

Capital Theory and Sustainable Development

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Abstract

The concept of sustainable development has evolved a long way from its initial concerns of 'ecological sustainability'. The sustainable development agenda respectably requires an integrated strategy which embraces and incorporate 'economic sustainability', 'social sustainability' and 'cultural sustainability'.

From a capital perspective, sustainable development can be defined as environmental protection, economic growth, cultural identity and social well-being. The latter integrates efficient use of resources that yield valuable goods and services, investments, equity, social mobility, freedom of expression, cultural diversity, spiritual values and social cohesion through participation and empowerment. Protecting and promoting ecological, economic, social and cultural capital affects the socio-economic climate of a given environment. The synergy between the four pillars is rather major approach towards sustainable development. Indeed, approaching sustainable development from this perspective argues that the fulfilment of human needs can only be reachable through, the simultaneous development and intervention of economic drivers, human and community capacity and cultural values and conservation of the earth's natural systems.

This paper provides a comprehensive overview of current perceptive of sustainable development, and present the main proposition of the concept through identify the key capitals where each one has its influence and demands, and shows how they contribute to sustainable development theory. Criteria for weak and strong sustainability are considered, based on which capital character is a main driver for sustainability. Further, this paper also discussed the notion of widespread use of existing indicators as a sole barometer of well-being and addressed the advantages and disadvantages of adopting them in a system. It is become obvious that existing indicators designed to evaluate individual component of capitals rather than assessing a holistic conceptualisation of sustainable and therefore different measures has to be developed. The challenge is to accumulate alternative sets of indicators that capture all the essential capitals of sustainable development to provide a holistic framework to any empirical application of human activities. This paper focus on sustainable development debate through a review and synthesis of the relevant literature.

Keywords: Cultural values, economic capital, natural capital, social capital.

1 Introduction

The sustainable development concept has been defined and progressed from different schools of thought and has been expanded widespread use in a variety of domains ranging from environmentalists to economists to anthropologists. A review of the literature demonstrates that there are many different ways of defining sustainable development term, depending on the context and the questions being addressed (Gann, 2003). Sustainable development as a theory, as a goal, and as an aspiration broaden rapidly, is now essential requirement and central to the mission of many international organisations, national government, and locales institutions.

Sustainable development was originally introduced as a means of integrating ecological capital into long-term development strategies. More specifically, the ecological sustainability of development activity referred to the activity that acknowledges resources limits and the need to maintain essential ecological processes. This work broadened the environmental sustainable concept to include natural capital and maintenance. The interdependence of those two main phenomena (limited resources and depleting those natural resources in economic projects) made it necessary for managing the interaction between the economic development and environmental conditions. This interdependence led to the integration of economic capital into sustainable development debate, which refers to the ability of ecological capital and economic capital to maintain or improve quality of life in a sustainable fashion.

The publication in 1987 of *Our Common Future*, “the Brundtland Commission” drew attention to the moral principle of achieving equity between inter and intra-generation using the same aspects to meet their aspirations, defined as “*development that meets the needs of the present without compromising the ability of future generations to meet their own needs*” (WCED, 1987:43). At this stage, the strong social (sometimes - called moral) underpinning based on ethical obligation to future generations began to be emphasised. However, addressing inter and intra-generational equity requires an explicit clarification of the equity objective being sought. The basic equity objective of development is to create an enabling environment for people to have a decent standard of living, long and healthy life, to be educated and to participate in the events and processes that shape their lives. Incorporating equity into sustainable development envisions that people equally share in environmental, economic and social benefits. This view was supported particularly by the Human Development Reports in the detailed contents of the editions published in 1990 and 1993.

Culture in this evolving concept was firmly placed on the international agenda when the Director General of UNESCO, Federico Mayor, and the Secretary-General of the United Nations, Boutros Ghali, established a World Commission for Culture and Development in 1992. In 1995, the Commission published the report “*Our Creative Diversity*”, the main principle of the report was to consider culture as the basis for all development. Its aim was to rethink the process of development that includes a range of new issues such as the rights of women and children, the recognition of indigenous peoples, identity, religion and the preservation of the world’s cultural heritage, taking into account general proposals by the United Nations Development Program and other International organisations for a broad concept of human welfare as the aim of development to replace the more limited focus on economic growth only. The World Commission on Culture and Development concerning the importance of cultural capital was given significance at the International Conference on Cultural Policies for Development, held in Stockholm in 1998, when the 149 governments represented agreed to make cultural principle one of the key components of sustainable development framework. Opportunities to recognise the linkages between socio-economic development and local cultural context appear to be integrated into sustainable development agenda (Throsby, 2005), which is indeed the primary determinant in shaping and guiding the human response to the natural, economic and social capital.

