Integrating Education for Sustainable Development (ESD) into Geography Curriculum at University Level in India

Samruddhi Patwardhan [1]
Pravin Kokane [2]

1   Department of Geography, University of Mumbai

samruddhipathak86@gmail.com

2   Department of Geography, University of Mumbai

kokanepp2010@gmail.com

BACKGROUND

Education for Sustainable Development (ESD) has been recognized as the medium through which the Sustainable Development Goals are to be realized (UNESCO 2015b). ESD is now being looked at seriously all over the world. ESD has taken some time to evolve in itself. In most of the countries around the world, it has been highly localizing and finding its place through various ways into the curriculum.

Concept of ESD

Education for Sustainable Development (ESD) is a type of education in which teaching practices, pedagogies, learning objectives, learning outcomes are oriented and designed for sustainable development. It is a type of education which makes the learners sensitive to pressing developmental issues like climate change, disaster management, poverty alleviation, peace and conflict issues, conservation of resources, etc. ("UNECE" 2003) ESD is not only the education for creating awareness regarding environment or eco-system. It is not just environment education. It is about using various tools and techniques to make the learners adapt to all challenges that lie ahead in the way to achieve sustainability. Thus, there are two components in ESD- the 'E" i.e. education. It means that there has to be a specific pedagogy, teaching practices, learning objectives, outcomes

and competencies that are expected from learners. The other aspect is the "SD" i.e. Sustainable Development. It means development which is for the future of all, which takes into account everyone's needs. According to the Bruntland Report 1987, it is the 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'. ESD needs to be integrated with formal, informal and informal learning (UNECE).

History of ESD

It has evolved from its nascent framework format in various conferences. Let us look at how it has developed in various conferences which have taken place on the issue of Sustainable Development. In 2002, at the World Conference on Sustainable Development in Johannesburg, South Africa, the member countries agreed that more progress on ESD should be carried out seriously. The concept of creating a UN Decade of Education for Sustainable Development (UNDESD) was discussed and endorsed by many nations. The UN Decade (2005-2014) was declared through a resolution by the UN General Assembly (57/254). It was during the UNDESD that formal education systems, those who were responsible for development of discourse on education for their nation's progress, began to take more notice of ESD as part of their responsibility. In 2012, as the decade was ending, nations called for a continuation of the work begun during the UNDESD and requested UNESCO to develop a continuing strategy/framework. In 2014, at the World Conference on Education for Sustainable Development in Aichi-Nagoya, Japan, ministers of education adopted a declaration containing 360 commitments and calling for urgent action to mainstream ESD and include it in the post-2015 development agenda. At this meeting UNESCO launched the Global Action Programme on ESD (GAP) highlighting 5 priority areas for action. The GAP has proven useful in maintaining the momentum of ESD that has now emerged as a crucial implementation element in the Sustainable Development Goals. In 2015, at the World Education Forum, at Incheon, Korea, Ministers of education adopted a global education strategy to implement SDG 4 entitled Education 2030. This would be their contribution to the 2030 Agenda and the 17 SDGs. By merging the concepts of Education for All and ESD, as was initially envisioned in Agenda 21, (both initiatives emerged simultaneously in different forums in the late 1980s) the

new overarching vision of ESD is thoroughly identified in the 2030 Agenda as of crucial importance. ("AGENDA 21" 1992) , (UNESCO 2015a)

ESD in India

In India, ESD has not taken a very serious form into the curriculum. It is still in the form of environmental education where awareness regarding environment is imparted through a compulsory component in schools and colleges. Environment education has become compulsory in India after the Honorable Supreme Court in its judgment of 18 December 2003 directed that the NCERT shall prepare a Model syllabus of Environment Education. The NCERT developed the Model syllabus and submitted it to the Honorable Supreme Court. (Ray G.N. 1991) This has paved way to making environment a part of education.. However environment education doesn't include sustainable development in the way ESD does. Finally, new tools and more decentralized approaches are required for the sustainable development with crucial role of educational institutes, especially of higher education. Many faculties are working within 4 regulatory bodies under MHRD such as UGC, AICTE, Distance Education Council (DEC) and Council of Architecture (CoA), which are also dedicated for the sustainable development through higher education course. (Sharma 2014)

So in schools, environment education has become a non-marked subject and in colleges, it is a compulsory component to be taken up once in three or four years. Further, subjects like Geography, Economics, Biology and Environment Science which are pertinent to environment have additional papers at the Bachelors or Masters level. As per the goals to be achieved by SDGs for which many governments have taken the goals seriously. The Indian Government has also adopted the SDG Framework in 2015 and hence serious towards achieving the Quality Education goals (21Oc). ESD has been identified as the way to bring about sustainable development through education. The SDG goal 4 states , "*by 2030 ensure all learners acquire knowledge and skills needed to promote sustainable development, including among others through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship,*

and appreciation of cultural diversity and of culture's contribution to sustainable development ' ("SDG," n.d.)

