Research Article

ROLE OF EDUCATION IN ENSURING SUSTAINABLE DEVELOPMENT

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A R T I C L E I N F O	A B S T R A C T
	"*The highest education is that which does not merely give us information but makes our life in harmony with all existence*" **- Rabindranath Tagore** Education for sustainable development is now trending slogan of this era. Sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs. ESD is based on ideals and principles that underline sustainability such as intergenerational equity, gender equity, social tolerance, poverty alleviation, environmental preservation and restoration. A core principle behind sustainable development is a combination of economic, social and environment conditions. Education is recognised as a major tool to change societies, consequently it is necessary to make education into a constructive tool by creating awareness among students. The link between education and development are seen in both directions. Nevertheless, it requires equilibrium to avoid detrimental effects and lead the world to a sustainable path. It was internationally recognised that SD can be achieved through a process of learning. Therefore, education needs to be enhanced to lead the world to a more sustainable way of living. The present paper focuses on the concept of sustainable development, and the various roles of education in ensuring sustainable development.

INTRODUCTION

"We hold the future in our hands. Together, we must ensure that our grandchildren will not have to ask why we failed to do the right thing, and let them suffer the consequences."
- UN Secretary-General Ban Ki-moon, 2007

Sustainable development is now a paradigm context of over the world. And Sustainability is a trending for thinking about a future in which environmental, social and economic considerations are balanced in the pursuit of development and an improved quality of life. The term "sustainable development" became prominent after the Rio Earth Summit in 1992 which prioritised global environmental discussions and improved upon the initial framework introduced at the United Nations Conference on the Human Environment, Stockholm in 1972. The resulting Rio Declaration on Environment and Development, however, advocated the role of education in preventing ecological degradation (Cleveland & Kubiszewski, 2007). Sustainable development is the organizing principle for meeting human development goals while at the same time sustaining the ability of natural systems to provide the natural resources

and ecosystem services upon which the economy and society depend. The desirable end result is a state of society where living conditions and resource use continue to meet human needs without undermining the integrity and stability of the natural systems (https://en.wikipedia.org/wiki/Sustainable_development).

Sustainable development is maintaining a delicate balance between the human need to improve lifestyles and feeling of well-being on one hand, and preserving natural resources and ecosystems, on which we and future generations depend (https://www.researchgate.net/publication/266340282). In today's interconnected world, information is easily acquired. Facts that professionals once collected as a result of years of study are now readily available on the Internet. Today's education requires knowing what to do with information, that is, how to analyze it; make sense of its abundance and complexity; cooperate with others to synthesize information; and communicate the results. Consequently, quality education is no longer based primarily on fact acquisition (Laurie, R., Tarumi, Y.N., Mckeown, R & Hopkins, C, 2016). As education based on fact acquisition becomes increasingly outdated, policymakers debate the basis for transforming their education systems. Yet, these transformations require more than a vision of what is possible: they require evidence that will justify such changes (Cooper, Levin & Campbell, 2009).

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Evidence-based decision making is both encouraged and of growing importance in the formal education community (Organisation for Economic Co-operation and Development, OECD, 2007). Summarizing, it can be said that sustainable development brings forth a new set of values that will guide future model of economic and social progress, aimed especially human values and needs of present and future natural environment - the protection and conservation, and mitigation actual damage ecosystems. Analyzing the above definitions, it follows that sustainable development has the following features (Durana, C.D. & *et.al.* 2015):

- Sustainable development is a global goal. Acceptance doctrine and concept inclusion in national strategies are not a voluntary choice, more or opposable potential of a particular type of development, but is the only way realistic, responsible and beneficial to all nations, while being concordant demands international cooperation.
- Acceptance philosophy of sustainable development is acutely required for recognition that previous models have flaws and limits growth.
- Analysis of sustainable development involves a systematic approach to triad economic-social-ecological because using classical methods of analysis and statistical indicators of the current system cannot meet the demands of sustainable development.
- Sustainable development, recognizing the interdependence of the three systems and taking into account the need for scientific understanding of ecosystem functioning, involves a profound change of mentality in the social system, because current social condition, especially the many frustrations of generations make it impossible to practice philosophy of sustainable development without a change of mentality.

