



Every Tide Hath It's Ebb: India's Tenacious Thrive Towards Sustainable Development Goal 2

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Abstract: This study has been undertaken to evaluate India's progress towards sustainable development goal 2 which is related to the total eradication of hunger by 2030. SDGs are considered as the continuation of the Millennium Development Goal implemented to eradicate poverty and enhance social justice. This goal comes with 13 indicators. Being home to one-sixth of humanity, India has shown considerable progress in achieving various targets under SDG. 2, while some of the targets still remain far off from achievement. This paper also supplements the evaluation of various programs implemented by the central and state government by considering this goal as a constitutional obligation upon them.

Index Terms – SDG 2, Malnutrition, Food Security, Sustainable agriculture, Stunting

INTRODUCTION

The sustainable development goals (SDGs), were adopted by the United Nations in 2015 during the 70th session of the United Nations General Assembly, where all the member countries agreed to achieve 17 SDGs by 2030 with the aim of transforming the world into a better place to live. The 17 goals were further divided into 169 UN targets. This was considered as an ambitious step covering various dimensions of development, such as protection of the planet from the climatic crisis, ending poverty, better health and quality education, and enhancing peace, social justice, and strong institutions. SDGs are considered as the successor of Millennium Development Goals (MDGs), which was the most successful anti-poverty movement in history lifting more than one billion people out of extreme poverty, making inroads against hunger, to enable more girls to attend school than ever before and to protect our family.¹

Being the second most populated country in the world, India is striving to achieve the 2030 Agenda. India had exhibited remarkable progress in the area of health and energy, while some of the major goals like zero hunger, gender equality, promoting inclusive and sustainable industrialization and fostering innovation, etc. are still far from success. As per recent reports, India remains home to one-quarter of the world's undernourished population, over a third of the world's underweight children, and nearly a third of the world's food-insecure people.²

In this context, this paper endeavors to explore India's progress six years down the line in achieving one specific SDG, namely SDG 2, which aims to achieve 'Zero hunger'. The United Nations has defined 5 Targets and 13 Indicators to ensure the timely achievement of SDG 2 by 2030 in all sense. Achieving these targets is not to be seen only from the angle of an international agreement but also is a moral imperative and legal entitlement for the government.

Target 2.1 Universal access to safe and nutritious food.

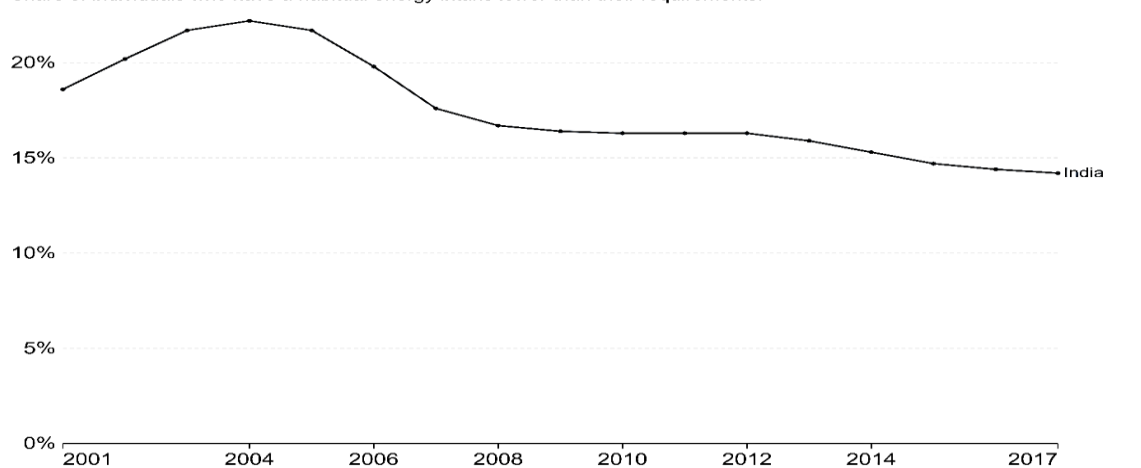
This target was set up in order to ensure that by 2030 no one stays hungry which also means eliminating undernourishment for all. It aims to ensure access to food for every people, in particular the poor and people in the vulnerable situation including infants, to safe, nutritious, and sufficient food all year round.³ Even though the Right to Food is not explicitly mentioned under any Article of the Indian Constitution, ensuring health for all is a constitutional obligation of the state under, Article 21, Right to life, which ensures the right to live with human dignity can also be interpreted to include the right to food. The right to health has gained nearly the equal status of a fundamental right as a result of numerous judicial interpretations over the years, including *Bandhua Mukti Morcha v. Union of India*⁴, *Consumer Education and Resource Centre v. Union of India*⁵, *State of Punjab and Others v. Mohinder Singh*⁶, and *M.C Mehta v. Union of India*⁷. Article 11 of the International Covenant on Economic, Social, and Cultural Rights recognizes the fundamental right of every individual to have an adequate standard of living, including food, and the right to be free from hunger.⁸

