



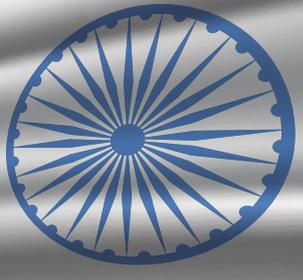
 **ORF** OBSERVER  
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**Amrit  
Mahotsav**

**10**

**Policies  
Shaping a  
Sustainable  
India**

**Nilanjan Ghosh**  
Editor





**Amrit  
Mahotsav**

**10 Policies  
Shaping a  
Sustainable  
India**

Nilanjan Ghosh

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*This volume is dedicated  
to India's next 25 years.*



# The Shaping of a Sustainable India



*Nilanjan Ghosh*

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Diplomacy & ORF Kolkata*

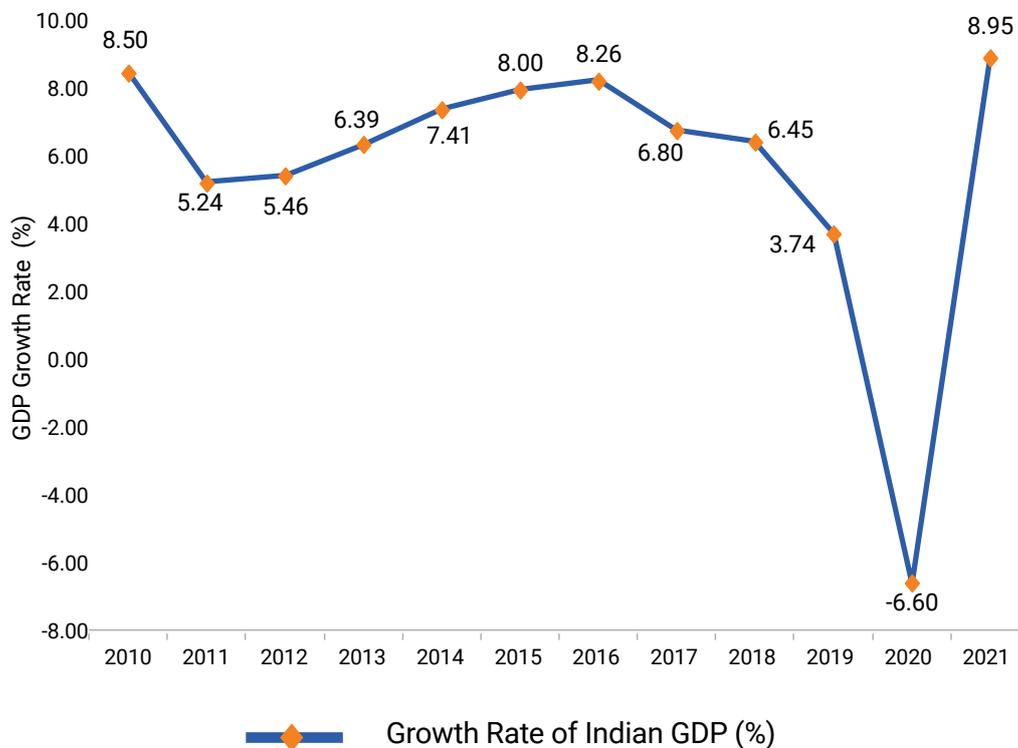
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**T**oday's India is bold and ambitious, seeing eye-to-eye with the Global North. It is a nation that has big dreams and works hard to achieve those dreams. This volume is a tribute to the India that has traversed a long way over the last 75 years and aspires to reach even greater milestones. It is also a tribute to the millennial India that understands its priorities for the next 25 years and is gearing up to face and overcome its challenges.

*Azadi Ka Amrit Mahotsav* is the government's initiative to celebrate and commemorate 75 years of India's independence and the glorious history of its people, cultures, and achievements. Yet, it is not merely a celebration of the India of yore, but of the aspirational and ambitious India of the present and future. It is in this context that this compendium discusses the 10 policies that will shape the future sustainable India. During the 2021 Independence Day celebration, Prime Minister Narendra Modi used the term *Amrit Kaal* to delineate India's development pathway over the next 25 years. "The fulfilment of our resolutions in this Amrit period will take us to the hundredth anniversary of Indian independence with pride," he stated.<sup>1</sup> This compendium, *Amrit Mahotsav: 10 Policies Shaping a Sustainable India*, aims to celebrate the 75 years of Indian independence (the *Amrit Mahotsav*) and is a tribute to the India that will traverse the next 25 years of its development armed with crucial policies that will address enduring challenges and shape a more sustainable future for the country and its people.

The last few years have witnessed changes in developmental governance in the country through some key policy interventions. These interventions are largely embedded in the Sustainable Development Goals (SDGs) that are today regarded as the bedrock of not just global developmental governance, but governance at all levels. The articles in this volume proceed on the hypothesis that the Indian aspiration to grow as a US\$5-trillion economy needs to be based on strong fundamentals that are being created through policies that strengthen the country's human and physical capital.

Even as the goal of emerging as a US\$5-trillion economy by 2024-25 received a blow due to the economic fallout of the COVID-19 pandemic, the economic revival remains palpable in terms of GDP growth (see Figure 1). While GDP declined from US\$2.68 trillion in 2019 to US\$2.51 trillion in 2020, it revived to US\$2.73 trillion in 2021. Indeed, the Indian economy has immense potential to touch the coveted US\$5 trillion figure by FY 2026-27, and US\$10 trillion by FY 2033-34.<sup>2</sup>

**Figure 1: India's GDP Growth Rates (2010 to 2021)**

Source: Computed by author from World Bank database<sup>3</sup>

At the same time, “GDP is the worst measure of economic activities but for all others. .... Because everything else you take (sic) comes with their own limitations and serious subjectivity”.<sup>4</sup> This statement by India’s chief economic advisor is partially true and contestable from a normative perspective. It is a fact that GDP is an objective measure of economic activity, but treating GDP as an omnipotent measure, especially of economic well-being, is possibly the gravest flaw. What has often not been acknowledged in this ‘growth game’ is the ‘cost of growth’.

### The Indian Growth Story and Development Paradox

India has historically presented itself as a developmental paradox—“ample resource, ample poverty”, which some would refer to as a manifestation of the so-called “resource curse”.<sup>5</sup> The resource curse hypothesis is posited as the phenomenon of economies with abundant natural resources

still exhibiting “development deficit”, i.e. low incomes, low economic growth, weaker democracy, and worse performance in developmental indicators than economies with less bountiful natural resources. But the Indian condition is much more complex than can be explicated by such a linear theoretical construct. Throughout India’s history, there have been regions of underdevelopment, and of growth,<sup>6</sup> located in an almost linear and contiguous fashion.

At the same time, it needs to be understood that unbridled and blind pursuit of economic growth without any consideration of the concerns of distributive justice or equity and sustainability of the natural ecosystem brings about an organic corollary in the form of “costs of growth”. They are often not easily perceptible in the short run, but become visible in the long run. These may be in the form of losses to livelihoods and problems of rehabilitation due to creation of physical infrastructure, or losses in ecosystem services affecting human habitat.<sup>7</sup>

The Indian development story since independence, and especially after economic liberalisation in the early 1990s, falls in this classification. Economic growth entailed the creation of new capital through large capital expenditures. In many cases, the long-run costs that society must bear due to losses in livelihoods and ecosystem services are more overwhelming than the economic benefits—the negative benefit-cost difference reached through a more comprehensive analysis conducted for a longer run therefore raises questions on the efficacy of such investments.<sup>8</sup> Thus, whereas large-scale land-use changes for linear infrastructure, agriculture, industry, and urban settlements, and alterations of hydrological regimes through structural interventions over natural flows were implemented for economic progress, these have also been associated with social costs of rehabilitation or lack of rehabilitation leading to conflicts. Yet, there is no denying the critical role of physical capital in promoting economic growth, even as there is ample empirical evidence of physical infrastructure enhancing the

overall business environment and economic competitiveness at the macro-scale.<sup>9</sup> In that sense, this was a necessary evil that the Indian socioeconomy had to endure, especially during the initial stages of its post-independence development.

### **The Changing Vision of Economic Progress**

The measure of growth as the sole parameter of development or economic progress has been challenged globally for decades. The development thinking that prevailed in the post-war decades of European reconstruction and decolonisation of what was then called the 'third world', which concentrated on growth through capital formation, was challenged and the human face in development paradigm became prominent.<sup>10</sup> Over time, the Club of Rome's doomsday thesis revisited the Malthusian creed that depleting natural resources due to anthropogenic interventions will not be able to sustain human economic growth ambitions for the future.<sup>11</sup>

There have been many conventions, scientific assessments, and global declarations that sought to promote a more holistic approach to development, including the Millennium Development Goals that would eventually be replaced by the more comprehensive agenda created by the SDGs in 2015. While presenting a substantially extended and comprehensive agenda for developmental governance through 17 goals, the SDGs find a theoretical underpinning in economist Mohan Munasinghe's 'sustainomics' that is framed by a transdisciplinary knowledge base. This construct combines economic, social, and environmental goals, thereby addressing the three normative objectives of equity, efficiency, and sustainability.<sup>12</sup> These objectives, in many cases, emerge as irreconcilable.

India's development trajectory has traditionally not been in consonance with this thinking. This thinking is changing, however. The government attempted to provide vulnerable populations with social security during the pandemic-induced lockdown, yet large sections were left behind despite the government's best efforts. This is due to an enduring institutional problem with the distribution element emerging from the size of the population

related to the unregistered informal sector and the large migrant labour force that remains to be identified in government records. It is apparent that it is the market forces that have so far provided the social nets to the poor and vulnerable. The lockdown was tantamount to a locking down of the organic market forces, thereby leaving the informal labour force in the lurch. The SDGs therefore present a governance challenge for the Indian development policy machinery.

### **The Synergy Between SDGs and Inclusive Wealth**

The SDG agenda rests largely on the four forces of capital—human capital (SDGs 1-5), physical capital (SDGs 8 and 9), natural capital (SDGs 14 and 15), and social capital (SDGs 10 and 16). The United Nations Environment Programme's report, *Inclusive Wealth*, discusses the changes in the social values of three of these capital assets, namely, natural, human, and produced or physical capital between 1990 and 2014. As per this report, between 1990 and 2014, although the "inclusive wealth" of India increased by 1.6 percent per annum driven by growth in human and physical capital, there was a decline in per capita inclusive wealth from US\$368 in 1990 to US\$359 in 2014 (both at 2005 prices). If inclusive wealth is taken as the factor or fundamental basis for development, then such a decline raises serious questions on the sustainability of the development process. However, post-2014, there have been significant policy interventions on various human and physical capital domains that have helped push India's development agenda. These policies are presented in this compendium.

At the same time, academics in the West and their supporters in the Global South have often advocated for 'degrowth' as the solution to the world's woes. The degrowth thesis promotes negative growth and a retreat from the current ways of living. This entails contraction of economic activities in the Global North and emancipation from the dominant reductionist paradigm of growth fetishism.

Degrowth—while discussing the extensive damage that growth has and will cause to the ecosystem—underlines the decoupling of human well-being and GDP per capita. For example, wealthier economies like the United States (US) have worse distribution systems than countries that have lower incomes per capita like Spain, and the latter also has better healthcare systems. Prevailing levels of well-being can be maintained in Finland even with 10 percent of their current GDP, with only better equity principles and practices entailing redistribution.<sup>13</sup> The process of contraction in economic activities in the Global North by viewing development from an ‘anti-growth’ perspective is posited to create the space for a more self-defined pathway for social organisation in the Global South.

However, India’s development cannot be in the direction of degrowth. ‘Degrowth’ is a clarion call that is emanating from a world that not only has already grown, but that is more equal in economic terms (income or wealth equality parameters), more equitable from the perspective of distributive justice, and where social security has helped evolve a welfare state. India is yet to reach that stage. While equity and distribution concerns still pose a challenge in this 1.3-billion-plus world, a recent analysis argues how increasing income and wealth inequalities can inhibit the long-term growth prospects of India, especially when consumption demand is the main driver of growth.<sup>14</sup> The recent example of Sri Lanka’s sudden shift to organic farming and its consequent deleterious impacts on the country’s food security is a case in point: the ideals of degrowth cannot be imposed nor can an economy be hurled into a paradigm for which it is not prepared.

### **About this Volume: The Indian Priorities**

Over the last eight years, significant policy interventions have gone into the development space, especially for improving the country’s physical and human capital. The pandemic acted as a shock to the global economic and development domains and has affected the path to achieve the SDGs. There is no doubt that the Indian dream of achieving US\$5 trillion and US\$10 trillion in growth needs to be based on strong fundamentals that are enabled by the SDGs.

This volume presents 10 selected policy interventions among many that are poised to shape a sustainable India. These are the following:

- **POSHAN Abhiyan**, which strives to minimise the level of stunting, undernutrition, anaemia, and low birth weight babies. In this chapter, Shoba Suri outlines the significance of the programme, its achievements so far, and its imperatives in the form of a plot structured, time-bound and location-specific strategies with due consideration to the consequences of socioeconomic factors and the impact of the pandemic.
- **Pradhan Mantri Jan Arogya Yojana**, which entails the world's largest health assurance scheme, with the objective of providing a health cover of INR 5 lakh per family per year for the poor and vulnerable households. Oommen C Kurian discusses the programme and uses a small case study on its beneficial impact and how such a scheme is a replicable model for many other parts of the world.
- **Jal Jeevan Mission**, which aims to provide access to safe and adequate drinking water by 2024 to all households. Sayanangshu Modak draws the connection and causal relationship of this mission to various health and productivity-related outcomes, and discusses how it will have an impact on the overall progress of the nation.
- **Samagra Shiksha Abhiyan**, which presents an overarching and comprehensive programme for the school education sector with the broader goal of improving school effectiveness, measured in terms of equal opportunities for schooling and equitable learning outcomes. Malancha Chakrabarty, while describing the broad contours of the programme, argues how it helps facilitate the achievement of the human capital-related SDGs. She underlines its resonance with the thinking of Indian intellectuals.
- **National Skill Development Mission**, which is driven by the objective of bridging the necessary 'skill gap' in the Indian economy. Sunaina Kumar, while introducing the wide chasm between the demand and supply of skilled human capital to address the gap between Indian economic ambition and achievement, highlights the significance of the programme. She outlines what needs to

be done to make this programme more effective for building a sustainable India.

