SUSTAINABLE CONSUMPTION AND PRODUCTION

A Consumer Perspective

CUTS International

#2106

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Abbreviations

APEDA:	Agricultural and Processed Food Products Export Development Authority
BEE:	Bureau of Energy Efficiency
BOCI:	Bus & Car Operators Confederation of India
C&D:	Construction and Demolition
CAG:	Comptroller and Auditor General
CE:	Circular Economy
CoPRA:	Consumer Protection Act
CPCB:	Central Pollution Control Board
CPMU:	Central Plan Monitoring Unit
CSR:	Corporate Social Responsibility
CSSs:	Central Sponsored Schemes
CVC:	Central Vigilance Commission
CWMI:	Composite Water Management Index
DEST:	Department of Environment, Science and Technology
DMEO:	Development Monitoring and Evaluation Office
DMRC:	Delhi Metro Rail Corporation
EPA:	Environment Protection Act
FAO:	Food and Agriculture Organization
FSSAI:	Food Safety and Standards Authority of India
GDP:	Gross Domestic Product
GEN:	Global Ecolabelling Network
GFR:	General Financial Rules
GoR:	Government of Rajasthan
GPP:	Green Public Procurement
GRDP:	*Gram Panchayat* Development Plan
GSVA:	Gross State Value Added
GVS:	Gramin Vikas Sansthan
HYV:	High Yielding Varieties
HP:	Himachal Pradesh
ICDS:	Integrated Child Development Scheme

IEC: Information, Education and Communication
IGPR: Indira Gandhi Panchayati Raj
IUCN: International Union for Conservation of Nature

JMC: Jaipur Municipal Corporation
JPoI: Johannesburg Plan of Implementation

KGS: Kanpur Gaushala Society
KILA: Kerala Institute of Local Administration

MDGs: Millennium Development Goals
MDMS: Mid-Day Meal Scheme
MoEFCC: Ministry of Environment, Forest and Climate Change
MoSPI: Ministry of Statistics and Programme Implementation
MRAs: Mutual Recognition Agreements
MSMEs: Micro, Small and Medium-sized Enterprises
MSW: Municipal Solid Waste

NCDC: National Cooperative Development Corporation
NEP: National Environment Policy
NFI: National Foundation for India
NGRBC: National Guidelines for Responsible Business Conduct
NHB: National Horticulture Board
NHM: National Horticulture Mission
NIF: National Indicator Framework
NITI: National Institute for Transforming India
NMEEE: National Mission for Enhanced Energy Efficiency
NREA: National Resource Efficiency Authority
NREP: National Resource Efficiency Policy
NTFP: Non-Timber Forest Produce

PCCs: Pollution Control Committees
PDS: Public Distribution System
PPP: Public-Private Partnership
PRIs: Panchayati Raj Institutions
PSUs: Public Sector Undertakings
PWD: Public Works Department

RE: Resource Efficiency
RT: Responsible Tourism

SANES: South African National Ecolabelling Scheme
SCP: Sustainable Consumption and Production
SDGs: Sustainable Development Goals
SEBI: Securities and Exchange Board of India

SEHB:	Shimla Environment, Heritage Conservation and Beautification
SIRD:	State Institute of Rural Development
SPCB:	State Pollution Control Board
SPP:	Sustainable Public Procurement
SRI:	Speaker's Research Initiative'
STCI:	Sustainable Tourism Criteria for India
ULBs:	Urban Local Bodies
UNCTAD:	United Nations Conference on Trade and Development
UNEP:	UN Environment Programme
UNGCP:	United Nations Guidelines for Consumer Protection
UNWTO:	United Nations World Tourism Organisation
UP:	Uttar Pradesh
VOCs:	Volatile Organic Compounds
WHO:	World Health Organisation
YFP:	Year Framework of Programmes

Preface

Being a country that has the second-largest population in the world, India needs to play a leading role in determining the success of the Sustainable Development Goals (SDGs), globally. India is committed to achieving 2030 Agenda for Sustainable Development', which includes 17 SDGs, 169 associated targets and 232 unique Indicators, which comprehensively cover social, economic and environmental dimensions of development and focus on ending poverty in all its forms and dimensions. India's national development goals underline the importance of inclusive development converging well with the SDGs.

Now with five years into the implementation of the 2030 Agenda, many governments, UN entities, international and regional organisations and other stakeholders have initiated evidence-based stock-taking of progress. As expected, the progress of our country does not match up to the determinations and commitments shown by our Government on various platforms. While the report of Asia and Pacific SDG Progress Report 2020 claims that without extra efforts, the region is likely to miss all 17 goals by 2030. In particular, the region needs to reverse trends on Responsible Consumption and Production (Goal 12) and Climate Action (Goal 13) where the region is going backward. The same Report in 2021 states that the progress on SDG 12 is stagnant and it is anticipated that the region could miss every single measurable target under Goal 12, if no serious interventions are made.

The Sustainable Development Report 2020 presents the SDG Index and Dashboards for all 193 UN member states ranks India at 117th position out of 166 countries assessed in the report. As per the report, the country is facing major challenges in 10 of the 17 SDGs, and it is not ranked due to a lack of information in progress towards SDG 12. SDG 12 is about decoupling economic growth from environmental degradation, increasing resource efficiency, and promoting sustainable lifestyles. There can be no sustainable development without sustainable consumption and production (SCP).

Given the situation, it is critical to ensure that the country do not backtrack from its commitment to the outcome of the 2030 Agenda. It is true that one of the current major challenges for all countries, particularly for developing countries, is the impact from the multiple crises affecting the world today. Still, the country needs to place particular emphasis on achieving SCP patterns, which various reports have pointed out as one of the most challenging SDGs for the country.

At the Central Government level, *NITI Aayog* has been assigned the role of overseeing the implementation of SDGs in the country. Though the Ministry of Environment and

Forests and Climate Change (MoEF&CC) is the nodal Ministry for SDG 12, this goal is an orphan, unlike various other goals. The goal is a mixed bag with many of its targets outside the control of the nodal Ministry, for instance, sustainable tourism is the responsibility of the Ministry of Tourism; Sustainable Public Procurement if implemented, would become the responsibility of the Ministry of Finance and so on. So various ministries are responsible for various targets, which is not the case with other goals.

To see any change in the progress of this goal requires game-changing steps to be taken by all economic players - producers, policy-makers and consumers worldwide. While many studies and discussions are available online that look at SDG 12 from a producer and government perspective, nothing much could be seen that attempts to understand this goal from a consumer's perspective. Hence this study by CUTS, in partnership with the Swedish Society for Nature Conservation (SSNC) presents an analysis of SDG 12 up till 2020 from a consumer perspective using the framework of The United Nations Guidelines for Consumer Protection (UNGCP). The study was carried out during 2019-2020 by the CUTS team. The importance of studying and analysing the achievement of a country's progress under SDG 12 than any other Goal was felt because of its interlinking nature with other goals. Almost all other Goals are connected with SDG 12, thereby underlining that any progress in meeting Agenda 2030 by a country cannot be achieved without carefully approaching and addressing the concerns under SDG 12.

The research study looked at the scenario at the national level, including the role of ecolabels, impact of the pandemic etc. and in-depth study in five states - Uttar Pradesh, Rajasthan, Chhattisgarh, Kerala and Himachal Pradesh, through one-to-one interviews, focus group discussions, qualitative analysis, documentation of successful case studies etc. and the report was prepared. The main conclusion of the study is that it is very unlikely that India will achieve any of the targets of SDG 12 by 2030, unless some serious measures are taken by the Government to reverse the present trend.

The draft report was reviewed by selected stakeholders and the key findings of this study were discussed and deliberated in the National Consultation organised by CUTS on March 18, 2021 at New Delhi. We thank all stakeholders and delegates for the most valuable inputs.

There are many people to whom we would like to extend our sincere thanks and gratitude starting with our donor partner, Swedish Society for Nature Conservation (SSNC), especially to Sara Nilsson and Alexander Sjöberg for the valuable partnership and unrelenting support for successful completion of this project. The study was done on the basis of visits to Delhi and the target states, and interaction with Government officials and representatives of civil society and consumer groups. We would not miss the opportunity to make them partners in our satisfaction and thanking them for their time and patience to provide us with all the relevant details of their work and inputs on the subject. There are many more people we met during our research and travel who provided valuable suggestions and inputs for the study thereby guiding us directly and

indirectly to have a better understanding of the status of SCP. We would like to extend our most sincere gratitude and appreciation for their time and positive responses.

In the end, I would like to thank all within the organisation, especially to the project team, my colleagues Amar Deep Singh, Simi T.B. and Amit Babu, who did the research study along with me, and visiting to various states and preparation of the report. I also acknowledge the contribution of my colleague Madhu Sudan Sharma and former colleague Aakansha Choudhary in conceptualizing this study, along with me, and preparing the project proposal, and the whole CUTS CART team for their valuable support and inputs from time and again. I also thank my colleagues at CUTS Delhi Resource Centre for their support in organizing the national consultation, the editorial and publications team for their valuable support in editing and publishing this report.

Hope this study will help in triggering a discussion in India about the status of SDG 12, and convince the Government to take serious actions to reverse the trend and make progress in achieving the targets by 2030. I also hope this study will encourage other organisations, working on Sustainable Consumption issues elsewhere to replicate such studies in their own countries.

George Cheriyan **March 24, 2021**
Director, CUTS International

Executive Summary

Though significant achievements were made worldwide on various Millennium Development Goals (MDGs) targets, the overall progress had been uneven across regions and countries, leaving significant gaps. Millions of people were still left behind, especially the poorest and those disadvantaged. So to carry forward the global efforts, in September 2015, countries agreed to set the world on a path towards sustainable development through the adoption of the 2030 Agenda for Sustainable Development. The Agenda embraces 17 Sustainable Development Goals (SDGs) and sets out quantitative objectives across the social, economic, and environmental dimensions of sustainable development – all to be achieved by 2030.

These new Goals are unique as it calls for action by all countries, poor, rich and middle income to promote growth while protecting the planet. While the SDGs are not legally obligatory, governments are expected to establish national frameworks to achieve the goals. Countries have the crucial accountability for following up and reviewing the progress made in implementing the Goals, which will require quality, accessibility, and timely data collection.

SDGs and India

India is strongly committed to the 2030 Agenda and much of the country's National Development Agenda is mirrored in the SDGs. In the same year, 2015, India strongly supported the Paris Agreement too and proclaimed its bold nationally determined contributions, which are to be achieved by 2030 - reduce the emissions intensity of GDP by 33-35 percent from 2005 level; achieve about 40 percent cumulative electric power installed capacity from non-fossil fuel-based energy resources; and create an additional carbon sink of 2.5 to 3 billion tonnes of CO_2 equivalent through additional forest and tree cover.

The government towards achieving the SDGs has initiated a series of nationwide welfare and developmental programs during the last five years. Through consistent, sustainable initiatives, the country has to some extent reduced poverty, improved education, expanded basic infrastructure capacities, conserved its rich biodiversity, and built partnerships for sustainable development.

According to *NITI Aayog* reports, over 100 million household toilets have been built since October 2014, all villages and over 99 percent of households are electrified. The

forest cover substantially increased between assessments in 2017 and 2019. Jointly with France, India facilitated the formation of the International Solar Alliance, bringing together countries that are well-positioned to invest aggressively in solar energy. These are just a few examples of the sustainable progress made by the country.

NITI Aayog, the government think tank of the government, is entrusted with coordinating the SDGs and overseeing their implementation across the country. It had already taken the lead by bringing out the SDG India Index – Baseline Reports in both 2018 and 2019. The 2018 report comprehensively documents the progress made by India's states and Union Territories (UTs) towards implementing the 13 out of 17 SDGs (leaving out Goals 12, 13, 14 and 17). However, the subsequent report in 2019 is more robust than the previous edition as it had a wider coverage of goals, targets, and indicators with greater alignment with the National Indicator Framework. The Index spans 16 out of 17 SDGs with a qualitative assessment on Goal 17.

Yet, only some progress could be made within the first five years of its implementation and overall, the country needs to do much more to be on track to deliver its commitments by 2030. The Sustainable Development Report 2020 presents the SDG Index and Dashboards for all UN member states ranks India at 117th position with a 61.92 score. As per the report, the country is facing major challenges in 10 of the 17 SDGs, and the country is not ranked due to a lack of information in progress towards SDG 12, which concerns SCP. It should be remembered here that the country's overall progress to meet the 17 Goals is very much significant for the global community as India is home to about one-sixth of the world's population.

SDG 12: The Indian Context

The wider coverage in SDG India Index – Baseline Report 2019 and specifically the inclusion of SDG 12 within the purview of reporting prove to be vital, as to achieve sustainable patterns of consumption and production, one need to have updated data and information on any such progress being made. Also, the importance of studying and analysing the achievement of a country's progress under SDG 12 than any other Goal is because of its interlinking nature with other goals. Almost all other Goals are connected with SDG 12, thereby underlining that any progress in meeting Agenda 2030 by a country cannot be achieved without carefully approaching and addressing the concerns under SDG 12.

In India, SCP that was slowly gaining acceptance among the stakeholders has been almost ignored under the coronavirus spread. Recession, loss of job and physical distancing largely affected the way people produce and consume. Nothing remains the same as prior to the pandemic, people's needs and wants changing drastically. There is a tremendous increase in the use of plastics like never before in healthcare.

Apart from the medical wastes, one could also witness an increased dependence of consumers on disposables, such as plastic plates, cups, carry bags, sanitizers and bottled

drinking water as a hygiene measure to avoid COVID-19. Also, an increased dependence on online delivery of consumer goods and foods has resulted in the surge in packaging material usage. However, there is no ground estimate to show how much plastic wastes have been generated in India since the corona scare.

The country also generated 3.2 million tonnes of e-waste last year, ranking third after China (10.1 million tonnes) and the US (6.9 million tonnes). Following the current growth rate of e-waste, an ASSOCHAM-EY joint report, titled 'Electronic Waste Management in India' estimated India to generate 5 million tonnes by 2021. The study also identified computer equipment and mobile phones as the principal waste generators in India. With COVID-19 keeping people indoors, the usage is only getting higher; and without proper intervention, it is likely to be over 100 million tonnes by 2050.

To make matters worse, waste collection and recycling of waste came to a halt during lockdown across the country. Before the pandemic, India's performance in the circular economy was notable. It led to the collection and recycling of plastic waste and almost 60-70 percent of it was collected and recycled into other useful products. But people now again resort to unsustainable habits of burning household wastes or throwing them on the roadside, creating conditions for the spread of infectious diseases.

Equally, to maintain physical distance, people are no longer willing to use public transports, instead, self-driven individual vehicles are on rise. For instance, Delhi Metro Rail Corporation (DMRC), which has remained non-operational due to the COVID-19 lockdown, has incurred a revenue loss of nearly INR 10 billion.

According to the Bus & Car Operators Confederation of India (BOCI) the losses are to the tune of INR 650 billion and most of the operators are now on the verge of a shutdown. This sudden change in deviation of transport choices by the public will certainly aggravate the level of emissions and pollution in the long run.

SCP from a Consumer Perspective: CUTS Study

The importance of SDG 12 is also highlighted in the text of the United Nations Guidelines for Consumer Protection (UNGCP), which states that unsustainable production and consumption patterns are the leading cause of the continuing deterioration of the environment and all Member States should focus on promoting sustainable consumption patterns.

CUTS in partnership with the Swedish Society for Nature Conservation (SSNC) conducted this study mainly looking at SDG 12 from a consumer perspective based on the UNGCP. The study frames to understand the concept of SCP beyond SDG 12 and expand it beyond its current environment dimension. The concept was studied, taking into consideration its presence in UNGCP from the perspective of SCP.

The study has a specific focus on the National scenario and practices and learning from five targeted states. Kerala, Chhattisgarh, Himachal Pradesh (HP), Rajasthan and Uttar Pradesh (UP) are covered under the study. CUTS visited targeted states and gathered information from different stakeholders across the states regarding SDG 12 related policies and programmes from a consumer perspective.

This in-depth study shows us that it is very unlikely that India will achieve any of the targets of SDG 12. The status of many of the Indicators may further worsen by 2030, compared with 2015, due to the negative impact of the Pandemic and various other reasons. If left unaddressed, this could give a wrong image of the nation's merits and efforts towards SCP.

The country has programmes and policies at National and state levels to support SCP and achieve SDG 12. But lack of effective implementation and enforcement of such programmes have failed to bring out the desired impact. A need for an inter-departmental coordination committee to strengthen the waste management system at the state level was also felt strongly. From a consumer perspective, while schemes like Swachh Bharat Mission did create mass awareness about cleanliness and hygiene, it could not create any rippling effect to raise public's awareness about issues like waste segregation, recycling and product life-cycle.

India's consumption per capita and ecological footprint is indeed far below those of the developed nations, but its rapidly rising population and environmental degradation acts as a challenge. Despite some ambitious policies and targets, it still globally stands out as one of the largest consumers of natural resources and substantial producers of waste of all kinds with limited infrastructure to collect, responsibly treat, and recycle the waste they produce.

In addition, the country performs poorly on the phasing out of fossil fuel subsidies. Subsidies for fossil fuels are still some six to seven times more than subsidies for clean energy. Apart from these, there is a very low eagerness on authorities concerned at both Centre and at the State level to promote sustainable public procurement (SPP) and sustainable tourism.

The status of ecolabels and eco-standards are also not yet very encouraging in India. Ecomark, the Indian ecolabel for products was introduced in 1991. But the label has not found acceptability from both manufacturers and buyers. Though informal and periodic, the country has witnessed few instances of smart and efficient SPP in departments like the railways. A lead by the Government in adopting a SPP policy would send a strong message to the business community and could create demonstration and ripple effects, not just in public procurement but also indirectly in private consumption by companies. Small and medium-sized enterprises in particular, stand to benefit since they are often at the forefront of innovation in developing and marketing environmentally friendly products.

Most importantly, the government can demonstrate sustainable and environmental leadership, raise public awareness of the benefits of environment-friendly products, help sustainable innovation and technologies, reduce greenhouse gas emissions, and encourage economic development by fostering markets for environmentally preferable products.

Unfortunately, till date, the government has not been able to effectively address the drivers of unsustainable consumption and production patterns such as inadequate commitment, ill-informed society, inequitable growth, lack of technology, limited product life spans, lack of support or push for greener business models, limited incentives for waste prevention via reuse and other means, and the absence of sustainable alternatives to high impacting consumption patterns.

The country demonstrates relatively good achievements in terms of policies and strategies, but more genuine efforts need to be taken to address the ever-increasing unsustainable consumption pattern. Besides, whatever sustainable actions the states take, many of those achievements go unnoticed and are not reported. The absence of effective monitoring and data collection is a major cause of concern that could give a wrong image of the nation's merits and efforts towards SCP.

Most of the activities fail to get reported because of the lack of awareness among the concerned officials, except a couple of them involved in reporting, SDG, and its importance. They fail to connect such sustainable activities with the SDGs. This was proved to be correct during the survey of our study, as most of the officials were not able to recognise what an SDG is.

This lack of awareness among government officials coupled with lack of funding, shortage of technical staff resulting in inadequate monitoring and reporting appears to be the most significant challenges at the state level in SDG implementation.

Mainstreaming SCP is a high-level commitment and requires bold and ambitious policy makers and agile and farsighted businesses and motivated consumers. It involves engaging all stakeholders – the government, public and private sector, international agencies, researchers, educators, civil society organisations and more importantly, the consumers.

1 Study and Methodology

Introduction

In 1985, the United Nations (UN) adopted a set of Guidelines for Consumer Protection which was revised in 1999. The Guidelines address consumers' interests and needs worldwide and provide a framework for governments to adopt, elaborate, and strengthen consumer protection policies and legislation. The Right to Healthy Environment also made it to the list of eight consumer rights defined in the guidelines, thereby broadening consumer protection globally.

According to Guidelines, the Right to Healthy Environment means the right to live and work in an environment that is non-threatening to the well-being of present and future generations. The right contains the following elements:

- The right to live and work in an environment that is neither threatening nor dangerous and which permits a life of dignity and well-being.
- The responsibility to minimise environmental damage through careful choice and use of consumer goods and services.
- To reduce waste, reuse products and recycle whenever possible.

Keeping in mind the UN Guidelines for Consumer Protection, in 1986, the Government of India enacted the Consumer Protection Act (CoPRA). Except for the Right to Basic Needs and the Right to Healthy Environment, all other rights are included in this Act as per the UN Guidelines. CoPRA is one of India's benevolent social legislation enacted since independence, intended to protect the consumers from exploitation. Though the Right to Healthy Environment is not covered in the Act, other provisions deal with the issue.

Not just limited to few legislations, even Article 21 of the Indian Constitution requires the state, *inter alia*, to protect life, which is construed as including the right to a healthy and safe environment. The Directive Principles of State Policy direct the state to improve the environment, forests and wildlife. Also, under Article 51A(g), the Constitution imposes a Fundamental Duty on citizens to protect the environment. It is no doubt that a healthy and safe environment is inalienably linked with sustainability and the promotion of SCP.

Giving further boost, along with other countries, India signed the declaration on the 2030 Agenda for Sustainable Development, comprising 17 SDGs at the Sustainable Development Summit of the UN in September 2015. This incoming of SDGs in 2015 gave a new life to the already existing concept of SCP. The Government of India has taken

several initiatives by revising existing policies and framing new ones that directly or indirectly deal with one or more SDGs. When the SDGs came into existence in 2016, the Development Monitoring and Evaluation Office (DMEO), an office attached to *NITI Aayog*[1] , was nominated as the nodal organisation to implement the SDGs in India. Though *NITI Aayog* is the nodal agency, several ministries have been assigned various tasks in the form of some existing and new policies to achieve these 17 goals in a time-bound manner.

Being a federal country, any action plan to promote SCP cannot be done in silos without coordination and cooperation of the Central and state government. The state government's primary and most active role is that they need to put in place a state mechanism to realise and implement any policy or scheme on the ground as per the regional conditions. Some states have put in a mechanism to realise the district level's goals about SDGs' progress. But there is a need to check their effectiveness and present status.

More importantly, as the SCP has emerged as an important part of the SDGs, the world needs to visualise other perspectives to achieve SCP beyond Goal 12. A critical aspect is to look at SCP and SDG 12 in the background of UN guidelines on Consumer Protection and Right to Healthy Environment.

The current targets of Goal 12 and related policies/schemes/programmes at the national level to achieve SCP needs to be studied, analysed and reframed, if required, to incorporate the consumer perspective. There is a dire need to check if the guidelines that were accepted for more than three decades now have made a difference in the way policies are designed and planned for implementation.

Problem Statement

While the world is busy talking about SDGs and the targets to be achieved by 2030, the already existing policies and references related to SCP are losing their presence in the process. Setting up new targets with extended deadlines overshadows the existing ones and puts them in a black box where they lose their visibility but not the relevance.

The latest and mainstream understanding of SCP through SDG 12, which somewhere misses a holistic approach, shall not be followed to define and achieve a crucial SCP concept. It is critical to understand that the idea made into the list of eight consumer rights in UN Guidelines three decades ago had a vision designed following unending deliberations in international policy circles, ending up as part of consumers' right to a healthy environment.

The perspective of consumers and upholding their 'right to a healthy environment' in the realisation of SCP in multiple sectors forms an essential part of designing an action

[1] National Institution for Transforming India (NITI), is a policy think tank of the Government of India.

plan. It is crucial to understand how far the understanding of SCP from a vital consumer perspective has been incorporated in the current knowledge of SCP, mainly driven and popularised by SDG 12. The SDGs designed to build a better and liveable world for the people, who are also end-users or consumers of various resources and services in the value chain, shall justify their presence.

The High-level Political Forum on Sustainable Development has pointed at the "serious concern" regarding the lack of an adequate monitoring framework for many of the targets under SDG 12. In India, the SDG India Index released by *NITI Aayog* in 2018 had comfortably left out SGD 12, 13, 14 and 17 from the purview.

Also, as per mapping by *NITI Aayog*, various existing schemes and policies are mapped with different targets under SDG 12, leaving one confused about the approach being followed to achieve these targets, leaving aside the consumer perspective in a dark corner.

From the international to national level, the whole picture points towards the lack of holistic understanding of SCP and the targets defined under the goal and the missing planning framework. The state should put in a mechanism with other stakeholders' engagement, especially the common people if the country wants to move forward with SCP.

Objective of the Study

Realising that the concept of SCP earns an understanding which goes beyond SDGs and their targets, the study proposes to understand the idea of SCP from the perspective of consumers, who are the main force to drive change in any direction. The designs of policies, schemes, regulations, treaties, or any agreement cannot be considered appropriate without considering the views and suggestions of people whose lives will be affected by these documents.

SCP has the potential to push for massive savings on natural resources, reducing waste generation drastically, decreasing pressure on earth and dealing with issues of greenhouse gas emissions and climate change directly. In another context, pushing for responsible consumption can significantly impact reducing poverty and promoting equality in the world.

Therefore, the study's primary objective is to frame an understanding of the concept of SCP beyond SDG 12 and expand it beyond its current environment dimension. The concept shall be studied considering its presence in UNGCP under the right to a healthy environment, which goes beyond environmental protection and is driven by the consumers' views and rights. At the same time, an attempt is also made to study if the global goal of SDG 12 is making the desired progress in India.

To be more specific, the project proposes to conduct a study in India to:

Analyse and examine the initiatives of the Government towards realising SCP: The planning framework and various efforts by the government need to be studied in detail to understand the current work regarding both progress of SDG 12 and how far the measures have taken into consideration the approach to realise the consumers' right to a healthy environment. This will include mapping of legislative frameworks supported by institutional mechanisms of the Government.

The idea is to highlight how India has interpreted SCP and SDG 12 at present and at the same time study and analyse the approach it has taken to achieve targets by 2030. The policies and approach will be studied from the consumer perspective to understand how far the government has incorporated this critical dimension.

Identify the gaps and challenges in the current plan and work with the Government to redraw the framework for a more focussed approach towards realising SCP: The second part of the project will involve a critical analysis of work in progress to date, study present gaps and challenges at the policy level and suggest recommendations to the government. This will also include the study of best initiatives and approaches by any state in relation to SCP, which can be portrayed as replicable models for other states.

People-powered SCP's concept using India's cases with respect to SDG 12 will also be included. This part of the study will focus on 'What India can do to achieve the SCP' and help us frame future advocacy programs to fill in gaps.

The project aims to study and bring to light the plan and progress in promoting SCP in India and putting India in the public domain to achieve the goal. The report will help track the approach towards Goal 12 and act as a tool to streamline existing policies and push for more dedicated efforts to support SCP in India.

Selection of States

The criteria for selecting states to conduct the study were mainly based on the overall performance of the state in the SDG Index Report, 2018 released by *NITI Aayog*. SDG 12 was not part of Index 2018, so the selection was focused on overall performance rather than the SDG 12 Goal. A degree of importance was also given to ensure regional parity and culture, including the need to highlight best practices.

Selected States and their SDG Index 2018 Rankings

FRONT RUNNER	PERFORMERS	ASPIRANT
Himachal Pradesh (69 points)	Rajasthan (59)	Uttar Pradesh (42)
Kerala (69)	Chhattisgarh (58)	----

Expected Outcomes

1. An appropriate approach to view and understand the concept of SCP from the consumer perspective is beyond SDG 12 and its targets.
2. An advocacy tool to streamline existing policies and push for more dedicated efforts to support SCP in India from the consumer perspective.
3. A potentially replicable policy and practical model which can be used by other countries.

SCP will receive its due attention and importance amongst other SDGs through continuous advocacy efforts, especially after the proposed National Consultation.

2 Context

Global Perspective of SDGs and SCP

When the UN adopted its Millennium Development Goals (MDGs) in September 2000, the term sustainability meant very little to most of them across the globe. It was best seen as a way of bringing down energy costs either by switching to energy-efficient lighting or using natural light, plus some initiatives to recycle waste. Hence MDGs were ambitious for their time and focused on the most vulnerable populations, addressing extreme poverty, hunger, disease, gender equality, education, and environmental sustainability.

By the end of 2015, the MDGs were seen to have been broadly successful. According to the UN MDG Report 2015, globally, the number of people living in extreme poverty has declined by more than half, falling from 1.9 billion in 1990 to 836 million in 2015, with most progress occurring since 2000.

Though significant achievements were made worldwide, the overall progress had been uneven across regions and countries, leaving significant gaps. Millions of people are still left behind, especially the poorest and those disadvantaged. So to carry forward the global efforts, in September 2015, countries agreed to set the world on a path towards sustainable development through the adoption of the 2030 Agenda for Sustainable Development.

The agenda embraces 17 Sustainable Development Goals (SDGs) with 169 targets and set out quantitative objectives across the social, economic, and environmental dimensions of sustainable development – all to be achieved by 2030. These new Goals universally apply to all countries and are unique as it calls for action by all countries, poor, rich and middle-income to promote growth while protecting the planet.

While the SDGs are not legally binding, governments are expected to take ownership and establish national frameworks to achieve the goals. Countries have the primary responsibility for follow-up and review of the progress made in implementing the Goals, which will require quality, accessible and timely data collection. Regional follow-up and review will be based on national-level analyses and contribute to follow-up and study globally.

Consumers and SDGs

Given that SDGs' underlying objectives are to eradicate poverty, protect the planet, and share prosperity, economic growth is vital. Economic growth is primarily dependent on

consumers, too, since consumption contributes to economic growth. Since everyone consumes, consumers certainly do have a huge role to play in achieving sustainable development. They hold power to influence production decisions based on what goods and services they purchase. If consumers prefer to buy sustainable products and services, it will result in a higher demand for such products and services.

As consumer markets revolve around consumer demand, firms see that they produce sustainable products and services, thus addressing what consumers need to stay in business. So, each individual's choices and decisions will make a real difference to the fulfillment of meeting these goals and have significant social, economic, and environmental implications.

Therefore consumer policy acts as an essential tool by which countries can support many, if not all, of the 17 SDGs. The UNGCP is the most relevant instrument for this purpose. The UNGCP was first adopted by the UN General Assembly in 1985 and gave necessary legitimacy to consumer rights principles. In 1999, a new section was added on sustainable consumption. Again, the guidelines were strengthened and updated in 2015 to make them relevant to consumers' challenges in today's world.

Consumer protection being a cross-cutting issue, UNGCP supports the implementation of many of the proposed UN SDG Goals. It addresses needs from a consumer perspective, which will be essential for implementing SDGs in many cases. For instance, UNGCP calls for governments to formulate, maintain or strengthen national policies to support the supply, distribution and quality of water for drinking. Thus it addresses Goal 6 of SDG – Water and Sanitation.

Similarly, UNGCP seeks to redress the imbalance that often exists between consumers and producers. Women are responsible for purchases, often on behalf of the household, which improves their access and power in the marketplace. The UNGCP also directs governments to pay particular attention to vulnerable consumers who are more likely to be women in many cases. This addresses Goal 5 - Gender equality and women's empowerment.

UNGCP also contains a dedicated section and further provisions for governments, businesses, consumer and environmental organisations, and other concerned groups to promote and address sustainable consumption. This would address Goal 12 – SCP. Besides, any action to this end will also, in turn, have a positive impact on the achievement of Goals 13, 14 and 15 relating to climate change, marine conservation and terrestrial biodiversity.

Thus it proves that the UNGCP will positively impact the SDGs and both these global initiatives are interlinked to each other. Even a small step to ensure consumer protection and empowerment will contribute significantly towards achieving many of the SDG goals. For instance, targets like achieving the sustainable management and efficient use of natural resources (SDG 12.2); and ensure that people everywhere have

the relevant information and awareness for sustainable development and lifestyles in harmony with nature (SDG 12.8).

Sustainable Consumption and Production

Global endorsement for SCP dates back to the UN Conference on Environment and Development in Rio de Janeiro in 1992. Principle 8 of the Rio Declaration on Environment and Development highlights nations' responsibility to 'reduce and eliminate unsustainable production and consumption patterns.' The principle points out that this task is necessary to achieve sustainable development and a higher quality of life for all people.'