Target 1 has two indicators namely prevalence of undernourishment and prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES).

Prevalence of Undernourishment (PoU) is a national-level model-based indicator used to understand access to food in terms of dietary energy inadequacy which measures the percentage of the population whose dietary energy intake is below the Minimum Dietary Energy Requirement (MDER).⁹ The studies made by The State of Food Security and Nutrition in the World, 2020, more than 189.2 million people, which amounts to 14% of the total population of the country are undernourished. The number of people with insufficient food and consumption has increased drastically due to the Covid 19 pandemic.

Share of the population that are undernourished

Share of individuals who have a habitual energy intake lower than their requirements.



Source: UN Food and Agriculture Organization (FAO)

Note: Undernourishment is defined as having food energy intake which is lower than an individual's requirements, taking into account their age, gender, height, weight and activity levels.

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‘Raising the level of nutrition and the standard of living’ is a primary duty of the government towards its citizens under directive principles of state policy. In order to address the complex situation of nutritional security Government of India has initiated several programs, the most important of those being the National Food Security Act (NFSA), 2013. NFSA is introduced to provide for food and nutritional security in the human life cycle approach, by ensuring access to subsidized food grains in adequate quantity and quality to over two-third of the population.

Despite the availability of any survey report, the Government claims that 99.51 Percentage of beneficiaries were covered under the NFSA, 2013, out of which 12 states (Andhra Pradesh, Gujarat, Himachal Pradesh, Kerala, Madhya Pradesh, Maharashtra, Manipur, Rajasthan, Sikkim, Uttarakhand, and West Bengal) and three Union Territories (Andaman and Nicobar Islands, Chandigarh and Delhi) achieved the target of 100% percentage coverage in 2019-20.¹⁰ SDG Index Score for Goal 2 ranges between 19 and 80 for states and between 27 and 97 for Union Territories.¹¹

However, greater food availability or capacity to purchase food does not ensure sufficient nutrition. Consumption of cheap, calorically dense but non-nutritious starches has increased over the years, resulting in epidemics of obesity and diet-related diseases.¹²

Target 2.2 By 2030, end all forms of malnutrition

By the year 2030 end all forms of malnutrition including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women, and older persons.¹³

Stunting (assessed via height-for-age)