Major international meetings followed the report, most recently World Culture Report 2000, "Cultural Diversity, Conflict and Pluralism". The report focuses on cultural diversity and on culture as the source of social and economic development. The Report argued that a development action that which is not grounded in the prevailing character of the local context and is not exist as a sphere separate from human activities, ambitions, aspirations, needs, wants and attempts to defend it in isolation from human concerns have given the especially word "environment". The Report articulated that the word "development" has been pointed into a very limited focus, at the level of "what poor nations should do to become richer." However, the "environment" is where we live; and "development" is what we all do in attempting to improve our lot within that context. This local context is important for understanding the choice that individuals and groups make, and enable social network of actors to make sense of common values and norms.

In 2002, the commitment was reconfirmed at the World Summit on sustainable development in Johannesburg, to draw attention on the need to take a holistic picture of the development process, bringing the cultural capital as well as ecological, economic and social elements within a sustainable development agenda. The Johannesburg Plan of Implementation also promotes further work on the development of indicators of sustainable development at the national level.

Among the diversity of definitions and interpretations there is a general view that sustainable development is only achievable if there is an understanding and willing between social network of actors to put into action the objectives of socio-economic development. The evolution of the sustainable development theory and its historical background is displayed in the following paragraphs.

2 The role of Capital in Sustainable Development

In 1980s, the initial conceptualisation of sustainable development adopted a myopic ecological focus, describing the impact of human activity and the management of land, the exploitative use of renewable energy and pollution, particularly in developed industrial countries (Throsby, 2008 and Nurse, 2006). The prevailing argument was that ecological capital should remain intact if possible. Ecological capital is seen to consist of two broad types of natural capital. The first type is renewable or active natural capital is self-maintaining due to its ability to exploit solar energy, which can be harvested to yield and maintain ecosystem goods (for example, food, seafood, soft wood) which can also yield a flow of services (for example, recycling of wastes, cleansing water and air, maintaining soils and storing essential nutrients) (Voora, and Venema, 2008, Ayres *et al.*, 1996). The second type is non-renewable or inactive natural capital; fossil fuels and mineral resources are the most commonly encountered examples. Non-renewable natural capital does not generally yield a service until extracted (Harte, 1995). Pearce and Atkinson, (1993) also define natural capital as the quality of the resources, for denoting public policy as well as private assets such as housings, roads, bridges, airports, schools, hospitals, factories, computers, software, and transportation equipment. Goodland and Daly, (1996:1005) define environmental capital and sustainability as "*The stock of environmentally provided assets, such as (soil, atmosphere, forests, water, and wet-lands) that provides a flow of useful goods and services, sustainability means maintaining environmental assets or at least not depleting them.*"

Ecological sustainable development is defined also by Ibid, (Eds: 19) as: "*A condition in which society's use of renewable resource takes place without destruction of the resource or the environmental context which they are required.*" This definition points that ecological capital has a desirable impact on the welfare of a society and is not eroded to the point of harming the welfare

of intergeneration. The environmental sustainable concept takes the portion of natural stock only (see Figure 1.), which is measured as “*a capital that yields a flow of valuable goods and services into the future*” (Daly and Costanza 1992: 38).

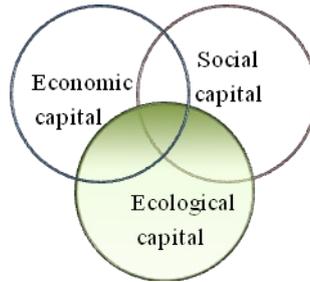


Figure 1. Ecologically sustainable development model

More specifically, the ecological sustainability of a development activity refers to activity that acknowledges resources limits and the need to maintain essential ecological processes. This work broadened the theory to include ‘carrying capacity of natural capital and maintenance.’ It has been recognised that ecological sustainability emerged from an awareness of two main phenomenon: **1.** the stock of existing natural resources is limited; and, **2.** the process of economic development depletes those natural resources (Dubois *et al.*, 2002). The interdependence of those two phenomenon make it necessary for balancing the interaction between the economic development and environmental dimension to be able to fulfil current generational needs without sacrificing the needs of future generations (UNDP, 2002). This learning led to an explicit integration of economic capital dimension into the sustainable development debate.

