

1.Introduction.

Sustainable development is the organizing principle for meeting human development goals while simultaneously sustaining the ability of natural systems to provide the natural resources and ecosystem services based upon which the economy and society depend. The desired result is a state of society where living conditions and resources are used to continue to meet human needs without undermining the integrity and stability of the natural system. Sustainable development can be defined as development that meets the needs of the present without compromising the ability of

future generations to meet their own needs.

While the modern concept of sustainable development is derived mostly from the 1987 Brundtland Report, it is also rooted in earlier ideas about sustainable forest management and twentieth-century environmental concerns. As the concept developed, it has shifted its focus more towards the economic development, social development and environmental protection for future generations. It has been suggested that "the term 'sustainability' should be viewed as humanity's target goal of human-ecosystem equilibrium, while 'sustainable development' refers to the holistic approach and temporal processes

that lead us to the end point of sustainability" Modern economies are endeavoring to reconcile ambitious economic development and obligations of preserving natural resources and ecosystems, as the two are usually seen as of conflicting nature. Instead of holding climate change commitments and other sustainability measures as a remedy to economic development, turning and leveraging them into market opportunities will do greater good. The economic development brought by such organized principles and practices in an economy is called Managed Sustainable Development (MSD).

The concept of sustainable development has been, and still is, subject to criticism, including the question of what is to be sustained in sustainable development. It has been argued that there is no such thing as a sustainable use of a non-renewable resource, since any positive rate of exploitation will eventually lead to the exhaustion of earth's finite stock; this perspective renders the Industrial Revolution as a whole unsustainable. It has also been argued that the meaning of the concept has opportunistically been stretched from 'conservation management' to 'economic development', and that the Brundtland Report promoted nothing but a business as usual strategy for world development, with an ambiguous and

insubstantial concept attached as a public relations slogan .

2. History

Sustainability can be defined as the practice of maintaining world processes of productivity indefinitely—natural or human-made—by replacing resources used with resources of equal or greater value without degrading endangering natural biotic systems. Sustainable development ties together concern for the carrying capacity of natural systems with the social, political, and economic challenges faced by humanity. Sustainability Science is the study of the concepts of sustainable development and environmental science. There is an additional focus on the present generations' responsibility to regenerate, maintain and

improve planetary resources for use by future generations.

Sustainable development has its roots in ideas about sustainable forest management which were developed in Europe during the 17th and 18th centuries. In response to a growing awareness of the depletion of timber resources in England, John Evelyn argued that "sowing and planting of trees had to be regarded as a national duty of every landowner, in order to stop the destructive over-exploitation of natural resources" in his 1662 essay *Sylva*. In 1713 Hans Carl von Carlowitz, a senior mining administrator in the service of Elector Frederick Augustus I of Saxony published *Sylvicultura economica*, a 400-

page work on forestry. Building upon the ideas of Evelyn and French minister Jean-Baptiste Colbert, von Carlowitz developed the concept of managing forests for sustained yield.[11] His work influenced others, including Alexander von Humboldt and Georg Ludwig Hartig, eventually leading to the development of a science of forestry. This, in turn, influenced people like Gifford Pinchot, first head of the US Forest Service, whose approach to forest management was driven by the idea of wise use of resources, and Aldo Leopold whose land ethic was influential in the development of the environmental movement in the 1960s.

Following the publication of Rachel Carson's *Silent Spring* in 1962, the

developing environmental movement drew attention to the relationship between economic growth and development and environmental degradation. Kenneth E. Boulding in his influential 1966 essay *The Economics of the Coming Spaceship Earth* identified the need for the economic system to fit itself to the ecological system with its limited pools of resources. One of the first uses of the term sustainable in the contemporary sense was by the Club of Rome in 1972 in its classic report on the *Limits to Growth*, written by a group of scientists led by Dennis and Donella Meadows of the Massachusetts Institute of Technology. Describing the desirable "state of global equilibrium", the authors wrote: "We are searching for a model output that

represents a world system that is sustainable without sudden and uncontrolled collapse and capable of satisfying the basic material requirements of all of its people."

Following the Club of Rome report, an MIT research group prepared ten days of hearings on "Growth and Its Implication for the Future" (Roundtable Press, 1973) for the US Congress, the first hearings ever held on sustainable development. William Flynn Martin, David Dodson Gray, and Elizabeth Gray prepared the hearings under the Chairmanship of Congressman John Dingell.