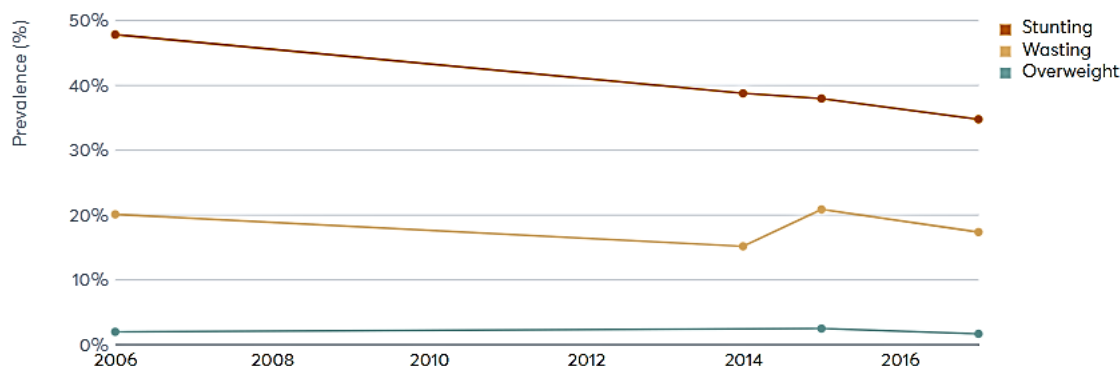
Height-for-age <-2 standard deviation from the median of the World Health Organization (WHO) Child Growth Standards is a measure of linear growth retardation and cumulative growth deficits, among the children under 5 years of age.

Wasting (assessed via weight-for-height)

Weight-for-height $>+2$ or <-2 standard deviation from the median of WHO Child Growth Standards is meant for measuring body mass in relation to body height or length and describes current nutritional status, among the children under 5 years of age.

Providing healthy and nutritious food is a constitutional obligation of the Government under Article 39 (f) of the Constitution of India which says “that children are given opportunities and facilities to develop in a healthy manner and in conditions of freedom and dignity”. The government of India has introduced several nutritional programs such as the Integrated Child Development Service Scheme (ICDS), National Control of Iodine Deficiency Disorders (IDD), and National Programme of Nutritional Support to Primary Education (NP-NSPE), and National Diarrheal Diseases Control Programme. Despite the efforts, India still stays no were near the targets. While the target 2 under MDGs (1990-2015) was set to halve the proportion of people suffering from hunger, India had failed desperately as the percentage on decline only came down to only 35.8% by 2015 while the target value was 26%¹⁴.

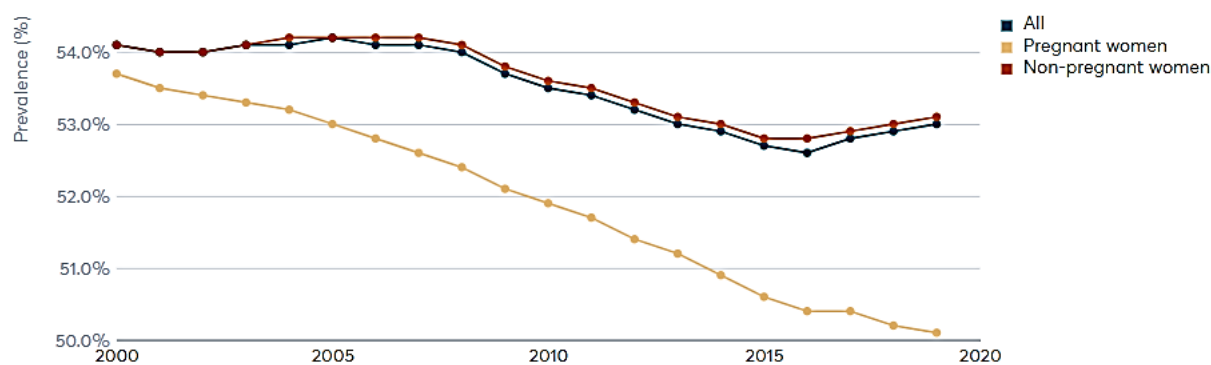
The National Family Health Survey shows that the proportion of stunted children below the age of 5 years declined from 38.4 % in 2015-16 to 35.5 % in 2019-21.¹⁵ In the states, Goa (19.6%) and among the Union Territories Jammu and Kashmir and Ladakh (15.5%) exhibit the lowest rate of stunting, while it is highest in the state of Bihar(42%).¹⁶ The proportion of wasted children below 5 years who are wasted has exhibited a minor decline from 21% in 2015-16 to 19.3 % in 2019-21,¹⁷ where Sikkim (11.%) and Mizoram(11.3%) lead the table with the least underweight rate while Jharkhand(42.9%) and Chhattisgarh(40%) have the highest rate of under wasted children. At this rate of reduction, the proportion of stunted children and wasted children below the age of 5 years is expected to reduce to 30.28% and 16.24% by 2030 respectively, which points out India is falling short of Sustainable Development Goal.2.1 target.