- ***Mahatma Gandhi National Rural Employment Guarantee***, which aims to enhance livelihood security in rural areas by providing at least 100 days of wage employment in a financial year to at least one member of every household whose adult members volunteer to do manual work. Soumya Bhowmick examines how this has offered a cushion to vulnerable communities during times of crisis, including the pandemic. He reiterates how it helps address the SDGs related to poverty alleviation and food security.
- ***National Smart Cities Mission***, which is an urban renewal and retrofitting programme with the objective to develop smart cities across the country, making them citizen-friendly and sustainable. Aparna Roy evaluates how the mission can help urban centres emerge as hubs of future regional development and economic growth and be resilient to the shocks of climate change.
- ***Prime Minister Gati Shakti Mission*** entails a revolutionary approach to transform mobility keeping in mind economic growth and sustainable development. Launched in October 2021, the mission aims to provide multimodal connectivity infrastructure to various economic zones. Debosmita Sarkar describes how this mission can help address the connectivity conundrum across the country and its potential to emerge as a game-changer in the connectivity domain and help achieve economic growth.
- ***Swachh Bharat Abhiyan*** is a significant cleanliness campaign which aims to eliminate open defecation and improve solid waste management. Mona discusses the world's largest sanitation campaign and highlights its achievements.
- ***Aadhaar***, the world's largest biometric system, is another success story. With almost every Indian adult being an Aadhaar holder and a carrier of unique and secure identity, the movement has fostered social, economic, and technological inclusion on a national scale. This is what Anirban Sarma and Basu Chandola emphasise in their chapter. The authors use Aadhaar as a case study of

the role of information and communication technologies in bringing about social and economic progress. They underline its replicability for many parts of the world when governments are trying hard to address concerns of equity and distributive justice.

The 10 chosen policies address critical elements in inclusive wealth, namely, human and natural capital. As inequality can dampen economic growth,<sup>16</sup> future growth should be spurred by a more equitable and sustainable world driven by the SDGs. India's progress, therefore, must rest on two key elements: a simultaneous growth in health- and education-induced human and physical capital, without compromising on the sustainability of natural capital; and a more equal India serving the cause of distributive justice through reduced inequality.

This introductory piece is a revised and extended version of the article, "Towards a 10-trillion-Dollar Indian Economy Based on the SDG Agenda", written by the author as part of ORF's series, *India@75: Aspirations, Ambitions, and Approaches*.

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# *POSHAN Abhiyaan:* The Path to a Malnutrition-Free India



*Shoba Suri*  
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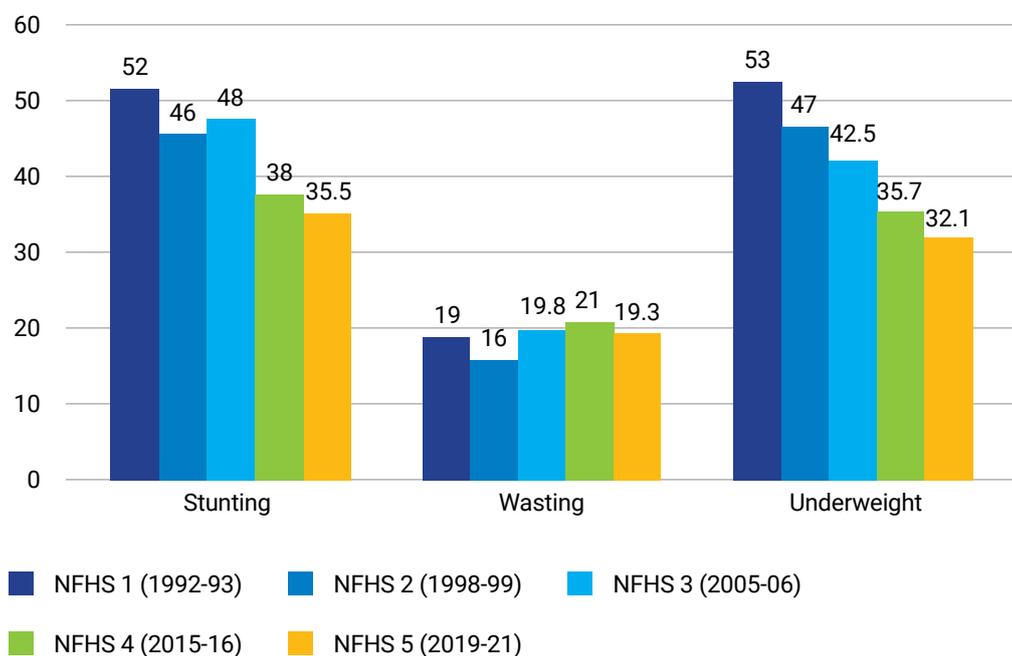
Over the past 40 years or so, India has implemented several nutrition programmes, including the Integrated Child Development Services (ICDS) and the mid day meal scheme. However, nutrition issues and stunting persist, and are roadblocks to the country's development. Stunting has wide ranging repercussions on human capital,<sup>a</sup> poverty alleviation, labour

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<sup>a</sup> This refers to the economic value of a worker's experience and skills. Human capital includes assets like education, training, intelligence, skills, and health.

productivity, and also the promotion of equity. It also significantly diminishes educational potential, leading to fewer professional opportunities. The return on investment in reducing stunting and wasting is manifold, US\$18 on every US\$1 invested.<sup>1</sup> According to the World Bank, “A 1% loss in adult height thanks to childhood stunting is related to a 1.4% loss in economic productivity.”<sup>2</sup> Stunting also has lasting effects on future generations. Moreover, the high rate of anaemia among women (57 percent in 2019-21) may have a negative impact on their future pregnancies, resulting in the birth of anaemic children.<sup>3</sup> This situation only worsens when such infants receive inadequate diets.

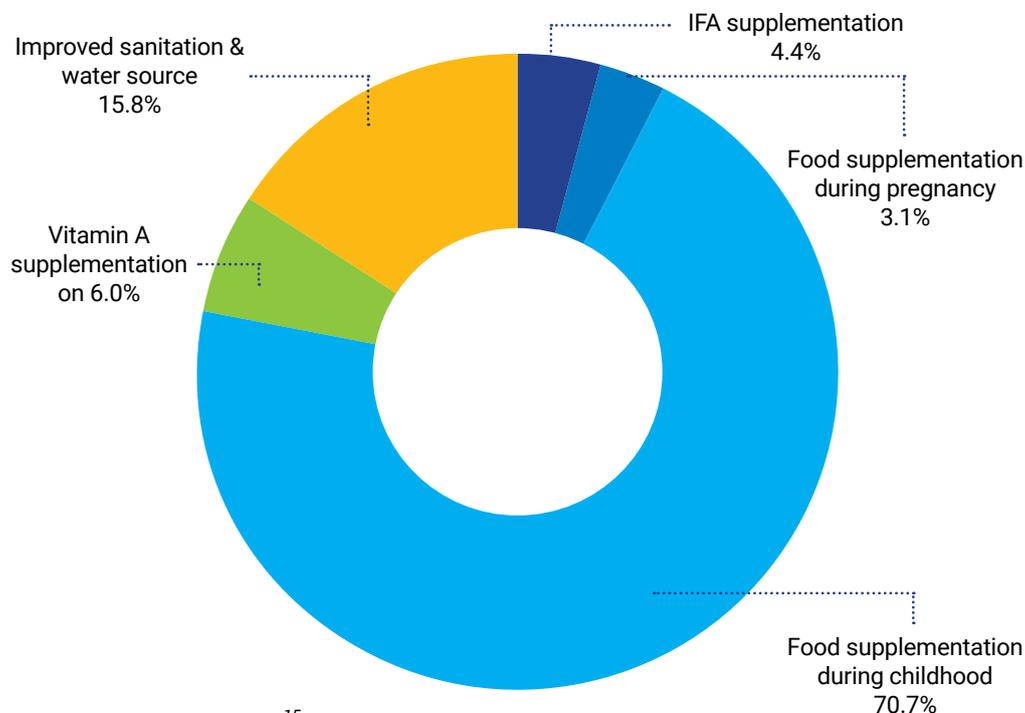
India is home to a substantial number of the world’s undernourished population. It ranked 101 among 116 countries assessed in the 2021 Global Hunger Index,<sup>4</sup> and 116 out of 174 countries in the Human Capital Index.<sup>5</sup> India also has the world’s largest number of stunted (36.1 million) and wasted children (20.1 million).<sup>6</sup> About 19 percent of girls and 16 percent of men aged 15-49 in India are underweight, and 24 percent of women and 23 percent of men are overweight and obese.<sup>7</sup> A study shows 68 percent of deaths among children below five years in India are caused by child and maternal malnutrition.<sup>8</sup> The 2019 Food and Nutrition Analysis indicates a high level of stunting among children under five years (one in three children), and a double burden of malnutrition with 23 percent women with low BMI (<18.5) and 21 percent overweight/obese (BMI>25).<sup>9</sup> As per the Comprehensive National Nutrition Survey 2016-18, 35 percent of infants (0-4 years) were stunted and 17 percent wasted.<sup>10</sup> Additionally, according to the National Family Health Survey (2019-21), India still has unacceptably high levels of stunting despite marginal improvement over the years (see Figure 1). India has nearly halved the proportion of its stunted children (35.5 percent) from the absolute numbers in the late 1980s (66.2 percent).<sup>11</sup> Meanwhile, the share of children under five years who are wasted has remained stagnant over the years. The proportion of children who are severely wasted also increased, from 7.5 percent in 2015-16 to 7.7 percent in 2019-21.

**Figure 1: Malnutrition Trends in Children Under Five Years**

Source: Author's own

Timely interventions of breastfeeding, age-appropriate complementary feeding, full immunisation, and vitamin A supplementation are deemed essential in enhancing nutrition outcomes in children.<sup>12</sup> However, data shows that only 41.8 percent of infants are breastfed within one hour of birth, 63.7 percent are exclusively breastfed for six months, 45.9 percent are given timely complementary foods, and only 11.3 percent of infants below two years receive an adequate diet.<sup>13</sup> Research also found that between 2006 and 2016, about 4.6 million cases of stunted children under five years could have been prevented by scaling up several interventions (see Figure 2).<sup>14</sup> The same study estimated that supplementary food provision during childhood, coupled with access to improved sanitation and water, could prevent 86.5 percent of stunting cases.

**Figure 2: Lives Saved Tool-based Interventions that Contribute to Stunting Prevention in Children Under Five**



Source: Alderman H et al, 2019<sup>15</sup>

### India's Nutrition Programmes

While India has made many strides in reducing malnutrition, plenty remains to be done before it can meet global targets. The ICDS, India's primary nutritional and child development scheme, has expanded steadily across the country in the 45 years of its existence. The scheme covers the country's major development blocks, such as supplementary nutrition, health and nutrition education, immunisation, informal preschool education, and has addressed a number of the fundamental causes of undernutrition. The programme takes a multipronged approach to children's wellbeing by integrating health, educational, and nutritional interventions through a community network of *anganwadi*<sup>b</sup>

<sup>b</sup> Angadwadi is a rural childcare centre that provides basic healthcare, nutrition, supplementation, medicines, contraceptives, and pre-school activities.

centres (AWCs). These measures include a supplementary nutrition programme, growth monitoring and promotion, nutrition and health education, immunisation, health checkup and referral, and preschool education. The beneficiaries are children below six years, and pregnant and lactating women. In 2006, the ICDS became the Indian government's flagship programme to tackle malnutrition. Schemes like anganwadi services, plans for adolescent girls, and the *Pradhan Mantri Matru Vandana Yojana* (PMMVY)<sup>c</sup> were initiated under the ICDS. The anganwadi scheme operates through a network of about 7,075 fully operational projects and 1.38 million AWCs.<sup>16</sup> Additionally, the Ministry of Health and Family Welfare has created nutritional rehabilitation centres to treat children with severe malnutrition.

A study mapping the extent and equity of ICDS coverage between 2006 and 2016 indicated a substantial rise in the proportion of pregnant and lactating women and their children under five years.<sup>17</sup> The utilisation of supplementary food under ICDS increased from 9.6 percent to 37.9 percent; health and nutrition education grew from 3.2 percent to 21 percent; health checkups surged from 4.5 percent to 28 percent; and child-specific services, such as immunisation and growth monitoring, increased from 10.4 percent to 24.2 percent.<sup>18</sup> The expansive coverage of ICDS is noteworthy, especially given the challenges related to India's geographical landscape and population diversity.

Inadequate dietary intake is typically the cause for the poor nutritional status among women. Only half of all women consume a wholesome diet, with only 47 percent having a daily intake of green leafy vegetables, 46 percent consuming fruits once every week, and 45 percent eating pulses daily.<sup>19</sup> About half of all adolescents (10-19 years) are short, thin or overweight, while above 80 percent suffer from undernutrition and

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<sup>c</sup> A maternity benefit programme.

micronutrient deficiencies.<sup>20</sup> Around 40 percent of adolescent girls suffer from anaemia and almost a third of girls (23.3 percent) are married before the age of 18.<sup>21</sup> Undernourished women will likely become undernourished mothers, with a greater chance of birthing low birth-weight babies that are more liable to infections and growth failure. This perpetuates an intergenerational cycle of malnutrition, which is heightened by poverty, social exclusion, and gender discrimination, resulting in irreversible effects on cognitive and physical development.<sup>22</sup> Current evidence suggests that continued investment in areas with high levels of early marriage and childbearing, and, therefore, the subsequent eradication of adolescent pregnancy, will result in a reduced burden of undernutrition in India.<sup>23</sup>

### **Aiming Higher with POSHAN Abhiyaan**

Given the focus on eliminating malnutrition, it is crucial to educate mothers and their families on the importance of malnutrition and its impact on the individual and future generations. With the objective of enhancing inclusion and increasing the standard and quantity of services, the Ministry of Women and Child Development launched the *POSHAN Abhiyaan* (national nutrition mission) in 2017. It aims to improve the nutritional status of infants (upto six years) adolescent girls, pregnant women, and lactating mothers.<sup>24</sup>

It is an overarching multiministerial mission that aims to achieve a malnutrition-free India by 2022. It targeted reducing stunting by 2 percent, undernutrition by 2 percent, anaemia (among young children, women and adolescent girls) by 3 percent, and low birth weight by 2 percent per annum. Importantly, although the target to reduce stunting was pegged at 2 percent per year, the scheme aimed to reduce stunting to 25 percent by 2022 (from 38.4 percent in 2015-16).

POSHAN Abhiyaan intends to significantly reduce malnutrition through a four-point strategy:<sup>25</sup>

- Intersectoral convergence for better service delivery
- Use of technology for real-time growth monitoring and tracking of women and children
- Intensified health and nutrition services for the first 1,000 days
- *Jan andolan* (people's movement)

It presents a novel opportunity to eradicate undernutrition at the grassroots level. The success of the scheme is hinged on supporting vulnerable populations access the services through technology (ICDS computer application software), convergence action planning, behavioural change communication, and capacity building.

The mission is a confluence of multiple schemes and programmes, including the Ministry of Women and Child Development's PMMVY, anganwadi services, and scheme for adolescent girls; Ministry of Health and Family Welfare's National Health Mission; Swachh Bharat Mission by the Ministry of Water and Sanitation; Ministry of Consumer Affairs's public distribution system; Ministry of Panchayati Raj's drinking water and toilets programmes; and the Mahatma Gandhi National Rural Employment Guarantee Scheme under the Ministry of Rural Development.<sup>26</sup>

Nutrition is at the heart of the Sustainable Development Goals (SDGs). "Nutrition is both a maker and a marker of development. Improved nutrition is the platform for progress in health, education, employment, empowerment of women and the reduction of poverty and inequality, and can lay the foundation for peaceful, secure and stable societies," said former UN Secretary-General Ban Ki-moon.<sup>27</sup>

Malnutrition can cause a GDP loss of anywhere between 3 percent to 16 percent, and up to 2.5 percent for India (in 2016).<sup>28</sup> It is tough to realise the SDG goals without investment in nutrition as 12 of the 17 goals are connected to it (see Figure 3). POSHAN Abhiyaan

looks to improve the nutritional outcomes in children and pregnant and lactating women through a holistic approach by addressing the underlying determinants of malnutrition.