Definition of Sustainable Development

There are many definitions of the term "Sustainable Development", but the most widely accepted is the one used in the publication **"Our Common Future"**, sometimes referred to as the Brundtland definition:

"Development which meets the needs of the current generation without compromising the ability of future generations to meet their needs" (UN, 1989).

- Ashford (1995) and The World Commission on Environment and Development (1987). In the Commission's words: "... sustainable development is ... a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are made consistent with the future as well as present needs".
- The Brundtland Report 1988: "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:
- Interfaith Centre on Corporate Responsibility (ICCR) "Sustainable development is the process of building equitable, productive and participatory structures to increase the economic empowerment of communities and their surrounding regions.

- World Business Council on Sustainable Development, "Sustainable development involves the simultaneous pursuit of economic prosperity, environmental quality and social equity. Companies aiming for sustainability need to perform not against a single, financial bottom line but against the triple bottom line."
- Hamilton Wentworth Regional Council, "Sustainable Development is positive change which does not undermine the environmental or social systems on which we depend. It requires a coordinated approach to planning and policy making that involves public participation. Sustainable development's success depends on widespread understanding of the critical relationship between people and their environment and the will to make necessary changes."
- Education Ministry's activities fully comply with principles of education for sustainable development -- Deputy Minister, "Education for sustainable development is aimed at ensuring economic viability, Equity, social accord, Environmental protection and Sustainable Development of natural resources in order to meet the needs of the present generation without compromising the future."

Education for Sustainable Development: Sustainability education (SE), Education for Sustainability (EfS), and Education for Sustainable Development (ESD) are interchangeable terms describing the practice of teaching for Sustainability. ESD is the term most used internationally and by the United Nations Agenda 21 was the first international document that identified education as an essential tool for achieving sustainable development and highlighted areas of action for education in recognition of the importance of ESD, the United Nations General Assembly declared 2005-2014 the UN Decade of Education for Sustainable Development (DESD) (https://en.wikipedia.org/wiki/Education_for_sustainable_development). UNESCO leads the Decade and has developed an International Implementation Scheme for the Decade. The goals of the decade are to provide an opportunity for refining and promoting the vision of, and transition to, sustainable development – through all forms of education, public awareness and training; and to give an enhanced profile to the important role of education and learning in sustainable development. Education for sustainability is the practice of learning how to achieve global and local sustainable communities (UNESCO Education Sector, 2005).

Education for sustainable development is the process of equipping students with the knowledge and understanding, skills and attributes needed to work and live in a way that safeguards environmental, social and economic wellbeing, both in the present and for future generations.

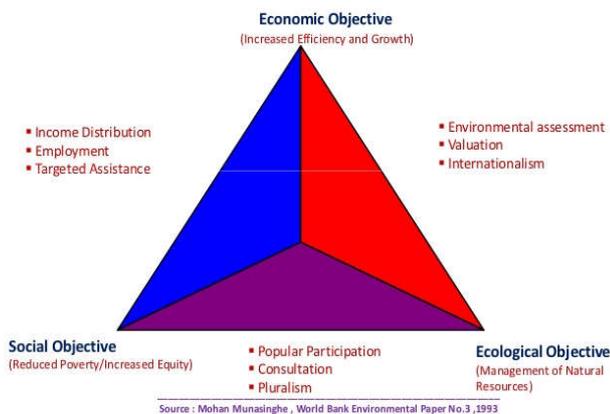### Objectives & Goals of Sustainable Development

The Brundtland Report, (1987) sustainable development can be associated with three categories of objectives:

Objectives of the Economic System - maximizing the amount of goods and services produced in the techno sphere, maximizing the efficient use of mineral resource flows, biological, energy and information flows; adaptation technologies mineral resources and reprocessing products.