The idea of sustainable development then extended into the realm of economics, which refers to the ability of ecological capital and economic capital to maintain or improve human welfare (see Figure 2.). The management of ecological capital as well as economic capital became a common theme (see Victor, 1991, Pearce and Atkinson, 1993, Pearce *et al.*, 1994, Klassen, 1991, Hediger, 2000, and Gutes, 1996).

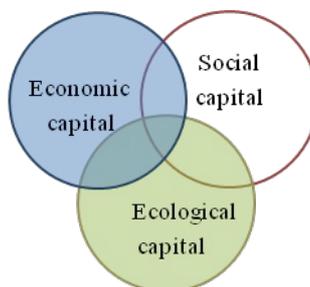


Figure 2. Economically and ecologically sustainable development model

The first efforts in this direction defined ‘capital’ from an economic perspective. Economic capital means physical assets that are used in association with labour and other inputs to produce

goods (for example, houses) and services (for example maintenance of houses) (Daly and Cobb, 1990). Victor, (1991:193) defined economic capital, from the point of view of neoclassical economic theory, as: *“Anything which yields a flow of productive services over time and which is subject to control in production processes.”* Neoclassical theory assumes that economic capital is maximised when all opportunities to increase the efficiency of resource are made in conditions of full employment. Victor, (1991:196) summarised the neoclassical approach in the observation that: *“A key insight of the neoclassical approach is the sustained economic activity depends on the degree of substitution between the productive inputs from which economic output is obtained.”*

However, there are other schools of thought, which argue that the neoclassical approach of substituting capitals to maximise development is in practice not valid (Ayres *et al*, 1996). Daly and Costanza (1992:15) stressed, for example, that *“it should be obvious that economic capital of fishing nets, refineries, saw mills, and human capital skill to run them does not substitute for, and would in fact be worthless without, the natural of fish population, petroleum deposits, and forests.”* Simon, (2003:4) also argues *“ecological capital is needed to make economic capital and, beside, ecological capital fulfils other economic functions, including basic life support that economic capital cannot fulfil.”* Daly and Costanza, (1992) and Daly, (2001) support this argument through articulating that ecological capital and economic capital are not substitutions, rather, they are complementary capitals. Sexton, (2000) goes on to argue that the neoclassical approach generates a market that consumes and substitutes ecological capital for human benefit, and this undesirable interaction has become a major contributor to current environmental problem, because the neoclassical framework treats nature as an infinite sink of physical resources (i.e. raw materials, energy, soil and air) to be used for maximising human benefit. Nevertheless, in economic terms, sustainable development requires maintaining natural capital as a provider of economic inputs and as an absorber of economic outputs, including wastes (Chiu, 2004). The aim of the economic sustainability, therefore, is that a certain level of present consumption to avoid extreme sectoral imbalances which damage agricultural or industrial production (Harris, 2000), or welfare per capita, has to be maintained for future generations.

The discussion on evolution of the sustainable development concept has revealed its environmental and economic roots. At this stage, the strong social (sometimes-called moral) underpinning based on ethical obligation to future generations began to be emphasised (Baines and Morgan, 2005). However, addressing inter and intra-generational equity requires a clarification of the equity objectives being sought.

Social capital defined as the product of inherited morals and ethics of behaviour, common identities, rules, trust, knowledge, understandings and a common sense of civic responsibility (Dasgupta, 2002, Woolcock and Maryann, 2000, Rudd, 2000 and Bynner, 2002). OECD, (2001:41) also defined social capital as the *“networks, together with shared norms, values and understandings that facilitate cooperation within or among groups.”* Social capital provides multiple networks of actors embedded in social relationships in the form of sanction, dedication, authority, skills, and experience by learning, education, and training (GOSD, 2002). The networks of actors' function are to facilitate certain action of individuals within a given social structure (Coleman, 1990). However, in the majority of literature this definition is called human capital. The definition of human capital is: *“the knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being”* (OECD, 2001: 18). The meaning of human capital was supported particularly by the UNDP's Human Development Reports, which began publication in 1991 (see for example Throsby, 2008; Gates and Lee, 2007; Hasegawa, 2001 and Chiesura, and DeGroot, 2003).