Figure 3: Nutrition and Links to SDGs

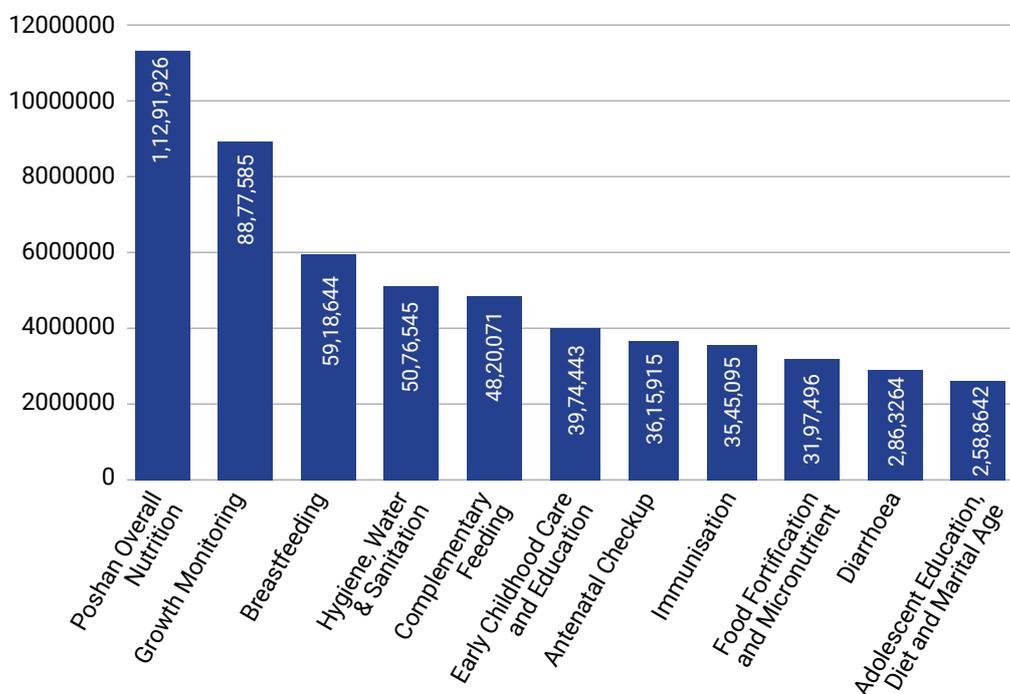


Source: *Nutrition and the Sustainable Development Goals*<sup>29</sup>

### Impact

About 14.5 billion people are thought to have participated in the programme through about 473 million activities, a substantial number of which are focused on overall nutrition, anaemia, hygiene (water and sanitation), breastfeeding, growth monitoring, and immunisation (see Figure 4). These activities aim to raise awareness about good nutrition and hygiene by providing accurate information and supplements to manage undernutrition.

**Figure 4: POSHAN Abhiyaan Activities Across Key Parameters and Focus Areas**



Source: Author's own, based on data from POSHAN Abhiyaan Dashboard<sup>30</sup>

COVID-19 has further exacerbated the challenge of good nutrition, with an extensive loss of lives and livelihood and service disruptions due to lockdowns and other curbs. During the lockdown, the vulnerable were worst-affected and at increased risk of hunger and food insecurities. With the interruption of nutrition and social insurance programmes (such as the anganwadi services, supplementary nutrition, and mid-day meals) the progress made on overcoming hunger and undernutrition in recent decades was scuttled. For instance, over 120 million children missed out on the mid-day meal and about 70 million on the supplementary food at the anganwadi centres in 2020-21.<sup>31</sup> To overcome the crisis and bring life to health and nutrition services, *POSHAN Maah* (month) was started in September 2020 to encourage community mobilisation for good health and nutrition for all.<sup>32</sup> Many efforts were undertaken for children and pregnant and lactating mothers during the lockdown, such as a supply of take-home rations, food on wheels, nutrition kits, and mobile anganwadis.<sup>33</sup>

## Key Developments and Initiatives

- **IMPAct4Nutrition: Engaging with private sector**<sup>34</sup>

Launched in March 2019, IMPAct4Nutrition is an initiative convened by UNICEF, Tata Trusts, Sight and Life, CSRBOX, Confederation of Indian Industry, WeCan, and NASSCOM Foundation to support POSHAN Abhiyaan in improving the nutritional status of children under five, adolescent girls, and lactating mothers. The initiative helps extend nutrition awareness and improve nutrition literacy.
- **#Ayush4Anganwadi: Memorandum of understanding between Ministry of AYUSH and Ministry of Women and Child Development**<sup>35</sup>

Currently in the pilot phase, the aim is to address problems with malnutrition among women and children across 1,000 anganwadi centres. Under this POSHAN Vatika programme, nutri-gardens and medicinal gardens will be developed in anganwadis. The centres will also have provisions for yoga sessions, which could help the beneficiaries receive optimal nutritional standards. Workers at the centre, called *dhatri* ('dedicated health activist to replenish the innutrition'), will promote Ayurveda nutrition.
- **Mission POSHAN 2.0**<sup>36</sup>

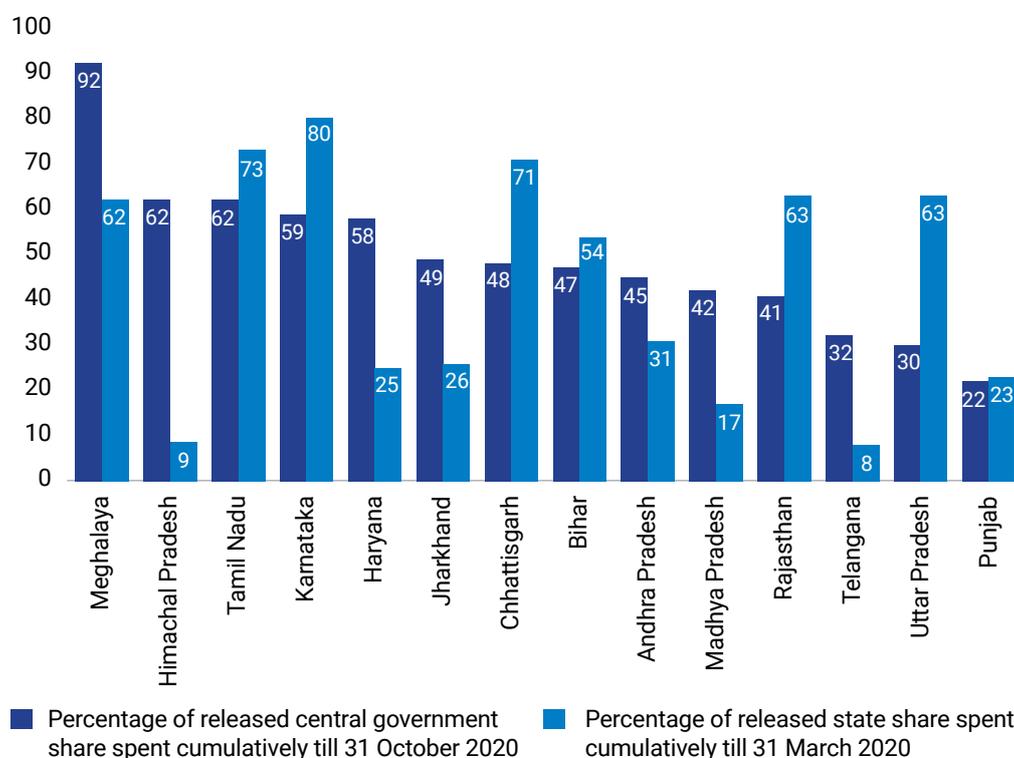
Mission POSHAN 2.0 was announced in the 2021 Union Budget as an intensified strategy to strengthen nutritional content, delivery, outreach, and outcome across 112 aspirational districts. It has two components: Saksham Anganwadi, which clubs ICDS, POSHAN Abhiyaan, scheme for adolescent girls, and national creche scheme; and Samarthya, which combines the PMMVY, *Beti Bachao, Beti Padhao* (Save the Girl Child, Educate the Girl Child) and the scheme on empowering rural women. The guidelines for Saksham Anganwadi and POSHAN Abhiyaan 2.0 positions the nutrition of adolescent girls high on the plan for meeting the targets of reducing childhood undernutrition.<sup>37</sup>

- **POSHAN Tracker<sup>38</sup>**  
A mobile-based app launched by the Ministry of Women and Child Development in March 2021, POSHAN Tracker is a beneficiary-centric service delivery app that promotes real-time data analytics. As a governance tool, it assists anganwadi workers in identifying the prevalence of stunting, wasting, and low weight among children, and also helps them track the delivery of nutrition services.
- **POSHAN Gyan<sup>39</sup>**  
A national digital repository of online resources and communication material developed by government agencies and other organisations for knowledge awareness and behavior change associated with nutrition. The *POSHAN Gyan* (knowledge) was launched in April 2021.

### The Way Forward

Although malnutrition has gained policy priority, the successful implementation of programmes to tackle it require the effective use of funds. Since its launch, only 56 percent of funds allocated for POSHAN Abhiyaan (INR 2.9 billion of INR 5.3 billion) have been utilised.<sup>40</sup> The utilisation of funds released by the Centre (46 percent) and the state (41 percent) is low, with stark differences among the various states and union territories (see Figure 5).

**Figure 5: Utilisation of Funds for POSHAN Abhiyan**



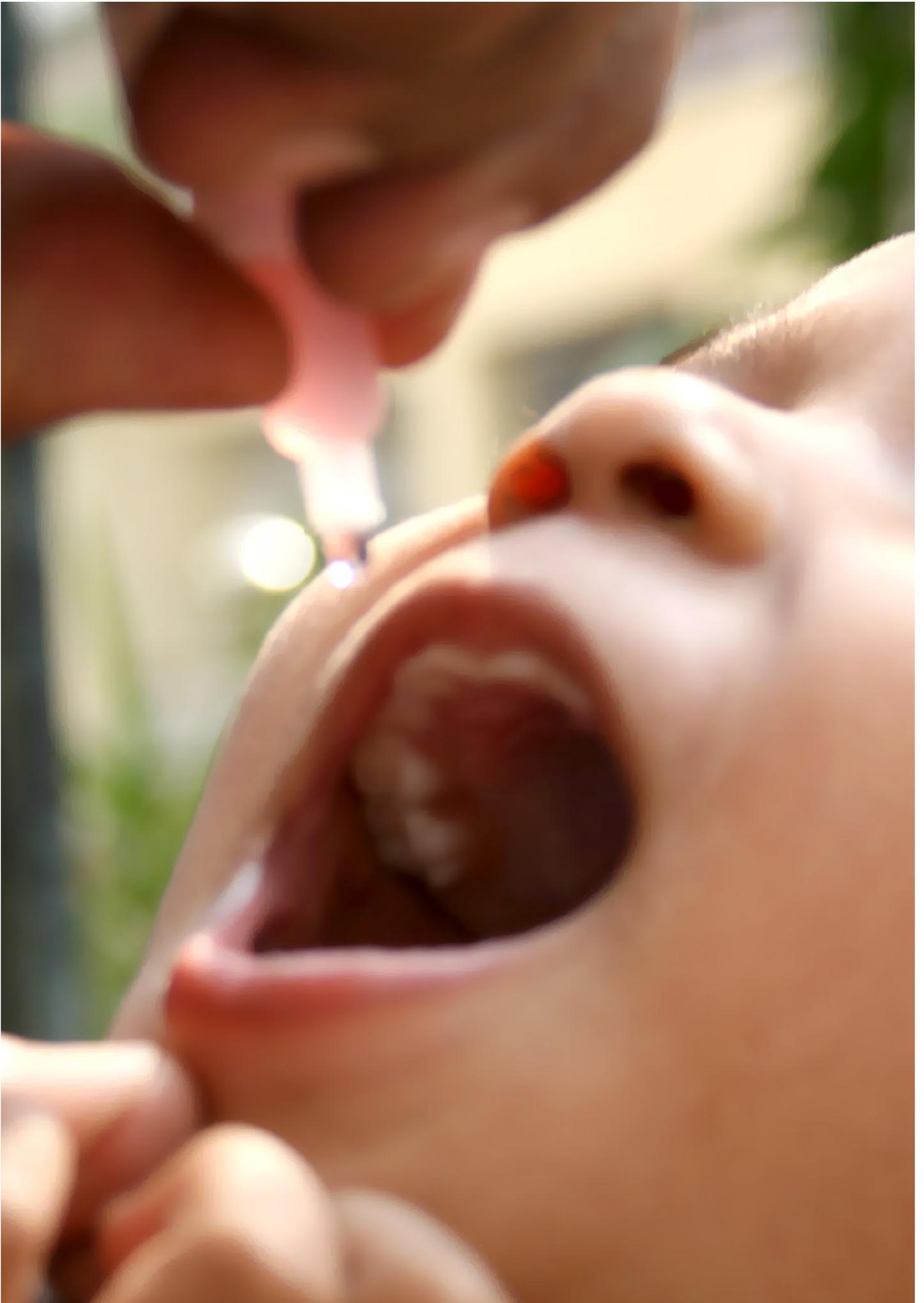
Source: Budget Brief Poshan Abhiyaan 2021-22<sup>41</sup>

Food security is key to India’s overall development agenda. Proactive measures are needed to deal with the longstanding problems of malnutrition and food insecurity. The convergence of programmes across sectors must be strengthened to achieve better nutrition and health outcomes. A national commitment to action has been made to attain nutrition security in an exceedingly coordinated and effective manner, even amid the COVID-19 pandemic.<sup>42</sup> This must be accompanied by sustained leadership and a multisectoral approach to ensure POSHAN Abhiyaan achieves the target of food and nutrition security. The imperative is to plot structured, timebound, and location-specific strategies with due consideration to socioeconomic factors, such as the impact of the pandemic. It is also crucial to adopt a comprehensive approach that addresses the various sectors and dimensions of nutrition to achieve a malnutrition-free India.

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# *Pradhan Mantri Jan Arogya Yojana* and India's Quest for Universal Health Coverage



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Over the past two decades, India's health outcome indicators have shown slow but consistent improvement, as results from various rounds of the National Family Health Survey (most recently, 2019-21) demonstrate. Much of these achievements were met despite inadequacies in policy attention and government funding. The National Health Policy 2017 set a target of spending 2.5 percent of GDP on health by 2025. A specific goal is to bring down household health spending, which often has a disastrous impact on household spending on other necessities.