Chapter 4 of Agenda 21 explicitly identifies unsustainable production and consumption patterns, 'particularly in industrialised countries,' as 'the major cause of the continued deterioration of the global environment.' It called for "action to promote patterns of consumption and production that reduce environmental stress and will meet the basic needs of humanity."

In the Johannesburg Plan of Implementation (JPOI) signed by world leaders at the WSSD in 2002, Chapter III is devoted to Changing Unsustainable Patterns of Consumption and Production. The Marrakesh Process – a global multi-stakeholder process launched in 2003 – responds to this call. It supports the implementation of SCP in all regions. It has played a vital role in elaborating the 10 Year Framework of Programmes on SCP (10YFP). Adopted in 2012 at the World Summit on Sustainable Development, the 10YFP is a global commitment to accelerate the shift towards SCP in both developed and developing countries.

The objectives of the 10YFP are to:

- ✓ Accelerate the shift towards SCP, supporting regional and national policies and initiatives.
- ✓ Contribute to resource efficiency and decoupling economic growth from environmental degradation and resource use while creating decent jobs and economic opportunities and contributing to poverty eradication and shared prosperity.
- ✓ Mainstream SCP into sustainable development policies, programmes and strategies, including poverty reduction strategies.
- ✓ Support capacity building and facilitate access to financial and technical assistance for developing countries, supporting SCP activities at the regional, sub-regional and national levels.
- ✓ Enable all stakeholders to share information and knowledge on SCP tools, initiatives and best practices, raising awareness and enhancing cooperation and development of new partnerships – including public-private partnerships.

SCP is included as a stand-alone goal (SDG 12) of the 2030 Sustainable Development agenda, and Target 12.1 calls for the implementation of the 10YFP.

Every sector ranging from environment, agriculture, tourism, infrastructure, industry and so on are related to SCP as consumption and production happen across all economic activities. Even areas such as waste, pollution, resource extraction, and quality of life are linked with the objectives of SCP. Addressing current unsustainable consumption patterns across all sectors becomes imperative for the achievement of sustainable development.

With an ever-increasing population of 7.5 billion, our earth will undeniably fail to withstand the current rapid phase of consumption and production patterns. Unsustainable consumption is putting pressure on natural resources and long-term impacts on the environment. While billions of people live without life necessities, the high consumption and unsustainable lifestyles put immense stress on the environment. (Refer Table 2.1)

Table 2.1: SDG 12 – Global Facts & Figures[2]

1.3 billion 1.3 billion tonnes of food is wasted every year, while almost 2 billion people go hungry or undernourished.	**22 percent** The food sector accounts for around 22 percent of greenhouse gas emissions, mainly from forests' conversion into farmland.	**2 billion** Globally, 2 billion people are overweight or obese.
3 percent Only 3 percent of the world's water is fresh (drinkable), and humans using it faster than nature can replenish it.	**US$120bn** If globally people switched to energy-efficient light bulbs, the world would save US$120bn annually.	**20 percent** One-fifth of the world's final energy consumption in 2013 was from renewable sources.

According to UN Sustainable Development,[3] worldwide material consumption has expanded rapidly, as has material footprint per capita, seriously jeopardising the achievement of SDG 12 and the Goals more broadly. In 2017, worldwide material consumption reached 92.1 billion tonnes, up from 87 billion in 2015 and a 254 percent increase from 27 billion in 1970, with the rate of extraction accelerating every year since 2000. This reflects the increased demand for natural resources that have defined the past decades, resulting in an undue burden on environmental resources.

[2] Goal 12: Responsible consumption and production, UNDP. Accessible at <www.undp.org/content/undp/en/home/sustainable-development-goals/goal-12-responsible-consumption-and-production.html>

[3] Sustainable Development Goal 12 - Ensure sustainable consumption and production patterns. Accessible at <https://sustainabledevelopment.un.org/sdg12>

Without urgent and concerted political action, it is projected that global resource extraction could grow to 190 billion tons by 2060. Material footprint per capita has increased considerably as well: in 1990, some 8.1 tonnes of natural resources were used to satisfy a person's need, while in 2015, almost 12 tonnes of resources were extracted per person.

Unfortunately, such unsustainable human interventions have contributed adversely to the on-going loss of biodiversity too. According to Food and Agriculture Organisation, it is estimated since 1990 that 420 million hectares of forest have been lost globally and a total of 20,334 tree species are included in the International Union for Conservation of Nature (IUCN) Red List of Threatened Species.

About 8,056 species were assessed as globally threatened. Besides, more than one million animal and plant species are now threatened with extinction. Populations of mammals, birds, reptiles, amphibians and fish have declined on average by 60 percent in the past 40 years and freshwater species are going extinct even more rapidly than terrestrial or marine species, with a population decline of 83 percent between 1970 and 2014 alone. These losses constitute a direct threat to human well-being across the world.

Table 2.2: SDG 12 Targets and Indicators [as on December 2020]

TARGETS	INDICATORS
12.1 Implement the 10-year framework of programmes on SCP, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries	12.1.1 Number of countries developing, adopting or implementing policy instruments aimed at supporting the shift to SCP
12.2 By 2030, achieve sustainable management and efficient use of natural resources.	12.2.1Material footprint, material footprint per capita, and material footprint per GDP 12.2.2 Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP
12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses	12.3.1 Global food loss index; food waste index
12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil to minimize their adverse impacts on human health	12.4.1Number of parties to international multilateral environmental agreements on hazardous waste and other chemicals that meet their commitments and obligations in transmitting information as required by each relevant agreement

TARGETS	INDICATORS
and the environment	12.4.2 Hazardous waste generated per capita and proportion of hazardous waste treated, by type of treatment
12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse	12.5.1 National recycling rate, tons of material recycled
12.6 Encourage companies, especially large and transnational, to adopt sustainable practices and to integrate sustainability information into their reporting cycle.	12.6.1 Number of companies publishing sustainability reports
12.7 Promote public procurement practices that are sustainable, in accordance with national policies and priorities	12.7.1 Degree of SPP policies and action plan implementation
12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature.	12.8.1 The extent to which (i) global citizenship education and (ii) education for sustainable development (including climate change education) are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment
12.A Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production	12.A.1 Installed renewable energy generating capacity in developing countries (in watts per capita).
12.B Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products.	12.B.1 Implementation of standard accounting tools to monitor the economic and environmental aspects of tourism sustainability.
12.C Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimising the possible adverse effects on their development in a manner that protects the poor and the affected communities	12.C.1 Amount of fossil-fuel subsidies per unit of GDP (production and consumption)

Inter-Linkages Between SDG 12 and Other SDGs

SDG 12 related to SCP cannot be achieved without treating all the SDGs as interconnected. SDG 12 is linked with environmental impacts and economic growth. It,

therefore, is well connected to SDG 1 (No Poverty), SDG 3 (Good Health and Well-being), SDGs6 (Clean Water), 9 (Industry, Innovation and Infrastructure), 13 (Climate Change), 14 (Life below Water) and 15 (Life on Land), among others. Moreover, it is also indirectly connected with the rest of the SDGs. Table 2.3 indicates some of the direct interconnections between SDG 12 and the other SDGs.

Table 2.3: Direct Interconnections between SDG 12 and Other SDGs

SDG 12 TARGETS	DIRECT LINK
12.2 Resource Use Efficiency	6.4 Water use efficiency
	7.2 Increases share of renewable energy in the global energy mix
	8.4 Global resource efficiency in consumption and production and endeavor to decouple economic growth
	9.1 Sustainable and resilient infrastructure
	11.b Implementing integrated policies and plans towards inclusion, resource efficiency.
	12.5 Reduce waste generation
12.3 Halve per capita global food waste at the retail and consumer levels	12.5 Reduce waste generation
	12.4 Environmentally sound management of all wastes
12.4 Environmentally sound management of all wastes	3.9 Reduce deaths from air, water, soil pollution
	6.3 Improve water quality by reducing pollution
	9.4 Upgrade infrastructure, resource-use efficiency + clean and environmentally sound technologies
	11.3 Sustainable urbanisation and capacity for participatory, integrated and sustainable human settlement planning and management
	11.6 Cities: air quality and municipal and other waste management
	12.3 Halve per capita global food waste at the retail and consumer levels
	12.5 Reduce waste generation
	13.1 Strengthen resilience and adaptive capacity to climate-related hazards
	14.1 Reduce marine pollution
	15.1 Sustainable use of terrestrial and inland freshwater ecosytems and their services
	15.5 Reduce the degradation of natural habitats, prevent the extinction of threatened species

SDG 12 TARGETS	DIRECT LINK
12.5 Reduce waste generation	11.c financially support LDC in building sustainable and resilient buildings utilising local materials
	12.4 environmentally sound management of all wastes
	12.3 halve per capita global food waste at the retail and consumer levels.
12.6 Companies to adopt sustainable practices + sustainability reporting	2.4 sustainable food production systems and implement resilient agricultural practices
	6.5 integrated water resources management
	14.4 destructive fishing practices
	17.18 increase significantly the availability of high-quality, timely and reliable data
12.8 Consumer information and education	4.7 education on sustainable development
	17.18 increase significantly the availability of high-quality, timely and reliable data
12.B Sustainable tourism	1.2 reduce poverty in all its dimensions
	8.2 economic productivity through diversification, technological upgrading and innovation
	8.9 implement policies to promote sustainable tourism
	11.4 protect the world's cultural and natural heritage
	15.c increasing the capacity of local communities to pursue sustainable livelihood opportunities
12.C Fossil fuel subsidies	3.9 reduce deaths from air, water, soil pollution
	8.2 economic productivity through diversification, technological upgrading and innovation

National Perspective on SDGs and SCP

According to the Economic Survey 2019-20, Government of India, the country continued to decelerate its GDP growth from 7.2 percent in 2017-18 to 6.8 percent in 2018-19. It is now further down to 5 percent in 2019-20. The survey observed that sluggish growth of consumption and consequent decline in fixed investment led to the decrease in GDP growth during this period.

It further notes that the year 2019 was a challenging year for the global economy, with world output growth growing at its slowest pace of 2.9 percent since the global financial crisis in 2009. A weak environment for global manufacturing, trade, and demand adversely impacted the Indian economy.[4]

[4] Economy Survey 2019-20. Accessible at <www.indiabudget.gov.in/economicsurvey/>

The agriculture sector's growth has been fluctuating: it increased from -0.2 percent in 2014-15 to 6.3 percent in 2016-17, and then declined to 2.8 percent in 2019-20. The overall industrial sector growth is estimated to be 2.5 percent in 2019-20 compared to 6.9 percent growth in 2018-19. The manufacturing sector is estimated to grow at 2.0 percent during 2019-20. India has jumped from 142 in 2014 to 63 in 2019 in ease of doing business rankings. However, India continues to trail in various parameters such as ease of starting a business (rank 136), registering property (rank 154), paying taxes (rank 115), and enforcing contracts (rank 163).

India and SDGs

The Government of India is strongly committed to Agenda 2030, including the SDGs. The critical actions undertaken so far by key entities responsible for spearheading the work on SDGs include:

a. **NITI Aayog:** *NITI Aayog* is mandated with the task of coordinating overall work on SDGs by adopting a synergistic approach, involving central ministries, state/UTs, civil society organisations, academia and business sector to achieve India's SDG targets. A comprehensive mapping of SDG targets with schemes and programmes has been developed. This suggests an approach to sustainable development that brings together economic, social and environmental pillars, focussing on their interlinkages. *NITI Aayog* has conducted a series of consultations with all stakeholders focussing on different goals, capacity building, evaluation framework, sharing of new knowledge and best practices, and progress mapping. So far, 22 such national and regional consultations have happened.

b. **Ministry of Statistics and Programme Implementation (MoSPI):** The Ministry developed a National Indicator Framework (NIF) consisting of 306 national indictors along with identified data sources and periodicity following a due consultation process with concerned Ministries/Departments, UN Agencies and other stakeholders. It coordinates with line Ministries for institutionalizing the data flow for SDG indicators. NIF is the backbone of monitoring SDGs at the national level and provides appropriate direction to the policy makers and implementing various schemes and programmes. MoSPI has also been leading discussions at the global level on the indicator framework for the SDGs.

c. **States/UTs:** Several States/UTs have mapped State and centrally sponsored schemes vis-à-vis the SDGs; and undertaken long-term (visioning), medium-term (strategy development), and short-term (action plan) exercises.

NITI Aayog in 2018 constructed the SDG India Index spanning 13 out of 17 SDGs (leaving out Goals 12, 13, 14 and 17). The exclusion of these goals mainly accounts for the unavailability of comparable data across states and UTs. However, SDG 12 and 13 were later considered in the 2019 Index report. The Index tracks the progress of all the

states and UTs on a set of 62 Priority Indicators, measuring their progress on the outcomes of the interventions and schemes of the Government of India. The SDG India Index is intended to provide a holistic view of the country's social, economic, and environmental status and its states and UTs.

Table 2.4: The SDG-wise Scores at all India Levels[5]

SDG Item	Aim	All India Score	
		2018	2019
1	Ending poverty in all its forms	54	50
2	End to all forms of hunger and malnutrition	48	35
3	Attain a level of health enabling to lead economically and socially productive life	52	61
4	Inclusive, equitable and quality education to all, including technical and vocational training	58	58
5	Gender Equality	36	42
6	Clean Water and Sanitation	63	88
7	Access to affordable, reliable and modern energy sources	51	70
8	Decent work and Economic growth	65	64
9	Industry, Innovation and Infrastructure	44	65
10	Reduced Inequalities	71	64
11	Sustainable cities and communities	39	53
12	Sustainable Consumption and Production		55
13	Climate Action		60
15	Protect, Restore and Promote sustainable use of terrestrial ecosystems	90	66
16	Peace, Justice and Strong Institutions	71	72
	Composite SDG	57	60

In spite of the national commitments and related efforts, India couldn't perform well on the global stage. Sweden once again topped the global SDG Index 2020, followed by Denmark and Finland. India has been ranked 117th on the index with an overall score of 61.92. The score can be depicted as the percentage of SDG achievement. The 2020 report has reviewed the performance of 193 UN Member States, out of which 166 were ranked under the SDG index. As per the report, India is facing major challenges in 10 of the 17 SDGs, and the country is not ranked due to a lack of information in progress towards SDG 12.

[5] SDG India Index, Baseline Report, 2018 & 2019. Accessible at <www.niti.gov.in>

India and SDG 12

As seen in Table 2.2 the UN has defined 11 Targets and 13 Indicators for SDG 12. Targets specify the goals and Indicators represent the metrics by which the world aims to track whether these Targets are achieved. The current targets of Goal 12 and related policies/schemes/programmes at the national level to achieve SCP is critically examined and analysed below. There is a need to check if the country is marching ahead in the right direction towards achieving the goal if it successfully makes a difference in the way policies are designed and planned for implementation.

Sustainable Management of Natural Resources

Current Status

- ✓ Resource extraction of 1580 tonnes/acre is much higher than the world average of 450 tonnes/acre
- ✓ 3rd largest material demand (the year 2010)
- ✓ Low material productivity compared to global average
- ✓ Much lower recycling rate at 20-25 percent vis-à-vis of as high as 70 percent in developed countries (Europe).
- ✓ 3rd highest CO2 emitter, responsible for 6.9 percent of global CO2 emissions.
- ✓ Highest water withdrawal globally for agriculture.
- ✓ 30 percent of land undergoing degradation.
- ✓ High import dependency of many critical raw materials.

Source: Ministry of Environment, Forest and Climate Change

According to various studies, it is expected that the total material consumption in 2030 is projected to be 14.2 BT (billion tonnes), consisting of about 2.7 BT of biomass, 6.5 BT of minerals, 4.2 BT of fossil fuels and 0.8 BT of metals. This means a tripling of demand for primary materials compared to 2010, particularly the need for energy carriers, metals and non-metal minerals.

Governments, both the Centre and the states, have enacted series of legislations to tackle this sustainably. Under the Environment (Protection) Act and Rules, there is currently the major legislative instrument for driving resource use efficiency. Resource use efficiency is one of the stated objectives of India's National Environment Policy and India's Integrated Energy Policy. The Integrated Energy Policy, a comprehensive policy on energy, is drafted to explore alternative technologies and possible synergies that would increase energy system efficiency and meet the requirement for energy services.

National Mission for Enhanced Energy Efficiency (NMEEE) promotes energy efficiency by fostering innovative policies and effective market instruments. Various other missions like the National Water Mission, National Mission for Sustainable Agriculture refer to the need to enhance resource use efficiency. Resource-specific strategies and policies like the National Water Policy 2012 highlight the imperative for improved efficiency.

However, most of these policies and laws need significant improvements in the light of new challenges, especially climate change. For instance, Water Policy need to give incentives for growing crops that use less water. Likewise, emphasis needs to be shifted towards participatory groundwater management to ensure sustainability and quality of water.

The National Mineral Policy 2019 underlines the importance of a more effective, meaningful and implementable policy that brings in further transparency, better regulation and enforcement, balanced social and economic growth, and sustainable mining practices. More recently, the Ministry of Environment, Forest and Climate Change (MoEFCC) has proposed a National Resource Efficiency Policy (NREP) 2019 to increase recycling and reuse resource efficiency.

Challenges

Multiple policies are framed to address the issue of resource management. However, they all are sporadic and fail to capture resource efficiency prospects across all life cycle stages. Their design, emphasis, integration, or implementation is often sub-optimal in achieving resource efficiency goals, mainly due to limitations in finance, technology know-how, and access. The recent tragic death of miners who got trapped in the mines in Meghalaya is a typical case highlighting the lack of enforcement of environmental law, despite a court ruling.

The National Biodiversity Action Plan 2008 also notes that India's policy implementation has been grossly inadequate due to the 'non-visibility of environmental deterioration.[6] It further states that in India, natural resource accounting systems are likely to play an essential role in decision-making and resource allocation in the future. However, such systems are still evolving and easily usable methods are not as yet available.

Moreover, the country still lags in infrastructure for appropriate waste management, lack of legislation dealing specifically with various waste fractions, the absence of any framework for end-of-life product take-back, or implementation of extended producer responsibility. Though experts recognise that using secondary raw materials conserves resources and promotes recycling, there is far too little effort for reusing the secondary raw materials. This is mainly because waste is still frequently undervalued as a resource and the collection, processing, and recycling processes are inefficient and underdeveloped.

Besides, nothing much is done to promote voluntary national standards, like Green Reporting Initiative and IS/ISO 14001:2015 on environmental management systems and ecolabels to develop and strengthen initiatives for improving resource efficiency. While an eco-labelling scheme 'Ecomark' is in place, its impact has been rather limited

6 National Biodiverstity Action Plan, MoEF, Gov of India. Accessible at <www.indiaenvironmentportal.org.in/files/National_Biodiversity_Action_Plan.pdf>

or almost nil. It would also not be wrong to say that the various resource-efficient and sustainable environment laws enacted fail in India primarily due to a lack of people's will coupled with a lack of government support.

Recommendations

Life cycle thinking towards addressing the more significant cause of resource efficiency is vital to reducing trade-offs between economic growth and environmental well-being. For the same, a cooperative institutional mechanism is needed to successfully take forward the country's resource efficiency agenda, leading to sustainable development. Simultaneously, there is a need to bring in behavioural change to promote life cycle thinking at the consumption level, thereby encouraging the circular economy's adoption. It is expected that the proposed integrated national resource efficiency policy can bring in the desired transition.

The country also needs to make significant advancements in green accounting as it is crucial to highlight the link between the economy and the environment. This would help consider losses of environmental quality, human health and other sustainability costs and assets. Green Accounting is currently lagging by various methodological barriers, sluggish political will, and lack of data.

Reduce Food Wastage

Current Status

- ✓ According to 'The State of Food Security and Nutrition in the world, 2017' FAO report, 190.7 million people are undernourished in India. This represents 14.5 percent of the Indian population, making India the home to the world's largest undernourished population.
- ✓ According to the UN, nearly 40 percent of the food produced in India is wasted or lost. And this cost India one lakh crore rupees every year.
- ✓ It was estimated that the annual value of harvest and post-harvest losses of primary agricultural produce at the national level was at Rs. 92,651 crore.
- ✓ 16 percent of fruits and vegetables being wasted every year.
- ✓ 10 per cent of oilseeds, pulses and cereals are grown in India are also entirely wasted.

Source: ICAR-CIPHET

The Government is committed to double the farmers' income by the year 2022 through the adoption of targeted policies and multipronged schemes and programmes, including those relating to post-production, reduce food loss (inability to reach the market due to poor market infrastructure and agri-logistics) and food wastage (at various stages including storage, transportation & consumers).

The National Food Security Act 2013 supports initiatives to reduce food loss and waste. Food losses due to huge wastage are substantially minimised and the Food Corporation of India is enabled to execute its mandated food management policies efficiently viz food procurement, storage, transportation and distribution in particular. Various

schemes, including the Pradhan Mantri Kisan Sampada Yojana (Scheme for Agro Marine Processing and Development of Agro-processing clusters), supplement agriculture, modernise food processing and decrease agro-wastage.

Apart from these, the Ministry of Food Processing Industries has been implementing the Schemes of Mega Food Parks; Integrated Cold Chain, Value Addition and Preservation Infrastructure; and Setting up/ Modernization of Abattoirs. Also, the National Horticulture Mission (NHM), National Horticulture Board (NHB), and National Cooperative Development Corporation (NCDC) under the Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture & Farmers Welfare and Agricultural and Processed Food Products Export Development Authority (APEDA) under Department of Commerce, Ministry of Commerce and Industries, Government of India are assisting in setting up cold storages under their respective schemes.

Sub Mission on Plant Protection and Plan Quarantine (under Green Revolution - Krishonnati Yojana) aims to minimise loss to quality and yield of crops from the ravages of insect pests, diseases, weeds, nematodes, rodents, etc. The National Food Processing Policy was introduced to reduce wastage, increase value addition, and ensure farmers' better prices while providing quality products to consumers. India Food Banking Network offers a food management solution for excess food inventory and helps food businesses save this surplus food product to feed those in need. It brings together the government, private sector, and NGOs to fight hunger and malnutrition.

Likewise, Food Sharing Networks, formed by the Food Safety and Standards Authority of India (FSSAI), help solve India's food waste and hunger crisis by working with various partner organisations, Food Recovery Agencies and NGOs.

Challenges

Regarding the issue of food loss and wastage, according to a Policy Brief,[7] significant problems and challenges faced by the Indian farmers in saving their harvests include post-harvest handling and storage in the open, lack of cemented structures for post-harvest farm operations, lack of suitable and adequate storage infrastructure, lack of packing houses, cold chain, on-farm processing facilities, fragmented supply chain, uncertain returns leading to either not harvesting or abandoning the produce on streets, besides spillage during harvesting and threshing. From a larger perspective, the country faces plenty due to insufficient storage capacity for rice and wheat stocks and other food items necessary for food security. Also, there are no formal estimates for the food wasted at primary production, distribution, and processing levels which is more substantial than those wasted at the retail and consumer levels. We currently lack sufficient insight into how much, why, and where food is removed from the food supply chain. This makes it difficult to develop strategies and prioritize actions to prevent food

[7] Saving the Harvest: Reducing the Food Loss and Waste, Policy Brief No. 5, National Academy of Agricultural Sciences, New Delhi May 2019. Accessible at <http://naasindia.org/documents/Saving%20the%20Harvest.pdf>

loss and wastage. A framework to account for is vital as it becomes challenging to manage what we do not measure.

Recommendation

In India, significant initiatives are required to halve the food loss and waste along the food chain from farm to consumption by 2030 to eliminate hunger and meet the SDGs, especially SDG 2 (End Hunger) and SDG 12 (Ensure SCP patterns).

There is an urgent need for more significant investments by both the public and private sectors in infrastructure, storage, transportation, food processing and packaging industries for reducing food loss and waste in India. The use of sophisticated information technology supported by a robust monitoring and management information system can help. The country also needs regulation like 'Guest Control Order, 1960s' to prevent wastage of food at weddings & social gatherings. Currently, few states have already taken such steps due to pandemic, and people have wholeheartedly accepted these restrictions. It is estimated that almost 10 million weddings a year happens in our country and an average of 10-20 percent of food is wasted in each of these weddings.

General public awareness about food, starvation, food wastage and loss within India should be also generated, particularly among children through stakeholder interventions.

Management of Chemicals and Waste

Current Status

- ✓ Hazardous wastes in India are mounting at a rate of 2 to 5 percent per year.
- ✓ Approximately 10 to 15 percent of industrial waste in India is hazardous.
- ✓ Nearly 74.6 lakh tonnes of hazardous waste are generated in India annually.
- ✓ Waste that can be disposed of in landfills constitutes 34.1 lakh tonnes or 46 percent of the total.
- ✓ The recyclable hazardous waste consists of 33.5 lakh tonnes or 45 percent of the total.

Source: Associated Chambers of Commerce of India (ASSOCHAM) and PricewaterhouseCoopers (PwC)

In exercise of the power conferred under the Environment (Protection) Act, 1986, the Central Government has made the Hazardous Waste (Management & Handling) Rules, 1989. These Rules define the Hazardous Wastes and provide a specific schedule in which waste is listed for applying the rules. The occupier generating hazardous waste should take all practical steps to ensure that such waste is handled correctly and disposed of without any adverse effect resulting from such waste. The occupier shall also be responsible for proper collection, transportation, treatment, and storage and disposal of these wastes either by himself or through a facility's operator.

The occupier shall submit an application to the State Pollution Control Board (SPCB) to grant authorisation for handling hazardous waste. The SPCB shall not issue an

authorisation unless it is satisfied that the operator of a facility or an occupier, as the case may be, possesses appropriate facilities, technical capabilities and equipment to handle hazardous wastes safely.

Challenges

Whether it is hazardous, bio medical, municipal solid, electronic, plastic or battery waste, lack of enforcement is the key issue concerning waste management. Also, the absence of proper infrastructure for scientific disposal and recycling of hazardous waste has resulted in India's poor handling of such waste. Burning hazardous waste at landfills is still one of the most common and primitive disposing methods, resulting in immense harm to health and the environment. Collection and transportation of hazardous waste are often casually handled similar to dry or wet waste, causing serious problems in segregating and recycling hazardous waste.

The absence of incineration infrastructure in India is also causing a problem, and most waste collectors are accustomed to burning wastes. Waste collectors collecting hazardous waste are also not adequately sensitised and are mostly ill-equipped, untrained and poorly paid.

Recommendations

India needs to do much more to phase out most hazardous chemicals in manufacturing processes and prevent chemical waste from arising. Since a significant amount of total waste generated is recyclable hazardous waste, India should upgrade its hazardous waste recycling mechanisms. A well-established treatment, storage, and disposal facilities are in need of the hour. Laboratories should be upgraded to carry out analytical methods required for standardising waste characterisation; specialised training should be regularly provided for all the concerned personnel who deal with such wastes.

Besides, more accountability and transparency are needed in the departments' functioning, especially in state bodies, to address the system's plagues. Building their competencies and enhancing the coordination between various regulatory bodies will facilitate positive results.

Reduce Waste Generation

Current Status

- ✓ An estimated 62 million tonnes of municipal solid waste is generated annually by 377 million people in India’s urban areas, of which 80 percent is disposed of indiscriminately at dump yards.
- ✓ Organic and biodegradable waste constitutes 50-60 percent of country’s urban waste.
- ✓ There are 187,160 no. of Health Care Facilities (HCFs) having 18,99,269 beds capacity and bio-medical waste generation of about 517 Tonnes/ day, as of 2016.
- ✓ Approximately 9.4 million tonnes per annum plastic waste generated (which amounts to 26,000 tonnes of waste per day), and out of this approximately 5.6 Million tonnes per

annum plastic waste is recycled (i.e., 15,600 tonnes of waste per day) and 3.8 Million tonnes per annum plastic waste is left uncollected or littered (9,400 tonnes of waste per day)

- ✓ 20-25 percent of recycling rate, much lower compared to 70 percent in developed countries.

Source: CPCB & Ministry of Housing and Urban Affairs, Gov of India

Environment Protection Act (EPA), 1986 is the umbrella Act that pertains to the management of solid waste in the country. To improve the legal landscape, the Centre promulgated the Municipal Solid Wastes (Management and Handling) Rules. Central Pollution Control Board (CPCB), as mandated under the Solid Waste Management Rules, 2016, coordinates with the SPCBs/Pollution Control Committees (PCCs) regarding the implementation of the Solid Wastes Management Rules. According to the rules, landfill sites cannot function proximate to habitation clusters, highways, public tanks, or water supply wells. However, these are hardly followed or enforced, causing great suffering to the people.

Likewise, the Biomedical Waste Management Rules, 2016 aim to improve the collection, segregation, processing, treatment and disposal in environmentally sound management thereby, reducing the bio-medical waste generation and impact on the environment. The Rule mandates phasing out chlorinated plastic bags, gloves and blood bags within two years, though this has not happened yet. The Plastic Wastes Management Rules, 2016 comes with producer's liability. The rules contemplate the segregation of waste at the source.

The E-Waste Rules has the concept of Extended Producers Responsibility (EPR). The producers must collect e-waste generated from their products' end of life by setting up collections centres or taking back systems individually or collectively. E-waste recycling can be undertaken only in facilities authorised and registered with SPCBs/Pollution Control Committee (PCCs). The National Environment Policy (NEP), 2006 also emphasises the need to recover and reuse any material, reducing the waste destined for final disposal.

The Smart Cities Mission, Swachh Bharath Abhiyaan, Skill India, Digital India, Make in India aims to achieve key social and economic goals and enhance the environment's quality by reducing GHG emissions. The draft National Resource Efficiency Policy seeks to double the recycling rate of key materials to 50 percent in the next five years and enable upcycling waste.

Challenges

As discussed earlier, lack of enforcement is the key issue with respect to waste management in the country. Most of the pollution control boards are functioning poorly, with inadequate staff. Rather than curbing pollution, many regional boards act as

facilitators for pollution by legitimising the illegitimate through undue consents and unholy licences.[8] Allegations of corruption against officials are also not uncommon.

If the existing Rules and regulations were strictly implemented and adopted by the people, the country would have easily transformed the waste management system. Instead, the waste generated is recklessly dumped on the streets and landfills that are not adequately managed, thereby polluting the air, soil, and underground water. Hardly one could notice a public bin, even if there is one; such bins often overspill and remain uncovered. The sizes of landfills, therefore, are continuously increasing, posing serious concerns. Country lack even basic infrastructure, waste transporting vehicles in almost all cities are not properly maintained and left uncovered while transporting, causing littering all through the way.

The informal recycling sector that consists of waste pickers plays a crucial role in segregating and recycling waste, but unfortunately, most are not formally trained. Due to their ignorance, they often end up burning these wastes at landfills to keep themselves warm at night, ultimately resulting in setting up landfills on fire, causing serious air pollution.

Recommendations

There is a need to reinvent garbage management in cities; the country needs to focus more on processing waste and recycling it rather than just carrying on with the usual landfill practice. For this to achieve, the households and institutions must be encouraged to segregate their waste at the source. Stringent penal provisions are a must that can deter erring parties from violating rules. Besides, civic bodies should constantly motivate rag pickers to segregate waste at the source and recycle it. Compost pits should be constructed in every locality to process organic waste. More importantly, there is a need for proper accounting of wastes collected and recycled by every plant - especially plastic and medical waste and e-waste.

Community participation has to be encouraged through effective education and awareness campaigns on efficient waste management. Recycling e-waste on an enormous scale level is also vital so that e-waste disposal is contained. There is a need for all stakeholders, urban local bodies, non-governmental organisations, resident associations, public and private institutions, waste management start-ups to interlink and benefit from a combination of centralised and decentralised waste management systems. For all this, the country needs to allocate a sufficient budget.

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8 The Laws and Our Environment, The New Indian Express, 05 Sep 2019. Accessible at <www.newindianexpress.com/opinions/2019/sep/05/the-laws-and-our-environment-2029094.html.