The debate concerning the meaning of the two capitals is firmly presented by Schuller, (Eds) and OECD, (2008) as following: Human capital focuses on the economic behaviour of individuals, especially on the way their accumulation of knowledge and skills enables them to increase their productivity and their income of the societies they live in. The underlying implication of a human capital perspective is that investment in knowledge and skills brings economic development, individually and collectively. Social capital focuses on networks of actors: the relationships within and between them, and the norms, which govern these relationships. Social capital has strong normative proposition, implying that trusting relationships are good for social cohesion and for economic success.

Social capital thus predominantly enables individuals and groups to develop collective aspirations in existing relationships rather than individuals, and it is a human and community capacity resource that can generate a stream of benefits for society. In terms of individual capacity refers to the attributes and resources that individuals can contribute to their own well-being and to the well-being of the community as a whole. Such resources include education, skills, knowledge, health, and leadership. Community capacity is defined as the relationships, networks of actors that facilitate a certain action to elevate quality of life and to ensure that development is sustainable.

Social sustainability defined as a system enhancing condition within communities. This system aims to achieve a fair degree of social homogeneity and justice equity. Equity means when individuals have access to sufficient social services (including health, education, transport, housing and recreation); and have a degree of equality and equity in the outcomes of social-economic development, and meeting basic needs through an employment that allows the creation of decent livelihoods - stronger patterns of civic loyalty and more robust productivity. Promoting fairness of redistribution of income among communities as well facilitates participation and collaboration (Gates and Lee, 2007, Partridge, 2005, and Partridge, 2005). Hence, incorporating equity into sustainable development envisions that people equally share in environmental, economic and social benefits (see Figure 3.).

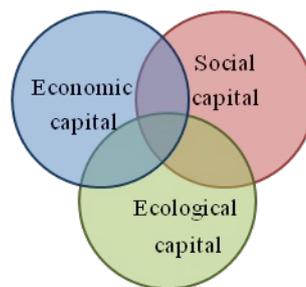


Figure 3. Socially, economically and ecologically sustainable development model

The balance between those three dimensions determines the degree to which the sustainable development trajectory is 'very weak' or 'very strong' (Holden, 2007). Very weak sustainability or the 'Hartwick -Solow model' derives originally from the work of the economists Solow and Hartwick (Throsby, 2005). They investigated the question of investing the rents from exhaustible resources within the context of intergenerational equity. The principle of very weak sustainability

is grounded in the requirement of the obligation to maintain economic capital intact. They argued that intergenerational equity requires that for each generation the utility of consumption, per capita must remain constant over time (Hartwick, 1978 and Solow, 1986). In other words, the depletion of natural resources must be taken into account in the valuation of economic activity; Weak sustainability is defined as the value of the aggregated of total capital (economic and natural capital) and social capital. The objective of weak sustainability is to maintain social capital, with respect to the total capital (Pearce *et al.*, 1994). Indeed, it is a more reasonable proposition, because it is functionally indistinguishable from the economists' mission of maximising social capital (Pearce *et al.*, 1989); Strong sustainability is defined as the maintenance of the existing stock of ecological capital (Simon, 2003). The objective of strong sustainability is to maintain the aggregation of ecological assets over time (Guellec and Potterie, 2003). The reason for adopting this view is that natural capital cannot be reconstructed once social activity has destroyed it. The destruction of biodiversity for example, is a loss of natural capital that cannot be reversed and even climate change could result in ecosystem damage that is irreversible (Throsby, 2005) and; Very strong sustainability is underpinned by the stationary-state principle which requires limiting human scale (zero population growth and zero economic growth) (Kerschner, 2008). This interpretation calls for the separate maintenance of each component of ecological capital, and it is a steady system rather than economic concept (Nicholas, 1999). The key principles of these views of sustainable development are summarised in Table 1.

