

Sustainable development argumentative essay

[Technology](#), [Development](#)



Sustainable development is about human development where the use of natural resources aim to meet the needs of human beings while simultaneously ensuring that the environment is maintained. These needs must be met for present as well as for future generations. In other words, in order for human beings as well as the planet to survive, changes has to be made that will maintain the natural resources that is available. There is currently a trade-off between sustainability and economic growth due to an increase in globalization.

The demands of the global population far outweighs the available supply of natural resources thereby leading to mismanagement of resources e. G. : deforestation, air and water pollution, increase of slum dwellers etc. The aim of this essay is to discuss sustainable development by answering the following questions: " What is happening in the world today that the literature on sustainable development regards as unsustainable? " and " Is the South African response to the challenge of sustainable development, climate change and renewable energy appropriate? Or should more or less be done? In order to answer the above mentioned questions the following literature was consulted: Just Transitions by Mark Swilling (Chapters 2, 3, 4 and 8). Science for Global Sustainability by Clark et al. Conceptualizing Ecological Sustainability and Ecologically Sustainable Development in Ethical Terms: Issues and Challenges. By Hitting. Sustainability and Sustainable Development: Historical and Conceptual Review. Environmental Impact Assessment Review by Tests Embrace. Sustainable Development and the Crisis of Nature: On the Political Anatomy of an Oxymoron by Wolfgang Cash.

Understanding Sustainable Development by John Belittle Sustainable Development: Mapping Different Approaches by Hoped et al. A new energy future for South Africa: The political ecology of South African renewable energy by Koura et al. 1 PART 1 1. 1 What is Unsustainable? Natural resources is being depleted at a rapid rate in order to meet the constantly growing needs of mankind. The environment is therefore taking a heavy strain due to the fact that the needs/demands are outweighing the natural supply available. The environment is becoming incapable of stabilizing itself naturally.

The Borderland Commission established the term " Sustainable development is development that meets the needs of the present without compromising the ability of future enervation to meet their own needs" (womb. Came]. Org. AZ). " Its conceptualization of the sustainability challenge was adopted by many world leaders" (Clark, 2005). There are various human activities which are detrimental to the environment namely: Increase in population density. Rap Romanization Massive industrial growth Inadequatefood, and Depletion of resources.

These activities result in the world becoming unsustainable due to the fact that there is no limitations placed on human development. According to Swilling et al (2012) there are 7 trends which negatively affect sustainable development. These are echo- yester degradation, global warming, oil peak, inequality, urbanpoverty, food insecurity and material flows. The above mentioned trends threatens the sustainability of the environment. 1. 1. 1 Echo-system degradation Echo-system degradation occurs when there is a

threat towards the survival of the ecosystem through the over exploitation of natural resources.

This takes place in different ways like when resources such as air, water and soil starts to deteriorate. The environment is declining rapidly and this places further challenges on the economic and social settings. As stated by Embrace (1998), " The industrial revolution which began in England occurred as a result of vanishing trees. The mining sector substituted coal for the products and services required for human consumption, which the diminishing forests once supplied".

Swilling et al (2012) states that the Millennium Echo-system Assessment (MEA) identified the following 'echo-system services' upon which socio-economic systems depend: " Provisioning services: food (crops, livestock, capture fisheries, aquaculture, wild foods); fiber (timber, cotton, hemp, silk, wood fuel); genetic resources; biochemical's, natural medicines, pharmaceuticals; water. Regulating services: air quality; limited regulation (global, regional and local); water regulation; erosion regulation; water purification and waste treatment; disease regulation; pest regulation; pollination; natural hazard regulation. 7 Cultural services: spiritual and religious values; aesthetic values; recreation and costumers. Supporting services: nutrient cycling; soil formation; primary production". The four main findings identified by the MEA were as follows: 1 . Over the past 50 years humans have changed echo-systems more rapidly than ever before in human history to meet demands for food, fresh water, timber, fiber and fuel. This has caused substantial and 'largely irreversible loss in the diversity of

life on Earth. . Although echo-system change has contributed to gains in human well-being, the costs are degradation of echo-systems, increased risk of non-linear changes, and increased poverty. 3. Degradation will get worse over the next 50 years and is a barrier to achieving the Millennium DevelopmentGoals(Meds). 4. Reversing echo-system degradation is possible, but will require significant changes in policies, institutions and practices.