Companies Sustainable Practices

Current Status

- ✓ 76 percent of firms having spent 2 percent or more of their profits on Liable and reporting on CSR 9,418 11,671 12,407 10,868 initiatives during 2019.
- ✓ The number of reporting companies that carry CSR obligations has steadily increased from 10,418 in 2014-15 to 13,182 in 2016-17 and then declined to 11,584 in the year 2017-18.
- ✓ Companies that are liable but not reporting on CSR are increasing every year from 6,130 in the year 2014-15 to 5,335 in 2015-16 to 6,350 in 2016-17 and then a steep rise to 9,753 in 2017-18.

Source: www.mca.gov.in/Ministry/pdf/CSRHLC_13092019.pdf

With the enactment of the Companies Act in 2013, India became the first country to make corporate social responsibility (CSR) mandatory. Companies with net profits greater than approximately USD Seven million are mandatorily required to spend two percent of their CSR activities profits. This CSR initiative is expected to push the nation towards achieving SDGs and public-private partnerships in transforming India. Even though CSR activities' contribution may be moderate in India, it is essential to note that more and more companies are imbibing the culture of being responsible towards society.

Other than this, the Ministry of Corporate Affairs has been taking various initiatives for ensuring responsible business conduct by companies. As a first step towards mainstreaming the concept of business responsibility, the Voluntary Guidelines on Corporate Social Responsibility were issued in 2009. These guidelines were subsequently revised as National Voluntary Guidelines on Social, Environmental and Economic Responsibilities of Business, 2011 (NVGS) after extensive consultations with business, academia, civil society organizations and the government.

The Securities and Exchange Board of India (SEBI), through its 'Listing Regulations' in 2012, mandated the top 100 listed entities by market capitalization to file Business Responsibility Reports (BRRs) from an environmental, social and governance perspective. This was extended to top 500 companies in FY 2015-16 and further extended to top 1000 companies in December 2019.

The National Guidelines for Responsible Business Conduct, 2018 (NGRBC) urge businesses to conduct business responsibly and sustainably and also encourage and support their suppliers, vendors, distributors, partners and other stakeholders to follow the same principle. Likewise, the Solid Waste Management Rules, 2016 obligates producers of packaging products such as plastic and corrugated boxes to collect, recycle, and dispose of such waste according to environmentally sound principles. The Plastic Waste Management Rules, 2018, place the primary responsibility of recycling and collecting plastic waste on the producers, importers and brand owners who introduce the material in the market. The Indian Railways Vision 2020 document states its

intention to conserve energy by achieving 15 percent energy efficiency and using a low-carbon, energy-efficient approach.

Challenges

Despite all the above efforts taken, sustainable business practices are yet to shape India properly. Businesses that are willing to adopt sustainable practices are obligated to follow a long process and spend high costs to obtain the certificate for environmental issues. On the other hand, most businesses do not meet the existing air pollution standards, water consumption, or even waste disposal. The government has taken steps to force improvements by defining standards, imposing CSR, etc. According to the State of India's Environment report, there has been a 136 percent increase in the number of grossly polluting industry units in India between 2011 and 2018. These include pulp and paper mills, distilleries, sugar mills, textile units, tanneries, thermal power plants, food, dairy, and beverage units, chemical units, and slaughterhouses.

New industries are vital for any developing economy but equally important is the need to bring in stringent governance that encourages sustainable practices. Despite several laws and regulations, businesses tend to take sustainability concepts lightly, which further gets buttressed by law enforcers' lax and corrupt practices.

Recommendations

In the spirit of reflection, the companies must build a compliance culture. For this to happen, all stakeholders should focus more on providing education and awareness while the government ensures strict enforcement action through prohibitive penalties for non-compliance. Likewise, though more prominent Indian companies have warmed up that SDGs are a globally acceptable framework and need to work in that direction, financially strained MSMEs and the agriculture sector need support to work in those areas. The country needs to keep working on technology and market innovations to enable MSMEs to turn their business model sustainable without losing profitability. Rules and regulations related to their efficient functioning also require constant review and updation.

Sustainable Public Procurement

Current Status

- ✓ The total value of public procurement is over 20 percent of the GDP, which is valued at US$100bn.
- ✓ Public procurement worth INR 40,000 crore has taken place through the government's online marketplace, Government e-Marketplace.
- ✓ Departments like Defence, Railways and Telecom devote about 50 percent of their budget to procurement.

Source: Compiled from various Source

Currently, there is no single law or body explicitly governing procurement by the Central Government. Instead, Public Procurement is regulated by the General Financial

Rules, 2005 (GFR), guidelines issued by the Central Vigilance Commission (CVC), the Comptroller and Auditor General (CAG) and respective ministries, departments and Public Sector Undertakings (PSUs). The GFRs are only rules and do not have the status of law. They are treated as general guidelines on government expenditure. Violation of the rules above, particularly the GFR, seldom attracts penalties.

A Public Procurement Bill under active consideration of the Parliament failed to address the importance and need of sustainable procurement adequately. It merely states that the environmental criteria of a product may be adopted as one of the requirements for evaluation of the tender.[9]

Also, India does not have a coherent national policy on SPP. Even though the twelfth five-year plan's (2012-2017)[10] vision for India is 'Faster, More Inclusive & Sustainable Growth,' there is no specific Action Plan for utilising SPP as a strategy for moving towards this goal. The report merely recommends introducing frameworks/guidelines and setting up an autonomous body to promote and encourage a shift in demand towards greener products and services. Thus there is no policy support for SPP on the ground.

A few entities such as Indian Railways, National Thermal Power Corporation, Bharat Heavy Electricals Limited, and Indian Oil Corporation have started internalising environmental and energy efficiency criteria in their procurement decisions. Ministry of Finance, Department of Expenditure (Procurement Policy Division) had issued a memorandum in 2013 directing all Ministries/Department and their attached and subordinate offices, while procuring appliances, ensure that they carry the threshold Bureau of Energy Efficiency (BEE) Star Rating indicated against them, or higher. (Split Air Conditioners – 5 star; Refrigerators – 4 star; Ceiling Fans – 5 star; Water Heaters – 5 star) The directive was issued to affect energy savings in the long-term by promoting the procurement of energy-efficient appliances.

Also, under the Department of Expenditure, the Procurement Policy Division had constituted a Taskforce on SPP in March 2018.[11] They are entrusted with reviewing international best practices in SPP, inventories the current SPP status in India across government organisations, prepare a draft Sustainable Procurement Action Plan, recommend an initial set of product/service categories. Six meetings of the Task Force have been held until now wherein SPP issues were discussed with stakeholders.

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9 Clause 21(d), The Public Procurement Bill, 2012.

10 Report of the Working Group on 'Effectively Integrating Industrial Growth and Environment Sustainability', Twelfth five year plan (2012-2017), Planning Commission, Government of India. Accessed at <http://planningcommission.gov.in/aboutus/committee/wrkgrp12/wg_es0203.pdf > on 06-09-2013.

11 Office Memorandum, Task force on Sustainable Public Procurement, Ministry of Finance, https://doe.gov.in/sites/default/files/Task%20Force%20on%20Sustainable%20Public%20Procurement.pdf

Challenges

There exist, however, several challenges, such as:

- Absence of authentic, sustainable certifications and labelling, except for few products like the electrical and electronics goods;
- Ignorance about the preparedness of the Indian market to supply sustainable goods and services;
- Falling short of scientific and technical capacity within public institutions to successfully apply sustainable procurement processes;
- The general perception that SPP is too complex and it may increase the cost of public procurement;
- Finding the "best value for money" is the main principle in public procurement. Unless there is explicit provision for considering the financial gains of environmental alternatives over the lifetime of a product, service or development, decisions will continue to be based on upfront costs and immediate benefits.
- Low level of political support and cooperation across ministerial departments;
- Potential impacts on small and medium-sized enterprises;
- Inadequate recognition of the advantages of environmentally friendly products and services;
- Uncertainty about the legal possibilities of including environmental criteria in procurement documents because of lack of political support;
- Limited means to implement and promote SPP;
- Lack of coordinated best practice and information exchange between various States and local authorities;
- The high initial costs for the transition to SPP appear to be beyond many developing countries, including India.

Recommendations

Encouraging sustainable procurement practices is an effective way to demonstrate the public sector's commitment to environmental protection and SCP. For that, there is a need for a change of mindset to 'Best value across the project/product/service life-cycle from 'Best value for money' concept. Building awareness and capacity among procurement officials on various standards and labels as well as emphasising on product life-cycle cost calculation over the upfront cost have always proved to be crucial in decision-making. Consumers, too, need to be sensitised to begin demanding more and more products made through environmentally sustainable processes. Consumers behavioural changes can go a long in filling up the markets with sustainable products.

Simultaneously, the national ecolabel 'Ecomark' should be revived and used as a benchmark for industries and their products and the BEE standards and labelling programme should be extended to more products. Studies and experience worldwide have proven that environment standards and ecolabels can help facilitate national SPP policy and implementation, whether these standards and ecolabels are directly supported by national governments or recognised by them for their procurement. Without reliable standards that determine what products count as green or sustainable, governments find it difficult to implement SPP. Studies have shown that the uptake of SPP strongly correlates to the existence of an ecolabel scheme.

Information and Awareness

Current Status

While some initiatives involving stakeholders and capacity building of officials at the Centre and States have been taken for raising awareness, these were not comprehensive, focussed and sustained. – CAG 2019 Report.

At the national level, sensitisation of government officials is undertaken by *NITI Aayog* in collaboration with relevant ministries, experts, CSOs, think tanks and the UN. *NITI Aayog* organise goal-wise sensitisation workshops for government officials, inviting relevant Union Ministries, State Governments, CSOs and subject experts. The 2030 Agenda Declaration was translated to all regional languages to ensure wider dissemination. Technical regional workshops on localising SDG indicators and developing data methodologies are held at the sub-national levels.

The government partnered with CSOs to prepare Information, Education and Communication (IEC) material and take up research and documentation on SDGs. 'Speaker's Research Initiative' (SRI) workshops were organised in regular intervals to provide SDG-related insights to Members of Parliament.

NITI Aayog's consultations also aimed at reaching out to stakeholders spearheading public awareness exercises. These consultations are expected to "set off an iterative process of information dissemination" across the country. Various Schemes/ Programmes of the Government also have provisions for outreach and publicity.

Challenges

The extent and effectiveness of stakeholders' efforts to increase public awareness are not ascertainable in the country's absence of proper study or survey. The education system in the country has also failed to address topics like sustainability, climate change etc., thus pushing its future generations into complete darkness about the relevance and importance of such topics in the present world. The truth is that there is no awareness about SDG's or sustainability even among the school teachers.

No centralised public awareness campaign is also planned to date, though few states have taken some initiatives to spread awareness. The absence of dedicated awareness measures for the general public may dilute making the 2030 Agenda inclusive and participatory. It is certainly challenging to create awareness by communicating about all the 17 Goals and their sub-goals in their entirety. While trying to share the 2030 Agenda, there is always a risk that the core messages become distorted and diverted among the stakeholders. Too little or too much information can be an obstacle in understanding an issue and effectively making decisions. Besides, almost 25 percent of India's people live below the poverty line. They cannot easily connect with terms like sustainability etc.

Recommendations

Steps for enhancing public awareness and sensitisation about SDGs need to be stepped up so that the process of implementation becomes participatory and inclusive. Policy and a strong political will are required to integrate education on sustainable development in the school curriculum as children needed to be seen as agents of change. *NITI Aayog* had undertaken extensive consultations with stakeholders to raise awareness, but a national strategy to create public awareness on SDGs needs to be formulated. Similarly, efforts to enhance public awareness at the State level would also need impetus, and sharing good practices between the states should be encouraged.

Sustainable Tourism

Current Status

- ✓ According to the Travel and Tourism Competitiveness Report, India's global ranking in terms of environmental sustainability has moved up 5 places from 139 in 2015 to 134 in 2017.

Environment Sustainability Indicator Ranks of India - 2017	
Indicator	*Ranks*
The stringency of environmental regulations	51
Enforcement of environmental regulations	43
Sustainability of travel and tourism industry development	78

- ✓ The tourism sector has enormous potential to grow and contribute towards the higher GDP. It employs 39.5 million people working in the hospitality industry.
- ✓ Foreign Tourist Arrivals in India increased by 2.2 percent (10.7 million) in 2019. But compared to 2017-18, the growth dropped by 3 percent.

Source: Compiled from various source

The tourism sector's capability as a driver of sustainable and inclusive development was renewed with the National Tourism Policy, 2002. Swadesh Darshan is an important scheme of the Ministry of Tourism based on the vision to develop theme-based tourist circuits on high tourist value, competitiveness, and sustainability by synergising efforts to focus on all stakeholders' needs and concerns.

Ministry has also taken several other steps to boost sustainable tourism in the country, including the following: (i) Evolved & adopted Comprehensive Sustainable Tourism Criteria for India (STCI) for three major segments of the tourism industry, namely accommodation, tour operators, and Beaches, Backwaters, Lakes & Rivers sectors, applicable for the entire country. (ii) Issued guidelines for approval of Hotel Projects at the implementation stage and also for Classification/Reclassification of operational hotels under various categories mandate incorporation of various eco-friendly measures like installation of Sewage Treatment Plant, Rainwater Harvesting, Waste Management System, Pollution Control and Introduction of non-Chlorofluorocarbon equipment for refrigeration and air conditioners, energy and water conservation measures. (iii) Promotes Eco-tourism, inter-alia through domestic and international campaigns and supporting seminars, conferences and events focusing on the development of Eco-tourism in the country, from time to time.

The government is also in the process of formulating a new National Tourism Policy. The policy's salient features are developing tourism sustainably and responsibly, employment generation, and community participation. A Memorandum of Understanding with the Eco-Tourism Society of India (ESOI) has been signed to educate the tourism stakeholders on the importance of Sustainable and Responsible Tourism practices and to ensure and promote Sustainable and Responsible practices in tourism industry.[12] ESOI would be organising a series of workshops across the country with financial assistance from the Ministry of Tourism to popularise India's Sustainable Tourism Criteria amongst stakeholders.

Challenges

Common roadblocks faced while implementing the sustainable tourism goals are lack of basic infrastructure like roads and providing clean, comfortable accommodation. To address such issues, the government is constantly seen upgrading passenger terminals, improving connectivity to tourist destinations, providing safe drinking water and establishing communication networks in tourist areas to facilitate tourists, but much more needs to be done. However, it requires significant cooperation and coordinated strategies across government and between different government levels for successful policy intervention, which is currently lacking. The sector also demands the greater involvement of the private sector and civil society and the sharing of best practices and new ideas between the various actors.

Recommendations

Sustainable tourism policies are evolving, but none are applied or monitored seriously and therefore calls for immediate action. The mechanism needs to be devised to 'measure' sustainability implementation by stakeholders in the tourism sector and carrying capacity in a destination. There is a need to promote access to finance for sustainable tourism investment projects of all sizes.

Also, sustainable tourism should not be linked only with the environmental aspects. It should be associated with every tourism growth domain, including employment generation, local community involvement, heritage conservation, and preservation. Apart from policymaking, there is also a strong need for a stringent legislative framework with penalties for any violations. Most importantly, the country needs to encourage sharing information on best sustainability practices and greater sensitisation among public and private sectors.

[12] Annual Report 2019-2020. Ministry of Tourism, Gov of India.

Rationalise Fossil Fuel Subsidies

Current Status

- ✓ As of 2018, primary commercial energy consumption comprised 56 percent coal, 30 percent oil, 6 percent gas, 3 percent renewables, 4 percent hydro and 1 percent nuclear.
- ✓ Since 2017, government support for fossil fuels has increased by 65 percent, while support for renewables has declined by 35 percent.
- ✓ The general trend since FY 2014 is still a net shift of support away from fossil fuels and toward clean energy.
- ✓ However, India's subsidies to oil, gas and coal (INR 83,134 crore in FY 2019) are seven times more than the value of subsidies to renewables and electric vehicles.
- ✓ Quantified coal subsidies have remained stable since FY 2014, declining only marginally from INR 15,660 crore to INR 15,456 crore in FY 2019.
- ✓ From FY 2017 to FY 2019, Oil and gas subsidies increased by two-thirds, largely due to higher oil prices and growing LPG use. However, subsidies in FY 2019 remain 57 percent lower than FY 2014.
- ✓ All LPG policies together amount to INR 54,518 crore. It is 28 percent of all energy subsidies and 64 percent of all oil and gas subsidies.
- ✓ Renewable Energy subsidies have increased three-fold between FY 2014 and FY 2019 - from INR 3,224 crore to INR 9,930 crore.

Source: Council on Energy, Environment and Water

Since 2014, no direct subsidies for petrol and diesel but still subsidies for kerosene and LPG exist. But, subsidies for kerosene have fallen significantly over the years. In addition to removing direct subsidies, it simultaneously increased taxation. Petrol is now highly taxed, while diesel is moderately taxed. Likewise, subsidies for oil and gas decreased, but subsidies for the coal industry have remained stable. Direct electricity consumer subsidies have also grown substantially during 2014-17. A significant new electricity subsidy was introduced in 2018: the Saubhagya scheme. This provides free electricity connections and subsidies for small-scale renewable energy projects.

Some of the new Subsidies all introduced in 2018[13]

- * Pradhan Mantri Sahaj Bijli Har Ghar Yojana (Saubhagya)
- * Ujjwala scheme – LPG subsidies for the poor
- * Concessional GST on coal production
- * Concessional GST rates for Domestic LPG
- * Concessional GST rates for PDS Kerosene

Though the government support for fossil fuels has increased by 65 percent in the past two years, the support for renewables declined by 35 percent. However, the general trend since FY 2014 is still a net shift of support away from fossil fuels and toward clean energy.

[13] India's Energy Transition: Subsidies for Fossil Fuels and Renewable Energy, International Institute for Sustainable Development and the Council on Energy, Environment and Water, December 2018. Accessible at <www.ceew.in/sites/default/files/IISD_CEEW_India_Energy_Transition_20Dec18.pdf>

Challenges

India's energy sector will primarily be driven by three range of factors–energy access, air pollution, and energy security. India's obligation towards climate change will probably only be the fourth factor influencing India's policymaking at this development stage.[14] Also, the implementation of the commitment to phase out inefficient fossil fuel subsidies has been hampered by the lack of a practical framework, including, but not limited to (a) ambiguity over the scope of the commitment; (b) the absence of clear implementation timelines; (c) the lack of transparency and data availability; and (d) the lack of effective monitoring and compliance mechanisms.[15]

Recommendations[16]

- ✓ Resist new oil and gas subsidies. Volatile prices make them a liability; they are hard to remove once introduced, and they cause fossil energy lock-in.
- ✓ Adopt renewable energy subsidies for emerging technologies and grid balancing. Clean electricity is essential. Other sectors, such as transport and cooking, will rely on electrification to deliver clean energy.
- ✓ Target consumption subsidies for energy access - LPG and electricity - without harming energy access.
- ✓ Address the total costs of coal. A plan is needed to address coal pricing socially, including diversifying revenues and protecting consumers and workers.
- ✓ Monitor and adapt electric vehicle subsidies to ensure effective, efficient and equitable support, including for two-wheelers, public transport, waste treatment, and battery recycling.
- ✓ Develop formal reporting structures on subsidies in line with proper guidelines for SDG 12(c) and India's G20 peer review of fossil fuel subsidies.

National Targets, Indicators and Progress[17]

Seven national-level indicators have been identified to measure India's performance towards the SCP Goal, which captures three out of the ten SDG targets for 2030 outlined under this Goal (refer to Table 2.5). These indicators have been selected based on data available at the sub-national level and to ensure comparability across States and UTs.

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14 Central Govt Saved $15 Bn On Energy Subsidies; Fossil Fuels Still Largest Beneficiaries. Accessible at <www.indiaspend.com/central-govt-saved-15-bn-on-energy-subsidies-fossil-fuels-still-largest-beneficiaries-77674/>

15 Phasing Out Fossil Fuel Subsidies in the G20: Progress, Challenges, and Ways Forward, International Centre for Trade and Sustainable Development (ICTSD), 2017. Accessible at <www.greengrowthknowledge.org/sites/default/files/downloads/resource/Phasing%20Out%20Fossil%20Fuel%20Subsidies%20in%20the%20G20_Progress%2C%20Challenges%2C%20and%20Ways%20Forward.pdf>

16 Mapping India's Energy Subsidies 2020 – A Report. Accessible at <www.ceew.in/publications/mapping-india%E2%80%99s-energy-subsidies-2020>

17 Supra note 4

Table 2.5: India's Progress towards Goal of SCP

SDG Global Target	Indicator	National Target Value	Progress
12.2 - By 2030, achieve the sustainable management and efficient use of natural resources	Percentage groundwater withdrawal against availability	70	63.33
12.4 - By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and, soil to minimise their adverse impacts on human health and the environment	Percentage use of nitrogen fertilizer out of total N,P,K, (Nitrogen, Phosphorous, Potassium)	57	64.49
12.5 – By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse	Per capita hazard waste generated	0	0.006
	The ratio of the processed quantity of hazard waste sent for recycling to hazardous waste generated	1	0.04
	Municipal Solid Waste (MSW) treated against MSW generated	100	20.75
	Installed Capacity of Grid-Interactive BioPower per 100,000 population	2.11	0.758
	Percentage of wards with 100 percent source segregation	100	67.760

Resource Efficiency and Circular Economy

People expected things to last. Instead of throwing away shoes and tools at the first sign of a fault, they took them to cobblers and repair shops. Then, sometime after World War II, disposable products emerged to promote business and create jobs. If products do not last, the thinking went, customers will buy replacements. They now live in a throwaway economy, where few products are built to last. One garbage truck full of textiles is burned or landfilled every second. A stupendous 5-plus billion tons of plastic is sitting in landfills or the natural environment, a number that could go up to 12 billion by 2050 if they continue apace producing disposable plastics, especially packaging and bottles that are tossed after one use.[18]

[18] Patel, P., & Ku, A. (2018). The circuitous, but essential, path to a circular economy. MRS Bulletin, 43(3), 174-175.

The circular economy (CE) is an alluring and straightforward concept, a marketing coup, with broad appeal to policymakers and the general public. It has become a modern catchall phrase for many of the environmental strategies they already pursue. For some, it means reducing factory waste; for others, improving recycling rates. Some are motivated by reducing raw resource input, while others see a way to grow profits with less environmental impact.

Achieving an entirely circular materials economy, one in which all waste is eliminated, all material loops are closed, and all products are recycled indefinitely, would require an annulment of the second law of thermodynamics. The Second Law of Thermodynamics states that "in all energy exchanges if no energy enters or leaves the system, the potential energy of the state will always be less than that of the initial state." This is also commonly referred to as entropy.

Despite the buzz around the CE, a clear definition is still to emerge, and circularity measurements remain in their infancy. However, UNEP defines a CE as an economy that balances economic development with environmental and resource protection. It emphasises the most efficient use of and recycling of its resources and environmental protection. The CE features include low consumption of energy, low emission of pollutants, and high efficiency. It involves applying cleaner production in companies, eco-industrial park development, and integrated resource-based planning for development in industry, agriculture, and urban areas.[19]

Attempts to measure circularity tend to bundle several existing indicators drawn from established life-cycle assessment, resource efficiency, and sustainable production and consumption. Metrics such as waste per output of product (kg/kg), recycling rates (in percent), and emissions per production of a product (CO2/kg) are combined in various weightings and reported in scorecards in an attempt to provide guidance.[20]

Waste management is one of the key areas where significant work has not been done to push for the CE model that seeks to restore and regenerate and reduce waste by replacing the end-of-life concept. Reduced waste generation by closing the loop using CE and resource efficiency (RE) approaches will minimise pollution associated with waste disposal and save related costs. This will resolve the short-term trade-offs between growth and environmental sustainability towards enhancing human beings' overall security.

In this context, the draft National Resource Efficiency Policy, 2019 is guided by few key principles, namely, reduction in primary resource consumption to 'sustainable' levels, in keeping with achieving the SDGs and staying within the planetary boundaries; creation of higher value with less material through resource-efficient and circular approaches;

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19 'SCP Handbook for Policy Makers' (United Nations Environment Programme, 2012) <https://www.switch-asia.eu/policy-support-component/rpsc/policy-dialogue/kathmandu/> [accessed 28 January 2020].

20 Cullen, J. (2018). Toward a circular materials economy. MRS Bulletin, 43(3), 171-171.

waste minimisation; material security and creation of employment opportunities, and business models beneficial to the cause of environment protection and restoration.

The draft has proposed significant policy instruments like addressing regulatory gaps in the implementation of waste laws, landfill taxes, high tipping fees, bulk generators of waste, etc. The National Resource Efficiency Authority (NREA) will be mandated to drive resource efficiency by designing database templates for material use and waste generated and recycled and landfilled across various sectors and life cycle stages and regions (states/zones).

The draft has proposed 100 percent recycling and reuse of PET plastic by 2025 and 75 percent recycling and reusing other plastic packaging materials by 2030. The draft policy also mentions a ban on the disposal of recyclable waste to landfills by 2025. Concerning construction and demolition (C&D), waste notes that municipalities in Tier 1 and Tier 2 cities should start inventorising C&D waste data by 2022. The recycling rate for C&D waste should reach 50 percent by 2025 and 75 percent by 2030.[21]

RE is a key element of Sustainable Development. This is reflected in the SDG 12, which aims to ensure SCP patterns. eight other SDG goals (2, 6, 7,8,9,11,14 and 15) also have a bearing on RE.[22]

RE is the general concept of using fewer resource inputs to achieve the same or improved output (resource input/output). It indicates the effectiveness with which resources are used by individuals, companies, sectors or economies. RE can be achieved by increasing resource productivity (value-added / resource use) or reducing resource intensity (resource use/value-added). It is related to strategies like dematerialisation, such as fuel-efficient cars.

RE is also a priority for Government and is reflected in various policies/programme announcements like Make in India, Zero Effect-Zero Defect Scheme, Smart Cities, Swach Bharat, and Ganga Rejuvenation Mission.

However, consumers are an essential stakeholder in the NREP. While an overview of the draft policy may indicate a need for full participation solely by industries, consumers are known to play a valuable role during the product's life-cycle (particularly during ‘usage’ and ‘disposal’ stages of any product). In part, NREP intends to penalise consumers to utilise resource-efficient, products/services to incentivise environmentallys ustainable products/services through schemes/programmes.

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21 Swati Sambyal, ‘Opinion | Draft Policy Seeks to Plug Gaps in Implementation of Waste Laws’ <https://www.livemint.com/opinion/columns/opinion-draft-policy-seeks-to-plug-gaps-in-implementation-of-waste-laws-1569344816386.html> [accessed 22 February 2021].

22 ‘Draft National Resource Efficiency Policy 2019’ (Ministry of Environment, Forest and Climate Change, Government of India, 2019) <http://moef.gov.in/wp-content/uploads/2019/07/Draft-National-Resourc.pdf> [accessed 19 December 2019].

3 Ecolabels: A Perfect Tool to Facilitate Acceleration Towards SDG 12

Introduction

Ecolabels are an important market-based management tool that facilitates a vital part of communication between diverse societal players in a sustainable market - business to consumers, authorities to consumers, business to business, etc. Though ecolabels are not the only reliable route for communicating sustainable information to the consumer, it remains an effective tool. It allows the consumer to make an informed choice at the point of sale about purchasing a product.

This chapter provides a brief overview of ecolabels and their role in promoting SCP. It discusses how ecolabels contribute toward achieving the circular economy and in meeting the SDG 12 goal.

History and Growth

The history of ecolabels began when Germany in 1978 initiated the release of the "Blue Angel" programme. This programme's objective was threefold – to enlighten consumers about the environment-friendly nature of various products, encourage manufacturers to develop and deliver environmentally sound products, and use it as a market-oriented instrument of environmental policy.

By the late 1980s and early 1990s, over a dozen independent national and multi-national ecolabelling programmes were established. Thus the Nordic Swan covering Denmark, Finland, Iceland, Norway and Sweden, and EU Flower covers most of Europe and other national ecolabels from countries like India, New Zealand, Canada, US, China, Brazil, Japan, Singapore and Austria evolved.

Today the topic of labelling and voluntary standards, in general, has become progressively more critical. More countries are either in the process of introducing new labels or reviving the dormant ones. For instance, Turkey is all set to establish a national ecolabelling programme.[23]

[23] Turkey to launch ecolabel for textile, paper, ceramics, Hurriyet Daily News, January 09 2018. Accessible at: www.hurriyetdailynews.com/turkey-to-launch-ecolabel-for-textile-paper-ceramics-125460

Africa also launched Eco-Mark Africa for the African region in the year 2015 for sustainably produced products & services.[24] However, every effort taken to launch or popularise national ecolabelling schemes has not always met with success. South African National Ecolabelling Scheme (SANES), a government-funded initiative established in 2007, was later dissolved in 2012 due to a shortage of funding and self-sustainability.[25]

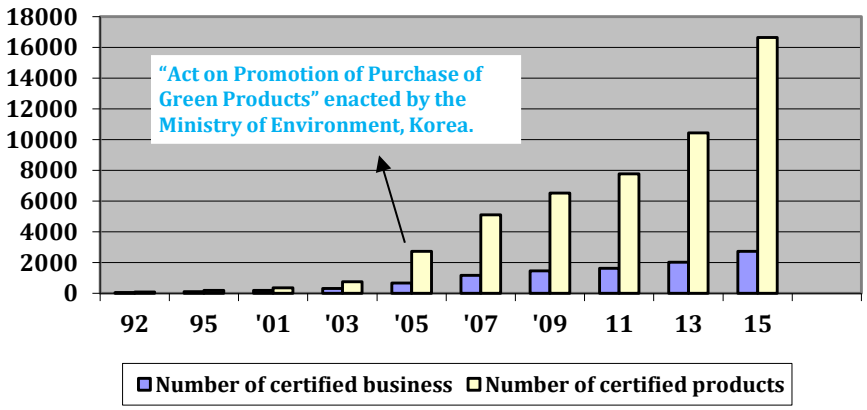
According to Global Ecolabelling Network (GEN), currently, there are almost 30+ national ecolabelling schemes created and operating in various countries and regions. Likewise, according to Ecolabel Index, there are 457 ecolabels (all types) in 199 countries and 25 industry sectors.

Benefits of Ecolabels

There is no doubt that ecolabelling is spreading over the world. For most countries, particularly, the intertwining of eco-labels with government procurement paved the way for the wide acceptance and expansion of the schemes. Manufacturers thus obtained access to public procurement and the government reaped more qualitative benefits such as improved image and achieving policy objectives.

Most national ecolabels' experience shows that their acceptance enhanced extensively when such additional tools and measures supplemented them. For instance, in 2005, the "Act on Promotion of Purchase of Green Products" was enacted by the Ministry of Environment in Korea. This dramatically boosted the market for eco-labelled products in Korea. Figure 2.1 depicts the sudden growth of ecolabel from the year 2005.

Figure 3.1: Korean Ecolabel Certification Trend



Source: Korea Environmental Policy Bulletin, Vol. XIV Issue 1, 2016.

[24] Eco Mark Africa (EMA). Accessible at: www.arso-oran.org/ecomarkafrica/

[25] Green labelling gets red light, Mail & Gaurdian, July 20, 2012. Accessible at: https://mg.co.za/article/2012-07-19-green-labelling-gets-red-light

Similar is the case with regards to many other eco-labels. In Taiwan, products certified by Green Mark per year increased from 230 to more than 1500 from the year 2002 when green public procurement (GPP) was initiated. Their ecolabel and ecolabelled products flourished due to mandatory green procurement. In China, the amount of product types in the government procurement list of ecolabelling products has gone up from 14 to 59 over the past 10 years since the implementation of GPP. Now there are 101 product criteria, covering over 93,000 models of products. At present, the annual output value of environmental labelling products is about 4 trillion Yuan RMB.[26]

Apart from this, there are several other public benefits derived from ecolabelling schemes. These include the promotion of economic efficiency, supporting companies in making correct and effective environmental claims, thereby helping to avoid "green-wash", increase in awareness of the general public, sending a message to the global community that the country sees environmental issues as a priority, improving the production of qualitative products in a competitive trading environment, reducing impacts of consumption and many others.