This is a major shift towards the way we impart education in India. This means that it should go beyond EE. The Goal suggests that no matter what stream of education one chooses, it should be compatible with Sustainable Development. It suggests that all streams of education should include Sustainable Development and the knowledge they impart should adopt all practices oriented towards Sustainable Development.

Understanding sustainable development and the ESD approach

The ESD goes beyond theories. When applied to education, sustainable development cannot be theoretical, as defined by the concept of 'planetary boundaries' (Stockholm Resilience Centre) or 'social thresholds' as in political resolutions. In education, this principle offers orientation in the learning process and fosters sustainability as a 'frame of mind'.(Bonnett 2002) It suggests that under sustainable development lies the notion of a right relationship with nature which both conditions our attitudes towards the environment and our sense of our own identity. (Bonnett 2002).

Figure 1 Dimensions and main goals of sustainable development. (Siege. 2016)

The Framework suggests various structures in which ESD can be 'embedded' in the education structure. Having ESD or EE as a subject represents weaker structures while integrating ESD into each and every course or curriculum represents stronger structures.
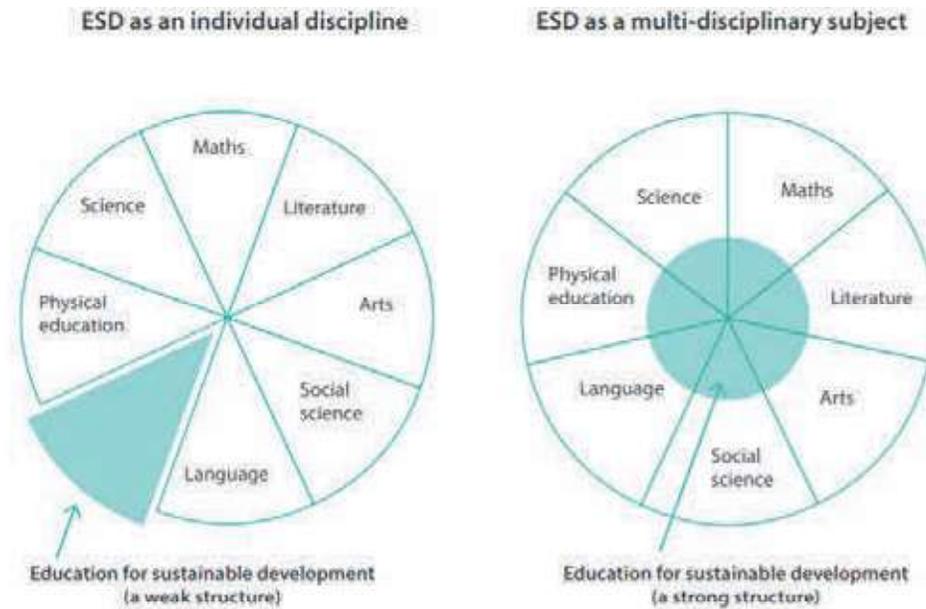

Figure 2 Source:(UNESCO, n.d.)

The paper follows the latter structure where the authors are talking about the way in which we integrate ESD into the curriculum of Geography taught in Universities in India.

GEOGRAPHY CURRICULUM IN INDIA AT THE UNIVERSITY LEVEL

GEOGRAPHY AND ESD

Geography has always been an inter-disciplinary subject. Peter Jackson has rightly said, "When you meet people at a party and tell them you're a geographer, they tend to ask you about distant places, capital cities and longest rivers. In my experience, they rarely ask you about globalization, sustainability, inequality or

the other big issues about which geographers actually have a lot to say" (Jackson, n.d.)

This highlights how Geography can be oriented towards integrating ESD into Geography curriculum. Let us look at how this can be done. There are two ways in which this can be done: 1) Contribution of Geography as a discipline to SDGs, world peace and globalization 2) Ways and methods to bring the link mentioned in point number 1 into Geography through various tools- a 'built-in' approach. (Lotz-Sisitka, Heila; Arjen EJ Wals, David Kronlid 2015)

ESD COMPETENCIES

Integrating the curriculum will result in development of competences. There are 8 competencies identified for ESD. Each competency can be developed by making required changes in the curriculum of various papers in the syllabus.

Having studied the syllabus of many universities across India like the Aligarh Muslim University, Delhi University, Pune University and Mumbai University, we have come across the following conclusions regarding how to integrate ESD into the curriculum with respect to the competencies to be developed.

