

## **Evolution of Sustainability Laws, Frameworks, Policies and Guidelines in India Post Adoption of Un Sdg Goals 2015**

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### **Abstract**

The adoption of the United Nations Sustainable Development Goals (SDGs) in 2015 marked a pivotal moment in the global pursuit of sustainability. This paper explores the evolution of sustainability laws and guidelines in India following its commitment to the SDGs. India, as a developing nation with the highest population in the world, faces unique challenges and opportunities in achieving sustainable development. It explores the challenges and opportunities encountered by policymakers, the government, civil society, and businesses as they have strived to integrate sustainability principles into the fabric of Indian society. The paper examines the role of stakeholders, the challenges encountered, and potential strategies to enhance the implementation and impact of sustainability laws and guidelines in India, ultimately contributing to a sustainable future in alignment with the global SDGs. It examines the role of regulatory bodies, non-governmental organizations, and the private sector in driving sustainable practices and fostering responsible corporate citizenship.

This study traces the chronological development of sustainability-related legal frameworks and policy instruments in India, highlighting key milestones and shifts in approach specially after 2015 and progress made in aligning national laws and policies with the SDGs. It highlights the legislative changes, policy frameworks, and institutional mechanisms that have been established or modified to promote sustainable practices in various sectors. The paper offers insights into the multifaceted nature of India's sustainability journey, emphasizing the need for continued research and analysis to assess the effectiveness and sustainability of these evolving legal and policy frameworks in achieving the nation's sustainable development objectives.

**Keywords:** Sustainability, Laws, Guidelines, India, UN SDG Goals 2015, Development, Policy, Environment, Economic Growth

### **1. Introduction**

The purpose of this paper is to examine and trace the evolution of sustainability laws, frameworks, policies, and guidelines in India following the adoption of the United Nations Sustainable Development Goals (SDGs) in 2015. The paper aims to examine how India has aligned its legal and policy landscape with the global sustainability agenda, assess the effectiveness and implementation of these measures, and identify areas for improvement. By highlighting the trajectory of sustainability efforts in India, this paper seeks to contribute valuable insights to policymakers, researchers, and stakeholders invested in achieving sustainable development goals. By documenting and evaluating the evolution of sustainability law, policies and frameworks, this paper seeks to contribute to a better understanding of India's progress towards achieving the UN SDGs and its role in the global sustainability landscape.

**The scope of this paper encompasses the following key aspects:**

- a) Sustainability- Its Definition and UN SDG Goals 2030 will form the background to the establishment of the laws, policies, guidelines and frameworks.
- b) Historical Overview of India's commitment to sustainability and environmental conservation efforts prior to the adoption of the UN SDGs in 2015 to trace the evolution of sustainability-related policies and practices in the country.
- c) Implementation of UN SDGs by India incorporating the UN SDGs into its national development agenda and the mechanisms put in place to achieve these goals to will assess the alignment of India's sustainability initiatives with the 17 SDGs and 169 associated targets.
- d) Examine the legislative and policy changes Post 2015 implemented by India in alignment with the UN SDG Goals, emphasizing sustainability. Legal and Policy Framework established by the Indian government to address sustainability challenges. This includes environmental laws, regulations, and policies related to climate change, biodiversity conservation, water resource management, and more. Institutional Arrangements between ministries, and agencies responsible for the implementation and enforcement of sustainability laws and policies in India to assess the coordination mechanisms in place.
- e) Challenges to evaluate the progress made by India in achieving the UN SDGs as well as progress made, with a focus on key sustainability indicators such as poverty reduction, clean energy adoption, gender equality, and environmental protection.
- f) Case Studies: To provide a practical perspective, the paper will include case studies highlighting successful sustainability initiatives and programs in India, as well as instances where challenges remain.

## **2. Sustainability**

Sustainability is a concept that encompasses the responsible and balanced use of resources to meet the needs of the present without compromising the ability of future generations to meet their own needs. It involves considering economic, social, and environmental factors to ensure a harmonious coexistence between humans and the planet. Sustainability is a fundamental principle that addresses the pressing global challenges of our time, aiming for a future where prosperity is achieved without compromising the health of our planet and the well-being of its inhabitants (Wikipedia, 2023) (earth.org, 2023). It calls for collective action and a shift in mindset to build a sustainable and resilient world for current and future generations.

The Brundtland Report, officially titled "Our Common Future," published by the World Commission on Environment and Development, popularized the term "sustainable development." It defined "*sustainable development as meeting the needs of the present without compromising the ability of future generations to meet their own needs, setting the stage for global sustainability efforts*". (WCED, 1987)

### **2.1 Key Principles of Sustainability:**

**Environmental Responsibility:** Minimizing harm to the environment, conserving natural resources, and mitigating climate change through sustainable practices and policies.

**Social Equity:** Ensuring that social and economic development benefits all members of society, promoting inclusivity, reducing inequality, and upholding human rights.

**Economic Viability:** Balancing economic growth with responsible resource management, efficient resource use, and fostering innovation for sustainable economic development.

### **2.2 Global Significance of Sustainability:**

Sustainability drives the efficient use of resources and promotes a circular economy, where products are designed for reuse, recycling, and reduced waste, reducing strain on natural resources. The

interconnectedness of sustainability challenges necessitates international collaboration and partnerships to share knowledge, expertise, and resources for effective global solutions. Sustainable practices enhance resilience to global challenges such as pandemics, climate disasters, and economic crises, promoting adaptability and preparedness. Sustainable economic practices, like investing in clean technologies and green industries, can foster long-term economic stability and growth while reducing the environmental impact (decade-of-action, 2023).

Sustainability plays a crucial role in mitigating climate change by promoting renewable energy, energy efficiency, sustainable transportation, and carbon reduction initiatives, thereby safeguarding the planet's future. Sustainable practices aim to protect biodiversity and ecosystems, critical for human survival as they provide vital resources such as clean air, water, food, and medicines. Sustainable development aims to lift people out of poverty by promoting economic growth, education, healthcare, and access to clean water and sanitation, ensuring a better quality of life for all.

Sustainability laws, guidelines, and policies play a pivotal role in achieving the United Nations Sustainable Development Goals (SDGs). These legal frameworks provide the necessary structure, regulations, and incentives to drive sustainable practices and behaviour at the individual, corporate, and governmental levels. Sustainability laws establish a clear regulatory framework that outlines the expectations, standards, and guidelines for sustainable practices. These regulations set the foundation for integrating sustainability into various sectors, aligning activities with the SDGs. Laws and guidelines incentivize compliance with sustainability principles. By outlining specific targets, deadlines, and reporting mechanisms, they hold stakeholders accountable for their actions, fostering a culture of responsibility towards achieving sustainable development (UNCOP, 2016).