Table 1. Different components of capital and sustainable indicators

Very weak sustainability	Respect to economic capital
Weak sustainability	Respect to social, economic and ecological capitals
Strong sustainability	Respect to ecological capital
Very strong sustainability	A steady - state world system

The debate concerning sustainable development has been traditionally dominated by concerns to do with the social benefits and the impacts of economic strategy on rivers, oceans, forests, methods of agriculture and power generation and consumption of goods and finite material resources. Then, the sustainable development theory was expanded and broadened, and more fields integrated into sustainable development agenda, such as a culture, which is indeed the primary determinant in shaping and guiding the human response to the natural, economic and social environment (Bryant and Beanhan, 2003). Ecological, economical and social capitals were not the only realms in which seemingly natural values need to be taken into consideration by environmentalists and economists. Anthropologists also have managed to describe how nations, communities and tribes value their cultures (Dasgupta, 2002). The sustainable development concept hence was expanded to include cultural capital as well as economic, ecological and social elements (Throsby, 2008 and Throsby, 2005).

Holden, (2004:18-19) has shown concern that the fundamental way to value the contribution of culture to socio-economic development is not being adequately recognised: *"I know that culture make a contribution to strong communities, to the nation's well being, but I do not know how to evaluate it or describe it. We have to find a language and a way of describing its worth. It is the only way we well secure the greater support we need."*

However, culture is defined as a pattern of beliefs and attitudes shared by individuals. These beliefs produce identity, common values, preferences, rules and norm that effectively shape the behaviour of individuals and collectives in a society. Culture is a 'treasure' of ideas (whether

education, work, belief systems, society, family, language and communications, justice, law) and the relationships between people and the constructed and natural world (Marsio, 2007; Bryant and Beanhan, 2003) that are inherited from generation to generation within a specific sphere of life.

The concept of culture is too broad and is not a single object but it is a concept, which refers to countless aspects of life (Rapoport, 2001). In the literature, the cultural capital concept covers two general aspects; intangible and tangible forms. The former consists of two perspectives. The first aspect is artistic or aesthetic perspectives such as art, customs, music, songs, dances, colour, clothing, ceremonies, food, popular culture and the performing arts (Marsio, 2007; Torjman, and Minns, 2001). The second aspect refers to the ideological perspective, which includes the maturity of knowledge; spiritual values; and aspects of belief and religion (Hoecklin, 1995 and Hofsteda, 1991). In the literature of anthropology and material culture, two perspectives are known as cultural values (Holden, 2004). In tangible form, cultural capital may exist as buildings, locations, artworks and artefacts (Throsby, 2005). These 'intangible' cultural values need to be captured and reflected within the tangible form of social-economic development.

Cultural values bridge the gap, where the historical principles open between the past and the present by creating a new community which is faithful to the traditions in forming a contemporary environment which supports the inspiration of the inherited cultural heritage (emphasise added Eldemey, 2002).

Cultural sustainability aims to attain a balance between respect for tradition and modernisation, and independence and self-confidence (Marsio, 2007 and Koning, 2001). Learning from cultural heritage and historical principles is an important element of understanding how can live in the present and future. Nurse, (2006) suggested number of principles to be taken into consideration in socio-economic plan as following:

- involve individuals in decision-making to preserve their cultural heritage, including identifying what deserves protection;
- improve the management of cultural and natural heritage sites and ensure the accessibility of such heritage to all and its cost-effective maintenance;
- develop partnerships between governments and civil society for sustainable heritage management;
- develop program to record traditional knowledge and preserve traditional cultural values;
- transmit traditional community values and associated local and indigenous knowledge in basic education and;
- record and document indigenous languages as a means to support their systematic incorporation into school curricula and encourage publishing in indigenous languages.

Cultural sustainability has developed a language to consider the value of the 'domestic environment' that goes further than considerations of short-term social and economic benefit (Hooper, 2005 and Holden, 2004). Nurse, (2006) and Kohler, (2003:88) articulate that sustainability is a multi-dimensional concept and that an overemphasis on one aspect would degrade the importance of other aspects of sustainable development. Further, they claimed that sustainable development concept is completed by considering and integrating a fourth cultural capital component (see Figure 4).