Competencies	ESD Integration into Curriculum (Examples)
Systems thinking competency	Geography as a discipline, connection between physical and human geography , international migration or global food problem, concept of scale in geography , rock cycle in Geomorphology
Anticipatory competency	Urban Geography, climate change, regional planning, disaster management
Normative competency	Urban Geography, climate change, Agricultural Geography
Collaboration competency	Statistical data collection, practical geography, Disaster management
Critical thinking competency	Resources Geography, Disaster Management, Agricultural Geography
Self-awareness competency	Human Geography, Disaster Management
Integrated problem-solving competency	All branches of Human Geography
Strategic competency	All branches of Human Geography

Table 1 Examples from Geography Curriculum to develop ESD Competencies
Source: (UNECE 2011), examples from geography curriculum given by Authors

Let us look at the various ways in which Geography can contribute in SD and how curriculum can be oriented towards ESD.

1)   Re-looking at basic concepts of Geography

Geography is all about space (Place), time, distance and scale. Place in Geography is about the way we occupy the space. It could be a human habitation, a city, a forest, a small square or any space which has a location on the earth. For ESD, the concept of space holds great importance. Be it a dense city in a tropical country or a sparsely populated village in a cold country, both places will have their own issues, own problems and also look at own 'localised' situations. For example, if both the places world towards controlling their carbon emissions, there will be no 'one-size fits all' solution for both. The study of place allows us to identify dynamics of power and social relations present in society and this is important for ESD. Some parts in a city have different types of infrastructure. While slums might have issues related to access to toilets and water supply, there would be other parts in the city which may face higher logging because of the slope. This brings about equity and equitable distribution of resources with respect to space. Even naming of spaces has an importance. Also, every space has a different meaning to different people. For e.g., a 'devrai' (sacred grove) has a great spiritual importance to the community which owns, whereas it's a profitable resource for private companies. . This is the way the concept of ESD should be integrated in Geography curriculum. 'Time' is important because we have set goals (2030). Time is important in ESD and in geography. For example, in America in 1960, cars were allowed in the center part of the cities. This was a central theme in planning the cities but now, public transport has now gained momentum. Now, cities are rethinking these spaces with respect to public transport. "Scale' shows localization in ESD which is an important concept in education. We need to talk about local, regional, national and global scales in ESD. Local resources, local solutions and local economy is important for sustainable development.

2)   Bringing together Physical and Human Geography

Geography is majorly divided into its two branches: Physical and Human Geography. The concept of actors plays an important role in defining both. The 'human' actor is absent in Physical Geography. In Human Geography, 'human' is the main actor. At present, the curricula do not culminate both the branches. They

are taught individually. For example, in Physical Geography, volcanic activities are taught. Plates, plate boundaries and distribution of seismic regions on the earth is shown. In Disaster Management under Human Geography, natural hazards are taught and how volcanic activities affect human habitations. To integrate ESD into this topic, for example, focus can be laid on highlighting how different communities have been coping with disasters. Haiti and Japan for example, both are located in earthquake prone areas but it is important to understand that Haiti gets affected more than Japan. How humans reduce their vulnerabilities is important whether it is physical or human geography. Vulnerabilities are also different in various human settlements. Poor and those living in slums are more vulnerable to floods.

Another duality in Geography is about determinism and possibilism. In both the approaches, 'nature' and 'human' are the main actors. But a mid-way between the two extremes is another approach in geography which has been given by Griffith Taylor in 1950s. It is called "Stop and Go Determinism". ESD needs such an approach. Geography surely has a great approach to contribute to study ESD using Neo-determinism or Stop-and-go-determinism.

3)   Regional Geography:

Geography curriculum is incomplete without Regional Geography in any university in India. Generally, the course on 'Regional Geography' in universities contains the Geography of the respective States i.e. The Geography of Rajasthan or Madhya Pradesh or Maharashtra etc. For orienting this course towards ESD, it is necessary to include a more local geography into the curriculum. This paper can also include a local geography of the district. For example, one unit can be localized by including the Geography of the District. This will make the students aware of their local issues, local resources and thus will be better equipped to give local solutions towards sustainability. It will also make them understand 'consumer ethics' and various aspects of fair trade which hold central place in ESD. This approach is found in school curriculum where district geography starts in Class 3. After that, it goes on to the country, continental and global level. It is necessary to bring this again at the college level studies through geography syllabus. The new NEP 2020 also talks about this bottom-to-top integration in the curriculum. (Gohain 2021)

4)   Economic Geography

This is an important course in Geography curriculum which talks about resource distribution, industries, trade, tourism and various types of human activities. This paper can also accommodate various facets of ESD in a very effective way. Distribution of resources is related to equity and equality, concept of dumping, fair trade, scarcity of resources and responsible consumerism can find their ways in this paper. How communities have been judiciously using scarce resources needs to be included. A greater stress on conservation of resources should be given through effective examples from local areas. Students should be more locally aware and connect globally. For example, when Amazon forests were burning in forests, many of the geographers felt bad about it. But how aware are we about the forest resources found around us.