Sustainable development requires continuous innovation and adoption of best practices. Sustainability laws often encourage innovation by offering incentives such as tax benefits, grants, or market advantages to entities that develop and implement sustainable technologies and business models. By integrating sustainability into legal and regulatory frameworks, economic incentives can be aligned with sustainable actions. Incentives like tax breaks for renewable energy projects or subsidies for sustainable agriculture can drive businesses and individuals to invest in sustainable practices, supporting relevant SDGs.

Sustainable development necessitates collaboration between the public and private sectors. Laws can facilitate PPPs by providing the legal structure for cooperation, enabling joint efforts in research, investment, and implementation of sustainable projects aligned with the SDGs. Sustainability laws are crucial for minimizing adverse environmental impacts. Regulations related to pollution control, waste management, natural resource conservation, and climate action are essential in achieving environmental targets outlined in the SDGs.

Sustainable development entails addressing social disparities and promoting inclusivity. Laws that promote gender equality, eradicate discrimination, and ensure social justice contribute directly to SDGs focused on reducing inequalities, promoting justice, and fostering inclusion.

Laws often mandate the regular reporting of sustainability efforts and progress towards achieving the SDGs. Transparent reporting allows for tracking performance, identifying gaps, and adjusting strategies to meet sustainability targets effectively. Sustainability laws provide the stability and long-term perspective necessary for planning and investment. They assure stakeholders that sustainability is a priority, encouraging long-term investments and strategies aligned with the SDGs. By aligning national laws with international sustainability principles, countries facilitate collaboration and harmonization across borders. This promotes a unified approach to achieving the global SDGs and fosters international cooperation and understanding (UN, Global Sustainable Development Report 2023, 2023).

### **3. The United Nations Sustainable Development Goals: History and 2015 declaration**

Before the adoption of the United Nations Sustainable Development Goals (SDGs) in 2015, countries, organizations, and communities worldwide were actively engaged in various sustainability initiatives and policies aimed at addressing environmental, social, and economic challenges (UN,

<https://www.un.org/sustainabledevelopment/blog/2023/08/what-is-sustainable-development/>, 2023). These initiatives reflected a growing recognition of the need for sustainable development and environmental stewardship.

These initiatives and policies before 2015 laid the foundation for the formulation of the UN SDGs and reflected a growing global awareness of the need for sustainability in all aspects of development. They demonstrated the international community's commitment to addressing pressing environmental and social challenges through collective action and cooperation.

The United Nations Sustainable Development Goals (SDGs), also known as the Global Goals, are a universal call to action to end poverty, protect the planet, and ensure that all people enjoy peace and prosperity by 2030 (UNSDG, 2023). Adopted by all United Nations Member States in 2015 as part of the 2030 Agenda for Sustainable Development, these 17 interconnected goals are designed to address the world's most pressing economic, social, and environmental challenges. Each of the 17 SDGs is accompanied by specific targets, totalling 169 targets, that provide a concrete roadmap for achieving the goals. It has taken more than 3 decades of constant discussions and evolution globally to arrive at the SDG Framework.

**Fig 1 – Long Path towards evolution of Framework for Sustainable Development Goals**



*Note – The Key milestones spread over 3 decades are highlighted for understanding the long journey. (Own Work)*

The SDGs serve as a shared blueprint for peace and prosperity for people and the planet, emphasizing the importance of collaboration, innovation, and global solidarity to achieve a sustainable and equitable future. India has played a significant role in shaping the United Nations Sustainable Development Goals (SDGs) both through active participation in the formulation process and in the subsequent implementation and advocacy. India's engagement in shaping the SDGs has reflected its commitment to global sustainable development and its recognition of the interdependence of nations in achieving a better and more sustainable future. The country continues to work towards meeting its national targets aligned with the SDGs, emphasizing inclusive and sustainable growth.

**Fig 2: UN SDG Goals**



*Note – The 17 SDGs as agreed in Paris Conference 2015 (Communications materials - United Nations Sustainable Development)*

#### 4. Pre-2015: Historical Context of Sustainability Initiatives in India

Before the adoption of the United Nations Sustainable Development Goals (SDGs) in 2015, India had established a range of legal and policy frameworks related to sustainability, environmental conservation, and social development. India legal framework has elaborate provisions for the environment making it one of the few countries doing so. The 42<sup>nd</sup> Constitution Amendment Act 1976 specified the obligation of the State and the citizens respectively to contribute to the protection and improvement of the natural environment, including forests, lakes, rivers, and wildlife, and compassion for living creatures thru Art. 48-A and Art. 51-A (g) (Arora, 2022) (Gupta, 2022). The Indian Constitution added the “right to live in a healthy environment” under Article 21 explicitly in 1988 . The courts in India have largely relied on Article 21 for applying the law to the decision-making process on various perspectives and provisional duties related to the environment. Some key elements of the existing legal framework related to sustainability in India before 2015:

**Wildlife Protection Act, 1972:** The Wildlife Protection Act was enacted to protect wildlife and their habitats. It provided the legal framework for the declaration of wildlife sanctuaries, national parks, and the regulation of hunting and poaching.

**Water (Prevention and Control of Pollution) Act, 1974:** This act was enacted to prevent and control water pollution by regulating discharge of pollutants into water bodies and maintaining or restoring the wholesomeness of water. It laid the foundation for sustainable water resource management.

**Air (Prevention and Control of Pollution) Act, 1981:** The Air (Prevention and Control of Pollution) Act aimed to curb air pollution by regulating emissions from industries and other sources. It provided a legal framework for the prevention, control, and abatement of air pollution.

**Environment (Protection) Act, 1986:** The Environment (Protection) Act empowered the central government to take measures to protect and improve the environment. It provided the authority to set standards for emissions, discharge, and handling hazardous substances, among other environmental concerns.

**The Biological Diversity Act, 2002:** This act aimed to conserve biological diversity, promote sustainable utilization of biological resources, and ensure fair and equitable sharing of benefits arising out of the utilization of biological resources.

**National Rural Employment Guarantee Act (NREGA), 2005:** NREGA, now known as the Mahatma Gandhi National Rural Employment Guarantee Act, aimed to provide livelihood security by guaranteeing 100 days of wage employment in a financial year to rural households. It indirectly promoted sustainable rural development.

**National Forest Policy, 1988:** The National Forest Policy of 1988 focused on conservation, afforestation, and sustainable utilization of forest resources to ensure environmental stability. It aimed to maintain a minimum of one-third of India's geographical area under forest or tree cover.

**National Environment Policy, 2006:** The National Environment Policy, enacted in 2006, aimed to promote sustainable development by integrating environmental concerns into various sectors. It emphasized the conservation of critical ecosystems, sustainable resource management, and pollution control.

