution and development of awareness training and capacity-building programmers for Municipality employees and the public in the field of sustainability

9. Supervise the development and organization of internal and external sustainability policies related to conferences and events in coordination with the Municipality s specialized organization departments.

10. Suggest and establish compatible programmers to motivate the public and private sector to apply sustainability policies.

11. Suggest the necessary mechanisms to achieve complete collaboration and coordination between all of the ministries, departments and entities at the Emirate, federal and international levels, in regard to sustainability policies

12. Specify the necessary equipment, tools and qualified cadets required for establishing an applicable sustainability strategy by the concerned departments in the Municipality

13. Work on management of the Dubai Green Economy Partnership in the Municipality and coordinate with all concerned stakeholders

14. Encourage partnership between the public and private sectors and identify partnership development projects that contribute to the Municipality s sustainability strategy

3.3.Analysis-of-Sustainable-Growth-and-Sustainable-Development Dubai Municipality

None of these projects could be successful without an accompanying legislative framework, and DM is progressively developing relevant legislation and updating existing legislation to ensure success. Trough Dubai Municipality's Sustainability Indicators, highlighted in the Strategic Plan 2013-2015, data is available on DM's internal economic performance. Tis can be seen in the following graphs, illustrating expenditure and revenues

Fig 1 Plan 2013-2015, expenditure and revenues

Source : https://www.dm.gov.ae/

3.3.1 A Sustainable Society

Dubai Municipality (DM) continues to work on a number of initiatives to reach the community, as well as making a contribution to Dubai's ambitions towards becoming a smart sustainable city. Societal development is vital in ensuring community longevity and engaging citizens on relevant issues and incorporating the diverse interests and cultures of the community in the development process to help foster a vibrant, coherent, sustainable nation. Tis ranges from DM s efforts in the restoration of historic buildings and souks to the Frame Dubai initiative, which aims to bridge the past and present through an architectural landmark. DM has initiated a number of projects to enhance public spaces and parks such as the redevelopment of Al Khazzan Park as a zero-energy park and propagating the importance of wetlands in conserving biological diversity.

3.3.2 A Sustainable Environment

Dubai Municipality (DM) has had a focus on the environment for a long time, understanding the necessity of preserving a healthy environment to allow future generations to reach prosperity. On a broad scale, our entire life support system is dependent on the wellbeing of the planet and at the individual level, a healthy environment contributes to a healthy life, which in turn contributes to the health of a nation. Within the environment sector, DM works on a variety of initiatives to reduce emissions and improve the overall environment, as well as contributing to Dubai's ambitions towards becoming a smart, sustainable city Tis chapter outlines many of these

initiatives, particularly focusing on green buildings, waste and waste water treatment DM s projects in green buildings include a partnership with Philips to transfer 262 municipality buildings to LED lighting and the Dubai Green Malls initiative supporting retail outlets in achieving environmental sustainability. In addition, specific buildings, such as Sheikh Hamdan Sports Complex and Al Fahidi Souk have been developed as examples of efficiency. Much work has gone into developing energy-efficiency guidelines for retrofitting existing buildings and Dubai Central Laboratory has been researching and evaluating green building material, coinciding with a study into environmentally friendly concrete In terms of waste DM has developed a waste-management strategy, which also allows for waste-water reuse and initiated appropriate irrigation systems Additionally, bio-trickling odour treatment systems have been installed in Dubai's sewage treatment plants to increase efficiency and reduce operating costs. Other environmental initiatives include developing an integrated management plan for wildlife and protected areas putting an air quality strategy in place to help DM achieve its clean-air goals; and completing the 2014 Industrial Emission Inventory across the Emirate to provide an updated emission profile for industries and support formulation of directives for regulated industries, aiming to monitor and reduce emissions in the long-term.

3.3.3 A Sustainable Economy

Dubai Municipality (DM) has a number of economic targets, both internal and external, in regards to building a strong community and Emirate. DM is constantly seeking to improve the way things are produced and distributed, in recognition that trade and business are vital for stability and contribute to low crime levels and cultural, scientific and technological progress. Economic stability is thus essential in ensuring a prosperous, and happy society. Within the economy sector, Dubai Municipality works on a number of initiatives to reach the community and achieve economic targets, as well as bolstering Dubai's ambitions of being a smart sustainable city. , including the Dubai Green Economy Partnership (Dubai GEP), Demand-Side Management Strategy, E-Servicing, Private Sector Investment and Legislation Procedures. Te Dubai GEP highlights the role of innovation in the green economy, aiming to encourage investment in the latest clean technologies, innovative business practices and government policies to help reduce the carbon footprint and assist in establishing Dubai as a green economy hub. DM projects in this area include initiatives on green concrete and a 3D software platform that allows for an easy understanding of green building regulations. Beyond clean technology, private sector investment is an important component of the economy in a broader sense, and DM has developed a number of strategies to encourage significant private-sector investment to contribute to the nation's economic health. DM also recognizes that it is important to modify consumer demand for energy through various methods such as financial incentives and behavioral change through education. Demand-Side Management initiatives include the application of waste-to-energy technology and reducing waste overall, in line with the objectives of the National Agenda 2021. Ref In the move towards smart-city status, DM has also been developing e-services. Tese portals are designed to bring the services and information of government entities under one umbrella, with the aim of providing quick and easy access to the service seeker. It's all about developing the mechanism to provide government services through innovative channels in a customer-centric manner, with hundreds of DM services now online and thousands of registered users utilizing these services. (https://www.dm.gov.ae/).