The MEA found that 60 percent of the world's ecosystem is degraded as well as the fact that approximately a quarter of the earth's land has been cultivated which means that the demand for food outweighs what the planet is able to actually supply. The supply of fresh water is also being used at a rapid rate which could result in the depletion of fresh water. This will have an adverse effect on life for all species on the planet. According to Cash (1999) if all countries Tallow ten Ministerial example, Twelve or SIX planets would De name to serve as 'sources' for the inputs and 'sinks' for the waste of economic progress. . 1. 2 Global Warming " Human activities over the past 50 years has led to an increase in concentration of greenhouse gases. Greenhouse gases include the burning of fossil fuels, deforestation and agricultural production" (Swilling 2012). This has resulted in global temperatures rising therefore leading to the climate getting warmer. Embrace (1998) states that " The industrial revolution which began in England resulted in the mining and milling industries being born". Over time these industries contributed a great deal to global warming due to the fact that coal was one of the major mining interests. The use of coal raised immediate, practical problems of earth moving, mine construction, water pumping, transport and controlled combustion" (Embrace. 998). Coal also

resulted in the invention of steam engines therefore making machines the chief means of manufacture and production. " The use of machinery led to higher productivity which then further led to productivity being fuelled by a gigantic throughput of fossil energy which requires mining the earth on the one hand and covering her with waste on the other" (Cash 1999).

The rapid growth of the industrial sector led to an exploitation of natural resources resulting in the increased use of fossil fuels. This increase has a significant impact on the climate due to the fact that the growing population needs to be sustained. And in order for that to happen, more fossil fuels are being used resulting in the temperature rises on the planet. The natural resources continue to be unsustainable due to the fact that the growing demands of an increasing population outweighs the natural supply. . 1. 3 Oil peak Peak oil is the point where maximum production of oil based products egg: petroleum, is reached. Various sources predicting the timing of peak oil include assertions that it would peak decades ago, that it has recently occurred, that it will occur shortly, or that a plateau of oil production will sustain supply for up to 100 years (<http://> Oil peak does not mean the 'end of oil' but rather the inevitable rise in the price of oil despite increased investment to expand capacity (Swilling 2012).

Due to an increase in the demand of various oil dependent products and services such as petrol, plastics, fertilizers etc. , the global economy has reached the 'end of cheap oil'. " Oil prices are going to rise and alternatives to oil must be found sooner rather than later. Oil accounts for over 60 per cent of the global economy's energy needs" (Swilling et al 2012). Although

the natural resources and eco-system services have thus far sustained the fast placement of the global economy, it is being quickly depleted or degraded.

According to Swilling et al (2012) " The consumption levels of the 1 billion people who are responsible for 86 percent of total consumption expenditure are the primary cause AT tens, even thong It Is tenet consumption Tanat roller ten global production system upon which so many Jobs depend". 1. 1. 4 Inequality According to the UN Human Development Report 20 per cent of the global population who live in the richest countries account for 86 per cent of total private consumption expenditure, whereas the poorest 20 per cent account for 1. 3 per cent (Swilling et al 2012).

Swilling et al (2012) states that the socio-economic consequences of non- or under-development in many parts of the developing world are well known: three- fifths lack basic sanitation; a third have no access to clean water; a quarter have inadequate housing; a fifth have no access to modernhealthservices; a fifth do not get enough protein; and worldwide, 2 billion people are anemic. The natural resources available today are reaching their ecological limits and is largely being consumed by the rich mainly due to the fact that they are the ones who have easy access to it and can afford it.

This inevitably means that there is an increase in emend for resources such as oil due to the fact that it is being used in various ways to which has a negative influence on the carbon footprint of the planet egg: oil is used to fuel Jets, ships, motor vehicles etc. The growing gap between rich and poor

harms the global economy by creating instability and suppressing growth. 1.

1. 5 Urban Poverty According to Swilling (2012) the majority (i. e. just over 50 per cent) of the world's population was living in urban areas by 2007.

Nearly 1 billion of the 6 billion people who live on the planet live in slums or, put differently, one-third of the world's total urban population (rising to over 75 per cent in the least developed countries) live in slums. The race towards globalization has a huge impact on cities due to the fact that more people migrate to cities in search of employment opportunities. This has a massive impact on sustainability as the demands for natural resources increases in a concentrated area and this outweighs the supply.