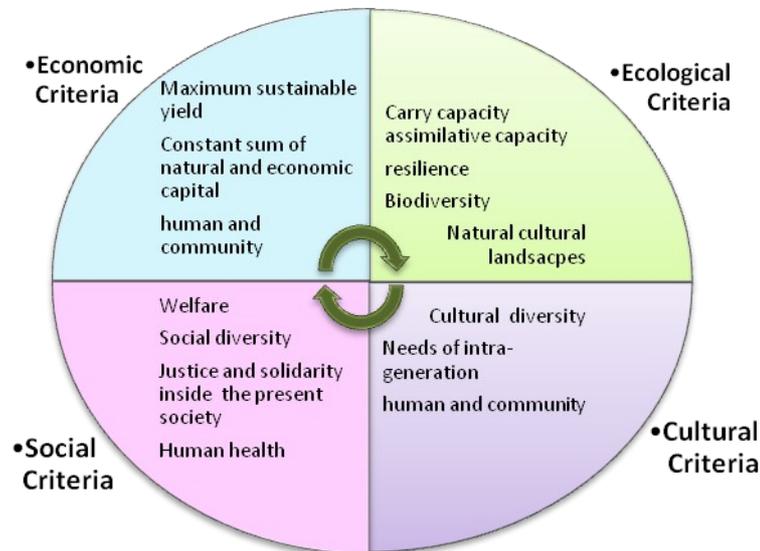


Figure 4. Culturally, socially, economically and ecologically sustainable development model

Indeed, approaching sustainable development from this perspective argues that the fulfilment of human needs can only be reached through, the simultaneous development and intervention of economic, social and cultural capitals and conservation of the earth's natural systems. Flow of benefits of sustainable development with respect of four capitals is summarised in Table 2.

Table 2. Capitals, stock and flow of benefits for sustainable development

Type of Capital	Stock	Flow of Benefits	Sustainable Development Aspects
Ecological (Natural)	Quality/ quantity of soil, sea, air, land, etc.	Energy, food, water, waste, disposal, etc.	Ecological capital fulfils other economic functions, including basic life support; it is multifunctional to an extent not shared by economic capital.
Economic (Manmade)	Quality/ quantity of currency, buildings, materials, infrastructure, etc.	Work, living, owing, leisure, places, access, etc	Economic capital is not independent of natural capital. It is not always possible to substitute economic capital for natural capital. The latter is often needed to make the former.
Social (Ethical)	Quality/ quantity of government systems, demographic structure, institutions, knowledge, skill, etc.	Security, shared goods and income, decision make, relationship, integration, etc.	Social capital is the equitable sharing of the benefits distribution of development
Cultural (Thinking)	Quality/ quantity of beliefs, expectations, media, law, norms, languages, education, etc.	Conservative of cultural heritage, historical values, balance between tradition and modernisation cultural identity, etc.	Cultural capital is a pattern of beliefs and values shared by members of a society and the concept of sustainability is completed by counting it.

This section has discussed the historical background and evolution of the sustainable development concept. Recently, significant attempts have been made to incorporate the economic, social and cultural realm within the overall development process. This paper implement the argument that development that which is not grounded in the prevailing character of the local context will produce development that does not respect and reflect its context. Considering and integrating local culture is an essential requirement in the social-economic projects.

3 Sustainable Development Indicators

Sustainable development theory means providing a holistic framework for evaluating projects and for charting future directions of social-economic development (DePlessis *et al.*, 2001). Sustainable development indicators have been traditionally used to evaluate socio-economic development. Indicators have been used for several decades in order to provide immediate information on human activity such as:

1. Gross Domestic Product (GDP) to measure the overall income. GDP is calculated on the basis of the value of final goods and services produced in the demotic economy (Anielski *et al.*, 2000) and it indicates an increase in welfare (Ibid: 24).
2. Genuine Progress Indicator (GPI) starts with the same accounting framework as the GDP, however it makes some crucial distinctions: it adds in the economic contribution of families, communities and of the natural habitat, but takes off factors such as crime, pollution, and family collapse (Segnestam, 2002).

There are several disadvantages of the use of GDP and GPI as a measure of welfare: the GDP and GPI are both measured in financial terms; they are average measures that do not consider how income or wealth is distributed within the population. A country may have a high GDP per capita and be classified as 'rich' and yet there may be a high proportion of people who are poor; they ignore change in population and the productivity of human capital; they are a flow concept (measure the flows of goods and services) and does not declare anything about the natural resources. Thus, they do not provide an adequate guide about how resources are being managed; and, they do not distinguish between different types of goods. GDP and GPI can provide a mistaken picture of welfare and economic progress. Therefore, any long-term development plans based on such statistics may not be sustainable.

