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**M.A. GEOGRAPHY
SEMESTER-I**

**(REVISED SYLLABUS
AS PER NEP 2020)**

**SUSTAINABILITY –
ECOLOGICAL,
SOCIO-ECONOMIC AND
POLITICAL
DIMENSIONS**

Prof. Ravindra Kulkarni

Vice-Chancellor,
University of Mumbai,

Prin. Dr. Ajay Bhamare

Pro Vice-Chancellor,
University of Mumbai,

Prof. Sivaji Sargar

Director,
CDOE, University of Mumbai,

Programme Co-ordinator : Anil R. Bankar

Associate Professor of History and
Head, Faculty of Humanities,
CDOE, University of Mumbai

Course Co-ordinator : Mr. Ajit Gopichand Patil

Assistant Professor,
CDOE, University of Mumbai, Mumbai

Course Writer : Dr. Madhushree Lahiri

April 2025, Print - 1,

Published by : Director,
Centre for Distance and Online Education,
University of Mumbai,
Vidyanagari, Mumbai - 400 098.

DTP Composed & : Mumbai University Press,
Printed by Vidyanagari, Santacruz (E), Mumbai

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Specialisation III: Climate Change and Sustainability Studies

Title of the Course – Sustainability – Ecological, Socio-Economic and Political Dimensions								
Year – 1				Semester - II				
Course Type	Course code	Credit Distribution		Credits	Allotted Hours	Allotted Marks		
DSE - 2	GEOG 51205	Theory	Practical	04	60	CIE	ESE	Total
		04	00			50	50	100

Course Objectives:

1. The course is designed to make students learn various dimensions of sustainability
2. It also offers experiential learning by studying the case studies on sustainable practices

Course Outcomes :

- CO 1. Students would learn how sustainability has to be achieved at various levels in an integrated manner
- CO 2. How the sustainability practices can be replicated by adopting local terms and conditions

Unit 1 : Conceptualising Sustainability (15 Hours)

- 1.1 Sustainability: Meaning and Nature – History of Sustainability – Indian Context
- 1.2 Dimensions of Sustainability: Economic, Socio-cultural dimensions
- 1.3 Dimensions of Sustainability: Psychological and Philosophical Dimensions
- 1.4 Dimensions of Sustainability: Environmental and Ecological

Unit 2 : Sustainability in Perspectives and Space (15 Hours)

- 2.1 Eastern Perspectives on Sustainability and life style :Buddha, Gandhi, Swami Vivekananda and Tao
- 2.2 Western Perspective on Sustainability - Arne Naess, J. Baird Callicot, George Sessions
- 2.3 Spatial Dimensions of Sustainability – Geography, socio-cultural space and community environmental ethics
- 2.4 Traditional Knowledge Systems and environmental sustainability

Unit 3 : Politics of Sustainability

(15 Hours)

- 3.1 Role of International agencies in promoting sustainability – UN, UNEP, UNFCCC, etc.
- 3.2 Critical analysis of Millennium Development Goals to Sustainable Development Goals
- 3.3 Role of supranational institutions in shaping the perspectives on sustainability - international capital, global economic circuits, and sustainability
- 3.4 critical analysis of global efforts on climate change and sustainability – Critical analysis of policies on sustainable development in India

Unit 4 : Approaches to Sustainable Development

(15 Hours)

- 4.1 Modifying Behaviour to Achieve Sustainability: Learning and Pro environmental behaviour theories: Fostering Mindfulness, Gratitude and Hope - Social Norms and Emotional Contagion
- 4.2 System Thinking approach, World Viewing, Future and Design Thinking
- 4.3 Approaches to Sustainable Development: Appraisal of the Environment. Estimation of the Environmental Impact, Natural Resource Accounting, Government policies and Economic Outlook
- 4.4 Approaches to Sustainable Development: Positivist Approach, human development / opulence oriented approach, Multi-Dimension Approach, Ecosystem Approach and Livelihood Approach

Suggested Reading Materials:

- 1. Jenkins, R., (1987): Transnational Corporations and Uneven Development, Methuen.
- 2. Blake, D.H. and Walter, R.S., (1987): The Politics of Global Economic Relations, Prentice Hall.
- 3. Bagchi, A.K., (1989): The Political Economy of Underdevelopment, Cambridge University Press, 1982, Orient Longman.
- 5. Archibugi, D. and Michie, J., (eds.), (1997): Technology, Globalisation and Economic Performance, Cambridge University Press.
- 6. Hoogvelt, A., (1982): Third World in Global Development, Macmillan.
- 7. Cole, J.P., (1981): Development Gap, John & Wiley and Sons.
- 8. Kenwood, A.G. and Loughheed, A.L., (1983): The Growth of the International Economy, Alien and Unwin.
- 9. George, S., (1988): A Fate Worse than Debt, Grove Weidenfeld.
- 10. Chapman, K., (1979): People, Pattern and Process, Arnold Heinemann.

11. Adams, W.M., (1990): Green Development, Environment and Sustainability in the Third World, Routledge, London.
12. Sachs Wolfgang,(ed.), (1997): The Development Dictionary, Orient Longman.
13. Firoze Manji ,(2006): ‘Development and Rights’, Rawat Publication
14. Hidenori Okahashi, (2008): ‘Emerging new industrial spaces and regional development in India’, Manohar.
15. D. Jayraj and S. Subramanian, (2010): Poverty, Inequality and population- Essays in Development and Applied Measurement, Oxford
16. Ramchandra Guha and Inequalities, (eds.) (1999): Institutions and Inequalities- essays in Honour of Andre Beteille, Oxford.
17. Ajit Muricken,(1997): ‘Globalization and SAP Trends and impact An Overview’, Vikas Adhayan Kendra Mumbai



CONCEPTUALISING SUSTAINABILITY

Unit Structure

After going through this chapter, you will be able to understand the following features

- 1.1. Objectives
- 1.2. Introduction
- 1.3. Subject Discussion
- 1.4. Sustainability: Meaning and Nature – History of Sustainability – Indian Context
- 1.5. Dimensions of Sustainability: Economic, Socio-cultural dimensions
- 1.6. Dimensions of Sustainability: Psychological and Philosophical Dimensions
- 1.7. Dimensions of Sustainability: Environmental and Ecological Dimensions
- 1.8. Summary
- 1.9. Check Your Progress or Exercise
- 1.10. Answers to the Self-learning questions
- 1.11. Technical Words and their meaning
- 1.12. Task
- 1.13. References for further study

1.1 OBJECTIVES

At the end of this unit, you will be able to –

- Understand the concept of sustainable development, its historical context and evolution across time, globally and in India.
- Identify and elaborate on the different dimensions of sustainability-concept, principles and measures

1.2 INTRODUCTION

This chapter introduces the student to the concept of sustainable development as an important paradigm in the developmental narrative

across the globe. It begins with the conceptualization of the term and moves over to its evolution across different time periods and its changing interpretation and relevance. The chapter then tracks the history of sustainability in the Indian context and how the country has adopted various measures and policies fostering the same over time. The chapter then elucidates on the various dimensions of sustainability that have emerged through intense discussions and deliberations and the importance each dimension holds in ensuring true economic, environmental and social sustainability.

1.3 SUBJECT DISCUSSION

Sustainability, though a modern development discourse, is deeply rooted back in time, with ancient civilizations practicing resource conservation and environment friendly practices. The concept gained formal recognition in the **1970s** through global conferences and reports, most notable of which was the Brundtland report of 1987. Post that, numerous conferences have been held all over the world where both developed and developing nations participated, reviewed, consented to what constitutes sustainable development in different contexts and means to achieve them. Further validation to the concept has been given through the adoption of various goals and plans like the Agenda 21, MDGs and the SDGs which have formed the blueprint for countries in their attempt to achieve a more equitable and sustainable living for all their citizens. The different pillars or dimensions of sustainability also hold significance in explaining what are the indicators and measures of the concept.

1.4 SUSTAINABILITY: MEANING AND NATURE – HISTORY OF SUSTAINABILITY – INDIAN CONTEXT

Meaning and Nature

The terms “sustainability” and “sustainable” development have been buzzwords of the development discourse for some time now and although relatively neoteric in its usage, the meaning, interpretation and practice of sustainability have consistently and continuously evolved and expanded over time.

In common parlance, sustainability connotes self-sufficiency and an implicit ideology of long-term self-restraint and self-reliance. It is used to refer to life styles that do not adversely alter the planetary health; to organic agriculture with low external inputs; to institutions which can raise their own revenue; to processes which are self-supporting without subsidy.

History of Sustainability

While sustainable development was not recognized by its present coinage, for centuries, it has been a part of civilizations and societies around the world. Although they have different contexts and structures, the core element of all of the indigenous traditions and beliefs, around the globe, has been the importance of living in harmony with nature.

However, the term as we know it today, has had a complex trajectory within the larger developmental discourse, refined, modified and expanded as per the changing times and the changing world.

Except in technical articles, the word sustainability was rarely used in the public domain, until 1972, when a series of articles, entitled ‘Blueprint for Survival’, published in *The Ecologist*, made distinctive use of the word to highlight environmental and ecological issues and their adverse impacts on the quality of life and human survival.

The new scientific paradigm central to the Enlightenment that transformed the human–nature relationship, combined with the capitalist model of production and consumption, produced a degree of change and scale of degradation not previously seen. Along with this, the North’s domination, effectuated through colonization in pursuit of resources, markets and land – and later extended through the globalization of trade, technological expertise, the money market and communications (*The Ecologist* 1993) – ultimately resulted in global impacts on nature and the lives of people, perceptible enough for the world to take notice. Relentless economic growth and industrialization, and the consequent environmental degradation brought about a fall in the quality of human life, issues of social injustice and inequalities and large scale environmental deterioration, the burden of which was being disproportionately borne mostly by the socio-economically deprived sections of the population. These social and environmental impacts and the struggle to deal with them led to the coining of the concept of ‘sustainable development’ and its appearance on the international agenda in the 1970s.

An eminent panel wrote that our ‘industrial way of life with its ethos of expansion’ is not ‘sustainable’. The rates of growth in population and consumption are undermining human survival prospects by disrupting ecosystems and depleting resources.’ The panel concluded that a stable society would cause minimum ecological disruption, practice maximum conservation and maintain a constant population. ‘Our task is to create a society which is sustainable and which will give the fullest possible satisfaction of its members’, they wrote.

They recommended that to help prevent a breakdown of society, we should live in small, de-industrialized communities. In this case, the meaning of sustainability became quite broad and suggested a change in lifestyle; implementation of population controls; better management of natural resources; and the establishment of “no-growth” economies.

Since then, a “number of important historical antecedents set the stage for the emergence of this concept” (Vos, 2007, pg 334), of which probably the most significant was the 1972 Club of Rome report, “Limits to Growth” by Donella Meadows and her colleagues, that used computer simulation to arrive at the possibility that given the present overexploitation of resources, rising levels of pollution globally, exponential population increase, the planet would be unable to maintain the existing economic

and population growth beyond the year, 2100, even with advancements in technology.

The UN Conference on the Human Environment at Stockholm (1972) brought developed and developing nations together for the first time to debate 'the rights of humanity to a healthy and productive environment'. Participants addressed transboundary pollution, co-operative management of shared resources and the global commons and agreed to open their courts to transboundary proceedings. Stockholm set the stage for later treaties protecting the global commons, the World Heritage Convention, the Whaling Convention and the Montreal Protocol on Ozone Depletion. These agreements created the doctrine of 'global trusteeship' on which the doctrine of 'sustainable development' would be founded (Boyle, unpublished comments).

'Sustainable development' first appeared in the World Conservation Strategy drafted by UNEP and IUCN (1980). It should be advanced through 'conservation', defined as 'the management of human use of the biosphere so that it may yield the greatest sustainable benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations' (Eblen and Eblen, 1994).

The UN's World Commission on Environment and Development (1987), chaired by Gro Harlem Brundtland of Norway, renewed the call for 'sustainable development' to alleviate poverty, feed the world and safeguard the environment. Their report, *Our Common Future*, for the first time, defined and explained the term 'sustainable development' and how it is to be achieved by nations across the world.

1. 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 immediate priority should be allotted; 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.

2. Thus the goals of economic and social development must be defined in terms of sustainability in all countries - developed or developing, market-oriented or centrally planned. Interpretations will vary, but must share certain general features and must flow from a consensus on the basic concept of sustainable development and on a broad strategic framework for achieving it.

By emphasising on the concepts of needs and limitations, the WCED established a strong connection between poverty alleviation, environmental protection and improvement and social equitability through mindful, restrained and sound economic growth.

What Brundtland Report (1987) did differently was place the discourse of sustainable development much more firmly in the economic and political context of international development. Also noticeable was the resistance to Northern hegemony regarding their perspective on environmental issues and their ideas of sustainable environmental practices. Thus, it became more democratic, 'political' and radical than the Stockholm Declaration (1972) or the World Conservation Strategy (1980). It took a stance that posed a challenge to traditional power structures, acknowledging the inseparability of environmental and development issues and the link between poverty and environment – 'the pollution of poverty' that Indira Gandhi had brought to the attention of the Stockholm Conference (Adams 1990). It was driven by the 'egalitarian' concept of sustainable development and the concern to find an equitable form of development (Reid 1995) closer to the understanding adhered to by the South (Jacobs 1999). Its dialectics, therefore, focus on the moral imperative of equitable sharing, intra and inter-generationally, with more even distribution, foreshadowing profound effects for poor and rich. Nevertheless, the fact that the social and economic objectives for sustainable development were based on the premise that further growth was necessary, encouraged scepticism among eco-centrists as well as ecological economists, who did not equate the shift to sustainability with the growth paradigm,

Despite its shortcomings, the Brundtland report introduced a new language of sustainable development which became a roadmap for governments, multilateral agencies, donor organizations and academics in their pursuit to understand sustainability and its multiple dimensions across multiple domains. Although criticised as vague and ambiguous, the WCED definition of sustainable development for the first time popularised the term on a global level and was a major political milestone that heavily contributed to its geopolitical significance and proliferation.

Since publication of this report, sustainable development increasingly became a key component of environmental discourse, leading to a very widespread acceptance with very diverse interpretations. According to Holmberg (1994), by 1994 there were more than 80 different definitions and interpretations fundamentally sharing the core concept of the WCED's definition.

After the release of WCED report on Sustainable Development, the next major event on this subject was the **United Nations Conference on Environment and Development (UNCED)**, also known as the "**Rio Conference**," or the "**Earth Summit**" held in Rio de Janeiro in Brazil in June, 1992. UNCED led to production of major international documents such as the Rio Declaration, the Convention on Climate Change, and the Convention on Biological Diversity. Also adopted was a 300 page plan, by the name of Agenda 21 that would be a blueprint for sustainable development in the 21st Century. Although a great deal of importance was attached to the documents and declarations signed at the end of the conference, the most important legacy of UNCED was the very nature of the preparatory process, which, in most countries, involved participation of major stakeholders down to the grassroots level. This process took the

concept of sustainable development to every corner of the world, exposing it to questions such as: What does it really mean for each and every community? How can we get beyond generalities and put them into practice? How do we know if we are moving toward a sustainable world? The participation of over 150 nations with vastly differing realities created a common platform that aimed to build common goals of environmental protection with differentiated responsibilities for its fulfilment.

In September 2000, leaders of 189 countries gathered at the United Nations headquarters and signed the historic Millennium Declaration, in which they committed to achieving a set of eight measurable goals known as the **Millennium Development Goals (MDG)** that ranged from halving extreme poverty and hunger to promoting gender equality and reducing child mortality, by the target date of 2015. These were based on the OECD DAC International Development Goals agreed by Development Ministers in the "Shaping the 21st Century Strategy".

1. Eradicate extreme poverty and hunger
2. Achieve universal primary education
3. Promote gender equality and empower women
4. Reduce child mortality
5. Improve maternal health
6. Combat HIV/AIDS, malaria and other diseases
7. Ensure environmental sustainability
8. Global partnership for development

The Rio Conference's 10 year anniversary was marked by the **World Summit on Sustainable Development (WSSD), in Johannesburg in 2002**. The summit's main objectives were to renew global support for sustainable development at the highest political level, to quicken the pace of Agenda 21 implementation and the fulfilment of the Millennium Development Goals.

However, the MDGs were not a success as expected. Progress was inconsistent and positive changes were not uniformly observed. They were criticised for not emphasising enough on sustainable development and having a lack of clarity in their objectives.

The **Rio+20 conference (the United Nations Conference on Sustainable Development) in Rio de Janeiro, June 2012**, brought back sustainable development in international policy discourse, with the concept of Sustainable Development Goals (SDGs) replacing the MDGs expiring in 2015. The drafting of the SDGs involved a colossal participatory process around the world and involved people from all walks of life including civil society organizations, citizens, scientists, academics, and the private sector. In July 2014, the UN General Assembly Open Working Group (OWG) proposed a document containing 17 goals to be put forward for the General Assembly's approval in September 2015. This document set the ground for the new SDGs and the global development agenda spanning from 2015-2030.

The 17 SDGs are-

1. End poverty in all its forms everywhere
2. End hunger, achieve food security and improved nutrition, and promote sustainable agriculture
3. Ensure healthy lives and promote wellbeing for all at all ages
4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
5. Achieve gender equality and empower all women and girls
6. Ensure availability and sustainable management of water and sanitation for all
7. Ensure access to affordable, reliable, sustainable and modern energy for all
8. Promote sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all
9. Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation
10. Reduce inequality within and among countries
11. Make cities and human settlements inclusive, safe, resilient and sustainable
12. Ensure sustainable consumption and production patterns
13. Take urgent action to combat climate change and its impacts (noting agreements made by the UNFCCC forum)
14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development
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
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
17. Strengthen the means of implementation and revitalize the global partnership for sustainable development.

"At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries - developed and developing - in a global partnership. They recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and

education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests. "

Indian Context

Although not formally recognized as the concept of ‘sustainable development’, sustainability has been an integral part of India since the pre-historic times. From spiritual texts of ancient times, the fight for self-sufficiency in colonial times, post-Independence era to modern day environmentalism, India has been a flag-bearer of sustainable living and practices over centuries.

Texts like the Vedas and Upanishads emphasise the concept of ‘Prakriti’, i.e. nature and its interconnectedness with human life. Texts like Manusmriti and Arthashastra highlight the rules of forest conservation and pollution control. Sustainable practices including crop rotation, organic farming, and water conservation were commonly followed.

Early empires like the Maurya and Gupta dynasties implemented strong environmental policies that promoted afforestation, wildlife conservation and prohibition of activities that threatened the floral and faunal species. Sustainable agriculture and irrigation systems were also encouraged while promoting community led water management systems in rural areas.

The Mughal period witnessed alongside large-scale afforestation and water conservation, the expansion of tank irrigation in South India and the invention of eco-friendly design in the form of wind towers, stepwells and rain-water harvesting.

The colonial era saw major resistance against unsustainable practices of the British by stalwarts like Gandhi who is duly credited with being the pioneer of the Swadeshi movement and self-reliance through local production, minimal consumption, and self-reliant villages formed the corner stone of later environmental movements in the country. He also advocated simple living that would include curbing one’s material desires, scepticism around heavy industrialization and judicious use of natural resources. Academics, activists and scholars alike have hailed him as one of the most prominent environmentalists this country has ever seen.

The post-Independence period in India was marked by a heavy focus on Industrialization and bringing about revolutionary changes in agriculture which was the backbone of the economy at that time, with both having their fair share of adverse implications for the environment and economy. The 1970s saw an uprising against unsustainable environmental practice in the form of the Chipko movement which became a turning point for environmentalism in India.

From 1990s onwards when ‘sustainable development’ started becoming an integral part of developmental planning and practice across the globe, India too joined in the global call for a safer, healthier and environmentally sound planet. While the 1991 Economic reforms opened

up the economy and led to rapid industrial growth, concerns for environmental issues also parallelly arose.

The National Action Plan on Climate Change (NAPCC) released in 2008 outlined a national strategy that aimed to enable the country to adapt to climate change and improve the ecological sustainability of India's development path. It stresses that maintaining a high growth rate is essential for increasing living standards of the vast majority of people of India and reducing their vulnerability to the impacts of climate change. It encompasses eight core missions in specific areas of solar energy, enhanced energy efficiency, sustainable habitat, water, sustaining Himalayan ecosystems, Green India, sustainable agriculture, and strategic knowledge for climate change.

Apart from this both the Centre and the States have adopted several programs aimed at fostering environmental, economic and social sustainability in the country which include, to name a few:

Swachh Bharat Abhiyan: Aims to improve sanitation and eliminate open defecation

Smart Cities Mission: Promotes sustainable urban development with better waste and water management.

State Action Plans on Climate Change (SAPCC): Adapted for regional climate resilience

Jal Jeevan Mission: Ensures safe drinking water for all rural households

Namami Gange Programme, Compensatory Afforestation Fund Act (CAMPA), National Mission for Green India, National River Conservation Programme, and Conservation of Natural Resources & Ecosystems are some of the programmes aimed at conserving, protecting and enhancing the natural resource base of the country.

Social inclusion is achieved through universalizing access to nutrition, health, education, social protection, and developing capabilities for entrepreneurship and employment. Financial inclusion through Jan Dhan-Aadhaar-Mobile (JAM) trinity – near universal access to bank accounts aided by the Jan Dhan Yojana (National Financial Inclusion Scheme); Aadhaar card (National unique identity number) for over 90% of the population; and expansive access to mobile phones, has propelled new avenues of credit, insurance, and Direct Benefit Transfers (DBT) to the poor, including to over 200 million women, thereby accelerating their economic empowerment.

India's climate action strategies call for clean and efficient energy systems, disaster resilient infrastructure, and planned eco-restoration. Acting on its nationally-determined contributions, India has electrified 100% of its villages, reduced 38 million tonnes of CO₂ emissions annually through energy efficient appliances, provided clean cooking fuel to 80 million poor households, and set a target to install 450GW of renewable

energy and restore 26 million hectares of degraded land by 2030. Globally, India stands third in renewable power, fourth in wind power, and fifth in solar power. India launched the Coalition for Disaster Resilient Infrastructure and the International Solar Alliance to leverage global partnerships for climate action and disaster resilience.