The broad aim of enhancing financial and health security pushed the government to launch its flagship *Ayushman Bharat* initiative in 2018. *Ayushman Bharat* had two components—delivering comprehensive primary healthcare by establishing 150,000 health and wellness centres (HWCs) by 2022; and providing financial protection for secondary and tertiary level hospitalisation through what was then called the National Health Protection Scheme. Through these two components, the government aimed to extend a continuum of services across the primary, secondary, and tertiary levels of care, and brought renewed attention to delivering an entire range of preventive, promotive, curative, diagnostic, rehabilitative, and palliative care services.<sup>1</sup>

### **Building on the *Rashtriya Swasthya Bima Yojana* Model**

In August 2018, Prime Minister Narendra Modi announced the rollout of the health insurance scheme under a new name—*Pradhan Mantri Jan Arogya Yojana* (PMJAY), beginning September 2018. The PMJAY, the insurance arm of *Ayushman Bharat*, marked a step forward for India towards financing the delivery of healthcare for the poor. The objective of the scheme was to provide a health cover of INR 500,000 for secondary and tertiary care to 100 million poor and vulnerable households or around 500 million individual beneficiaries, thus making it one of the most ambitious public healthcare initiatives in the world.<sup>2</sup> PMJAY was part of the government's larger agenda of achieving universal health coverage (UHC) by improving access to and affordability of quality secondary and tertiary care services through a combination of public hospitals and private care providers.

The policy decision to leverage India's large private sector to enhance poor people's access to healthcare towards UHC, rather than focus solely on building public sector infrastructure, was taken in 2008 when the *Rashtriya Swasthya Bima Yojana* (RSBY), a similar insurance scheme but much lower in scope, was launched by the previous government. RSBY offered a modest INR 30,000 per year cover for a family of five, for below poverty line (BPL) families alone. RSBY was inspired by various community

health insurance schemes in India, which were primarily responses to a non-existent or unsatisfactory State presence in healthcare. These were initiatives where community members tried to muster whatever resources they could to overcome the inadequacies in healthcare services.

Critiques of RSBY tend to focus on its BPL-targeting approach and inadequate financial protection (INR 30,000 per year for a family of five), comparing this to hypothetically using the public distribution system shops to, for instance, distribute mango kernels, mahua seeds, and tamarind seeds as drought relief instead of foodgrains since a large number of India's poor survive on these.<sup>3</sup> However, by increasing the annual financial protection by a steep 17 times (from INR 30,000 to INR 5,00,000), doing away with the five-member limit for family members, and by freeing the scheme of the tyranny of the deeply restrictive BPL list, PMJAY easily addressed the core weaknesses of RSBY.

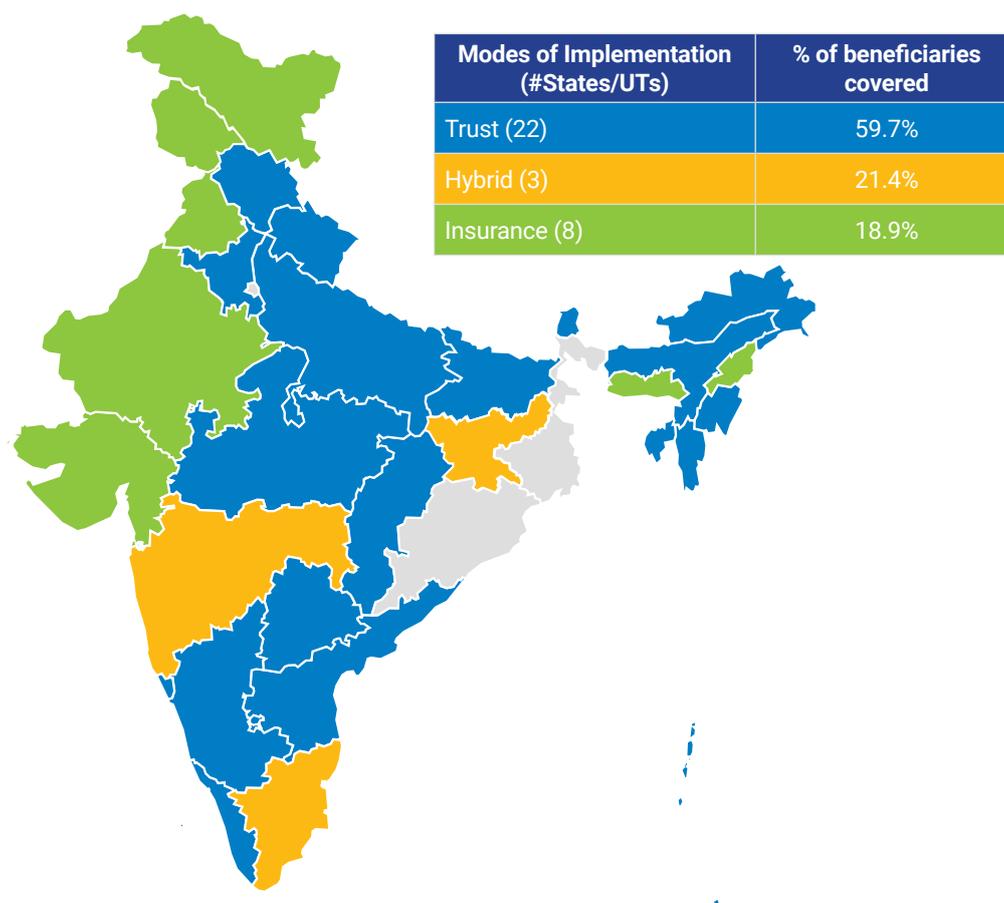
### **What Has Been Achieved So Far**

Although the stated objective of PMJAY was to cover 500 million Indians—the poorest 40 percent of the population—the scheme has already managed to cover far more, with most of the states and union territories offering “top up” coverage beyond what was intended in the original plan. As of March 2022, over 146 million households, or more than 700 million Indians, are part of PMJAY and allied state-level schemes.<sup>4</sup> Since 2018, PMJAY has financed a staggering 32.8 million hospital admissions worth INR 376 billion, and has 27,291 hospitals across India where health services can be availed.<sup>5</sup>

PMJAY is coordinated by the National Health Authority (NHA), an autonomous body under the Ministry of Health and Family Welfare (MoHFW). The NHA is managed by a governing body, chaired by the union health and family welfare minister and accompanied by the Chief Executive Officer of NITI Aayog; the Secretary of the Department of Expenditure in the Ministry of Finance; the Secretary in MoHFW's Department of Health and Family Welfare; the NHA CEO; two experts

appointed by the Indian government in the areas of administration, insurance, public and private healthcare providers, economics, and public health management; and five principal secretaries of health of state governments, one representing each of the zones (north, south, east, west and northeast) on a rotational basis.<sup>6</sup> At the state level, state health agencies or similar bodies implement the scheme, supported by various district implementation units. To enhance the acceptability of the scheme at the state level, a sense of ownership, and the probability of the state allocating funds to expand coverage, PMJAY enables the states to choose the mode of implementation. Currently, there are three models—trust, hybrid, and insurance. Most states have opted for a trust model (see Figure 1).

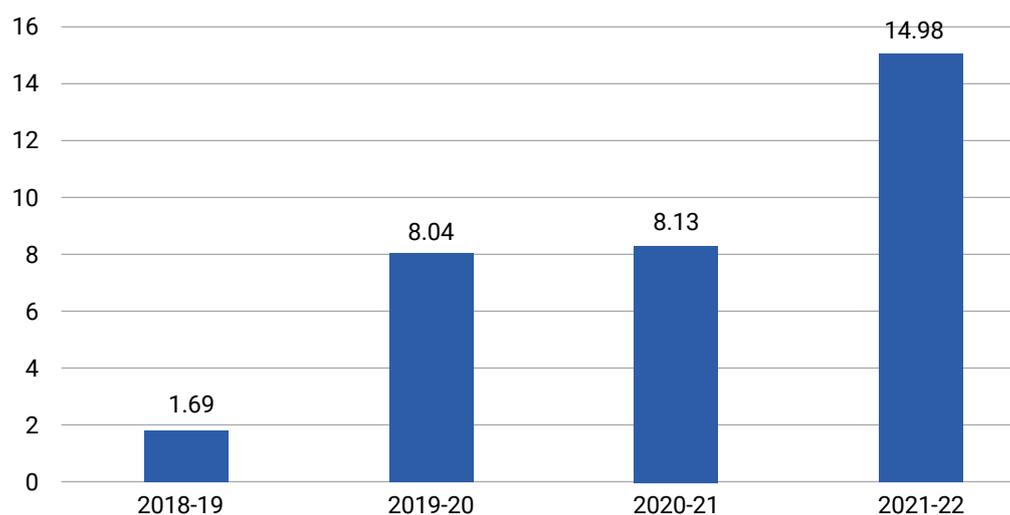
**Figure 1: PMJAY Implementation Across India: Different Models**



Source: NHA (2022)<sup>7</sup>

With Telangana joining PMJAY in 2021, West Bengal, Odisha, and Delhi are the only states and union territory not to implement the scheme.<sup>8</sup> Between 2018 and 2022, PMJAY has supported millions of hospitalisations across the country, a number that increases every year, despite the disruptions caused by the COVID-19 pandemic (see Figure 2). In April 2022, a new, expanded version of the PMJAY Health Benefit Package was revealed, with inclusion of 365 new procedures, taking the total number of procedures covered under the scheme to 1,949.<sup>9</sup>

**Figure 2: Hospital Admissions Under PMJAY, by Year**  
(in millions; as of March 2022)



Source: Government of India (2022).<sup>10</sup>

The scheme is still in its early phase and so systematic evaluations of its impacts on health outcomes are not yet available, but the government has said the PMJAY has successfully contributed in curtailing out-of-pocket expenditure in India.<sup>11</sup> An early review of the scheme found wider population coverage, better services and benefits packages, and improved financial risk protection.<sup>12</sup> Researchers have suggested

that the reduced uptake of PMJAY hospitalisations during the pandemic phase was possibly because medical procedures for COVID-19 treatment under the scheme were only accessible in government hospitals.<sup>13</sup> A study conducted by the NHA to assess the impact of COVID-19 on PMJAY concluded that service utilisation under the scheme had dropped by 61 percent in the early lockdown period compared to pre-pandemic levels. This drop eventually improved to 46 percent during the late lockdown phase, and the patient footfalls now seem to have improved tremendously, with overall hospital admissions in 2021-22 at nine times the 2018-19 levels.

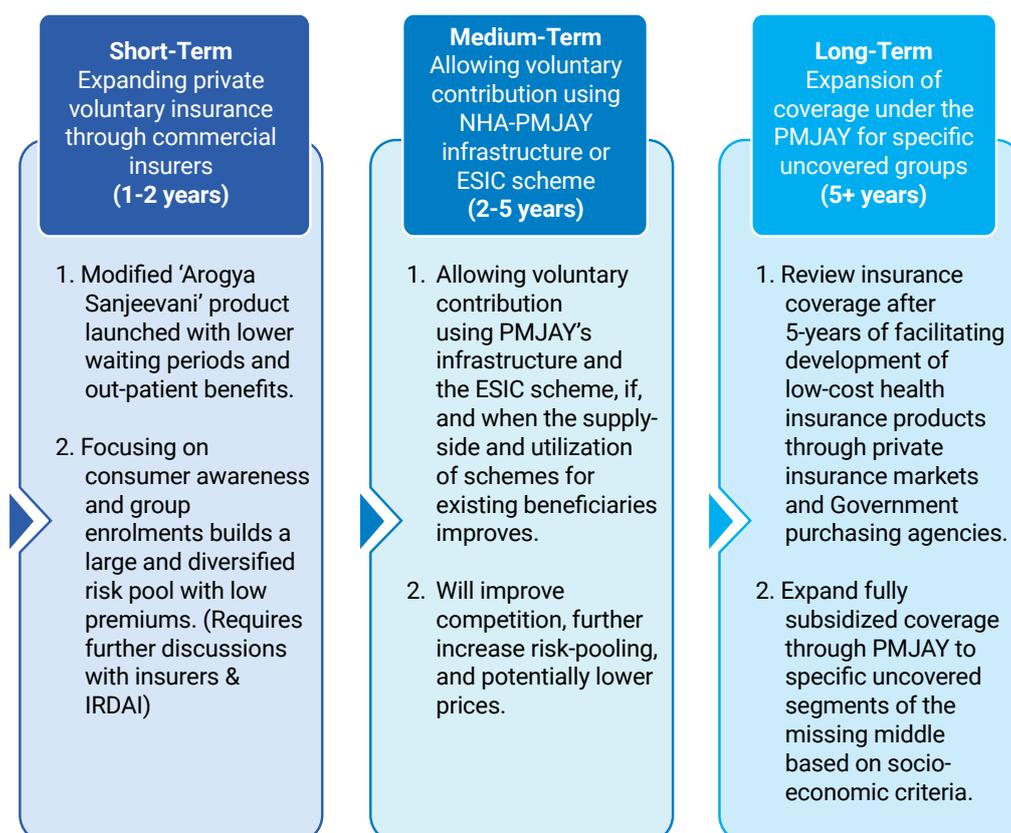
### **Including the 'Missing Middle' into the Risk Pool**

Since 2018, the year PMJAY was launched, many have recommended that the scheme should become the core vehicle to India's progress towards UHC, by moving towards a larger risk pool by expanding its scope to include the non-poor households as well, using a voluntary approach offering a non-subsidised premium.<sup>14</sup> In April 2022, a plan was unveiled to expand coverage to 400 million "non-poor" population, thus potentially taking the overall coverage beyond a billion. The government reportedly aims to extend PMJAY coverage for a small premium to those who cannot afford a health insurance at the current retail price and make it affordable for the 'missing middle' who currently do not have any financial protection for health.<sup>15</sup>

This development follows the publication of an influential report by the NITI Aayog in 2021 titled 'Health Insurance for India's Missing Middle'.<sup>16</sup> The report suggested that in the absence of a low-cost health insurance product, the missing middle remains uncovered and vulnerable to health shocks, despite the ability to pay nominal premiums. A comprehensive product designed for this segment—improving upon the existing plans and offering out-patient cover—can expand health insurance coverage (see Figure 3). According to reports, the decision to expand PMJAY

coverage to the middle class<sup>a</sup> has been made in principle, and NHA is now planning to start pilot projects in select states over the next few months, after which coverage will be expanded across India.<sup>17</sup>

**Figure 3: Implementation Pathway for Expansion of Health Insurance Coverage to the ‘Missing Middle’**



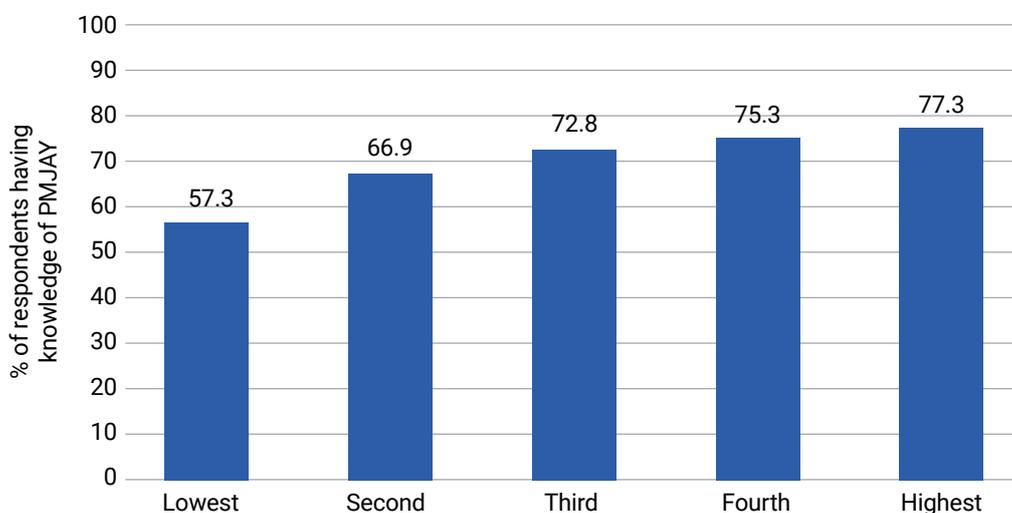
Source: Niti Aayog, 2021<sup>18</sup>

<sup>a</sup> Here, the middle class is defined as those 30 percent of Indians who do not belong to the poorest 50 percent who are covered by government health insurance, or the richest 20 percent who are covered by social/private health insurance.