3. Human Development Index (HDI) is a process of increasing choices. Every day human beings make a series of choices- some economic, some social, some political, some cultural. If people are the proper focus of development efforts, then these efforts should be geared to enhancing the range of choices in all areas of human endeavours for every human being (Ibid, 1995).

However, there are several disadvantages of using HDI (UNDP, 2008):

- it focus on three basic dimensions (life expectancy at birth, adult literacy rate and real GDP per capita), certainly means that it cannot take into account a number of other dimensions of human development;
- it cannot measure short-term human development achievements;

- it is an average measure and thus makes a series of differences and inequalities within counties; and,
 - income enters into the HDI not in its own right but as substitute for resources needed to have a decent standard of living. The HDI has a limited scope. It cannot provide a complete picture of human development in any given situation, and the HDI does not capture the rich content of the human development concept (UNDP, 2002).
4. Ecological Footprint (EF) is an accounting tool to measure how much nature a given population or country is using. The measurement is in land units and is made on the assumption that each human activity uses resources and has waste flows, and that this forms an indirect way of measuring sustainable development (Farsari and Prastacos, 2002). It measures consumption patterns and translates them in productive land units (see www.footprintnetwork.org). However, social-cultural aspects are indirectly reflected in the results while there are environmental issues such contamination, which are not included to provide a full picture of the state of the environment, therefore, it offers a good tool for global and national monitoring of aggregated basic results but when detailed information is needed to proceed to national and sector policies, more detailed information would be necessary (Barrett *et al.*, 2005).
 5. Index of Sustainable Economic Welfare (ISEW) proposed as an alternative measure of welfare changes and a better indication of economic progress than GDP and GPI (Jackson and Stymne, Eds). The calculation of ISEW begins with calculation of personal consumption expenditures, which are weighted with index of income inequality. Then, certain welfare relevant contribution such as services of household labour and the services of streets and highways are added. On the other hand, certain welfare relevant victims such environmental damage is taken away from the estimates (OECD, 2001 and OECD, 1998). The ISEW is supposed to measure sustainability. However, Neumayer, (1998), articulated that the distribution of income at any given point of time does not directly impose upon the capacity to provide future welfare because there is no a direct link between the distribution of income and sustainability. The personal income distribution can change quite dramatically over a course of two or three generations and the current income distribution is almost irrelevant for a representative member of a future generation who is likely to be more concerned about whether the current generation endeavor for sustainability than about the current income distribution.
 6. A Pressure-State-Response indicator framework was a dominated conceptual model for sustainable development in 1991 and was considered adequately generic and simple to be readily for a different range of decision-making (OCED, 1993). The PSR indicators measure sustainable development performance, which environmental and economic indicators are linked and included. It has been suggested as a method for addressing causal linkages within a system (Hardi, and Bartelmus, 2005); the *Pressure* variable describes the positive or negative effects of human activities that exert pressure on the given system. The causes can be an already existing or a new activities such as industry, transportation, agricultural, construction, investment, population growth, income growth, energy use, and consumption or poverty. The *Pressures* on the system were often considered as a starting point for tackling such issues. The *State* variable describes some physical measurable characteristic of the system that results from the pressure, for example, quality of housing, land deforestation, the levels of air pollution, and water availability. Indicators of *State* should be designed to be responsive to the pressures. The *Response* variable measure the actions taken by social networks of actors; communities and

individuals in response to the changes in the given system, for example, policies, actions or investments that are introduced to solve the problem. The response may include regulatory action, environmental or research expenditure, design quality consumer preference and changes in management strategies. However, a limitation of the PSR model has presented by Hardi, and Bartelmus, (2005) when they indicate that the model does not work if evidence for causal linkages is missing, and it is ambiguous as to whether the issue measured by an indicator represents a pressure or a state. In addition, there are multiple states arising from most pressures, and multiple responses for most states, creating difficulties in identifying sufficient indicators. This is the main reason why the PSR was abandoned in the UN (2001) indicator.