Source: UNICEF/WHO/World Bank Joint child malnutrition estimates expanded database

According to Global Nutrition Report 2021, India is 'off-course' in meeting 7 of the 13 global nutrition targets,¹⁸ wherein no hopeful progress has been made towards achieving the target of reducing anemia among women of reproductive age, with 53 % of women aged 15 to 49 years are now affected and consequently these women are likely to give birth to underweight children. The World Health Organization (WHO) introduced the Global Nutritional Target 2025, which aims to achieve a 50% reduction of anemia in women of reproductive age. Thus, India has to reduce the rate of anemic women of reproductive age to 26.2 % by the year 2025. Kerala (22.6), Manipur (25.2) and Sikkim (23.6) leading the way were, West Bengal (45.5%) and Tripura (41.4%) still couldn't find their pace to the goal.

Prevalence of anaemia among women of reproductive age



Source: WHO. Global Health Observatory Data Repository/World Health Statistics

Comprehensive National Nutrition Survey (CNNS) Report of 2016-18 of the Ministry of Health and Family Welfare shows that 28.4 % of adolescents aged between 10 to 19 years are anemic in India¹⁹, which has to be reduced to 14.2% by 2025 to achieve the Global Nutrition Target 2025. Few states such as Goa(14%), Manipur(11%), and Kerala (9%) are showing steady progress towards the set target.²⁰

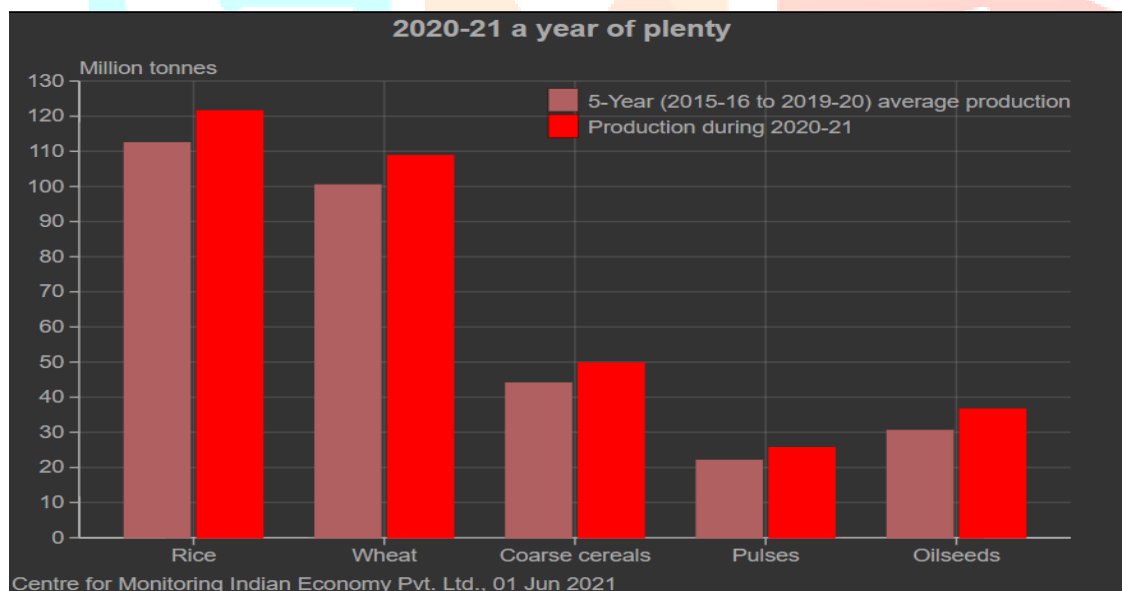
Thus India needs to focus on early detection and proper treatment for the children who are suffering from malnutrition. Conducting home visits by local health officers and creating awareness through counseling programs for mothers on the impact of malnutrition will significantly help in improving the health and nutrition status of the infants. In addition, the Anganwadi and other pre-primary institutions which provide nutritious food to children below the age of 5 must ensure their full strength for the timely achievement of SDG 2.