Even if ecolabelling standards pose a challenge for poor and vulnerable economies to gain market access for exports, it facilitates developing countries to access premium niche markets. Once a strong ecolabel is formed, the government enters into multiple Mutual Recognition Agreements (MRAs). For example, the Korean government has entered into numerous MRAs and is actively participating in developing common standards to be used worldwide.[27]

Likewise, China's ecolabelling programme has signed MRA with ecolabelling programme in Japan, Korea, Australia, New Zealand, Germany, Nordic, Thailand, Singapore, Canada, Russia, Ukraine, Kazakhstan and China Hong Kong.[28]

Figure 3.2: Year Wise Mutual Recognition *Agreements* Signed by Korea

Taiwan	Thailand	Japan	Australia	China	New Zealand	N. Europe	USA	Germany	Taiwan
2002	2002	2003	2004	2005	2006	2010	2012	2013	2013
Green Mark	Green Label	Eco Mark	Good Env.Choice	China Env. Label	Env. Choice	Nordic Swan	Green Sea	Blue Angel	Green Building Material

Source: Korea Environmental Policy Bulletin, 2016.

26 International Symposium on Green Consumption - 25 Years of China Environmental Labeling Program. Accessible at: http://en.mepcec.com/news/show-2310.html

27 Eco-label Certification System(ECS) in Korea, Korea Environmental Policy Bulletin, Vol. XIV Issue 1, 2016. Available at: http://eng.me.go.kr

28 According to Ministry of Environmental Protection, China Environmental United Certification Center. Accessible at: http://en.mepcec.com/yinxing_xg1.html

Several research studies have also highlighted the positive environmental benefits of ecolabelling. In a study carried out by United Nations Conference on Tarde and Development (UNCTAD) in 1995, it is reported that a few years after the introduction of Blue Angel ecolabels for oil and gas heating appliances, emissions of sulphur dioxide, carbon monoxide, and nitrogen oxides were reduced by more than 30 percent and that the energy efficiency of these appliances had improved significantly. Also, after introducing an ecolabel, the market share of low-solvent paints and varnishes went up from 1 percent to 50 percent. Simultaneously, the number of solvents released into the environment was estimated to have been reduced by some 40,000 tons.

Another study had concluded that in the Republic of Korea, where ecolabels play a central role in the public procurement practices, the public procurement of green products from 2005 to 2010 has helped reduce emissions by almost 3 million tonnes of greenhouse gases.[29]

The findings of the Report on Environmental Performances of China Environmental Labelling Products show 524900-tonne reduction of volatile organic compounds (VOCs) emission in 2018 due to the consumption of environmental labelling products, equivalent to 17.5 percent of annual VOC emission of petrochemical industry; 3.6805 million tonne reduction of CO_2 emissions, equal to the yearly carbon sink of a 386400-hectare forest. In reducing the discharge of water pollutants, the consumption of environmental labelling products achieved a 4574-tonne reduction of TP discharge in 2018, equivalent to 10 percent of all cities and towns' annual TP discharge in the Yangtze River basin in the same year.

In conservation of energy and resources, environmental labelling products saved 17,998 million kWh energy in 2018, equivalent to 15.9 percent of annual electricity consumption of Beijing in 2018; 131 million tonne water, taking up about 8.76 percent of domestic water consumption of Beijing in 2018; 1,1400-tonne plastics; and 1.3229 million tonne paper with reuse of 25 million remanufactured toner cartridges and inkjet cartridges.

Ecolabels and SDG

Above highlighted some of the benefits certainly make one point clear, eco-labels are a tool that could ensure a sustainable future. They can actively support countries to meet several UN SDGs and, more importantly, achieve SDG 12. Table 3.1 summarises how ecolabels effectively work as an efficient tool to facilitate acceleration towards SDG 12.

Table 3.1: Ecolabels to Facilitate Acceleration towards SDG 12

[29] Going Green: Best Practices for Sustainable Procurement, OECD, 2015. Accessible at <www.oecd.org/gov/ethics/Going_Green_Best_Practices_for_Sustainable_Procurement.pdf >

SDG 12 Indicator	Ecolabels
Target 12.1: SCP action plans	All ecolabels strive to reduce the environmental impact of production and consumption. This ensures sustainable production and control of the value chain and provides the end-user with sustainable products. Eg: GECA's (Good Environmental Choice Australia), EU Flower Label licensees, etc., impact all environmental indicators: climate, atmosphere, biodiversity and ecosystems, water, waste and natural resources. For instance, their timber sourcing standards are about protecting both resources and biodiversity and ecosystems. The limits placed on VOCs help to preserve the atmosphere. Criteria relating to energy can limit greenhouse gases and hence impact climate.
Target 12.2: Sustainable management and use of natural resources	Ecolabels sets requirements for the sustainable use of natural resources, raw materials, energy and water in manufacturing processes. It regulates the mismanagement of natural resources. Eg: Green Product Mark from TÜV Rheinland mandates the use of electricity, fuels, raw and processed materials, and water more responsibly.
Target 12.3: Halve global per capita food waste	Certain ecolabels work towards reducing/preventing food waste. It also aids a consumer to shop for foods grown and raised sustainably. Eg. The Nordic label requires eco-labelled grocery stores to measure their food waste. Grocery stores, hotels, restaurants, and canteens are rewarded if they take measures to waste less food.
Target 12.4: Responsible management of chemicals and waste	Ecolabels are a vital instrument for phasing out hazardous substances to health and the environment in products and manufacturing. Eg: Japans Ecomark, Germany's Blue Angel Mark, EU Flower ecolabel aims to help ensure proper management of chemical substances by establishing criteria and informing business partners of the usage of the strict chemical in the products or manufacturing process.
Target 12.5: Substantially reduce waste generation	Ecolabels endeavour to reduce waste, for example, by promoting the reuse of materials and setting strict chemical requirements that allow the materials to be recycled. Strict quality standards ensure that the product works as desired and has a long lifetime. Eg: GECA develops a standard for products it sets criteria to minimise waste. It sets criteria to cover the product from 'cradle to cradle' rather than 'cradle to grave'. The difference between these two approaches is that the former focuses on re-using the product's components at the end of its life.
Target 12.6: Encourage companies to adopt sustainable	Most of the third-party certified schemes are absolute and transparent regarding requirements. This makes it easier

SDG 12 Indicator	Ecolabels
practices and sustainability reporting	for companies to document their sustainability work. Eg: The Nordic Swan Ecolabel is a third-party certification scheme with absolute and transparent conditions. This makes it easier for companies to register their sustainability work. The requirements for eco-labelled investment funds stimulate both the funds and the companies they invest in to report sustainability. Hotels, restaurants and grocery stores must also report the progress of their sustainability work.
Target 12.7: Promote SPP practices	In most countries, public procurement manual/directives allow public procurers to prefer eco-labelled products. Ecolabel makes it easy for procurers and consumers to make sustainable choices. Eg: Green Product Mark is a multi-attribute eco-label recommended by US Environmental Protection Agency (EPA) to help US federal purchasers identify and procure environmentally sustainable products and services.
Target 12.8: Promote universal understanding of sustainable lifestyles	Ecolabel licenses act as a powerful tool to promote a sustainable lifestyle. Eg: The Nordic Swan Ecolabel's vision is to be a Nordic guiding star for a sustainable lifestyle. The communication of the certified companies and the Nordic Swan Ecolabel itself contributes to this.

Source: Compiled from various sources

Challenges of Ecolabels

To run an ecolabelling scheme is no easy task unless approached well planned. Establishing and maintain any system usually proves costly at the beginning few years of its launch. Many research studies have emphasised that the financial requirement to collect and assess the production and output data required to do the life-cycle analysis methodology commonly used to develop standards has proved challenging for many countries.

In Vietnam, Vietnam Green Label does not have a stable funding source to maintain and develop the programme. They do not charge any form of fee from manufacturers to encourage them to get certified. Shortage of funds later dissuaded them from producing new product criteria despite expression of interest by few manufacturers. The financial crisis also significantly affected promotional campaigns targeting consumers and manufacturers. Most Vietnamese consumers do not recognise the Vietnam Green Label and products certified with Vietnam Green Label.[30]

[30] Nguyen Trinh Huong, Swot Analysis of Vietnam Green Label Program Report, Hanoi, May 2016. Accessible at: <www.oneplanetnetwork.org/sites/default/files/swot_analysis_report_of_vietnams_green_label_programme_1.pdf >

In most countries, government agencies' legal requirements to purchase the lowest-priced products instead of giving purchase preference to sustainable products act as challenges. For instance, in India, the Ecomark label failed to take off as expected due to several reasons, including the absence of support through Government procurement.

Sustainable procurements are overlooked mainly due to funding restrictions to pay the premiums for environmentally preferable alternatives. Budget allocation and financial mechanisms, like in most countries, are prejudiced against sustainable products because of the common perception that sustainable options are more expensive. Despite the proven fact[31] that sustainable products' reduced operating costs make them the most cost-effective choice over the product's lifetime or service being procured.

Box 3.1: Not So Successful India's Ecomark

In 1991, the Ministry of Environment & Forests (MoEF), Government of India too launched India's own ecolabelling scheme called "Ecomark" for easy identification of environment-friendly products. The label is awarded to consumer goods, which meet the specified environmental criteria and the quality requirements of Indian Standards. Ecomark was identified by the symbol of a 'matka' or the earthen pot. The scheme adopted 'cradle to grave' approach i.e., from raw material extraction to manufacturing and to disposal.

Although the Ecomark was similar in many ways to ecolabels of other countries, it differed from most in one important aspect; ecolabels in most countries were awarded solely based on environmental considerations, whereas in India, it was also linked with the quality of products. In other words, in order to be eligible, products must meet both environmental and quality criteria.

Over the years, the scheme has not been able to take off as expected due to a number of reasons, including the absence of support through government procurement. Neither producers nor consumers are either aware of its existence or willing to go for this label. Those who have got the licence for their product hardly use the same on their pack. The reason – no consumer demand for such labelled products and hence no extra profit!

However, lately in light of increased focus on sustainability and report of Group of Secretaries constituted by Hon'ble Prime Minister which recommended revival of the Ecomark scheme, particularly for goods made out of waste, there is a renewed focus to revive the scheme with a focus on 'cradle to cradle' or regenerative approach.

National ecolabels of countries like Indonesia and the Philippines could not make it big as their governments see ecolabels mainly to strengthen export products. They find it difficult to penetrate the domestic market owing to the prevailing socio-economic condition in these countries. Even the most successful ecolabels like the Blue Angel ecolabel programme of Germany were criticised in its early years for having a criteria-

[31] The study *Costs and Benefits of Green Public Procurement in Europe* (Oko-Institut e.V. and ICLEI, 2007) compared the costs and benefits of green public purchasing versus non green purchasing. Similar other studies, include *Collection of statistical information on Green Public Procurement in the EU* (PricewaterhouseCoopers, et al 2009); Senate Administration for Urban Development and the Environment of the Berlin Region (ÖkoInstitut e.V., 2015).

setting process dominated by environmentalists and for not consulting adequately with industry.[32]

However, gradually this changed and now it represents several stakeholders, including industry, scientists, churches and consumer and environmental NGOs. This new framework ensured that the scheme is independent. Gradually, Blue Angel picked up and currently enjoys a very high level of recognition. Similarly, the EU Flower label began gaining popularity because of the international scale, regular updates and services aspects of the scheme. Still, in its initial years, bureaucracy, complexity, lack of transparency, poor awareness, rigidity, delays in setting criteria, high costs and access was projected as its key weaknesses.[33]

In Australia's Good Environmental Choice, the absence of a transparent organisational process and meaningful stakeholder engagement has affected its development early. Besides, poor educational and promotional campaigns had also resulted in continued confusion over product claims. Many consumers remain unaware of the regulations regarding product labelling, the labels, and how to assess such labels' information.[34]

Similar is Catalonia's situation, where much more efforts need to be taken to create broader public awareness of the label. Though people in Catalonia broadly recognise the 'Emblem of Guarantee of Environmental Quality' logo, they are less aware of what it signifies and who is behind the label despite 24 long years.

Conclusion

Ecolabels certainly act as a tool to reduce the environmental impact of production and consumption. It makes sure that manufacturers produce sustainably by managing the value chain and thereby offering consumers sustainable products. Soon, consumer consciousness of environmental concerns is likely to grow even more. Many manufacturers recognise this growing demand in both developed and developing countries. Most manufacturers are working to comply with various existing environmental standards, to become more competitive in international markets and not flooding the market with bogus environment-friendly products and services.

In 2007 alone, there were 2,400 trademark applications for terms and phrases with "green" in them and 900 more with "eco." The number increased in 2008; there were 32

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32 Ralph E. Horne, Limits to labels: The role of eco-labels in the assessment of product sustainability and routes to sustainable consumption, International Journal of Consumer Studies, 33 (2009) 175–182. Accessible at < https://pdfs.semanticscholar.org/f72d/ecfcf23b2fc550a206dcedff58f671ff2a80.pdf >

33 Ibid.

34 Dr. Ralph Horne, Kendra L. Wasiluk and Helen Lewis, Product Environmental Labels: Scoping Study, Centre for Design at RMIT University, Melbourne, March 30, 2007. Accessible at <www.academia.edu/1140684/Product_Environmental_Labelling_Scoping_Study >

percent more applications for trademarks containing "green" and 98 percent more containing "eco".[35]

Consumers are generally perplexed and suspicious of such self-acclaimed declarations, yet a significant population gets carried away by these tall claims. This is where the significance of an ecolabel comes into the picture. But years of ecolabel experiences have consistently shown that eco-labels do not function as stand-alone tools. Ecolabels need to be supported with the promotion of complementary tools and instruments like public procurement.

An overall picture of India's Ecomark scheme would have been entirely different if it had been linked with the government's procurement policy in the early stages. Doing so might have provided producers with an incentive to adopt environmentally sound production methods and offer more environmentally friendly products and services.

[35] Green Marketing and CSR, International Journal of Research in Finance & Marketing, Vol 1, Issue 6, Oct, 2011. Accessible at <www.researchgate.net/publication/303923746_GREEN_MARKETING_AND_CSR>

4 Impact of COVID on Sustainable Consumption and Production in India

Introduction

India's consumption per capita and ecological footprint are far below those of the developed nations, but its rapidly rising population and environmental degradation act as a challenge. Environmental degradation has become evident with the loss of biodiversity, degradation of forests and wetlands, climate change impacts, pollution, and invasive species dominance. The situation seems to further aggravate due to the extensive deviations and unprecedented circumstances created by the COVID-19 pandemic. Issues like the environment and sustainability that were slowly gaining some pace in recent years have been almost ignored under the coronavirus spread.

While it is a truth that the pandemic has curbed our economic productivity, reckless production and unnecessary travel and shopping yet, it is certainly not the right way to address the otherwise rapid depletion of existing and readily available natural resources.

India and COVID

In India, COVID cases crossed over 11 million as of March 2021, and the number of people infected with the virus is growing across the country, with the government struggling to curtail further spread of the outbreak. Globally, according to Statista, over 121 million cases of the coronavirus were reported as of March 16, 2021. The first cases of a novel coronavirus in the country were confirmed on January 30, 2020, in Kerala, which rose to three by February 03. All were students who returned from China. Gradually the transmissions grew after several people with travel history to affected countries and their contacts tested positive. To date, COVID in the country, more than 159 thousand cases have proved to fatal. The first COVID-19 death was reported of an older man in his late 70s with a travel history to Saudi Arabia.

At the present rate, it is anticipated that the country would soon become the top nation impacted by the COVID pandemic. Currently, India has the most significant number of confirmed cases in Asia and even stands third in the world after the US and Brazil. Nevertheless, the recovery rate of India is much ahead when compared to other affected countries. India recorded almost 11 million COVID-19 recoveries, with a recovery rate of nearly 97 percent and a case fatality rate of less than 1.5 percent.

Post-Pandemic Scenario

The Sustainable Development Goals Report 2020[36] brought together the latest data to show that progress remained uneven before the COVID-19 pandemic. Most countries were not on track to meet the Goals by 2030. With the pandemic, things are getting even worse like never before and economic, financial and social crises are threatening lives and livelihoods, making the achievement of Goals even more challenging.

Overlooking other issues, countries now prioritise human survival and effective treatment for their people. Faced with the pressures on its healthcare infrastructure due to the ongoing COVID-19 situation, India in early February announced a health and well-being budget of INR2.24tn (US$30.70bn), a massive increase of 137 percent over last year's 944.52bn (US$12.94bn). This is apart from the allocation of INR350bn (US$4.80bn) on COVID-19 vaccine development this year. The country has already spent billions fighting the COVID-19 pandemic by allocating it for ventilators, migrant labourers and vaccine development and over 80 percent of corporates' annual corporate social responsibility (CSR) budget to address the pandemic.

Impact on Economy

The pandemic has devastatingly harmed the global economy and countries are fighting hard to prevent further economic damage. India's growth in the fourth quarter of the fiscal year 2020 went down to 3.1 percent. The lockdown is expected to sharply affect growth in 2020-21, with many analysts estimating that the economy will shrink, perhaps by as much as 5 percent this financial year (refer to Table 4.1).[37]

Table 4.1: Revised Growth Forecasts for India: FY21

Agency	Latest Forecast	Previous Forecast
Moody's	2.5%	5.3%
Crisil	3.5%	5.2%
Standard & Poor's	3.5%	5.2%
India Ratings	3.6%	5.5%
Flitch	2.0%	5.1%

Source: FICCI

It is reported that the decline of economic activity during the nationwide lockdown had cost India about INR 350 billion per day, affecting jobs and income across all major

[36] Sustainable Development Goals Report 2020. Accessible at https://unstats.un.org/sdgs/report/2020/The-Sustainable-Development-Goals-Report-2020.pdf

[37] FY20 growth stands at 11-yr low of 4.2%, Hindustan Times, May 30, 2020.

sectors.[38] Industrial production dropped sharply when the country went into a complete lockdown. Most factories were not in operation. The Centre for Monitoring Indian Economic estimates that the unemployment rates shot up to 24 percent in April and May, up from about 7.76 percent in February 2020.

A recent survey report of the All India Manufacturers Association states that nearly 35 percent of micro, small, medium enterprises (MSMEs) and 37 percent of self-employed entrepreneurs plan to wind up their businesses, seeing no chance of recovery amid the COVID-19 outbreak. These firms were primarily affected by the unexpected impact it created because of the sudden nationwide lockdown measures.

However, some sectors, such as telecommunications and e-education operating in the digital space, witnessed a positive impact on their traditional counterparts like agriculture, food, handicrafts, tourism, automotive, real estate and jewellery. Similarly, the neighbourhood shops and shops in residential complexes saw a boost in their sales during the crisis as people within a locality relied more on these shops when compared to supermarket chains and online grocers.

Impact on Sustainability

SCP, which slowly gained acceptance among the policy developers, producers and consumers, has been almost ignored under the coronavirus's spread. This is even though the COVID-19 is creating a significant impact on society and the environment, both positively and negatively.

According to World Bank, among world regions, South Asian countries might witness the most significant increase in the number of poor because of COVID-19. To be more specific, the International Labour Organisation,[39] in a recent report, claims that in India, with a share of almost 90 percent of people working in the informal economy, about 400 million workers in the informal economy are at risk of falling deeper into poverty during the crisis. Current stringent lockdown measures in India have impacted these workers significantly, forcing many of them to return to rural areas. Recession, loss of job and physical distancing have largely affected the way people produce and consume. Nothing remains the same as before the pandemic. People's needs and wants change drastically.

The world witnessed a major shift in lifestyles, social norms, behaviour and interactions, and India is no exception. There is a tremendous increase in the use of plastics like never before in healthcare. The campaigns educating people to wear a mask

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38 Lockdown estimated to cost India Rs 35,000 crore a day, Times Now, April 29, 2020. Accessible at <www.timesnownews.com/business-economy/economy/article/lockdown-estimated-to-cost-india-rs-35000-crore-a-day/584652>

39 ILO Monitor: COVID-19 and the world of work, Second edition, April 2020. Accessible at <www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/documents/briefingnote/wcms_740877.pdf>

to contain the spread of COVID-19 have led to an unexpected rise in disposable masks' production and sales.

UNCTAD estimates that global sales of disposable masks will touch around US$166bn in 2020, up from around US$800mn in 2019. What is more alarming is the rise in the production and sale of fake healthcare products. According to the Preventive Wear Manufacturers Association of India, almost 150 new manufacturing units have been set up in just three months in India during this pandemic, of which most are counterfeiting brands.[40]

The UN Environment Programme (UNEP) has already cautioned the world to effectively manage the medical wastes mostly made from environmentally harmful single-use plastics. Apart from the medical wastes, one could also witness an increased dependence of consumers on disposables, such as plastic plates, cups, carry bags, sanitisers and bottled drinking water as a hygiene measure to avoid COVID-19. Also, increased dependence on online delivery of consumer goods and foods has resulted in a surge in packaging material usage.

However, to date, there is no ground estimate to show how much plastic wastes have been generated in India since the COVID scare. To make matters worse, waste collection and recycling of waste came to a halt during lockdown across the country. Before the pandemic, India's performance in the circular economy was exceptional.[41]

It was leading in the collection and recycling of plastic waste and almost 60-70 percent of it was collected and recycled into other useful products. But now the recycling centres are either temporarily shut or working in half capacities and collection staffs are unwilling or unable to report because of the pandemic scare. All these have pushed people to go back and practice unsustainable habits of burning household wastes or throwing them on the roadside, creating conditions for the spread of infectious diseases. Something sooner needs to be done to manage this mess, else the government's commitment to recycle waste and even phase out single-use plastics by 2022 would miss the track and uncontrolled dumping could result.

Equally, to maintain physical distance, people are no longer willing to use public transports. Instead, self-driven individual vehicles are on the rise. The preference for public transportation, including cabs and metros, is on the decline owing to hygiene concerns. For instance, DMRC, which has remained non-operational due to the COVID-

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40 COVID-19 Investigation: The Indian Market Is Flooded with Fake N95 Masks, July 2020. Accessible at <https://science.thewire.in/health/covid-19-counterfeit-n95-masks-cdsco-bis-standards/>

41 COVID-19: India's circular economy faces a rough ride, Down to Earth, 12 May 2020. Accessible at <www.downtoearth.org.in/blog/waste/covid-19-india-s-circular-economy-faces-a-rough-ride-71069>

19 lockdown, has incurred a revenue loss of nearly INR 16.09 billion. Bangalore Metro Rail Corporation Limited suffered a loss of INR 1.7 billion.[42]

According to the Bus & Car Operators Confederation of India (BOCI), the losses are to the tune of INR 650 billion and most of the operators are now on the verge of a shutdown.[43] This sudden change in deviation of transport choices by the public, in the long run, will undoubtedly aggravate the level of emissions and pollution, which certainly pose a serious concern.

Apart from all these, one also witness an increased dependence of consumers on information technology during the pandemic. In India alone, the total wireless subscribers increased to 1,144.18 million by the end of July 2020 and the overall broadband subscriber base increased to 705.40 million. It should be remembered that India generated 3.2 million tonnes of e-waste last year, ranking third globally.[44] Following the current growth rate of e-waste, an ASSOCHAM-EY joint report, titled 'Electronic Waste Management in India' estimated India to generate 5.2 million tonnes by 2021. The study also identified computer equipment and mobile phones as the principal waste generators in India. So, as electronic gadgets' dependence increases, the e-waste issue will swell up if not for an adequate intervention. Unfortunately, at present, India is the only country within the region to have e-waste legislation.

Way Forward

When the health concerns are over, governments may not invest in healing these environmental damages and companies may not have CSR funds. Economic insecurity and financial drainage caused by the pandemic will prompt individual consumers and even the governments across the country to avoid consuming comparatively highly-priced environment-friendly products and services.

Much needs to be done to withstand these adversities and one can achieve far more by working together than by acting in isolation. Sustainable opportunities created by the pandemic like avoiding unnecessary travels, less dependent on office space and work from home culture, people's dependence on local food stores and local business should be encouraged. Encouraging and making people adopt such simple, sustainable practices could enhance sustainability and reduce carbon footprint to a considerable extent. However, according to the Asia and Pacific SDG Report, 2021, among the pandemic recovery measures approved by 13 countries in the Asia and Pacific region,

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42 Bengaluru Metro suffered loss of Rs 170 crore due to lockdown: Centre, Times of India, 18 Sep 2020. Accessible at <https://timesofindia.indiatimes.com/city/bengaluru/bengaluru-metro-suffered-loss-of-rs-170-crore-due-to-lockdown-centre/articleshow/78190699.cms>

43 Delhi public transport operators lose Rs 65,000 crore due to COVID-19: Remedy measures suggested, Financial Express, 6 Aug 2020. Accessible at <www.financialexpress.com/auto/commercial-vehicles/delhi-public-transport-operators-lose-rs-65000-crore-due-to-covid-19-remedy-measures-suggested-toll-abolishment-taxes/2046549/>

44 The why and how of disposing electronic waste, Mongabay, 25 August 2020. Accessible at < https://india.mongabay.com/2020/08/explainer-the-why-and-how-of-disposing-electronic-waste/>

11 countries had very little or almost no consideration of the environmental dimension. This is certainly a missed opportunity to build back better.

With effective policies, improved technology, responsible investment, and awareness generation, a country could play an important role in fighting the pandemic and addressing the unsustainable menace. India undoubtedly needs to bring back the momentum and create green infrastructure while fighting pandemic and associated unemployment, especially for accelerating progress on the UN SDGs.

5 State Programme on SDG 12

Chhattisgarh

Chhattisgarh located in central India, shares its border with seven states and has market access to about 520 million people across these states. The new capital of the state, Naya Raipur, is India's first well-planned green field smart city. The state is very well connected through rail, road and air and can be India's logistics hub. It is the highest contributor to railway freight. Soon the state will be home to one of the seven Multimodal Logistic Parks to be constructed across the country.

Chhattisgarh is endowed with rich natural resources: from the extensive diversity of its mineral deposits to its five major river basins and a forest area covering 44.21 percent of its geographical area. It is one of the richest states in natural resources and the state's geographical area is approximately 137.8 lakh hectares.[45] The state has the mines of coal, bauxite, diamonds, iron, mica, etc., from which the government gets enormous revenue every year. Many small and oversized items are received from the forest, which includes *baheda (Terminalia bellirica), amla (Phyllanthus emblica), mahua (Madhuca longifolia), chironji (Buchanania lanzan), sal* seeds *(Shorea robusta), dhawai* flowers *(Woodfordia fruticose)*, etc.

According to the 2011 Census, Chhattisgarh has a population of 2.56 crore, a 22.61 percent increase from the early figure of 2.08 crore in the 2001 census. However during the period 1991-2001, this increase was just 18.06 percent. The population of Chhattisgarh forms 2.11 percent of India in 2011. In 2001, the figure was 2.03 percent. The percentage of Chhattisgarh literacy as per the 2011 census is 70.28, of which male and female are 80.27 and 60.24, respectively..

The state is known as the 'Rice Bowl of India' has 43 percent of land under agriculture, with rice as the major crop covering 66 percent of the total cropped area. It is also a major producer of maize, cereals, pulses and horticulture produce like turmeric, ginger, guava, tomato, pea and cabbage. About 88 different species of medicinal plants are grown in the state and the government actively promotes ethnomedicine usage, practiced by aboriginal tribes for centuries. With 44 percent of its geographical area under forest cover, Chhattisgarh is one of India's greenest states.

The state also contributes about 43 percent of the total lac produced in the country. The economy of Chhattisgarh grew at 5.32 percent (at constant prices) as against 7.06

[45] 'Chhattisgarh SDG Vision 2030' (State Planning Commission, Chhattisgarh, 2019) <http://spc.cg.gov.in/pdf/SDG_Vission_2030.pdf> [accessed 4 February 2020].

percent (at constant prices) in 2018-19. Also, as per the advance estimates, the real Gross State Domestic Product (GSDP) or GSDP at constant (2011-12) prices for the year 2019-20 is likely to attain a level of ₹2.43 lakh crore, as against ₹2.31lakh crore in the year 2018-19. As per the advance estimates, the per capita income at constant (2011-12) prices for the year 2019-20 is estimated to be ₹ 83,075 as compared to ₹ 80,155 for the year 2018-19.

SDGs

The idea of sustainability is not new to rural India, which organically cohabits with nature through centuries of our civilisation. This connection of natural resources with the sustainable rural economic system is reflected in an old saying- छतीसगढ़ के चार चिन्हारी नरवा, गरुवा, घुरवा अऊ बारी गॉव ला बचाना हे सॅगवारी (Chhattisgarh has four key characteristics- *Naruva* (rivulets), *Garuva* (livestock), *Ghuruva* (waste-management system) and *Badi* - backyard farms).

The government of Chhattisgarh aims to harness this spirit of co-existing with nature and henced prepare the development agenda accordingly. With this vision, all the departments under state government have collaborated to design a strategy and a roadmap for development through the SDG framework. The state is committed to work tirelessly towards SDGs and make all efforts to achieve the related target well before their scheduled deadline.

Chhattisgarh's development agenda and the National Development Agenda are aligned with SDGs, mirroring its focus on people, planet prosperity, peace, and partnership. Chhattisgarh's SDGs Vision document draws 'seven-year strategy' and 'three-year action plan' for the state to work in a particular direction by analysing the gaps and building our schemes and policies to reach the last person of the state.

In the achievement of SDGs by the states in India as computed by the *NITI Aayog*, Chhattisgarh ranks 15th as per the 2018 Index report and falling behind to 21st position as per the 2019 report. There is a scope to focus more and dig deeper to develop plans to achieve the SDG targets. The government and UN agencies are working in Chhattisgarh for several years, especially in community empowerment, access to essential services, and youth development. It will be most important to focus on the social and economic development of those left behind population groups and communities, including women and children in the hard-to-reach areas.

Between 2004-05 to 2011-12, in the percentage of people below the poverty line, Chhattisgarh has seen only a marginal reduction, from 40.9 percent to 39.93 percent. Almost 40 percent of children aged 0 to 4 years are underweight in the state, while it is 33.4 percent in India. The target is to reduce this to 0.9 percent by 2030, the prevalence rate of underweight among children (percentage of children under five years) in high-income countries in 2017.

The sex ratio at birth in India is 896 females per 1,000 males. The national target is to achieve the natural sex ratio at birth of 954 females for 1,000 males and Chhattisgarh has surpassed this target with a sex ratio at birth of 961.

The primary groundwater quality issues are salinity and contamination by arsenic, iron, fluoride, and nitrates. An area of about 2 lakh sq km has been estimated to be affected by salinity, with the electrical conductivity rising beyond 4000 µS/cm. Fluoride contamination in groundwater has been found in 184 districts in 19 States; high levels of arsenic contamination in 26 districts of 4 States (Bihar, Chhattisgarh, West Bengal and UP); high concentration of iron in groundwater in more than 1.1 lakh habitations in the country; and high concentrations of nitrates found in many districts of 15 States.

As of June 2019, almost 84 percent of its waste is getting processed in the state. This is far better when compared to the country's overall performance, where only 56 percent of the total waste generated gets processed. Likewise, 67.76 percent of municipal wards in India have 100 percent source segregation in Indian cities, and Chhattisgarh has already achieved this target.

As per the State Energy Efficiency Index 2019, the state has incorporated energy-efficiency norms in public procurement guidelines.