With traditional barometers of sustainable development, which combines ecosystem welfare and human well-being, it is easy to understand and to calculate an immediate simple to understand reflection of ecosystem and human well-being. Nevertheless, these methods have the disadvantage of aggregating unbalanced indicators for economic or environmental factors (Koning, 2001). Work has taken place to address these concerns. Frameworks to date written include these contexts:

1. Building Research Establishment Environmental Assessment Methods (BREEAM) this tool allows owners, designers and users of buildings to review and improve environmental performance through the life of a building. It is widely accepted and offers a variety of benefits (see www.products.bre.co.uk/breem2.htm, BREEAM).
2. Eco-Homes is an environmental assessment methodology for homes, with environmental performance expressed on scale of pass to excellent (Wain, 2003). It is targeted at new homes, including houses, apartments and sheltered accommodation. It rewards developers who improve environmental performance through good design, rather than high capital cost solution. Eco-Homes assessments can be carried out at the design stage, and considers the broad environmental concerns of climate change, resource use and impact on natural world, a safe and healthy environment. This enables developers to adopt the most appropriate aspects of sustainable development (see www.bre.co.uk).
3. Life Cycle Costing (LCC) and Life Cycle Analysis (LCA) are tools to evaluate the performance of a building including housing at any stages during its design and operation. LCC is a method for assessing economic implication of project alternatives and to select the design that ensures the facility will provide the lowest overall cost of ownership consistent of its quality and function (see www.wbdg.org/design). LCA is available to consider the environmental impact of whole construction process and has already produced some important results within the concrete industry (Parkin, 2000).

These frameworks have been argued to be useful in Khalfan (2002): representing sustainable development applications to planning authorities to assist in an even way through the planning process; demonstrating green license to investors to minimise investment risk and increase the application to ethical investors; demonstrating superior environmental design to users, resulting in: reducing running costs through greater energy and water efficiency, and reduced maintenance; creating healthy, comfortable and flexible internal environments; and, considering access to local amenities.

Farsari, and Prastacos, (2002), Khalfan, (2002) and Koning, (2001); claim that the methods discussed above however, have failed to address and measure the fourth indicator of sustainable

development: the cultural. Indeed, there is no unique framework that generates sets of indicators for every purpose.

It obvious that existing indicators designed to evaluate individual component of capitals rather than assessing a holistic conceptualisation of sustainable and therefore different measures has to be developed. The challenge is to accumulate alternative sets of indicators that capture all the essential capitals of sustainable development.

4 Conclusion

This research paper hopes to provide a theoretical background and evolution for the present debate on sustainable development. The sustainable development theory has evolved a long way from its initial narrow concern of 'ecological sustainability' (Nurse, 2006). It has been dominated by concerns to do with the social benefits and the impacts of economic policies on rivers, oceans, forests, methods of agriculture and power generation and consumption of goods and finite material resources. Then, the need to integrate cultural capital float on the surface, which is indeed the primary determinant in shaping and guiding the human response to the natural, economic and social environment. The sustainable development agenda now requires a synergetic strategy which embraces and incorporates 'environmental responsibility', 'economic capability', 'social equity' and 'cultural values'. It means providing a holistic framework for evaluating projects and for charting future directions of socio-economic development. The fundamental notion here is that sustainability is a multi-dimensional concept and that an overemphasis on one aspect would degrade the importance of others. The philosophy of sustainable development establishes a balance between those dimensions. It calls communities as well as individuals through certain guidance to elevate a sense of responsibility and awareness for a quality of life. The pressure to consider local environment is increasing worldwide. Performance outcomes of the inadequacy lot with which they are likely to be associated with the local environment will affect the citizens' satisfaction (Seaden, 2003). Indeed, it is crucial to evaluate the human activities from process performance in the all levels within the local context. The process of defining acceptable products should involve negotiation between the different networks of actors. In terms of the sustainable development indicators, notes that the existing indicators and their consequences on the environment were signal to the need to move human activities in more rational and reasonable fashion. Significant progress has been made in developing and testing such indicators on a pilot scale at the national levels, although widespread indices and methods on different sustainable development arena were presented to indicate what makes certain indicators more useful at particular levels of development processes. The challenge is to accumulate alternative sets of indicators that capture all the essential capitals of sustainable development.

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