Objectives of the Social System - equitable allocation of goods and services between the social contract partners at local, national or global; adequate training of all members of society in socio-economic process; creating, using and adapting permanent structures and mechanisms of political, institutional or related to information management systems that provide flexibility and self-regulation of social and economic; correlation systems evolution economic, social and environmental; maintaining cultural diversity to support faster adaptation of chance.

Objectives of the Ecological System - maintaining biodiversity in support of the possibility of adapting the scheme area condition or geo biosphere; compliance mechanisms of self-regulation and the natural cycle times in the biosphere.

Objectives of Sustainable Development

Burlington Sustainable Development Committee (1987), has determined some objectives of Sustainable Development, these are

- ***Protection of Natural Resources****:* Preserve and extend accessible green spaces, shorelines, natural water courses and the Niagara Escarpment for future generations.
- ***Reforestation of the City****:* Promote the replanting and management of vegetation on private and public property within the city.
- ***Full Public Participation in Development Decisions****:* Allow the public to be part of all planning decisions. Economic, environmental and social impacts of proposed developments should be considered.
- ***Actively Promote Sustainable Development****:* Advocate changes at the senior levels of government, as well as in the city, in order to evolve towards sustainability.
- ***Make the Best Use of Land****:* Land-use decisions based upon an ecosystem approach to ensure environmental integrity and diversity. To include, but not be limited to, promoting environmentally sensitive lands and using fertile soil for agriculture throughout the municipality.
- ***Protection and Enhancement of Natural Features****:* Protect and enhance Burlington's natural features by ensuring that the physical features of shorelines, agriculture lands, flood plains, forestry tracts and notable landmarks such as the Niagara Escarpment are preserved for future generations.

- ***Natural Storm Water Management****:* Protect water courses in their natural state and for those water courses that have been significantly altered, restoration to a more natural state will be encouraged as opportunities arise.
- ***Balanced Development****:* Provide a community plan and an economic strategy aimed at creating sustainable and appropriate forms of development that reflect human scale and a sense of community as well as representing a balance between urban development and natural surroundings.
- ***Efficient Urban Design****:* Increase the efficiency of land use in the urban community in terms of energy and time; promote intensification and diversification policies rather than policies that generate urban sprawl.
- ***Minimal Discharge of Toxic Pesticides and Other Toxic Chemicals****:* Promote the elimination of private and public use of toxic pesticides and other chemicals that have negative effects on the environment, particularly those known to be persistent.
- ***Accessible Community Development****:* Form a new type of community development which includes readily available local community components such as commerce, shopping, employment, education and recreation within walking distance of all residences.
- ***Responsible Use of Natural Resources****:* Encourage conservation of natural resources; the city should work towards ensuring that users are charged for the full local costs of their individual use of water, electricity and sanitary sewers. There should also be educational programs to encourage conservation of natural resources.
- ***Integration of Natural Features and Green Space****:* Integrate natural features and green space in all new developments and intensification projects.
- ***Energy Conservation****:* Promote energy conservation through efficient land use planning and building design.
- ***Ecosystem Auditing****:* City of Burlington should prepare an objective ecosystem audit of the entire municipality at regular intervals.
- ***Balanced Transportation System****:* Develop a balanced transportation system including transit, pedestrian, and cycling amenities and best use of the road system for movement of goods and people, with the existing facilities used to their fullest capacity.
- ***Evaluation of Development****:* Continuous monitoring and evaluation of development should take place to ensure that it does not have adverse impacts on the city's finances and the environment.

The 2030 Agenda for Sustainable Development Goals

The 2030 Agenda for SDGs are as follows (https://sustainabledevelopment.un.org/post2015/transforming ourworld):

Goal 1. End poverty in all its forms everywhere.
Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture.
Goal 3. Ensure healthy lives and promote well being for all at all ages.
Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning Opportunities for all.

Goal 5. Achieve gender equality and empower all women and girls.

Goal 6. Ensure availability and sustainable management of water and sanitation for all.

Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all.

Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive Employment and decent work for all.

Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and Foster innovation.