Target 2.3 Double the agricultural productivity and income of small-scale food producers.

This is considered as one of the paramount targets of SDG 2 as doubling the agricultural productivity will not only bring down poverty and eliminates hunger but also ensures nutritious food availability. Along with doubling agricultural productivity, Target 3 also aims to double the income of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists, and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment.²¹

Despite the fact that the agricultural sector is the single largest employer in India having 42.5% of its total workforce, contributes only 19.9% of India's GDP. More than 53% of farmers are below the poverty line while the national average is 28%. The main challenges leading to the decline of agricultural production in India are the rising cost of production and land degradation. Water scarcity etc. Water scarcity and recurrent droughts have hampered agricultural productivity in the country's semi-arid tropical region. Environment deterioration and climate-related calamities continue to threaten the entire country.

In the year 2015-16 India had produced an average of 2,661 KG of wheat, and rice from one Hectare of land, and India is now aiming to double the production to an average of 5,322 Kg per hectare by the year 2030. As per the report of SDG India Index 3.0 no state has yet achieved this target. The states of Haryana and Punjab are nearing the targeted productivity with 4,272.42 Kg/Ha of wheat and 4,693.24 Kg/Ha of rice, respectively in 2018-19, While some of the north-eastern states like Nagaland (1665.91 kg/Ha) and Mizoram (1688.05 Kg/Ha)²² are far below the line.



India has the world's fifth largest cultivated area under genetically modified (GM) crops at 11.4 million hectares in 2017. But unlike other large growers, its entire GM crop area is under a single crop, cotton.²³ The Government must focus on effective utilization of the developments taking place in biotechnology and gene discovery as genetically modified crops are one of the key technologies that could help in maintaining genetic diversity and improve crop production, particularly in a country like India where more than 50 percent of the population is engaged in the agriculture sector. Field trials for 21 GM food crops, including GM vegetables and cereals have been approved by the central government but, commercial cultivation of GM food has not been permitted by any state government in India till now²⁴. Biotechnologies such as tissue culture, genomics, marker-assisted selection, and genetic engineering can help farmers and consumers profit from the effective deployment of sustainable agriculture intensification techniques in the various agricultural systems across the world.²⁵ Traditional agricultural and animal development initiatives can benefit from the use of DNA-based technologies, which allows natural genetic variation to be better understood and utilized²⁶. It is pertinent to note that, in their more than 15 years of existence, GM crops have contributed positively to commercial and

smallholder agriculture in all regions where they have been introduced, in terms of farmers' profit, health, and agronomic and environmental impacts²⁷. The high increase in yield and the resistance capacity against the pest benefits in addressing the hunger issues and reducing the prices of goods to a very larger extent.

It's time for India to think of a new green revolution to meet the target of SDG 2. India needs to focus on implementing improved technology in agricultural activities such as using modern machinery, growing varieties of crops that are more climate-resistant, and attracting higher investments in the agricultural sector. The National Round Table on doubling farmers' incomes by 2022 had suggested various hopeful strategies to realize the target including the introduction of biotechnology to increase yield and nutritional profile of crops, providing fertilizer subsidy, rationalizing the NPK pricing, Integrated water use policy, Implementing agribusiness hubs model operating on a national platform and establishing 2.40 lac multinational agribusiness hubs in all the Gram Panchayats of the country.²⁸ If these plans along with various schemes such as Pradhan Mantri Krishi Sinchayee Yojana (PMKSY), Rashtriya Krishi Vikas Yojana (RKVY), The National Mission for Sustainable Agriculture (NMSA), and National Food Security Mission (NFSM) are implemented through an action plan and monitored periodically, then achieving SDG 2 won't any longer be a dream for India.