The proposed expansion of PMJAY will have profound implications on the health system. It will contribute to the penetration of health insurance into relatively lower income groups, as well as expand the funds available to the public healthcare facilities across the country. PMJAY was carefully designed to prevent it from becoming merely a private sector subsidy scheme. A study by the NHA explored data from existing state-level health insurance schemes that preceded PMJAY in Tamil Nadu, Chhattisgarh, Meghalaya, and Kerala, and examined the policies and implementation experience with respect to resource mobilisation, management, and utilisation by government hospitals. The study found that insurance revenues offer enormous potential to improve service delivery at government hospitals by introducing fundamental changes in both financing and management. The authors noted that although small compared to supply-side budgets, insurance revenues account for a large share of flexible funding at the hospital level.<sup>19</sup>

### **The Way Forward**

PMJAY, supported by the Ayushman Bharat HWCs and the broader National Health Mission, is a key component of India's strategy towards UHC, which aims to ensure that all citizens have access to quality health services—across prevention, promotion, treatment, and rehabilitation-related services—without having to face financial shocks. According to senior government officials, India is committed and on-track to achieving UHC by 2030.<sup>20</sup> The plans to expand PMJAY to the non-poor population with the aim of taking coverage beyond a billion is the latest step towards India's UHC objective. While the Ayushman Bharat ecosystem is still evolving, PMJAY continues to protect millions of families from financial shocks (see Box 1). A study based on a pan-India survey from 2021 found that over 70 percent of households across India reported that they were aware of the PMJAY scheme. However, scheme awareness was lowest among households in the bottom two quintiles—precisely the population who need the most assistance. (see Figure 4).<sup>21</sup> Awareness among the target population remains a bottleneck, despite information, education, and communication campaigns, which necessitates starting innovative interventions in low-awareness states.

**Figure 4: PMJAY Awareness, by Socioeconomic Quintile**

Source: National Health Authority, 2022<sup>22</sup>

Parallel to the expansion to the middle class, NHA is streamlining the health system to avoid an overlap of families in more than one scheme, and moving towards converging with various health schemes catering to different populations or diseases, such as Janani Suraksha Yojana, Employees' State Insurance Corporation, Building and Other Construction Workers Welfare Boards, Central Government Health Scheme, and Rashtriya Arogya Nidhi-Health Ministers Discretionary Grant.<sup>23</sup> The National Digital Health Mission facilitates data linkages between different components of India's health system and can make this expansion of PMJAY into the middle class seamless, and provide further incentives for the private sector to come under the regulated network of national health insurance.

India is in the 'decade of action', which calls for accelerated efforts to develop new solutions and to expand existing ones. India's performance on the Sustainable Development Goals (SDGs), especially SDG-3 (ensuring healthy lives and promoting well-being for all at all ages) is critical for the world at large to achieve the goals. PMJAY is part of an 'India model' in the health system, which has successfully transcended the 'provisioning versus insurance' debate within health policy and

opted to strengthen both public provisioning and democratise health insurance solutions at the same time. Many countries, especially those in comparable income settings, can adapt India's model that leverages the strengths of both public and private sectors. PMJAY is a key component in India's strategy to achieve its national health goals, and externalities from this ambitious initiative have enormous potential in contributing to India's sustained economic growth in the coming decades.

## **PMJAY and Protection from Catastrophic Medical Spending – Champa Ben's Story<sup>24</sup>**

**C**hampa Ben Nagar Bhai Chawda from Ahmedabad, Gujarat had her eyes continuously watering for the past twenty years but she thought it was just something that happened as people grew older. Then the headaches and the dizziness began. For four months, Champa Ben convinced herself that she was alright; that the symptoms were “nothing much, would vanish if she paid no heed to them.” The truth was that she didn't want to think of it. Her husband, a factory worker, earned very little; besides, the factory had been closed for six months. Two younger sons and a daughter were still in school. Her older son was the only earning member, a bus driver, earning just Rs. 20,000 a month. A family of eight survived on this meagre sum. Champa Ben shuddered at the thought of burdening the family with medical expenses.

It was Ranjan, Champa Ben's young daughter-in-law whose prodding made Champa Ben finally go to a hospital for a medical checkup. Sure enough, at Sant Ram Eye Hospital, Nadiad Kheda, an MRI confirmed the family's worst fears. It was a brain tumor.

Surgery was required. But who would pay for it? How would they meet the expense? The family went numb with fear. The surgery would have wiped out the family's entire earnings and send them spiralling into an eternal debt-trap for a loan of at least Rs. 3 lakh.

She was directed to the Neurological department of Narayana Multi-Speciality Hospital, Ahmedabad, where the doctor briefed her about the PMJAY. A quick scan of the database showed that Champa Ben was indeed eligible for free surgery, and the family was relieved. The process of registration was smooth and fast. Within ten days from the diagnosis, Champa Ben

underwent surgery to remove the tumour.

Champa Ben felt better immediately after the surgery. She still occasionally felt a tingling sensation, but the watery eyes had stopped. The only time that her eyes water now, are when she speaks of the miraculous way the surgery was facilitated, at zero cost to the family. Eyes sparkling with joy, her daughter-in-law, Ranjan says, "We are so blessed to learn of this scheme - after 20 years of suffering, my mother-in-law is well today."

*A revised excerpt from Ayushman Bhava: 100 Stories of Joy, Hope and Triumph.*

*The author thanks ORF intern Yash Shroff for his help with formatting the citations.*

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# *Jal Jeevan Mission:* Making Water Everyone's Business



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Access to potable water remains a massive development challenge in India. As per official data, only about 50 percent of all households are estimated to have tap connections in 2022.<sup>1</sup> Yet, this already represents a significant improvement from the figure of 17 percent in 2019, when the government launched its flagship Jal Jeevan Mission (JJM). JJM aims to provide all rural households with functional household tap connections, and seeks to galvanise collective action by using

information, education, and communication campaigns to encourage a grassroots level movement to conserve and manage water through a decentralised approach.

The lack of safe drinking water has a crippling impact on public health and the economy; waterborne diseases are estimated to cost India about US\$600 million each year.<sup>2</sup> In addition to the expenses on healthcare,<sup>3</sup> inadequate access to safe drinking water also often translates to greater drudgery for women who, by norm in many parts of the country, are given the difficult task of ensuring their family's water supply.<sup>4</sup> Efforts to improve access to potable water must aim to not leave any family behind and reach the intended people at the desired speed and scale.<sup>5</sup>

Access to clean water and sanitation is captured in Goal 6 of the Sustainable Development Goals (SDGs). Achieving SDG-6 is critical for progress on all other SDGs since the availability of water serves multiple aspects of human well-being and facilitates social and economic development (see Figure 1). Conversely, other SDG goals also influence the progress that can be made towards achieving SDG-6, with some even having a direct impact, such as climate change mitigation and adaptation (SDG 13).<sup>6</sup> As the global community gears up to achieve the SDGs by 2030, India has a particularly difficult task ahead owing to the limited financial resources at its disposal.<sup>7</sup>

**Figure 1: Interaction Between SDG-6 and Other SDGs**

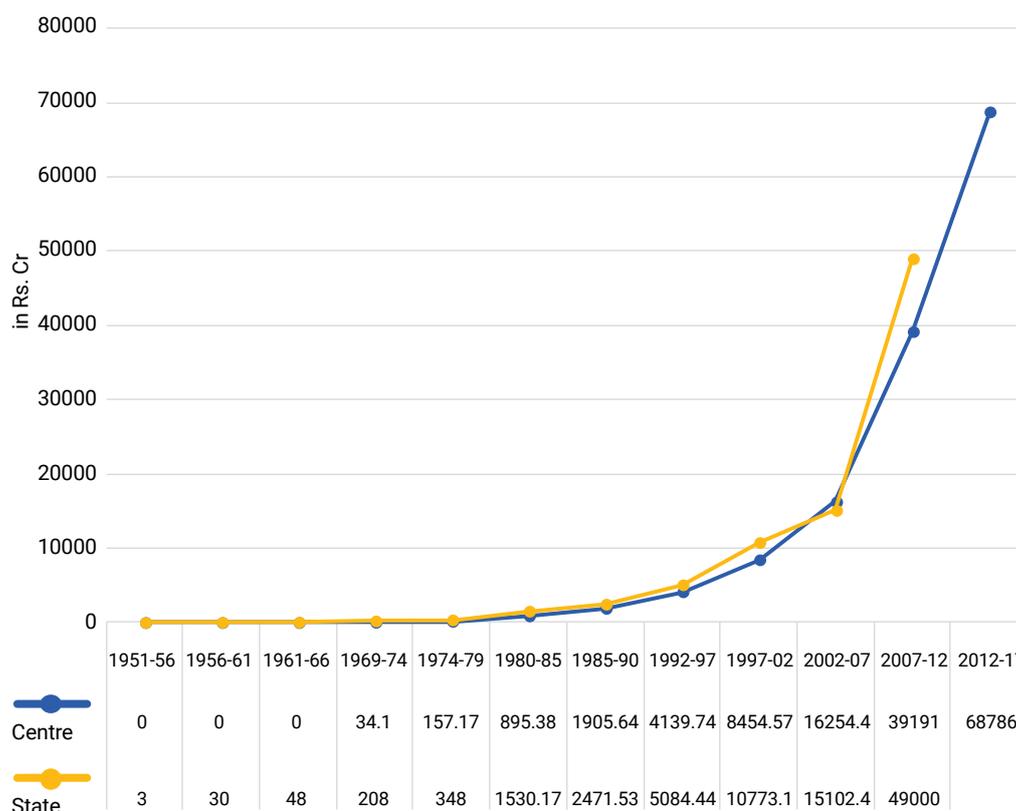


Source: GRID ARENDAL<sup>8</sup>

The Indian government has undertaken various initiatives designed to expand access to safe drinking water. In successive Five-Year Plans, both the Union and state governments have allocated funds for the provision of drinking water supply in the rural regions (see Figure 2). The first such major programme was the Accelerated Rural Water Supply Programme (ARWSP), introduced in 1972-73 to rapidly increase the availability of safe and adequate drinking water, especially in the remote habitations.

These efforts received a fillip with the 73<sup>rd</sup> Amendment to the Indian Constitution in 1994, which tasked Panchayati Raj institutions (rural local self-government bodies) with the responsibility of providing drinking water. Subsequently, a separate department was created within the Ministry of Rural Development in 1999 and steps were taken to institutionalise community participation in the implementation of such initiatives through a shift from a 'government-oriented supply-driven' approach to a 'people-oriented demand driven' one. The National Rural Drinking Water Programme, launched in 2009 as an improvement over the ARWSP, aimed to provide 55 litres of piped water per capita per day to 50 percent of the rural population.<sup>9</sup>

**Figure 2: Allocation of Funds for Rural Drinking Water Supply by the Union and State Governments Under the Five-Year Plans**



Source: Annual Report 2014-15, Ministry of Drinking Water and Sanitation<sup>10</sup>

Between the First Plan (1951-1956) and the Eleventh (2007-2012), a total of INR 1,55,000 crore was spent, of which about INR 90,000 crore was spent in the last five years alone (see Figure 2). There was an incremental increase in funding towards providing drinking water to rural areas and other policy interventions to improve the management of rural water supply schemes. Despite these efforts, however, only 16.91 percent of all rural households had tap water connections by August 2019, thus indicating that an overhaul was required.<sup>11</sup>

### Reimagining Water, Restoring Lives

The JJM was launched on 15 August 2019 to accelerate progress towards achieving universal access to safe and adequate drinking water by 2024, six years ahead of the deadline specified in the universal Agenda for Sustainable Development.<sup>12</sup>

A clear departure from prior programmes on rural drinking water supply, the JJM has been conceptualised based on three core principles—reliable service delivery, community participation and ownership, and access to the critical resource so that no one is left behind. The focus is on infrastructure creation, water service delivery to every home, and achieving long-term drinking water security.<sup>13</sup>

Financing is key to the success of this time-bound mission. The estimated cost of the mission is INR 3.60 lakh crore, with the Centre providing INR 2.08 lakh crore and the states, INR 1.52 lakh crore.<sup>a,14</sup>

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<sup>a</sup> The Centre will cover 100 percent for the expenditure for the union territories without a legislature; 90 percent for the Himalayan states (Jammu & Kashmir, Uttarakhand, Himachal Pradesh, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura, two districts of Assam namely Dima Hasao and Karbi Anglong and Darjeeling and Kalimpong in West Bengal), Northeast states, and union territories with a legislature; and half the cost in all other states.

The JJM was designed using a systems perspective and aims to create a holistic and lasting impact on the lives of its beneficiaries. Some objectives are focused on providing functional household tap connections at the household and community level in villages affected by poor water quality and droughts, or high-priority areas such as Sansad Adarsh Gram Yojana<sup>b</sup> villages. Other objectives codify the operational aspects, such as monitoring the functionality of taps, ensuring the sustainability of the water supply system involving the source, the water supply infrastructure, and the generation of revenue for regular operation and maintenance.

The model of governance is envisioned to be community-owned and run. This is captured in its twin objectives of ensuring voluntary community ownership through contributions in cash, kind and/or labour, and also through the empowerment and development of human resources to meet the demand of creating and running water supply systems over the short- and long-term. As one of India's largest infrastructure development programmes, JJM seeks to "make water everyone's business"<sup>15</sup> and its overarching objective is to raise awareness and increase the involvement of stakeholders such that it becomes a *jan andolan* (a people's movement) on water.

### **Going Bottom-Up**

The institutional architecture for implementing JJM covers all rungs of government, from the Centre to each *gram panchayat* and/or its subcommittees. At the national level, the mission is headed by a director and supported by the National Informatics Centre and project management unit, which primarily supports data and documentation. At the state level, the chief secretary heads the mission in the state and is

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<sup>b</sup> A village development programme.

supported by the administrative secretary of the Public Health Engineering Department (PHED) along with various experts from the fields of water, rural development, and public health. At the district level, the mission is headed by the deputy commissioner or district collector and the management group may include community health and development professionals and local members of Parliament. Further, dedicated project management units comprising multidisciplinary experts may also be established at the state and district levels.