Goal 10. Reduce inequality within and among countries.

Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable.

Goal 12. Ensure sustainable consumption and production patterns.

Goal 13. Take urgent action to combat climate change and its impacts.

Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable Development.

Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably Manage forests, combat desertification, and halt and reverse land degradation and halt Biodiversity loss.

Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.

Goal 17. Strengthen the means of+ implementation and revitalize the Global Partnership for Sustainable Development.

Source: http://un.org.au/2015/06/12/sustainable-development-goals-sdgs/.

Role of Education in Ensuring Sustainable Development

Education is our bridge from the past to the present and from the present to the future. ESD is considerably broader in scope and complements the adjectival educations. In other words, ESD encompasses many aspects of these respected and established fields of study (Bhandari & Abe, 2003). Embarking on the path of sustainable development will require a profound transformation of how we think and act. To create a more sustainable world and to engage with sustainability-related issues as described in the SDGs, individuals must become sustainability change-makers. They require the knowledge, skills, values and attitudes that empower them to contribute to sustainable development. Education, therefore, is crucial for the achievement of sustainable development. However, not all kinds of education support sustainable development. Education that promotes economic growth alone may well also lead to an increase in unsustainable consumption patterns. The now well-established approach of Education for Sustainable

Development (ESD) empowers learners to take informed decisions and responsible actions for environmental integrity, economic viability and a just society for present and future generations (http://unesdoc.unesco.org/images/0024/002474/247444e.pdf)

1. ***Poverty Alleviation:*** Poverty and a degraded environment are closely inter-related, especially where people depend for their livelihoods primarily on the natural resource base of their immediate environment. Poverty magnifies the problem of hunger and malnutrition. The problem is further compounded by the inequitable access of the poor to the food that is available. Education is the only tools that reduction the poverty and sustains it for future generation (http://envfor.nic.in/divisions/ic/wssd/doc4/consul_book_persp.pdf).

2. ***Women Empowerment and Sustainable Development:*** Women play a vital role in environmental management and development. Their full participation is therefore essential to achieving sustainable development. Education plays an important role in uplifting the women. Empowerment of women contributes to the sustainable development (UNESCO, Source Book, 2012).

3. ***Improving the Quality of Learning:*** Many children are in school but are learning very little year after year. Also, too many young people graduate without the tools and skills for today's job market. Children need to acquire relevant skills to participate successfully in today's knowledge based society. And if we can able to give quality education it will helps to increase the employment among young people (Laurie, R & *et.al*, 2016).

4. ***Ensure inclusive and equitable quality:*** The important role of education and lifelong learning opportunities for all (formal, non-formal and informal learning) as main drivers of sustainable development, for improving people's lives and in achieving the SDGs. We can see the inequality in access to and attainment of education, particularly between girls and boys and in rural areas, and about reasons for a lack of equitable access to quality education and lifelong learning opportunities. We strongly say that education can help create a more sustainable, equitable and peaceful world (UNESCO, 2014).

5. ***Formal Education:*** Formal education which promotes functional literacy, livelihood skills, understanding of the immediate environment and values of responsible citizenship is a precondition for sustainable development. Such education must be available to every child as a fundamental right, without discrimination on the basis of economic class, geographical location or cultural identity (UNESCO, source book, 2012).

6. ***Increase Efficiency:*** Education aims at developing competencies that empower individuals to reflect on their own actions, taking into account their current and future social, cultural, economic and environmental impacts, from a local and a global perspective. Individuals should also be empowered to act in complex situations in a sustainable manner, which may require them to strike out in new directions; and to participate in socio-political processes, moving their

societies towards sustainable development. (http://unesdoc.unesco.org/images/0024/002474/24744 4e.pdf)

7. ***Sustainable Economic Production:*** Education can develop of knowledge based societies; the influence of new technologies on the creation of knowledge is growing. Not only are the rate of production and the volume of information continuing to grow exponentially, but information is also less and less dependent on text-based transmission and increasingly includes audio, graphic, and visual supports through a variety of media. The exponential growth in the volume of information and its changing nature are questioning the very notions of the authority of traditional bodies of knowledge controlled by legitimate educational institutions. (UNESCO, Source Book, 2012).