Table 5.1: The SDG-wise Scores of Chhattisgarh and all Indian Levels[46]

SDG Item	Aim	Chhattisgarh's Score		All India Score	
		2018	2019	2018	2019
1	Ending poverty in all its forms	50	49	54	50
2	End to all forms of hunger and malnutrition	46	27	48	35
3	Attain a level of health enabling to lead economically and socially productive life	42	52	52	61
4	Inclusive, equitable and quality education to all, including technical and vocational training	53	52	58	58
5	Gender Equality	49	43	36	42
6	Clean Water and Sanitation	98	92	63	88
7	Access to affordable, reliable and modern energy sources	36	56	51	70
8	Decent work and Economic growth	56	67	65	64
9	Industry, Innovation and Infrastructure	30	38	44	65

[46] SDG India Index, Baseline Report, 2019, Accessible at <www.niti.gov.in>

10	Reduced Inequalities	73	60	71	64
11	Sustainable cities and communities	54	49	39	53
12	**Sustainable Consumption & Production**	**-**	**58**	**-**	**55**
13	Climate Action	-	29	-	66
14	Life Below Water	NA[47]	NA	-	-
15	Protect, Restore and Promote sustainable use of terrestrial ecosystems	100	97	90	66
16	Peace, Justice and Strong Institutions	65	71	71	72
-	Composite	58	56	57	60

Table 5.2: Chhattisgarh Performance Indicator under SDG 12[48]

SDG 12 (Raw Data)	
Groundwater withdrawal against availability (%)	44.43
Nitrogen fertiliser usage out of N, P and K (%)	57.76
Per capita hazard waste generated	0.00252
Hazard waste recycled to hazardous waste generated	0.0526
Municipal Solid Waste (MSW) treated against MSW generated	8.86
Installed capacity of grid-interactive biopower	0.8606
Wards with 100% source segregation (%)	100

Survey Report

The Chhattisgarh State Planning Commission has been designated as the nodal agency for SDG implementation and monitoring. The Commission has initiated efforts towards establishing an 'SDG Cell' under its overall guidance and supervision to work closely with relevant government departments, technical institutions, academia, non-governmental organizations, civil society organisations, and requisite technical support State government's efforts towards rolling out the SDGs.

The Commission is also working on state-level SDGs Indicators and will modify and add new indicators in the existing National indicator framework. The commission is also working on district and block-level indicators.

State Planning Commission has formed 11 working groups on SDGs and identified nodal departments for each SDG.s. SDG 12 comes under working group-1 and the Agriculture Department is the nodal department.

[47] Not applicable
[48] *Supra*

The state government, in partnership with UNDP, conducted several consultations with all the departments on SDGs to prepare the Vision 2030 document, including the Seven-year Strategies and Three-year Action Plans. Additionally, in partnership with other departments and agencies, State Planning Commission organised three National level Conclaves (with special sessions on SDGs) – (a) National Conclave on Role of State Planning Organisations; (b) National Conclave on SDGs and Administrative Reforms and (c) National Conclave on Innovating for Children.

The government's major schemes and programmes have been mapped with respective SDGs and published as SDG learning material in Hindi. To facilitate SDGs integration in the SDG-based policy formulation, Chhattisgarh State Planning Commission is making advocacy efforts in meetings of its Task Forces on- Poverty, Agricultural Development, Industrial Development and Social Inclusion.

The adoption of relevant SDGs targets has been ensured during Task Forces and sectoral working groups' consultations. An excellent example of social inclusion is the recently formulated Draft State Disability Policy and Draft Youth Policy of Chhattisgarh.

The state has made efforts in localising SDGs through 'Panchayat Development Goals' as a strategy under Gram Panchayat Development Plan (GPDP). The State Institute of Rural Development (SIRD) has developed planning cum monitoring formats and a training module. Further, to facilitate SDG-based planning, implementation and monitoring at the district level, State level guidelines on 'Decentralised District Planning' are being modified to align to SDGs.

The State intends to develop an SDG Dashboard to track progress on SDGs and detailed district-wise analysis. Simultaneously, departments are advised to set yearly and half-yearly milestones for the targets and monitor the achievements accordingly.

The State Planning Commission regularly facilitates capacity building of government officials and elected representatives through training sessions in the State Academy of Administration and SIRD. It fostered a sensitisation programme for all the District Planning and Statistical Officers on SDGs, disaster management and climate change adaptation in the context of SDGs. Officials at all levels and District Planning Committees have been extensively trained in this sensitisation about SDGs.

The State government is partnering with various stakeholders, including UN agencies, in integrating SDGs in panning processes for capacity building and advocacy.

Table 5.3 briefly summarises the interventions by various departments in Chhattisgarh under SDG 12 and how complex the entire system works.

Table 5.3: SDG Interventions by Various Departments in Chhattisgarh

SDG 12 Target	Department-in-charge in Chhattisgarh
12.1 Implement the 10-year framework of programmes on SCP,	-
12.2 By 2030, achieve sustainable management and efficient use of natural resources.	Mineral Resources Department (Min. Resource)
12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses.	Food and Civil Supplies, Agriculture
12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle.	Agriculture
12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse	Urban Administration & Development (UAD), Housing and Environment Department (H&ED)
12.6 Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle	Department of Commerce & Industries (C&I)
12.7 Promote public procurement practices that are sustainable, in accordance with national policies and priorities	H&ED
12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature	-
12.a Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production	Chhattisgarh Renewable Energy Development Agency (CREDA), Chhattisgarh Biofuel Development Authority (CBDA)
12.b Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products	Tourism
12.c Rationalise inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimising the possible adverse impacts on their development in a manner that protects the poor and the affected communities	Min. Resource

Challenges related to SDG Implementation

Defining indicators at the local level is one of the major challenges. The concerned indicators should ensure their quality and integrity. Indicators should generate data that are needed and useful. They should be technically sound. They should be understandable, practical and feasible. The government is working on localising the indicators according to the state's needs.

Monitoring and progress regularly is a real challenge. Indicators will be the backbone of monitoring of SDGs at the local, state and national levels. The state planning commission is playing a significant role in tracking progress. Still, monitoring at the district and block levels is a major challenge.

There are ten different concerned departments related to SDG 12 and there is a lack of coordination among various departments. Besides, there is no dedicated fund for SDGs. The available fund is inadequate to achieve SDG 12 targets.

Challenges Identified Through Literature Review

In Chhattisgarh, agriculture and its allied sectors provide income to around 80 percent of the rural population and constitute 16 percent of its GDP. Of this 80 percent, more than half, about 46 percent, are marginal farmers and a majority of them rely on rainfed mono-crop agriculture, making them most vulnerable to the impact of climate change. The northern and southern regions of Chhattisgarh lack proper irrigation facilities due to their hilly terrain. Moreover, the absence of residual soil moisture leaves nearly half of the arable land fallow for any second crop, making things more difficult for farmers.

The current government has taken steps to directly help farmers by building capacity in the '*Narwa, Garuwa, Ghurwa, and Baadi*' scheme. It aims to develop micro-watershed structures for groundwater recharge, increase surface water irrigation, livestock development, promote vermicomposting, and develop kitchen gardens to help build climate resilience and encourage sustainable agriculture. Its implementation at the field level, though, is yet to be evaluated.

The loss of production and income from agriculture and forest resulting from climatic fluctuations and other manifestations, whether big or small, has become routine. The inherent characteristics of the terrain, food and cash insecurity, unsustainable coping practices and socio-economic factors are the contributing factors. Women are the most affected group, who shoulder the farming operations, such as transplanting, weeding, cutting, harvesting, storage, and Non-Timber Forest Produce (NTFP) Mahua flowers, goat rearing and daily wage labour and taking care of livestock.[49]

[49] Gayatri Mahar, 'An Insight into the Impact of Climate Change in Chhattisgarh', *Indo-Global Social Service Society* <https://igsss.org/blog/an-insight-into-the-impact-of-climate-change-in-chhattisgarh> [accessed 8 December 2020].

To address the impact of climate variability, farmers have mostly switched to short-duration crops, High Yielding Varieties (HYV) and hybrid varieties. While speaking about their experiences, the farmers shared that the hybrids are highly susceptible to insects or pests than traditional varieties. Therefore, the use of chemical fertilizer and pesticides has increased substantially. This, along with the mushrooming growth of bore wells, electric motors, and diesel pumps, has been spelling devastation for soil and groundwater, which has gone down by 100 feet in the last 10 years.

The farmers of Chhattisgarh are not well equipped with technology. They are mostly dependent on monsoon rains for irrigation purposes. Natural irrigation facilities like rivers, water bodies are also rare in the state due to their terrain. Therefore, there is a need to discuss the latest cropping patterns and hybrid methods with the farmers of Chhattisgarh as they are still stuck with traditional farming methods. Due to less rainfall, the paddy crop grown in the area is majorly hit as it requires more water.

Farmers need to be educated about the weather and climate-resilient farming methods and techniques. It seems like all these new varieties of seeds clubbed with climate-resilient farming methods would help to improve the farming methods as well.

The state has 16 percent of the total coal deposits of India. 444,83 million tonnes of coal has been estimated in 12 coalfields of the State in Raigarh, Surguja, Koriya and Korba. The state ranks 2nd in coal production by contributing over 18 percent to the total national production. Some mines fall under the Hasdeo Arand, Lemru Elephant Reserve and the Mand river catchment area, which are biodiversity-rich forests. These areas are ecologically sensitive zones.[50]

The CPCB in 2015 declared Raipur, the capital city of the state, as the country's most polluted city. It was reported that the city is suffering from low air quality and air pollution, caused due to factors like rapidly increasing toxic industrial waste, domestic waste, gas emission from vehicles, etc. Undoubtedly, both the government and citizens of the state are working towards reducing the increasing rate of air pollution; there are still several fields/aspects that they need to give some special attention to get adequate results.[51]

Successful Practices

Case Study: Gothan

The state has an ancient tradition of keeping cows in Gothan (a place known as cow shelter). Reviving the tradition, Gothan is being constructed under the Narva, Garwa,

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50 Our Bureau, '5 Mines in Sensitive Ecological Zones in Chhattisgarh off the List', @*businessline* <https://www.thehindubusinessline.com/economy/coal-ministry-removes-mines-in-ecologically-sensitive-zones-from-commercial-mining-auctions/article32512403.ece> [accessed 8 December 2020].

51 From Planting Trees To Wastewater Treatment: Tackling Chhattisgarh's Pollution Crisis, YKA, <www.youthkiawaaz.com/2020/12/the-environmental-issue-of-chhattisgarh-air-pollution/> [Accessed 21 December 2020]

Ghurwa and Badi Yojana. Every Gram Panchayat builds a Gothan on 3 acres of land these sheds and pasture will be provided for cows, goats and poultry. Organic manure prepared from animal dung will be sold to farmers who will promote organic farming.

Construction of 1286 Gothans was approved in the first phase and 3926 in the second phase. Out of which building of 1996 Gothans has been completed. About 2800 Gothans are being constructed. The goal is to build Gothan in 100 percent *gram panchayats* of the state. The Chief Minister said that the Gothan should be made the source of employment for people. In Gothan, groups are connected to income-oriented activities like vegetable production, poultry, goat farming, fisheries, etc.

To promote Gothan, the Gothan Nyaya Yojna has also been started, under which the government will buy cow dung from Gothan in Rs.8 and will make compost, dung lamp and other items. Fertilisers will be prepared and sold to farmers at the rate of Rs.12 per KG, which will promote organic farming and protect the environment.[52]

All *gram panchayats* were asked to secure 3 acres of land for the construction of Gothan, in which apart from Gothan pasture development, organic vegetable farming for the livelihood of village women will be encouraged. This scheme in the backdrop of the state's flagship 'Naruva-Garuva-Ghuruva-Badi' programme. Naruva means a seasonal or perennial stream, *garuva* means animal husbandry, *ghuruva* means composting and *badi* means backyard kitchen garden.[53]

The programme focused on a sustainable and integrated farming system approach focused on water management, composting for soil health, animal husbandry and sustainable agriculture on backyard kitchen gardens. Building gothans — a kind of daycare centre for animals — is being promoted under the programme.

Gothan is an ancient tradition of Chhattisgarh, in which cows from all the villages were kept in Gothan and one person used to take care of them and take them for grazing, in return the animal owners would pay him, on the same lines, the government is running the Gothan and has also employed a person on Rs.10,000 per month who will take care of the animals and Gothan.

If Gothans are adequately managed, then this will promote organic farming and also protect the environment. Public participation will have to be encouraged to make it successful. This plan is difficult to succeed without public support. Presently, because of

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52 'गोधन न्याय योजना: गौठानों से 8 रु. किलो में खाद खरीदेगी सरकार स्वच्छता मिशन और डीएमएफ से चलेगी योजना', *Dainik Bhaskar*, 2020 <https://www.bhaskar.com/local/chhattisgarh/raipur/news/8-from-gothan-government-will-buy-fertilizer-in-kg-the-scheme-will-run-from-the-cleanliness-mission-and-dmf-127497345.html> [accessed 9 December 2020].

53 'Chhattisgarh's Godhan Nyay: How It Aims to Revive Rural Economy, Organic Farming' <https://www.downtoearth.org.in/blog/governance/chhattisgarh-s-godhan-nyay-how-it-aims-to-revive-rural-economy-organic-farming-72941> [accessed 9 December 2020].

government is paying attention to this, people are participating, but until participation does not increase, stability will not be possible.

Solid Residual Management

Clean India Mission (Swachh Bharat Abhiyan) is one of India's ambitious schemes. The central government took the initiative and the states also try to help in every possible way in its implementation.[54] There are some cities where the common people too have participated in *Swachh Abhiyan* by taking the responsibility into their hands. In such cities, the name of Ambikapur of Chhattisgarh is also included. For the last four years, Ambikapur is the cleanest city in India among all the cities with a population of 10 lakhs. The city continues to hold its position in this.

Ambikapur is the head-quarter city of Surguja district in the state of Chhattisgarh. The city is situated at the northern end, 350 km from the state capital Raipur. This city is already famous because of its weather and mineral wealth. The Manipat city in this region is renowned for tourism and is also known as the Kashmir of Chhattisgarh.

The major reason behind this sustainable initiative was the then collector Ritu Sen, who initiated many schemes to empower women to make them self-reliant. Adequate training was provided on various subjects and gave them employment opportunities. These include tractor driving, auto driving, contract of vehicle stand within the city or in tourist areas, masala *grah udyog* and cleanliness work. All this work was handed over to the women groups and supported fully. Women worked with full responsibility and earned a name in the field assigned.

One such task is the city's cleanliness, in which women participate from bringing garbage to waste management. They go from home to home in the morning, collect dry and wet garbage from every house, bring them to the store and then do the sorting. After that, they make organic manure, which is sold to farmers. This is the first centre of waste management in Chhattisgarh.[55]

As they got respect in the field of waste management, the people became more enthusiastic. It also inspired the people living in other neighbouring cities. They also try to keep their city clean by watching and learning from their work. Due to cleanliness, people have started living a healthy life. Another most significant benefit is that there was a huge pile of garbage on Ambikapur Bilaspur Road on which animals feed and eat plastic. At times animals get seriously sick and some even die due to complications of eating plastic and other wastes. Through this effective waste management plan, the garbage piles disappeared, and animal deaths decreased due to plastic consumption. A

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54 Simar Singh, 'How Chhattisgarh's Ambikapur Is Turning Its Trash Into Treasure | Features', *NDTV-Dettol Banega Swasth Swachh India*, 2017 <https://swachhindia.ndtv.com/how-chhattisgarhs-ambikapur-is-turning-its-trash-into-treasure-7548/> [accessed 9 December 2020].

55 'Zero Waste Model Ambikapur, Chhattisgarh' (United Nations Centre for Regional Development (UNCRD)) <https://www.uncrd.or.jp/content/documents/6501PS-1-P4.pdf> [accessed 9 December 2020].

sense of pride is now clearly visible among the residents of this city. They now proudly acknowledge that waste management is much improved and they all play an essential role in cleanliness by acting responsibly.[56]

Garbage Café: *Bring plastic garbage and eat free food*

Plastic pollution has become a bigger problem globally, and people are looking for ways to get rid of it. At least 8 million tons of **plastic** end up in our **oceans every year and it** is proving a threat to the welfare of all living beings on the planet. The situation has become so grave that it has become a challenge to be plastic-free.

Municipal Corporation of Ambikapur started an initiative called "garbage café" at the Ambikapur bus stand in the Surguja district of Chhattisgarh state. The main objective of this Garbage Cafe is to make the city plastic-free. This garbage cafe was opened in the bus stand in the city centre on October 09, 2019, to bring in more people to the plastic-free campaign. A request was placed before the people to bring plastic wastes to the Garbage Cafe and eat free food. On the day of the Garbage Cafe's inauguration, five people brought plastic and had a meal with the Chief Guest, the State Health Minister, Panchayat and Rural Development Minister.

This is the first such cafe in the country where people get breakfast and meals to exchange plastic waste. People will get free food in exchange for one kg of plastic, while breakfast will be provided in exchange for half a kilogram of plastic. They give samosa, aloo chop, bread chop, Idly in breakfast and half plate rice, dal, four-chapatis, two vegetables, salad, pickle, papad, sweet and curd in a meal.[57]

People are becoming aware of plastic waste due to these efforts and are giving plastic waste to cafes and insisting on not using plastic in homes. One of the reasons why the corporation gave food in exchange for plastic waste is to ensure that no poor sleep empty stomach and at the same time they get good food with self-respect. Food coupons are given after depositing the plastic-filled garbage bags in the corporation and upon submitting, breakfast and meals can be eaten at the cafe. In this cafe, people without coupons are also given food at a lower cost.

By trying such new innovative ways, awareness is increasing among the people and they are cooperating towards making their city free of garbage. Through this cafe, the Municipal Corporation is successfully conveying the message to the people to act responsibly. Now they are moving toward making the city plastic-free and encouraging

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56 Cherrupreet Kaur, 'Chhatisgarh's Small Town Ambikapur Scores Big in Waste Management | Raipur News - Times of India', *The Times of India* <https://timesofindia.indiatimes.com/city/raipur/chhatisgarhs-small-town-ambikapur-scores-big-in-waste-management/articleshow/72197965.cms> [accessed 9 December 2020].

57 Cherrupreet Kaur, 'India's First Garbage Cafe to Come up in Ambikapur | Raipur News - Times of India', *The Times of India* <https://timesofindia.indiatimes.com/city/raipur/indias-first-garbage-cafe-to-come-up-in-ambikapur/articleshow/70339167.cms> [accessed 9 December 2020].

people to carry their shopping bags. The campaign has started showing improvements in reducing the use of plastics. Animals that die by eating plastic have also decreased.

There is only one Garbage Cafe in the city, which is located in the bus stand. Despite this, Garbage Cafe is growing in its purpose and people visit to see how plastic is being managed.

Dung lamp

The government is conducting an ambitious project to promote organic farming and water management in a traditional way, known as "Narva, Garwa, Ghurwa and Badi Yojana". The government also is making efforts to promote its traditional culture to protect the environment with public participation. One such initiative is the use of cow dung to prepare wall paints and the use of dung cakes to cook food. Apart from this, it has also been used as organic manure.

Now with a touch of modernity, the government is initiating efforts to produce other items from cow dung. It all started with the making of diya lamps that saw massive acceptance and now tested by making idols of eco-friendly Ganesh and other items all made using cow dung. Only a few groups have started working in this direction. Still, people are taking an interest and are serious regarding protecting the environment, so they are promoting such projects.[58]

Most of these items are being made through women's SHG and was initiated by women SHG in Arang in Raipur district. Now two other groups are also working on this in Tilda, Raipur. Apart from this, one group of women in Mahasamund is also making dung lamps. These women groups make dung lamps on order. This year, three Raipur groups have got the order for ₹20,000 collectively and a group of Mahasamund has received orders for ₹10,000.

This initiative shows and during the festive season of Diwali, people started demanding dung lamps to celebrate eco-friendly Diwali. Simultaneously, people are also selling dung lamps in shops. Since these are being made only by women SHG, they are not available in large quantities. Still, if the demand keeps increasing, more SHG will start working in this direction, providing unique employment opportunities for them. This is a prime example of a better use of local resources that can be properly utilised to help in development.

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[58] 'Kondagaon News: गोबर से बना दीया करेगा घर-आंगन रोशन ऐसे होगा पर्यावरण संरक्षण- Naidunia.Com' <https://www.naidunia.com/chhattisgarh/kondagaon-dia-made-from-cow-dung-will-illuminate-the-house-this-will-be-environmental-protection-3249601> [accessed 9 December 2020].

Himachal Pradesh - SDG 12

Introduction

Himachal Pradesh (HP) is one of the northernmost mountain states of India. In this reasonably temperate region, a variety of fruits and nuts are grown. The weather in HP is hot and dry from March to June, rainy during the monsoon season from July until September, and chilly from October to February.

According to the Koppen classification system, much of HP has a "CWA" climate (Humid subtropical, i.e., dry in winter and hot in summer). HP provides water to both the Indus and Ganges basins. The state covers over 55,000 sq km and has five major river basins Satluj, Ravi, Beas, Chenab and Yamuna. These rivers are perennial and are fed by snow and rainfall. An extensive cover of natural vegetation protects them.[59]

As per the revised estimates, GSDP is expected at 1.24 lakh crore in 2019-20 as against 1.17 lakh crore in 2018-19, with an increase of 5.98 percent. As per the advance estimates, the per capita income at constant (2011-12) prices for the year 2019-20 is projected to be ₹ 169,787 as compared to ₹ 161,883 for the year 2018-19, registering a growth of 4.88 percent in 2019-20 over the previous year 2018-19.[60]

As per the advanced estimates and economic conditions up to December 2019, the growth rate for 2019-20 is expected to be around 5.6 percent. Agriculture activities predominantly governed the economic growth in the State. The economy has shown a shift from the agriculture sector to industries and services as the percentage contribution of agriculture in total State Domestic Product has declined from 57.9 percent in 1950-51 to 55.5 percent in 1967-68, 26.5 percent in 1990-91 and to 8.4 percent in 2018-19.

HP today has:[61]

- 26.40 percent area under forest cover, another 1.36 percent area outside the forest is covered with trees.
- 80 percent area under rain-fed agriculture
- 450 tonnes of municipal solid waste and 60 tonnes of hazardous waste are generated every day in the state.
- The state population increased by 17.53 percent between 1991-2001 and then further expanded by 12.81 percent from 2002 to 2011.

59 Sandrp, 'Himachal Pradesh Rivers Profile', *SANDRP*, 2017 <https://sandrp.in/2017/04/09/himachal-pradesh-rivers-profile/> [accessed 29 September 2020].

60 'Economic Survey 2019-20' (Economic and Statistics Department, Government of Himachal Pradesh) <https://himachalservices.nic.in/economics/pdf/Economic_Survey_eng2019-20.pdf> [accessed 20 September 2020].

61 'Vision Himachal Pradesh-2030' (Planning Department Government of Himachal Pradesh) <http://planning.hp.gov.in/NewReleases/Drishti-HP-2030.pdf> [accessed 1 September 2020].

SDGs

HP is vulnerable to climate change events which can undermine their progress to achieve SDGs. However, HP took the second spot with 69 composite scores in SDG Index 2019 released by *NITI Aayog*. Kerala retained its rank as the top State with a score of 70. The state found its place in Front Runners (with a score in the range 65-99, including both) in 2018 and 2019. The state managed to secure top position in Goal 4: Quality Education, Goal 5: Gender Equality and Goal 11: Sustainable Cities and Communities.

HP followed a whole-of-government approach for the preparation of the Vision document for SDGs. Consultations were held among the thematic groups formed by the government and with farmers, hoteliers, representatives of the industry association, and civil society to ensure the reflection of diverse voices in the Vision document. HP has shortlisted 138 key indicators for monitoring progress on SDGs. The state is planning to develop a dashboard for motoring progress on the indicators.[62]

Table 5.4: The SDG-wise Scores of Himachal Pradesh and all India Levels[63]

SDG Item	Aim	Himachal Pradesh's Score		All India Score	
		2018	2019	2018	2019
1	Ending poverty in all its forms	60	60	54	50
2	End to all forms of hunger and malnutrition	58	44	48	35
3	Attain a level of health enabling to lead economically and socially productive life	62	67	52	61
4	Inclusive, equitable and quality education to all, including technical and vocational training	82	81	58	58
5	Gender Equality	42	52	36	42
6	Clean Water and Sanitation	95	82	63	88
7	Access to affordable, reliable and modern energy sources	62	64	51	70
8	Decent work and Economic growth	71	76	65	64
9	Industry, Innovation and Infrastructure	43	70	44	65
10	Reduced Inequalities	98	78	71	64
11	Sustainable cities and communities	41	79	39	53
12	**Sustainable Consumption & Production**	**-**	**52**	**-**	**55**
13	Climate Action	-	61	-	66

62 *The Localisation of SDGs Early Lesson From 2019* (NITI Aayog, 2019) <http://164.100.94.191/writereaddata/files/document_publication/LSDGs_July_8_Web.pdf> [accessed 7 September 2020].

63 SDG India Index, Baseline Report, 2019, Accessible at <www.niti.gov.in>

14	Life Below Water	NA	NA	-	-
15	Protect, Restore and Promote sustainable use of terrestrial ecosystems	93	92	90	66
16	Peace, Justice and Strong Institutions	91	84	71	72
-	Composite	69	69	57	60

Table 5.5: Himachal Pradesh Performance Indicator under SDG 12[64]

SDG 12	
Groundwater withdrawal against availability (%)	86.73
Nitrogen fertiliser usage out of N, P and K (%)	61.18
Per capita hazard waste generated	0.00
Hazard waste recycled to hazardous waste generated	0.00
Municipal Solid Waste (MSW) treated against MSW generated	45.29
Installed capacity of grid-interactive biopower	0.10
Wards with 100% source segregation (%)	95.57

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HP Institute of Public Administration (HIPA) organised several training and capacity-building programmes for the departmental officers. SDG training material has been developed keeping in mind the training needs of various stakeholders. The state is also partnering with National Foundation for India (NFI), and the UN to implement SDGs. The state is also collaborating with the private sector, CSO, CBOs and the beneficiaries.

HP government has taken several initiatives to generate awareness of SDGs. Several folk media groups (kala jathas) have been engaged to spread awareness on SDGs. Video messages from the Chief Minister have been telecast on TV and disseminated in the print media.

The Planning Department is the nodal department in the State to facilitate implementing the SDGs framework in HP. The government has taken several initiatives in close collaboration with the Nodal Departments, training institutions, other organisations like the UN in India and National Foundation for India (NFI). In HP, social-economic and human development indicators are much better than many states in the country. Some of the initiatives are summarised below:

- **Mapping SDGs with targets and identification of Nodal departments:** The goal-wise mapping of SDGs with targets and implementing departments was done and nodal departments for each goal were identified. Accordingly, the

64 'SDG India Index and Dashboard | ITech Mission' <https://sdgindiaindex.niti.gov.in/#/> [accessed 01 September 2020].

Administrative Secretary's working groups were constituted to prepare the vision document for the respective goal. A detailed Terms of Reference (ToRs) and a template have been provided to the Nodal Departments to prepare vision documents.

- **Development of State Vision Document-2030**: The Drishti Himachal Pradesh 2030 (State Vision Document 2030) has been prepared and launched. In this Vision Document, only 16 Goals have been taken and Goal No. 14 is left being related to Marine Life as HP is a landlocked State. If we compare, in terms of poverty gap ratio, food security, good health, universalisation of education at primary and secondary level education, availability of water and sanitation, financial inclusion, law and order, availability of modern energy, HP is a much better position in comparison to many other States. The State Vision Document suggests that most targets will be achieved by 2022 and the remaining ones before or by 2030.

- **Popularisation of SDGs:** Awareness of SDGs is essential, as all stakeholders' participation is imperative in achieving the SDGs. The Government has taken several initiatives to propagate the SDGs. Video message of the Hon'ble Chief Minister of HP on SDGs was telecast on Doordarshan. The repeated message of Hon'ble Chief Minister of HP on SDGs was published in the newspapers. Following IEC material has been published;
  - ✓ Pictorial booklet on SDGs (Hindi) containing schemes mapped with each SDG.
  - ✓ Colored pamphlets (Hindi) containing all the SDG in brief,
  - ✓ Multicolor poster on 16 goals (Hindi) design is ready, printing is underway,
  - ✓ Pictorial booklet on SDGs (English) containing schemes mapped with each SDG is being developed, (State Vision Document) is being done.
  - ✓ Hindi translation of Drishti HP-2030

- **Monitoring of targets and indicators:** Ministry of Statistics and Programme Implementation (MoSPI), GoI, has developed 300+ indicators to be monitored to assess sustainable goals and targets. However, considering the State's better socio-economic condition, many indicators may not be relevant for the State. Besides, in the absence of the required data, it may not be possible for the State to monitor these many indicators. Therefore, the State Government has considered 138 indicators in consultation with the nodal departments. These indicators are being considered for revision given 300 + indicators developed by MoSPI and 100 indicators considered by NITI for SDG Index. The State Government is looking for a partner for technical support for developing a dashboard, customised as per the State Government requirements for concurrent and periodic monitoring of the targets/indicators.

Efforts to achieve SDGs

- Mapping of the 16 goals was done. Accordingly, 11 working groups were constituted with one nodal department and other major stakeholder departments as its members for vision documentation on SDGs-aligned with 15 year Vision, 7-year Strategy and 3-year Action Plan.
- The State has resolved that each SDG will be monitored against two sets of indicators. The first set of indicators will be used to monitor the progress made on SDGs for the use of the State Government and the second set of indicators will be based on the indicators suggested by the MoSPI / NITI.

Table 5.6 briefly summarises the interventions by various departments in HP under SDG 12 and how complex the entire system works.

Table 5.6: SDG Interventions by Various Departments in Himachal Pradesh

SDG 12 Target	Department-in-charge in Himachal Pradesh
12.1 Implement the 10-year framework of programmes on SCP,	-
12.2 By 2030, achieve sustainable management and efficient use of natural resources.	Department of Energy
12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses.	Department of Agriculture & Horticulture
12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle.	Department of Energy, Department of Urban Development, Pollution Control Board, Department of Environment and Scientific Technology
12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse	Department of Energy, Department of Urban development
12.6 Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle	Department of Industries
12.7 Promote public procurement practices that are sustainable, in accordance with national policies and priorities	-
12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature	Department of Environment and Scientific Technology, Department of Education

SDG 12 Target	Department-in-charge in Himachal Pradesh
12.a Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production	Department of Environment and Scientific Technology
12.b Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products	Department of Tourism
12.c Rationalise inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimising the possible adverse impacts on their development in a manner that protects the poor and the affected communities	Department of Environment and Scientific Technology, Department of Industries

Challenges Identified Through Survey

The Environmental Department is the nodal department for SDG 12 and SDG 13. However, they are more focused on SDG 13.

Concerned departments for SDG 12 targets were unaware of SDG 12. For instance, the Department of Urban Development is responsible for targets 12,4 and 12.5 but they do not know the same. Staff shortage is a key challenge for the progress of SDG 12.

Challenges Identified Through Literature Review

In HP, hydropower has been identified as one of the key drivers of low carbon economic growth. In this pursuit, the proposal to link hydropower development with Hydropower Generation Taxing, by the nature of its no carbon-emitting resource (water) and the non-combustion way it captures converts the energy into electricity.

One can easily assess the annual reduction in carbon dioxide emissions and identify the potential hydropower capacity that can be developed further given the various environmental, legal, and institutional development constraints for levying the Carbon Tax in the State, besides linking it with the development of catchment's areas.[65]

HP has extensive green cover in the state, a need is felt to formulate a separate and distinctive forest policy for the Western Himalayan States in view of their vulnerability to climate change as well. There is an urgent need to develop long-term monitoring plots across representative eco-zones, together with the need to map climate change-

[65] 'Green Growth and Climate Change Mitigation in Himachal Pradesh' (Department of Environment, Science and Technology Government of Himachal Pradesh, 2015) <www.teriin.org/projects/green/pdf/HP-Mitigation.pdf> [accessed 20 September 2020].

driven adaptation in natural resource use and a database on carbon sequestration potential of forest flora in these areas.

The situation of solid waste management in the State has undoubtedly improved over the years. However, there is still a long way to go. Instead of following the usual end of pipe approach, waste management must be looked at holistically and preference must be given to reduce waste at the source. The waste management system faces a huge challenge at the collection stage, which is inefficient and consumes most of the funds and time.