It is at the village level that the decentralised character of the mission unfolds. The gram panchayat and/or its subcommittees—such as the village water and sanitation committee and water users' group—participate in the planning, implementation, management of operation, and maintenance of the different in-village water supply systems. They are envisaged as the 'local water utility' with a firm focus on service delivery (water supply). The PHED, Rural Development and Panchayati Raj, and Rural Water Supply departments in each state are expected to facilitate the gram panchayats and/or the subcommittees in these different roles.

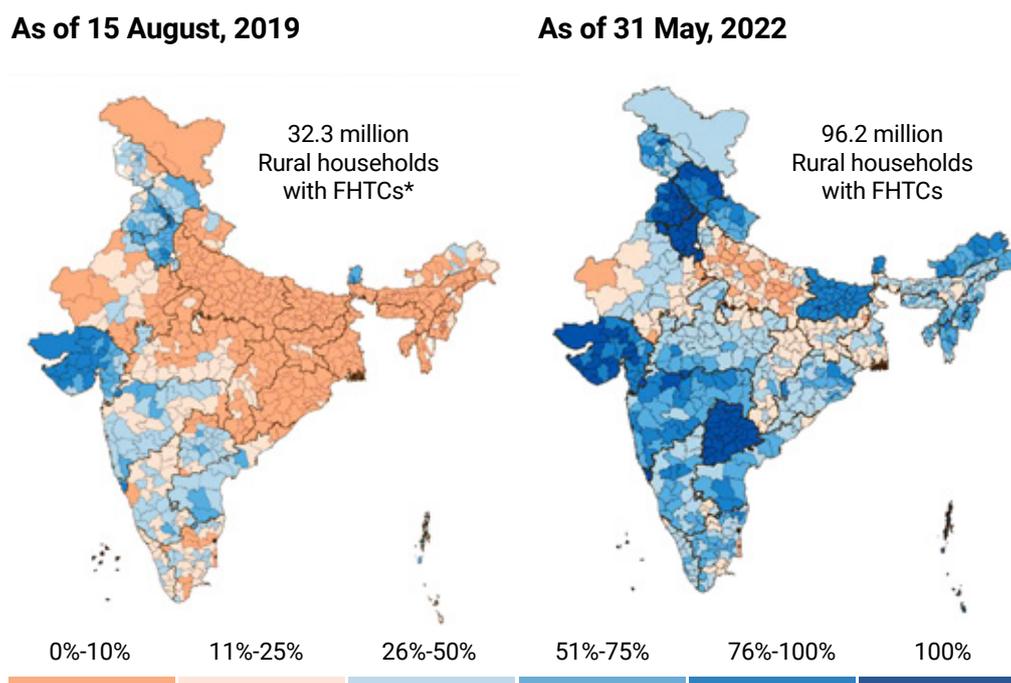
Self-help groups, non-government organisations, and community-based organisations are also expected to play a role in community mobilisation and support the gram panchayats. In terms of strategy and planning, all levels of governance are connected through village, district, and state action plans. Each of these is meant to be a one-time plan with a five-year perspective. The village action plan has four components: drinking water source augmentation; drinking water supply system; greywater treatment and its reuse; and regular operations and maintenance.

### **The Journey Thus Far**

According to government data, there has been a three-fold increase in the number of rural homes with tap water since JJM was implemented (see Figure 3). All households in Goa, Telangana, Haryana, Andaman and Nicobar Islands, Puducherry, Dadra and Nagar Haveli, and Daman

and Diu have tap water supply. And over 90 percent of households in Punjab, Gujarat, Himachal Pradesh, and Bihar have access to tap water connections.<sup>16</sup>

**Figure 3: Tap Water Supply to Households at The District Level**



Source: JJM Brochure<sup>17</sup>

\* Functional Household Tap Connections

The standing committee on water resources of the 17th Lok Sabha had noted in 2021 that certain states with large populations like West Bengal, Rajasthan and Uttar Pradesh have unspent balances under the JJM. The committee noted that the primary reasons were the non-timely release of funds for states, and changes in the funding pattern. It suggested that the Department of Drinking Water should 'vigorously' pursue with the State Governments for the optimal utilisation of allocated funds. It asked the Department to keep a 'hawkish eye' on fund utilisation and ensure liquidation of unspent balances by the State Governments.<sup>18</sup>

In addition to an expansion in the coverage of tap water connections, there has also been a significant improvement in remote areas—as of 2022, 14.69 million households in India’s 117 remote and socioeconomically backward districts have functional household tap connections, a five-fold rise since the start of the JJM. In 61 districts affected by Japanese encephalitis and acute encephalitis syndrome,<sup>c</sup> functional household tap connections increased from 0.8 million to 13.20 million since the start of JJM.<sup>19</sup>

In districts with low water quality, for instance where it is contaminated by geogenics like fluoride and arsenic, the gap is still vast. Of the 839 habitations affected by arsenic contamination of water—primarily in Punjab, West Bengal, and Uttar Pradesh—only 95 habitations are covered under the JJM. Similarly, of the 736 districts affected by fluoride contamination, the majority of which are located in Rajasthan, Punjab and Chattisgarh, JJM-related work has begun only in 203 districts.<sup>20</sup> Scaling up potential solutions in these areas is the next great frontier in the remaining years of the mission, even as expansion of coverage continues in other parts of the country.

The COVID-19 pandemic highlighted the need for community centres like schools and *anganwadis* to be provided with adequate water supply so that proper hygiene could be maintained. As a result, a special campaign under the JJM was initiated to create handwashing facilities in these centres. Moreover, from an integrated perspective, the roofs of these buildings could also be used for rainwater harvesting and greywater collection and reuse<sup>21</sup> — this shows the flexibility of the mission.

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<sup>c</sup> Japanese Encephalitis and Acute Encephalitis Syndrome are caused by different types of viruses, bacteria, parasites, fungi, and spirochetes. Consumption of unsafe drinking water causes malnutrition in children, and such children have been found to take longer to recover and have poorer chances of growing up as healthy adults.

## A Lasting Legacy

The JJM has already paved the way for greater social transformation over water in India. At the forefront of this change is the involvement of women. Darrang district in Assam is a case in point. Most of the gram panchayat chiefs in Darrang are women and their active role in community and cluster meetings is also inspiring female ward members to take the lead in meeting with their respective ward constituents.<sup>22</sup>

The role of women in handling village water and sanitation committee duties is also a source of inspiration. Gujarat has several all-women water committees that have engaged with the community to provide optimal services to all households and collected user charges as determined by the gram panchayats. Indeed, women have been brought to the centre of decision-making. Through JJM, they have an opportunity to work in solidarity with other community members, skill themselves to partake in negotiations and discussions, take on leadership roles, and acquire hard skills pertaining to operations and maintenance of in-village water works.<sup>23</sup>

The use of technology in ensuring accountability and transparency has also been a key feature of the JJM. All mission-related data is available in the public domain through the JJM dashboard and the progress of the mission can be scrutinised and vetted. Further, the mission has deployed first-of-its-kind sensor-based devices that run on the Internet of Things (IoT). The purpose of this deployment is to monitor rural drinking water supply systems through near-real-time information and without any manual intervention. This will allow for enormous gains in terms of operational efficiencies, cost reduction, and grievance redressal through data.<sup>24</sup> Further, the Public Finance Management System is being employed to track disbursements and expenditures online. The Water Quality Information Management System enables the overall monitoring of test results and allows the state and central authorities to initiate corrective action at the source of the supply system.<sup>25</sup>

Integrated demand and supply management is another key feature, being attempted at the local level in a decentralised format. This closely aligns with the concept of integrated water resource management, which promotes the coordinated development and management of water, land, and other resources to maximise economic and social welfare for the people without compromising on the sustainability of ecosystems.<sup>26</sup> The creation of local infrastructure for ensuring source sustainability through means like rainwater harvesting and groundwater recharge is also an important feature of JMM. An example is the restoration of *ava ki baori*, a 300-year-old groundwater structure in Kuchaman town in Rajasthan's Nagaur district, by connecting it with nearby rooftops through the pipeline.<sup>27</sup>

The management of wastewater is also crucial to integrated management. JJM guidelines provide for greywater management, identifying it as a key component of village action plans and counting the required infrastructure for water purification in a village. In terms of financial convergence, grants from the Swachh Bharat Mission (Grameen) Phase-II, Mahatma Gandhi National Rural Employment Guarantee Scheme, and the 15<sup>th</sup> Finance Commission are being utilised for the purpose of wastewater management.<sup>28</sup> Some state governments have been proactive in such efforts. For instance, the Karnataka Rural Drinking Water and Sanitation Department released INR 205 crores to 4,464 gram panchayats for greywater management and has been encouraging nature-based, cost-effective technologies for this purpose.<sup>29</sup>

With the JJM, India has set an ambitious goal that has the potential to transform the lives of millions and bring the country closer to realising its demographic dividend. Access to safe and assured drinking water can improve various other outcomes involving health, education, food security, and the social and economic wellbeing of the people. JJM is silently transforming India's rural landscape, laying the foundation for a healthy and water-secure population.

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# *Samagra Shiksha Abhiyan: Creating Human Capital for Future India*



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**T**he freedom fighters, social reformers, and thinkers of pre-independence India understood the importance of education and the need to close the enormous gaps in access to education for an underdeveloped country like India. Protests against the colonial education system were an integral part of India's struggle for independence. Names like Gopal Krishna Gokhale, Raja Ram Mohan Roy, Pandita Ramabai, Mahatma Gandhi, and Rabindranath Tagore have all been part of India's long history of education and social

reforms. Tagore, a strong critic of the colonial education system, devoted 40 years of his life to establishing and running educational institutions. Education, according to him, was a process of liberating one's mind. Tagore espoused a system of "free and creative enquiry". The four pillars of his concept of education were: nationalist traditions; synthesis of western and eastern strands of philosophy; science and rationality in approach; and an international and cosmopolitan outlook.<sup>1</sup>

Education plays a critical role in development and nation-building. Nobel laureate Amartya Sen also emphasised the role of education in achieving freedom, which is at the heart of his conception of development. According to Sen, education contributes to human capabilities in several ways<sup>2</sup>: it facilitates people's capacity to participate in decision-making processes;<sup>3</sup> it redresses injustice by enabling the participation of disadvantaged and marginalised sections in social and political arrangements;<sup>4</sup> and it has a transformative potential because people are able to use the benefits of their education to help others.

At the dawn of independence, India faced numerous development challenges. Significant among these was its large illiterate population; the literacy rate was a mere 16.1 percent in 1941,<sup>5</sup> and the female literacy rate was even lower at 7.3 percent.<sup>6</sup> Therefore, educating the public was one of the primary development objectives of the government. The first Five-Year Plan (1951-1956) acknowledged the inadequacy of educational facilities in India, especially in the hinterland. According to the plan document, educational facilities existed only for about 40 percent of the children in the 6-11 years age group, 10 percent of those in the 11-17 years age group, and 0.9 percent in the 17-23 years age group.<sup>7</sup> Moreover, there were grave disparities between different states, and rural and urban areas.

Over the last 75 years, significant improvements have been made in India's education sector. Not only has the overall literacy rate improved to 74.04 percent, but female literacy rate has also improved to 65.05 percent.<sup>8</sup> Additionally, there has been significant improvement in school infrastructure, especially in rural areas.

While education is an important area of intervention for any democratic government, there are three important landmarks in India. The first is the enshrinement in the Constitution of the right to education in 2002, which guarantees free and compulsory education to children aged 6-14 years. Second, the launch of the *Samagra Shiksha Abhiyan* in 2018, an overarching programme for the school education sector (preschool to class XII). Third, the National Education Policy in 2020, which introduced various reforms, such as the universalisation of early childhood care and education; elimination of the strict separation between the various academic streams and curricular and co-curricular activities; emphasis on mother tongue as the medium of instruction, and foundational literacy and numeracy.<sup>9</sup> This essay turns the spotlight on the Samagra Shiksha Abhiyan, a scheme that has massive potential to alter the school education sector and help India achieve Goal 4<sup>a</sup> of the Sustainable Development Goals (SDGs).

### Samagra Shiksha Abhiyan

The Samagra Shiksha Abhiyan was launched in 2018-19 with the objective of ensuring quality education for all in the 3-18 years age group. The programme subsumes earlier centrally sponsored schemes<sup>b</sup>—the Sarva Shiksha Abhiyan<sup>c</sup> and Rashtriya Madhyamik Shiksha Abhiyan.<sup>d</sup> An integrated development programme was essential for the education sector because separate schemes for primary, secondary, and teacher education created an artificial divide in the schooling system, and led to administrative

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<sup>a</sup> SDG-4 aims to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

<sup>b</sup> Centrally sponsored schemes are those that are implemented by the state government but are largely funded by the central government, with a fixed share from the state government.

<sup>c</sup> Sarva Shiksha Abhiyan was launched in 2002 with the objective of universalisation of elementary education in a time-bound manner.

<sup>d</sup> The Rashtriya Madhyamik Shiksha Abhiyan was launched in 2009 to enhance access to secondary education and improve its quality.

inefficiencies as several government departments worked on different schemes, resulting in lack of coordination and knowledge-sharing. Therefore, the conceptualisation of the Samagra Shiksha Abhiyan as a single education policy for all school children is meant to address the many problems related to the coordination, implementation, and optimal utilisation of funds, resources, and personnel. The funds for all schemes have also been clubbed into one budget, and the Centre and state government will share the expenses on a 60:40 ratio. However, for the Northeast states and three Himalayan states (Jammu and Kashmir, Himachal Pradesh, and Uttarakhand), the Centre and states will share expenses on a 90:10 ratio. The Centre will provide 100-percent funding for the union territories.<sup>10</sup>

The main initiatives under the scheme are:

**School Infrastructure:** To achieve the goal of universal education, more schools and hostels will be built at all levels—primary, upper primary, and secondary. Provisions will be made for transport and escort facilities for children living in remote villages and for those with special needs. Residences for teachers and an open schooling system are also in the plan. It also supports home-based education up to class XII for children with special needs who are unable to go to school. Financial support will be provided to new teachers as required at various levels. The allocation for children with special needs has also been increased from INR 3,000 to INR 3,500 per annum per child.<sup>11</sup> Kasturba Gandhi Balika Vidyalayas will be upgraded to provide schooling and residential facilities to girls up to class XII. Self-defence classes for girls and camps for students from the scheduled castes and tribes will also be held. Additionally, a monthly stipend of INR 200 will be provided to girls with special needs.<sup>12</sup>

**Quality of Education:** The scheme aims to improve the quality of school education through the rigorous training of teachers at all levels and academic support from block resources centres, urban resource centres, and cluster resource centres. Further, the scheme emphasises conducting student assessments at the national and state

levels, and providing guidance and counselling to students, and leadership training for principals and teachers. The Rashtriya Avishkar Abhiyan has been initiated for the 6-18 years age group to promote innovation, use of technology and application of science in daily life, and to encourage learning science. To inculcate reading habits among students, school libraries are also being strengthened to provide newspapers, magazines, and books.