The increase of urban societies is a result of investments which are predominantly urban based. This results in an influx of people into urban areas which then results in an increase in slum dwelling. The Geiger population of urban slum dwellers places strain on cities as they struggle to sustain the economy whilst simultaneously meeting the needs of an ever growing urban population. Cities have to develop and implement plans and initiatives that address the use of resources as well as waste generation which has implications for sustainable development within their areas.

The influx of people into urban areas result in them living in shelters and poor quality overcrowded housing and where there is inadequate provision of safe water supplies, sanitation, drainage, and garbage collection. The more people there are in a concentrated area the harder it becomes to sustain the resources. 1. 1. 6 Food Insecurity " Modern, industrial, chemical-intensive agriculture has caused significant ecological degradation which, in turn, will

threaten food security in a world in which access to food is already mainly unequal. As a result, the demand for food is outstripping supply' (women]. Erg. AZ). There is mounting evidence that the ecosystems that make agriculture possible are steadily deteriorating as the levels of extraction and exploitation intensify (Swilling 2012). Added to food insecurity is challenges brought in the environment by natural disasters e. G. : drought, floods, naturally caused fires, earthquakes etc. This places added pressure on an already strained agricultural sector as the different factors causes crop failure and the demands for food increases in the wake of such dilemmas.

There is a further decline in agricultural production due to the deteriorating quality of soils. And this increases the food insecurity of the population more especially the poor as the distribution patterns of food is altered. 1. 1. 7

Material Flows In order to function, the global economy depends on a flow of materials that are extracted from the Earth, processed via production and consumption processes to meet human needs, and then disbursed as wastes generated by the extraction, production and consumption processes (Swilling et al 2012).

The different materials needed for the global economy to function are fossil fuels, ores, biomass, industrial minerals and construction minerals. Due to the constantly increasing demand of an ever growing population, the natural materials are being depleted at a rapid rate. The natural environment is not able to sustain itself as the needs and demands of a rapidly growing economy outstrips the natural supply. The rapid growth of cities places

extremely high demands on the economy due to the fact that development has to occur in order to sustain the urban population.

Therefore the demands for extracted materials continue to grow. " The above trends combine to conjure up a picture of a highly unequal urbanites world, dependent on rapidly degrading ecosystem services, with looming threats triggered by climate change, high oil prices, food insecurities and resource depletion" (Swilling et al 2012). The onslaught of human development on the environment has led to natural resources being deteriorated and depleted without Hough for the future. Is the South African response to the challenge of sustainable development, climate change and renewable energy appropriate?

Or should more or less be done? 2. 1 Sustainable development and climate change challenges that South Africa faces: South Africa is aiming towards achieving a green environment. However there are several challenges in place which must first be overcome in order to succeed in achieving this goal. The following challenges is to be addressed in order for South Africa to be successful in maintaining the environment whilst simultaneously meeting the needs and demands of the population: . 1. Energy and Carbon South Africa is one of the largest carbon dioxide polluters per capita in the world as a result of the coal based energy economy (Association of Peak Oil. 2007: 31-32). South Africans carbon-intensive economy stems from the fact that it is also one of the most energy-intensive economies (Swilling et al 2012). " The energy sector is the single largest source of carbon dioxide and sulfur dioxide emissions. It includes electricity generation, emissions from oil and

coal refining to produce petroleum products, coal mining and gas extraction, wood burning and the burning of coal to reduce heat for industrial purposes" (www. Spam. Org. UK). Swilling et al (2010) states that the AS economy is largely reliant on water-intensive coal fired power for energy because it has large coal reserves, large uranium reserves, small crude oil reserves and small natural gas reserves. The heavy industrial sector accounts for 40% of domestic demand while smaller industries account for up to 25% of demand. The energy sector is fast reaching its limits with continued rolling blackouts that are planned for the next five years in South Africa.

This is an indication that energy reduction capacity is being exceeded and that economic growth is being adversely affected. The critical limits facing South Africa where energy and carbon are concerned revolve around a carbon intensive energy sector where three fifths of the carbon is being consumed by the domestic population. It is therefore suffice to say that maintaining an energy intensive growth path that is predominantly reliant on fossil fuels, may work against the national economic growth agenda and render exports uncompetitive due to their heavy carbon footprints (Swilling et al 2010). 2. 1. 2 Oil

Oil is a non-renewable resource and a fifth of South Africans energy supply is derived from imported oil. Only a small amount is produced domestically. National crude oil reserves total to 15 million barrels (Swilling et al 2010). The demand for oil products is in high demand in the transport sector of South Africa. The transport sector consumes approximately 75% of petroleum fuels. Crude oil in South Africa has reached a critical limit and

reserves are likely to be depleted within a few years in the absence of other discoveries. Moreover, domestic refining capacity has been outstripped (Swilling et al 2010).