**Integrated Coastal Zone Management (ICZM) Policy, 2008:** The ICZM Policy aimed at conserving coastal ecosystems and promoting sustainable development of coastal areas. It focused on sustainable livelihoods, biodiversity conservation, and disaster risk reduction.

**National Action Plan on Climate Change (NAPCC), 2008:** India launched the NAPCC to outline its strategy for addressing climate change challenges. It emphasized promoting sustainable development, enhancing energy efficiency, and adapting to the impacts of climate change.

India has faced several critical environmental and sustainability challenges stemming from rapid industrialization, urbanization, population growth, and resource utilization. Some key challenges are as listed below:

- Air Pollution
- Water Scarcity and Quality
- Deforestation and Loss of Biodiversity
- Soil Degradation
- Waste Management
- Climate Change and Extreme Weather Events
- Energy Access and Sustainability
- Urbanization and Sustainable Urban Development
- Industrial Pollution
- Poverty and Social Inequality
- Mother and Child Welfare
- Health for All

The track record of India in maintaining the quality of the urban and rural environment was poor mainly due to poor enforcement of laws. So, the dispute redressal machinery and environmental conflict resolution needed much better coordination by having stronger frameworks and supporting infrastructure. The efforts to bring about economic development while being conscious of the environment is quite challenging (Nomani, 2016). Addressing these challenges required integrated and sustainable approaches, robust policies, community engagement, and international cooperation. The adoption of the UN SDGs in 2015 provided a global framework to tackle these issues comprehensively and set India on a path toward sustainable development.

## **5. India's Response: Aligning National Policies and Legislation with the SDGs**

India has demonstrated a significant commitment to achieving the United Nations Sustainable Development Goals (SDGs) since their adoption in 2015. The SDGs align with India's own



developmental objectives, and the Indian government has integrated these global goals into its national policy framework.

India established dedicated institutional frameworks to oversee the implementation and monitoring of the SDGs. This includes setting up NITI Aayog's SDG Division, which acts as the nodal agency for coordination and monitoring, and various task forces and committees for specific goals. (NitiAayog, 2023). India has mainstreamed the SDGs into its policy documents and national development plans, such as the Five-Year Plans and the NITI Aayog's 15-year Vision Document. The integration of SDG's involves aligning existing national policies to SDG's, creating specific roadmaps, establishing monitoring mechanisms, and fostering collaboration between government bodies, civil society, and the private sector. Each SDG has been mapped to relevant national policies, programs, and schemes to understand the areas of synergy and gaps. India launched the SDG India Index, a tool to monitor and rank states and union territories based on their progress toward achieving the SDGs. Niti Aayog uses this index along with other indicators like Multidimensional Poverty Index: Progress review 2023, North Eastern Region Index and Dashboard to keep track of the progress (NitiAayog, 2023).

Niti Aayog has suggested an Indian model of localization of SDGs in its report (Aayog, The Indian Model of SDG Localization, 2022). The are

**Pillar 1:** *Creating institutional ownership*

**Pillar 2:** *Establishing a robust review and monitoring system*

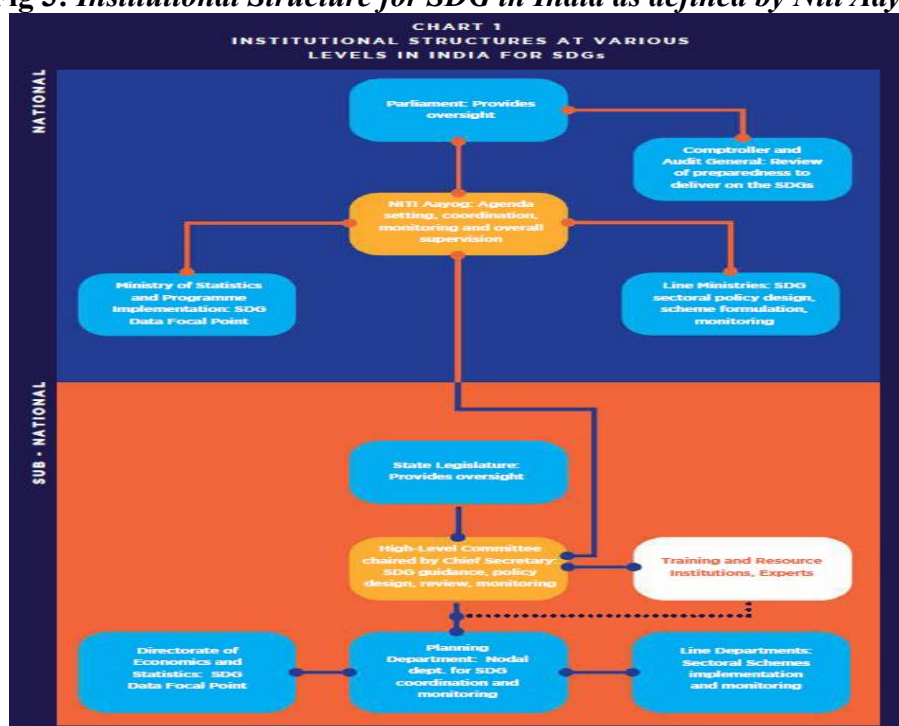
**Pillar 3:** *Developing capacities for integrating SDGs in planning and monitoring.*

**Pillar 4:** *Promoting a “whole-of-society” approach*

*SDG reform action plan must transform all aspects of public governance at all levels to be more inclusive and work synergistically towards sustainable development (Aayog, The Indian Model of SDG Localization, 2022).*

The Institutional Structure to implement the model and the steps towards localization at state levels in India as enumerated by Niti Aayog are shown below.

**Fig 3: Institutional Structure for SDG in India as defined by Niti Aayog**



Note – (Source Niti Aayog Report- The Indian Model of SDG Localization – June 2022)

**Fig 4: Steps towards SDG Localization in States in India**



*Note – (Source Niti Aayog Report- The Indian Model of SDG Localization – June 2022)*

The Ministry of Statistics and Programme Implementation (MoSPI) has developed and regularly updates the National Indicator Framework (NIF) for monitoring the progress of the SDGs and associated targets at a national level. Statistical indicators of National Indicator Frameworks (NIF) which have been measured scientifically provide guidance on outcomes of the policies to achieve the targets under different SDGs as well as need to changes/ updation of framework and laws. (MOSPI, <https://www.mospi.gov.in/role-mospi-sdgs>, 2023)

India, recognizing the significance of the SDGs, has taken various legislative measures to align its policies, laws, and regulations with the 2030 Agenda for Sustainable Development (Virmani, 2023). A short analysis of key amendments and new laws is as below:

**Environmental Legislation:** India has made amendments and introduced new legislation to strengthen its environmental framework in alignment with several SDGs (SDG 6, 7, 12, 13, 14, and 15). Amendments to the Air (Prevention and Control of Pollution) Act and Water (Prevention and Control of Pollution) Act to enhance pollution control measures and enforcement. Plastic Waste Management Rules, 2016, to address the issue of plastic pollution (SDG 12). The National Clean Air Programme (NCAP) launched in 2019 to tackle air pollution and improve air quality in cities (Dr. Satish Kumar Mishra, 2022).