Municipal Corporation of Shimla has established an extraordinary self-sustaining waste collection system with Shimla Environment, Heritage Conservation and Beautification (SEHB) Society. The bottleneck of lack of source segregation is, however, yet to overcome. Instead of working against the informal sector, it is vital to recognise the informal sector's importance and incorporate it into the formal waste collection system. Waste processing and disposal deserve more strategic and financial significance. The new waste management plan, to an extent, has strategies to address these issues. There is a need to maximise resource recovery from waste and waste recycling to reduce the land requirement for waste disposal.[66]

The lack of solid waste treatment plants in the state was why HP's waste scenario took such a turn for the worst. HP receives 170 million domestic tourists every year and over 100 million foreign tourists annually. One solid waste treatment plant to manage all the waste in the state was never enough. More solid waste treatment plants will ensure waste treatment takes place on a larger scale in the state.[67]

In 2013, the State had developed the Sustainable Tourism Development Policy to use sustainable tourism to provide better employment and more significant business opportunities for residents. The number of tourists visiting the State has now gone up to 196.02 lakhs in 2017-2018. The need of the hour, given our fragile ecosystem, ensures that this growth continues sustainably. The Sustainable Tourism Development Policy, 2019 is an attempt in this regard. SDGs, particularly SDGs 8 and 12, through various objectives directed towards host communities' socio-economic growth, offering a quality experience to travellers, and protecting the natural-cultural environment and state's destinations.[68]

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66 'Urban Waste Management in Himachal Pradesh' (Department of Environment, Science and Technology Government of Himachal Pradesh, 2015) <www.teriin.org/projects/green/pdf/HP-Waste-management.pdf> [accessed 20 September 2020].

67 'Himachal Pradesh's Solid Waste Crisis To Come To An End Soon, As State Government Sanctions Six New Waste Management Plants', *NDTV-Dettol Banega Swasth Swachh India*, 2017 <https://swachhindia.ndtv.com/himachal-pradeshs-solid-waste-crisis-to-come-to-an-end-soon-as-state-government-sanctions-six-new-waste-management-plants-15511/> [accessed 25 September 2020].

68 'The Himachal Pradesh Tourism Policy, 2019' <https://himachaltourism.gov.in/wp-content/uploads/2019/09/Himachal-Pradesh-Tourism-Policy-2019.pdf> [accessed 20 September 2020].

The heavy inflow of tourists has also led to severe pressure on HP's ecology. One of the reasons for this is the concentration of a few tourist destinations. Moreover, there is an urgent need to create the proper policy framework and, consequently, an ecosystem around tourism in HP to make it sustainable and take tourism to higher economic and ecological spheres. With environmental sustainability in mind, the banning of plastic must be appropriately enforced with alternatives available to tourists and commoners alike. Water and energy are the two resources in great demand, but their generation is becoming increasingly difficult.

This means that we have to use them judiciously while focusing on their conservation and reuse. One way of doing this could be to global certification standards in energy and water efficiency for all the important buildings in HP.

The state shares borders with the Himalayas and consists mainly of hills interspersed with river valleys. Production of apples comprises 88 percent of fruit production. Farmers tend to rely on a single crop for their income and cannot keep harvests longer than a few days, so they are at the mercy of the market. The ability to store crops for a longer period would allow them to take advantage of higher off-season prices and make their products available throughout more years. Since these prices are often 2-3 times those in-seasons, low-cost storage could allow farmers to reap immense profits every year. This would also reduce the flooding of markets in-season, raising those farmers without this technology benefit.[69]

Cold storage is gradually expanding within HP, but farmers struggle to use their disposal resources. Since many farmers are small-scale in nature, they are working to profit not only because they have few ways to ensure crops reach the market in good condition but also because they cannot use cold storage methods to their advantage.

Successful Practices

Himachal Pradesh- Sustainable Plastic Waste Management Plan

The state government enacted the HP Non-Biodegradable Garbage (Control) Act, 1995, to deal with plastic and other non-biodegradable waste. This Act embodied a move towards scientific disposal of non-biodegradable waste and imposed a ban on coloured plastic carry bags produced from recycled plastic.

The government also introduced the Sustainable Plastic Waste Management Plan in 2009. The Plan focusses on controlling the use of plastic and developing a systematic disposal mechanism. To achieve its Clean Himachal and Healthy Himachal drive objectives, the Government also prohibited using plastic cups and plates in 2011. It conducted Information, Education and Communication (IEC) activities to generate

69 'Extending the Apple Season: Cold Storage in Himachal Pradesh, India' (Indian Institute of Technology Mandi,2017)<https://web.wpi.edu/Pubs/E-project/Available/E-project-050217-070024/unrestricted/IN17-FOOD_FinalReport.pdf> [accessed 29 September 2020].

awareness about the harmful impact of plastic waste and encouraged citizens to stop using plastic products.

The initiative aims to establish environment-friendly plastic waste disposal solutions. The process seeks to ban plastic bags and plastic products and reduce plastic littering across the state. Further, to ensure sustainability and continued community participation, the initiative seeks to spread environmental awareness among the local population.

The Department of Environment has implemented the Plan, Science and Technology (DEST), Government of HP, and implemented in three stages. Stage I aimed at creating an enabling framework, Stage II focused on creating awareness through campaigns, and Stage III on consolidation and sustainability.

Stage 1: Creating an enabling Framework: The DEST began by establishing an environmentally sound solution for plastic littering and disposal. It aimed to adopt replicable and sustainable solutions for the state. After much deliberation, the DEST decided to process household waste in cement kilns and use plastic waste in road construction. As the PWD plays a major role in constructing roads, the first step was to convince it to adopt the solution.

The DEST and PWD jointly conducted a pilot project in Shimla to test the technology. While DEST identified a supplier of plastic waste shredders, PWD procured and used the output to construct a road in Shimla. The pilot demonstrated that the technology was cost-effective and replicable. It provided a solution to utilise plastic waste innovatively and prudently. Thereafter, the DEST developed a comprehensive plan for identifying roads, modalities for collection and storage of plastic waste at collection centers, and shredding for use in tarring. The PWD was trained on a technology that involved shredding and mixing various kinds of plastic food packets, aluminium foil, etc., with bitumen for tarring roads.

Typically, each kilometer of road consumes a tonne of plastic, used directly without cleaning. This cost-effective technology allows savings of approximately ₹35,000–40,000 per kilometer through reduced bitumen use.

Stage 2: Creating an enabling Framework: In this stage, the government launched the Polythene Hatao – Paryavaran Bachao campaign. The first phase of the campaign focused on voluntary participation in schemes and actions aimed at cleaning the state and encouraged citizens to understand plastic waste and the need to keep the state clean.

This campaign created awareness and encouraged the participation of Mahila Mandals, Urban Local Bodies (ULBs), NGOs, associations of Panchayati Raj Institutions, etc. Plastic waste was collected from hill slopes, forest areas, rivers, drains, etc., and IEC activities, such as video clippings and documentary films, were used to sensitise the public. In this

phase, 142 tonnes of polythene were collected from 10 districts for use in road construction.

Stage 3: Ensuring Consolidation and Sustainability: This Stage addressed the need to develop a sustainable mechanism for collecting and disposal of plastic waste and focused on allocating responsibilities and tasks to various departments. Role allocation and monitoring, the constitution of teams to curb offences related to littering and use of plastic bags, and eco-clubs' involvement in educating the general public and imposition of challenges (monetary fines/penalties) were the highlights of this stage.

An environmental audit scheme was started in Stage III to monitor the project's environmental performance and facilitate training and capacity building among school students, teachers, and citizens.

Following was the impact of this three-stage project:
1. Cleaner environment and reuse of waste plastic for roads: The ban on plastics and the systematic waste recycling model have ensured cleaner surroundings and contributed to environmental conservation and supported infrastructure development through road construction. The institutional mechanism for collection, transportation and utilisation of plastic waste has become functional and has been adopted across the state.

2. Public Awareness and Participation: The plan has significantly impacted building awareness and securing people's cooperation. It encourages people to collect plastic waste to minimise its negative environmental impact and assume responsibility for maintaining their local environment.

Kerala

Introduction

Kerala, the southwestern coastal state of India, is a small state, constituting only about 1 percent of the total area of the country. It is one of the most densely populated states in India. According to the Economic Review 2019 released by the State Planning Board, in 2018-19, the Kerala economy grew at 7.5 percent (at constant prices) against 7.3 percent (at constant prices) in 2017-18. The growth in 2018-19 was mainly due to the increase in the secondary sector, which recorded 8.8 percent (at constant prices). The tertiary sector grew at 8.4 percent in the same year. Kerala's Gross State Value Added (GSVA) grew at relatively fast rates from 2016-17 to 2018-19 despite the many setbacks faced by the State and the growing signs of recession in the national economy.

The sectors contributing to this fast growth are fishing and aquaculture, manufacturing, trade, hotels and restaurants, social services, mainly education and health, public services and professional services.[70] As per the land use data of 2019-20, out of a total geographical area of 38.86 lakh hectare (ha), total cultivated area is 25.89 lakh ha

[70] Economic Review 2019 – Vol 1, State Planning Board, Thiruvananthapuram, Kerala, January 2020. Accessible at <www.spb.kerala.gov.in/images/pdf/whats_new/ER_2019_Vol1_E.pdf>

(66.64 percent) and the net area sown is 20.26 lakh ha (52.13 percent). Land put to non-agricultural use stands at 11.73 percent and the forest area is 27.83 percent.

Agriculture is the state's main economic activity. Commercial plantings on less than half of the total land under cultivation earn a sizable amount of foreign exchange but have necessitated importing food for local consumption. The principal cash crop of the states is rubber, coffee, and tea, as well as areca nut, cardamom, cashew nut, coconut, ginger, and pepper. The major food crops are rice, pulses like peas and beans, sorghum, and tapioca.

A positive growth rate has been recorded despite the State's problems over the last couple of years. These include extreme rainfall events and consequent floods and landslides over two consecutive years, and a severe shortage of resources after implementing Goods and Services Tax. At present, Kerala is devastated by the COVID-19 pandemic and the economic crisis induced by this has created a full-blown fiscal crisis for the state.

As per the India State of Forest Report 2019, the total area under forests, including plantations, is 21,144 square km, which is 54.42 percent of the State's geographical area. There has been an increase in forest cover in Kerala by 823 square km, an increase of 2.12 percent, compared to the previous assessment in 2017.

SDGs

Kerala has been ahead of other Indian States in achieving demographic and human development indicators. In the achievement of SDGs by the States in India as computed by the *NITI Aayog*, among the States and the UTs, Kerala and Chandigarh are the front runners with a score of 70.

Kerala ranks first in SDGs concerning 'health' and 'industry, innovation and infrastructure' and ranks second in 'education' and 'gender equality.' Kerala once again topped Indian states in progress towards UN-SDGs in *NITI Aayog*'s SDG India Index. The Government of Kerala's policy is to invest in people, ensure social justice to all, and encourage productive forces in the economy. Kerala tops the index to achieve goals related to health and industry, innovation, and infrastructure.

Table 5.7: The SDG-wise Scores of Kerala and all India Levels[71]

SDG Item	Aim	Kerala's Score	All India Score
1	Ending poverty in all its forms	64	50
2	End to all forms of hunger and malnutrition	74	35
3	Attain a level of health enabling to lead economically and socially productive life	82	61
4	Inclusive, equitable and quality education to all, including technical and vocational training	74	58
5	Gender Equality	51	42
6	Clean Water and Sanitation	77	88
7	Access to affordable, reliable and modern energy sources	70	70
8	Decent work and Economic growth	61	64
9	Industry, Innovation and Infrastructure	88	65
10	Reduced Inequalities	75	64
11	Sustainable cities and communities	51	53
12	**Sustainable Consumption and Production**	**57**	**55**
13	Climate Action	56	60
14	Life Below Water	28	
15	Protect, Restore and Promote sustainable use of terrestrial ecosystems	98	66
16	Peace, Justice and Strong Institutions	77	72

Nava Keralam Karma Padhathi is a flagship programme of the State government launched in November 2016. It encompasses four Missions, viz., Aardram Mission (Health Mission), Livelihood Inclusion and Financial Empowerment (LIFE) Mission (Housing Mission), Public Education Rejuvenation Campaign (Education Mission) and Harithakeralam Mission (consisting of the three Sub Missions, viz., Sanitation- Waste Management Mission, Soil-Water Conservation Mission and Agriculture Development Mission). It is an inter-sectoral approach that seeks to address problems faced in the six key sectors: health, education, agriculture, sanitation, water resources, and housing, with the help and active involvement of local self-governments. NKKP aims to provide socio-economic services to those who are marginalised from various development initiatives in the past. This spirit of the mission aligns with most of the sectors of SDGs and the principle of 'Leaving No One Behind'.

[71] SDG India Index Report, 2019-20. Accessible at <www.niti.gov.in>

During the last two years, the focus is on wastewater management, drinking water facilities, rainwater harvesting, non-conventional energy generation initiatives and energy conservation. Various State schemes for poverty alleviation and its Public Distribution System (PDS) have broad coverage.

While the Integrated Child Development Scheme (ICDS) and Mid-Day Meal schemes, which approach food security through a life cycle approach, are functioning effectively, it need further strengthening, integration, modernisation and monitoring. One of the 13th Five-Year Plan's main objectives is to make Kerala a hunger-free State by supplying meals at nominal prices to the needy.

Likewise, Haritha Keralam's mission, one of the four pillars of the Navakerala Karma Padhathi, is directly linked with food security. A novel project was started in 2019 by Haritha Keralam Mission to create 1000 green islets (Pachathuruth) to preserve local biodiversity. The Mission has already completed 1261 green shoots at various places in the State. All the municipal corporations in Kerala use waste segregation techniques and banned single-use plastic.

As per the State Energy Efficiency Index 2019, the state has incorporated energy-efficiency norms in public procurement guidelines.

Kerala has set up an elaborate institutional mechanism to ensure that all government departments come together on a common platform and collaborate with experts and training institutions on the SDG agenda. Under Secretary, Environment Department is appointed as the nodal officer to successfully implement the SDG Goals 12, 13, 14 & 15 in the State.[72]

Table 5.8: Kerala Performance Indicator under SDG 12[73]

SDG 12 (Raw Data)	
Groundwater withdrawal against availability (%)	51.27
Nitrogen fertilizer usage out of N, P and K (%)	43.56
Per capita hazard waste generated	0.00108
Hazard waste recycled to hazard waste generated	0.09
Municipal Solid Waste (MSW) treated against MSW generated	29.13
Installed capacity of grid-interactive bio power	0.002
Wards with 100% source segregation (%)	95.53

[72] G.O. (Rt) No. 06/2018/Envt
[73] *Supra*

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Central Plan Monitoring Unit (CPMU) functions in the Planning and Economic Affairs Department to monitor all SDGs in the State. Task forces for each Goal have been set up and a series of Goal-specific meetings are conducted at the CPMU level to identify the data gaps and efforts to bridge the gaps. According to senior staff at CPMU, an SDG vision document of the State is under preparation and was expected to be released sometime in late 2020.

A state-level Steering Committee and SDG Monitoring Group have been set up to review progress with respect to SDGs. With Planning Secretary as a convener and Chief Secretary as Chairperson, the Steering Group acts as the apex body in implementing and monitoring SDGs in the State. The SDG Monitoring Group, with Planning Secretary as Chairperson and Director (CPMU) as the convener, has formed teams to coordinate the implementation of SDGs at District, Urban Local and *Panchayat* levels.

Monitoring Group functions as a Technical Forum. All types of technical issues connected with SDGs' performance raised by the departments shall be discussed and sorted out by this group. Monitoring Group shall recommend those issues to Steering Group, which need intervention at higher levels.

At the same time, to meet the human resource requirement, an SDG Cell has been constituted. The government constituted this SDG Cell in the CPMU Department under the direct supervision of the Assistant Director, CPMU, with the four Research Associates on a contract basis and one Research Officer as a member. SDG Cell will document all activities related to SDGs in the State and prepares status reports as and when required. The SDG Cell upkeep and maintains all data/reports/publications related to SDGs.

The Economics and Statistics Department has been designated as the nodal department for data management. Necessary information and communication tool has been procured for the use of nodal departments and nodal offices.

Table 5.9 briefly summarises the interventions by various departments in Kerala under SDG 12 and how complex the entire system works.

Table 5.9: SDG Interventions by Various Departments in Kerala

SDG 12 Target	Dept In-charge in Kerala
12.1 Implement the 10-year framework of programmes on SCP,	Agriculture Dept
12.2 By 2030, achieve the sustainable management and efficient use of natural resources.	Agriculture Dept
12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along	Agriculture Dept

production and supply chains, including post-harvest losses.	
12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle.	Pollution Control Board
12.4.1 Number of parties to international multilateral environmental agreements on hazardous waste and other chemicals that meet their commitments and obligations in transmitting information as required by each relevant agreement.	NA
12.4.2 Hazardous waste generated per capita and proportion of hazardous waste treated, by type of treatment	Pollution Control Board
12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse	Pollution Control Board
12.5.1 National recycling rate, tons of material recycled	Pollution Control Board, Agriculture Dept
12.5.2 Number of municipal corporations using waste segregation techniques	Local Self Government Department

SDG cell Research Associates are appointed by the Kerala Institute of Local Administration (KILA) with UNICEF's support. CPMU works in tandem with KILA to sensitise officials about the importance of SDGs and coordinate effective implementation and monitoring of SDGs. For this, KILA coordinates with all training institutes under various Government Departments in Kerala.

Workshops, trainings and review meetings are held to raise awareness among Government officials, public representatives, CSOs and other stakeholders about SDGs. However, these awareness works are not adequate since most government officials met during the survey of this study are either unaware of SDGs or unable to link SDGs to their departmental sustainable activities. Also, nothing much has been done within the state to raise public awareness about SDGs.

Kerala is undoubtedly a forerunner when it comes to the implementation of the SDG agenda. A well thought out framework ensuring close collaboration between various departments as well as the active participation of all relevant stakeholders exists. The SDG Monitoring Group (January 2018) formed teams to coordinate SDGs at District, Urban Local and Panchayat levels. Consultations and capacity-building activities at the State, districts and sub-district levels continue.

The state has also initiated designing a Dashboard with the help of IIITM-K with support from DES-Data Partner and KILA-Localising Partner.

Challenges Identified Through Survey

Major challenges that hamper the effective implementation of SDG works within the State are: a) lack of coordination between various departments b) inadequate funds c) shortage of technical staffs d) very poor awareness among the officials, except a handful, about SDGs across various departments e) inconsistent and unreliable data collection f) Priorities shifted to rebuild Kerala, after the State got affected by consecutive floods, heavy rain and landslides past few years.

Coordinated institutional mechanisms are vital for creating partnerships across sectoral ministers and agencies and managing inter-connections between Goals and Targets. Kerala needs to seriously address this shortcoming and remediate actions to ensure their mechanisms' better functioning.

Likewise, while the State implements many successful schemes and sustainable programmes most of the officials responsible for the implementation are unaware that such schemes and programmes are linked to SDGs.

Challenges Identified Through Literature Review

Persistent effort towards growth and development has certainly depleted some of its natural resources and has altered the ecological balance. The state has witnessed an exponential growth of real estate. The contribution of agriculture to the state's GSDP was 52 percent in 1960-61, which was stooped to 11 percent in 2014-15 and 10.58 percent in 2016-2017.[74]

This decline in the production of food crops gives an apparition of food shortage and price inflation for staple food. It hints at ecological imbalance due to the conversion of paddy fields. The demand for more buildings encouraged miners to dig up and transport more river sand. Builders also reclaimed wetlands for construction.

In 2004, Kerala had around 328,402 hectares of wetlands. Currently, this has fallen to 160,590 hectares - a dramatic 49 percent decrease.[75] Kerala eventually went from being the state known for its biodiversity to being a large metropolis broken up from Mother Nature.

Impact of uncontrolled growth is now being experienced in the form of global wrming and frequent natural disasters.

Such uncontrolled growth is now being experienced in the form of global warming and frequent natural disasters. The recent consecutive floods have left surpassing damage to the agriculture sector, affecting cash crop cultivation

[74] Sara John, Revival of Kerala Economy: Is Agriculture given due relevance?, December 11, 2018. Accessible at <www.cppr.in/articles/revival-of-kerala-economy-is-agriculture-given-due-relevance>

[75] Kerala's welands under threat from unscientific land use, deforestation: Experts, The News Minute, March 02, 2017 . accessible at <www.thenewsminute.com/article/kerala-s-wetlands-under-threat-unscientific-land-use-deforestation-experts-57993>

and dairy farming and took a greater toll on paddy cultivation, causing an estimated loss of INR 1355.68 crore to 3.14 lakh farmers.[76] The actual loss will be even more considering its impact on the industries hitched and the loss of jobs.

Efforts to attain XIII Five Year Plan priorities of the Government of Kerala and SDGs have been negatively impacted. It is clear from this disaster that Kerala needs to adopt a revised path towards sustainable development. Besides integrating the SDGs into its ongoing policies and programmes, Kerala is now forced to focus on putting in extra effort to maintain and further rework to achieve the SDGs targets.

According to a recent study, nearly 40 percent of the 5,924 granite quarries in Kerala in 2014-15 were located in ecologically sensitive areas.[77] Therefore, the growth potential of Kerala sustains only with improved natural resource enrichment and reduced pollution load. Though environmental schemes and programmes exist to protect natural resources, there is no local capacity to implement them. There is a need for dedicated staff in every local government body to map the valuable natural resources within his jurisdiction and advise the local administration on how best they can be managed.

Similarly, Kerala generates 8324 tonnes per day (TPD) of solid waste and these are primarily dealt by the 941 *Grama Panchayats* and 87 Municipalities and 6 Corporations. While 70 percent of biodegradable waste is treated at households, institutions and community level, the overall waste management programmes throughout Kerala are not modern or well managed.[78]

The local government bodies cannot exercise their mandate correctly due to a shortage of funds and expertise, except in districts like Alappuzha. It will be more appropriate to look at it as a state-wide issue, see what waste streams need centralised solutions, be locally managed, and address extended producer responsibility.

Likewise, though Kerala pioneers Responsible Tourism (RT) initiatives, it is still far from the core concept of regional level sustainability. Efficient usage of the State's income from tourism can help address sensitive areas and habitat conservation. Sound environmental management of tourism facilities can increase the benefits to natural areas, but this requires careful planning for controlled development based on the area's environmental resources analysis. Moreover, waste treatment and disposal are often long-term ecological problems in the tourism industry.

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76 Kerala floods: Agriculture production badly hit; losses may cross Rs 1356 crore, The New Indian Express, 25th August 2018. Accessible at <www.newindianexpress.com/states/kerala/2018/aug/25/kerala-floods-agriculture-production-badly-hit-losses-may-cross-rs-1356-crore-1862433.html>

77 Kerala floods: Man-made or nature's fury?, The Hindu Business Line, August 23, 2018 . Accessible at <www.thehindubusinessline.com/opinion/kerala-floods-man-made-or-natures-fury/article24762090.ece>

78 Kerala Post Disaster Needs Assessment Floods and Landslides, August 2018. Accessible at <www.undp.org/content/dam/undp/library/Climate%20and%20Disaster%20Resilience/PDNA/PDNA_Kerala_India.pdf>

Therefore, more focus on pollution prevention and waste minimisation techniques is vital for the State's tourism industry. Also, tourists and businesses related to tourism consume an enormous quantity of goods and services. The government should encourage stakeholders to use those produced and provided in an environmentally sustainable way, from the cradle to the grave.

Besides, Kerala needs to work more to address food losses along production and supply chains. According to the Ministry of Consumer Affairs latest data, Food & Public Distribution, the total quantity of damaged food grains lying in different Food Corporation of India (FCI) godowns as of January 01, 2019 4135.224 MT. Kerala is in the fifth spot where a total of 33.201 MT food grains have been damaged, out of which wheat is 0.994 MT and rice 32.207 MT.[79] Likewise, Kerala's total fish processing and storage facility is grossly inadequate compared to fish production and processing potential.[80]

Most exports are in the form of frozen fish. The lack of storage facilities and processing plants leads to an inefficient supply chain in the sector. Therefore, setting up cold storage facilities and cool local chambers and other infrastructure support for the markets is essential to support the marginal and vulnerable farmers.

More importantly, achieving such ambitious goals requires intense action from the part of the government. The government should more seriously consider sustainable spending as it can enable policymakers to "lead by example" when it comes to sustainable development. By doing so, they can easily lead vast supply chains towards implementing more sustainable practices, achieving environmental, social, and economic policy objectives.

While techniques, such as the phasing out of incandescent lamps and insistence on purchasing Bureau of Energy Efficiency (BEE) three-star or higher star products exist, much more concrete steps should be taken. The existing purchasing manuals sideline the importance of sustainable procurement and sustainable purchases carried out are primarily initiated in isolation, *ad hoc* in nature, and yet to be replicated at a larger scale across the public procuring entities.

More importantly, while the workshops, training, and review meetings are held to raise awareness on SDGs among Government officials, public representatives, civil society organisations, and other stakeholders, hardly any efforts are taken to raise public awareness.[81]

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79 Here is India's food grain storage report card, One India, 13 February 2019. Accessible at <https://in.news.yahoo.com/india-apos-food-grain-storage-141245450.html>

80 Kerala Report on Agriculture Development, Task Force Report. Accessible at <www.niti.gov.in/niti/writereaddata/files/Kerala_Report_0.pdf>

81 Report of the Comptroller and Auditor General of India on Audit of Preparedness for the Implementation of Sustainable Development Goals, Union Government (Civil) NITI Aayog Report No. 8 of 2019. Accessible at

Successful Practices in Kerala

Solid Waste Management – Alappuzha Municipal Cooperation

With certain exceptions, Kerala's waste management sector, like anywhere else in the country, was primarily a mere 'collect and dump' type model. Unsegregated mixed wastes from municipal and commercial establishments are collected and disposed of to landfills or through incineration.

However, in coordination with district Suchitwa Mission, the Alappuzha municipality started implementing a 'Nirmala Bhavanam Nirmala Nagaram'[82] (Clean Homes Clean City) in November 2012. The focus of the initiative is the segregation and treatment of wet waste at the source itself.

United Nations Environment Programme (UNEP) in its report 'Solid approach to waste: How five cities are beating pollution' recognised Alappuzha amongst five cities in the world that are working towards curbing pollution through their sustainable solid waste management practices.

During the first phase of work, the project focused on 12 of the most urbanised wards with almost 12,000 houses in total. The plan was to make the maximum number of households owning land, set up portable biogas plants or fixed biogas plants. Those who did not have enough land to set up the plants were advised to go for pipe composting.

For the cost not to be a deterrent factor for public acceptance, the municipality offered a subsidy while purchasing. For example, a pipe compost unit sold in the market for INR 1000 was provided to households at INR 100-120, with the municipality and the state government sharing the subsidy of 90 percent. Similarly, a biogas unit that costs around 15000 was given at a 75 percent subsidy that translated into an affordable INR 3750 for each household.[83]

As for plastic waste, the municipality ensured systematic collection on specified dates and locations. These collected non-biodegradable wastes were either given to private contractors or the state-owned Clean Kerala Company for recycling.

To date, the municipality has set up 23 waste collection centres with around 220 Thumburmuzhi bins at public places and the old waste dumping spots. These are maintained by the 170 plus contingent workers of the municipality who used to collect waste from dump spots in the city and transport it to Sarvodayapuram. The households that do not have other waste processing facilities can bring their waste to the aerobic bins set up within a radius of every one kilometre. About 10,000 households are connected to these collection centres. Apart from the households, 25 percent of the

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<https://cag.gov.in/sites/default/files/audit_report_files/Report_No_8_of_2019_Preparedness_for_the_Implementation_of_Sustainable_Development_Goals_Union_Government_Civil_NITI_Aayog.pdf>

82 *Ibid.*

83 Sanchari Pal, How Kerala's Zero Waste Alappuzha won a Spot among top 5 Cities in UN List, The Better India, 30 Dec 2017. Accessible at <www.thebetterindia.com/126083/kerala-alappuzha-zero-waste-cleanest-city-india-un/>

biowaste from small shops too reached these bins. Compost from these is given free of cost to farmers.

Simultaneously, to check garbage disposal in public places and curb it forever, the municipality formed night squads of sanitation workers. If any resident is caught throwing waste, she or he is fined INR 2500. Suppose waste is dumped into a canal or a water body. In that case, the fine may go up to INR 20000 under Section 340 B of the Municipal Solid Waste Rules for contaminating and polluting water sources. A closure notice may also be served for shops and hotels.

Money saved on diesel used for operating 40-50 trucks to transport the waste to the dumping yard alone comes to about INR Five Millions. The cost of the biogas produced through the plants works out to INR Six Millions. The fertiliser can fetch up to INR Three Millions.

Interestingly the Clean Homes Clean City initiative has helped Alappuzha municipality earn few awards. It includes the Kerala government's energy conservation awards for 2013- 14, the lean City Award from Centre for Science and Environment in 2016, and UNEP's recognition. Besides, the money saved on diesel used for operating 40-50 trucks to transport the waste to the dumping yard alone comes to about INR 5mn. The cost of the biogas produced through the plants works out to INRmn. The fertiliser can fetch up to INR3mn. The savings are bound to go up when more and more wards join the project.[84]

Alappuzha's experiments with decentralised waste management have inspired other municipalities to replicate the same models within the state successfully. A state policy has been developed to bring 1000 Village Panchayats to install aerobic bins to process organic waste. The Thiruvananthapuram Corporation has already installed biogas plants and pipe composts at few wards.

Responsible Tourism

Community participation in the tourism sector is effectively implemented in Kerala through the Kerala RT mission since October 2017. The Mission is envisaged with a 'triple-bottom-line mission comprising economic, social and environmental responsibilities. It intends to use tourism as an instrument for developing the village and local communities, eradicating poverty and emphasising women empowerment. The mission aims to provide an additional income and a better livelihood to farmers, traditional artisans, and marginalised people and create a social and environmental equilibrium.

The second international conference on RT in 2008 came up with a Kerala Declaration on RT, which upheld the idea of conserving the local natural and cultural heritage and enhancing the host communities' well-being. Poverty reduction, local people's economic

84 Kerala's Zero Waste Alappuzha among top 5 Cities in UN List to Successfully Manage Solid Waste, FirstPost, 01 Dec 2017. Accessible at <www.firstpost.com/india/keralas-zero-waste-alappuzha-among-top-five-cities-in-un-list-to-successfully-manage-solid-waste-4236667.html>

participation as direct owners in the business of tourism and employment generation is some issues that will be given maximum priority. There will be more participation from local governments in this regard.

The United Nations World Tourism Organisation (UNWTO) also appreciated Kerala's RT initiatives and called it an ideal model for replicating other destinations. It also underlined the need for further close collaboration between Kerala Tourism and UNWTO to help take the message of sustainable tourism forward.

Kerala launched the first phase RT initiative between 2008-2010 in four destinations – Kovalam, Kumarakom, Thekkady and Vythiri on a pilot basis. In 2011-2017, under the second phase, the initiative was extended to three more destinations – Kumbalanghi, Bekal and Ambalavayal. Kumarakom was the first place in the country to implement RT successfully. In the year 2017, under the third phase, Kerala formally adopted the RT Mission. Activities of RT Mission includes –

- Awareness creation about RT
- Training and capacity building programmes for local community members
- Formation & networking of RT Mission Units
- Marketing for tourism-related products of the local community
- Experiential tour packages
- Tourism resource mapping at the grass-root level
- Environment protection initiatives
- Peoples participation in participatory planning and empowerment
- Online networks for the promotion of RT Units
- Ethnic Food Cuisine Network
- Festival packages
- Ethnic/Local Cuisine Network

Table 5.10: Summary of the Effectiveness of RT Mission[85]

Particulars	Before RT Mission (2008-2017) 9 Years	After RT Mission (2017 Aug- 2020 January 31st)	% Increase
Registered Units	197	17008	8533
Women-Owned/Leading Units		13019	-
Direct Beneficiaries	843	31432	3628
Indirect Beneficiaries	2529	61548	2333
No. of Experiential packages operational	7	140	2000
Income generated	12 Cr	26.49 Cr	100

[85] K Rupeshkumar, Responsible Tourism Practices in Kerala, State Responsible Tourism Mission Coordinator, Dept. of Tourism, Government of Kerala.

In 2013, for the first time in India, Kerala Tourism was conferred the top UN Award - UNWTO Awards for Excellence and Innovation in Tourism- for its global leadership in creating innovative initiatives for sustainable tourism at Kumarakom. After the successful implementation of Kumarakom, RT was implemented in other tourist destinations across the State. After the RT Mission formation in June 2017, Kerala Tourism received 6 Awards (3 national and 4 international) for its RT activities. More importantly, the RT initiative is aiding travellers, the local population and the trade to derive the most significant possible benefits from tourism without causing any ecological or social damage.