5)   Statistical geography

This paper has been an integral part of the geography curriculum. The syllabus needs to take into consideration the real-life examples related to Sustainable Development. While using statistical techniques, students can be asked to verify the mathematical and statistical claims made by social or other organizations, or to engage in collective data gathering to track phenomena across contexts. Sums and exercises which gather complex interrelationships among poverty, hunger and maternal and child mortality can be given. Each of these phenomena may be considered in any given context or in comparison across contexts. Students can also be given exposure to various indices related to Global Poverty Index, Environmental Sustainability Index or handprint and footprint similar indices which helps them calculate and learn about how they can learn about ESD.

6)   Maps and Surveys

Data collection is also important in Geography. Maps are ways to represent the data. We use very specific maps in our courses – distribution of coal, State capitals of India, seismic zones of India, global distribution of trade routes and transport routes, etc. To integrate ESD, we need to be more specific in mapping. Our students need to map various characteristics or their own communities. For example, students can show on a local map, those places where they find the most beggars. Or they can map those roads which have the highest tree density.

Such mapping exercises can give them a new insight towards sustainable development.

USING GEOGRAPHICAL PEDAGOGIES IN ESD

'Geographical investigation both satisfies and nourishes curiosity. Geographical perspectives help deepen understanding of many contemporary challenges such as climate change, food security, energy choices, overexploitation of natural resources and urbanization. Teaching geography serves several vital educational goals. Building on people's own experiences, learning geography helps them to formulate questions, develop their intellectual skills and respond to issues affecting their lives. It introduces them not only to key 21st century skills but also to distinctive investigative tools such as maps, fieldwork and the use of powerful digital communication technologies such as Geographic Information System' (International Charter on Geographical Education, 2016, p. 5).

Conclusion:

The pedagogies and learning outcomes are important parts in geography curriculum. Thus, to integrate ESD into the geography curriculum we will also have to redesign our learning outcomes and re-orient our teaching methodologies. Need to bring in more tools and activities and go beyond classrooms as we have already been doing in our field trips and surveys in Geography. We need to develop competencies which are required for ESD in our geography students. Critical thinking, system thinking, anticipatory competencies, etc. need to be developed through the curriculum. Such skills will be helpful to the students in enriching life skills and job prospect too.

We can surely conclude that integration of ESD into the geography curriculum is not an uphill task. It will in fact make Geography more popular amongst the students.

References:

"AGENDA 21." 1992. 1992. https://sustainabledevelopment.un.org/outcomedocuments/agenda21. September 21, 2021

Bonnett, Michael. 2002. "Education for Sustainability as a Frame of Mind." Environmental Education Research, 9–20.

Gohain, Manash Pratim. 2021. "National Curriculum to Be Based on District-Level Inputs'," 2021. https://timesofindia.indiatimes.com/india/national-curriculum-to-be-based-on-disttrict-level-inputs/articleshow/83861953.cms. June 30 , 2021

Jackson, Peter. n.d. "Thinking Geographically." GEOGRAPHY 91(3): 199–204. https://people.uwec.edu/kaldjian/1Courses/GEOG401/401Readings/Thinking_Geographically_Jackson_2006.pdf. September 21, 2021

Lotz-Sisitka, Heila; Arjen EJ Wals, David Kronlid, Dylan McGarry. 2015. "Transformative, Transgressive Social Learning: Rethinking Higher Education Pedagogy in Times of Systemic Global Dysfunction." Environmental Sustainability, 73–80.

Ray G.N., Anand A.S. 1991. "Supreme Court Order." https://elaw.org/content/india-mc-mehta-v-union-india-wp-8601991-19911122-environmental-education-case#:~:text=Mehta v.-,Union of India%2C WP 860%2F1991 (1991.11.,22) (Environmental Education Case)&text=Clause (g) thereof requires every,have compassion fo. October 5, 2021

"SDG." n.d. 2015. https://sdg4education2030.org/the-goal#:~:text=a Build and upgrade education,effective learning environments for all. October 5, 2021

Sharma, Bhavtosh. 2014. "Sustainable Development through Research and Higher Education in India." American Journal of Educational Research 2 (3): 117–22. http://pubs.sciepub.com/education/2/3/1/. October 10, 2014

"UNECE." 2003. 2003. https://unece.org/esd-strategy. September 28, 2021

———. 2011. "The Competences in Education for Sustainable Development ('Learning for the Future: Competences in Education for Sustainable Development.'" https://unece.org/fileadmin/DAM/env/esd/ESD_Publications/Competences_Publication.pdf.

UNESCO. n.d. "Education for Sustainable Development Toolkit." September 28, 2021

———. 2015a. "AGENDA 2030." 2015. https://sdgs.un.org/2030agenda. September 28, 2021

———. 2015b. "UNESCO." 2015. https://en.unesco.org/themes/education-sustainable-development/what-is-esd. September 28, 2021