

SUSTAINABLE DEVELOPMENT (SD)

Definition

Development: the modification of the biosphere and the application of human, financial, living and non-living resources to satisfy human needs and improve the quality of human life.

Objectives of development

- To increase the availability and widen the distribution of basic life sustaining goods such as food, shelter, health and protection.
- To raise the levels of living, including, in addition to higher incomes, the provision of more jobs, better education and greater attention to cultural and human values also generate greater individual and national self-esteem.
- To expand the range of economic and social choices available to individuals and nations by freeing them from servitude and dependence and the forces of ignorance and human misery.

Sustainable development

The concept of sustainable development (SD) came into prominence in the 1980s and was embraced by most countries as an appropriate form of development. SD recognizes that present patterns of consumption of natural resources are not sustainable, and that more harmless forms of development are needed. SD became very prominent with the publication of the Brundtland Report where it was defined as ‘development that meets the needs of the present without compromising the ability of the future generation to meet their own needs’ (UNCWED 1987). This was the central term of the World Commission on Environment and Development (WCED, 1987) report ‘*Our common future*’, which was endorsed by the United Nations and its definition was adopted by nations all over the world. Sustainable development came to be formulated as a *different kind* of growth, one that is not harmful to the environment and brings wealth to people all over the world. In this meaning sustainable development is about conservation rather than preservation.

In Agenda 21, sustainable development was defined as —development that does not destroy or undermine the ecological, economic or social basis on which continued development depends.

There are two important types of sustainability, weak and strong sustainability. Under weak sustainability loss of ecosystems is not a major concern as long as society's total saving rate is high enough to compensate for reduction of natural capital and thereby produce sustainable welfare paths. Strong sustainability on the other hand asserts that future generations should be endowed with the same amount of natural capital as the present generation. Two factors that support strong sustainability are uncertainty and irreversibility. The existence of uncertainty means that we are unsure of how the natural resources functions; hence substitution of man-made capital for natural resources is not realistic. Further environmental resources are characterized by irreversibility; if mistakes are made it is not possible to correct them. These two features should make human beings to be more cautious about giving up natural capital (Pearce and Turner 1990).

SD is a process 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.

All definitions of sustainable development require that we see the world as a system – a system that connects space; and a system that connects time 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 actions.

SD is also often defined as development that improves health care, education, and social well-being. Increasingly, definitions of SD emphasize that development must be participatory and must involve local peoples in decisions that affect their lives.

In summary: Critical Objectives of SD are:

- Reviving growth;

- Changing the quality of growth;
- Meeting essential needs for jobs, food, energy, water and sanitation;
- Ensuring a sustainable level of population;
- Conserving and enhancing the resource base;
- Reorienting technology and management risk;
- Merging environment and economics in decision making.

Dimensions/pillars of SD

Four main pillars (dimensions);