8. ***Economic Growth:*** Economic growth is necessary, even if not sufficient, for poverty reduction. Education generates productivity gains that fuel economic growth. Quality of education is vital for economic growth. Spending more time in school, while important, is not enough. Children need to be learning. Some analysts have suggested that a proof of the economic effect of education would require measures of quality and learning outcomes. Countries need to monitor their students' learning over a sufficiently long period in order to assess the effects of education and quality on economic growth (UNESCO, 2014)

9. ***Sustainable Infrastructure:*** Development decisions regarding technology and infrastructure are a major determinant of consumption patterns. It is therefore important to evaluate and make development decisions which structurally lead to a more sustainable society. Technologies exist through which substantial reduction in consumption of resources is possible. Efforts to identify, evaluate, introduce and use these technologies must be made. It is important to counter this through education and public awareness (UNESCO, Source Book*,* 2012).

10. ***Helps to Eradicate Desertification:*** Addressing and alleviating the consequences of desertification is of critical importance. Children, who are particularly receptive to new ideas and who demonstrate a spontaneous interest in nature and the environment, can be the front-line players in such collective action. This is why UNCCD and UNESCO have jointly produced educational materials on desertification, land degradation pupils in countries affected by desertification. The Education Kit on Combating Desertification contains a teacher's guide, illustrations and case studies from different regions around the world. Featuring cartoons, games and stories that bring sustainable development issues to life for children (UNESCO, (2014).

11. ***Management of Natural Resources:*** Education also helps to manage the integration of agriculture with land and water management, and with ecosystem conservation that is essential for both environmental sustainability and agricultural production. Education ensures the sustainability of the natural resource base, the recognition of all stakeholders in it and their roles in its protection and management is essential (UNESCO, Source Book, 2012).

12. ***Sustainable Management of Water:*** "Water is life" we all are very aware about this concept. So to sustain the water for future generation we should take the responsibility. Water governance arrangements protect ecosystems and preserve or restore the ecological integrity of all natural water bodies and their catchments. This will maintain the wide range of ecological services that healthy ecosystems provide and the livelihoods that depend upon them. Through education we can create and awareness among the masses to conserve the water and utilize it properly (UNESCO, Source Book, 2012)

13. ***Health and Sustainable Development:*** Human health in its broadest sense of physical, mental and spiritual wellbeing is to a great extent dependent on the access of the citizen to a healthy environment. Access to safe drinking water and a healthy environment should be a fundamental right of every citizen. Access to safe drinking water and a healthy environment should be a fundamental right of every citizen. Education takes the leading role in maintaining a healthy environment and paves the way for a sustainable future (UNESCO, Source Book, 2012).

14. ***Ensure access to Affordable, Reliable, Sustainable and clean Energy for all:*** we all knows about different energy resources- renewable and non-renewable and their respective advantages and disadvantages including environmental impacts, health issues, usage, safety and energy security, and their share in the energy mix at the local, national and global level. We also knows about harmful impacts of unsustainable energy production, understands how renewable energy technologies can help to drive sustainable development and understands the need for new and innovative technologies and especially technology transfer in collaborations between countries. And in this context we can say that education will only one tool that disseminates awareness among whole world (UNESCO, UNESDOC, 2014).

CONCLUSION

From the above discussion it is conclude that Sustainability is a trending for thinking about a future in which environmental, social and economic considerations are balanced in the pursuit of development and an improved quality of life. Although sustainable development became prominent after the Rio Earth Summit in 1992, but this topic came in peoples mind in 1970-80 A.D. Education for Sustainable Development (ESD) is an interchangeable term describing the practice of teaching for sustainability. Education for Sustainable Development contributes in many ways to a quality education. We can see ESD affects every context of education. As the concept of sustainable development was discussed and formulated, it became apparent that education is a key to sustainability.

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