In 1980 the International Union for the Conservation of Nature published a world

conservation strategy that included one of the first references to sustainable development as a global priority and introduced the term "sustainable development" Two years later, the United Nations World Charter for Nature raised five principles of conservation by which human conduct affecting nature is to be guided and judged. In 1987 the United Nations World Commission on Environment and Development released the report Our Common Future, commonly called the Brundtland Report. The report included what is now one of the most widely recognised definitions of sustainable development.

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts:

- The concept of 'needs', in particular, the essential needs of the world's poor, to which overriding priority should be given; and
- The idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs.” — World Commission on Environment and Development, *Our Common Future* (1987)

Since the Brundtland Report, the concept of sustainable development has developed

beyond the initial intergenerational framework to focus more on the goal of "socially inclusive and environmentally sustainable economic growth". In 1992, the UN Conference on Environment and Development published the Earth Charter, which outlines the building of a just, sustainable, and peaceful global society in the 21st century. The action plan Agenda 21 for sustainable development identified information, integration, and participation as key building blocks to help countries achieve development that recognises these interdependent pillars. It emphasises that in sustainable development everyone is a user and provider of information. It stresses the need to change from old sector-centered ways of doing business to new approaches

that involve cross-sectoral co-ordination and the integration of environmental and social concerns into all development processes. Furthermore, Agenda 21 emphasises that broad public participation in decision making is a fundamental prerequisite for achieving sustainable development.

Under the principles of the United Nations Charter the Millennium Declaration identified principles and treaties on sustainable development, including economic development, social development and environmental protection. Broadly defined, sustainable development is a systems approach to growth and development and to manage natural,

produced, and social capital for the welfare of their own and future generations. The term sustainable development as used by the United Nations incorporates both issues associated with land development and broader issues of human development such as education, public health, and standard of living.

A 2013 study concluded that sustainability reporting should be reframed through the lens of four interconnected domains: ecology, economics, politics and culture.

3. Education for sustainable development

Education for Sustainable Development (ESD) is defined as education that

encourages changes in knowledge, skills, values and attitudes to enable a more sustainable and equitable society. ESD aims to empower and equip current and future generations to meet the needs using a balanced and integrated approach to the economic, social and environmental dimensions of sustainable development.

Concept

The concept of ESD was born from the need for education to address the growing and changing environmental challenges facing the planet. In order to do this, education must change to provide the knowledge, skills, values and attitudes that empower learners to contribute to sustainable

development. At the same time, education must be strengthened in all agendas, programmes, and activities that promote sustainable development. Sustainable development must be integrated into education and education must be integrated into sustainable development. ESD promotes the integration of these critical sustainability issues in local and global contexts into the curriculum to prepare learners to understand and respond to the changing world. ESD aims to produce learning outcomes that include core competencies such as critical and systematic thinking, collaborative decision-making, and taking responsibility for the present and future generations. Since traditional single-directional delivery of

knowledge is not sufficient to inspire learners to take action as responsible citizens, ESD entails rethinking the learning environment, physical and virtual. The learning environment itself must adapt and apply a whole-institution approach to embed the philosophy of sustainable development. Building the capacity of educators and policy support at international, regional, national and local levels helps drive changes in learning institutions. Empowered youth and local communities interacting with education institutions become key actors in advancing sustainable development.

4 . In decade for sustainable development

The launch of the UN Decade of Education for Sustainable Development (2005-2014) started a global movement to reorient education to address the challenges of sustainable development. Building on the achievement of the Decade, stated in the Aichi-Nagoya Declaration on ESD, UNESCO endorsed the Global Action Programme on ESD (GAP) in the 37th session of its General Conference. Acknowledged by UN General Assembly Resolution A/RES/69/211 and launched at the UNESCO World Conference on ESD in 2014, the GAP aims to scale-up actions and good practices. UNESCO has a major role, along with its partners, in bringing about key achievements to ensure the principles of ESD are promoted through formal, non-formal and informal education.

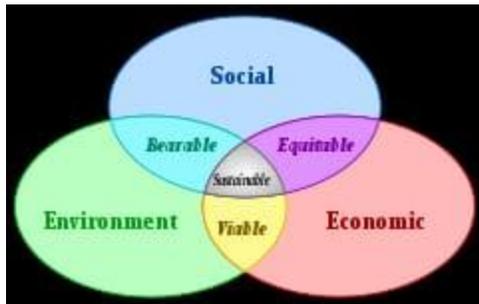
International recognition of ESD as the key enabler for sustainable development is growing steadily. The role of ESD was recognized in three major UN summits on sustainable development: the 1992 UN Conference on Environment and Development (UNCED) in Rio de Janeiro, Brazil; the 2002 World Summit on Sustainable Development (WSSD) in Johannesburg, South Africa; and the 2012 UN Conference on Sustainable Development (UNCSD) in Rio de Janeiro. Other key global agreements such as the Paris Agreement (Article 12) also recognize the importance of ESD. Today, ESD is arguably at the heart of the 2030 Agenda for Sustainable Development and