India is one of the fastest growing emerging market economies with a young population and burgeoning innovation and business ecosystem. With a GDP of USD 2.72 trillion in 2018-19, India strives to become a USD 5 trillion economy by 2025, and pursue an inclusive and sustainable growth trajectory by stimulating manufacturing, building infrastructure, spurring investments, fostering technological innovation, and boosting entrepreneurship.

According to the United Nations SDG Index Report 2023, the SDG Index Rank of India is 112 out of 166 countries, with an overall index score of 63.5 percent and spill-over score of 99.4 percent.

Although India has made significant progress with respect to sustainable development, challenges remain. Overpopulation, large-scale pollution of air and water, intense poverty and hunger, gender disparity on several fronts, inadequate health infrastructure, and social exclusion still exist. Sound planning, stringent implementation and consistent follow-ups and monitoring along with a dedicated focus on achieving sustainability in all its dimensions can surely give hope for the upcoming times.

1.5 DIMENSIONS OF SUSTAINABILITY: ECONOMIC, SOCIO-CULTURAL DIMENSIONS

The dimensions of sustainability refer to different facets of sustainability that collectively lead towards sustainable development. Commonly referred to as the ‘three pillars’, these facets comprise primarily the economic, social and environmental aspects of sustainable development. These dimensions are deeply interconnected, and achieving true sustainability necessitates a balanced approach that addresses all three areas simultaneously. Understanding these dimensions and their relevance to attaining sustainable development is key to the formulation of inclusive policy measures and strategies aimed at long-term development for the planet and its occupants.

Economic Sustainability

Our society has experienced rapid changes in just the past century. Since 1950, the population has more than doubled, global consumption of water has more than tripled, and the use of fossil fuels has quadrupled (Robertson, 2021). The driver of all of this change is economic; namely, the economic growth model that has been fundamental to human economic. This model is linear with resources going in and waste coming out, but this economic system has consumed resources faster than can be replenished and released waste into the environment much faster than the natural system can process. Several ecological economists and other

academics have recognized the flaws in the current economic model as not only harmful but perhaps physically impossible to maintain (Daly and Farley, 2003).

Economic sustainability generally seeks to responsibly manage the planet's finite resources in a way that is mutually beneficial to society and the planet. It acts as the capital connection between the social and environmental pillars of sustainability. It revolves around the notion of creating thriving economies that are resilient, inclusive, and equitable. It involves encouraging long-term economic growth while simultaneously addressing social inequalities and promoting resource efficiency.

Economic sustainability entails, but is not limited to the following:

- **Fostering Innovation and Adaptation**

Economic sustainability requires accepting innovation and adapting to changing economic conditions and technological advancements. By investing in research and development, fostering entrepreneurship, and promoting a culture of creativity and innovation, societies can drive economic growth while addressing persistent challenges such as climate change, resource scarcity, and inequality. Sustainable economic systems are characterized by their ability to adapt and thrive in the face of uncertainty and change.

- **Addressing Social Inequalities**

Economic sustainability demands addressing social inequalities and ensuring that the benefits of economic growth are equitably distributed among all members of society. This involves promoting inclusive economic policies, investing in education and skills development, and providing opportunities for marginalized groups to participate in the economy. By reducing income disparities, enhancing social mobility, and promoting social cohesion, societies can create more resilient and prosperous communities.

- **Promoting Resource Efficiency**

Economic sustainability comprises promoting resource efficiency and minimizing waste throughout the production and consumption process. This involves adopting sustainable consumption and production patterns, improving resource management practices, and reducing the environmental impact of economic activities. By optimizing resource use, minimizing environmental degradation, and enhancing the resilience of supply chains, societies can build more sustainable economies that operate within planetary boundaries.

- **Ensuring Financial Stability**

Economic sustainability requires ensuring financial stability and resilience to external shocks and crises. This involves implementing sound fiscal and monetary policies, regulating financial markets, and promoting responsible lending and borrowing practices. By reducing systemic risks,

enhancing financial inclusion, and promoting sustainable investment practices, societies can build more resilient financial systems that support long-term economic prosperity.

The economic aspect is a vital component of the United Nations' Sustainable Development Goals (SDGs) 2030 as it intersects with several key areas such as poverty eradication, decent work and economic growth, industry, innovation, and infrastructure, and reduced inequalities. The UN recognizes that sustained, inclusive, and sustainable economic growth is a crucial requirement for prosperity and quality of life.

SDG 1, aimed at terminating poverty in all its forms everywhere, fundamentally depends on robust economic systems capable of providing opportunities for all. Poverty cannot be eradicated without inclusive economic growth that offers meaningful employment and business opportunities to the poor and marginalized.

Similarly, **SDG 8** calls for promoting sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all. It acknowledges that the economy is a key driver of employment and the overall welfare of a nation. Decent work not only provides income but also contributes to individuals' social integration, fosters a sense of identity, and improves their overall well-being.

Furthermore, **SDG 9** underlines the role of industry, innovation, and infrastructure in creating robust economic growth. By developing quality, reliable, sustainable, and resilient infrastructure, including regional and trans-border infrastructure, countries can support economic development and human well-being.

Moreover, **SDG 10**, which aims to reduce inequality within and among countries, also highlights the importance of the economic aspect. Economic inequality can exacerbate social and political divisions, hinder poverty reduction, and slow down economic growth. Thus, policies ensuring equal opportunity and reducing inequalities of outcome are necessary.

The economic dimension also interacts significantly with environmental sustainability (SDG 13, 14, 15) and social factors like education (SDG 4) and health (SDG 3). A green economy can provide a pathway to achieving both environmental and economic objectives. Likewise, investments in health and education can boost economic productivity and growth in the long run.

By pursuing economic sustainability, societies can build stronger, more resilient economies that benefit all members, both now and in the future. Sustainable economic practices prioritize investments in green technologies, job creation in renewable energy sectors, fair labour practices, and responsible consumption and production patterns. Economic sustainability is not only essential for ensuring the well-being of current and future generations but also for safeguarding the health of the planet and promoting global prosperity.

Social Sustainability

Social sustainability emphasizes the importance of building societies that are just, equitable, and inclusive, where the well-being of all individuals is equally prioritized. This dimension of sustainability encompasses efforts to promote social cohesion, reduce disparities, and ensure access to essential services such as education, healthcare, and housing.

- **Promoting Social Cohesion**

Social sustainability involves promoting a sense of belonging and solidarity among diverse individuals and communities. This includes promoting social integration, facilitating community participation, and fostering trust and cooperation among members of society. By strengthening social networks and promoting mutual support and cooperation, societies can build resilience and adaptability in the face of challenges.

- **Reducing Disparities**

Social sustainability requires addressing systemic inequalities and reducing disparities in income, wealth, and opportunities. This involves implementing policies and programs aimed at promoting equal access to education, healthcare, employment, and social services. By reducing social inequalities, societies can enhance social mobility, improve social outcomes, and foster greater social cohesion and stability.

- **Ensuring Access to Essential Services**

Social sustainability entails ensuring that all members of society have access to essential services such as education, healthcare, housing, and social support. This involves investing in the provision of high-quality, affordable services and addressing barriers to access such as poverty, discrimination, and geographic isolation. By ensuring universal access to essential services, societies can promote well-being, enhance social inclusion, and reduce disparities in health and opportunity.

- **Empowering Marginalized Communities**

Social sustainability involves empowering marginalized and vulnerable groups to participate fully in society and have a voice in decision-making processes. This includes promoting the rights of women, children, ethnic minorities, indigenous peoples, persons with disabilities, and other marginalized groups, and addressing the root causes of discrimination and exclusion. By promoting social justice and empowerment, societies can build more inclusive and resilient communities where everyone has the opportunity to thrive.

By fostering strong social networks and investing in the health and welfare of all members of society, we can create communities that thrive both socially and economically. Social sustainability is not only essential for promoting human well-being and dignity but also for building resilient and

cohesive societies that can effectively address and counter the complex challenges of the 21st century.

Cultural Sustainability

Cultural sustainability focuses on safeguarding and celebrating the expansive landscape of human cultures, traditions, and heritage. It involves preserving indigenous knowledge, languages, rituals, and customs, while also promoting intercultural dialogue and understanding.

- **Protecting Indigenous Knowledge and Traditions**

Cultural sustainability entails recognizing and respecting the unique knowledge systems, traditions, and practices of indigenous peoples and traditional communities. This includes protecting indigenous lands and territories, supporting indigenous self-governance, and ensuring that indigenous people have the right to control and manage their cultural heritage. By respecting indigenous rights and knowledge, societies can promote cultural diversity and environmental stewardship and learn valuable lessons for sustainable living.

- **Promoting Intercultural Dialogue and Understanding**

Cultural sustainability encompasses fostering dialogue, collaboration, and mutual respect among people from diverse cultural backgrounds. This includes promoting intercultural education, cultural exchange programs, and initiatives that celebrate cultural diversity and promote cross-cultural understanding. By building bridges across cultural divides and promoting empathy and respect for cultural differences, societies can foster social cohesion, reduce prejudice and discrimination, and promote peace and harmony.

- **Protecting Cultural Heritage and Diversity**

Cultural sustainability requires protecting and preserving cultural heritage sites, artefacts, and traditions for future generations. This includes supporting heritage conservation efforts, promoting traditional arts and crafts, and revitalizing endangered languages and cultural practices. By valuing and preserving our cultural heritage, societies can enrich their collective identity, strengthen social cohesion, and promote a sense of belonging and pride among diverse communities.

- **Fostering Creative Expression and Innovation**

Cultural sustainability involves supporting and nurturing creative expression, innovation, and artistic endeavours. This includes investing in cultural institutions, supporting local artists and artisans, and providing opportunities for creative expression and cultural exchange. By fostering a vibrant cultural scene and promoting artistic innovation, societies can enrich the lives of their citizens, stimulate economic growth, and foster cultural vitality and resilience.

Cultural sustainability is essential for promoting human creativity, expression, and identity and for building inclusive and resilient societies that embrace diversity and promote dialogue and understanding. By valuing and preserving our cultural heritage and supporting creative expression and innovation, we can create vibrant and dynamic communities where people can live as one cohesive unit while celebrating in their own individuality and uniqueness.

In an increasingly interconnected and interdependent world, sustainability serves as a guiding principle for shaping a better future for all. By embracing environmental, economic, social, and cultural sustainability, we can build resilient, inclusive, and thriving societies that ensure the well-being of both current and future generations. As we confront the complex challenges of the 21st century, let us commit to adopting a holistic approach to sustainability, recognizing that our actions today have the power to shape the world of tomorrow. Together, we can create a more sustainable and equitable world for all.

1.6 DIMENSIONS OF SUSTAINABILITY: PSYCHOLOGICAL AND PHILOSOPHICAL DIMENSIONS

Psychological dimension

To grasp the widespread escalation of sustainability thinking, it might help to explore some of its psychological dimensions. Sustainability, it seems, is a contemporary example of worldwide proportion. The capacity of the term to incorporate so many diverse lines of thoughts, concerns and possibilities for action, so quickly and so heterogeneously, validates its underlying psychological dimensions.

Psychological explorations of environmental, ecological and sustainability topics have unfolded along multiple pathways during the past half-century. One of the catalysts comes from an elementary lesson of evolution and ecology — that no species ever enjoys infinite resources. These concerns were a founding basis of the environmental movement. At the beginning, issues of pollution, resource depletion, technological impact and exponential population growth framed a question: ‘Can the natural environment absorb the impact of human influence’? Which over time was reframed to: ‘Can human consciousness comprehend our relation to the living world’?

Environmental psychology — one of the first subfields to explore these relationships — began with a predominately behavioural focus on issues of crowding, environmental hazards and stressors, and influences of the built environment on human affairs. In time, a more intrapsychic reorientation developed around the role of ecological knowledge and beliefs in processes of environmentally responsible behaviour and societal change. This shift from a ‘carrying-capacity’ to a ‘consciousness-capacity’ perspective has expanded into a broad multidisciplinary gathering of knowledge and approaches. Topics range from individual-level studies of

attitudes, values and belief systems, to household-level models of conservation and decision-making — all the way to broad-based, socio-demographic and cross-national comparisons.

These studies have revealed important findings at all levels: Firstly, people tend to hold core value systems that characteristically follow egoistic, social-altruistic or biospheric-centered orientations. Secondly, these values and associated attitudes significantly impact individuals' ecologically responsible behaviour. Thirdly, a substantial level of environmental impact is also associated with family-level choices and household actions. Finally, broader still — when basic levels of food, shelter and material affluence are met, it appears that a post material orientation may emerge — across diverse social and national contexts — with positive, pro-environmental consequences.. Ecological knowledge and environmental beliefs are important components of a sustainability transition; and these dimensions are interwoven throughout the processes of change at personal, societal, economic and policy levels.

Verdugo (2012) framed a model in which, "sustainable behaviour is determined by (positive) situational and dispositional antecedents, and reinforced by positive psychological consequences". He states that a number of studies reveal that positive psychological antecedents (capacities, emotions, virtues and strengths) as well as positive psychological consequences (satisfaction, psychological well-being, and happiness) of Sustainable Behaviour are significant determinants of pro-environmental actions. By displaying pro-environmental actions like frugality, responsible consumption, concern for collective well-being a series of positive benefits, both intrinsic and extrinsic are achieved. Intrinsic benefits would include satisfaction, happiness and psychological well-being while extrinsic benefits would be higher availability of resources through mindful usage, material savings and an increase in reputation through altruistic behaviour.

.Likewise of relevance are the humanistic-existential insights and empathetic traditions of Carl Rogers, Abraham Maslow and Rollo May. These align, as well, with Wilson's hypothesis of an innate human-evolutionary 'biophilia', i.e., an innate and genetically determined affinity of human beings with the natural world. They intersect with the processes of deep ecology and the spiritual and healing dimensions of eco-psychology. All have become diverse facets of the psychology of ecological concern and sustainability thinking.

Ecology, as an interdisciplinary science, has always struggled with the complexities of biological evolution and the distribution and abundance of organisms. But some of the most challenging questions have occurred along the line between natural ecology and human ecology. For some, ecology should restrict itself to the scientific study of natural systems; for others, humans are an inseparable part of the living world and must be included within the domain of ecology, that is, the place (and responsibilities) of humans in nature.

In sum, the current situation is two-fold. On one hand, a century-long interchange has occurred between ecology as a natural (objective) science and psychology's (and other areas of human studies) subjectively centred concerns for a human ecological future. For much of that time, before the 1970s environmentalism, these topics seldom reached the level of public awareness to stimulate pervasive, action-oriented agendas. On the other hand, sustainability — as a more recent visionary concept, has captured widespread (conscious) aspirations for an equitable and ecologically viable future; but finds itself in search of substantive social, scientific and political validation. One tradition has a long scientific past in pursuit of well-defined applied objectives. The other has hold of humans' collective imagination and hopes, but needs to develop capabilities for the guidance of broad-based change. Sustainability is a complex concept. Some aspects arouse empathy, inspire responsibility and stimulate change; other dimensions are threatening to status quo thinking, and invite all fashion of cognitive distortions. There is a growing sense among scholars and practitioners that bona fide sustainability demands changes in human behaviour. The central problem, however, may not be a lack of knowledge per se; but rather, a viscous cycle of social, economic and institutional barriers— that must be broken. Resolution of current challenges will require a deep level of psychological understanding and integration of these dimensions — along with creative leadership — to realize the potentials of a meaningful and liveable future.

Philosophical dimension

The philosophical dimension of sustainability looks into the ethical, moral, and conceptual frameworks that inform our understanding and implementation of sustainable practices. This perspective examines the underlying values and principles that guide human understanding, attitude and behaviour towards society and environment.

It was during the mid-twentieth century, the philosophy of nature exhibited a much greater interest in the issues of the condition of the contemporary natural environment. This was due to the intensifying global ecological crisis and the related environmental threats. Nature was no longer perceived as something obvious, understandable, subject to human and serving as an endless source of raw materials for the creation of subsequent products of technological craftsmanship. It formed the grounds for a specific revision of all dimensions of human-nature interaction in contemporary philosophy. This reorientation of the subject and tasks of contemporary philosophy of nature aimed to create new directions and principles for its transformation and use, i.e., the management of its resources. This resulted in the emergence of a new area of philosophical reflection and inquiry in the early 1970s – Ecophilosophy. The development of this new philosophical doctrine proceeded in many ways, depending on the direction of its ecophilosophical deliberations.

In the 1970s, the Norwegian physicist and philosopher Arne Naess (1984; 1989), faced with an increasingly noticeable environmental crisis, created a new line of philosophy called “deep ecology”. According to its assumptions, ecology could not deal only with the elements, systems and functioning of the environment, but it should consider the effects and consequences of human impact on it. It is necessary to make people aware that the survival of the human species is very closely dependent on the survival of other species, so every effort should be made to stop their extinction. In order to improve the relationship with the environment, human should reject the belief in the uniqueness of human species, i.e. the basic thesis of an anthropocentrism strongly established in European culture, which alienates man from the surrounding reality. It should be replaced by a new rule of conduct –ecosophy, the foundations of which are commonly present in nature and result from the innate “wisdom” of terrestrial species living in a harmonious system and having the ability to complement each other in maintaining balance at all levels of ecosystems.

According to Gawor (2006), the idea of sustainable development belongs to a qualitatively new civilisation, and its philosophical implications lead to a new stream of social philosophy with an almost global reach. Man, together with the social world he has created, cannot be treated as a separate and independent entity from the natural world, because he is an integral component of the biosphere and has built asymmetric, close and inseparable relationships with it throughout history.

The concept of sustainable development is therefore based on values that are rudimentary for the human social world (pacifism, freedom), teleological values for all forms of life (dignity, egalitarianism, life, justice) and instrumental values in achieving the assumed goals – community, responsibility and moderation.

The philosophical dimensions of sustainable development primarily focus on ethical considerations regarding the balance between economic progress, social equity, and environmental protection, often drawing from ideas of intergenerational justice, stewardship of the Earth, and the intrinsic value of nature, with key themes including: the concept of "enough" (limits to consumption), the responsibility to future generations, the interconnectedness of all living beings, and the ethical treatment of marginalized communities when pursuing development goals.

Key philosophical concepts related to sustainable development:

- **Anthropocentrism vs. Ecocentrism:** Debates about whether humans are the central focus of environmental ethics or if nature has intrinsic value independent of human needs.
- **Utilitarianism:** The idea of maximizing overall happiness and well-being for the greatest number of people, which can be applied to

sustainability by considering the collective impact of development decisions.

- **Deontology:** Ethical philosophy based on following moral rules and duties, highlighting the importance of respecting environmental boundaries and human rights in development.
- **Virtue Ethics:** Emphasizing the development of good character traits like moderation and responsibility as crucial for sustainable practices.
- **Social Justice:** Ensuring equitable distribution of resources and opportunities across different social groups, considering the disproportionate impacts of environmental degradation on marginalized communities.

How these philosophical dimensions play out in practice:

- **Intergenerational Equity:** Considering the needs of future generations when making decisions about resource use and environmental protection.
- **Precautionary Principle:** Taking action to prevent potential environmental harm even when scientific certainty is limited.
- **Holistic Approach:** Recognizing the interconnectedness of economic, social, and environmental systems, requiring integrated solutions.
- **Respect for Biodiversity:** Recognizing the value of diverse ecosystems and the need to conserve them.

1.7 DIMENSIONS OF SUSTAINABILITY: ENVIRONMENTAL AND ECOLOGICAL

Environmental Sustainability

Conservation and sustainable management of the natural environment, including its biodiversity, is critical for sustaining long-term human existence. As a result, the environment has become a major issue on the international development agenda, and developed and developing countries alike have also been galvanized into action. Countries across the global divide have set up their ministries or departments of environment and produced their national development agenda with great emphasis on environmental protection. To reinforce environmental protection efforts, countless environmental laws and regulations have been enacted by all member states of the United Nations. This has been instrumental in shaping the international environmental legal regimes and sustainable policy agenda to reverse environmental degradation on our planet. The main purpose of this chapter is to assess the United Nations' impact on the evolution of global environmental regimes in promoting environmental sustainability.

The term environmental sustainability is associated with responsible human decisions and actions in interactions with the natural environment.

It may well be that many natural systems can withstand human disturbances or external pressure only up to a certain threshold (or “tipping point”) beyond which ecological discontinuities and possibly irreversible consequences may occur (Srebotnjak et al., 2010). Thus within the present context, environmental sustainability may be defined as sustaining the ecological integrity of the natural system while optimizing its economic use (Choy, 2015).

At the core of environmental sustainability is the commitment to preserving and protecting the natural world upon which all life depends. This dimension of sustainability encompasses efforts to mitigate climate change, conserve biodiversity, safeguard ecosystems, and reduce pollution and waste.

- **Mitigating Climate Change**

Climate change poses one of the most significant threats to our planet’s health and well-being. Environmental sustainability requires decisive action to reduce greenhouse gas emissions, transition to renewable energy sources, and adapt to changing climatic conditions. By investing in clean energy technologies, improving energy efficiency, and implementing climate-resilient infrastructure, we can mitigate the impacts of climate change and build a more sustainable future.

- **Conserving Biodiversity**

Biodiversity is the foundation of healthy ecosystems, providing essential services such as pollination, nutrient cycling, and pest control. Environmental sustainability involves protecting and restoring habitats, conserving endangered species, and promoting sustainable land management practices. By preserving biodiversity, we can maintain the resilience of ecosystems and ensure the survival of diverse plant and animal species for future generations.

- **Safeguarding Ecosystems**

Ecosystems play a crucial role in regulating the Earth’s climate, purifying air and water, and providing food, medicine, and other resources essential for human well-being. Environmental sustainability requires safeguarding ecosystems such as forests, wetlands, and oceans from degradation and fragmentation. By establishing protected areas, implementing sustainable forestry and fisheries practices, and restoring degraded landscapes, we can maintain the health and integrity of ecosystems and the services they provide.