**Social and Economic Development:** Several laws and amendments have been introduced to align with SDGs related to poverty alleviation, health, education, and gender equality (SDG 1, 3, 4, and 5): Amendments to the Maternity Benefit Act, enhancing maternity leave and benefits. Amendments to the Child Labour (Prohibition and Regulation) Act, providing stricter regulations to combat child labour and promote education (SDG 8).

**Poverty Alleviation (SDG 1):** Addressing poverty is a central goal for India. Initiatives like the National Rural Employment Guarantee Act (NREGA), Jan Dhan Yojana, and direct benefit transfer programs aim to uplift marginalized communities, providing financial inclusion and employment opportunities.



**Education and Skill Development (SDG 4 and SDG 8):** India recognizes the role of education and skill development in fostering economic growth and reducing inequality. Programs like Skill India and initiatives to improve the quality of education contribute to these goals.

**Healthcare (SDG 3):** Achieving good health and well-being for all is a priority. The National Health Policy, 2017, to ensure universal healthcare and improve health outcomes. The National Health Mission, Ayushman Bharat, and various disease control programs work toward providing accessible and affordable healthcare services.

**Clean Water and Sanitation (SDG 6):** The National Water Policy, 2012, emphasizing efficient water use and equitable distribution. Clean water and sanitation are critical challenges for India. Initiatives like Swachh Bharat Abhiyan (Clean India Mission) in 2014 to achieve universal sanitation coverage and Jal Jeevan Mission focus on providing clean drinking water to all.

**Renewable Energy (SDG 7 and SDG 13):** India aims to increase its renewable energy capacity to combat climate change and provide sustainable energy solutions. The National Solar Mission and various policies promoting renewable energy contribute to these goals. The Renewable Energy Act, providing a legal framework to promote renewable energy generation and use. Amendments to the Electricity Act, promoting renewable energy integration and establishing the National Renewable Energy Policy.

**Sustainable Cities and Communities (SDG 11):** India is rapidly urbanizing, and creating sustainable cities and communities is a priority. Programs like Smart Cities Mission and AMRUT (Atal Mission for Rejuvenation and Urban Transformation) emphasize sustainable urban planning and development.

**Gender Equality (SDG 5):** India is working toward achieving gender equality through initiatives like Beti Bachao Beti Padhao, promoting women's participation in the workforce, and advocating for women's rights and empowerment.

**Industry, Innovation, and Infrastructure (SDG 9):** India is investing in infrastructure development and fostering innovation through initiatives like Make in India and Digital India, which aim to drive economic growth and create employment opportunities. The National Policy on Electronics, aiming for growth in the electronics sector. Initiatives like Digital India to drive digital transformation and innovation.

**Partnerships for the Goals (SDG 17):** India recognizes the importance of partnerships in achieving the SDGs. Collaboration with international organizations, civil society, and the private sector is emphasized to mobilize resources and expertise.

The Indian government has integrated SDGs into various development programs and schemes across sectors, including education, health, sanitation, renewable energy, poverty alleviation, and more. New schemes are being designed to align with specific SDGs. Awareness campaigns have been launched to inform the public about the SDGs and encourage their active participation. Citizens are encouraged to contribute to the goals by adopting sustainable practices in their daily lives. The Mission Life was launched by Prime Minister Sh Narendra Modi at the UN Climate Change Conference (UNFCCC COP 26) in 2021 with the intention of nudging people to change their lifestyle with simple acts so that they can contribute significantly to climate change when embraced across the world. The mission plans to leverage social networks to influence behavior and promote environmentally friendly lifestyles (Niti, 2023). A consolidation of the various laws, policies, and frameworks as developed and evolved over the last few years to ensure progress on the achievement of SDG goals in India are shown below.

**Fig 5 – List of Indian Laws, Policies, and Frameworks interacting with SDGs**



*Note – Collation of Various Government laws, Policies and Frameworks in India towards Sustainability. (Own Work)*

## 6. Role of Various Stakeholders towards Sustainability

The successful implementation of sustainability laws and frameworks post-2015 in India requires active involvement and collaboration among various stakeholders, including the government, non-governmental organizations (NGOs), private sector, and citizens. Each stakeholder plays a crucial role in supporting and driving sustainability initiatives (Aayog, The Indian Model of SDG Localization, 2022). Here's a breakdown of their roles:

### Government:

**Policy Formulation and Regulation:** The government plays a central role in formulating, amending, and enforcing policies that align with sustainability goals, providing the legal and regulatory framework necessary for sustainable development.

**Resource Allocation and Mobilization:** Governments allocate resources, funds, and incentives to support sustainable projects, initiatives, and research, encouraging investment in renewable energy, waste management, and other sustainable sectors.

**Monitoring and Reporting:** Governments monitor progress, track indicators, and report on the implementation of sustainability laws and initiatives to ensure accountability and measure the impact of policies on the ground.

### Non-Governmental Organizations (NGOs):

**Advocacy and Awareness:** NGOs advocate for sustainable practices, raise awareness about environmental and social issues, and mobilize public support for sustainable initiatives and policies.

**Community Engagement and Education:** NGOs engage with communities, educate them about sustainable practices, and empower them to actively participate in sustainable development projects, promoting inclusivity and community-driven initiatives.

**Capacity Building and Research:** NGOs contribute to capacity building by providing training and technical assistance to stakeholders, conducting research, and generating data to support evidence-based decision-making for sustainable policies.

#### **Private Sector:**

**Innovation and Technology Adoption:** The private sector drives innovation by investing in and adopting sustainable technologies, renewable energy, and efficient resource management solutions, contributing to sustainable production and consumption (SDG 9 and SDG 12).

**Corporate Social Responsibility (CSR):** Companies fulfil their CSR commitments by investing in sustainable development projects, supporting education, healthcare, environmental conservation, and community development.

**Public-Private Partnerships (PPPs):** Collaborations between the government and private sector, such as PPPs, help in jointly financing, developing, and managing sustainable projects and infrastructure, leveraging the expertise and resources of both sectors.

#### **Citizens:**

**Behavioural Change and Responsible Consumption:** Citizens play a crucial role in adopting sustainable behaviours, reducing waste, conserving energy, and promoting responsible consumption and lifestyle choices (SDG 12).

**Community Engagement and Volunteerism:** Citizens actively engage in community projects, volunteer for environmental clean-ups, tree planting drives, and other initiatives that promote sustainable development at the local level.