Target 2.4 Ensure sustainable food production systems and resilient agricultural practices.

By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding, and other disasters, and progressively improve land and soil quality.²⁹ The Indian agriculture sector has made a considerable transformation during the past few years with a significant increase in productivity rate. The Economic Survey of India shows that during the last 6 years, total food grain production in the country jumped from 270 million tons (mt) in 2014 to 295 million tons in 2020. Despite the development in agriculture production, India ranked 101 out of a total of 116 countries in the Global Hunger Index 2022 and also holds the spot among the 31 countries where hunger is identified as the most serious³⁰. This occurs due to various reasons such as adverse climatic change, recurring natural disasters, and obsolete farming practices. It is impossible to realize ending hunger through poverty alleviation, without ensuring sustainability as the core element of programmatic strategies formulated for achieving SDG2, especially with regard to agricultural practices. Improving agricultural productivity, while conserving natural resources, is an essential requirement to increase India's food supplies on a sustainable basis.

Sustainable food production which also means, 'Sustainable agriculture' as legally defined in U.S. Code Title 7, Section 3103, as an integrated system of plant and animal production practices having a site-specific application that will over the long term-

- a) satisfy human food and fiber needs;
- b) enhance environmental quality and the natural resources base upon which the agriculture economy depends;
- c) make the most efficient use of non-renewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls;
- d) Sustain the economic viability of farm operations; and
- e) Enhance the quality of life for farmers and society as a whole.

According to the survey of the Research Institute of Organic Agriculture (FiBL), India stands in 5th position amongst the countries with the largest area of organic agriculture land in the year 2019.

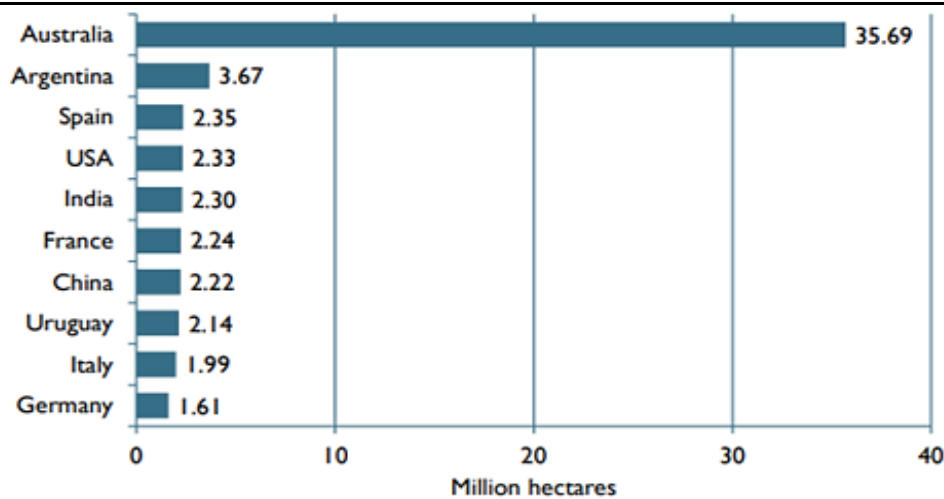


Figure 1. World: The ten countries with the largest areas of organic agricultural land 2019

Source: FiBL survey 2021, based on information from the private sector, certifiers, and governments. For detailed data sources see annex, page 317

Government of India has introduced Several programs and policies to enhance sustainable agricultural production in India and to achieve the goal of zero hunger.