- **Reducing Pollution and Waste**

Pollution and waste pose significant threats to human health, ecosystems, and the environment. Environmental sustainability entails reducing emissions of air and water pollutants, minimizing waste generation, and promoting recycling and waste management practices. By adopting cleaner production methods, implementing pollution control measures,

and shifting towards a circular economy model, we can reduce our environmental impact and create a more sustainable society.

Practices such as renewable energy adoption, sustainable land use planning, water conservation, and recycling are essential components of environmental sustainability. By embracing these practices, we can minimize our ecological footprint and ensure that the Earth remains habitable for future generations. Environmental sustainability is not only a moral imperative but also an economic opportunity, as investments in environmental protection and conservation can yield significant long-term benefits for both people and the planet.

Additionally, businesses are increasingly recognizing the importance of environmental stewardship and are taking proactive measures to reduce their carbon footprint and mitigate their impact on the environment. One such initiative gaining momentum is tree planting programs implemented by businesses as part of their corporate social responsibility efforts. These initiatives involve planting trees in deforested areas or degraded landscapes, not only sequestering carbon dioxide from the atmosphere but also restoring ecosystem health and biodiversity.

Ecological sustainability

Two factors may be identified as the basic premises for the ecological conception of sustainability. First, nature, left untouched, is a self-organizing system that changes, responds, and evolves over time through a highly variable set of quasi-stable conditions. It is sustainable in the sense that it has no distinct goals or purpose. Second, human beings try to impose some constancy and dependability of supply of needed products from nature through deterministic interventions. Based on these premises, there are quite a number of sustainability concepts within the disciplinary framework of ecology that may be categorized broadly into two domains: **shallow ecology and deep ecology**. Shallow ecology refers to the treatment of environmental problems without addressing the underlying causes and philosophical assumptions that shape our current political and economic thinking.

On the other hand, the concept of deep ecology formulated by the Norwegian philosopher, Arne Naess, in the early 1970s as a critique of shallow ecology. He opined, in the long run, environmental reforms of social and economic systems are not a feasible solution to offset the exacerbating destruction of the environment. Warning that the ecological crisis threatens the survival of humanity, Arne Naess identified the deeper roots of the crisis in Western culture and in particular in the cultural values legitimizing the domination of nature. Intuitively, deep ecologists propose to replace anthropocentric hegemonies with bio centric egalitarianism. They see richness and diversity of life as values in themselves and assume that human beings have no right to reduce these, except to satisfy their basic needs. They also stress the need for cultural diversity and diversity in social arrangements as necessary preconditions for the survival of the planet.

In an attempt to qualify deep ecology, ecologists have developed the concept of Gaia. The major tenet of this hypothesis is that Gaia is a total self-organizing and self-reproducing, organic, spatio-temporal, and teleological system with the goal of maintaining itself. The Gaia hypothesis has caught the imagination of the ecological movement and has replaced the image of the “Earth as a machine” with the image of the “Earth as an organism.” The Gaia theory highlights interdependencies within the abiotic and biotic worlds and urges people to focus on the one most important larger goal for the greater good, which is the survival of the earth.

(1) Ecologically sustainable development is development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends.

(2) The objectives of ecologically sustainable development are

- To enhance individual and community well-being and welfare by following a path of economic development that safeguards the welfare of future generations;
- To provide for equity within and between generations;
- To protect biological diversity and maintain essential ecological processes and life support systems.

(3) The following are to be considered as guiding principles of ecologically sustainable development

- That decision making processes should effectively integrate both long-term and short-term economic, environmental, social and equity considerations.
- If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation;
- The need to consider the global dimension of environmental impacts of actions and policies. • The need to develop a strong, growing and diversified economy which can enhance the capacity for environment protection;
- The need to maintain and enhance international competitiveness in an environmentally sound manner.
- The need to adopt cost effective and flexible policy instruments such as improved valuation, pricing and incentive mechanisms.
- The need to facilitate community involvement in decisions and actions on issues that affect the community.

The multiple dimensions of Sustainability are important in so far as goal setting and priority areas are concerned. However, it is important to remember that it is only when these dimensions are collectively addressed

and ensured, sustainable development achieved is inclusive, meaningful and holistic.

1.8. SUMMARY

Sustainability is a multidimensional concept that is dynamic and ever evolving. Despite discussions, meetings, conferences held on global platforms, it still remains a topic that is up for debate and contestation. Nevertheless, it has been responsible for bringing about a significant shift in how the world viewed human-nature relationships and the responsibility we owe towards the earth and all living organisms inhabiting it. It has equipped nations with the agency to bring about a change that is beneficial for present and future generations through meaningful social change, mindful economic growth and sustainable environmental behaviour,

1.9. CHECK YOUR PROGRESS OR EXERCISE

I. True or False

- a. The term "sustainable development" was first coined in the 21st century.
- b. The Brundtland Report (1987) defined sustainable development as meeting the needs of the present without compromising the ability of future generations to meet their own needs.
- c. India has historically ignored sustainability, only adopting sustainable practices after the United Nations introduced the Sustainable Development Goals (SDGs).
- d. Economic sustainability focuses solely on increasing GDP without concern for environmental or social factors.
- e. The concept of deep ecology, developed by Arne Naess, suggests that humans should view themselves as superior to nature.

II. Fill in the blanks

- a. The _____ movement in India during the 1970s was a significant environmental protest that aimed to prevent deforestation by hugging trees.
- b. The _____ Conference of 1972 was the first major international gathering to discuss the rights of humanity to a healthy and productive environment.
- c. Arne Naess introduced the concept of _____ ecology, which promotes a deep, intrinsic respect for all living beings rather than an anthropocentric perspective.

d. The _____ Sustainable Development Goals (SDGs) were adopted by the United Nations in 2015 to address global challenges such as poverty, inequality, and climate change.

e. Agenda 21 was adopted at the _____.

III. Multiple Choice Questions

a. _____ emphasizes the importance of building societies that are just, equitable, and inclusive, where the well-being of all individuals is equally prioritized.

- a) Economic sustainability
- b) Ecological sustainability
- c) Social sustainability
- d) Environmental sustainability

b. Which ancient Indian text emphasizes the concept of ‘Prakriti’ (nature) and its interconnectedness with human life?

- a) Arthashastra
- b) Vedas and Upanishads
- c) Manusmriti
- d) Bhagavad Gita

c. What was the main objective of the 1972 Stockholm Conference?

- a) To establish the Millennium Development Goals (MDGs)
- b) To discuss the environmental impact of industrialization
- c) To create the Kyoto Protocol
- d) To promote financial inclusion

d. Which of the following is NOT one of the 17 Sustainable Development Goals (SDGs)?

- a) End poverty
- b) Combat climate change
- c) Achieve gender equality
- d) Promote sustainable tourism

e. What does the National Action Plan on Climate Change (NAPCC) in India focus on?

- a) Increasing deforestation to boost the timber industry
- b) Reducing dependence on renewable energy sources
- c) Enabling the country to adapt to climate change and improve ecological sustainability
- d) Eliminating all forms of industrialization

IV. Answer the following questions

a. Define the term ‘sustainable development’ and discuss its evolution within the development paradigm.

b. In what ways has India advocated sustainability from 1990 onwards to the present day?

- c. What comprises the main principles of economic sustainability?
- d. How can socio-cultural sustainability be ensured?
- e. What are the theoretical underpinnings of ecological sustainability?

1.10. ANSWERS TO THE SELF-LEARNING QUESTIONS

I. True or False

- a. False
- b. True
- c. False
- d. False
- e. False

II. Fill in the blanks

- a. Chipko
- b. Stockholm
- c. Deep
- d. 17
- e. Rio Conference/Earth Summit, 1992

III. Multiple Choice Questions

- a. Social sustainability
- b. Vedas and Upanishads
- c. to discuss the environmental impact of industrialization
- d. Promote sustainable tourism
- e. Enabling the country to adapt to climate change and improve ecological sustainability

1.11. TECHNICAL WORDS AND THEIR MEANING

Ecological Sustainability – The practice of maintaining and preserving natural resources and ecosystems to ensure that environmental processes continue to support life for present and future generations. It involves actions such as reducing pollution, conserving biodiversity, and promoting sustainable resource management.

Environmental sustainability- The commitment to preserving and protecting the natural world upon which all life depends. This dimension

of sustainability encompasses efforts to mitigate climate change, conserve biodiversity, safeguard ecosystems, and reduce pollution and waste. It involves responsible human decisions and actions in interactions with the natural environment to maintain ecological integrity while optimizing economic use.

Sustainable Development Goals (SDGs) -A set of 17 global goals adopted by the United Nations in 2015 as an urgent call for action by all countries—developed and developing—in a global partnership. They aim to end poverty and other deprivations while improving health, education, reducing inequality, and fostering economic growth, all while addressing climate change and preserving natural ecosystems.

1.12. TASK

Choose any dimension of sustainability and discuss how India has taken steps towards fulfilling the same in terms of policy measures, the progress made, the gaps and the way forward.

1.13. REFERENCES FOR FURTHER STUDY

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SUSTAINABILITY IN PERSPECTIVES AND SPACE (15 HOURS)

Unit Structure

After going through this chapter, you will be able to understand the following-

- 2.1. Objectives
- 2.2. Introduction
- 2.3. Subject Discussion
- 2.4. Eastern Perspectives on Sustainability and life style: Buddha, Gandhi, Swami Vivekananda and Tao
- 2.5. Western Perspective on Sustainability - Arne Naess, J. Baird Callicot, George Sessions
- 2.6. Spatial Dimensions of Sustainability – Geography, socio-cultural space and community environmental ethics
- 2.7. Traditional Knowledge Systems and environmental sustainability
- 2.8. Summary
- 2.9. Check Your Progress or Exercise
- 2.10. Answers to the Self-learning questions
- 2.11. Technical Words and their meaning
- 2.12. Task
- 2.13. References for further study

2.1. OBJECTIVES

At the end of this unit, you will be able to –

- Cognise the eastern perspectives on sustainability
- Get acquainted with the western philosophies of sustainability
- Understand the various spatial dimensions of sustainability
- Comprehend the importance of Traditional Knowledge Systems in environmental conservation and protection.

2.2. INTRODUCTION

This chapter elaborates on the different perspectives and interpretations of sustainability as seen around the world. It begins with the Eastern perspective of sustainability that involves the views and standpoints of eminent philosophers like Buddha, Gandhi, Vivekananda and Tao after which the Western sustainability philosophies of people like Arne Naess, George Sessions and J. Baird Callicot are discussed. The section after that sheds light on the spatial dimensions of sustainability, as seen in Geography, socio-cultural space and community environmental ethics. Lastly, the chapter highlights the relevance of traditional knowledge systems in imparting sustainability knowledge in contemporary times.

2.3. SUBJECT DISCUSSION

Sustainability is a complex and dynamic concept that entails a multidimensional approach to ensure environmental, social, and economic well-being. Throughout history, various philosophical traditions, cultural practices, and geographical factors have influenced the way humans interact with nature and manage resources. This section explores different perspectives on sustainability, ranging from Eastern and Western philosophical viewpoints to spatial dimensions and traditional knowledge systems that shape sustainable practices.

Understanding sustainability through diverse perspectives help recognize the importance of both modern scientific approaches and time-tested traditional methods in addressing global environmental challenges. By integrating ethical principles, geographic contexts, and indigenous wisdom, we can develop a more holistic and inclusive framework for sustainability.

2.4. EASTERN PERSPECTIVES ON SUSTAINABILITY AND LIFE STYLE: BUDDHA, GANDHI, SWAMI VIVEKANANDA AND TAO

Buddha

According to Buddhist perspective, sustainability is intricately connected to the principles of interdependence, mindfulness, and non-violence (ahimsa). The core teachings of Buddhism encourage a way of life that promotes balance, simplicity, and respect for all living beings.

The key principles of sustainability in Buddhism are:

1. Interdependence (Pratītyasamutpāda)

Buddhism teaches that all things are interconnected. The well-being of humans, animals, and the environment is deeply linked. A sustainable lifestyle recognises and respects this interconnectedness by minimizing harm to nature and promoting harmony among its various components.

2. Mindful Consumption

Buddhism advocates for moderation and mindful living, which aligns with sustainable practices such as reducing waste, conserving resources, and making ethical choices in consumption. The concept of **Right Livelihood** (one of the Eightfold Path elements) encourages people to engage in work that does not exploit people or harm the environment.

3. Non-violence (Ahimsa) and Compassion

The Buddhist principle of **ahimsa** that refers to avoiding harm to living being is in line with the principle of sustainability which cares for and values all forms of life on earth. Hence Buddhists promote vegetarianism or mindful eating, ethical business practices, and conservation efforts to protect every living being, both human as well as non-human.

4. Impermanence (Anicca) and Simplicity

Recognizing that everything is temporary, Buddhism teaches the futility of materialism. Since everything is impermanent, it advocates simplifying one's life, minimizing overconsumption, and focusing on what truly matters for well-being.

5. Dukkha (Suffering) and the Need for Balance

Although suffering is an inevitable part of life according to Buddhists, created through greed and desire which eventually results in environmental destruction. In order to curb suffering, Buddhism suggests minimizing wants and desires for unlimited materialistic possessions. This sustainable approach to life helps subside suffering for both present and future generations.

6. Karma and Responsibility

Our actions have consequences (karma), and harming the environment can lead to negative outcomes for society and future generations. Being responsible towards the well-being of the environment is a way to cultivate good karma.

7. Community and Collective Well-being

Buddhist teachings emphasize community (sangha) and shared well-being. Sustainability efforts, such as community-driven conservation and ethical economies, are encouraged to foster community efforts for planetary health.

Buddhists believe that the lasting foundation of sustainable communities is to create a social and political society that educates and reinforces the cultivation of the Buddhist moral virtues. For Buddhists, the most important change in any social plan for sustainable development must begin within individuals' self-awareness. From a Buddhist perspective, the true method toward sustainable development begins not with institutions, laws, and political policies but within the individual who must

overcome attachments and defilements through an understanding of the four noble truths and the application of the Eightfold path.

Before a society can transform its practices, individuals must first be committed to overcoming their attachments to sense pleasures, materialism, greed, hatred, social and political power; recognize their inter-dependence and their place in the natural world; and, apply the moral principles of Buddhism to their social and political problems.

According to Buddhist perspective, sustainability is not just about environmental conservation—it is a way of living that aligns with ethical, mindful, and compassionate principles. By practicing mindfulness, simplicity, and respect for nature, individuals and societies can create a more balanced and harmonious world.

Gandhi

Although Mahatma Gandhi did not explicitly put forward a structured model of environmental conservation, his philosophy rooted in minimalism, self-reliance, non-violence and ethical living aligns closely with modern sustainability efforts of modern day society.

His famous quote- "The world has enough for everyone's need, but not for everyone's greed," summarises his ideas about sustainable living-mindful and judicious use of resources along with their management and conservation. Hence, he encouraged the practice of a simple, minimalistic lifestyle with very limited needs that would not lead to environmental deterioration.

He believed in the concept of "Sarvodaya" which translated into "universal uplift" or "progress for all" and therefore collective well-being was the basis of his thinking in which he advocated for a community-centred approach to development without any selfish motive for individual benefits. Every member of the society is the trustee of the wealth generated out of the collective efforts of all. He expected that the trusteeship will result into non-violent and non-exploitative socio-economic relations and development models based on production systems centred on the preservation of nature.

Gandhi did not believe in having a central authority in governance and appealed for decentralization of power at all levels of administration. A key principle of Gandhi's philosophy of sustainability is Swaraj or self-rule. Gandhi believed that true sustainability could only be achieved when people took responsibility for their own lives and the environment around them. He saw self-rule as a means of empowering individuals and communities to take control of their own destiny and work towards a sustainable future.

In his model of sustainability, Gandhi believed man is at the centre of bringing about meaningful change within himself that would eventually trickle down to his surroundings and therefore individually as well as collectively, people have to aim and practice living ethically, in harmony

with everyone as well as nature and show compassion and kindness to one and all.

Gandhi wrote in the first decade of 20th century in 'Hind Swaraj' that a relentless quest for material goods and services and civilization driven by endless multiplication of wants is 'Satanic' and defined civilization in terms of the preferences of duties; 'adherence to moralities and exercise of restraint', thus limiting greed. Hind Swaraj became the manifesto of sustainable development after the first 'Satyagraha'. For eight years (1906-1914) it became a movement against the exploitations of the modern western civilization. In a much broader sense, it had the challenging and compassionate vision of saving the planet earth.

Harmonious existence of mankind and nature presupposes an approach based on equity and justice and coexistence of all cultures and civilisation. In 1911, Gandhi used the phrase, 'Economy of Nature' which brings out the sensitivity and deeper understanding of human actions vis-a-vis ecology. In 1928, he wrote, "God forbid that India should even take to industrialization after the manner of the west. If the entire nation of 300 million took to similar economic exploitation, it would strip the world bare like locusts." This statement appears contemporary for a world struggling to survive against the unprecedented global warming and climate change.

Gandhi's philosophy of sustainability is deeply rooted in the idea of ahimsa or non-violence. For Gandhi, non-violence meant not only refraining from physical violence but also avoiding any action that could harm others or the environment. He believed that all life was interconnected, and any harm to one part of the ecosystem would have a ripple effect on the rest. Therefore, Gandhi advocated a holistic approach to development that took into consideration the social, economic, and environmental aspects of sustainability.

In conclusion, Gandhi's philosophy of sustainability offers valuable insights into how we can achieve sustainable development while preserving the environment and promoting social justice. By adopting Gandhi's principles of ahimsa, swaraj, satyagraha, and sarvodaya, we can promote a more holistic approach to development that takes into account the social, economic, and environmental aspects of sustainability. His ideas have influenced global sustainability movements, from organic farming to zero-waste lifestyles and climate activism.

Swami Vivekananda

Swami Vivekananda, born as, Narendra Dutta, was a prominent Indian Hindu monk and philosopher, famous for his introduction of Hinduism to the Western world and giving it the status of a global religion along with popularising Vedanta and Yoga across the international borders of India. Although he is primarily known for his teachings on spirituality, self-reliance and service to humanity, he also imparted ideas that fostered principles of sustainability.

Rooted in the Hindu philosophy of *Advaita Vedanta*, Vivekananda promoted a concept, better known as Neo-Vedanta in which the spiritual practice of serving human beings is the manifestation of the divine. It reconciles the concept of dvaita and advaita; Swami Vivekananda's Neo-Vedanta makes no difference between the sacred and the secular life. As world is Brahman, worldly activity too is sacred and all selfless work is worship. Therefore, selfless activity is not only social but also spiritual. As long as man lives in the world he must perform worldly activity in the spirit of detachment. Thus Neo Vedanta encourages individual freedom and selfless activity on the part of the individual, and social equality and oneness in society.

1. Vivekananda believed in oneness of all existence and universal brotherhood—humans, animals, and nature are interconnected. He encouraged respecting and preserving nature as part of spiritual responsibility and encouraged using resources judiciously without harming the environment.

2. He promoted a minimalistic lifestyle that reduces materialism and excess consumption and refraining from using things that adversely affect the planetary health and motivated people to live with dignity while being mindful of their impact on nature.

3. He advocated self-sufficiency and promoted rural development which would involve empowering villages through education and sustainable livelihoods, like organic farming and indigenous cultivation methods that would work in harmony with nature. He also believed in self-reliance through local entrepreneurship and a declining dependence on industrialization.

4. Believed in holistic education that includes moral values, practical skills, and respect for nature. He appealed to the youth to develop eco-friendly innovations and contribute to nation-building and also stood up for the upliftment of marginalized communities through sustainable means.

5. Vivekananda inspired people to work for the welfare of all, not just personal benefits. He promoted sustainable charity—helping people become independent rather than being reliant on aid.

6. He advocated a balance between science & spirituality, citing that technological advancement should not come at the cost of ethics and environment and backed scientific progresses that align with sustainable and ethical values.

7. Vivekananda was a believer in non-violence (Ahimsa) and value of all life-human and non-human. Therefore, he encouraged people to practice vegetarianism which included respect for animals and sustainable food choices. He suggested a plant-based diet, which aligns with reducing the environmental impact of meat consumption. He reinforced the qualities of kindness and compassion as paramount to human survival as well as the protection and well-being of the environment.

Vivekananda's teachings provide a philosophical basis for sustainable living through simplicity, harmony with nature, self-reliance, and ethical responsibility. His vision of a just and compassionate world resonates with the goals of sustainability in contemporary times.

Sustainability in
Perspectives and
Space (15 Hours)

Tao

Taoism or Daoism is an ancient philosophy and spiritual tradition that originated in China over 2000 years ago and promotes deep harmony and interconnectedness between humans and nature. Taoism is most closely associated with the concept of Tao/Dao, which translates as the path or way a person follows. However, the concept of Tao has several interpretations; Laozi, the most eminent and first Taoist to be accorded recognition, taught, Humankind's activities conform to the laws of the earth. The earth's activities conform to the laws of the solar system and the universe. The universe's activities conform to the laws of Dao. And Dao's activities conform to the laws of the nature."

Dao-The first interpretation pertains to general laws followed in different spheres, such as the moon, sun, and stars, called the path of heaven. This means that human activity depends on the movement of these celestial bodies, which entails changes or no changes in his life path. The second meaning says that Dao is the basic and universal law of nature, which all living things obey. The third explanation elucidates Dao as the primary source of everything beyond human understanding, having neither form nor smell. It is the basis of the origin of the universe and human activity.

Yin and Yang- in Daoism, everything is composed of two opposite forces known as Yin and Yang. Yin represents the female, and Yang is the male energy. When the two forces come into harmony, life is created. Harmony is therefore very important for nature and all humans should strive to live in harmony for the good health of the environment.

Avoid too much success-If pursuing development is in direct conflict with the harmony of nature, even if it is of great immediate interest and profit, people should restrain themselves from doing it, so as to prevent nature's punishment. Furthermore, insatiable human desire will lead to the overexploitation of natural resources.

Affluence Reflected in Biodiversity- Daoism has a unique sense of value in that it judges affluence by the number of different species. If all things in the universe grow well, then a society is a community of affluence. If not, this kingdom is on the decline. This view encourages both government and people to take good care of nature.