This means that the price of oil is going to rise dramatically due to the fact that oil will now need to be obtained from difficult areas e.g. under the sea. And because 70% of South Africans oil is imported, it means there will be pressure on the economy due to the fact that the transport sector is largely dependent on petroleum fuels. This further impacts the environment as the demand outweighs the supply. In order for South Africa to deal with the sustainability challenge that the transport sector is placing on the environment it needs to look at alternative ways to meet the demands of this sector.

Therefore " the switch to public transport and the switch from road freight to rail, are two key areas for intervention that can make a long term difference in the oil dependency of the South African economy'. Efficiency measures should be imposed on the transport sector in order to reduce the oil dependency of the economy (Swilling et al 2010). 2. 1. 3 Water The management of the water resources in South Africa is a time-bomb waiting to explode - the country has a shortage of water, the existing resources are poorly managed or privatized.

In addition, there are millions of people in South Africa without access to clean water (Earthier Africa. 2009: 21). Water resources are being exploited as a result of agricultural demands, rapid urbanisation, increase in slum dwelling, inequality, droughts etc. The rise in the population has increased

the demand for water supply and government is therefore faced with the challenge of meeting these rising needs whilst simultaneously ensuring that water resources are adequately maintained. However, there is evidence that critical water availability and ecosystem reserve limits have been breached. 2% of freshwater ecosystems are officially classified as threatened, 50% of wetlands have been destroyed and 36% of fish are threatened (Swilling et al 2010). Swilling et al (2010) indicates that water is core to the current and future energy strategy of South Africa and its security is intimately linked with energy and food security. Prevailing technology trends can be used to recycle water by means of phosphate removal, endocrine disruption chemical removal and mine water treatment. South Africa has put a framework in place in the form of The National Water Act which governs water in the country.

However, the mining sector is not subject to this policy even though they are the one of the biggest contributors to waste which ultimately leads to water contamination. This has very large costs for biodiversity restoration and for the agricultural systems (Swilling et al 2010). 2. 1. 4 Food and Agriculture
The food system is impacted by environmental degradation, high dependency on fossil fuels, normalization of small farmers and high levels of food insecurity. Climate change has affected the agriculture industry in South Africa in various ways.

Food security is at critical limits in the following ways: 51% of households experience hunger. 28% are at risk of hunger. In urban area, 70% of poor urban households reported conditions of significant and severe food security

respectively. 0% of women and 30% of young men are obese and follow unbalanced diets high in saturated fats and sugars, leading to chronic disease amongst the poor. Agricultural production is Jeopardized due to the following reasons: Land: Shortage of arable and high fertility land.

Water: Current and projected climate change effects, exacerbated by the fact that South Africa is a dry country. However, agriculture currently consumes over 70% of national water supply, while contributing to about 4% of GAP, even though volumes of farm produce have increased, along with revenues. The sector also employs 8.5% of the national employment fugue. Energy & oil price increases have negative impacts on farmers, who struggle to make increasingly thinner profit margins in order to survive. Soil fertility: Unsustainable soil practices compromise the nutritional value of food.

Global economy changes - pressures exerted by global retailers on food prices have artificially lowered food prices, leading to the global downward trend in farming, which is now globally one of the professions with the highestsuiciderates in both small scale and commercial scale farmers (Patella, 2007 in Swilling et al, 2010: 95). In South Africa the existing policy for food security and agriculture do to support a green oriented economy and mainly focuses on commercial agriculture and not on small scale farmers (Swilling et al, 2010: 96). . 1. 5 soil Due to the soils in South Africa being eroded and containing low levels of organic carbon, agricultural activities are difficult and costly. Soil is further being degraded due to erosion by water and wind. Soil fertility is an ecosystem service which serves as the foundation for viable agriculture and food security (Swilling et al

2010). More focus should be placed on soil fertility in South Africa due to the fact that soil gradation impacts on the economic growth of the country.

Swilling et al (2010) states that policy that incentives soil health restoring and maintaining land use activities and agricultural practices are required, based on resource rental evaluations of soil, should be used to help stimulate and expand the introduction of greener soil practices. Likewise, land-use activities that have a high degrading impact on valuable soil resources should only be viable if they can meet the resource rentals that reflect the true scale of the costs of ecosystem services provided by fertile soils.