- **The National Mission for Sustainable Agriculture (NMSA):** It was introduced in the year 2014 for making agricultural activities more sustainable and climate-resilient. It is one of the nine missions under the National Action Plan on Climate Change (NAPCC) which will cater to the key dimensions of integrated farming, equitable access to food resources, prioritizing adaptation and mitigation strategies for ensuring food security and contributing to economic progress at the national level.
- **National Horticulture Mission:** It was launched in the year 2005 as a part of the 10th five-year plan of the Government of India. It is a centrally sponsored scheme that mainly focused on improving horticulture production, area-based strategies, and enhancing the efficient use of water and planting material. The Central Government contributes assistance at the rate of 85% and State Governments contribute 15% for the developmental activities under this mission. In the year 2015 National Horticulture was subsumed as a part of the Mission for Integration Development of Horticulture (MIDH).
- **Rashtriya Krishi Vikas Yojana (RKVY):** RKVY was introduced by National Development Council (NDC) as an umbrella scheme under the 11th five-year plan, for achieving a 4% annual agricultural growth, by ensuring holistic development of agriculture and allied sectors such as fisheries, crop husbandry, dairy development, etc. Under the scheme, the country witnessed an annual growth rate of 3.64% during the 11th five-year plan against a growth rate of 2.46% per annum in the 10th five-year plan. The scheme was introduced in the year 2007 and later during the 13th plan in 2019, the scheme was rebranded as RKVY- Remunerative Approaches for Agriculture and Allied sector Rejuvenation(RAFTAAR).
- **National Mission on Agricultural Extension and Technology (NMAET):** This Programme was introduced by the Government to promote the introduction and use of more advanced technologies and cultivation strategies in the agriculture sector.

The Government of India also put forward various other schemes are programs such as the National Food Security Mission (NFSM), Soil Health Management (SHM), Organic Value Chain Development of North Eastern Region, etc. Despite these efforts, sustainable agricultural productivity in India is facing many challenges. The rising cost of raw materials, fertilizers, and labor cost stand as the key challenge that is being faced by the sector. Further, water scarcity, climatic changes, traditional methods of farming, and the non-

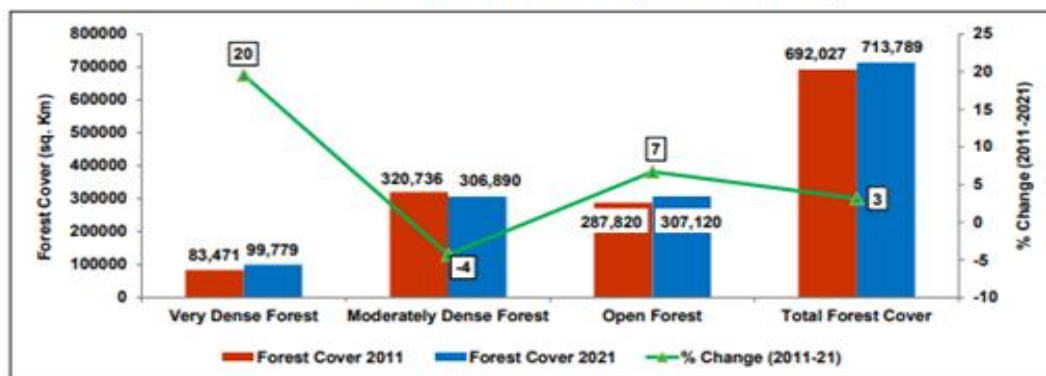
interest of the younger generation in choosing agriculture as a profession, etc. are also some of the problems that needed to be addressed with policy instruments and well-executed strategies.

Target 2.5 Maintain genetic diversity of seeds, plants and animals

The fifth target in SDG 2 limits its achievement period to 2020 while all other indicators the period is until 2030. It aims that, By 2020, maintain the genetic diversity of seeds, cultivated plants, and farmed and domesticated animals and their related species, including through soundly managed and diversified seed and plant banks at the national, regional, and international level, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed.