Wu Wei or effortless action- The essence of Taoism is in the concept of Wu Wei which was originally explained by Laozi as simply "doing nothing". However, that explanation resulted in people misinterpreting it as non-action. Later, it was explained as "effortless action" or "action that is natural" and not forced. In other words, this expression should be understood as non-interference in the natural state of things. Wu-wei refers to behavior that arises from a sense of oneself as connected to others

and to one's environment. It is not motivated by a sense of separateness. It is action that is spontaneous and effortless. At the same time it is not to be considered inertia, laziness, or mere passivity. The concept of "ziran" flows from the concept of Wu-Wei and means naturalness of the world and the need for all to go along the natural order of things with minimum interference in how nature functions.

Despite their philosophy of "non-interference in the natural course of things", due to extensive human intervention and consequent environmental degradation, the leading Taoists of China concluded the Qinling Agreement, in which they pledged to protect the environment and became part of "Green Revolution" which they called "Daoist Ecological Protection Network". Since the founding of this organization in 2006, 120 temples have already joined them. Some of these temples use biofuels and solar energy, others plant trees and organize volunteers to collect waste and put-up posters that encourage conservation and the importance of nature.

In a fast-paced, consumption driven world, Taoism's wisdom provides a refreshing perspective on how to live with less stress, greater harmony, and deeper connection to the world. It teaches us to respect nature, foster harmony and cooperation and live a life with minimal wants so that both human and natural world thrive in good health, peace and prosperity.

2.5 WESTERN PERSPECTIVE ON SUSTAINABILITY - ARNE NAESS, J. BAIRD CALLICOT, GEORGE SESSIONS

Arne Naess

Arne Naess is a Norwegian philosopher, widely known for his concept of Deep Ecology in which asserted the interconnectedness and equality of all organisms and required a fundamental reorientation of human values and practices to reflect that interconnectedness. His environmental philosophy was inspired by the works of early environmentalists like Mahatma Gandhi, Rachel Carson and tenets of Buddhism.

Naess made a distinction between *Shallow Ecology* and *Deep Ecology*; the former considered the environment significant only in terms of its use value to human beings and sought to solve environmental issues using human centred approaches and interventions-through technology, modern science and capitalism. In 1972, He coined the term "Deep Ecology", which represented a school of environmental thought that believed a radical shift in how humans relate to environment were necessary before we were to find a way out of the ecological crisis.

He believed, since every part of the natural world has an intrinsic value that exceeds human values, ecology should not just be concerned about man's place in nature but rather treat every component in the natural world, human as well as non-human with equal empathy, kindness and importance. He opined the environment movement should protect the

earth not just for the sake of human beings, but for the sake of the good health and well-being of the planet itself.

He emphasized self-realisation as a major factor in fostering deep ecology and stated that on a personal level human beings should adopt the philosophy of *Ecosophy*, a deep, lived understanding of the environment.

Næss defined ecosophy in the following way:

By an ecosophy I mean a philosophy of ecological harmony or equilibrium. A philosophy as a kind of sofia (or) wisdom, is openly normative, it contains both norms, rules, postulates, value priority announcements and hypotheses concerning the state of affairs in our universe. Wisdom is policy wisdom, prescription, not only scientific description and prediction. The details of an ecosophy will show many variations due to significant differences concerning not only the 'facts' of pollution, resources, population, etc. but also value priorities.

Since ecosophy entails seeking wisdom from the environment towards path of self-realisation, it is individualistic and self-developed, depending on what each person construes of nature and its intrinsic value. Hence, the principles of Ecosophy should include

- An acknowledgment of self along with that of nature as an independent entity
- Adopting actions, values and behaviour that align with recognising the intrinsic worth of the natural environment.
- All forms of life-human and non-human are valuable and human beings should not proceed to fulfil their needs and desires at the cost of the environment or other living beings.
- A minimalistic, simple life with limited wants should be adopted to connect deeper with nature and gain a better understanding of it.
- A local and deep commitment to solving environmental issues through individual effort and wisdom, instead of relying on global solutions.

In April 1984, Arne Næss collaborated with another eminent environment philosopher, George Sessions, to summarize fifteen years of thinking on the principles of deep ecology while camping in Death Valley, California. They drafted these eight principles in a literal, somewhat neutral way, hoping that they would be understood and accepted by persons coming from different philosophical and religious positions

These principles are-

1. The well-being and flourishing of human and nonhuman Life on Earth have value in themselves (synonyms: intrinsic value, inherent

value). These values are independent of the usefulness of the non-human world for human purposes.

2. Richness and diversity of life forms contribute to the realization of these values and are also values in themselves.
3. Humans have no right to reduce this richness and diversity except to satisfy vital needs.
4. The flourishing of human life and cultures is compatible with a substantial decrease of the human population. The flourishing of nonhuman life requires such a decrease.
5. Present human interference with the nonhuman world is excessive, and the situation is rapidly worsening.
6. Policies must therefore be changed. These policies affect basic economic, technological, and ideological structures. The resulting state of affairs will be deeply different from the present.
7. The ideological change is mainly that of appreciating life quality (dwelling in situations of inherent value) rather than adhering to an increasingly higher standard of living. There will be a profound awareness of the difference between big and great.
8. Those who subscribe to the foregoing points have an obligation directly or indirectly to try to implement the necessary changes.

As an ideology, Deep Ecology has been adopted and put to use by radical environmental groups like *Earth First!* and *Extinction Rebellion* to protest against environmental destruction. However, as a philosophy, Deep Ecology has its fair share of criticism and scepticism, primarily from other branches of environmental philosophy. Founder of social ecology, Murray Bookchin has criticised the movement on the basis of its disregard of social hierarchies that he believes are the root causes of environmental issues. By divorcing itself from the human component, deep ecology seems too idealistic, utopian and dismissive of human social issues which eventually are a causal factor of environmental deterioration. Nonetheless, Arne Naess's take on the human-environment nature has been ideological as well as practical and have pushed people to actively reflect on and correct their course of action in order to form a deeper relationship with nature and improve the overall health of the planet without underlying self-serving motives.

J. Baird Callicott

John Baird Callicott is one of the world's leading environmental philosophers, his work on environmental ethics, especially in terms of sustainability, conservation and the ethical relationship between humans and the natural world. Callicott's philosophy of environmental ethics,

primary draws upon the work of the Land Ethic of Aldo Leopold, which emphasizes the intrinsic value of nature and the moral responsibility of humans to care for it.

Leopold and Callicott point out that one's sense of ethical inclusiveness is rooted in one's perception of a shared community. And, since evolution and ecology represent the 'soils and waters, plants, and animals, or collectively: the land and human beings as part and parcel of a shared social community, Leopold and Callicott have argued that the ethical duties that we admittedly owe to one another can be and ought to be prompted and extended to this land community as well. Leopold refers to this set of ethical obligations as the 'land ethic', and Callicott's most prominent role has been that of defender of the land ethic.

He has also contributed significantly to the literature and discussion surrounding the connections between the world's various religious and cultural traditions and their environmental attitudes, ethics, and actions. He advocated for a multi-cultural approach to environmental ethics and the diverse ways in which people conserve and care for their surroundings and was against the idea of an ethnocentric perspective to environmental problems.

In the early 1980s Callicott was already exploring the connections between world religions and the newly emerging sub-discipline of philosophy known as environmental ethics. For Callicott, drawing upon the planet's religious insights offered a means by which to begin to remedy the planet's environmental woes. As Callicott himself stated,

Environmental concerns cross not only political boundaries, they also cross cultural boundaries. Hence, we need to articulate ecologically correct environmental ethics in the grammars of local cultures if conservation values and ethics are to be everywhere intelligible and agreeable (1999:169).

In general, Callicott posits a model with which to begin to understand ethics and the connections between someone's or some group's worldview, values, ethics, and eventually their actions. Our various senses of the nature of reality and our place in it – or, our worldviews – inform our sense of value and hence our manifold ethical commitments. According to Callicott, ethics are embedded in larger conceptual complexes – comprehensive worldviews – that more largely limit and inspire human behaviour. And although idealistic, ethics exert a profound influence on behaviour.

In this regard, he draws attention to indigenous knowledge and practices of environmental stewardship and its inherent belief in the interconnectedness of the human and the natural worlds as against the Western dualism which treated nature as a separate entity that needed to be controlled and dominated by man for his benefits.

Callicott was critical of the anthropocentric approach to environmental issues as fostered by the Judeo-Christian traditions and called for a more

eco-centric perspective which would include a pluralistic view of environmental problems that would go beyond the West dominated environmental philosophies. He believed that multiple insights from diverse cultures regarding environmentally ethical behaviour and practices would lead to the formation of a more inclusive, long term sustainable Global Environmental Ethic.

Callicot also harped on the intrinsic value that nature holds-the intrinsic value is the value the natural environment possesses independent of human interests or uses. When something holds an intrinsic value, it is assigned a moral status as well as being identified as an entity having its own needs and interests. He believed that acknowledging the intrinsic value of nature was of paramount importance for nature conservation beyond human needs, and in the absence of which, environmental ethics would be reduced to a fuzzy and indistinct concept.

Callicot is also known for his criticism of naming certain places as “wilderness,” which he believed was a result of ethnocentrism that promoted racism, colonialism and genocide in man’s attempt to control, occupy and utilise such places/regions that were relatively difficult to transform for human habitation and/use than others. He stated such nomenclature misguided conservation efforts in a world which at present suffers from a biodiversity crisis. In order to align conservation efforts with ethical philosophy of the current times, he suggested renaming these areas as “bio-diversity reserves,”

Callicott work remains seminal in environmental philosophy since it challenged the monolithic Western standpoint on environmental ethics and advocated for a more and global perspective of environmental ethics. By supporting a multicultural approach to environmental challenges, Callicott attempted to dismantle the hegemony the West held over such discussions for decades and appealed for an alternative that would be more effective, inclusive as well as holistic approach to environmental ethics.

George Sessions

George Sessions was an American environmentalist, famous for his contribution to the Deep Ecology Movement which began in the 1970s, under the leadership of Arne Naess. Naess and Sessions collaborated in 1984, to draft the Deep Ecology Platform that stated the eight principles of Deep Ecology.

Session’s ideas, profoundly influenced by his association with Naess, advocated a transformative perspective on sustainability that deviated from the more human oriented/anthropocentric viewpoints. He along with Naess recommended a radical shift in our perception of the environment rather than minor adjustments to suit our convenience as and when required.

He differentiated between ‘shallow ecology’ that cared for the environment in a way while ensuring that human needs are not

compromised and 'deep ecology' that held all life inhabiting the planet has intrinsic value, beyond that which is useful to man.

Sessions believed that **wilderness preservation** was vital to the principles of deep ecology and perceived the raw, untouched parts of nature as a source of deep wisdom and spirituality. He believed wilderness areas were termed as such to encourage human invasion of places which were yet to be manipulated and modified for man's own benefits and justified colonialism, racism and genocides. In order to bring such areas under environmental protection, he suggested a change in name from 'wilderness' to 'biodiversity reserves' to align conservation efforts in the right direction.

Like Naess, Sessions too, rejected an anthropocentric world view and believed in bio-centrism and the radical movements like Bio-regionalism in which human societies would be based on natural ecosystems and not political boundaries.

Session's work has been quite influential in shaping up **modern day environmental philosophy and activism**, like the **Rights of Nature** movement, which grants legal rights to ecosystems. He was an ardent supporter of **rewilding efforts**, which aim to restore ecosystems with minimal human interference. His critical take on anthropocentrism influenced **eco-spirituality and Indigenous land movements**.

George Session was a prominent thinker responsible for making deep ecology a global movement. He wrote several books on the movement, that includes- "Deep Ecology: Living as if Nature Mattered" (1985, co-authored with Bill Devall), which was a foundational text on the subject matter and "Deep Ecology for the 21st Century" (1995, editor), which was a collection of essays from deep ecologists around the world, including Arne Naess. His appeal for a more radical, selfless and comprehensive environmental philosophy resonated with many upcoming environmentalists and formed a major discourse in environmental thought and practice.

2.6 SPATIAL DIMENSIONS OF SUSTAINABILITY – GEOGRAPHY, SOCIO-CULTURAL SPACE AND COMMUNITY ENVIRONMENTAL ETHICS

Geography

Sustainability in Geography studies the interaction of social processes with the natural environment on a variety of spatial scales. It takes into consideration spatial distribution, regional differences in the physical and socio-economic configuration of people and environmental processes, characteristics and interactions to ensure sustainable development.

The geographical dimension of sustainability looks into the variation in sustainability across different places, regions and scales and how the three dimensions of sustainability-economic, social and environmental

sustainability are impacted by location, climate, resource availability/unavailability and anthropogenic activities.

The key themes of sustainability in Geography thus includes-

Spatial distribution of resources and sustainable resource management-By examining the spatial distribution and allocation of natural resources across the globe, geography helps plan sustainable extraction and use of the same while at the same time prevent their depletion and over exploitation. Likewise, water management initiatives would be different for arid regions vis-à-vis regions that have abundant water resources.

Urban Sustainability and rural sustainability-Urban sustainability would focus on planning of green cities with efficient public transport, reducing pollution and proper waste disposal mechanisms along with initiatives to reduce urban sprawl and poverty. Rural sustainability would emphasize environment friendly and economically viable farm based as well as non-farm livelihood planning, setting up sustainable infrastructure and mindful use of the finite resources available.

Climate Change Adaptation & Mitigation-This would include reduction of carbon footprints through sustainable practices, protecting vulnerable population from climate crises through region specific planning, climate resilient adaptation through changes in consumption patterns, livelihood pursuits and lifestyles.

Conservation & Biodiversity- includes conservation efforts at the micro, meso and macro levels of planning. It involves establishing national parks and protected areas with no to negligible human intervention, devising strict laws for breach of such rules and regulations, restoration of damaged ecosystems, preventing habitat loss and disseminating awareness on the importance of bio-diversity conservation and protection.

Water and Land Use Planning-Sustainable irrigation techniques to prevent water scarcity, land conservation strategies to prevent soil erosion, deforestation and over extraction of minerals and resources. Zoning laws are essential in this regard.

Sustainability challenges of different regions-which encompasses the unique physical, socio- cultural, environmental and economic challenges different regions encounter with regards to sustainability. For example, low lying coastal areas like the Sundarbans in India face threats from rising sea-levels and climate disasters whereas arid regions like those in Sub-Saharan Africa, face threats of desertification due to lack of precipitation and sufficient water availability.

Geographical considerations in sustainability are important since it brings out regional disparities, vulnerabilities and peculiarities with respect to a wide range of factors important in developmental planning. Identifying these components, paints a comprehensive picture of the existing issues at hand, help understand regional development and challenges better and also

aid in policy-making for environmental planning and conservation, keeping in mind the specific regional contexts.

Sustainability in
Perspectives and
Space (15 Hours)

Socio-cultural space

The concept of socio-cultural space in sustainability draws upon the interaction between people, culture, and the environment within specific geographical and social settings to explore how traditions, values, and social structures influence sustainable development and environmental conservation. It emphasizes equity, well-being, and the preservation of cultural identity while ensuring responsible environmental and economic practices.

Examples of socio-cultural spaces include -physical spaces like-towns, villages and cities, social structures like- different forms of social organizations, customs and traditions and social norms and cultural identities that pertain to languages, beliefs, religions, and festivals of various social groups. These spaces have an impact on sustainability through the lifestyle patterns, governance, norms followed, perception of the natural environment and resource use and management.

The main aspects of socio-cultural sustainability would be –

Social Equity, Inclusion and Distributive justice-encompasses ensuring fair and equitable access to resources, education and healthcare, civic amenities to all while also addressing existing inequalities and discrimination along the lines of gender, class, race, ethnicity

Preserving Cultural Heritage and Indigenous Knowledge-Cultural identities involving that of languages, traditions, festivals and dietary practices need to be preserved and sustained for the present and future generations, especially of communities that are getting lost and infused with mainstream society. Indigenous knowledge of various communities have been known to offer significant insights to environmental conservation and sustainable practices to maintain and enhance sustainability in its many dimensions. Such knowledge must be referred to, promoted and spread to the modern academicians, policy makers and stakeholders to ensure low-cost, effective yet scientific sustainable development.

Health, Well-Being, and Quality of Life –Socio-cultural sustainability also ensures good health, well-being and a high quality of living to all people. Mental and physical well- being are intricately connected to a clean, safe and just environment and therefore it is of utmost importance that all humans are provided with the same.

Sustainable Lifestyles and Consumption have to be adopted and practiced in order to reduce over-exploitation of resources and minimize waste generation.

Ethical environmental practices at the community level paves way for long term sustainable changes and promotes harmony, interconnectedness,

cooperation and responsibility amongst people collectively in their treatment of their natural surroundings

Intergenerational Responsibility-Each generation owes itself and their next a just, equal world consisting of a clean, safe and productive environment for all to experience by making ethical and responsible choices in the present times. Knowledge and information regarding the significance of sustainability have to be taught at schools, homes and amongst peer groups of youth to ensure continued sustainable practices and behaviour.

The socio-cultural space/dimension of sustainability is cognizant of the human aspect of sustainability and encourages sustained individual as well as community driven efforts in environmental conservation while also retaining cultural diversity and uniqueness.

Community environmental ethics

Environmental ethics, is a subfield of philosophy that examines ethical questions regarding human relationships with the non-human environment. Although it emerged as a distinct discipline in the 1970s, its roots can be traced back to earlier philosophical, ecological and religious traditions and developed as a response to the ethical implications of human interactions with nature.

At the core of environmental ethics, are the tasks of determining what things in the non-human environment are valuable; how and why they are valuable; and how we ought to consider these values in deliberations and decisions about principles, actions, practices, and laws. Human behaviour and action, both individual and collective, towards the environment and environmental concerns form the key subject matter of environmental ethic

Community environmental ethics takes into account, how local communities, interact with and take responsibility for their natural environment. It advocates collective action, sustainable practices, and ethical stewardship to ensure environmental well-being for present and future generations while assuring environmental justice and sustainability.

Key principles of community environmental ethics involve-

- **Collective Responsibility**-Communities have to be collectively accountable and responsible towards environmental well-being and protection. Local actions have an impact on broader environment, hence, people should look at sustainable environmental behaviour as a shared duty and not just an individual task.
- **Sustainable resource use, management and conservation**-On a community level, adopting sustainable livelihoods like organic farming, land and water usage and management, proper waste disposal practices, responsible resource consumption, adoption of renewable energy, supporting local produce can go a long way in ensuring sustainable development.

- **Protection of the natural ecosystem-** Community-led initiatives like reforestation, commonly managed land and water resources, locally led bio-diversity conservation efforts, prevention of deforestation, leading and setting up of associations and groups to look into and ensure community participation in environmental conservation and protection efforts, can lead to very effective outcomes. Environmental movements and citizen initiatives like beach clean ups, afforestation, etc., have also proven to be meaningful ways through which community environmental ethics is ensured and enhanced.
- **Environmental Justice-**Communities have to ensure a just and a fair distribution of resources and benefits take place. This will require people to make way for the more marginalised population to claim what is rightfully theirs to have while the better off would have to refrain from getting embroiled in resource conflicts and one-upmanship. This also entails protecting vulnerable communities from environmental harm and protection.
- **Community Environmental Education and Awareness** would involve educating children as well as adults the importance of environmental ethics, conducting workshops, seminars, meet-ups in schools and beyond to teach and involve local communities to engage in environmentally responsible behaviour. The promotion and propagation of indigenous knowledge should be undertaken at the community level to inform the youth of its importance in bringing about environmental sustainability.
- **Strengthening community resilience to climate change adaptation-** Community engagement is essential in building resilience to the impacts of climate change, especially in vulnerable regions. By involving local communities in adaptation planning and implementation, initiatives can ensure interventions that are context-specific, culturally appropriate, and responsive to community needs. Community-based adaptation strategies, such as sustainable land management practices, water conservation initiatives, and disaster risk reduction programs, empower communities to withstand climate-related shocks and enhance their capacity to cope with future challenges. Case studies illustrating successful community-driven climate resilience projects, such as community-led reforestation efforts, coastal restoration projects, and community-based early warning systems, highlight the importance of local knowledge and participation in building climate resilience.
- **Local Action and Policy Engagement-**Policies regarding environmental protection have to be drafted, keeping in mind the local and broader context. Comprehensive deliberation and engagement should include multiple stakeholders from the communities and taking into consideration their needs, knowledge and suggestions. Grassroots movements, community-led conservation efforts and environmental advocacy are important ways to include the community, both on ground as well as policy formulation processes.

At the core of sustainable development lies the empowerment of local communities, whose intricate connection with their environment makes them valuable partners in conservation efforts. Community environmental ethics bring people together and encourage collective environmental responsibility in the long run and fosters feelings of unity and togetherness that makes conservation efforts easier to sustain.

2.7. TRADITIONAL KNOWLEDGE SYSTEMS AND ENVIRONMENTAL SUSTAINABILITY

Traditional knowledge (TK) (synonymously also as indigenous knowledge, and local knowledge) generally refer to the long-standing information, wisdom, traditions and practices of certain indigenous peoples or local communities, passed from one generation to the next through oral narrations, stories, legends, folklore, rituals, songs, art, and even laws. Traditional knowledge systems, unlike their more ‘modern’ or western counterpart is deeply rooted in spirituality, intuition and wisdom as well as rationality and keep intact the natural and cultural contexts in which they arise, including traditional lands, resources, kinship and community dynamics.

In the current era where sustainability is considered to be the most vital driver of economic, social as well as environmental well-being, traditional knowledge systems hold key insights to long-term sustainable behaviour and actions that will bring about meaningful changes.

The importance of Traditional Knowledge systems as a means to redress the misuse and overexploitation of nature and its resources can be unequivocally found in present as well as previous global discussions and deliberations surrounding sustainability. The World Conference on Science, organized by UNESCO and the International Council for Science (ICSU, 2002), explicitly acknowledged the importance of TK and the need to respect and encourage its use for various forms of human endeavour. The UN Declaration on Indigenous Peoples, recognizes “that respect for indigenous knowledge, cultures and traditional practices contributes to sustainable and equitable development and proper management of the environment.”