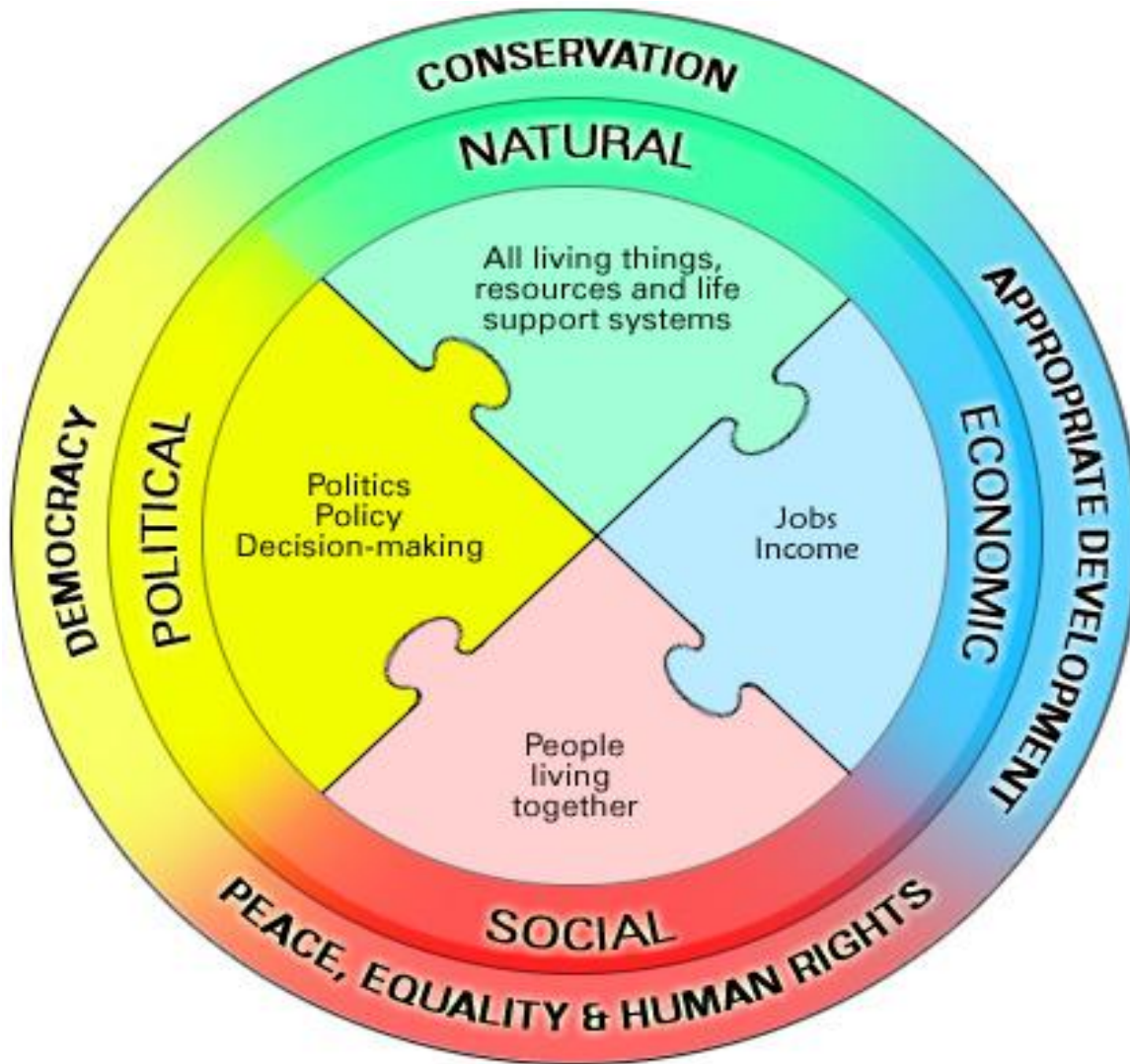
Social – Development is socially sustainable when it achieves social justice via equitable resource allocation, eradicates poverty, and provides social services, such as education, health and others to all members of the society, especially the neediest. It seeks to build a just and cohesive society.

Economic – Sustainability means providing economic welfare at present and in the future, while paying more attention to the “natural capital” (NRs of economic value like soils, plants, animal and bio-environmental system such as air and water purification).

Environmental – An ecologically sustainable system maintains a solid base of natural resources and avoids excessive use of such resources – entails biodiversity conservation, attaining atmospheric balance, soil productivity and other systems – sustainability means setting limits for consumption, population growth, and wasteful production ways – MDG 7 ‘Environmental Sustainability’.

Institutional – participation of all community members in the decision making process and; also organizations (councils, committees) dealing with implementation of development goals.

For rich countries – sustainable development means steady reductions in wasteful levels of consumption of energy and other natural resources through improvements in efficiency and through changes in lifestyle.



SD requires simultaneous and balanced progress in four dimensions that are totally interdependent

Sustainable development agenda

The main SD agenda includes the following:

a) Equity

Equity is about fairness; justness Equity derives from a concept of social justice

Equity means that there should be a minimum level of income and environmental quality below which nobody falls. Generally, equity implies a need for fairness (not necessarily equality) in the distribution of gains and losses, and the entitlement of everyone to an acceptable quality and

standard of living. It ensures that sufficiency and effective choices for all are pursued in ways that reduce dangerous gaps in sufficiency and opportunity (and health, security, social recognition, political influence, etc) between the rich and the poor.

Environmental inequalities already exist in all societies. Poorer people tend to suffer the burden of environmental problems more than others do. How? The concept of equity is well entrenched in international law. The Universal Declaration of Human Rights states that the *'recognition of the inherent dignity and of the equal and inalienable rights of all members of the human family is the foundation of freedom, justice and peace in the world'*.

Two types of equity:

Intergenerational equity: The idea of not reducing the ability of future generations to meet their needs – a more critical equity. Its about moral obligation to future generations as the unborn can have no say on decisions made today that affect them. From an environmental point of view, future generations should have the same ability to create wealth (from natural capital) as we have.