its 17 Sustainable Development Goals (SDGs) (United Nations, 2015). The SDGs recognize that all countries must stimulate action in the following key areas - people, planet, prosperity, peace and partnership - in order to tackle the global challenges that are crucial for the survival of humanity. ESD is explicitly mentioned in Target 4.7 of SDG4, which aims to ensure that all learners acquire the knowledge and skills needed to promote sustainable development and is understood as an important means to **achieve all the other 16 SDGs (UNESCO, 2017).**

5 . sub groups of sustainable development

Scheme of sustainable development:

at the confluence of three constituent parts. (2006)



Sustainable development can be thought of in terms of three spheres, dimensions, domains or pillars, i.e. the environment, the economy and society. The three-sphere framework was initially proposed by the economist Rene Passet in 1979. It has also been worded as "economic, environmental and social" or "ecology, economy and equity". This has been expanded by some authors to include a fourth pillar of culture,

institutions or governance, or alternatively reconfigured as four domains of the social - ecology, economics, politics and culture, thus bringing economics back inside the social, and treating ecology as the intersection of the social and the natural.

Relationship between ecological footprint and Human Development Index (HDI)

The ecological stability of human settlements is part of the relationship between humans and their natural, social and built environments. Also termed human

ecology, this broadens the focus of sustainable development to include the domain of human health. Fundamental human needs such as the availability and quality of air, water, food and shelter are also the ecological foundations for sustainable development; addressing public health risk through investments in ecosystem services can be a powerful and transformative force for sustainable development which, in this sense, extends to all species.

Environmental sustainability concerns the natural environment and how it endures and remains diverse and productive. Since natural resources are derived from the environment, the state of air, water, and

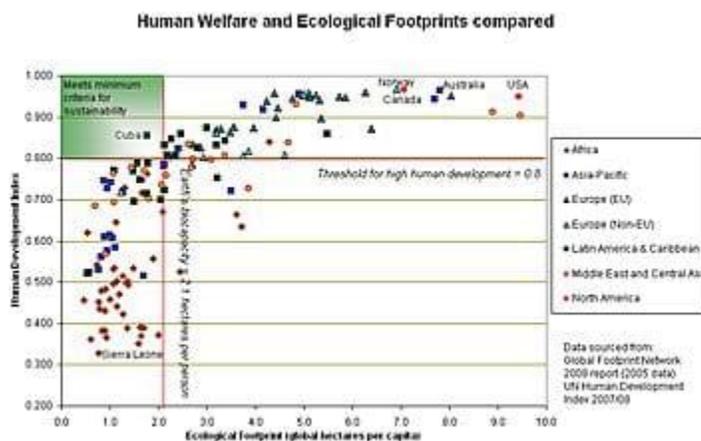
the climate are of particular concern. The IPCC Fifth Assessment Report outlines current knowledge about scientific, technical and socio-economic information concerning climate change, and lists options for adaptation and mitigation.

Environmental sustainability requires society to design activities to meet human needs while preserving the life support systems of the planet. This, for example, entails using water sustainably, utilizing renewable energy, and sustainable material supplies (e.g. harvesting wood from forests at a rate that maintains the biomass and biodiversity).

An unsustainable situation occurs when natural capital (the sum total of

nature's resources) is used up faster than it can be replenished. Sustainability requires that human activity only uses nature's resources at a rate at which they can be replenished naturally. Inherently the concept of sustainable development is intertwined with the concept of carrying capacity. Theoretically, the long-term result of environmental degradation is the inability to sustain human life. Such degradation on a global scale should imply an increase in human death rate until population falls to what the degraded environment can support. If the degradation continues beyond a certain tipping point or critical threshold it would lead to eventual extinction for humanity.

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Sustainable agriculture consists of environment friendly methods of farming that allow the production of crops or

livestock without damage to human or natural systems. It involves preventing adverse effects to soil, water, biodiversity, surrounding or downstream resources—as well as to those working or living on the farm or in neighbouring areas. The concept of sustainable agriculture extends intergenerationally, passing on a conserved or improved natural resource, biotic, and economic base rather than one which has been depleted or polluted. Elements of sustainable agriculture include permaculture, agroforestry, mixed farming, multiple cropping, and crop rotation. It involves agricultural methods that do not undermine the environment, smart farming technologies that enhance a quality environment for humans to thrive and

reclaiming and transforming deserts into
farmlands(Herman Daly, 2017).