Most commonly accepted is the role of TK in the “traditional” or primary sectors of the economy: agriculture and pastoralism, forestry, fisheries, water, and products made from natural resources such as crafts, furniture, housing, and so on (Posey 1999). Given the fact that a majority of the world’s population remain dependent on these sectors for their survival and livelihoods, and for various aspects of shelter, the contribution that TK makes and can continue to make towards sustaining billions of people is not a matter of debate and speculation.

The contribution of TK across the secondary sector is also not be missed; a wide variety of industrial products like textiles, pharmaceuticals, household good, also rely on or use TK in various ways, the use of medicinal plants in the pharmaceutical industry being a prime example.

Food distribution, education, health care services could also be enhanced and improved through the use of TK as well as integrating it with modern methods.

As far as sustainability and environmental protection and well-being are concerned TK in its very essence and nature has been found to be intricately connected to sustainability, in terms of

Resource use and management-through sustainable practices like agro-forestry, rotational farming, terracing, rain-water harvesting, commons management to ensure judicious use of land, water, and other natural resources.

Bio-diversity conservation-through adopting the concept of sacred groves and nature worship whereby certain resources are designated as 'sacred' in order to restrict human interference and ensure their protection. Some communities impose fishing bans in the breeding season to prevent overfishing and allowing breeding to take place.

Climate change adaptation- The fact that communities have for centuries and millennia adjusted their behaviour and strategies and knowledge systems to changes in their surroundings make TK systems a potent means to tackle climate change and its effects. Communities adjust their agriculture/pastoralism/fishing and hunting-gathering to subtle or not-so-subtle changes in climate, to threats from other communities or invasions, diseases and other forms of stresses and shocks through the aforementioned strategies and thus cushion the impact of the climate change to a certain extent.

The recourse to TK systems for sustainable alternatives to resource use, management and environmental protection has gained ground because it's low-cost, community based and inclusive, have proven to be effective over centuries and serve as complimentary additions to modern science.

However, what is a matter of serious concern is that more than ever before, TK is rapidly being eroded and lost to contemporary and modern science and scientific methods advocated in a rapidly modernizing world. Integration of traditional knowledge in mainstream sustainable development policies and collaboration of scientists and academicians with tradition knowledge holders would be important steps to address socio-ecological challenges in the present times.

2.8. SUMMARY

Studying the various perspectives on sustainability helps adopt holistic sustainable solutions to environmental problems. By examining these perspectives, we can gain a deeper understanding of sustainability as both a practical and ethical commitment, essential for ensuring the well-being of present and future generations.

2.9. CHECK YOUR PROGRESS OR EXERCISE

I. True or False

- a. According to Gandhi, industrialization similar to the Western model was necessary for India's economic growth and sustainability.
- b. Taoism emphasizes living in harmony with nature and discourages excessive human interference in the natural world.
- c. Arne Naess believed that Deep Ecology should focus primarily on technological advancements to solve environmental issues.
- d. Urban sustainability focuses on efficient public transport, reducing pollution, and proper waste disposal mechanisms
- e. Traditional Knowledge Systems rely solely on spirituality and intuition, with no connection to rationality or scientific method.

II. Fill in the blanks

- a. According to Buddhism, the principle of _____ teaches that all things are interconnected, and a sustainable lifestyle should respect this interconnectedness by minimizing harm to nature.
- b. Gandhi's philosophy of _____ emphasized self-rule, where individuals and communities take responsibility for their own lives and environment to achieve true sustainability.
- c. John Baird Callicott was influenced by the environmental philosophy of _____, particularly the concept of the Land Ethic.
- d. _____ sustainability emphasizes ensuring fair and equitable access to resources, education, and healthcare while addressing social inequalities.
- e. Traditional Knowledge Systems contribute to biodiversity conservation by designating certain resources as '_____' to restrict human interference and ensure their protection

III. Multiple Choice Questions

- a. Which principle in Buddhism emphasizes avoiding harm to living beings and aligns with sustainability?
 - a) Anicca
 - b) Ahimsa
 - c) Dukkha
 - d) Karma

b. What was the key distinction Arne Naess made between Shallow Ecology and Deep Ecology?

- a) Shallow Ecology focuses on radical changes, while Deep Ecology focuses on minor adjustments
- b) Shallow Ecology values the environment only for human benefit, while Deep Ecology recognizes the intrinsic value of all life
- c) Shallow Ecology promotes indigenous knowledge, while Deep Ecology supports technological solutions
- d) Shallow Ecology advocates for environmental activism, while Deep Ecology opposes it

c. Which of the following is NOT a key theme of sustainability in Geography?

- a) Climate Change Adaptation & Mitigation
- b) Water and Land Use Planning
- c) Space Exploration and Colonization
- d) Conservation & Biodiversity

d. What does socio-cultural sustainability emphasize?

- a) Only economic growth and industrialization
- b) Preserving cultural heritage, social equity, and environmental ethics
- c) Expanding urban areas without considering environmental impacts
- d) Exploiting natural resources for immediate economic gain

e. Which of the following is NOT a key principle of community environmental ethics?

- A) Collective responsibility
- B) Sustainable resource management
- C) Unlimited exploitation of natural resources
- D) Environmental justice

IV. Answer the following questions

- a. Elucidate the Buddhist principles of sustainability.
- b. In what ways did Mahatma Gandhi advocate a sustainable life?
- c. Why did Arne Naess and George Sessions prefer deep ecology to shallow ecology as the most effective environmental philosophy?
- d. Explain the spatial dimension of sustainability as seen across socio-cultural space.
- e. How do Traditional Knowledge Systems envision environmental sustainability?

2.10. ANSWERS TO THE SELF-LEARNING QUESTIONS

I. True or False

- a. False
- b. True
- c. False
- d. True
- e. False

II. Fill in the blanks

- a. Interdependence or Pratītyasamutpāda
- b. Swaraj
- c. Aldo Leopold
- d. Social
- e. Sacred

III. Multiple Choice Questions

- a. Ahimsa
- b. Shallow Ecology values the environment only for human benefit, while Deep Ecology recognizes the intrinsic value of all life
- c. Space Exploration and Colonization
- d. Preserving cultural heritage, social equity, and environmental ethics
- e. Unlimited exploitation of natural resources

2.11. TECHNICAL WORDS AND THEIR MEANING

Deep Ecology- Environmental philosophy which asserted the interconnectedness and equality of all organisms and required a fundamental reorientation of human values and practices to reflect that interconnectedness.

Community environmental ethics -takes into account, how local communities, interact with and take responsibility for their natural environment. It advocates collective action, sustainable practices, and ethical stewardship to ensure environmental well-being for present and future generations while assuring environmental justice and sustainability.

2.12. TASK

Elucidate on the difference in perspectives between the Eastern and Western philosophies of sustainability with suitable examples.

2.13. REFERENCES FOR FURTHER STUDY

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POLITICS OF SUSTAINABILITY

Unit Structure

- 3.1. Objectives
- 3.2. Introduction
- 3.3. Subject Discussion
- 3.4. Role of International agencies in promoting sustainability – UN, UNEP, UNFCCC, etc.
- 3.5. Critical analysis of Millennium Development Goals to Sustainable Development Goals
- 3.6. Role of supranational institutions in shaping the perspectives on sustainability -international capital, global economic circuits, and sustainability
- 3.7. Critical analysis of global efforts on climate change and sustainability – Critical analysis of policies on sustainable development in India
- 3.8. Summary
- 3.9. Check Your Progress or Exercise
- 3.10. Answers to the Self-learning questions
- 3.11. Technical Words and their meaning
- 3.12. Task
- 3.13. References for further study

3.1. OBJECTIVES

At the end of this unit, you will be able to –

- Evaluate the role of international agencies in promoting sustainability.
- Critically assess the Millennium Development Goals and the movement forward to the Sustainable Development Goals
- Comprehend the role of supranational institutions in supporting and advocating sustainable transitions
- Critically analyse the global policies of sustainable development with a special focus on India.

3.2 INTRODUCTION

Sustainability has emerged as a central global priority in the face of climate change, resource depletion, and socio-economic inequalities. The transition from the Millennium Development Goals (MDGs) to Sustainable Development Goals (SDGs) reflects an evolving approach that integrates economic growth, environmental protection, and social equity. International agencies such as the United Nations (UN), United Nations Environment Programme (UNEP), and United Nations Framework Convention on Climate Change (UNFCCC) play a critical role in setting policies, mobilizing funds, and ensuring accountability.

At the same time, supranational institutions and international capital markets influence sustainability by shaping economic policies and investment priorities. However, global efforts to combat climate change and promote sustainable development face challenges, particularly in developing nations like India, where balancing economic growth with environmental protection remains a struggle. This paper critically examines the role of international agencies, the transition from MDGs to SDGs, the influence of supranational institutions, and the effectiveness of global sustainability policies

3.3 SUBJECT DISCUSSION

Sustainability has become a key focus in global governance, driven by the urgent need to combat climate change, protect biodiversity, and promote inclusive economic growth. This discussion explores the role of international agencies, the transition from Millennium Development Goals (MDGs) to Sustainable Development Goals (SDGs), the influence of supranational institutions, and the effectiveness of global sustainability policies

3.4 ROLE OF INTERNATIONAL AGENCIES IN PROMOTING SUSTAINABILITY – UN, UNEP, UNFCCC, ETC.

International agencies play a crucial role in promoting sustainability by setting global standards, providing funding, facilitating knowledge exchange, and ensuring accountability. These organizations address climate change, economic sustainability, social equity, and environmental conservation through policies, agreements, and financial mechanisms.

UN

The United Nations (UN) plays a pivotal role in global sustainability efforts through policy frameworks, climate action, environmental protection, social equity, and economic development. It provides guidelines, funding, technical support, and monitoring mechanisms to help countries transition toward sustainability.

1. Key UN Initiatives for Sustainability

a) United Nations Sustainable Development Goals (SDGs) (2015-2030)

The SDGs are the UN's most comprehensive sustainability framework, consisting of 17 goals covering environmental, social, and economic sustainability.

b) UN Framework Convention on Climate Change (UNFCCC) and the Paris Agreement (2015)

- The UNFCCC oversees global climate negotiations and facilitates cooperation among nations.
- The Paris Agreement aims to limit global temperature rise below 2°C, with commitments to achieve net-zero emissions by 2050.

c) United Nations Environment Programme (UNEP)

- Leads efforts in biodiversity conservation, pollution control, and climate adaptation.
- Manages the Intergovernmental Panel on Climate Change (IPCC), which provides scientific climate reports influencing global policy.

d) UN Climate Finance Mechanisms

- Green Climate Fund (GCF): Helps developing countries finance climate adaptation and mitigation projects.
- Global Environment Facility (GEF): Funds biodiversity protection, renewable energy, and sustainable agriculture initiatives.

e) UN's Role in Sustainable Economic Development

- UNDP (United Nations Development Programme): Supports sustainable infrastructure, poverty reduction, and climate resilience projects.
- FAO (Food and Agriculture Organization): Promotes sustainable agriculture and food security.
- ILO (International Labour Organization): Encourages green jobs and just energy transitions.

2. UN Strategies for Promoting Sustainability

a) Global Agreements and Policy Guidelines

Biodiversity Conservation Treaties (e.g., Convention on Biological Diversity).

Basel Convention (Regulates hazardous waste management).

b) Capacity Building and Technical Assistance

Provides training programs for sustainable urban planning, renewable energy, and disaster risk reduction.

c) Monitoring and Accountability Mechanisms

The UN High-Level Political Forum (HLPF) tracks SDG progress.

The UNEP Emissions Gap Report assesses global climate commitments.

3. Challenges and Criticisms

a) Lack of Strong Enforcement Mechanisms

Agreements like the Paris Agreement rely on voluntary national commitments, leading to weak compliance.

b) Funding Gaps and Inequality

Climate finance promises (e.g., \$100 billion annually to developing countries) have not been fully met.

c) Bureaucratic Delays and Political Resistance

Climate action is often delayed due to conflicting national interests and corporate lobbying.

The UN plays a critical role in shaping global sustainability through policy frameworks, climate finance, and knowledge-sharing initiatives. However, stronger enforcement, equitable financial support, and increased accountability are essential for achieving meaningful progress in sustainability

UNEP

The United Nations Environment Programme (UNEP) is the leading global authority on environmental sustainability, working to promote climate action, biodiversity conservation, pollution control, and sustainable development. Established in 1972, UNEP plays a critical role in shaping environmental policies, scientific research, and international cooperation.

1. Key Areas of UNEP's Work in Sustainability

a) Climate Action and Resilience

- UNEP leads global efforts to reduce greenhouse gas emissions and strengthen climate resilience.
- Publishes the Emissions Gap Report, assessing global climate commitments and progress.
- Supports the Paris Agreement (2015) and Nationally Determined Contributions (NDCs).
- Works on climate adaptation strategies for vulnerable nations.

b) Biodiversity Conservation and Ecosystem Restoration

- Oversees the Convention on Biological Diversity (CBD), ensuring global cooperation in wildlife protection and forest conservation.
- Manages the Decade on Ecosystem Restoration (2021-2030) to reverse environmental degradation.
- Supports marine conservation, including the Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities (GPA).

c) Pollution Control and Waste Management

- Leads the Beat Plastic Pollution Campaign, working to reduce plastic waste globally.
- Supports the Basel, Rotterdam, and Stockholm Conventions, which regulate hazardous waste and chemical pollution.
- Promotes clean air initiatives through the Climate and Clean Air Coalition (CCAC).

d) Sustainable Development and Green Economy

- Works with the UN Sustainable Development Goals (SDGs), particularly SDG 12 (Responsible Consumption and Production) and SDG 13 (Climate Action).
- Encourages green finance and sustainable business models.
- Supports renewable energy projects and the transition to a low-carbon economy.

2. UNEP's Strategies for Promoting Sustainability

a) International Policy Frameworks

- Coordinates global environmental treaties and agreements.
- Advises governments on sustainable policies and legislation.

b) Scientific Research and Environmental Monitoring

- Publishes reports like the Global Environment Outlook (GEO) to assess environmental trends.
- Supports climate data collection and environmental risk assessments.

c) Capacity Building and Technical Assistance

- Provides training programs for environmental governance.
- Supports developing nations in adopting green technologies and sustainable practices.

3. Challenges and Criticisms of UNEP

a) Limited Enforcement Power

- UNEP provides guidelines and recommendations, but lacks legal authority to enforce policies.

b) Funding Constraints

- Relies on voluntary contributions, leading to budget limitations for sustainability projects.

c) Slow Policy Implementation

- Bureaucratic delays and political resistance from major polluters slow down effective action.

UNEP plays a vital role in global sustainability, focusing on climate action, biodiversity, pollution control, and sustainable development. However, stronger financial support, stricter policy enforcement, and enhanced global cooperation are needed to achieve meaningful environmental progress.

UNFCCC

Established in 1992 at the Rio Earth Summit, the United Nations Framework Convention on Climate Change (UNFCCC) is an international environmental treaty aimed at addressing climate change issues and promoting sustainable development. It has near-universal membership, with 198 countries having ratified the convention. This treaty has provided a foundation for international climate negotiations since it was established in 1994, including major agreements such as the Kyoto Protocol (1997) and the Paris Agreement (2015).

The ultimate objective of the Convention is to stabilize greenhouse gas concentrations "at a level that would prevent dangerous anthropogenic (human induced) interference with the climate system." It states that "such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened, and to enable economic development to proceed in a sustainable manner."

The UNFCCC acts as a global foundation for countries to come together and deliberate, discuss and decide on action to be taken towards mitigating climate change as well as to adapt to its inevitable impacts. While it does not lay down rigid time-bound targets, it provides a framework for climate and environment policies and future agreements.

- **Common but differentiated responsibility**

The Convention acknowledges the principle of common but differentiated responsibility (CBDR) and respective capability. It is thus cognizant of the fact that different states have different capabilities and responsibilities to address climate change and this can be used as a framework to navigate

the balance between the need for all states to act on climate change, with their varying levels of responsibility for greenhouse gas emissions – both past and present – and capacity to address that problem in a way that is “equitable and appropriate”.

Since industrialised countries are historically major contributors to GHG emissions they bear greater responsibility in fighting this global issue. This group of countries are known as Annex I countries and belong to the Organization for Economic Cooperation and Development (OECD). They include 12 countries with "economies in transition" from Central and Eastern Europe. Annex I countries were expected by the year 2000 to reduce emissions to 1990 levels. Many of them have taken strong action to do so, and some have already succeeded.

Furthermore, it also concedes the importance of economic development to the world's poorer countries and accepts that the share of planet-warming gases produced by developing countries will grow with time.

- **Establishing major institutions, structures and processes**

The Convention lays out a basic structure through which the Parties can work together to achieve its goals.

- **The Conference of the Parties (COP)**, is the central body to regularly review, devise, agree and implement climate policy. It acts as a common platform for governments, the private sector and thousands of representatives from the civil society, green and polluting industries, and non-governmental organisations to tackle the climate crisis.
- **A secretariat** coordinates the sessions of the Conference of the Parties, prepares reports and compiles information, providing particular assistance to developing countries.
- **Subsidiary bodies** provide scientific and technological advice and assess how effectively the Convention is being implemented.

- **Channelizes funds for action against climate change**

Subsequent agreements under the UNFCCC, such as the Kyoto Protocol and Paris Agreement, have established additional institutions, such as the **Green Climate Fund**, specialised climate change funds and technical committees. These institutions provide the technical, advisory and financial advice to develop policies and guidance and support the implementation of the Convention, the Kyoto Protocol and the Paris Agreement. Industrialized nations agree under the Convention to support climate change activities in developing countries by providing financial support for action on climate change--above and beyond any financial assistance they already provide to these countries. A system of grants and loans has been set up through the Convention and is managed by the Global Environment Facility.

Industrialized countries also agree to share technology with less-advanced nations.

- **Data-gathering, knowledge-building and clear communication**

Knowledge-building is a very important function in the UNFCCC process. Parties are required to gather and share data to build evidence, set goals and track progress on greenhouse gas reduction. Developed countries must also submit detailed mitigation strategies and their expected outcomes; Developing countries (Non-Annex I Parties) report in more general terms on their actions both to address climate change and to adapt to its impacts. This process has been crucial in building a robust body of knowledge and scientific understanding of climate change and the impact of various mitigation strategies, which has helped inform subsequent policies and significant international agreements such as the Paris Agreement.

Public understanding and participation are also essential to achieving national and international transformation, and the Convention requires countries to promote climate education, awareness and training to the public.

- **Promoting Carbon markets and emission reductions**

The UNFCCC supports carbon trading mechanisms to reduce emissions cost-effectively; The Clean Development Mechanism (CDM) encourages developed countries to invest in green projects in developing nations for carbon credits while the Emissions Trading Systems (ETS) advocates industries to reduce carbon footprints.

From its inception in 1992, the UNFCCC has led to the adoption of a number of subsequent agreements, which have been major milestones towards climate change mitigation and management. It has spurred the development of key infrastructure and policies at the international and national levels that serve as cornerstones of today's climate action, including measuring and tracking and reporting emissions and impacts; generating knowledge and research; and building the capacity to address the causes and effects of climate change. The most recent major development in the UN climate change agenda has been the adoption of the **Paris Agreement**, produced at the 21st session of the Conference of the Parties (COP21) in 2015. And in 2021 nations adopted the **Glasgow Climate Pact**, which aims to “turn the 2020s into a decade of climate action and support”.

While the UNFCCC plays a pivotal role in providing a framework to combat climate change and facilitating global cooperation, it still has its fair share of criticism. A blanket exemption to developing countries from emission reduction commitments meant countries like China and India, the first and third largest emitters in the world, respectively – experiencing a significant rise in emissions in the decades that followed. **COP28** has also been the subject of much backlash. While countries agreed to “transition away” from fossil fuels for the first time, the text does not oblige countries to take action and does not set a specific timeline. **The Loss and Damage**

Fund agreed upon at COP27 came from the idea that richer countries – historically the main contributors – would have to compensate for the damages caused by climate change in poorer countries. However, this has been deeply disputed, with wealthy countries like the US reluctant to accept liability, and only a relatively small amount of money pledged so far.

Nevertheless, the UNFCCC has provided a crucial framework and platform for global cooperation, addressing complex and urgent issues and setting the foundation for future climate agreements.

3.5 CRITICAL ANALYSIS OF MILLENNIUM DEVELOPMENT GOALS TO SUSTAINABLE DEVELOPMENT GOALS

In September 2000, at the UN Millennium Summit, the UN General Assembly adopted the United Nations Millennium Declaration, which called for a global partnership to reduce extreme poverty, and was the first ever global strategy with quantifiable targets to be agreed upon by all UN member states and the world's leading development institutions. To support the Declaration, former UN Secretary General Kofi Annan established eight accompanying objectives with initially 18 targets and 48 indicators.

These objectives (listed below) were set to be achieved by 2015 and became known as the Millennium Development Goals (MDGs)-

1. Eradicate extreme poverty and hunger
2. Achieve universal primary education
3. Promote gender equality and empower women
4. Reduce child mortality
5. Improve maternal health
6. Combat HIV/AIDS, malaria and other diseases
7. Ensure environmental sustainability
8. Develop a global partnership for development

While the MDGs served as a roadmap for collective global efforts in achieving multidimensional development, their success remains debated. Supporters argue that the development agenda promoted by the MDGs has spearheaded an unprecedented international movement against extreme poverty, reducing it by more than 50 percent globally. Critics, on the other hand, note that progress on the specific targets set out by the MDGs has been both regionally and thematically unbalanced.

- First, some question the ownership of the MDG agenda to the extent that there were no consultations with all stakeholders. The decision to

include the original 18 targets and not others was made on the basis of the targets that contained previously agreed indicators and robust data for proper monitoring, although that choice was seen by some as reflecting a more politically palatable agenda on access to social services, rather than politically more difficult issues such as inequality or human rights.