Intra-generational equity: This entails equity across communities and nations within one generation. It is a key SD principle as inequities are a cause of environmental degradation. Poverty deprives people of the choice about whether or not to be environmentally sound in their activities. The poor/hungry often will often destroy their immediate environment in order to survive. High levels of affluence also damaging to the environment – e.g. high levels of consumption, which lead to resource depletion and waste accumulation – global warming example Inequities also exist in the impacts of environmental policies and inequities in decision making processes – e.g. measures to improve environmental problems may impact more on some sectors of the community than others through imposing additional costs in industries that then find they cannot compete internationally or by imposing additional costs on individual companies who may have a cease business or reduce their workforce as a result.

b) Food security

World Food Summit definition (1996): food security exists “when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life”.

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It includes both physical and economic access to food that meets peoples' dietary needs and preferences. Health problems related to dietary excess are an ever increasing threat in many countries. Improved FS is important for global reduction of hunger and poverty, and for economic development.

The FAO defines food security as follows: "Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food for a healthy and active life".

This involves four dimensions:

- Adequacy of food supply or availability;
- Stability of supply, without seasonal fluctuations or shortages;
- Accessibility to food or affordability; and
- Utilization; quality and safety of food.

Hence FS is not only a function of production FS concept has evolved – currently FS has ethical and human rights dimensions. Some countries have adopted a rights-based approach to FS, having right to food enshrined in their constitution. Current Kenya constitution identifies agriculture as key to FS.



Impacts of food insecurity

- Hunger, poverty and disease are interlinked.
- Problem of hunger – reduces natural defenses against most diseases, and the main risk factor for illness worldwide;
- Poverty – people living in poverty often cannot produce or buy enough food to eat, and are more susceptible to disease.
- Disease – the sick are less able to work or produce food. Undernourishment leads to the birth and of young children who are associated with poor cognitive development, resulting in lower productivity and lifetime earnings potential.
- UNICEF estimate – one third of the world’s people do not reach their physical and intellectual potential due to micronutrient deficiencies caused by food insecurity.
- Hunger is a major constraint to a country’s immediate and long term economic, social and political development.
- FS is seen as a prerequisite for economic development.

Food security pillars

- i) *Food availability*: Sufficient quantities of food available on a consistent basis.
- ii) *Food access*: Having sufficient resources to obtain appropriate foods for a nutritious diet.
- iii) *Food use*: Appropriate use based on knowledge of basic nutrition and care, as well as adequate water and sanitation.

Food availability

This can be guaranteed in two ways: production and trade.

Production: production aimed at self-sufficiency and lowering dependency on other regions/nations.

Trade: transport possibilities and storage capacities. International trade in agriculture has expanded.

Stability of food supply

- The two options for fulfilling demand – food imports and domestic production – imply several reasons for instability of food supplies.
- A major reason for instability in food supply is high fluctuation in food prices (price volatility). Another factor is conflicts – increases food supply risks.

Accessibility of food

Concerns both physical access and affordability – access to markets (transport), cost transmission of price developments to producers.



Causes of food insecurity

- Low agricultural productivity – agricultural output in SSA has barely kept up with population increases, and Africa now imports 25% of its grain requirements.
- Inadequate access to productive assets (land and capital) – access to credit, inputs (prices).
- Inadequate infrastructure – to ensure low food prices and efficient markets that can respond to changes in demand; infrastructure reduces the costs of transporting produce and inputs and food storage.
- Limited well functioning markets – the international market is characterized by imbalances that threaten food security – subsidies, tariffs and trade barriers.
- High population pressure on land – continued population growth remains one of the biggest challenges to world FS and environ sustainability.

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- Inadequate access to appropriate technologies by farmers – improvements in cost and quality of food storage, processing, packaging and marketing; labor-saving technologies; and better communications.
- Effects of global trade – prices, protectionist approach, oil.
- Slow reform process – policy matters, governance – poor governance and corruption – affect hunger levels by disempowering vulnerable groups and seriously undermine any policies in place.