**Teacher Education:** A prerequisite to imparting good education in schools is improving the quality of teaching through better training. The Samagra Shiksha Abhiyan emphasises strengthening and expanding the State Councils for Educational Research and Training (SCERT) and District Institute of Education and Training (DIET), the grassroots organisations working to improve the quality of teaching in India's schools. The SCERTs and DIETs perform multiple tasks, such as training teachers and evaluating school education and research. The Samagra Shiksha Abhiyan places special emphasis on the use of information and communication technologies, development of needs-based training for teachers, and the effective evaluation of student learning outcomes. In addition to the regular training of teachers, the DIETs should also conduct training programmes for non-tribal teachers working in tribal areas, special programmes to meet the needs of children of migrant workers and children with special needs, and for *anganwadi*<sup>e</sup> workers.<sup>13</sup>

**Preschool Education:** The early childhood stage (the first few years of a child's life) are regarded as the most crucial years for lifelong development because of the rapid pace of development in these years.<sup>14</sup> German educationist Friedrich Froebel, who pioneered the concept of kindergarten, emphasised the role of learning through play

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<sup>e</sup> Angadwadi is a rural childcare centre that provides basic healthcare, nutrition, supplementation, medicines, contraceptives, and preschool activities.

because children construct their understanding of the world in these activities.<sup>15</sup> Despite the importance of early childhood education through long-term development, its state in India is unsatisfactory. About one-fourth of Indian children in the 3-6 years age group do not attend any form of preschool, and only about 50 percent of the children who attend preschools are found to be ready for formal schooling by the time they reach six.<sup>16</sup> The enrollment of children in angadwadi centres has also declined consistently since 2014-15.<sup>17</sup> Therefore, the emphasis on preschool education is a welcome measure. Under this scheme, states and union territories must examine the possibility of shifting angadwadis near or within the school campus to ensure a smooth transition of preschool children to formal schools.<sup>18</sup> On the lines of Froebel's play theory, the Samagra Shiksha Abhiyan also emphasises play and art as the basis for learning. Attention is also being given to making the school infrastructure appropriate for preschool children. For instance, the use of non-toxic materials; provision of a library and literacy area equipped with picture books, comics, and storybooks; music area with local musical instruments; dolls area equipped with pretend and play toys; and block-building area with blocks, puzzles, and matching cards.<sup>19</sup>

**Vocational Education:** The main objective of vocational training in schools is to equip the youth with adequate skills to improve their employability and enable them to compete in the global market. The programme for vocationalisation of school education is closely linked to the National Skill Qualification Framework.<sup>f</sup> The Samagra Shiksha Abhiyan envisages the provision of vocational training to students from

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<sup>f</sup> The National Skill Qualification Framework is a nationally integrated education and competency-based framework that organises qualifications according to levels of knowledge, skills, and aptitude. These levels, graded from one to 10, are defined in terms of learning outcomes, which the individual must possess irrespective of whether they were acquired through formal, non-formal, or informal learning.

class IX till class XII. It mandates that proximity between schools and industries be a prominent consideration in the selection of schools for the implementation of the scheme, and schools must have links with related enterprises to enable hands-on training for the students. Given the high dropout rates in regions affected by left-wing extremism, educationally-backward blocks,<sup>9</sup> and special focus districts,<sup>h</sup> schools in these areas will be given preference. So far, 9,623 schools have been approved under the scheme, and it has already been implemented in 7,470 schools, catering to about 8.3 lakh students.<sup>20</sup>

## Recommendations

**Increase Budgetary Outlay for Education:** Samagra Shiksha Abhiyan is India's largest centrally-sponsored programme in this sector. It has immense potential to provide access to quality education to school students across the country, but one crucial concern is that the budgets approved for the programme have fallen below the projections of the Department of School Education and Literacy under the Ministry of Human Resource Development.<sup>21</sup> Indeed, there was a significant dip in the outlay for the programme in 2020-21 and 2021-22 (see Figure 1). Though the outlay for 2022-23 (INR 37,383 crore) is 20 percent higher than the previous year (INR 31,050 crore), it is only 3 percent higher than the 2019-20 budget estimate, which is a decline in real terms. In other words, despite the ambitious scope of the programme, adequate budgetary resources have not been committed. Currently, India allocates about 3.5 percent of its GDP to education.<sup>22</sup> This is lower than the world average

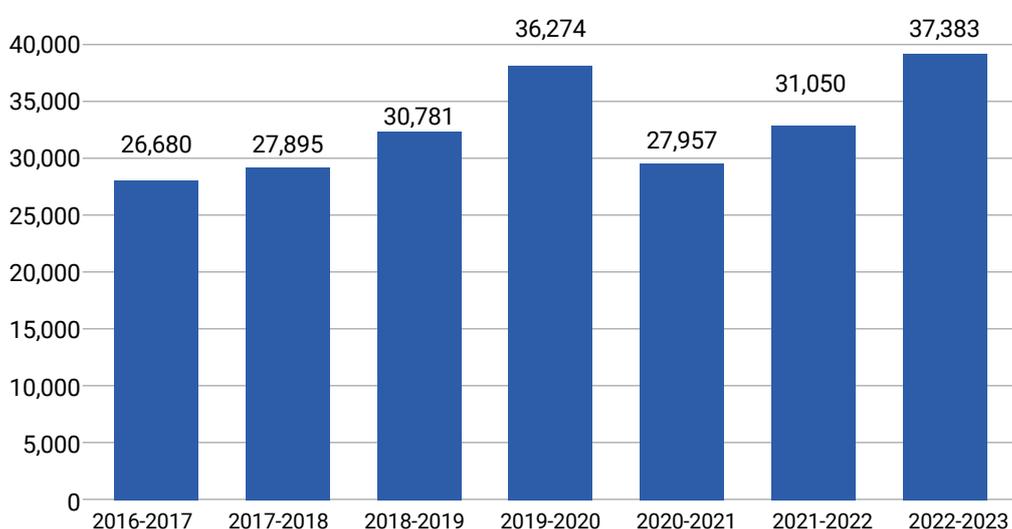
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<sup>9</sup> Educationally backward blocks are areas where the rural female literacy rate is less than the national average and the gender gap in education is higher than the national average.

<sup>h</sup> Special focus districts are identified on the basis of certain characteristics, such as the concentration of scheduled castes, scheduled tribes, Muslims, infrastructure and gender gaps, retention rate, and the like.

of 4.2 percent, average in other BRICS countries with similar development challenges like South Africa (5.9 percent), and in developed countries like Sweden (7.6 percent) and Belgium (6.5 percent).<sup>23</sup> Given that the National Education Policy also suggests increasing the spending on education to at least 6 percent of GDP, the budgetary allocation for the education sector as a whole, and the Samagra Shiksha Abhiyan in particular, should be stepped up immediately.<sup>24</sup>

**Figure 1: Union Budget Allocation for Samagra Shiksha Abhiyan, 2016-17 to 2022-23 (in INR crore)**



*Note: Allocations are in INR crores and are revised estimates, except for FY 2022-23, which are budget estimates.*

*Sources: Bordoloi and Kapur (2021)<sup>25</sup> and Bordoloi et al (2022)<sup>26</sup>*

**Greater Investments in Teacher Training and Vocational Education:**

Teachers are a pillar of education as they help develop communication, comprehension, and socialisation skills in children from an early age. While teacher training is an important component of the Samagra Shiksha Abhiyan, the budgetary allocation for this is marginal. In 2020-21, about 32 percent of the programme budget was allocated for teachers’ salaries, followed by quality interventions (20 percent) and right to education entitlements (14 percent), while the share of teacher training was only 2 percent of the total expenditure.<sup>27</sup>

Given the ambitious mandate of the scheme, particularly regarding early childhood education, the country needs to train an army of preschool teachers. As such, greater investments are required in teacher training.

Similarly, vocational education, which is likely to play a significant role in harnessing the potential of India's youth and making them globally competent, currently has a share of only 2 percent.<sup>28</sup> Greater spending on vocational education in absolute and proportionate terms is needed to harness the demographic dividend in the coming decades.

**Education for Sustainable Development and Global Citizenship:** The Samagra Shiksha Abhiyan is likely to play a key role in the achievement of SDG-4 in India as the scheme covers almost all of its targets.<sup>i</sup> The scheme is also an important step in inclusive education as it emphasises access to quality education for marginalised sections and also aims to build school infrastructure that is more friendly to the needs of children, especially those with special needs. Training teachers, basic literacy and numeracy, and the use of technology is also a critical component of the Samagra Shiksha Abhiyan. However, there is a need to pay attention to the vital role that education plays in the achievement of sustainable development, environmental conservation, human rights, peace, gender equality, appreciation of cultural diversity, and end of discrimination, and the curriculum should be reformed accordingly.

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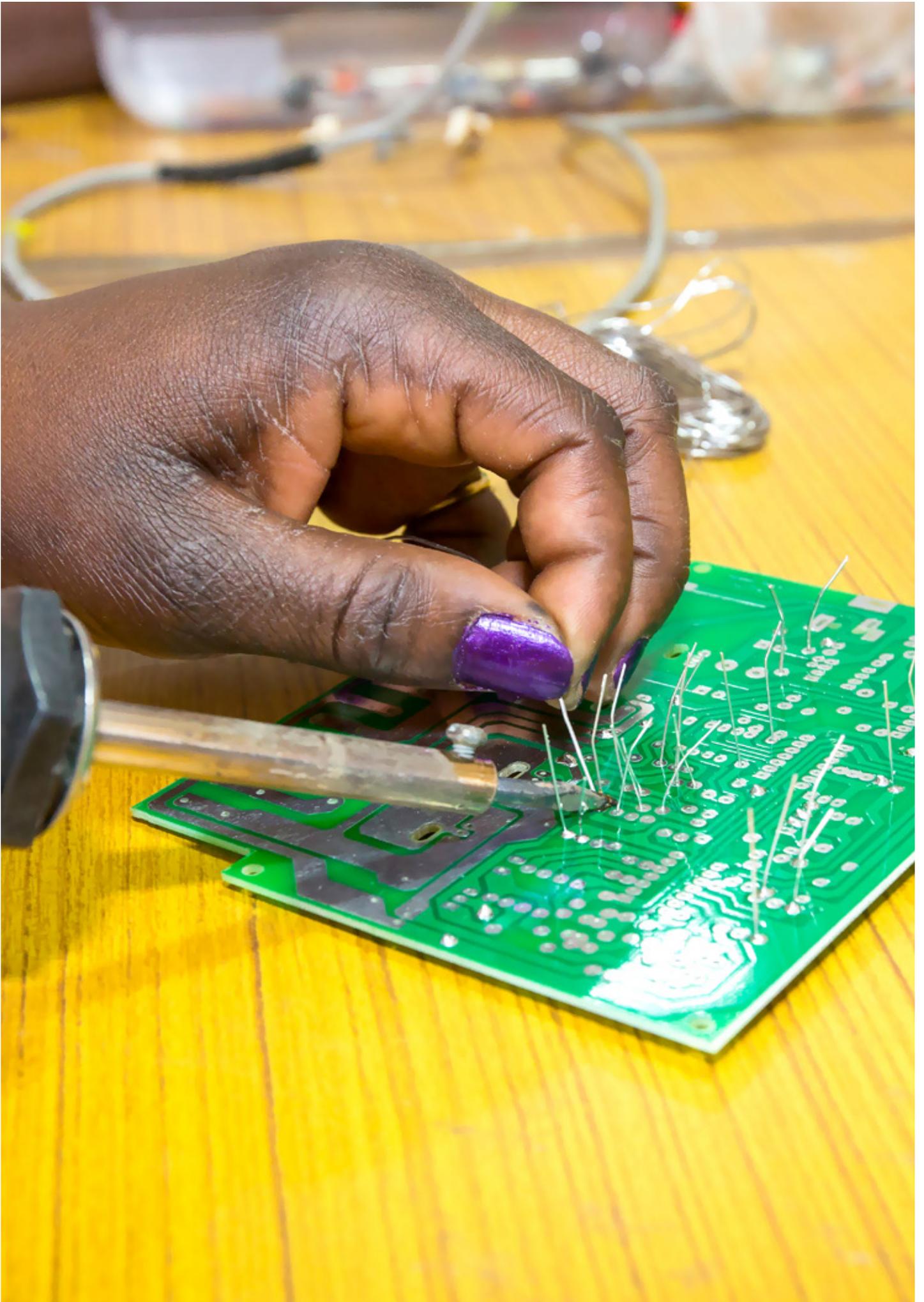
<sup>i</sup> SDG-4 is made up of 10 targets—(1) free primary and secondary education; (2) equal access to quality pre-primary education; (3) equal access to affordable technical, vocational, and higher education; (4) increase the number of people with relevant skills for financial success; (5) eliminate all discrimination in education; (6) universal literacy and numeracy; (7) education for sustainable development and global citizenship; (8) build and upgrade inclusive and safe schools; (9) Expand higher education scholarships for developing countries; (10) increase the supply of qualified teachers in developing countries.

The school curriculum should focus on the grave environmental and social challenges that the world is currently facing, in order to nurture adults who will be able to address issues like climate change and conflict. The objective of target 4.7 of SDG-4 is to “ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and nonviolence, global citizenship and appreciation of cultural diversity and of culture’s contribution to sustainable development”. Developing such a curriculum is in line with Tagore’s idea of education as a process of liberating one’s mind and Sen’s idea of development.

*The author thanks ORF interns Bhavya Sabharwal and Vartika Agarwal for their research assistance.*

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# National Skill Development Mission: Reaping the Demographic Dividend



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The National Skill Development Mission, or Skill India, was devised in 2015 to address one of the biggest challenges facing India—unemployment and the risk of frittering away the dividend of the largest youth population<sup>a,1</sup> in the world. The unemployment crisis is closely linked to a severe deficit of skills. Only 4.69 percent of India’s total

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<sup>a</sup> Those aged between 15 and 29 years.

workforce<sup>b,2</sup> has undergone any formal skills training, compared to 68 percent in the UK, 75 percent in Germany, 52 percent in the US, 80 percent in Japan, and 96 percent in South Korea.<sup>3</sup>

India has among the highest number of informal workers<sup>4</sup> in the world—over 90 percent of all workers in the country (see Table 1). The country is trapped in a vicious cycle when it comes to skilling its informal workforce.<sup>5</sup> Greater informality leads to lower incentives to acquire new skills, with employers preferring machinery over labour when faced with inadequately skilled workers. As a result, few new jobs are created, driving India’s workforce further into informality.

**Table 1: Distribution of Total Employment (in percent)**

Worker	2011-12			2017-18		
	Unorganised	Organised	Total	Unorganised	Organised	Total
Informal	82.6	9.8	92.4	85.5	5.2	90.7
Formal	0.4	7.2	7.6	1.3	7.9	9.3
Total	83.0	17	100.0	86.8	13.2	100.0

Source: S V Ramana Murthy<sup>6</sup>

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<sup>b</sup> Extrapolated based on formal skilling data for the working-age population.