- The MDGs have been criticized for failing to take into account the initial conditions of the various regions and countries. In addition, the differences in efforts countries would need to make in order to make the same relative degree of progress (e.g., countries with high initial levels of poverty, as those in Africa, would need to make much greater efforts to halve the poverty incidence coming from, say, an initial level of 70 per cent, than a country with an initial poverty incidence of, say, 10 per cent).
- Much MDG criticism focuses on what are seen as the “missing targets”, such as decent work, human rights, governance, and peace and security; elements of the international human rights framework not already captured in the MDGs; and the inadequate incorporation of some human development dimensions in the goals and targets such as employment, gender equality, and inclusive, sustainable and resilient development. While all these issues are clearly delineated in the principles and values of the Millennium Declaration, they were not (fully) operationalized as goals and targets within the MDG framework. Lack of concrete (or inadequate) reference to these issues in the MDG agenda did not help to bring resources and proper attention to important development dimensions.
- The MDGs present an agenda rather than a development strategy. While clearly rooted in the “human development approach”, they have been interpreted in isolation from the Millennium Declaration. The overemphasis on “outcomes”, rather than on development “processes” is seen by some as a major drawback to the effectiveness of the MDG agenda.
- One of the most important shortcomings of the monitoring framework has been the lack of clarity on how national targets should be defined vis-à-vis global targets. Over the years, more and more countries have adapted the global framework to their national circumstances, both in terms of the numerical targets and the selection of indicators. Quite a number of middle-income countries have overcome the initial concern that the MDGs would not adequately correspond to their development challenges by adding goals and targets or making them more ambitious than the internationally agreed ones.
- While the MDGs overlap with many economic and social human rights principles, their definition in the goals and targets does not always correspond with State’s commitments under international

treaties and inadequately reflects some of the key human rights principles, including concern with the most vulnerable and marginalized, removing discrimination and respecting the equal rights of all, participation, and rights that require universal access to services

- Perhaps the biggest failing of the MDGs was their lack of critical analysis of the fundamental causes of global poverty and the persistently highly levels of regional disparity in wealth, employment, infrastructure, food security and education within the global South and between global North and South. The goals were specifically applied to developing countries and appeared to isolate the causes of poverty within the domestic policies of governments in the global South. This approach ignored the impact of ‘development’ programmes implemented, or enforced, by Northern governments and financial institutions on the South. Critical policies in the areas of globalisation, trade, debt and migration which are pivotal to the question of development in the global South were largely spared analysis and criticism in the MDG framework.

Criticism aside, the recognized success of the MDGs has been associated with several of their key characteristics. Their embedded priority for human development objectives and the associated framework provided: (i) a clear focus to national policy efforts; (ii) a set of clear, simple, quantitative and easily communicable targets, while providing an integral approach to key human development dimensions; (iii) a starting point for improved accountability through the use of simple but robust indicators; and (iv) a tool for advocacy to strengthen international development cooperation, including through the explicit recognition of the special needs of Africa and LDCs.

It was the MDG framework that defined, for the first time, an integrated set of time bound quantitative targets in an attempt to give operational meaning to some of the basic dimensions of human development and to strengthen the global partnership for development. The MDGs have been instrumental in building a common agenda of broad priorities and have induced governments to take concrete actions and improve coordination in support of poverty reduction efforts. As a result, many developing countries have designed national development strategies explicitly oriented at achieving the MDGs and have aligned these objectives with other national priorities.

Recognizing the limitations of the MDGs, the United Nations introduced the 2030 Agenda for Sustainable Development with 17 Sustainable Development Goals (SDGs) in 2015. In sharp contrast to the MDGs, the Sustainable Development Goals (SDGs) are uniformly applicable to all countries of the world, removing the “developing” versus “developed” dichotomy that left the MDGs open to criticism.

The SDGs are focused on a global development with and-for sustainability, and demonstrate an understanding that the environment is not an add-on or in opposition to sustainable development, but rather the

base that underpins all other goals. As a result, whereas the MDGs maintained a retrospectively narrow focus on poverty reduction, the SDGs include new themes which reflect an approach that sees the environment, economy and society as embedded systems rather than separate competing “pillars”:

Another significant difference between the MDGs and SDGs is how they have been created: the crafting of the SDGs has been regarded as an unparalleled participatory policy process, and this is reflected in their scale and ambition. A UN Open Working Group (OWG) made up of 70 countries sharing 30 seats was established in 2013 to draft the SDGs and was tasked with incorporating a range of stakeholders into their negotiation process. As a result, developing countries have been able to provide significant input into the content, as have local and subnational governments, and prominent actors from civil society and the private sector.

The shift from MDGs to SDGs represents an evolution in development thinking, from a narrow focus on poverty reduction to a more comprehensive and sustainable vision. While the MDGs laid the groundwork for addressing global challenges, they were limited in scope. The SDGs, though more inclusive and ambitious, face challenges in implementation, funding, and tracking progress.

3.6 ROLE OF SUPRANATIONAL INSTITUTIONS IN SHAPING THE PERSPECTIVES ON SUSTAINABILITY - INTERNATIONAL CAPITAL, GLOBAL ECONOMIC CIRCUITS, AND SUSTAINABILITY.

Supranational institutions—such as the United Nations (UN), World Bank, International Monetary Fund (IMF), World Trade Organization (WTO), and regional entities like the European Union (EU)—play a crucial role in shaping global sustainability discourse. These institutions influence policies, mobilize resources, and regulate economic and environmental frameworks that balance international capital flows, global economic circuits, and sustainability goals.

1. International Capital

International capital, including foreign direct investment (FDI), global financial markets, and transnational corporate investments, is essential for sustainable development. Supranational institutions influence this in several ways:

a) Setting Global Investment Standards

- **The UN Principles for Responsible Investment (PRI)** guide financial institutions toward **environmental, social, and governance (ESG)** considerations.

- The **IMF and World Bank** encourage sustainable economic policies by offering funding and technical assistance for green infrastructure and climate resilience projects

b) Regulating Capital Flows for Sustainability

- The Financial Stability Board (FSB), supported by the IMF, monitors systemic financial risks, including those related to climate change.
- The EU Taxonomy for Sustainable Activities provides a framework for identifying environmentally sustainable economic activities, guiding investment flows.

c) Promoting Green Finance

- The World Bank's Green Bonds and IMF's Climate Resilience Debt Instruments incentivize investments in sustainability projects.
- The Task Force on Climate-Related Financial Disclosures (TCFD) promotes transparency in corporate climate risk reporting.

By shaping the flow of international capital toward green and socially responsible investments, these institutions help align economic incentives with sustainability goals

2. Global Economic Circuits

The world economy is interconnected through supply chains, trade agreements, production networks, and transnational corporations (TNCs). Supranational institutions influence these global economic circuits in multiple ways:

a) Regulating Global Trade for Sustainability

- The WTO's Environmental Goods Agreement (EGA) seeks to reduce tariffs on eco-friendly products.
- The European Green Deal and carbon border adjustment mechanisms (CBAM) penalize environmentally harmful trade practices.

b) Enforcing Corporate Responsibility in Global Supply Chains

- The UN Guiding Principles on Business and Human Rights set sustainability and ethical trade standards.
- The OECD Guidelines for Multinational Enterprises promote environmental and labor standards in global supply chains.

c) Encouraging Circular Economy Models

The EU Circular Economy Action Plan pushes for waste reduction, recycling, and sustainable production practices.

- The World Economic Forum (WEF) supports circular economy initiatives through collaborations between governments and businesses.
- By influencing how global trade, production, and corporate responsibility are structured, supranational institutions help embed sustainability into economic circuits.

3. Sustainability Governance

Sustainability is a complex challenge requiring coordinated global action. Supranational institutions provide frameworks, policies, and funding mechanisms to drive sustainability efforts.

a) Establishing Global Sustainability Goals

- The United Nations Sustainable Development Goals (SDGs) provide a universal blueprint for economic, environmental, and social sustainability.
- The Paris Agreement (2015), coordinated by the UN Framework Convention on Climate Change (UNFCCC), commits nations to carbon neutrality.

b) Climate Financing and Green Development

- The Green Climate Fund (GCF), managed by the UNFCCC, provides financial assistance to developing countries for climate adaptation.
- The IMF's Resilience and Sustainability Trust offers concessional financing for low-income countries to transition to sustainable development.

c) Monitoring and Reporting Progress

- The UN Environmental Programme (UNEP) monitors biodiversity, pollution, and emissions.
- The Global Reporting Initiative (GRI) and Sustainability Accounting Standards Board (SASB) enforce corporate sustainability reporting.

Despite their positive contributions, supranational institutions face certain criticism which include –prioritising economic stability over sustainability, lack of representation of developing nations in major financial institutions, absence of strict enforcement of multinational

agreements and heavy reliance on corporate partnerships that create an illusion of sustainable action without it actually taking place.

Supranational institutions play a pivotal role in shaping global sustainability by regulating international capital, restructuring economic circuits, and setting sustainability standards. However, ensuring a just, equitable, and enforceable sustainability transition remains a challenge. Strengthening governance mechanisms, increasing financial support for developing nations, and enhancing accountability in global economic circuits will be crucial for achieving long-term sustainability.

3.7 CRITICAL ANALYSIS OF GLOBAL EFFORTS ON CLIMATE CHANGE AND SUSTAINABILITY – CRITICAL ANALYSIS OF POLICIES ON SUSTAINABLE DEVELOPMENT IN INDIA.

Global efforts to address climate change and sustainability have evolved significantly over the past few decades, marked by international agreements, policy frameworks, and technological advancements. However, these efforts face significant challenges, including political resistance, economic constraints, and uneven progress across countries.

1. Strengths of Global Climate and Sustainability Efforts

Positive changes

a) Several landmark agreements have shaped global climate action:

- The Paris Agreement (2015): A legally binding accord where countries commit to limiting global warming to below 2°C, with efforts to stay at 1.5°C above pre-industrial levels.
- The Kyoto Protocol (1997-2020): The first legally binding climate treaty that imposed emission reduction targets on developed nations.
- UN Sustainable Development Goals (SDGs) (2015-2030): A broader framework addressing environmental sustainability, economic growth, and social equity.

b) Advancements in Renewable Energy and Green Technology

- Renewable energy capacity has grown rapidly, with solar and wind energy becoming cost-competitive with fossil fuels.
- Countries like Germany and China have significantly expanded clean energy initiatives.
- Technological innovations such as electric vehicles (EVs), carbon capture and storage (CCS), and smart grids have enhanced sustainability prospects.

c) Climate Finance and Green Investments

- Green Climate Fund (GCF): Established to help developing nations transition to a low-carbon economy.
- The rise of Environmental, Social, and Governance (ESG) investing has pushed corporations to integrate sustainability into their business models.

d) Increased Public Awareness and Activism

- Movements like Fridays for Future and Extinction Rebellion have increased pressure on governments and corporations to act.
- Consumers and businesses are increasingly embracing sustainable practices, from ethical consumption to circular economy models.

Challenges faced

a) Insufficient Emission Reductions

Despite agreements like the Paris Accord, global emissions have continued to rise. Major economies, including the United States, China, and India, still rely heavily on fossil fuels.

- The UN Emissions Gap Report warns that current national commitments are insufficient to prevent catastrophic warming.
- Carbon markets remain fragmented, with weak enforcement mechanisms in many regions.

b) Political and Economic Barriers

- Climate action is often deprioritized in favor of short-term economic growth, particularly in fossil fuel-dependent nations.
- Developing countries face financial and technological constraints, limiting their ability to transition to sustainable economies.
- The influence of corporate lobbying (e.g., oil and gas industries) has hindered the adoption of stricter climate policies.

c) Inequality in Climate Responsibility and Impact

- Developing nations contribute less to historical emissions but suffer more from climate change (e.g., small island nations facing rising sea levels).
- Wealthier nations have not fully met climate finance commitments, such as the promised \$100 billion per year in climate aid under the Paris Agreement.

d) Slow Progress on Sustainable Development Goals (SDGs)

- Biodiversity loss, deforestation, and ocean degradation continue at alarming rates.
- Many governments have failed to integrate SDGs into national policies, leading to uneven progress.

Scope for Improvement

a) Strengthening Global Governance and Compliance

- Legally binding enforcement mechanisms are needed to ensure that countries meet their emission reduction targets.
- A global carbon pricing mechanism could incentivize cleaner industrial practices.

b) Bridging the Climate Finance Gap

- Public and private investments in sustainable infrastructure must increase, especially in the Global South.
- Reforms in international financial institutions (e.g., IMF, World Bank) are needed to facilitate climate-resilient development.

c) Accelerating the Just Energy Transition

- Phasing out coal and oil subsidies while investing in renewable energy should be prioritized.
- Supporting workers and communities affected by fossil fuel decline is crucial for equitable climate policies.

d) Strengthening Local and Grassroots Climate Action

- Community-led conservation efforts (e.g., indigenous land protection) should be supported.
- Governments should integrate climate adaptation into urban planning, agriculture, and disaster management.

While global efforts on climate change and sustainability have made significant progress, they remain inadequate to meet the urgency of the crisis. Political inertia, economic barriers, and unequal responsibility-sharing continue to hinder effective action. Strengthening global governance, ensuring climate justice, accelerating clean technology deployment, and increasing financial support for sustainability will be crucial in achieving a more resilient and equitable future.

Critical analysis of policies on sustainable development in India

India, as one of the world's fastest-growing economies and home to 1.4 billion people, faces a complex sustainability challenge—balancing economic growth, social development, and environmental conservation.

The country has implemented several policies aligned with global sustainability goals, such as the Sustainable Development Goals (SDGs), Paris Agreement (2015), and UN Frameworks on Climate Change. However, while progress has been made, significant gaps remain in implementation, enforcement, and inclusivity.

Progress made-

a) Renewable Energy and Green Growth Initiatives

- India has made remarkable progress in clean energy and green economic policies
- National Solar Mission (2010): Aims to achieve 280 GW of solar power by 2030.
- Renewable Energy Target: India has committed to 500 GW of non-fossil fuel capacity by 2030 under its updated Nationally Determined Contributions (NDCs).
- Faster Adoption of Electric Vehicles (FAME) Scheme: Encourages electric mobility and reduces fossil fuel dependence.
- National Hydrogen Mission (2021): Focuses on developing green hydrogen as a clean energy alternative.

b) Climate Action and Environmental Conservation

India has introduced several key policies for climate resilience and environmental sustainability:

- National Action Plan on Climate Change (NAPCC): Comprises eight missions covering energy efficiency, water conservation, agriculture, and forestry.
- State Action Plans on Climate Change (SAPCCs): Encourages localized climate adaptation strategies.
- Compensatory Afforestation Fund Management and Planning Authority (CAMPA): Supports reforestation efforts and ecosystem restoration.
- Clean Energy Cess on Coal (2010-2020): Aimed at taxing coal use and funding green projects.

c) Sustainable Urban Development

India has launched several urban sustainability programs:

- Smart Cities Mission: Promotes sustainable urban planning with improved waste management, water supply, and green spaces.

- AMRUT (Atal Mission for Rejuvenation and Urban Transformation): Focuses on sustainable water supply, sewage management, and pollution control.
- Swachh Bharat Abhiyan (Clean India Mission): A nationwide initiative for waste management and sanitation.

d) Sustainable Agriculture and Water Management

To ensure food and water security, India has implemented:

- Paramparagat Krishi Vikas Yojana (PKVY): Encourages organic farming.
- National Mission for Sustainable Agriculture (NMSA): Supports climate-resilient farming techniques.
- Jal Shakti Abhiyan: A campaign for water conservation and groundwater recharge.

Existing Roadblocks and challenges

a) Overdependence on Fossil Fuels

Coal still accounts for nearly 55% of India's energy mix, despite ambitious renewable energy targets. Slow transition to electric mobility due to high costs, limited infrastructure, and dependency on imported batteries.

b) Weak Implementation and Policy Enforcement

Environmental laws are often bypassed in favour of economic growth, especially in mining, industrial projects, and deforestation. Lack of local governance and coordination leads to inefficiencies in Smart Cities and waste management programs.

c) Water Scarcity and Pollution

Over-extraction of groundwater has led to severe water crises in Punjab, Haryana, and Tamil Nadu. River pollution remains a major challenge despite initiatives like Namami Gange (Clean Ganga Mission).

d) Social and Economic Inequality in Sustainability Policies

Climate change disproportionately affects marginalized communities—farmers, tribal groups, and urban poor—who have limited access to climate adaptation resources. Green energy transitions lack just transition policies, leaving coal-dependent workers and industries vulnerable.

What needs to be done?

- a) Strengthening Climate Governance through enforcement of stricter environmental regulations for industries and urban development projects

and improving inter-state coordination in implementing climate and sustainability programs.

b) Investing in Circular Economy and Green Jobs by promoting recycling industries and reducing single-use plastics and also develop green employment programs to support workers affected by the shift from fossil fuels.

c) Decentralized Water and Land Management through delegation of decision making powers at all levels and strengthening laws that protect the natural resources of the country.

India has committed to achieving sustainable development in multiple dimensions through rigorous sustainability policies, but implementation gaps, weak enforcement, and socio-economic disparities hinder progress. Strengthening climate governance, ensuring environmental justice, and accelerating green energy transitions will be crucial for India's sustainable future.

3.8. SUMMARY

Sustainability remains a global imperative, requiring coordinated efforts from international agencies, national governments, and economic institutions. The transition from the Millennium Development Goals (MDGs) to the Sustainable Development Goals (SDGs) reflects a more comprehensive and inclusive approach to environmental, economic, and social sustainability. Organizations like the UN, UNEP, and UNFCCC play a vital role in establishing policies, facilitating climate finance, and monitoring progress. However, enforcement challenges, funding gaps, and political resistance continue to hinder meaningful change.

Supranational institutions and global economic circuits also influence sustainability efforts by shaping capital flows, trade policies, and investment priorities. While there has been significant progress in renewable energy, climate adaptation, and pollution control, major economies still struggle with fossil fuel dependency and environmental degradation. In countries like India, sustainable development policies have achieved notable success in areas like renewable energy expansion and climate resilience, yet issues such as water scarcity, deforestation, and pollution remain pressing concerns.

To achieve true sustainability, stronger enforcement mechanisms, equitable climate finance, and greater international cooperation are essential. A just transition that balances economic growth with environmental conservation must be prioritized to ensure a sustainable future for all.

3.9. CHECK YOUR PROGRESS OR EXERCISE

I. True or False

- a. The United Nations Framework Convention on Climate Change (UNFCCC) enforces legally binding emission reduction targets for all countries
- b. The Green Climate Fund is one of the UN's key financial mechanisms to support climate mitigation and adaptation in developing countries.
- c. The SDGs apply to all countries, regardless of their development status.
- d. The Paris Agreement is a voluntary, non-binding agreement with no specific temperature goals.
- e. The UN Principles for Responsible Investment (PRI) encourage financial institutions to consider environmental, social, and governance (ESG) factors.

II. Fill in the blanks

- a. The Paris Agreement, adopted in _____, aims to limit global temperature rise to well below 2°C.
- b. The UNEP's annual report that assesses global climate commitments is called the _____.
- c. One of the major criticisms of the MDGs was their failure to address the fundamental causes of global _____.
- d. The Green Climate Fund (GCF) provides financial support to _____ countries for climate adaptation and mitigation.
- e. The European Union's Circular Economy Action Plan promotes sustainable practices such as _____ and recycling in production systems.

III. Multiple Choice Questions

- a. Which of the following agencies manages the Intergovernmental Panel on Climate Change (IPCC)?
 - A) UNDP
 - B) UNEP
 - C) ILO
 - D) FAO
- b. What principle under the UNFCCC acknowledges the differing responsibilities of countries in addressing climate change?
 - A) Sustainable Equity Doctrine
 - B) Principle of Climate Fairness
 - C) Common but Differentiated Responsibilities
 - D) Shared Climate Burden Principle

- c. Which of the following was **not** one of the original Millennium Development Goals (MDGs)?
- A) Ensure environmental sustainability
 - B) Promote gender equality
 - C) Provide universal internet access
 - D) Reduce child mortality
- d. Which of the following is **not** a criticism of supranational institutions in sustainability efforts?
- A) Overemphasis on corporate partnerships
 - B) Lack of support for fossil fuel projects
 - C) Limited representation of developing nations
 - D) Weak enforcement of multinational agreements
- e. What key feature distinguishes the **SDGs** from the **MDGs**?
- A) They only apply to developing nations
 - B) They were drafted without consultation
 - C) They treat environment, economy, and society as integrated systems
 - D) They focus exclusively on economic growth.

IV. Answer the following question

- a. Describe the role of the UNEP in promoting sustainability.
- b. Critically analyse the MDGs.
- c. Explain the role of UNFCCC in promoting climate sustainability
- d. Enumerate the challenges faces regarding global efforts to promote sustainability.

**3.10. ANSWERS TO THE SELF-LEARNING
QUESTIONS**

I. True or False

- a. False
- b. True
- c. True
- d. False
- e. True

II. Fill in the blanks

- a. 2015
- b. Emissions Gap Report
- c. Poverty
- d. Developing
- e. Waste reduction

III. Multiple Choice Questions

- a. UNEP

- b. Common but Differentiated Responsibilities
- c. Provide universal internet access
- d. Lack of support for fossil fuel projects
- e. They treat environment, economy, and society as integrated systems

3.11. TECHNICAL WORDS AND THEIR MEANING

The Conference of the Parties (COP) - the central body to regularly review, devise, agree and implement climate policy. It acts as a common platform for governments, the private sector and thousands of representatives from the civil society, green and polluting industries, and non-governmental organisations to tackle the climate crisis.

The Paris Agreement (2015) - A legally binding accord where countries commit to limiting global warming to below 2°C, with efforts to stay at 1.5°C above pre-industrial levels.

3.12 TASK

- Critically assess India's policies on sustainable development.