Soil quality can be restored and resuscitated by increasing the carbon content. Mechanisms and programmed should be put in place that will achieve this by bringing the echo-system back to life egg: attracting insects that will help strengthen the soil. 2. 2 South Africans approach to renewable energy stout Attract Implemented ten went paper on renewable energy In 2003 Tooling the World Summit on Sustainable Development which was hosted by South Africa in 2002.

In the white paper it is stipulated that " Renewable energy that is produced from sustainable natural sources will contribute to sustainable development. As most of the sources are indigenous and naturally available, energy supply is afforded security and is not subject to disruption by international crises or limited supplies. Mitigating the use of fossil fuels through the implementation of renewable energy will contribute to emission reductions while providing incremental financial resources to stimulate sustainable development".

Koura (2011: 3) indicates that " South Africa is faced with opportunities and obstacles by a renewable transition and despite the presence of numerous lobbying bodies and strong international interest in developing renewable potential across the country, confusing regulatory and investment signals have been sent out, as the numerous individuals that must come together to confirm the final components of the renewable energy policies remain disjointed.

Thus, entrenched power dynamics amongst this constellation of actors in the South African energy sector are also deeply imbued with uncertainty'. Koura (2011: 5) further states that " In addition, the country is still struggling with numerous domestic problems. First and foremost, issues surrounding poverty are hindering business development and present a challenge for development experts and the country's stability, as Eskimo feels little pressure from the country's impoverished majority, a group that is largely ill-equipped to lobby government.

Furthermore, many of the country's renewable energy developers do not have access to the financial markets and investment streams that are available in other countries. The global financial community has treated the country as both an emerging market and a third-world nation, creating unequal access to credit among potential renewable energy entrepreneurs, promoting widespread stagnation, and allowing for existing energy providers that rely on traditional methods of energy generation, remission, and distribution to become more firmly embedded.

Second, corruption, graft, and a lack of transparency are pervasive problems that make it difficult for systemic change to occur". However, the white paper has attempted to put mechanisms in place that points out the essential elements for renewable energy implementation. These are stipulated as follows: Enabling the Environment - By creating an enabling environment through the introduction of fiscal and financial support mechanisms within an appropriate legal and regulatory framework to allow renewable energy technologies to compete with soils-based technologies.

There is also a need for Government support for renewable energy to help establish initial market share and demonstrate the viability of renewable sources, after which economies of scale and technological development take over. Electricity Sector - Due to the fact that Eskimo is currently the only organization that generates and transmits electricity in South Africa, the electricity Lustrously Ministry Is currently enrolling restructuring, including ten corporations of Eskimo and the formation of six new regional electricity distributors.

The Central Energy Fund should assist the implementation of renewable energy through the extension of its operational support. Renewable Energy Technologies - In order for South Africa to succeed in renewable energy through technological use, it is necessary to consider which technologies can be promoted by measures to stimulate the market. In the short-term it is important that technologies that are currently available in South Africa are implemented. The local content of equipment needs to be maximized in

order to minimize the costs associated with implementation and operation, as well as the promotion of employment opportunities.

The establishment of technology support centers within existing research and development institutions will facilitate the promotion and ongoing development of technologies and will assist Government in the certification of systems. 2. 3 South African Government's Responses: Are they appropriate and adequate? Although the South African government does have monitoring, evaluation and reporting systems in place, it needs to be strengthened to be an integrated mechanism that measures performance in respect of sustainable development targets effectively and across all spheres and sectors.

Gaps also exist in respect of monitoring tools. There is for example no agreed to sustainable development 'score card' (similar to that used by the tourism and agriculture sectors) for measuring performance of social partners and Government's performance is audited only in terms of financial compliance, not qualitatively in terms of ecological sustainability. Collecting and collating reliable and accurate information coherently at different institutional levels remains a major challenge. CONCLUSION Sustainable development is crucial to the existence of the planet as well as its inhabitants.

However, action has to be taken in order to save what's left of the planet and reverse the damage that has already been caused by human development. Drastic measures need to be taken in order to address the threats and challenges to eco-system as discussed above. The global population needs

to be made aware of the impact that human demands have on the planet. Actions should be taken to alleviate the inequality of resource distribution among the global population as the poor are adversely affected by the demands of the rich which impacts on climate change and the deteriorating environment. In order to sustain the planet, the global