Indian subcontinent has a rich and varied heritage of biodiversity, encompassing a wide spectrum of habitats from tropical rainforests to alpine vegetation and from temperate forests to coastal wetlands. It is one of the eight centres of origin (Vavilov, 1951) and is one of the 12 mega gene centres of the world.³¹ It possesses 11.9 % of world flora, and about 33 % of the country's recorded flora are endemic to the region and are concentrated mainly in the North-East, Western Ghats, North West Himalayas and the Andaman and Nicobar islands. Of the 49,219 higher plant species, 5,725 are endemic and belong to 141 genera under 47 families.³² The rapid increase in urbanization and developmental activities is resulting in deforestation, land degradation, and loss of biodiversity. The goal of conservation genetics is to maintain genetic diversity at many levels and to provide tools for species monitoring and assessment that can be used for conservation planning³³. India's performance on the NITI Aayog SDG India Index has improved from an overall score of 60 in 2019-20 to 66 in 2020-2021³⁴.

Forest Cover of India (2011 and 2021)



Source: India State of Forest Report 2021 and 2011

Note: Very dense forest: All lands with tree canopy density of 70 per cent and above); Moderately dense forest: All lands with tree canopy density between 40-70 per cent; and Open forest: All lands with tree canopy density between 10-40 per cent

Various international agreements such as the Convention on Biological Diversity (CBD) which has been ratified by 196 nations and also the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) having 147 contacting parties are constituted to protect and promote Genetic diversity of plants in the International level. In India, the National Bureau of Plant Genetic Resources (ICARNBPGR) was established in the year 1967 in collaboration with the Indian Council of Agricultural Research (ICAR). The NBPGR played a pivotal role in the improvement of various crop plants and diversification and development of agriculture in India through germplasm introduction, and practice associated research and human resource development to ensure sustainable agricultural activities, through various institutes and organizations located in foreign countries and germplasm collection from within the country and abroad and conservation thereof³⁵. The bureau is also vested with the authority to issue import permits and phytosanitary certificates and conduct quarantine check-in seed material and vegetative propagules introduced from abroad or exported for research purposes.³⁶

CONCLUSION

It is clear that India is not on the right track to achieve all the targets under SDG 2 due to the unsustainable model of developmental activities that are being carried out in various sectors. While we cannot ignore the role of the COVID-19 pandemic in causing an extreme recession and social disruption, we need to accept the fact that we live in a world of challenges and thus our plan for the food and agriculture sector must be in a way to withstand and overcome these unique challenges. According to WHO 2020 survey reports at least 60 to 70 percent of countries faced disruptions to routine immunization programme and approximately 50 percent of countries under the survey reported partial or severe disruptions in services that were implemented to fight malnutrition.³⁷ Thus We need to adopt more universally accepted pervasive concrete foundations for hunger mitigation policies to eliminate future hunger and malnutrition as a lack of solutions will not lessen or stop hunger and malnutrition.

In order to realize the dream of 'ZERO HUNGER' we need more leveraging programs with continued monitoring and evaluation, without which SDGs will continue to be a far-off dream as 'a policy is good only as good as its implementation. Periodically conducting a 'food and nutrition census' would help in monitoring and evaluating the rolling reasons for the scarcity of food and constructing mitigation methods for solving those issues. Along with the concerns of availability and accessibility of food, we also need to consider the aspect of affordability of food. 'Janakeeya hotel' programme initiated by the government of Kerala in collaboration with an NGO, Kudumbashree, as a part of the ambitious 'Hunger-free Kerala' project is one of the successful initiatives to ensure food security at an affordable price for every person. Under this project, more than 1054 hotels were set up by the government which can feed quality food to more than 70,000 people daily at a mere cost of Rs.20 per meal. This is also a women empowerment programme where the whole process of production, distribution, and management is done solely by women.

The government also should focus on increasing the investment in the food and agricultural sector and attracting cooperation from private and international organizations. There is a need to develop more institutions for conducting research and developmental studies on agriculture. Further setting up gene banks, introducing more technology, providing subsidies for agricultural activities, reduction of taxes for agricultural export, and timely access to market information will help in protecting and realizing the right to food and thereby ensuring the timely achievement of sustainable Developmental Goal.2

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