**Advocacy and Civic Engagement:** Citizens can advocate for sustainable policies, participate in public consultations, and engage with elected officials to voice concerns and opinions on sustainability issues, encouraging responsive governance.

Collaboration and synergies among these stakeholders are key to achieving a sustainable future. It requires fostering partnerships, promoting knowledge sharing, enhancing public participation, and creating an enabling environment that incentivizes sustainable practices and aligns with the overarching goals of the 2030 Agenda for Sustainable Development.

### **7. Challenges and Opportunities in Implementing Sustainability Laws and Guidelines**

Implementing sustainable laws in India post 2015 has encountered several challenges, despite the country's commitment to align with the United Nations Sustainable Development Goals (SDGs) (Aayog, The Indian Model of SDG Localization, 2022). These challenges stem from a complex interplay of economic, social, political, and environmental factors (Gupta, 2022). Some key challenges are mentioned below:

**Data Availability and Quality:** Reliable and consistent data across all SDGs' indicators is often lacking, making it challenging to measure progress accurately and align policies accordingly. Limited data availability and varying data quality at different levels of government can impede evidence-based decision-making and effective monitoring of sustainability targets.

**Policy Coordination and Integration:** Integrating sustainability across different sectors and levels of governance requires effective coordination and synchronization among various ministries and departments. The decentralized nature of governance in India, with states having significant autonomy, can hinder seamless coordination and integration of sustainability policies at the national and state levels.

**Policy Enforcement and Compliance:** Ensuring strict adherence to sustainability laws and regulations poses a significant challenge, particularly in areas like environmental protection and waste

management. Inadequate monitoring, weak enforcement mechanisms, and limited penalties for non-compliance can undermine the intended impact of sustainability laws.

**Resource Constraints and Funding:** Adequate financial resources are required to implement sustainability initiatives and achieve the SDGs. Resource mobilization can be a significant challenge, especially for developing countries like India. Competing demands for resources across various sectors, budgetary limitations, and the need for innovative financing mechanisms pose challenges in funding comprehensive sustainability programs.

**Inclusivity and Equity:** Addressing social and economic disparities and ensuring that sustainability initiatives benefit all segments of society, including marginalized and vulnerable groups. Bridging the urban-rural divide, promoting gender equality, and addressing the needs of economically disadvantaged communities pose significant challenges in policy design and implementation.

**Public Awareness and Participation:** Mobilizing public engagement and active participation in sustainability initiatives can be difficult due to a lack of awareness, apathy, or competing interests. Generating public interest, educating communities, and encouraging their active involvement in sustainability efforts require sustained efforts in public communication and engagement.

**Behavioural and Cultural Change:** Achieving behavioural change to encourage sustainable practices among individuals, communities, and industries is challenging due to deeply entrenched cultural, social, and economic practices. Overcoming resistance to change and promoting sustainable behaviours require robust awareness campaigns, education, and incentives that can be resource-intensive and time-consuming.

**Implementation Capacity and Skills Gap:** Effective implementation of sustainability laws requires skilled personnel and technical capacity at all levels of government. Shortages in skilled manpower, especially in areas related to sustainable development, can hinder the efficient execution of policies and programs.

Addressing these challenges necessitates a holistic approach involving multi-stakeholder collaboration, capacity building, improved data collection mechanisms, enhanced policy coherence, and innovative financing models. Overcoming these hurdles is vital for India to effectively implement sustainable laws and achieve its sustainability objectives in line with the SDGs.

Implementing sustainability laws and frameworks in India post-2015 has presented several opportunities to progress towards achieving the United Nations Sustainable Development Goals (SDGs). These opportunities have arisen due to growing awareness, technological advancements, international collaborations, and the government's commitment to sustainable development (Aayog, The Indian Model of SDG Localization, 2022). Some key opportunities are as below:

**Global Alignment and Commitment:** India's commitment to the UN 2030 Agenda and the adoption of the SDGs provided a global framework and impetus for integrating sustainability into national policies and programs. India's led to have a common agreed Declaration at G 20 in 2023 has shown this alignment and coordination.

**International Collaboration and Knowledge Sharing:** Collaborations with international organizations and participation in global platforms facilitated knowledge exchange, best practice sharing, and access to international funding for sustainable development projects.

**Technological Advancements and Innovation:** Rapid advancements in technology, particularly in renewable energy, digital solutions, and sustainable agriculture, provided opportunities to accelerate sustainable practices and enhance efficiency in various sectors.

**Innovative Financing Models:** The emergence of innovative financing mechanisms, such as green bonds, impact investments, and public-private partnerships, provided avenues for mobilizing funds for sustainable projects and initiatives.

**Public-Private Partnerships (PPPs):** Encouraging collaboration between the government, private sector, and civil society fostered sustainable investments, knowledge sharing, and the implementation of sustainable projects across various sectors.

**Circular Economy Approach:** Adoption of a circular economy approach, including waste reduction, recycling, and resource efficiency, presented an opportunity to promote sustainable consumption and production patterns (aligned with SDG 12).

**Community Engagement and Awareness:** Increasing awareness and engagement of communities through grassroots organizations, non-profits, and local government initiatives created an opportunity for bottom-up approaches to sustainable development, aligning with several SDGs related to inclusive growth and reduced inequalities.

**Policy Innovation and Reforms:** India had the opportunity to enact and amend policies that embed sustainability principles, allowing for more effective implementation of SDGs, such as through the development of the National Resource Efficiency Policy.

**Inclusive Business Models:** The emergence of inclusive business models that integrate social and environmental objectives alongside profitability provided opportunities for sustainable economic growth (aligned with SDG 8).

Leveraging these opportunities has allowed India to advance sustainability, accelerate progress towards the SDGs, and drive a more inclusive, resilient, and environmentally responsible development trajectory. Continued collaboration, innovation, and policy coherence will further enhance the country's efforts in achieving its sustainability goals.

## **8. Impact Assessment: Evaluating the Effectiveness of Post-2015 Sustainability Laws**

The impact of sustainability laws in India post-2015 has been substantial across various sectors, influencing the environment, economy, and social equity. The integration of sustainability laws with the SDGs strives to achieve a balance between economic growth, social development, and environmental preservation (Aayog, Govt Of India & United Nations Sustainable Development Cooperation Framework 2023-2027, 2023). An assessment of the impact of sustainability laws on some sectors is as below:

**Environment:** Reduction in single-use plastics through regulations. Increased adoption of renewable energy sources, such as solar and wind power, reducing the carbon footprint. Improved air and water quality through strengthened pollution control measures and waste management.

**Economy:** Growth of the renewable energy sector, generating employment and attracting investments. Encouragement of sustainable entrepreneurship and social enterprises through policy support and incentives. Fostering a circular economy approach, reducing resource waste and enhancing economic efficiency.