Options for improving food security

- To decrease the risk of highly volatile prices, price regulation on commodities and larger cereal stocks should be created to buffer the tight markets of food commodities and the subsequent risks of speculation in markets.
- Encourage removal of subsidies and blending ratios of first generation biofuels, which would promote a shift to higher generation biofuels based on waste (if this does not compete with animal feed), thereby avoiding the capture of cropland by biofuels.
- Support farmers in developing diversified and resilient eco-agriculture systems that provide critical ecosystem services (water supply and regulation, habitat, genetic diversity, pollination, pest control, climate regulation), as well as adequate food to meet local and consumer needs.
- Reduce the use of cereals and food fish in animal feed and develop alternatives to animal and fish feed.
- Increased trade and improved market access can be achieved by improving infrastructure and reducing trade barriers.
- Limit global warming, including the promotion of climate-friendly agricultural production systems and land-use policies at a scale to help mitigate climate change.
- Raise awareness of the pressures of increasing population growth and consumption patterns on sustainable ecosystem functioning.

The role of the environment in food production

There is a strong link between the state of the environment and food production; the natural environment is the entire platform upon which all life is based.

For crops, the state of the environment directly influences soil nutrient availability, water (ground and surface water for irrigation), climate and weather (rainfall and growth season), availability of insects for pollination, and the abundance and effects of certain pests (pathogens, insects) and weeds, which have major impact on crops worldwide, particularly in Africa.

Without these services, there would be no production, ecosystem services enhance agro-ecosystem resilience and sustain agricultural productivity. Thus, promoting the healthy functioning of ecosystems ensures the sustainability of agriculture as it intensifies to meet the growing demands for food production.

c) Economic Growth

Economic Growth is a narrower concept than economic development. It is an increase in a country's real level of national output which can be caused by an increase in the quality of resources (by [education](#) etc.), increase in the quantity of resources & improvements in [technology](#) or in another way an increase in the value of goods and services produced by every sector of the economy. Economic Growth can be measured by an increase in a country's [GDP \(gross domestic product\)](#).

Economic development is a normative concept i.e. it applies in the context of [people's](#) sense of [morality](#) (right and wrong, good and bad). The definition of economic development given by Michael Todaro is an increase in living standards, improvement in self-esteem needs and freedom from oppression as well as a greater choice. The most accurate method of measuring development is the [Human Development Index](#) which takes into account the literacy rates & life expectancy which [affects](#) productivity and could lead to Economic Growth. It also leads to the creation of more opportunities in the sectors of education, healthcare, employment and the conservation of the environment. It implies an increase in the per capita [income](#) of every citizen.

Economic Growth does not take into account the size of the informal economy. The informal economy is also known as the black economy which is unrecorded economic [activity](#). Development alleviates people from low standards of living into proper employment with suitable shelter. Economic Growth does not take into account the depletion of natural resources which might lead to pollution, congestion & disease. Development however is concerned with sustainability which means meeting the needs of the present without compromising future needs. These environmental effects are becoming more of a problem for Governments now that the pressure has increased on them due to Global warming.

The terms are not synonymous – Economic development does not necessarily mean economic growth; the type of economic activity can change without increasing the quantity of goods and services. However, economic growth is a necessary but not sufficient condition of economic development.

Distinction between growth and development

	Economic Development	Economic Growth
	Economic development implies changes in income, savings and investment along with	Economic growth refers to an
Implications:	progressive changes in socio-economic structure of country (institutional and technological changes).	increase in the real output of goods and services in the country.
Development relates to	growth of human capital indexes, a decrease in inequality in one of the components of Gross figures, and structural changes that improve the general population's quality of life.	Growth relates to a gradual increase in one of the components of Domestic Product: consumption, government spending, investment, net exports.
Measurement:	Qualitative. HDI (Human Development Index), gender-related index (GDI), Human	Quantitative. Increase in real GDP. Shown by PPF.

	Economic Development	Economic Growth
	poverty index (HPI), infant mortality, literacy rate etc.	
Effect:	Brings qualitative and quantitative changes in the economy	Brings quantitative changes in the economy
Concept:	Normative concept	Narrower concept than economic development
Relevance:	Economic development is more relevant to measure progress and quality of life in developing nations.	Economic growth is a more relevant metric for progress in developed countries. But it's widely used in all countries because growth is a necessary condition for development.

Environmental Sustainability Issues in Kenya

Environmental sustainability is an increasingly important issue in development, as those living below the poverty line directly rely on the water and land resources surrounding their communities. With only 8 percent of arable land and 75 percent of Kenya's workforce engaged in agriculture, Kenyan farmers face growing problems of soil erosion, deforestation, water pollution, and desertification. The recent drought in 2006—the most severe in independent Kenya's history—devastated the country, leaving 3.5 million people with barely enough food to survive. Meanwhile, in northern Kenya, pastoralists have lost their herds to starvation and conflicting tensions are mounting over scarce water resources.