The units under the RT Mission in Kerala recorded a sharp uptick in their revenue to ₹23.07 crore in 2019-20 as against ₹4.98 crores and ₹4.51 crore in the previous two fiscals. The total number of guests, who visited rural Kerala under the experience packages offered during the period, stood at 49,017, including 32,433 foreigners.[86]

Box 5.1: Responsible Tourism at Kumarakom

Demographic Details: Kumarakom, a cluster of islands, is part of Kuttanad, the Rice Bowl of Kerala. It lies a few feet below sea-level, about 14 km from Kottayam. The village is sprawled over 51.67 sq. km, which is inclusive of 24.13 sq. km of the lake. The lush paddy fields below sea level are spread over an area of 15.75 sq. km. The remaining portion of 1253 hectares is dry land. The census survey conducted in 2001 shows that the population is about 23,000 and the number of households is about 5,120. The sex ratio, like that of the rest of the State, is in favour of women. As of 2001, the ratio was 1026 females for 1000 males.

Blessed with its picturesque beauty, Kumarakom is a declared Special Tourism Zone since 2005 by Kerala. With the growth of tourism, there was a shift in the occupational trends of the villagers. Many left traditional agricultural work to reap the harvest of this relatively new industry. However, there are still more than 2000 villagers with jobs in the farming sector. Lime-shell collection, fishing and construction are the other major occupations.

It was in March 2008 that the RT project was officially inaugurated in Kumarakom. Kumarakom is now a major RT destination of the State. Within years of its initiatives, RT in Kumarakom is being recognised as a grand success more than the other RT tourist destinations.

RT and Community Participation: Stakeholder participation is an increasingly accepted component of sustainable practices in most parts of the world. Recognising this, during RT implementation, discussions were conducted in three sub-groups consisting of local self-governments and civil society organisations; tourism industry, and State government departments and organisations. A series of economic, socio-cultural and environmental issues were identified by each of these sub-groups and eventually led to the preparation of a

[86] All is going good for Responsible Tourism units, The Hindu, 05 April, 2020. Accessible at <www.thehindu.com/news/national/kerala/all-is-going-good-for-responsible-tourism-units/article31264397.ece>

framework for the implementation of RT. Based on this framework, a State Level RT Committee (SLRTC) was constituted consisting 40 members with representation from different groups of stakeholders. SLRTC was the main strength behind the implementation of RT in Kumarakom.

Working Groups were set up for steering economic, environmental and socio-cultural aspects of tourism management in the destination. At the local level, multi-stakeholder Destination Level RT Committees (DLRTCs) and local level implementation cells consisting of working groups that mirrored the state level working groups were formed. The DLRTCs had representatives from local self-governments, the tourism industry, NGOs, civil society organisations, academia and media. Additionally, organisations and individuals professing expertise in a range of subject areas of relevance to the management of tourism were also made members.

RT and Women Participation: While the state-level committees prepared guidelines for RT, local committees worked on the specificities of implementing the guidelines. Thus, though supported by the state tourism department, the initiatives were formulated by local governments through destination level planning, implementation, and monitoring. However, a major push for the initiative came when the Kudumbashree programme was involved. Kudumbashree is the poverty eradication and women empowerment programme by developing entrepreneurial skills amongst women while contributing to local economic development implemented by the State Poverty Eradication Mission of the Government of Kerala.

The RT initiatives also received strong support from the hotel owners and resort owners within Kumarakom. Many signed tripartite agreements for producing produce from Kudumbashree with the local government also as a signatory. While separate committees to fix price and check the quality of the materials supplied were active initially, as time elapsed, trust developed. These became dormant and happened only on occasions where a severe disparity in price/quality was noted compared with the market.

Employment opportunities for the villagers: An association of farmers comprising 450 farmers in ten groups known as "Karshaka Samithi's" are associated with RT initiatives. Around 512 farmers supplied vegetables to restaurants and hotels through Samrudhi by cultivating vegetables in their land or house premises. A total of 168 acres of unused land has now been developed with the advent of tourism in Kumarakom. The local community was economically rewarded as they got the opportunity to utilise their traditional lifestyle and cultural talents. RT Cell aided in setting up of units for vegetable cultivation, fish processing, chapatti making, chicken processing, the supply of tender coconuts, gift making, papad making, handicraft and painting, souvenir, and performing groups like Shinkarimelam, traditional dance forms like Thiruvathira, Kolkali and Vattakkali and other cultural groups.

Development of infrastructures within Kumarakom panchayat happened through the RT initiatives. The Drinking Water Scheme, set up with the support of the hotel industry at Kumarakom, is a perfect example of RT's local community's direct benefit. Even the street lighting improved drastically with the efforts of the RT Cell and panchayat. At the same time, RT supported the development of entrepreneurs. Three souvenirs of Kumarakom were developed by the RT Destination Cell- a houseboat model, a snake boat model and a depiction

of traditional angling of the fishermen in Kumarakom. Local communities who produced such goods benefited because of the lack of intermediaries and their profits reached their own pockets.

RT and the Environment: The RT programme in Kumarakom has taken up many environmental activities. The Kudumbasree units have started making eco-friendly bags with non-woven fabric and paper, making Kumarakom plastic-free. Destination cleaning groups of women (Parisara sevikas) have been set up in the village. They also collect waste from hotels and resorts and dispose of it through eco-friendly methods using biogas or vermicompost plants. The Grama Panchayat supports the move to eliminate plastic carry bags in Kumarakom.

The RT authorities also support studies and surveys related to the environment in Kumarakom. These surveys help check the status of the ecological balance and act accordingly. For example, a survey of waste ponds was conducted. Consequently, fish farming was undertaken in these ponds. Measures for the protection of the avian fauna were taken as a result of a study on birdlife at the sanctuary.

RT provides the vision and the direction for the preservation of the beautiful environment in and around Kumarakom. Strict rules have been implemented to keep plastic bags out of Kumarakom. The authorities are also planning to implement Zero waste Kumarakom, aiming to make the locality waste-free. Energy management and waste management for all the commercial establishments in the area, including the houseboats, have been made more eco-friendly. Organic farming and green practices have been encouraged. Special attention was given to the protection of mangrove forests and the efforts of those who try to preserve them were recognised.

Tourists truly get a lifetime experience as they are allowed to experience village life through tour packages like the "Village Life Experience" and "A Day with the Farmer." The direct beneficiaries of tourism include the participants of the package as well.

Source: Summarised from Kerala Tourism Website. Accessible at <www.keralatourism.org/responsible-tourism/kumarakom>

Current Challenges - RT

Over one lakh people are affiliated with the RT Mission in Kerala and all of them are going through a tough situation and all units have seen a drastic fall in revenue. The loss from the pandemic for these grassroots units comes to around 50 Million INR. The art groups that are part of the RT Mission have not conducted any programmes for a month. The Village Life Experience Packages stakeholders—the traditional labourers, community tour leaders, tour guides, auto taxi drivers, taxi drivers, boat owners and drivers—that work with the Mission are deeply concerned about their jobs and livelihood. Mission's vegetables, fruits and egg production units are also facing heavy losses. Concerns about income generation and the pandemic situation are widespread.[87]

[87] World will decisively move towards Responsible Tourism after this pandemic, 13 April 2020. Accessible at <www.responsibletourismindia.com/inspire-me/world-will-decisively-move-towards-responsible-tourism-after-this-pandemic/483>

Kerala has prevented the spread of disease to a large extent. But those in the tourism industry, especially small units, are worried about how long the world will emerge from the pestilence, as their lives are directly impacted.

Way Forward - RT

Several suggestions have been made to the Government for revenue generation and creating alternative livelihood models for the RT Mission units in the months that tourism will recover. These include:[88]

- Arranging low-interest or interest-free collateral-free loans (minimum of Rs 1 lakh).
- Replicate the Samrudhi Programme of RT, under which women run an ethnic food restaurant, that was successfully implemented in Kumarakom to generate local employment.
- Make the RT Units to shoot small videos of their activities, artists' performance, cooking videos, etc and promote it through a Youtube channel. Interested people can watch and even contribute small donations.
- Emphasise marketing of homemade products like pickle, jam, dried and value-added fruit products in the local markets.
- Establish RT Mission branded outlets for various products like vegetables, fruits, tender coconut, etc.
- Include milk and egg from RT Mission units for the food supplied in schools and Anganvadis.
- Online training for units with new products suitable for the local market.

Rajasthan

Introduction

The State of Rajasthan is situated in India's western part, which faces severe water scarcity, inadequate rainfall, and is classified as an arid/semi-arid region. Rajasthan is the largest state in the country in terms of geographical area. As per Census 2011, the population of Rajasthan is 6.85 crore and it is 5.66 percent of the national population. The population's decadal growth rate is 21.3 percent during 2001-2011 compared to 28.4 percent in the previous decennial period of 1991-2001.

The pace of growth has slowed down, but still, it is higher than the all-India level. The population density in the State has increased from 165 per sq.km in Census 2001 to 200 in Census 2011. The overall sex ratio of the population of Rajasthan in terms of the number of females per thousand males is 928 compared to 943 of all India.

The literacy rate of Rajasthan is 66.1 percent in total and 79.2 percent and 52.1 percent for males and females, respectively. The overall sex ratio of the population of Rajasthan

[88] *Ibid.*

in terms of the number of females per thousand male is 928 compared to 943 of all India. The literacy rate of Rajasthan is 66.1 percent in total and 79.2 percent and 52.1 percent for males and females, respectively.

According to the Economic Review 2019-20 released by the Department of Planning, Rajasthan, in 2019-20, the Rajasthan economy grew at 5.05 percent (at constant prices) as against 6.97percent (at constant prices) in 2018-19. Also, as per the advance estimates, the real GSDP or GSDP at constant (2011-12) prices for the year 2019-20 is likely to attain a level of ₹7.12 lakh crore, as against ₹6.77 lakh crore in the year 2018-19.[89]

The per capita income is derived by dividing the Net State Domestic Product by the state's mid-year total population. As per the advance estimates, the per capita income at constant (2011-12) prices for the year 2019-20 is estimated to be ₹81,355 as compared to ₹78,570 for the year 2018-19, registering a growth of 3.54 percent in 2019-20 over the previous year 2018-19.

The agriculture sector's contribution in Rajasthan, which includes crops, livestock, forestry, and fishing sectors, decreased to 25.19 percent in the year 2019-2020 from 28.56 percent in 2011-12. The industries sector's contribution, including mining, manufacturing, electricity, gas water supply, and remedial services and construction sector, decreased to 30.67 percent in 20149-20 from 32.69 percent in the year 2011-12. The contribution of services sectors which includes railways, other transport, storage, communication, trade, hotels and restaurant, real estate, ownership of dwellings, public administration, financial and other services sectors increased to 44.14 percent in the year 2019-20 from 38.75 percent in the year 2011-12.

SDGs

Rajasthan has undertaken initiatives towards effective implementation and achieving the SDGs. As per the 'SDG India Index Baseline report 2018'. Rajasthan has been ranked as a performer on the Composite SDG India Index with an Index Score of 59. SDG India Index 2.0 launched in 2019; Rajasthan has been ranked as 'Performer' on Composite with an Index Score of 57.

89 'Economic Review 2019-20' (Directorate of Economics & Statistics Rajasthan, GOVERNMENT OF RAJASTHAN) <http://plan.rajasthan.gov.in/content/dam/planning-portal/Directorate%20of%20Economics%20and%20Statistics/Publication/Regular%20Publications/economic%20review%20english/Economic_Review_English_2019-20.pdf> [accessed 9 September 2020].

Table 5.11: The SDG Goal-wise Index Score of India and Rajasthan[90]

SDG Item	Aim	Rajasthan's Score		All India Score	
		2018	2019	2018	2019
1	Ending poverty in all its forms	59	56	54	50
2	End to all forms of hunger and malnutrition	45	35	48	35
3	Attain a level of health enabling to lead economically and socially productive life	49	58	52	61
4	Inclusive, equitable and quality education to all, including technical and vocational training	73	51	58	58
5	Gender Equality	37	39	36	42
6	Clean Water and Sanitation	43	76	63	88
7	Access to affordable, reliable and modern energy sources	63	61	51	70
8	Decent work and Economic growth	57	65	65	64
9	Industry, Innovation and Infrastructure	62	38	44	65
10	Reduced Inequalities	79	70	71	64
11	Sustainable cities and communities	45	61	39	53
12	**Sustainable Consumption & Production**	**-**	**30**	**-**	**55**
13	Climate Action	-	60	-	66
14	Life Below Water	NA[91]	NA	-	-
15	Protect, Restore and Promote sustainable use of terrestrial ecosystems	68	75	90	66
16	Peace, Justice and Strong Institutions	81	76	71	72
	Composite	59	57	57	60

[90] SDG India Index, Baseline Report, 2019, Accessible at <www.niti.gov.in>
[91] Not applicable

Table 5.12: Rajasthan Performance Indicator under SDG 12[92]

SDG 12	
Groundwater withdrawal against availability (%)	139.88
Nitrogen fertiliser usage out of N, P and K (%)	73.68
Per capita hazard waste generated	0.01
Hazard waste recycled to hazardous waste generated	0.03
Municipal Solid Waste (MSW) treated against MSW generated	9.73
Installed capacity of grid-interactive biopower	0.16
Wards with 100% source segregation (%)	79.42

Survey Report

State Planning Department has been declared as nodal department for SDGs and the Department of Environment is the nodal department for SDG 12 implementation & monitoring. A dedicated cell has been established in the Directorate of Economics & Statistics to collect data on Targets/ National Indicators and review progress.

Rajasthan has set up a State-level implementation and monitoring committee under the chairmanship of Chief Secretary, Government of Rajasthan. This Committee is responsible for setting up the state's SDGs agenda, developing the institutional framework of the state level, assigning roles and responsibilities of various stakeholders in the state and review the progress made in the State. The structure and scope of work for the committee are as under:

S.N.	Designation	Designation in Committee
1	Chief Secretary	Chairperson
2	Additional Chief Secretary, Forest and Environment	Member
3	Additional Chief Secretary, Finance	Member
4	Additional Chief Secretary, Urban Development and Housing	Member
5	Additional Chief Secretary, Industries	Member
6	Additional Chief Secretary, Social Justice and Empowerment Department (SJED) & Tribal Area Development (TAD)	Member
7	Additional Chief Secretary, Rural Development and Panchayati Raj Department (RD& PR)	Member
8	Additional Chief Secretary, Home	Member

[92] *Supra*

S.N.	Designation	Designation in Committee
9	Additional Chief Secretary, Agriculture	Member
10	Additional Chief Secretary, Medical and Health	Member
11	Principal Secretary, Local Self Government Department (LSG)	Member
12	Secretary, School Education	Member
13	Secretary, Labour, Employment, Skill and Entrepreneurship	Member
14	State coordinator or a representative from UNICEF, Rajasthan	Member
15	Principal Secretary, Planning	Member Secretary

Scope of work for the committee

- Ensure finalisation of state-level road map for SDGs implementation in the state.
- Review and analyse the progress of implementation of SDGs on a regular interval in the state.
- Suggest the strategy for SDGs implementation.
- Provide direction/suggestions to departments.
- Approval of state's periodic progress report on SDGs implementation
- The committee could invite officials from any other department or organisation as special invitees for a particular meeting, looking to the requirement.
- Committee meetings will be convened twice a year.
- The planning department would be the administrative department of this committee.

Based on the state-level committee's recommendation, 7 Sectoral Working Groups have been constituted for effective implementation of SDGs. The sectoral working group examines the strategic context and prioritises issues/concerns that need to be addressed in the context of achieving SDGs. It also conducts gap analysis with respect to monitoring indicators & also examines gaps in the related data reporting systems and suggests State-specific indicators for each SDG. The sectoral working groups and the associated goals are given in Table 5.13.

Table 5.13: Sectoral Working Groups and the Related Goals

Group Name	Related Goals
Group 1: Poverty Eradication & Food Security	**1,2, and 12**
Group 2: Healthcare, Water & Sanitation	3 and 6
Group 3: Education 4 and 5	
Group 4: Growth, Employment, Industrialization & Infrastructure	7,8,9 and 11

Group 5: Social Security & Empowerment	5 and 10
Group 6: Climate Change, Sustainable use of Ecosystem 13 and 15	
Group 7: Peace & Justice, Promote Partnership	16 and 17

Keeping in view the localisation for better planning and implementation of SDGs at the grassroots level, the Government of Rajasthan has constituted District level SDGs implementation and monitoring committees under the chairmanship of the respective District Collector. District level SDGs Implementation and Monitoring Committee prepare a district-level road map for SDGs implementation, district profile/fact sheet regarding SDGs as per targets and national indicator framework and District Annual SDGs report. All 33 districts have constituted the above district-level committee.

In Rajasthan, the state Institute of Rural Development and Panchayati Raj is guiding sensitisation/implementation of SDGs at the PRI level and the integration of SDGs with GPDP. A separate cell/unit for implementing SDGs at district/ULB/panchayat levels is to be established. For District Planning and Panchayati Raj Institutions level, Indira Gandhi Panchayati Raj & Gramin Vikas Sansthan (IGPR & PVS) regularly organised trainings/workshops for sensitisation and awareness development on SDGs and their integrations with Gram Panchayat Development Plans and District Plan.

The State has already conducted a mapping of the Goals and associated targets with Central sponsored schemes (CSSs) and State Government schemes/programme/initiatives. Direction has given to map all the departmental scheme budget provision with SDGs in point number 03 of the Budget Circular dated September 05, 2019, for the Financial Year 2020-21 by the Finance Department (Budget Unit). In this regard, Planning Department's detailed guidelines have been issued for mapping schemes being implemented in the State (CSS/State Sector) with respective Goal and Targets.

Table 5.14 briefly summarises the interventions by various departments in Rajasthan under SDG 12 and how complex the entire system works.

Table 5.14: SDG Interventions by Various Departments in Rajasthan

SDG 12 Target	Department In-charge in Rajasthan
12.1 Implement the 10-year framework of programmes on SCP,	-
12.2 By 2030, achieve sustainable management and efficient use of natural resources.	-
12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses.	The Directorate of Economics and Statistics
12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle.	-
12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse	Local Self Government Department
12.6 Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle	-
12.7 Promote public procurement practices that are sustainable, in accordance with national policies and priorities	-
12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature	-
12.a Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production	-
12.b Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products	Tourism Department
12.c Rationalise inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions	

Challenges Identified Through Survey

- The vision document for SDG is still in progress.
- The concerned department for SDG 12 target has not been finalised yet.
- Localising the SDG indicators is in progress.
- The government approach towards Responsible tourism is in progress. Responsible Tourism is one of the critical targets of SDG 12.

Challenges Identified Through Literature Review

With more than 508 million, Bihar, UP, Rajasthan, Madhya Pradesh and Chhattisgarh are collectively larger than Russia and the US. More than 70 percent of Europe's population resides in these four states. The states cannot reap demographic dividends because at least 28 percent (140 million) of their total population live below the poverty line.[93]

The most significant consequence of sustained economic growth has been the steep reduction in the poverty rate. As per the Tendulkar Committee estimates, the state's overall poverty rate declined from 34 percent in 2004-05 to 15 percent in 2011-12, a near 20 percentage-point reduction compared to a national level drop of 15 percentage points.

Agriculture in Rajasthan is likely to face challenges due to increased production demand; fertilizer use will increase. Apart from this other source includes field burning of agriculture crop residue which is common in certain areas. However, there are no firm estimates of emissions from these sources.[94]

There are no estimates or studies for future emissions currently available for the state of Rajasthan. However, given that about 70 percent of the population is rural, energy access is still a challenge. Besides increasing its energy security through harnessing renewable energy potential, the government has taken some important measures on the demand side management and energy efficiency in various sectors. However, one of the many challenges that the state faces is that of low energy efficiency. Inefficiently, the MSME clusters in the state use either diesel or furnace oil or use woody biomass.[95]

Rajasthan only has one percent of India's total water resources. The average annual rainfall is 58 cm, varying from 15 cm in the dry, hot west to about 90 cm in the east, and 90 percent of the rainfall is during the monsoon season (July-September). In addition to the spatial variation in rainfall, there is great variability from year to year. Eastern Rajasthan falls in the semi-arid, 500– 1000mm annual rainfall zone and is intensively cultivated for pearl-millet/sorghum/Kharif pulses/maize– wheat/barley/mustard/rabi pulses.

Agriculture in Rajasthan is likely to face several challenges in the light of increasing competition for resources such as water, land and energy, from non-agricultural sectors, along with increasing food demand due to the rising population, increased use of fertilizers due to increased production demand and increased water withdrawals for irrigation from canals, wells and tube wells.

Most of the state falls in the semi-arid region and the soil is characteristically low in carbon content and alkaline in most areas. Also, widespread land degradation poses a

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93 Subhojit Goswami, 'How These Five States in India Are Making It Difficult to Meet Global SDG Commitments' <https://www.downtoearth.org.in/news/governance/how-these-five-states-in-india-are-making-it-difficult-to-meet-global-sdg-commitments-60307> [accessed 7 November 2019].

94 'Rajasthan State Action Plan on Climate Change' (Government of Rajasthan) <https://nicra-icar.in/nicrarevised/images/State%20Action%20Plan/Rajasthan-SAPCC.pdf>.

95 *ibid*

persistent challenge. The problem of salinity has also seeped into the groundwater, with groundwater becoming more saline. Major irrigation projects are experiencing issues of waterlogging and salinity build-up in large pockets. There is also a tendency towards indiscriminate use of agricultural chemicals in irrigated areas

Rajasthan is also facing rampant illegal mining in and around the Aravalli hills range, threatening its biodiversity and ecosystem. The order dated October 29-30, 2002 prohibiting and banning the mining activity in Aravalli hills from Haryana to Rajasthan is modified insofar as the State of Rajasthan is concerned to the following effect: Wherever requisite approval/sanctions in the said State have been obtained under the Forest (Conservation) Act, 1980 and the Environment (Protection) Act, 1986 and the mining is not prohibited under the applicable Acts or notifications or orders of the court, mining can continue and to such mining, the order aforesaid will not apply.[96]

The Government of Rajasthan released ₹292.81 crores to Urban Local Bodies (ULBs) during 2015-17 for solid waste management under Swachh Bharat Mission. However, ULBs utilised only 20.69 percent of funds and in fact 22 ULBs utilised only 7.27 percent of allotted funds. Though adequate acts, rules and policies were available, there were no effective strategies/plans for 'Reducing, Reusing and Recycling' of waste in most ULBs and all *Gram Panchayats*. Further, in the absence of bye-laws and designated authorities to levy penalty, none of the GPs had imposed a penalty for violation of waste rules.[97]

The state did not prepare an integrated plan for the implementation of e-waste. The Municipal Solid Waste (MSW) door collection was not done in 55.41percenturban wards of the State during 2016-17. Solid waste was being neither segregated nor processed in all ULBs & GPs and unprocessed MSW was being dumped in open land. Further, landfill sites were constructed in only three out of 22 ULBs. However, these landfills were not being used. None of the test-checked ULBs established a mechanism for collection, handling, storage, transportation and disposal of plastic waste.[98]

Groundwater quality in Rajasthan has been hit by the simultaneous presence of man-made pollutants and naturally occurring toxic minerals, a study by the Duke University India Initiative has found.[99] The study found that over three-quarters of the tube wells and hand pumps contain contaminants such as fluoride, nitrate and uranium. The

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96 *Report of the Comptroller and Auditor General of India on Economic Sector*, 31 March 2017 <http://agraj.cag.gov.in/themes/dow/reportsERSA/ES-II/2016-17.pdf> [accessed 7 November 2019].

97 SATPAL SINGH, 'Solid Waste Management in Urban India: Imperatives for Improvement | ORF' <https://www.orfonline.org/research/solid-waste-management-in-urban-india-imperatives-for-improvement-77129/> [accessed 25 December 2020].

98 *Report of the Comptroller and Auditor General of India on Local Bodies*, 31 March 2017 <https://cag.gov.in/sites/default/files/audit_report_files/Report_No_2_of_2018_-_Local_Bodies_Government_of_Rajasthan.pdf> [accessed 7 November 2019].

99 'Widespread Uranium Contamination Found in India's Groundwater', *Nicholas School of the Environment*<https://nicholas.duke.edu/news/widespread-uranium-contamination-found-indias-groundwater> [accessed 7 November 2019].

contamination levels at these drinking water sources exceed the levels set by the World Health Organisation (WHO) and the current Indian norms.[100]

Studies also show that around 23.95 percent (2011-13) and 23.64 percent (2003-05) of desertification/ land degradation with respect to a total gross area of the country is contributed by Rajasthan, Maharashtra, Gujarat, Jammu & Kashmir, Karnataka, Jharkhand, Odisha, Madhya Pradesh (MP) and Telangana in descending order.[101]

Successful Practices in Rajasthan

Saving Initiatives in Street Lighting by Jaipur Municipal Corporation

Year-round high temperatures are commonplace in India, but in 2016 the highest temperature ever was recorded in the western state of Rajasthan — a scorching 51 degrees Celsius.[102] At the same time, fewer monsoon rains in preceding years, along with high temperatures, contributed to widespread drought conditions. Increased greenhouse gas emissions likely a cause of these climatic shocks.[103]

In India, the highest emitting sector is the energy sector, which accounts for nearly 70 percent of the country's total emissions. To decrease the energy sector's carbon footprint, India's national and municipal governments are exploring innovative solutions with less-intensive emissions. One innovation that was put in place in Jaipur, the capital of Rajasthan, was a public-private partnership (PPP) with the Jaipur Municipal Corporation (JMC).

Meeting Demand: Although Jaipur is known as India's "pink city," the city's vibrancy fades at night when a burdensome, antiquated, and undependable system of over 100,000 public street lights fails to illuminate the city uniformly. Almost 30 percent of the lights don't function, and darkness is frequently experienced in large swaths of the city. This results in important security and safety issues. JMC, the entity responsible for maintaining and operating the lighting system, is also responsible for the municipality's social development needs and often cannot fund the city's lighting system. Without the government utilising funds to learn about or invest in new lamp technologies, Jaipur's pink walls all too often are cloaked in darkness.[104]

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100 'In Rajasthan, Natural Contamination of Groundwater Worsened by Agriculture, Domestic Sewage: Report', *News18*<https://www.news18.com/news/india/in-rajasthan-natural-contamination-of-groundwater-worsened-by-agriculture-domestic-sewage-report-2320515.html> [accessed 7 November 2019].

101 *DOUBLING FARMERS' INCOME: ISSUES AND STRATEGIES FOR RAJASTHAN* (NRMC, Delhi, 2018) <https://www.nabard.org/auth/writereaddata/tender/2304192712NABARD%20Rajasthan%20NRMC%20Final%20Report%20NOV2018-final.pdf> [accessed 7 November 2019].

102 Nida Najar and Hari Kumar, 'Pray for Shade: Heat Wave Sets a Record in India (Published 2016)', *The New York Times*, 20 May 2016, section World <https://www.nytimes.com/2016/05/21/world/asia/india-heat-wave.html> [accessed 22 October 2020].

103 'Emissions Summary for India' (UN Climate Change (UNFCCC) Secretariat) <https://unfccc.int/files/ghg_data/ghg_data_unfccc/ghg_profiles/application/pdf/ind_ghg_profile.pdf> [accessed 20 October 2020].

104 'Lighting up Jaipur's Streets While Cutting Emissions' (IFC Climate Business) <https://www.ifc.org/wps/wcm/connect/c9e8ac95-5bcc-4d88-9604-

Jaipur's street lights are responsible for approximately 9 percent of the city's total corporate emissions. But, as a member of the C40 Cities Climate Leadership Group, a network of megacities committed to addressing climate change, Jaipur has made a strategic effort to explore creative solutions to lower its greenhouse-gas emissions.[105] Historically, JMC's ability to make repairs was severely limited by its old public lighting system, and when it did make repairs, it simply replaced archaic technology in lieu of exploring innovative and more cost-effective solutions. New LED technology requires less maintenance and reduces energy consumption by around 77 percent — both of which amount to lower government expenditures.

Prior Situation: The area of JMC encompasses around 46,000 acres and it has 62014 tube lights and about 28016 Sodium lights within this jurisdiction limits. There was a complaint management system for undertaking repairs of these Tube Lights and Sodium Lamps. In case of a lodged complaint, a driver with one vehicle and two helpers and a lineman would go to the fault point, analyse the fault and then report to the junior engineer or the related person.

The junior engineer or the concerned staff then reports this fault to the storekeeper for the particulars of the material required for the repairs. The Storekeeper then issues the material to the lineman. Then lineman would then go to the fault point and make the repairs accordingly.

This whole process was too lengthy and cumbersome. The cost of maintenance, including the cost of material and establishment material of one tube light per year, was more than ₹ 80. The efficiency level was 70 to 75 percent in the maintenance of the Tube light. The corporation procured material worth almost ₹ 150 lakhs/ year.[106]

The Initiative: The JMC decided to follow the PPP model to maintain street lights and issue contracts ward -wise. Initially, only 6 wards out of a total 70 were given on the contract in the project's first phase. The contract includes material and labour and other services like transport etc.

Payment by the corporation is based on every tube light. The contract formulated with the private contractor stipulates that any complaint is to be redressed within 24 hours and if the contractor fails to achieve this, he would be fined. 100 percent efficiency is required to maintain the tube lights and Sodium lights for the particular ward.

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d5249f3c6127/10StoriesOfImpact-Jaipur+Lighting.pdf?MOD=AJPERES&CVID=lpnmrMo> [accessed 20 October 2020].

105 'Energy and Carbon Emissions Profi Les of 54 South Asian Cities' (ICLEI-South Asia, 2009) <https://e-lib.iclei.org/wp-content/uploads/2015/04/Energy-and-Carbon-Emissions-Profiles-for-54-South-Asian-Cities.pdf> [accessed 20 October 2020].

106 'Best Practices of the Cities of Rajasthan' (City Managers' Association Rajasthan, Dirctorate of Local Bodies, 2003) <http://cmar-india.org/Pdf/BestPractice2.pdf> [accessed 20 October 2020].

Situation after the initiative: The results of the PPP are overwhelming. The efficiency level in the Tube and Sodium Lights maintenance has increased from 70 to 99 percent while expenditure cost has reduced by more than 50 percent, of the previous one. When it became successful in its first phase, the streetlights' PPP was undertaken in further phases of 10, 14, 18 and 22 wards. 52 wards out of 70 wards have been come under the PPP model and given on contract for street lighting.

There are around 9 control rooms spread all over the city for complaint redressal regarding the street lights. The total no of contractors is around 20, which have given the contract for the maintenance of street lights. They all have under the same contract. The PPP model of street lights has brought remarkable efficiency in the maintenance of the street lights. A street light policy is also under formulation for other cities of Rajasthan State.

Further to the street lights PPP model initiatives, the corporation has introduced solar timers to bring in energy efficiency and cost savings.

A total of 706 streetlight timers have been installed. These timers have been set according to the sunrise and sunset timings. The maintenance of these solar timers has also been given on contract. This contract is given to the Reel Company, which looks after the maintenance of these timers.

Energy saving: Streetlights generally remain on even after sunrise and are not switched off timely. The premise of installing timers is that even saving a few minutes of electricity is a substantial saving. The working of the solar timers is synchronised with sunset and sunrise timings, and with the help of group timers number of lights can be switched off at any time.

Lessons learnt:

- PPP model of street lighting can reduce the expenditure cost of street lighting.
- An efficient complaint redressal system should be managed to give 100 percent efficiency in the system.
- A significant energy saving can be obtained by implanting timers and attain timely switching on and off.

Rejuvenating River Dravyavati

Drayavati river foundation was laid and the work started in April 2016. The entire route was evacuated by removing the encroachment in the way of the river's flow. The main part of this entire project is five large sewage treatment plants. Like any other major city in the world, these plants can treat the city’s sewage with the capacity of 170 million litres per day. The sewage of the city will be treated here in the treatment plants. The clean and safe water will then be discharged into the river. Now neither will there be problems of polluted water nor any lack of water in the river. It will also help the groundwater recharge.