Conclusion

SD has attracted much attention in the academic, governance, planning and development intervention space. A wide range of governmental and non-governmental entities appear to have embraced it as an appropriate development paradigm. This is because most, if not all proponents and advocates of the paradigm, virtually seem to concur that the challenges confronting humankind today such as climate change, depletion of ozone layer, water scarcity, loss of vegetation, inequality, insecurity, hunger, deprivation and poverty can be addressed by adhering to the tenets and principles of SD. The ultimate aim of SD is to achieve a balance among environmental, economic and social sustainability, thus, making these the pillars on which SD rests. While not assuming a definitive posture, sustainability of society can be said to depend on the availability of proper health systems, peace and respect for human rights, decent work, gender equality, quality education and rule of law. Sustainability of economy, on the other hand, depends on adoption of appropriate production, distribution and consumption while sustainability of the environment is driven by proper physical planning and land use as well as conservation of ecology or biodiversity.

Reference

1. Barbier E.B. (1987): The Concept of Sustainable Economic Development. Environmental Conservation, 14, 2, 101-110.
2. Banuri Tariq (1999): Sustainable Development and Climate Change, Policy Matters No.4, Newsletter of the IUCN Commission on Environmental, Economic and Social Policy (CEESP), CEESP Secretariat, IIED, London
3. Carew-Reid, Jeremy; Prescott-Allen, Robert, Bass, Stephen; and Dalal-Clayton, Barry. Strategies for National Sustainable Development: A Handbook for their Planning and Implementation. International Institute for Environment and Development (IIED), London, and World Conservation Union (IUCN), Gland, in association with Earthscan Publication, London. 1994
4. Carley M. and Christie I. Managing Sustainable Development, London: Earthscan. 1992
5. DFID (1999): DFID and the International Development Target. National Strategies for Sustainable Development, Key Sheets, Issue No.1, Department for International Development, London
6. The Ecologist (1972). A Blueprint for Survival. The Ecologist, 2,1 (January)
7. Ehrlich P (1971): How to Be a Survivor: A Plan to Save Spaceship Earth. Ballantine Books, London
8. Holmberg, Johan; Bass, Stephen; and Timberlake, Lloyd. Defending The Future: A Guide to Sustainable Development. IIED/Earthscan, London. 1991.
9. Holmberg, Johan (ed.). Policies for a Small Planet, Earthscan, London. 1992
10. IUCN/UNEP/WWF (1980): The World Conservation Strategy: Living Resource Conservation for Sustainable Development. International Union for Conservation of Nature (IUCN), United Nations Environment Programme (UNEP) and World Wide Fund for Nature (WWF), Gland, Switzerland
11. IUCN/WWF/UNEP. Caring for the Earth: A Strategy for Sustainable Living. The World Conservation Union (IUCN), Worldwide Fund for Nature (WWF), and United Nations Environment Program (UNEP), Gland, Switzerland. 1991.

12. Kirkby J., O'Keefe P. & Timberlake L. (Eds). The Earthscan Reader in Sustainable Development. Earthscan Publications Ltd., London. 1995.
13. Meadows D. et al. (1972): The Limits of Growth, Club of Rome/MIT Press.
14. Mitlin D (1992); Sustainable Development: A Guide to the Literature. Environment and Urbanization, 4,1, 111-124, IIED, London
15. Pearce D., Barbier E. and Markandya A. (1990): Sustainable Development: Economics and Environment in the Third World. Edward Elgar Publishing/Earthscan Publications.
16. Pezzey J. (1989): Economic Analysis of Sustainable Growth and Sustainable Development, Environment Department Working Paper No.15, World Bank, Washington D.C.
17. Rees W.F. (1989): Defining "Sustainable Development", CHS Research Bulletin, University of British Colombia (May)

18. Reid D. Sustainable Development: An Introductory Guide. Earthscan Publications Ltd., London. 1995.
19. Schumacher E.F. (1974): Small is Beautiful: A Study of Economics as if People Mattered. Abacus, London
20. UNCED. Agenda 21. United Nations Conference on Environment and Development (UNCED), United Nations General Assembly, New York. 1992.
21. Ward, Barbara; and Dubos, Rene. Only One Earth - The Care and Maintenance of a Small Planet, Deutsch, London. 1972.
22. WCED. Our Common Future, Report of the World Commission on Environment and Development. Oxford University Press, Oxford, England. 1988.