While global warming may be responsible for Kenya's severe droughts, current farming practices are also leading to the growth of environmental problems. Rampant pesticide use contaminates water resources while food production has declined due to soil erosion. Weaning farmers off of

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unsustainable methods is a difficult task in any circumstance, much less during times of economic desperation. Farming and daily life are also complicated by sharing the land with abundant wildlife. Human-wildlife conflicts have been increasing as most of Kenya's traditional nomadic tribes are settling onto permanent plots of land and taking up farming. Wildlife is integral to the ecosystem, let alone Kenya's well-known tourism industry. Securing the conservation of native flora and fauna is critical to the region's future on a number of levels.

In 2004, Kenya made international headlines when one of its own won the prestigious Nobel Peace Prize. Wangari Maathai, the first Kenyan woman to earn a Ph.D. in East Africa, was also the first African woman to win the Nobel Peace Prize in the seldom recognized field of the environment. She was recognized for her work as founder of the Green Belt Movement, a non-governmental organization that empowers women to take ownership of their environment by planting trees to combat deforestation while providing fuel wood and food.

In the next pages, we will now discuss how international bodies come in in the policy making

International institutions

Now, let us touch upon some of the international institutions and agencies that were instrumental in bringing about environmental reforms through laws and legislations. These include:

- **The United Nations Environment Programme (UNEP):** Set up in the wake of the Stockholm Conference, UNEP is not a specialised agency but merely a 'programme', without executive powers and with a budget to a large extent dependent on voluntary contributions from States. UNEP's main programme consists of better co-ordination between existing UN programmes in the field of the environment, rather than to develop its own programmes. Nevertheless, UNEP has gradually managed to carve out a useful role for itself by taking the initiative on such issues as the control of transboundary movements of hazardous waste and the protection of the ozone layer.

- **The Food and Agricultural Organisation (FAO):** This has been active on subjects such as deforestation and conservation of fisheries.
- **The World Meteorological Organisation (WMO):** This plays a crucial role in the field of climate change and global warming.
- **The International Atomic Energy Agency (IAEA):** This agency although not initially much concerned on the subject, but in the wake of the Chernobyl disaster in Russia has focused its attention towards environmental pollution.
- **International Bank for Reconstruction and Development (IBRD)/The World Bank (WB):** This has, in recent years, begun to pay more attention to the environmental side effects of its lending policies.

Outside the UN system, regional organisations, which have adopted significant legal instruments in the field of the environment, include the Organisation for Economic Co-operation and Development (OECD), the Conference on Security and Co-operation in Europe (CSCE) and the Organisation of African Unity (OAU).

Key international treaties

The following are the important international environmental treaties that deal with air, water, hazardous waste, nuclear wastes, etc.:

- (i) The 1992 Helsinki Convention on the protection and use of trans-boundary watercourses and international lakes. (This convention deals with international watercourses.)

- (ii) The 1973 Convention for the prevention of pollution from ships (MARPOL).
- (iii) The 1982 UN Convention on the law of the sea (UNCLOS).
- (iv) The 1992 Paris Convention for the protection of the marine environment of the North-East Atlantic. (The conventions listed at (ii) to (iv) deal with marine pollution.)
- (v) The 1979 ECE Convention on long-range trans-boundary air pollution-protocols on sulphur dioxide (SO₂), nitrogen oxides (NO_x) and volatile organic compounds (VOCs).
- (vi) The 1985 Vienna Convention for the protection of the ozone layer (Montreal Protocol and London and Copenhagen Amendments).
- (vii) The 1992 UN Convention on climate change. (The conventions listed at (v) to (vii) deal with atmospheric pollution.)
- (viii) The 1989 Basel Convention on the control of trans-boundary movements of hazardous wastes and their disposal.
- (ix) The 1991 Bamako Convention on the ban of the import into Africa and the control of trans-boundary movement and management of hazardous wastes within Africa. (The conventions listed at (viii) and (ix) deal with hazardous waste.)
- (x) The 1986 IAEA Convention on early notification of a nuclear accident.

- (xi) The 1986 IAEA Convention on assistance in the case of a nuclear accident.
- (xii) 1994 IAEA Convention on nuclear safety. (The conventions listed at (x) to (xii) deal with nuclear energy.)
- (xiii) The 1991 ECE Convention on environmental impact assessment in a trans-boundary context.
- (xiv) The 1992 UN Convention on biological diversity.