A Successful Strategy for Conserving Water

The 'Mukhya Mantri Jal Swavlamban Abhiyaan' (Chief Minister's Water Self-reliance Mission) was launched in Rajasthan to converge various schemes and bring them on a Sustainable Consumption and Production: A Consumer Perspective 59 single platform to conserve the four-waters concept, i.e., Rainfall, Runoff, Groundwater and Soil moisture up to its maximum potential in each region. The Rajasthan government's flagship water conservation project aims to harvest rainwater and make villages self-reliant in water and create 'Islands of Excellence.'

Features of the Campaign

- Making villages self-sufficient in water & creating "Islands of Excellence"
- Four-year program, each phase of one year
- Launched across 295 Blocks of 33 districts
- People's participation
- Mobilising financial resources from multiple sources- Line Departments, NGOs, Corporate houses, Religious Trusts, Non-resident villagers, Social groups etc.
- Use of technology
- Construction of low-cost water harvesting structures on watershed approach.

Programme Objective

- The emergence of self-water reliant villages
- Increase in groundwater level, availability of surface flow in the mainstream of watershed and availability of drinking water
- Increase in irrigated area, cultivable area and crop production
- Change in the cropping pattern
- Reduction in suspended sediments in flowing water of mainstreams and reduction in depletion of groundwater

In addition, sub-objectives of the program are secondary objectives, which are as given below:

- To encourage participation from all sections of the society
- To generate awareness among villagers/beneficiaries about judicious utilisation of water resources
- To identify works and proposals in consultation with local people to harness their traditional knowledge/practices and seek due approval of action plan in Gram Sabha (village council)

Way Forward

Replicate the model of Mukhya Mantri Jal Swavlamban Abhiyaan across India: With its conclusive success, this programme must be replicated in other states of India to address the issue of water scarcity as suggested by National Green Tribunal.[107]

Uttar Pradesh

Introduction

Uttar Pradesh (UP), often described as India's heartland, is spread across 2,40,928 square kilometres and has18 divisions, 75 districts and 821 community development blocks. UP is the fourth largest state in India and has the largest population. The state's population of 20.42 crores is equivalent to the people of Brazil. From the population, political awareness, historical and cultural heritage and freedom movement points of view, UP is a very important state of the country.

As much as 16.17 percent of India's population lives in the state. Geographically, it acquires 5th position and covers 7.3 percent land area of India. It is pertinent to mention that the strength of the state workforce is 23.7 percent, out of which 65.9 percent are farmers and 5.6 percent are industrial workers. Its per capita income is Rs. 13,262 as per the existing rate.[108]

UP's economy grew at 4.38 percent (at constant prices) against 5.33 percent (at constant prices) in 2018-19. As per the advance estimates, the real GSDP at constant (2011-12) prices for the year 2019-20 is likely to attain a level of ₹11.87 lakh crore, as against ₹11.37lakh crore in the year 2018-19. As per the advance estimates, the Per Capita Income at constant (2011-12) prices for the year 2019-20 is estimated to be ₹ 52,154 as compared to ₹ 50,731 for the year 2018-19, registering a growth of 2.80 percent in 2019-20 over the previous year 2018-19.[109]

UP's economy is primarily dominated by the tertiary sector, followed by primary and secondary sectors. The state is known as India's food basket as it is the leading producer of sugarcane, pointed gourd, peas, potato, muskmelon, watermelon, pumpkin, milk and milk products in the country. The state has the highest number of MSMEs in India. The state has several locally specialised business clusters such as Meerut, brassware in Moradabad, perfumes in Kannuaj, leather in Kanpur, shoes in Agra, and embroidered sarees Varanasi, carpet in Bhadohi, chikan work in Lucknow, etc.

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107 Correspondent, 'Mukhyamantri Jal Swavlamban Abhiyan Has Helped Raise Groundwater Level: CM Vasundhara Raje', *DNA India*, 2018 <https://www.dnaindia.com/jaipur/report-mukhyamantri-jal-swavlamban-abhiyan-has-helped-raise-groundwater-level-cm-vasundhara-raje-2671378> [accessed 7 April 2021].

108 'Social Demography' (Government of Uttar Pradesh), accessed 12 November 2019http://up.gov.in/Social-Demography.pdf.

109 'Uttar Pradesh Budget Analysis 2019-20', PRSIndia, 14 February 2019, https://www.prsindia.org/parliamenttrack/budgets/uttar-pradesh-budget-analysis-2019-20.

UP has very fertile land. Its economy is primarily driven by agriculture. UP is also among India's top manufacturing destinations, contributing more than 8 percent of national manufacturing output. The state's key industries include food processing, information technology (IT), tourism, mineral-based industries, auto components, textiles, handlooms and handicrafts, biotechnology, leather-based and sports goods industries.

UP is a popular tourist destination due to the Taj Mahal, Buddhist places of pilgrimage such as Sarnath and Kushinagar and prominent Hindu pilgrimage places such as Allahabad and Varanasi. The state was ranked second and third in terms of domestic and foreign tourist arrival, respectively, in 2017.

SDGs

According to Composite SDG India Index, 2019 prepared by *NITI Aayog*, UP is an aspirant state. UP has identified nodal departments for each of the 16 Goals. The nodal department for Goal 12 is the Department of Environment. Apart from the Department of Environment, 14 other UP government departments are working towards achieving goal 12 of SDG.

These departments are Agriculture, Animal husbandry, DWCD/ICDS, Environment, Finance, Food & Civil Supplies, Forest, Food Processing, Health and Family Welfare, Mining, MSME, NEDA, Panchayat Raj, and Tourism department. UP has identified monitoring indicators based on the National Indicator Framework. A baseline report is under preparation. UP, budgetary requirements for centrally and State-sponsored schemes based on the SDG framework have been prepared and forwarded to the Department of Finance.[110] However, according to Composite SDG India Index, 2019 prepared by *NITI Aayog*, UP is a performing state with 23 ranks. It is ranked 10 for SDG 12.

UP has improved its overall score from 42 in 2018 to 55 in 2019 and is the highest gainer. The biggest improvement has been in goal 7 – affordable and clean energy, where the jump has been by 40 points. Scores in goal 6 – clean water and sanitation and goal 9 – industry, innovation, and infrastructure, have climbed by 39 and 34 points, respectively.

[110] 'Department Wise SDG Brochure', accessed 12 November 2019, http://planning.up.nic.in/Go/SDG/Departmentwise_SDG%20Brochure%20-%20High%20Res-converted.docx.

Table 5.15: The SDG-wise Scores of Uttar Pradesh and all India Levels[111]

SDG Item	Aim	Uttar Pradesh's Score		All India Score	
		2018	2019	2018	2019
1	Ending poverty in all its forms	48	40	54	50
2	End to all forms of hunger and malnutrition	43	31	48	35
3	Attain a level of health enabling to lead economically and socially productive life	25	34	52	61
4	Inclusive, equitable and quality education to all including technical and vocational training	53	48	58	58
5	Gender Equality	27	41	36	42
6	Clean Water and Sanitation	55	94	63	88
7	Access to affordable, reliable and modern energy sources	23	63	51	70
8	Decent work and Economic growth	55	64	65	64
9	Industry, Innovation and Infrastructure	29	63	44	65
10	Reduced Inequalities	38	46	71	64
11	Sustainable cities and communities	37	56	39	53
12	**Sustainable Consumption & Production**	**-**	**62**	**-**	**55**
13	Climate Action	-	48	-	66
14	Life Below Water	NA[112]	NA	-	-
15	Protect, Restore and Promote sustainable use of terrestrial ecosystems	55	62	90	66
16	Peace, Justice and Strong Institutions	61	69	71	72
-	Composite SDG	42	55	57	60

[111] SDG India Index, Baseline Report, 2018 and SDG India Index Report, 2019-20. Accessible at <www.niti.gov.in>

[112] Not applicable

Table 5.16: Uttar Pradesh Performance Indicator under SDG 12[113]

SDG 12	
Groundwater withdrawal against availability (%)	70.18
Nitrogen fertilizer usage out of N, P and K (%)	67.82
Per capita hazard waste generated	0.00
Hazard waste recycled to hazardous waste generated	0.20
Municipal Solid Waste (MSW) treated against MSW generated	27.10
Installed capacity of grid-interactive biopower	0.93
Wards with 100% source segregation (%)	60.52

Survey Report

UP has created an interactive dashboard that presents the current levels of achievements of the state and its districts towards achieving the SDGs. Currently, it consists of 75 indicators included in the state's SDG monitoring framework. These indicators are spread across 12 SDGs. One SDG (Goal 14) is not applicable for UP and the remaining four goals (Goal 10, 12, 15 and 17) are not included due to lack of data.

According to the UP SDG dashboard website, more indicators will be added once data are available. Following the method used by *NITI Aayog*, the achievement score for 10 SDGs is calculated for the state and districts to assess their progress against the targets. Overall SDG score for the state and districts was calculated as the arithmetic mean of achievement scores for SDGs. The achievement scores and overall score were derived from progress reported for 51 indicators for which the state's targets are defined for 2030.

NITI Aayog's categorisation of the states into four categories – achievers, front runners, performers, and aspirants-categorizes the state and districts based on their overall SDGs score.

The State's Vision 2030 has 16 goals (goal number 14 is not applicable in UP) with a nodal department and a nodal officer designated for each Goal. The nodal officer for each Goal is mandated to raise awareness of related departments on the goal's issues. Nodal officers have also been identified for every Goal at the State Planning Commission. Department of Environment is the nodal office for SDG 12. The Planning Department has been designated as the nodal department for work on SDGs. A high-level task force, chaired by the Chief Secretary, has been set up to guide SDGs progress.

SDG Cell is constituted with the support of UNICEF. It is work in coordination with various government departments.

[113] *Supra*

The task force led by the Chief Secretary has instructed Panchayati Raj Institutions (PRIs) and ULBs to integrate SDGs in their planning tools. The Government of UP has already integrated SDGs in the Gram Panchayat Development Plans.

The State government has identified measurable indicators based on the National Indicator Framework. The Directorate of Economics and Statistics is entrusted with collecting, analysing, and maintaining data to be uploaded on a dashboard. The high-level task force, along with the Planning Department, is responsible for monitoring SDGs. A baseline report is currently under preparation.

A three-year action plan is being prepared for achieving SDGs. A budgetary requirement for Centrally and State-sponsored schemes based on the SDG framework has also been prepared.

Table 5.17 briefly summarises the interventions by various departments in UP under SDG 12 and how complex the entire system works.

Table 5.17: SDG Interventions by Various Departments in Uttar Pradesh

SDG 12 Target	Dept In-charge in Uttar Pradesh
12.1 Implement the 10-year framework of programmes on SCP,	-
12.2 By 2030, achieve sustainable management and efficient use of natural resources.	-
12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses.	Department of Agriculture, Department of Food and civil supplies
12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle.	-
12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse	Department of Urban development
12.6 Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle	-
12.7 Promote public procurement practices that are sustainable, in accordance with national policies and priorities	-
12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature	Department of Environment

SDG 12 Target	Dept In-charge in Uttar Pradesh
12.a Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production	-
12.b Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products	Department of Tourism
12.c Rationalise inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions	Department of Finance

Challenges Identified Through Survey

- Most of SDG- 12 targets have not concerned departments
- Officials are not aware of the SDG 12 progress. There is a lack of coordination among various departments
- SDG Dashboard was not up to date about SDG 12.

Challenges Identified Through Literature Review

UP is the fourth hotspot of tourist demanded places and is the biggest in India's industry. With having manifolds for their diverse nature to attract visitors from both domestic and abroad, the state has developed a lot in the tourism industry. The State can attract more tourists, viz. the handloom and art ware industry of the state is still unexplored by foreign and domestic people.[114]

The *NITI Aayog* has developed the Composite Water Management Index (CWMI) to enable effective water management in Indian states in the face of extreme water stress. In the report, UP ranks poorly for overexploiting groundwater resources, on-farm water use and limited policy action. These statistics are grim enough to invite a national debate on the unfolding water crisis.[115]

UP is a big state with a tropical monsoon climate and 9 different climatic zones. The challenges to food security in UP are analysed as per capita availability of cereals that are 36 percent higher as compared to the sufficient demand. Vegetables are 34 percent higher than the adequate demand and fruits are 56 percent higher. It exceeds the ICMR dietary requirements, whereas the per capita availability of pulses and milk does not even meet the sufficient demand and is 32 percent, 24 percent % less, which is well below the ICMR dietary requirements. It is estimated that out of the total area of food

[114] Chanchal Chawla, 'Prospects and Problems of Tourism Industry in Uttar Pradesh' (pragati publication), accessed 17 December 2020, http://www.pragatipublication.com/assets/uploads/doc/45ab1-435-442.16406.pdf.

[115] Shekhar Chandra, 'Uttar Pradesh's Environmental Crisis', mint, 17 July 2018, https://www.livemint.com/Opinion/uQsMpu8OHFHBldzub4gazN/Uttar-Pradeshs-environmental-crisis.html.

grains crop, 19.8 million hectares, roughly 6.6 million hectares would be taken out of farming, i.e., production loss of 14 million tons of food grains. Therefore, it is essential to develop food security strategies to avoid hunger and malnutrition in UP.[116]

UP regularly experiences power crises because the electricity demand frequently exceeds supply significantly. Over the last 20 years, power shortage has remained within the range of 10-15 percent, while deficits in peak demand periods reach even higher levels.

Successful Practices in UP

Vermi Composting from Solid Waste by KGS, Kanpur in UP

This case study is about round the year production of vermicompost by reuse & recycling of cattle dung and cow dung slurry from Gaushla and Biogas plants and its successful management through a low-cost technology at village Bhounti; promoted by Kanpur Gaushala Society (KGS), Kanpur, UP and is an excellent example of income generation from solid waste management by using very low-cost technology.

Main Features: Vermicomposting involves stabilising cow dung through earthworms, which converts cow/cattle dung into worm castings. Vermicomposting results from the combined activity of microorganisms in cow dung and earthworms (Acena phalida). Microbial decomposition of biodegradable organic matter occurs through these earthworm's culture activities of primary decomposition. Ingested feed substrates are subjected to grinding in the interior part of the worms gut gizzard resulting in particle size reduction. The technology consisting of a tripartite system involving biomass, microbes, and earthworms is influenced by factors such as temperature, moisture, aeration, etc. Microbial ecology changes according to changes in these factors in the biomass.

Hence processing of waste like cow dung as well as providing favourable environmental conditions necessary for vermicomposting. Conditions such as particle size of biomass, the extent of its decomposition, very high temperature (May to July in Kanpur), anaerobic conditions, the toxicity of decomposition products etc., influence the activity of worms and production of manure. The technology has been used for composting organic agriculture waste, cow dung and its adoption in solid waste management in rural and urban areas in India is of recent origin.

For the Vermi Culture Technology application, an appropriate site selection for vermiculture, construction of appropriate shed (thatched roof on bamboo poles with proper slope to drain rainwater, earthen floor, kutcha walls with locally available material, natural light and ventilation are required.

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116 Atul Anand Mishra, Arif Broadway Albrecht, and Jyoti Jain, 'Overview of Food Security in Uttar Pradesh, India', accessed 17 December 2020, https://www.researchgate.net/publication/259657705_Overview_of_food_security_in_Uttar_Pradesh_India.

Noida's Green Women

The UN estimates 40 percent of food produced in India is lost/wasted along the chain. According to FAO, it needs to reduce food wastage to feed the 194 million Indians who go hungry every day.

Green Crusaders, a women's group in Sector 47, Noida (UP), has been reducing food wastage since August 2018. The self-sustaining initiative has benefitted all stakeholders, including waste collectors, residents and the city authorities.

The group started with informal social media discussions and gatherings. Members charted priorities and began by organising cleanliness drives, collating data, interacting with residents, researching best practices, training domestic help and waste collectors. Non-profits then helped them with new technologies and techniques for sustainable waste management.

Currently, the group collects waste door-to-door in four blocks. It has streamlined waste segregation into a value chain. Tricycles for collecting waste have two sacks — one each for dry and wet waste. The latter is composted while paper, plastics, etc. are further sorted and sold by collectors/kabadiwallahs to generate revenue.

The group receives 600-700 kilogram waste (wet and dry) from 1,000 households a day and produces approximately 60 kg compost, sold at Rs 10 per kg; compost leachate, used as liquid fertilizer, is bottled and marketed at Rs 50 a litre within the locality.

70 percent of families segregate their waste, good quality compost is harnessed. It is used to grow healthy vegetables, fruits and flowers in gardens at homes and local public places by environment clubs, youth groups etc.

Kabadiwallahs now want to collect only clean, recyclable waste that they can sell at Rs 250-300 per day, which can shoot up to Rs 500-800 during festivals.

All this has resulted in community participation and organised set-up of waste segregation, collection and recycling.

6 Conclusion

Time has bygone when people restrict their thoughts to the forests, wildlife, rivers, air and minerals to define the environment and understand the sustainability issues. The idea of sustainability has now gone beyond these. It now entails that the precious natural resources are used so that there is plenty left for the upcoming generations. This lack of foresightedness has now become the primary cause of most of today's environmental problems. Unsustainable and reckless consumption without thinking about our future generations has created havoc and the world is already reeling under its impact. To reduce adverse climate and environmental effects, the world must change how and what it consumes.

World Economic Forum reports that India is poised to become the third-largest consumer market next to the US and China by 2030. The report also states that India's consumer spending is expected to grow to US$tn by 2030. Such a boggling growth should never be through a path of unsustainable consumption and production patterns that exacerbate inequality and environmental degradation, intensifying existing risks and vulnerabilities in a changing climate.

SCP and Goal 12 have a vital role in the growth and development of our country. Growing urbanisation, changing lifestyles, resource-intensive growth patterns all need to be carefully tamed and diverted through a sustainable channel to stop any further depletion of resources and ecosystem degradation. Joint and concentrated efforts are required from the policymakers, governments, businesses and the people to increase resource efficiency, fundamentally shift consumption patterns and production process, improve waste management systems and transit towards a more circular economy approach.

Areas with Progress and Challenges

There are good programmes and policies at both National and State levels which are forward-looking and supportive of achieving the SCP goal. But when it comes to implementation and enforcement, our country falls behind, mainly due to lack of continuity in government policies, lack of sufficient funds, inadequate human resources and/or lack of enthusiasm among the officials concerned to implement them in their true spirits. Not just these, due to ignorance and lack of community participation during policy developments at times, even common people stand in the way of implementing policies. People’s lethargy to change or adapt to new sustainable habits is the prime factor for such behaviours. This was evident in Swachh Bharat Mission cases, where adequate funds and enthusiasm among government officials were on full display. Still,

the Mission felt a jerk after it failed to get people's cooperation regarding issues like waste segregation at source.

Reducing and Managing Waste

While the country is making considerable progress in tackling waste covering the target 12.4 and 12.5 of SDGs, much more needs to be done. The Swachh Bharat Mission or Clean India Mission is a country-wide campaign initiated by India's Government in 2014 to eliminate open defecation and improve solid waste management. The mission was split into two for effective management: rural and urban. In rural areas, "SBM - Gramin" was financed and monitored through the Ministry of Drinking Water and Sanitation, whereas "SBM - urban" was overseen by the Ministry of Housing and Urban Affairs. SBM largely contributes towards the achievement of SDG 12 targets. Both the Central and State governments are reporting its progress through Management Information System (MIS) system, making it available to the public domain.

However, the scheme's success depends on the states since the scheme's implementation lies with the state government through the Centre had developed it. Centre ranks the states and their cities for different parameters and gives a ranking for the performance every year. While some states perform well, some do not due to lack of capacity or political reasons. However, state government and urban local bodies' capacity is one area that needs to be addressed to tackle waste effectively.

Likewise, most states in India have banned plastic carry bags, but despite all these years, its usage is rampant across the states and consumers are less reluctant to shift to alternatives. Many reasons can be attributed to this, but foremost being the callous attitude of the officials who are in charge of enforcing it with the required vigour. Failure to provide cost-effective, sustainable alternatives and the absence of any effort to raise community awareness pushed the matter worse. At the same time, the recycling potential of our country is poor. Almost 90 percent of our e-wastes are handled by the unregulated informal sector that handles it unscientifically, causing significant risk to the environment and the recyclers, who are frequently women and children. Often, no actual recycling happens within these informal sectors due to a lack of formal support, training, and awareness. Most of them often dump the remaining wastes irresponsibly at landfills.

Sustainable Standards

In 1991 India launched the National ecolabelling scheme ‘Ecomark’ for easy identification of environment-friendly products. The label is awarded to consumer goods, which meet the specified environmental criteria and the quality requirements of Indian Standards. The symbol of the earthen pot identified Ecomark. The scheme adopted a ‘cradle to grave’ approach, i.e., from raw material extraction to manufacturing to disposal. Although the Ecomark was similar in many ways to other countries' ecolabels, it differed from most in one crucial aspect; ecolabels in most countries were awarded solely based on environmental considerations. In India, it was also linked with

the quality of products. In other words, to be eligible, products must meet both environmental and quality criteria.

Over the years, the scheme has not been able to take off as expected due to several reasons, including the absence of support through Government procurement and lack of awareness-raising campaigns to promote the label. Neither the producers nor the consumers are aware of its existence or willing to go for this label. Those who have got the license for their product hardly use the same on their pack. The reason – no consumer demand for such labelled products and hence no extra profit!

However, things proved different in the energy efficiency labelling scheme introduced by the Government through the Bureau of Energy Efficiency (BEE). The scheme launched in 2006 gained much popularity and acceptance from the consumers as they started making an informed choice on energy and cost savings on marketed household and other appliances. This is because BEE worked tirelessly and closely with various key stakeholders through its steering & technical committees to implement and monitor the programme.

Various stakeholders, including energy economists from within BEE, Bureau of Indian Standards (BIS), National Accreditation Board for Testing and Calibration Laboratories (NABL), appliance manufacturers, manufacturers' associations, test laboratories, independent experts and consumer groups are proactively invited to technical committee meetings. The only shortcoming of this scheme is that it is limited to few selected electronic items. The country needs more energy-efficient equipment, so any effort to enhance its coverage would be a welcoming move.

Also, the BEE Star Labelling scheme's success proved that awareness is the key to ensure the success of any labelling programme, and there is no shortcut to awareness generation campaigns. Lately, in light of the increased focus on sustainability and report of Group of Secretaries constituted by Hon'ble Prime Minister that recommended revival of the Ecomark scheme, particularly for goods made out of waste, there is a renewed focus revive the National Ecolabel. It is hoped that the officials show the same zest while implementing it, as they showed to implement the BEE Star labelling scheme.

Resource Efficiency

The Government has formulated the National Resource Efficiency Policy (NREP), 2019. It seeks to create a facilitative and regulatory environment to mainstream resource efficiency across all sectors by fostering cross-sectoral collaborations, developing policy instruments, action plans and efficient implementation and monitoring frameworks. NREP, 2019 aims to implement resource efficiency across all resources, including biotic and abiotic resources, sectors, and life cycle stages. The sustainable use of resources must be considered during all the stages of a product's life-cycle: in its design, its manufacture, its usage and even at the end of its life, where the possibility of reusing or recovering scarce materials used in its production becomes a distinct and often profitable issue.

Common Challenges

Even though efforts are being taken to progress towards SDG 12, there are still vital challenges across the sectors that need to be addressed if the country needs to move towards SCP. This section summarises the vital challenges identified during the study.

- ✓ SDG 12 is one of the least focused goals and the country failed to monitor its progress until the 2019 National level ranking of *NITI Aayog*, where SDG 12 has been covered. This initial omission was due to less progress of the target and the non-availability of data from the ground. Indicators did not match local agencies and departments' progress and were unable to report under the specific targets and indicators. The absence of effective monitoring and data collection should be a major cause of concern as it could give a wrong image of the nation's merits and efforts towards SCP.

- ✓ Different departments deal with SDG 12 at the state level and there is no specific department responsible for its implementation – it is almost an orphaned goal. The departments such as Environment and Planning are responsible for monitoring only. Other departments, such as Urban Development, responsible for waste management in most states, are not much involved in planning. Hence less priority is given by the departments for the implementation of SDG 12 at the state level.

- ✓ There is a shortage of technical staff at the state level associated with SDG 12. Most of the departments are engaged with the implementation of their priority areas instead of SDG 12. Most of the staff in some states were either on deputation from other departments or on a contractual basis.

- ✓ Various departments are involved under SDG 12 at the state level, but there is still a lack of coordination among these departments. Department of Planning is the nodal department for SDG implementation at the state level. Different working groups are constituted for different SDG targets. Department of Environment deals with SDG 12 in most of the states along with few other departments as well. Similarly, task forces are formed at the district level by involving various departments. But due to a lack of coordination between these departments, poor reporting of targets happens.

- ✓ The capacity of existing officials is not matching with the requirement of SDG 12 performance. Various departments are involved in the progress, but down the line, departments and agencies which are implementing the schemes and programmes at ground level lack capacity and technical knowledge.

- ✓ Most of the sustainable activities go unreported because of the government officials' lack of awareness, except a couple of officials involved in reporting

about SDG and its importance. They miss out on connecting the sustainable activities implemented by their department with the SDGs. During the study, most of the officials were unable to recognise what an SDG is. This lack of awareness among government officials coupled with lack of funding, shortage of technical staff results in inadequate monitoring and reporting. All this appears to be the most significant challenge at the state level in SDG implementation.

Recommendations

The concept of SCP makes an understanding which goes beyond SDGs and their targets. This particular study looked at SDG 12 from consumers' perspective, who are the main force to drive change in any direction. Based on the CUTS study, few recommendations are made here for the effective implementation of SDG 12.

Policies on SCP

Several policies are talking about environmental protection, reducing waste and promoting environmental conservation, protecting natural resources and many more environmental aspects. But there is a lack of a comprehensive sustainable consumption policy or framework which talks about sustainable consumption in the country through all of its elements are captured by different existing policies. Policy on National Resource Efficiency that seeks to enable efficient use of natural resources and promote up-cycling of wastes across all sectors of the economy is still under process and not finalised. The National Public Procurement Policy with some elements of sustainability is also not finalised yet and under consultation. The country needs such policies at the earliest to create a stronger impact on SCP.

Strengthening waste management system

Ministry of Housing & Urban Affairs implements waste management programmes with the urban local bodies in the states. However, various categories of waste, such as plastic, biomedical waste, hazardous waste, that comes under the departments like health, industries, science & technology, etc. Other than local municipal bodies, no other state governments are much concerned about waste management. There has to be an inter-departmental coordination committee to strengthen the waste management system at the state level.

More importantly, India should attempt to establish itself as a world leader in a circular economy and allocate sufficient resources to demonstrate ways of reducing waste and recycling waste resources genuinely.

Accounting Natural Resources & Food Loss and Wastes

Implement, without any further delay, the National Resource Accounting for major resources throughout the country in a phased manner. While both natural resources use and food loss and waste have distinct environmental impacts, proper accounting is vital for the government to address the concerns and plug the loopholes. Accounting of resources, mainly water, land, forest and minerals, has proved to be a useful tool for

environmental impact assessment of projects in which resource usage is envisaged. Likewise, the first step in preventing food waste within the country is to quantify it properly. Quantification gives the country an insight into the sources of food waste, which can be used to implement targeted preventive measures and provide a baseline to measure the effectiveness of any campaign.

Policy on Sustainable Procurement

India does not have a comprehensive national policy on SPP. Nothing concrete emerged even after a Task Force on SPP was constituted recently by the Department of Expenditure with the following objectives, i.e., Review international best practices in the area of SPP; Inventorise the current status of SPP in India across government organisations; Prepare a draft Sustainable Procurement Action Plan; Recommend an initial set of product/service categories (along with their specifications) where SPP can be implemented. According to a statement made by the Minister of State for Finance in Lok Sabha last year, six meetings of the Task Force have been held wherein SPP issues were discussed with stakeholders. However, no Action Plan could be developed as preparation for the same is a complex process, requiring balancing all stakeholders' interests.

A lead by the Government in adopting SPP policy would send a strong message to the business community and create demonstration and ripple effects, not just in public procurement but also indirectly in private consumption by companies. Small and medium-sized enterprises stand to benefit since they are often at the forefront of innovation in developing and marketing environmentally friendly products. Most importantly, the government can demonstrate sustainable and environmental leadership, raise public awareness of the benefits of environment-friendly products, help sustainable innovation and technologies, reduce greenhouse gas emissions, and encourage economic development by fostering markets for environmentally preferable products.

Also, it is important to have robust reporting and monitoring mechanisms in place. Government departments should be required to submit a report on their annual procurement and their compliance with the rules regarding the purchase of energy-efficient appliances.

Consumer Information Programmes

Consumers cannot decide about product selection in the absence of consumer information regarding the products and their impact on the environment. There is a need to provide the consumer with all the relevant information about the products they consume. This should include information like carbon footprint, the number of pesticides present, and the product's life cycle. India also needs to work hard on reviving Ecomark. Without a national ecolabelling scheme or voluntary third-party certification, it is tough to verify vendors' environmental claims while making a purchase. Likewise, the BEE standards and labelling programme should also be

extended to more products. Studies show that ecolabels and standards significantly influence the green purchase decision.

Increasing Awareness

Civil society organisation, consumer groups and environmental organisations should take the lead to organise the awareness programme for common people and to make them aware of the need for sustainable consumption to protect the environment. While many people like the idea of sustainability, only very few consumers support it. This is so as people often find it difficult to relate their consumption habits to large-scale global warming and climate change issues. Therefore, the consumers need to be well informed, empowered, and realize that their actions make a difference. Overall, SDG 12 implementation should include the civil societies and consumer organisations in the implementation of SDG 12 programmes, which will help promote concept of SCP and engage common consumers in the process.

Likewise, most government officials lacked awareness of SDGs. This means there is also a lack of awareness of the active role in addressing the core issues under SDG and SDG 12. In most states, knowledge and understanding of the SDGs rests among a few selected government officials, failing to trickle down to other local authorities and junior officials in the department. Therefore, the importance of raising awareness among all stakeholders should never be overlooked and taken under high priority.

Coordination

Various government departments are working at the National, state level to further down at the district and grassroots levels. Government agencies and departments are working tirelessly and different working groups are constituted for different SDG targets. Department of Environment deals with SDG 12 in most of the states along with few other departments as well. Similarly, task forces are formed at the district level by involving various departments.

Differing agendas, lack of coordination and integrated policy approaches among these departments and officials, including lack of information exchange among the staffs, seriously hinder and even counteract countries' efforts towards achieving SDGs. The Government should clearly state that all ministries, offices, and even individuals depend on each other to meet specific targets and the SDGs.

Engagement of Consumers

As consumers play a vital role in achieving SCP targets through consumption, there has to be a consultation mechanism with the consumers at different levels. Regular feedback from consumers can be crucial to design the strategy and plan for action. Such feedback and inputs are being taken in various government programmes, which make them effective. There should be some platform where common consumers can be engaged in providing their feedback.

Enhancing Capacity

Implementation of the schemes or programme that comes under SDG 12 is with the department at the state level, such as urban local bodies, consumer departments, etc. These departments are overburden with the day-to-day work and also managing the work with limited staff. The larger issue is the capacity of concerned officials at the department level is not enhanced as per the need, that's why the indicators at various levels cannot be fulfilled. There have to be some SDG-specific capacity-building programmes implemented, which will help in implementing SGD12.

Summing Up

India has a history of low carbon footprint and lifestyle as the traditional practices that are sustainable and environment-friendly continue to be a part of people's lives. However, technology and innovation have taken over such practices considerably. To implement most of the above recommendations requires bold and swift actions by all stakeholders. Else the intention to establish India as the world leader in SCP within the short span of the next ten years would remain a distant dream.

Any step for achieving SDGs by India means a lot to the world, as the country has the second largest population in the world. Therefore, India must develop effective methods for implementing, monitoring, and measuring SDGs' progress. Learning, sharing and networking should be actively promoted among like-minded stakeholders across the states and beyond.

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