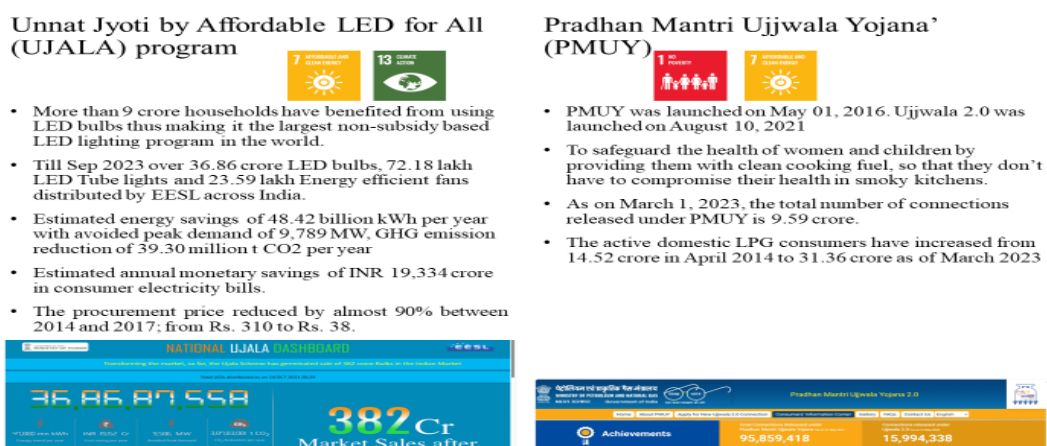
**Social Equity:** Poverty alleviation and livelihood support through initiatives like the National Rural Employment Guarantee Act (MNREGA). Enhanced access to healthcare, education, and financial services through targeted programs. Empowerment of women and marginalized groups through policy interventions promoting gender equality and social inclusion.

**Urban Development:** Integrated and sustainable urban planning, incorporating green spaces, waste management systems, and efficient public transportation. Enhanced digital connectivity and technology integration for urban services, improving urban liability. Implementation of eco-friendly building practices, promoting energy and water efficiency.

**Agriculture and Rural Development:** Adoption of sustainable agricultural practices, reducing chemical usage and improving soil health. Economic empowerment of rural communities through increased agricultural productivity and income. Access to credit, insurance, and technology for smallholder farmers, promoting sustainable livelihoods.

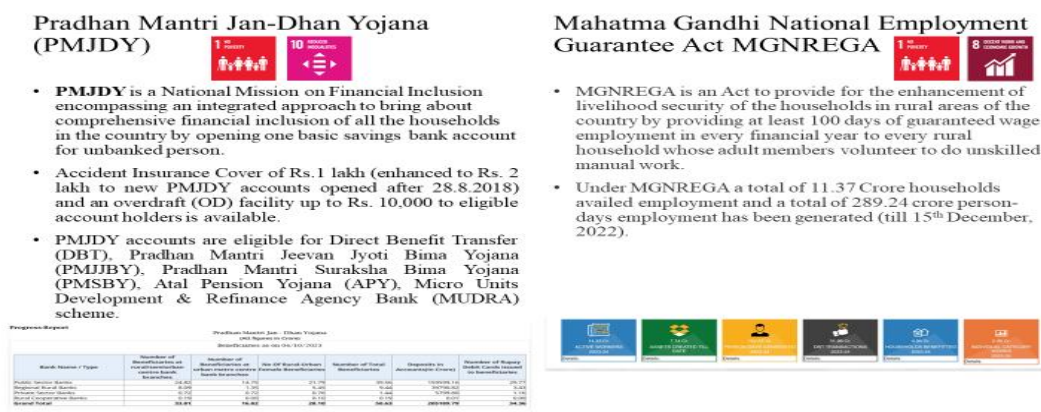
The impact of sustainability laws in India post-2015 is a work in progress, with ongoing efforts to improve and evaluate outcomes. Some case studies like UJALA which has been a showcase of effective Climate Action globally illustrate the alignment of policies and initiatives in India with specific Sustainable Development Goals (SDGs). Results achieved due to implementation of several initiatives and policies implemented towards upliftment of the poor as well as meeting the SDG goals are presented below.

**Fig 6 – Impact of UJALA and PMUY on SDG's**



*Note – Collation of Impact of Govt Schemes in India towards achievement of SDG's. (Own Work)*

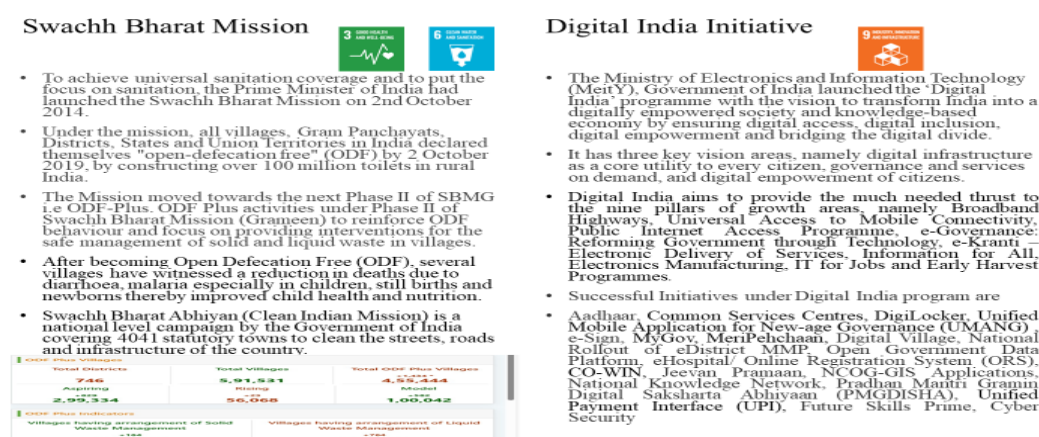
**Fig 7 – Impact of PMJDY and MGNREGA on SDG's**



*Note – Collation of Impact of Govt Schemes in India towards achievement of SDG's. (Own Work)*



**Fig 8– Impact of Swachh Bharat Mission and Digital India on SDG's**



*Note – Collation of Impact of Govt Schemes in India towards achievement of SDG's. (Own Work)*

From these examples we can see the demonstration of the positive impacts and areas for improvement in implementing sustainability laws and frameworks in India. Continuous evaluation, stakeholder engagement, and adapting strategies based on lessons learned are essential to enhance the effectiveness of these initiatives and drive sustainable development in the country.