3. 13 REFERENCES FOR FURTHER STUDY

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APPROACHES TO SUSTAINABLE DEVELOPMENT

Unit Structure

After going through this chapter, you will be able to understand the following-

- 4.1. Objectives
- 4.2. Introduction
- 4.3. Subject Discussion
- 4.4. Modifying Behaviour to Achieve Sustainability: Learning and Pro environmental behaviour theories: Fostering Mindfulness, Gratitude and Hope - Social Norms and Emotional Contagion
- 4.5. System Thinking approach, World Viewing, Future and Design Thinking
- 4.6. Approaches to Sustainable Development: Appraisal of the Environment, Estimation of the Environmental Impact, Natural Resource Accounting, Government policies and Economic Outlook.
- 4.7. Approaches to Sustainable Development: Positivist Approach, human development / opulence-oriented approach, Multi-Dimension Approach, Ecosystem Approach and Livelihood Approach
- 4.8. Summary
- 4.9. Check Your Progress or Exercise
- 4.10. Answers to the Self-learning questions
- 4.11. Technical Words and their meaning
- 4.12. Task
- 4.13. References for further study

4.1. OBJECTIVES

At the end of this unit, you will be able to –

- Understand the various behavioural approaches to attain sustainability through both theory and practice.

- Apply the Systems Thinking approach, World Viewing, Future and Design Thinking to comprehend the nuances of sustainability.
- Recognize the different practical approaches to sustainability that look into measuring environmental impact, natural resource accounting and policy analyses.
- Grasp the multiple approaches to sustainable development.

4.2. INTRODUCTION

Sustainable development is a multidimensional concept that demands a deep transformation in both systems and human behaviour. As the world faces mounting environmental, social, and economic challenges, it becomes increasingly important to explore how people think, learn, and act in relation to sustainability. From psychological theories that explain pro-environmental behaviour, to systems-based frameworks that address complex global interdependencies, a wide range of approaches guide our understanding and response to sustainability challenges. This section explores the key strategies for modifying individual and collective behaviour, and examines diverse models and tools—ranging from learning theories and emotional drivers, to design thinking, environmental impact assessments, and philosophical frameworks—that together shape more sustainable futures

4.3. SUBJECT DISCUSSION

Achieving sustainability is not solely a technical or policy-driven endeavor—it requires a fundamental shift in human attitudes, values, and behaviours. Behavioural change is at the heart of sustainable development, and a range of psychological and social theories help explain how individuals and communities adopt environmentally responsible practices in the first section.

The next section elaborated on addressing sustainability at a systemic level using holistic and future-oriented approaches. Further, sustainable development demands robust analytical tools and policy frameworks. Environmental appraisal, impact estimation, and natural resource accounting offer critical methods for assessing ecological outcomes and integrating them into economic planning. Governmental action and economic forecasting also play a pivotal role in ensuring policy alignment with sustainability goals. Lastly, a diverse set of development approaches provides multiple lenses for implementing sustainability. Together, these perspectives form a comprehensive foundation for understanding, guiding, and achieving sustainability in practice.

4.4 MODIFYING BEHAVIOUR TO ACHIEVE SUSTAINABILITY: LEARNING AND PRO ENVIRONMENTAL BEHAVIOUR THEORIES: FOSTERING MINDFULNESS, GRATITUDE AND HOPE - SOCIAL NORMS AND EMOTIONAL CONTAGION

Learning and Pro environmental behaviour theories

Pro-Environment Behaviour theories explore the psychological, social, and cognitive factors that influence actions like recycling, conserving energy, reducing waste, or supporting climate policies. Pro-environmental behaviour are behaviour which intentionally seek to reduce the negative impacts of a person's activities on the natural and built world such as reducing one's use of energy. Disciplines including psychology and sociology in particular have sought to understand what drives, limits and sustains pro-environmental behaviour.

1. Theory of Planned Behavior (TPB) – Ajzen (1991)

The theory of planned behaviour assumes that behaviour results from the intention to engage in specific behaviour (i.e. whether people plan to do so). The stronger your intention, the more likely it is that you engage in the behaviour. The intention depends on attitudes towards the behaviour, subjective norms related to the behaviour, and perceived behavioural control.

- Attitudes reflect the extent to which engaging in a behaviour is evaluated positively or negatively. Attitudes are based on beliefs about the likely costs and benefits of behaviour, weighted with the perceived importance of these costs and benefits.
- Subjective norms reflect the extent to which a person believes that important others would approve or disapprove of the behaviour. They are based on beliefs about the expectations of relevant reference groups concerning the behaviour, weighted by one's motivation to comply with these expectations.
- Perceived behavioural control refers to the perceived ability to perform the behaviour, which depends on beliefs about the presence of factors that may facilitate or hinder that behaviour.

The TPB has been successful in explaining various types of environmental behaviour, including the intention to use transport forms other than the car, the use of unbleached paper, reductions in meat consumption, and the use of energy-saving light bulbs.

2. Norm Activation Theory (NAT) – Schwartz (1977)

The norm activation model (NAM; Schwartz 1977; Schwartz and Howard 1981) proposes that pro-environmental actions follow from the

activation of personal norms, reflecting feelings of moral obligation to perform or refrain from actions. Personal norms are activated by four factors: problem awareness (or awareness of need), ascription of responsibility, outcome efficacy, and self-efficacy. Notably, personal norms are stronger when people are aware of the environmental problems caused by their behaviour, and when they feel personally responsible for these problems and do not attribute these problems to the actions of others, industry, or the government.

The NAM has been successful in explaining various types of pro-environmental intentions and behaviours, such as car use (Eriksson et al. 2006) and general pro-environmental behaviour (Nordlund and Garvill 2002).

3. Value-Belief-Norm (VBN) Theory – Stern et al. (1999)

The value-belief-norm theory of environmentalism (VBN theory; Stern 2000) is an extension of the NAM. The VBN theory proposes that problem awareness depends on values (i.e. general goals that serve as guiding principles in your life) and ecological worldviews (i.e. beliefs on relationships between humans and the environment). The VBN theory proposes that egoistic values are negatively related, and altruistic and biospheric values are positively related to ecological worldviews. In turn, ecological worldviews predict problem awareness, which next influences one's beliefs on whether one can act to reduce the environmental threat, personal norms, and subsequently behaviour. Each variable in the causal chain is assumed to be related to the next variable, but may also be directly related to variables further down the chain, although these relationships are likely to be weaker. Personal norms may influence all kinds of behaviours taken with pro-environmental intent, including environmental activism (e.g. active involvement in environmental organizations or demonstrations), non-activist behaviours in the public sphere (e.g. acceptability of environmental policies), private-sphere environmentalism (e.g. the purchase, use, and disposal of products with environmental impact) and organizational actions (e.g. designing environmentally benign products).

Studies revealed that the NAM and VBN theory are particularly successful in explaining low-cost pro-environmental behaviours and 'good intentions' such as willingness to change behaviour, political behaviour, and policy acceptability.

4. Social Cognitive Theory – Bandura

In addition to the theory of planned behavior, norm activation theory, and values-beliefs-norms theory, Social Cognitive Theory can serve as an alternative theory to explain pro environmental behavior. The theory proposes that a variety of person, environmental, and behavioral variables influence the pro-environmental behavior process. Self-efficacy (beliefs about one's ability to successfully organise and perform courses of action) fosters positive outcome expectations (beliefs about the consequences of given actions), and both, independently and jointly, lead to goals

(intentions to engage in a particular activity). Goals, in turn, motivate pro-environmental actions. Further, contextual variables may affect individuals' self-efficacy and also willingness to transform their goals into actions. Goals are more likely to be achieved when individuals experience strong contextual supports and weak barriers. In contrast, non-supportive conditions can impede these processes of translating goals into actions. This means that the relationship between goals and actions is expected to be stronger in the presence of supportive versus restrictive contextual conditions. Findings from studies that used social-cognitive theory to promote pro-environmental behavior have underlined certain areas on which environmental policies should focus to generate more responsible environmental behaviors such as to create judgments of capacities within individuals, to promote the belief that people can obtain favorable outcomes after initiating or conducting environmental changes, to encourage goalsetting, and to provide supportive contextual conditions.

5. Goal Framing Theory

Goal-framing theory (Lindenberg and Steg 2007) proposes that three general goals govern or 'frame' the way people process information and act upon it: the hedonic goal 'to feel better right now', the gain goal 'to guard and improve one's resources', and the normative goal 'to act appropriately'. The strength of different goals influences what people think of at the moment, what information they are sensitive to, what alternatives they perceive, and how they will act. According to goal-framing theory, one goal is focal (i.e. the goal-frame) and influences information processing the most, while other goals are in the background and increase or decrease the strength of the focal goal. Normative goals provide the most stable basis for pro-environmental actions, as acting pro-environmentally is the appropriate way to act.

Fostering Mindfulness, Gratitude and Hope

Pro-environmental behaviour is as much psychological as driven by other factors. A positive psychological state ensures deeper attachment to nature and empathy for all biotic and abiotic components that we share space with on this planet. This results in mindful actions, sustainable practices and environment friendly attitudes. While Mindfulness increases our awareness of the environmental impact of our action on our surroundings that leads to conscious behaviour, gratitude harbours an appreciation for nature leading to a desire to protect and preserve it. Hope keeps us going forward with the belief that requisite action can in fact reverse some amount of damage, provide solutions to existing environmental issues and the possibility of a better present and future.

Social Norms and Emotional Contagion

Social norms are 'rules and standards that are understood by members of a group, and that guide and/or constrain human behaviour without the force of laws' (Cialdini and Trost 1998, p. 152). In a general sense, social norms are what is commonly done or (dis)approved. They refer to what other people think or do. It is useful to distinguish between two types of social

norms: **injunctive norms** which refer to the behaviour commonly approved or disapproved, and **descriptive norms** which refer to the behaviour shown by most group members.

Social norms can exert a powerful influence on (pro-environmental) behaviour through normative and informational influence. This influence is moderated by the salience of the norm, the size of the reference group, the extent to which this group is considered an in-group, one's personal norms, and the extent to which injunctive and descriptive norms are aligned. When designing messages to promote pro-environmental behaviour, it is essential that information regarding corresponding descriptive norms is in line with the targeted behaviour.

Emotional Contagion: Emotional contagion is defined as sharing of the emotional states between individuals. Tuning one's emotional state to that of another increases the probability of similar behavior, which thereby allows for a rapid adaptation to environmental challenges (Hatfield et al., 1994).

Emotional contagion can promote pro-environmental behaviour through-spreading environmental concern, collective action, social media amplification, displaying environment friendly behaviour and mindfulness.

4.5 SYSTEM THINKING APPROACH, WORLD VIEWING, FUTURE AND DESIGN THINKING

System thinking approach

Systems' thinking is the ability to think about a system as a whole, rather than only considering the parts individually. Systems' thinking involves the use of various techniques to study systems of many kinds. In nature, systems thinking examples include ecosystems in which various elements such as air, water, movement, plants, and animals work together to survive or else they perish (Wilson 2012). In organizations, systems consist of people, structures, and processes that work together to make an organization "healthy" or "unhealthy".

Peter Senge's book "The Fifth Discipline", defines systems thinking as a discipline for seeing wholes. He further defines systems thinking as a "framework for seeing interrelationship rather than things, for seeing patterns of change rather than static snapshots" (Senge 1990). (Davidz and Nightingale 2008) builds further upon the notion of interrelationships, and interdependencies. She defines systems thinking as the "analysis, synthesis and understanding of interconnections, interactions, and interdependencies that are 7 1.8 Systems Thinking Approach technical, social, temporal and multi-level" (Davidz and Nightingale 2008).

Environmental and socio-economic issues are interdependent and nested within a system. With this perspective, this approach would create the opportunity for better solutions to development challenges. It would enhance a shared vision among different disciplines to align and harness

efforts of people towards targets, goals and interventions. It would also leverage productive usage of capital, technology, and human resources, coordinated towards the same ends.

As far as sustainable development is concerned a System Thinking Approach would address the root causes of environmental issues, understand the linkages between different components/aspects of sustainability, helps navigate policy conflicts and opportunities and help design effective policies that are resilient, flexible and can evolve with changing contexts.

Tools Used in Systems Thinking include Causal Loop Diagrams (CLDs), System Dynamics Models, Stock-and-Flow Diagrams, Scenario Planning and Back casting and Cross-impact analysis (e.g., SDG interactions).

A system thinking approach offers comprehensive answers and avoids fragmented solutions to complex, deep rooted challenges to build resilient, equitable and sustainable futures.

World Viewing

Worldviews are defined as a combination of a person's value orientation and his or her view on how to understand the world and the capabilities it offers. They are the lens through which the world is seen.

The kind of (often unconscious) mental habits, frames and assumptions, of which worldviews are composed, might not immediately seem to be relevant to contributors of the SD debate, but eventually these kinds of cultural mechanisms or 'filters' are the basis on which humans decide how to act, according to their perception of the environment and reality. It shapes their beliefs in nature and in the world-as-a-whole

Worldview construction is collective work that is not identifiable with only one individual person, but tries to connect shared goals—or in the scope of SD a sustainable worldview—with acceptable and specific views of these individuals or the social groups they are living in.

A World View approach to sustainable development-

- Advocates holistic thinking which recognizes the multiple dimensions of sustainable development,
- Emphasizes interconnectedness- which has to oversee that progress in one sector should not hinder progress in another.
- Views sustainability is seen as a shared global responsibility between countries who commit to the same through various agreements, policies and actions.
- Encourages changes to secure a better future.

- Socially and culturally Inclusive and ensures that all stakeholders are involved equally wherever required.
- Is scientific and ethical -grounded in science (climate data, sustainability metrics) as well as ethics and justice, emphasizing human rights, equity, and responsibility.

The global approach to sustainable development emphasizes a holistic, inclusive, and long-term perspective that balances economic growth, social equity, and environmental protection. It recognizes that sustainability is a shared responsibility requiring global cooperation, guided by scientific evidence and rooted in ethics and justice.

Future and Design Thinking

Futures thinking is a powerful tool that empowers sustainability leaders to navigate uncertainties, anticipate emerging trends, and create resilient strategies.

Three main components of Future Thinking-

Scenario Planning: Developing alternative future scenarios based on different trends, drivers, and assumptions. Scenario planning helps leaders to explore potential outcomes and their implications, fostering preparedness and adaptability.

Systems Thinking: Recognising the interconnectedness of social, environmental, and economic factors in shaping the future. Systems thinking allows sustainability leaders to understand the complex web of relationships and identify leverage points for transformative action.

Anticipatory Intelligence: Gathering and analysing information about emerging trends, disruptive technologies, and societal shifts. By anticipating such trends and shifts, sustainability leaders can anticipate challenges and seize opportunities for sustainable innovation.

In the context of sustainable development, it can help in:

- Projecting long-term impacts of current decisions (e.g., climate models, population growth).
- Exploring alternative futures to identify risks and opportunities.
- Using scenarios and forecasting to guide policies and innovations.
- Encouraging resilience and adaptability to environmental, economic, and social shifts.

Innovation approaches in particular serve to render complex problems more tangible, facilitating a deeper comprehension and aiding in the resolution process. Among these approaches, “Design Thinking (DT)” stands out as one of the most recurrent and impactful in companies to gauge the needs of users at the beginning of an innovation process. The term originated in 1957 at Stanford University (Auernhammer and Roth,

2021), became popularized in the 1970s and 1980s but gained significant prominence in the 1990s.

DT refers to a cooperative and creative problem-solving process - one where emphasis is placed on identifying the problem to solve rather than the solving of a problem on its own - that assists with understanding people and possibilities and thus developing effective solutions that are both innovative and practical (Foster, 2021; Shapira et al., 2017).

Sustainable development is based on the principles of equity, efficiency, and sustainability that provide a balance among social, environmental, and economic aspects (Enriquez-Puga et al., 2009; Moldovan et al., 2022). By integrating DT into sustainable development, new innovative solutions to complex problems can be created. These solutions will account for all aspects of sustainability and ensure that ethics are maintained. More specifically, the combination ensures that consumer needs are met without compromising the integrity of the natural environment (Shapira et al., 2017).

DT is based on six main components that are useful for sustainable development (Shapira et al., 2017).

- Firstly, human-centeredness is essential. People are placed in the centre of all projects to ensure needs are met effectively.
- Secondly, DT is research-based to understand the drivers and barriers of processes.
- Thirdly, it is context-based to help understand the bigger picture.
- Furthermore, it involves collaborations that span various disciplines, which has been highlighted as imperative to sustainable development.
- Additionally, it is a nonlinear concept that allows for the development of multiple solutions and further integrates optimism that ensures that everyone in the process believes that change is possible.

The integration of DT with a circular economy is one of the emerging approaches for making production and consumption more sustainable through need analysis, interdisciplinary and collaborative processes, creation and delivery of value. In other instances, DT has been incorporated into the development of smart cities. It is useful for focusing on the six components of smart cities, which include people, environment, government, economy, lifestyle, and mobility.

The relationship between DT and SD is crucial in creating innovative solutions for complex problems. DT and SD are interconnected concepts that can collaborate to address challenges effectively. The similarity in both concepts can be seen in terms of-

- a) **Life-centered approach:** DT and SD share a focus on understanding human needs, environmental values, and ethics.
- b) **Systems thinking:** Both DT and SD involve understanding how different elements interact within a whole. DT considers how products or services fit into users' lives, while SD focuses on the interactions between economic, social, and environmental factors.
- c) **Innovation and creativity:** DT and SD aim to seek innovative and creative solutions to tackle complex issues like climate change, poverty, and inequality (Milovanovic et al., 2021).
- d) **Iterative processes:** Both concepts follow iterative processes of prototyping, testing, and refining solutions, allowing for continuous improvement (Maher et al., 2022).
- e) **Collaboration:** Both concepts bring together individuals from diverse disciplines to understand problems and develop solutions collaboratively (Fisk et al., 2024).
- f) **Long-term focus:** DT and SD share a common goal of designing for the future needs of users, highlighting the importance of a long-term perspective in creating sustainable solutions (Schumacher and Mayer, 2018)

Future thinking and design thinking approaches to sustainability foster innovative and adaptive solutions, encourage cross cultural and cross sectoral collaboration and help ensure policies and technologies are practical, inclusive, and future-oriented.

4.6. APPROACHES TO SUSTAINABLE DEVELOPMENT: APPRAISAL OF THE ENVIRONMENT. ESTIMATION OF THE ENVIRONMENTAL IMPACT, NATURAL RESOURCE ACCOUNTING, GOVERNMENT POLICIES AND ECONOMIC OUTLOOK

Appraisal of the Environment

Environmental appraisal is the process by which account is taken of the environmental dimensions of development interventions in each phase of the project cycle. It involves identifying, estimating, and evaluating the environmental impacts of existing and proposed projects, by conducting environmental studies, to mitigate the relevant negative effects prior to making decisions and commitment.

Large infrastructure projects — such as mines, dams, highways, thermal power plants, or ports — cause major, irreversible disruptions in ecosystems. These disruptions adversely affect all communities that may 'value' these ecosystems in different ways and through different standpoints. Historically, these disruptions were simply seen as the inevitable cost of 'progress' or 'development'. Starting in the 1970s, the

idea that these impacts need to be more explicitly considered in the decision-making on such projects gained ground.

‘Environmental Impact Assessment’ (EIA) and later ‘Social Impact Assessment’ (SIA) emerged as ex ante ‘environmental appraisal’ (EA) tools to provide decision-makers with information on the likely environmental and social impacts of such projects and to avoid or pre-empt the protests that such project proposals often triggered.

Key Components and Process

Environmental appraisal generally follows a structured process that is subdivided into several stages which include-

- **Screening-** Determines whether a proposed project or policy requires a full environmental appraisal. Projects are reviewed against criteria such as scale, location, and potential for significant impacts. If a project is deemed to have potential for major environmental effects, a more detailed assessment is warranted.
- **Scoping-** Identifies the main environmental issues and impacts that should be considered in the appraisal. Stakeholders, involving local communities, experts, and regulatory bodies, contribute to defining the scope of the assessment. This stage determines which environmental factors (e.g., air quality, water resources, biodiversity) are most relevant.
- **Impact Analysis and Evaluation-** Uses methodologies such as modeling, risk assessment, and cost-benefit analysis to Quantify and qualitatively describe the predicted environmental impacts. Studies can include, Baseline Studies, Predictive Modeling and Impact Evaluation.
- **Mitigation and Alternatives-**Identify strategies to avoid, reduce, or compensate for adverse environmental impacts. Decision-makers evaluate various alternatives, including the "no action" alternative, and propose mitigation strategies to reduce harm.
- **Reporting and Consultation-** Communicate the findings of the environmental appraisal to decision-makers and the public. The results are compiled into an Environmental Impact Statement (EIS) or similar document. Public hearings or consultations are often conducted to gather feedback and enhance the legitimacy of the appraisal.
- **Monitoring and Follow-Up-**Ensure that the predicted impacts are managed and mitigated over time. Ongoing monitoring programs track environmental performance during and after the implementation of a project. Adaptive management practices are recommended so that mitigation measures can be adjusted if necessary

Types

- **Environmental Impact Assessment (EIA)** - Specifically examines the likely environmental effects of a single project or development proposal and commonly used in infrastructure, mining, construction, and energy.
- **Strategic Environmental Assessment (SEA)** - Evaluates the environmental impacts of policies, plans, and programs rather than individual projects. Useful for guiding long-term planning in urban development, transportation, and regional policies.
- **Cumulative Effects Assessment (CEA)**-Assesses the collective impact of multiple projects or activities over time and used in regions where numerous small-scale developments may have significant aggregate impacts.
- **State of the Environment Report**- A report that provides information on the current state of the environment.
- **Integrated Environmental Assessment**- An assessment that considers the interactions between different environmental issues.
- **Corporate Environmental Assessment**- An assessment of an organization's environmental performance and impact.

Environmental appraisal is a vital tool for integrating environmental concerns into the sustainable development decision-making process. Through structured methods like EIA and SEA, it helps ensure that potential impacts are identified, evaluated, and mitigated before projects proceed, leading to informed decision making and thus supporting a more sustainable balance between development and environmental conservation.

Estimation of the Environmental Impact

Environmental Impact Assessment (EIA) is a process of evaluating the likely environmental impacts of a proposed project or development, taking into account inter-related socio-economic, cultural and human-health impacts, both beneficial and adverse.