India has aligned its policies with the United Nations Sustainable Development Goals (SDGs), committing to a comprehensive agenda addressing environmental, social, and economic sustainability. In the updation on National Indicator Frameworks in June 2023 by the Ministry of Statistics and Program Implementation, 284 Indicators are being monitored and another 24 are under preparation (NSO, 2023). The Progress report on SDG-NIF 2023 by the Ministry highlights that the progress is being monitored based on data as evidence and while progress has happened in many areas, there are quite a few challenges still to be tackled (MOSPI, SDG NIF Progress Report 2023, 2023).

The number of indicators monitored, progress on the SDG's based on implementation of the programmes as evaluated by MOSPI as well as UN evaluation of India's progress on the SDG's is shown below.

**Fig 9 – National Indicator Framework updated by MOSPI June 2023**

SDG Goal	No of NIF Targets	No of Indicators monitored	No Of Indicators under preparation
SDG 1: No Poverty	7	17	-
SDG 2: Zero Hunger	8	19	1
SDG 3: Good Health and Well-Being	13	39	-
SDG 4: Quality Education	10	19	1
SDG 5: Gender Equality	9	29	-
SDG 6: Clean Water and Sanitation	8	13	1
SDG 7: Affordable and Clean Energy	5	5	1
SDG 8: Decent Work and Economic Growth	12	24	1
SDG 9: Industry, Innovation and Infrastructure	8	17	1
SDG 10: Reduced Inequalities	10	11	3
SDG 11: Sustainable Cities and Communities	10	13	1
SDG 12: Responsible Consumption and Production	11	14	1
SDG 13: Climate Action	3	6	-
SDG 14: Life Below Water	10	11	2
SDG 15: Life on Land	10	14	1
SDG 16: Peace, Justice and Strong Institutions	12	21	1
SDG 17: Partnership for the Goals	18	12	9
Total No of Targets and Indicators	164	284	24

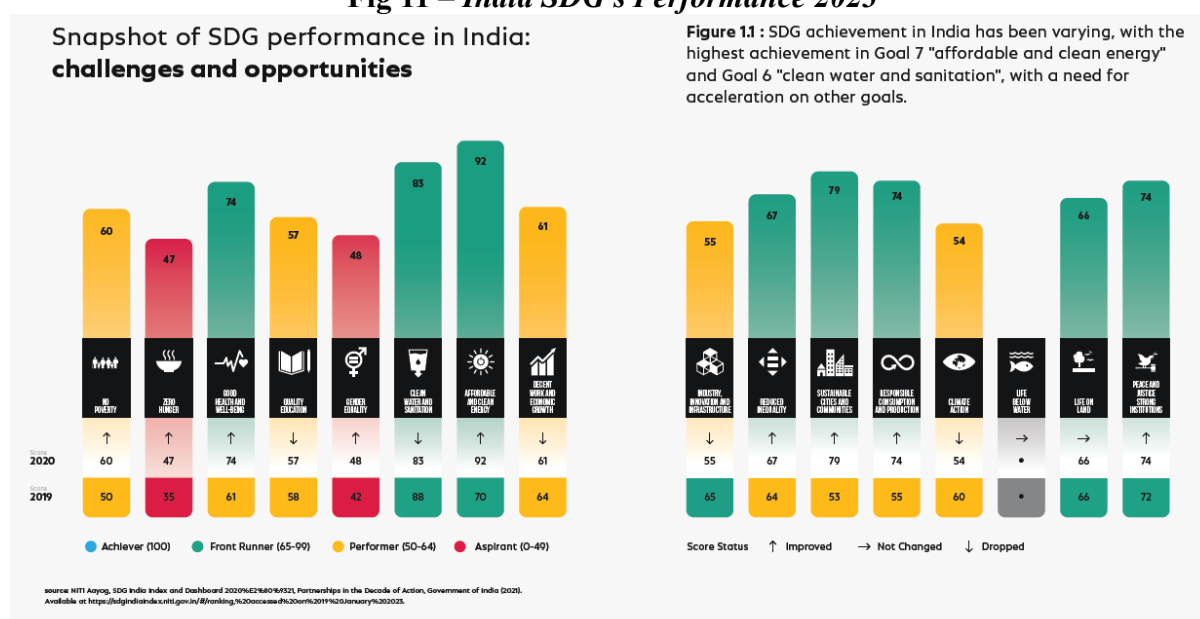
*Note – Collation of data on NIF's from MOSPI Report. (Own Work)*

**Fig 10 – Govt Achievements as per MOSPI Report on SDG Goals as per NIF in June 2023**

SDG Goal	Some Achievements as per MOSPI Report June 2023
SDG 1: No Poverty	Self Help Groups linked to Bank Credit increased from 18.32 Lacs in 2015-16 to 33.98 lacs in 2021-22 – a growth of 85% in 6 years
SDG 2: Zero Hunger	Gross Value added in Agriculture per worker INR 61,427 in 2015-16 to INR 84,921 in 2022-23- an increase of 38% in 7 years
SDG 3: Good Health and Well-Being	Maternal Mortality Ratio per 1,00,000 live births reduced from 130 in 2014-16 to 97 in 2018-20
SDG 4: Quality Education	Gross Enrolment Ratio in Higher Secondary Education rose from 48.32% in 2015-16 to 57.16% in 2021-22
SDG 5: Gender Equality	Sex Ratio at Birth increased from 898 in 2014-16 to 907 in 2018-20
SDG 6: Clean Water and Sanitation	Safe drinking water access to rural populations increased from 35.76% in 2015-16 to 61.52% in 2021-22
SDG 7: Affordable and Clean Energy	Share of Installed Renewable Energy increased from 15.95% in 2015-16 to 22.5% in 2022-23
SDG 8: Decent Work and Economic Growth	Outstanding credit to MSME's increased from 12,16,007.09 cr in 2015-16 to 20,11,056.98 cr in 2021-22 – a growth of 65% in 6 years
SDG 9: Industry, Innovation and Infrastructure	Increase of Broadband subscribers from 1166 in 2015-16 to 5900 in 2022-23 per 10000 people
SDG 10: Reduced Inequalities	Budget Allocation towards welfare of SC/ST's has increased from 2.89% in 2015-16 to 6.19% in 2023-24
SDG 11: Sustainable Cities and Communities	Cities evolving as per Master Plan increased from 25.61% in 2015 to 42% in 2022
SDG 12: Responsible Consumption and Production	Installed Renewable Energy Generating Capacity has increased from 63.25 Watt/ capita in 2014-15 to 124.38 watt in 2022-23
SDG 13: Climate Action	24% reduction in Emission Intensity of GDP over 2005 levels by 2020
SDG 14: Life Below Water	Maximum Sustainable yield in fishing increased from 3.078 Mill T in 2015-16 to 5.311 Mill T in 2020-21
SDG 15: Life on Land	Forest cover increased from 21.35% in 2015 to 21.71% in 2021 of the total Geographic area
SDG 16: Peace, Justice and Strong Institution	Government E services to citizens increased from 968 n 2015-16 to 4671 in 2021-22
SDG 17: Partnership for the Goals	Budget Allocation to Ministries to strengthen Statistical Capacity increased from 3074.51 Cr in 2016-17 to 5920.56 cr in 2021-22 – an increase of 92 % by value

*Note – Collation of Impact of Govt Schemes in India towards achievement of SDG's. (Own Work)*

**Fig 11 – India SDG's Performance 2023**



*Note – UN Assessment of India's Progress on SDG's (India UN Sustainable Development Cooperation Framework June 2023)*

## 9. Future Prospects and Recommendations

The evolution and integration of emerging global sustainability trends into Indian laws and frameworks requires a proactive approach, continuous dialogue with stakeholders, benchmarking against international standards, and a commitment to building a sustainable and resilient future.

Technology and innovation will play a pivotal role in achieving sustainability goals in India by enabling efficient resource management, reducing environmental impact, promoting economic growth, and fostering social development. India will need to evolve and develop laws, policies and frameworks that allow for adaptability to emerging challenges, incorporating mechanisms to evolve and respond to changing circumstances and advancements (Aayog, Govt Of India & United Nations Sustainable Development Cooperation Framework 2023-2027, 2023).

By understanding and anticipating the evolution of sustainability laws and policies in India considering the evolving global landscape, following suggestions/ actions which can be taken can support the developments

- A) Conduct periodic reviews of existing sustainability laws to ensure their relevance, effectiveness, and alignment with evolving challenges and global best practices.
- B) Develop comprehensive laws that address multiple sustainability dimensions, integrating environmental, economic, and social aspects to achieve a balanced and sustainable development.
- C) Involve the public, civil society, and affected communities in the policymaking process to incorporate diverse perspectives, ensure inclusivity, and build a sense of ownership. Foster collaborations between government, private sector, NGOs, academia, and international organizations to leverage collective expertise, resources, and innovation for sustainable development initiatives.
- D) Provide training and capacity-building programs for government officials, judicial bodies, and stakeholders to enhance their understanding of sustainability laws and their effective implementation. Launch sustained public awareness campaigns to educate citizens about the importance of sustainability laws, their rights, and the role they play in achieving sustainable development.
- E) Facilitate training, education, and skill development for stakeholders to keep them informed and updated on emerging global sustainability trends and practices.
- F) Develop incentive structures to encourage compliance with sustainability laws, such as tax benefits, grants, or subsidies for adopting sustainable practices and technologies.
- G) Strengthen enforcement mechanisms, penalties, and monitoring systems to deter violations and ensure strict adherence to sustainability laws and regulations.

### **Specific areas for improving the laws and frameworks could be**

- A) Legislation promoting green finance mechanisms, sustainable investment practices, and incentives for green projects, aligning with global trends towards sustainable finance. Anticipated policies may place significant emphasis on climate adaptation strategies to deal with extreme weather events and build resilience in vulnerable communities. This could also include investments in climate-resilient infrastructure and disaster preparedness.
- B) Policies to prioritize sustainable investments, renewable energy projects, and green technologies to stimulate economic growth.
- C) Develop laws and policies that promote a circular economy, emphasizing resource efficiency, waste reduction, reuse, and recycling to align with the global trend towards circularity. Strategies may include extended producer responsibility (EPR) frameworks and regulations.
- D) Policies encouraging sustainable transportation options, such as improved public transit, cycling infrastructure, and incentives for electric vehicles. This can help reduce emissions and improve urban air quality.
- E) Policies to encourage the integration of digital technologies for sustainable development, such as the use of AI for energy efficiency, smart city initiatives, and digital platforms for monitoring and reporting on sustainability goals.
- F) Policies focussing on strengthening public health infrastructure, healthcare accessibility, and research and development in the medical field.
- G) Given the growing concern over biodiversity loss, policies focussing on conservation efforts, afforestation initiatives, and the restoration of ecosystems. Legal frameworks may be strengthened to

protect natural habitats and endangered species. Need to strengthen laws related to biodiversity conservation, natural habitat preservation, and wildlife protection to align with international agreements and global conservation efforts.

H) Incorporate provisions that emphasize social equity, inclusivity, and the protection of vulnerable populations, aligning with global efforts to address social inequalities and human rights.

I) Integrate sustainable agriculture principles into laws, encouraging organic farming, agroecology, and sustainable food production to address global food security concerns. IoT-enabled devices and sensors provide real-time data on soil conditions, weather, and crop health, optimizing resource use in agriculture and contributing to SDG 2 (Zero Hunger). Precision irrigation technologies reduce water wastage in agriculture, addressing SDG 6 (Clean Water and Sanitation).

Incorporating and promoting these technologies and innovations is vital for India to effectively achieve its sustainability goals and ensure a more sustainable, equitable, and resilient future. Public-private partnerships, investment in research and development, and a conducive regulatory environment are key to fostering technological advancements for sustainable development.

## 10. Conclusion

The evolution of sustainability laws and guidelines in India post-2015 has been marked by significant progress and a growing focus on sustainability across various sectors. Overall, it demonstrates a growing commitment to achieving a more sustainable, inclusive, and resilient future, in line with both national imperatives and global sustainability goals. However, ongoing efforts and continued advancements are necessary to address emerging challenges and ensure sustainable development in the coming years. Encouraging further research in the field of sustainability laws and frameworks is crucial for driving continuous improvement and advancing sustainable development. Governments can allocate specific grants and funding for sustainability research projects, encouraging researchers to explore various aspects of sustainability laws and frameworks.

In consonance with the SDG Goal 17 emphasizing Partnership for Goals (Aayog, Govt Of India & United Nations Sustainable Development Cooperation Framework 2023-2027, 2023), some other possibilities to increase this research can be

- Fostering partnerships between government agencies, research institutions, and private organizations to jointly fund research projects focused on sustainability.
- Establish research chairs and offer research fellowships in universities and research institutions specifically dedicated to sustainability laws and frameworks.
- Encourage collaboration between different disciplines such as law, environmental science, economics, and social sciences to foster holistic research approaches for sustainable development.
- Set up dedicated research hubs and centres focusing on sustainability laws and frameworks, providing a centralized platform for collaboration, research, and policy advocacy.
- Create networks of researchers, policymakers, and practitioners to share insights, findings, and experiences, fostering a culture of continuous learning and improvement.

India's journey towards achieving the SDGs underscores the importance of a holistic and integrated approach to development, emphasizing the interdependence of social, economic, and environmental aspects.

## DECLARATIONS

**-Ethics approval and consent to participate - NOT APPLICABLE**

**-Consent for publication - NOT APPLICABLE**

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