UNEP defines Environmental Impact Assessment (EIA) as a "tool used to identify the environmental, social and economic impacts of a project prior to decision-making. It aims to predict environmental impacts at an early stage in project planning and design, find ways and means to reduce adverse impacts, shape projects to suit the local environment and present the predictions and options to decision-makers. "

EIA involves the steps mentioned below. However, the EIA process is cyclical with interaction between the various steps.

- **Screening:** The project plan is screened for scale of investment, location and type of development and if the project needs statutory clearance.
- **Scoping:** The project's potential impacts, zone of impacts, mitigation possibilities and need for monitoring.
- **Collection of baseline data:** Baseline data is the environmental status of study area.
- **Impact prediction:** Positive and negative, reversible and irreversible and temporary and permanent impacts need to be predicted which presupposes a good understanding of the project by the assessment agency.
- **Mitigation measures and EIA report:** The EIA report should include the actions and steps for preventing, minimizing or by passing the impacts or else the level of compensation for probable environmental damage or loss.
- **Public hearing:** On completion of the EIA report, public and environmental groups living close to project site may be informed and consulted.
- **Decision making:** Impact Assessment Authority along with the experts consult the project-in-charge along with consultant to take the final decision, keeping in mind EIA and EMP (Environment Management Plan).
- **Monitoring and implementation of environmental management plan:** The various phases of implementation of the project are monitored.
- **Assessment of Alternatives, Delineation of Mitigation Measures and Environmental Impact Assessment Report:** For every project, possible alternatives should be identified, and environmental attributes compared. Alternatives should cover both project location and process technologies.

Once alternatives have been reviewed, a mitigation plan should be drawn up for the selected option and is supplemented with an Environmental Management Plan (EMP) to guide the proponent towards environmental improvements.

- **Risk assessment:** Inventory analysis and hazard probability and index also form part of EIA procedures.

Importance of EIA

- It links environment with development for environmentally safe and sustainable development.
- Provides a cost effective method to eliminate or minimize the adverse impact of developmental projects.
- Enables the decision makers to analyse the effect of developmental activities on the environment well before the developmental project is implemented.
- Encourages the adaptation of mitigation strategies in the developmental plan.
- Ensures that the developmental plan is environmentally sound and within the limits of the capacity of assimilation and regeneration of the ecosystem

Challenges

As comprehensive as it is as a tool of environmental assessment, the EIA has its own shortcomings that include lack of credibility, poor quality reporting, unethical means that companies resort to for bypassing the EIA process and ignoring indigenous knowledge and public concerns.

Natural Resource Accounting

Natural resource accounting is the compilation of data on natural resources, such as water, forests, minerals, soils, and energy within an accounting framework. The term also covers the interpretation of data and reporting. Natural resource accounts may involve either physical quantities or stocks valued in monetary terms. Natural resource accounts differ from other data in that they are organised in terms of stocks and flows. The terms 'natural resource accounting', 'green accounting' and 'environmental accounting' are used interchangeably in the literature on the subject and are regarded as synonyms.

Natural resource accounting is seen as a means of demonstrating linkages between the environment and the economy. It is one of the tools which may be used to support environmental policy, alongside instruments such as environmental impact assessments at a project level, integrated environmental and economic analyses for policy work at the sectoral and macro-economic levels, and public investment/expenditure reviews.

Natural resource accounting can be used for:

- the demonstration of accountability for the management and protection of natural resources
- identifying environmental problems such as resource depletion;
- analysing government policy;

- undertaking resource management and decision-making;
- monitoring sustainable development;
- drawing up (macro-economic) indicators for environmental performance or prosperity;
- improving benchmarks for measuring a country's national product.

Economic growth is important for several countries in order to move forward by planning their resource allocation and prioritizing their investments. However, the intensity of resource utilization and the resulting environmental degradation are equally important for the long term sustainability of economic development. In particular, if the quantity of such costs and their growth is faster than economic growth, it can have serious implications to the future growth and environment, unless the gains from economic growth are invested into environmental improvement. Normally, environmental costs are given a back seat and they are never even considered or compared with measures of economic progress. Natural resources accounting framework can be used for estimating the environmental costs and incorporating them into sectoral income accounts or even compare with them so as to take the required policy decision with regard to environmental resource conservation.

Government policies and Economic Outlook

Environmental appraisal is not confined to physical projects (like dams or highways) — it also critically examines government policies, programs, and macroeconomic strategies to assess their direct and indirect environmental impacts.

This broader approach is often done through Strategic Environmental Assessment (SEA), which evaluates how policy-level decisions align with environmental sustainability goals. SEA is an organized procedure to assess environmental impact associated with a program, plan, or policy. It also helps in providing a medium to explore overall impacts and address them properly along with economic and social aspects at the phase of decision making. Using SEA, environmental-related issues and challenges are appropriately addressed. Moreover, it also provides various alternatives and opportunities to mitigate environmental impediments and support low carbon sustainable development.

The policies that are primarily considered for appraisal would include those related to energy, agriculture, industries, infrastructure, climate, fiscal and trade policies.

The national economic outlook includes GDP, growth projections, investment trends, demographic changes that impact resource demand and utilization, pollution and waste generation, land utilization and conversion, energy consumption patterns, habitat loss, rehabilitation and resettlement in case of displacement, etc.

The tools through which the economic outlook can be assessed includes- SEA, Cost-Benefit Analysis, Green Accounting/Natural Resource Accounting, Environmental Fiscal Reform Analysis, Scenario Modelling.

Using environmental appraisal to evaluate government policies and economic outlooks ensures that national development is not only economically sound but also environmentally responsible and socially inclusive. It ensures policy coherence between environmental protection and developmental interventions, improves public accountability and transparency, helps avoid adverse environmental consequences of growth strategies and helps advocate climate resilience and green economies.

4.7 APPROACHES TO SUSTAINABLE DEVELOPMENT: POSITIVIST APPROACH, HUMAN DEVELOPMENT / OPULENCE ORIENTED APPROACH, MULTI-DIMENSION APPROACH, ECOSYSTEM APPROACH AND LIVELIHOOD APPROACH

Positivist approach

Positivism refers to a philosophical approach that aims to validate the scientific study of human organization within the social sciences. It advocates for the discovery and assessment of general laws through theoretical and empirical work. It is a philosophical paradigm that is centred on the ontological belief that reality is measurable and encompasses only what one can directly observe (Lincoln and Guba, 1985; Tashakkori et al., 2021). Axiologically, positivists tend to believe that research can and should be without value judgments, thereby emphasizing researcher objectivity (Tashakkori et al., 2021). The role of research in this paradigm is to observe and measure patterns in reality to test hypotheses or make predictions about reality using deductive reasoning and quantitative methods. While it has been customary to distinguish between the quasipolitical movement called ‘positivism’ originated by Auguste Comte in the 1830s and the more strictly philosophical movement called ‘logical positivism’ associated with the Vienna Circle of the 1930s, both shared a common awareness, namely, that the unrestricted exercise of reason can have disastrous practical consequences. Thus, both held that reason needs ‘foundations’ to structure its subsequent development so as not to fall prey to a self-destructive scepticism.

Sustainable development, through a positivist lens, is comprehended through data-driven, technocratic, and policy-focused methods. The emphasis is on quantifying and measuring sustainability and progress toward sustainability goals using various indicators, variables and components across multiple dimensions.

Examples of use of the positivist approach in sustainable development would be employing indicators like carbon emissions, biodiversity indices,

water and air quality, etc. It would also entail using sustainable models like those based on climate, ecological footprint and advocating technological solutions to environmental challenges.

The advantages of using this approach in sustainable development would be setting clear targets to be achieved to sustainable pathways, enhancing accountability of both the government and private players and providing evidence based interventions to pressing environmental needs. However, focusing too much on numbers and statistics can lead to ignorance of local context, reducing complex human-nature relationships to numbers and a failure to capture other aspects of sustainability which are not directly measurable but equally significant.

Human Development Approach/Opulence Oriented Approach

The Human Development Approach based on the Capabilities Approach of Amartya Sen and Martha Nussbaum emphasizes enhancing and expanding peoples' capabilities to enable them to live the life they want to. This approach perceives development not merely in terms of economic growth but also improving human potential across aspects of health, education, income.

The Opulence Oriented approach on the other hand views development as material wealth, economic progress and consumption that enhance the quality of human life. Rooted in the Classical Developmental Models, it places prime importance on GDP and infrastructural expansion and assumes that a rise in material wealth leads to improvement in other areas of life.

Although these two approaches differ in how they see/measure development, both prioritize people and their all-round development while ensuring sustainability and try to balance out economic, social and environmental well-being as major markers of sustainable development. While the Human Development Approach uses HDI and life satisfaction as major indicators of sustainable development, the Opulence approach uses GDP and consumption levels for the same. The former aims to attain equal and just societies while the latter targets economic growth with sustainability in other dimensions. The role of environment in Human Development Approach is a way to secure sustainable livelihoods that are environment friendly and economically viable and socially equitable, the opulence oriented approach sets environmental limits to achieve continuous growth and expansion.

While these approaches bring in a critical analysis to sustainability by linking it to all dimensions of human life and making it more holistic, they also run the risk of blurring the lines between over expansion and sustainable outcomes and can be too much growth centric.

Multi-Dimension Approach

The Multi-dimensional approach to sustainable development treats sustainability as a complex, dynamic concept having multiple domains that are treated as individual components which require separate actions but are also interconnected with each other wherein implications and outcomes are concerned. Lele (1993) suggests a pluralistic and socially sensitive approach to sustainability; "Sustainability analysts must similarly embrace the plurality in human values and their rankings and in perceptions about the environment, technology and social processes." Hence, even if one is focusing on any one particular aspect of sustainability, for example, environmental protection and management of a particular forest, the analysis should include the social context of the forest, the services and products provided by the forest to its beneficiaries, the preferences and choices of these beneficiaries, the different manage outcomes for different stakeholders associated with the forest.

Integrated thinking, applying a systems perspective, seeking long-term sustainable outcomes, inclusive participation and decision making processes and localizations of sustainability goals are some of the salient features of this approach. It serves as a well-rounded, all-encompassing and holistic view of problems like poverty, environmental degradation and inequality providing a scope for cross-sectoral collaboration and meaningful transformation towards sustainable outcomes.

Ecosystem approach

The ecosystem approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. It was formally adopted by the Convention on Biological Diversity (CBD) and has become a key framework in environmental governance. As described by the Conference of the Parties, the ecosystem approach is the primary framework for action under the Convention. The Conference of the Parties, at its Fifth Meeting, endorsed the description of the ecosystem approach and operational guidance and recommended the application of the principles and other guidance on the Ecosystem Approach.

It is based on the application of appropriate scientific methodologies focused on levels of biological organization which encompass the essential processes, functions and interactions among organisms and their environment. It recognizes that humans, with their cultural diversity, are an integral component of ecosystems. The ecosystem approach requires adaptive management to deal with the complex and dynamic nature of ecosystems and the absence of complete knowledge or understanding of their functioning. Ecosystem processes are often non-linear, and the outcome of such processes often shows time-lags. The result is discontinuities, leading to surprise and uncertainty. Management must be adaptive in order to be able to respond to such uncertainties and contain elements of "learning-by-doing" or research feedback.

This approach is based on 12 principles that are complimentary and interlinked-

1. The objectives of management of land, water and living resources are a matter of societal choice.
2. Management should be decentralized to the lowest appropriate level. Rationale: Decentralized systems may lead to greater efficiency, effectiveness and equity. Management should involve all stakeholders and balance local interests with the wider public interest. The closer management is to the ecosystem, the greater the responsibility, ownership, accountability, participation, and use of local knowledge.
3. Ecosystem managers should consider the effects (actual or potential) of their activities on adjacent and other ecosystems.
4. Recognizing potential gains from management, there is usually a need to understand and manage the ecosystem in an economic context.
5. Conservation of ecosystem structure and functioning, in order to maintain ecosystem services, should be a priority target.
6. Ecosystems must be managed within the limits of their functioning.
7. The ecosystem approach should be undertaken at the appropriate spatial and temporal scales.
8. Recognizing the varying temporal scales and lag-effects that characterize ecosystem processes, objectives for ecosystem management should be set for the long term.
9. Management must recognize that change is inevitable.
10. The ecosystem approach should seek the appropriate balance between, and integration of, conservation and use of biological diversity.
11. The ecosystem approach should consider all forms of relevant information, including scientific and indigenous and local knowledge, innovations and practices.
12. The ecosystem approach should involve all relevant sectors of society and scientific disciplines.

The primary objectives of this approach are to maintain and enhance ecosystem resilience and integrity, improve livelihood security, integrate bio-diversity conservation across all sectors and promote sustainable natural resource management.

The ecosystem approach to sustainable development emphasizes that human well-being is deeply dependent on ecosystem health. It aims to integrate environmental, social, and economic goals by managing ecosystems in a way that is inclusive, adaptive, and ecologically sound. It's an effective approach for achieving both biodiversity conservation and human development, especially in regions where communities are closely tied to the land.

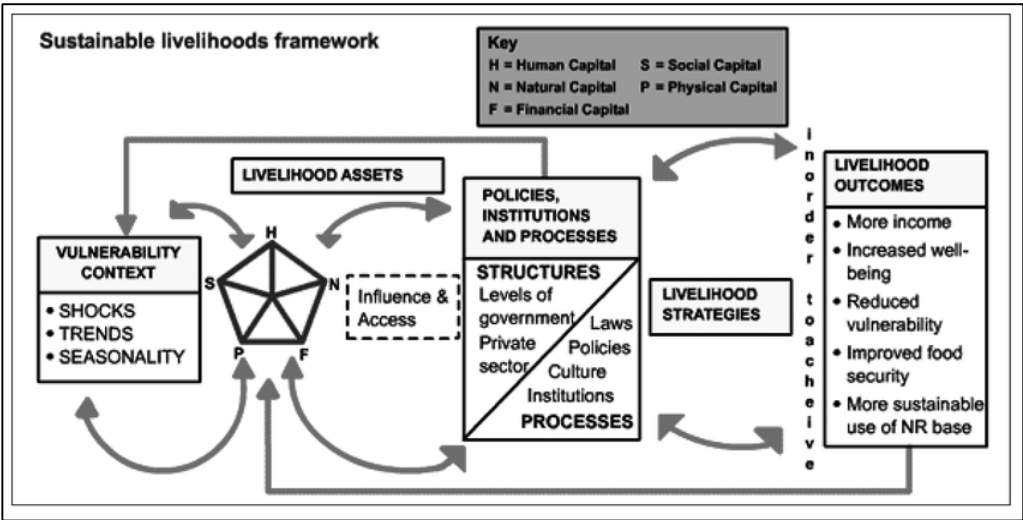
Livelihood Approach

The Livelihood Approach to sustainable development is a people centred strategy that places people and their livelihoods at the centre of developmental planning, policy and practice. It focuses on the strengths assets/resources of individuals, households and communities and how can they transform these into livelihoods that are resilient, equitable and sustainable in the long run.

Chambers and Conway (1992) defined livelihoods as-

a livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living: a livelihood is sustainable which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long term.

International bodies like the DFID (UK's Department for International Development) came out with their version of a Sustainable Livelihood Framework, which with time, became widely popular as a guiding framework for livelihood analyses in development practice.



Sustainable Livelihoods Framework by DFID

The framework consists of 5 interconnected components that influence livelihood pathways, strategies and outcomes.

- The Vulnerability Context-The extent, to which people's assets can be built up, balanced; and how they contribute towards their livelihoods, depends on a range of external factors that change people's abilities to gain a living. Some of these factors will be beyond their control and may exert a negative influence. This aspect of livelihoods can be called the vulnerability context. This context must be understood, as far as possible, so as to design ways to mitigate the effects. There are three main types of change.
- Assets may be material, and include food reserves and cash savings, as well as trees, land, livestock, tools, and other resources. They may also be intangible such as demands one can make for food, employment, and assistance as well as access to materials, information, education, health services. A third way of looking at assets, or capitals, is to categorize them into the following five groups:
 - Human- Skills, knowledge, health and ability to work.
 - Social- Social resources, including informal networks, membership of formalized groups and relationships of trust that facilitate cooperation and economic opportunities
 - Natural- which include natural resources such as land, soil, water, forests and fisheries.
 - Physical- basic infrastructure, such as roads, water & sanitation, schools, ICT; and producer goods, including tools, livestock and equipment
 - Financial- financial resources including savings, credit, and income from employment, trade and remittances.
- Policies, institutions and processes-Livelihoods develop within certain social, economic and political circumstances. Institutions, processes and policies, such as markets, social norms, and land ownership policies impact our ability to access and use assets for gainful outcome. The dynamics of these contexts create new livelihood obstacles or opportunities. Contexts entail social relations, governance, social and political organizations, resource access institutions, the natural environment and policies and processes, all of which guide livelihood practice in a particular place.
- Livelihood Strategies-how people access and use the available assets, within the aforementioned social, economic, political and environmental contexts form a livelihood strategy. The range and diversity of livelihood strategies are vast. An individual may engage in several activities to meet his/her needs. A group of people may take on activities that build up a collective livelihood strategy. Diversification of livelihoods is one such strategy adopted by people.

- **Livelihood Outcomes**-The aim of these livelihood strategies is to meet people's needs, as efficiently and effectively as possible. These needs can be expressed as desired livelihood outcomes of a chosen livelihood strategy. When considering “poor” people, there are five basic outcomes that will usually be most important to them. The priority given to each will depend on the individual's perception of his or her circumstances. They are increased food security, increased well-being, reduced vulnerability, increased income and sustainable natural resource use.

Thus, the livelihood approach consider the wider context of livelihood strategies. It presents the main factors affecting people's livelihoods, and typical relationships between these. The framework can be used in both planning new development activities and assessing the contribution to livelihood sustainability made by existing activities.

In particular the framework:

- Provides a checklist of important issues and sketches out the way these link to each other;
- Draws attention to core influences and processes; and
- Emphasizes the multiple interactions between the various factors affecting livelihoods.

The framework does not work in a linear manner and does not try to present a model of reality. Its aim is to help stakeholders, with their different perspectives, engage in structured and coherent debate of the many factors affecting livelihoods, their relative importance and the way in which they interact. In our case, the framework should help exploring linkages between agrobiodiversity, gender and local knowledge and to better understand their potential in contributing to improved livelihood.

4.8 SUMMARY

In addressing the complex challenges of sustainable development, it is essential to integrate behavioural insights, systemic strategies and multiple approaches to sustainability issues.

4.9 CHECK YOUR PROGRESS

I. True or False

- a. According to the Theory of Planned Behaviour (TPB), perceived behavioural control has no influence on an individual's intention to perform a pro-environmental action.
- b. Strategic Environmental Assessment (SEA) evaluates the environmental impacts of individual infrastructure projects.
- c. Natural Resource Accounting organizes data in terms of stocks and flows to assess environmental performance.

- d. The Positivist approach to sustainable development considers reality as subjective and socially constructed
- e. The Livelihood Approach focuses primarily on infrastructure development and GDP growth as indicators of sustainability.

II. Fill in the blanks

- a. According to Social Cognitive Theory, _____ refers to a person's belief in their ability to successfully perform pro-environmental actions.
- b. Environmental Impact _____ (EIA) is a tool used to identify the environmental, social, and economic impacts of a project prior to decision-making.
- c. The stage in the EIA process where stakeholders help define the key issues to be studied is called _____.
- d. The _____ approach to sustainable development emphasizes enhancing people's capabilities and freedoms to lead lives they value.
- e. The _____ approach treats sustainability as a complex and interlinked concept, requiring action across social, economic, and environmental domains.

III. Multiple Choice Questions

- a. Which of the following theories emphasizes the role of personal norms activated by awareness of consequences and a sense of responsibility in driving pro-environmental behaviour?

- A. Theory of Planned Behaviour
- B. Social Cognitive Theory
- C. Norm Activation Theory
- D. Goal Framing Theory

- b. **Which of the following is a key objective of Natural Resource Accounting?**

- A. To evaluate stock market investments
- B. To assess psychological impacts of development
- C. To demonstrate accountability for managing natural resources
- D. To increase the profitability of large infrastructure projects

- c. **Which phase of the EIA process involves comparing different project options, including the 'no action' alternative?**

- A. Screening
- B. Risk Assessment
- C. Mitigation and Alternatives
- D. Monitoring

d. Which of the following best represents the core focus of the livelihood approach?

- A. Economic expansion through infrastructure
- B. Biodiversity conservation alone
- C. Strengthening people's assets and capabilities for sustainable living
- D. Quantifying sustainability indicators

e. Which of the following is a key characteristic of the Human Development Approach?

- A. Prioritizing GDP and material consumption
- B. Emphasizing individual capabilities and well-being
- C. Ignoring environmental sustainability
- D. Using only market-based indicators for progress

IV. Answer the following questions

- a. How does Social Cognitive Theory promote sustainable behaviour?
- b. Elucidate the stages of EIA process
- c. How does a system thinking approach to sustainability lead to better outcomes?
- d. State the importance of Ecosystem approach to sustainable development.

4.10 ANSWERS TO THE SELF-LEARNING QUESTIONS

I. True or False

- a. False
- b. False
- c. True
- d. False
- e. False

II. Fill in the blanks

- a. Self-efficacy
- b. Assessment
- c. Scoping
- d. Human Development
- e. Multi-Dimensional

III. Multiple Choice Questions

- a. C. Norm Activation Theory
- b. C. To demonstrate accountability for managing natural resources
- c. C. Mitigation and Alternatives
- d. C. Strengthening people's assets and capabilities for sustainable living
- e. B. Emphasizing individual capabilities and well-being

4.11. TECHNICAL WORDS AND THEIR MEANING

Livelihood- a livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living: a livelihood is sustainable which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long term.

Positivism- Positivism refers to a philosophical approach that aims to validate the scientific study of human organization within the social sciences. It advocates for the discovery and assessment of general laws through theoretical and empirical work. It is a philosophical paradigm that is centred on the ontological belief that reality is measurable and encompasses only what one can directly observe.

4.12. TASK

Assess a livelihood program/scheme in India using the DFID Sustainable Livelihoods Framework.

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