The 2009 National Policy on Skill Development marked the first time two new approaches were incorporated into skilling initiatives: short-term training courses and partnerships with the private sector. This laid the groundwork for Skill India, which was launched by the Ministry of Skill Development and Entrepreneurship (MSDE) to combine existing skill training initiatives.

The mission statement prioritises sustainable livelihoods over employment: “To rapidly scale up skill development efforts in India, by creating an end-to-end, outcome-focused implementation framework, which aligns demands of the employers for a well-trained skilled workforce with aspirations of Indian citizens for sustainable livelihoods”.<sup>7</sup> It also emphasises the involvement of women in skilling initiatives as key to increasing their participation in the country’s labour force.

Skilling the workforce is an essential prerequisite for sustainable development, but it is a complex task. It involves diverse stakeholders, multiple government departments at the Centre and state levels, training providers, educational and training institutions, employers, industry associations, assessment and certification bodies, and trainees.

Skill India has yielded mixed results since its launch. The original target—to train 402.87 million people by 2022—was abandoned soon after the launch, with the MSDE stating it wanted to pursue a demand-driven approach.<sup>8</sup> By prioritising skilling with clear objectives, Skill India has, to some degree, to greater awareness on the need for skilling and improved access to it. But the scheme has also been plagued by challenges, including uneven training standards, low placements of trainees, lack of engagement with industry, and slower uptake by women.

The MSDE will revamp the mission by launching Skill India 2.0 in 2022, which is expected to renew the impetus on training youth for the global market to make India the skills capital of the world. It will also reportedly link jobs to the government’s production-linked incentive scheme under various sectors.<sup>9</sup>

## Skilling and the SDGs

Skilling was not a part of international development frameworks until it was aligned with the agenda of the Sustainable Development Goals (SDGs). Skills development has been recognised as essential to breaking the cycle of poor education, low productivity, and persistent poverty.<sup>10</sup> Skilling in the SDG framework has been developed in the context of poverty reduction, inclusive and sustainable growth, gender equality, and decent work.

SDG-4 promotes skilling as an essential part of inclusive and equitable education and lifelong learning. The target (4.3, 4.4, and 4.5) is to eliminate gender disparities and ensure equal access for all women and men to affordable quality technical, vocational and tertiary education, and substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship. SDG-8 is also linked with skilling, with the target (8.6) to substantially reduce the number of youth not in employment, education, or training.

The SDG framework foregrounds information and communication technology skills to achieve the goals of decent work and economic growth.<sup>11</sup> Beyond work, it rightly emphasises cognitive and non-cognitive skills, such as problem-solving, critical thinking, creativity, teamwork, communication skills and conflict resolution, which can be used across a range of occupational fields.

The impact of the SDG framework, which emphasises vocational skills at secondary and tertiary levels of education, can be seen in India's 2020 National Education Policy (NEP), which has integrated skilling as a fundamental part of education. The NEP aims to overcome social biases associated with vocational education by integrating this with middle and secondary school education. By 2025, at least 50 percent of learners through the school and higher education system are expected to have exposure to vocational education.

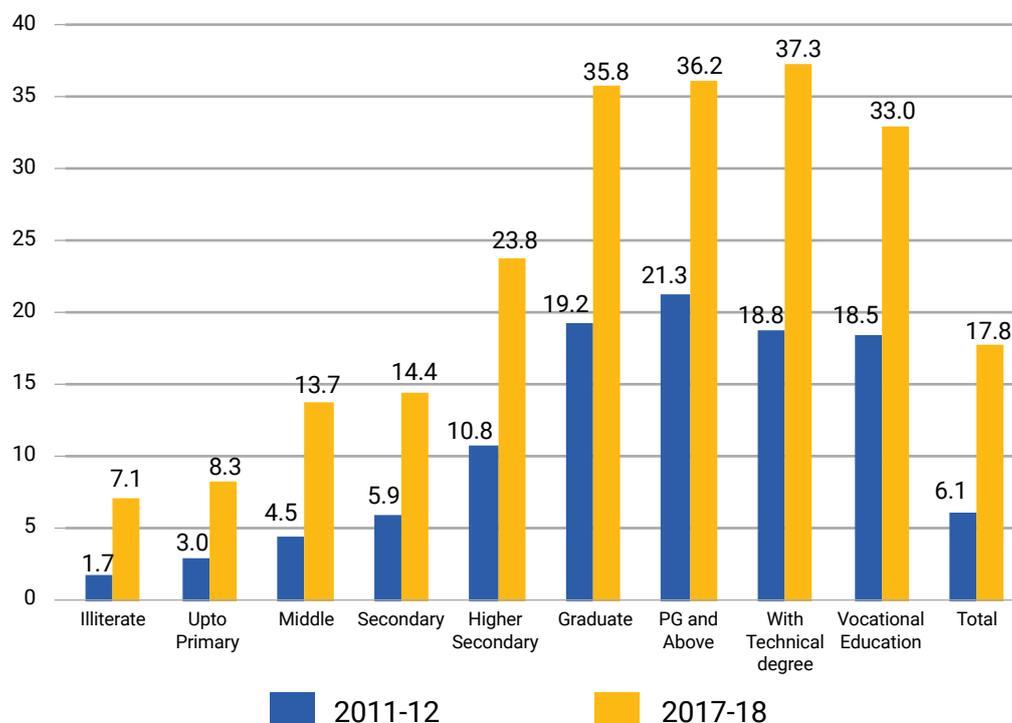
## Unemployability of Educated Youth in India

Along with operational challenges, Skill India has had to contend with historical biases in the education system, where institutions imparting formal education were accorded a higher status over vocational learning. Indeed, studies show that the common perception is that only those students who are intellectually or economically weak opt for vocational programmes.<sup>12</sup> This bias impacts vocational training at all levels, from schools to higher learning. The NEP seeks to address such biases by integrating vocational training as an essential part of the school system, which could potentially provide a boost to Skill India.

The separation between conventional and vocational education renders many of the youth unemployable as they lack the skills that job providers seek. This, in turn, leads to an underrecognised aspect of unemployment in India—the unemployability of the educated youth. The India Skills Report 2021<sup>13</sup> estimated the youth unemployability rate at an astonishing 54.1 percent based on an analysis by industry.

Despite skilling initiatives, youth unemployment has risen from 6 percent in 2012 to 18 percent in 2018, along with a corresponding increase in educated unemployment (see Figure 1).<sup>14</sup> A report by the Azim Premji University's Centre for Sustainable Employment demonstrated that unemployment increases with education in India—in 2017-18, the unemployment rate for youth with primary education was 8.3 percent, 36.2 percent for postgraduates, and 33 percent for those with formal vocational training. The rise in educated unemployment is a result of a job market that does not produce suitable jobs to accommodate the youth, the lack of infrastructure for skills training, and the quality of skills training, which is out of sync with changing market needs.

**Figure 1: Youth Unemployment Rates by Level of Education in India, 2012-2018<sup>c</sup>**



Source: Centre for Sustainable Employment<sup>15</sup>

### Overview of Skilling Infrastructure

The overall percentage of people who received skills training in India has remained consistently low (see Table 2). In 2019-20, only 3.2 percent of people of working age (15-64 years) received any skills training although this was an improvement from 2018-19 figures (2.4 percent). The improvement in skills is reflected for both males and females, but it is lower in rural than urban areas, according to the 2021-22 Economic Survey.

<sup>c</sup> Based on unit-level data from the National Sample Survey and Periodic Labour Force Survey.

**Table 2: Distribution of persons who received vocational training**

Age group	Rural			Urban			All India		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
<b>2017-18</b>									
15-29 years	2	1.3	1.7	4.6	4.2	4.4	2.8	2.2	2.5
15-59 years	1.5	0.9	1.2	4.0	3.3	3.7	2.3	1.7	2.0
<b>2018-19</b>									
15-29 years	2.4	1.5	2.0	4.8	4.6	4.7	3.2	2.5	2.8
15-59 years	1.8	1.1	1.5	4.9	3.9	4.4	2.8	2.0	2.4
<b>2019-20</b>									
15-29 years	3.1	2.7	2.9	7.0	6.5	6.8	4.3	3.8	4.1
15-59 years	2.2	1.7	2.0	6.3	5.4	5.8	3.5	2.9	3.2

Source: *Economic Survey, 2021-22*<sup>16</sup>

Skill India has a variety of skill development models, such as government-funded programmes with training and apprenticeship, paid market-led training and market-led apprenticeship in private centres, and industry-led on-the-job training.

The flagship programme under the mission is the *Pradhan Mantri Kaushal Vikas Yojana* (PMKVY), which offers short-term training in industry-relevant skills, with the government paying the training fees. PMKVY is implemented by the National Skill Development Corporation and has two components—short term training and recognition of prior learning. The maximum uptake in PMKVY has been for courses in electronics and hardware, apparel, agriculture, and retail. The programme all focuses on the gender mainstreaming of skills; nearly 50 percent of candidates under the scheme are women.<sup>17</sup>

Under PMKVY 2.0, between 2016-17 and 2021-22, about 11 million persons were trained, 83 percent certified, and about 2.1 million placed (as of January 2022). The placement record for PMKVY 3.0 (2021-22) was worse—0.3 million persons were trained, 50 percent certified, and 16,321 placed.<sup>d</sup> Of all skilling programmes, PMKVY has received extensive support from the government in terms of budgetary allocation, yet the data shows that those who are trained do not find jobs.

Recognition of prior learning under PMKVY is targeted at the informal workforce, which has skills and knowledge that are not recognised, to address the need for skilling beyond formal and large-scale employers. It enabled the informal workforce to get assessed and certified on their current competencies under the standardised National Skill Qualification Framework. As of January 2022, more than 6.3 million persons have been certified across 37 different sectors.

**Table 4: State-wise Distribution of Affiliated Industrial Training Institutes Under PMKVY 3.0**

Sl. No.	State	Applied	Approved	Affiliated	Total Units	Enrolled Candidates
1	Andhra Pradesh	16	15	14	39	865
2	Arunachal Pradesh	1	1	1	4	118
3	Assam	10	8	7	26	231
4	Bihar	4	3	3	12	106
5	Chhattisgarh	15	14	14	47	893
6	Delhi	3	3	3	9	61
7	Gujarat	38	27	21	28	373
8	Haryana	21	20	20	65	960
9	Himachal Pradesh	19	19	15	54	707
10	Jammu And Kashmir	44	42	40	136	447
11	Jharkhand	3	2	2	7	5

<sup>d</sup> Data from the 2021-22 Economic Survey.

12	Karnataka	6	5	5	14	142
13	Kerala	19	18	18	80	1136
14	Madhya Pradesh	21	21	21	46	859
15	Maharashtra	76	76	73	296	5463
16	Meghalaya	3	2	2	6	30
17	Mizoram	3	2	2	6	1
18	Odisha	16	16	14	38	1018
19	Punjab	20	7	5	12	352
20	Rajasthan	11	10	10	29	277
21	Sikkim	1	0	0	0	0
22	Tamil Nadu	16	16	16	42	793
23	Telangana	11	11	10	25	425
24	Tripura	3	3	3	10	2
25	Uttar Pradesh	30	29	23	75	1854
26	Uttarakhand	5	2	2	1	2
27	West Bengal	28	28	18	29	1051
<b>Total</b>		<b>443</b>	<b>400</b>	<b>362</b>	<b>1136</b>	<b>18171</b>

Source: Year-end Review of Ministry of Skill Development and Entrepreneurship (January 2022)

The National Apprenticeship Promotion Scheme (NAPS), launched in 2016, provides financial support to industrial establishments undertaking apprenticeship programmes. It links courses under PMKVY and other skilling programmes with apprenticeship training to prepare candidates for the job market. As of October 2021, 0.43 million apprentices were engaged under the scheme.<sup>e</sup> At between 20 percent to 50 percent,<sup>18</sup> NAPS has a better placement record than others. By connecting employment with skilling, NAPS incentivises potential employers to engage apprentices by paying a part of the apprentice's stipend. Although it has the potential to lead to more sustainable skilling outcomes, the scheme was not scaled up for several years and received no budgetary allocations.<sup>19</sup> However, the 2022-23 Budget allocated INR 170 crore for the scheme.

<sup>e</sup> Data from the 2021-22 Economic Survey.

The Craftsmen Training Scheme, introduced in 1950, is India's oldest skilling programme. It provides long-term industrial skill training in the state-sponsored industrial training institutes (ITIs), which form the bedrock for skilling in India. There are 14,604 ITIs across the country that provide training in 137 trades.<sup>20</sup> Over 80 percent of ITIs are run by the private sector and the rest are funded by the government. Yet, the ITIs meet only a fourth of the requirement of training 10 million youth a year in the country.<sup>21</sup> Only about 7.2 million candidates were enrolled in ITIs in the last five year. ITIs have long provided skilled workers to the manufacturing sector but have not kept pace with the services sector.

Skill India certainly seems to have improved access to skills training, with over 30,000 scheme-based skilling centres across the country.<sup>22</sup> In addition, there are more than 700 model skill development centres, the *Pradhan Mantri Kaushal Kendras* (PMKKs)<sup>23</sup>, which focus on the quality of training and standardisation of infrastructure. Between 2016-17 to 2021-22, 1.6 million persons were trained and over 78 percent certified in PMKK centres.<sup>f</sup> The government also plans to scale up training centres under *Jan Shikshan Sansthan*s, an old scheme under the Ministry of Education and revived by the MSDE, which focuses on skilling non-literate and school dropouts, especially women and people from backward sections of society.

### Assessment of Skill Development Programmes

Long-term and short-term courses face similar challenges: quality of training is varied, there is a shortage of qualified trainers, assessments are not standardised, and placement records are uneven.

The budgetary allocation for skilling has remained modest, with a large sum directed towards PMKVY, leaving little for the other schemes.

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<sup>f</sup> Data from the 2021-22 Economic Survey.

PMKVY received INR 2,613.24 crore in the 2022-23 Budget out of the INR 2,999 crore allocated to the MSDE.<sup>24</sup>

In 2016, one year after Skill India was established, the government set up the Sharada Prasad committee<sup>25</sup> to review how skilling programmes could be rationalised and optimised and to examine the challenges to vocational training in India. The panel's assessment was focused on the 2012-16 period, before Skill India was launched. The report was scathing in its judgement. It questioned the target-driven approach by sector skill councils<sup>9</sup> that led to compromises in the quality of training and assessments. Some of the training courses, especially under PMKVY, were found to be of too short a duration to meet the exact skills needs of employers and provide decent livelihood opportunities to the youth. Data for 2018 from Haryana (known for its advanced industry and IT sector) showed that a large number of youth skilled through PMKVY ended up as self-employed tailors.<sup>26</sup>

In response to the criticism, the MSDE stated that there are various provisions under PMKVY for monitoring the programme and has released monitoring guidelines for PMKVY 3.0.<sup>27</sup> The training of candidates—including enrolment, training, assessment, certification, and placement—is tracked on a real-time basis, and empanelled training centres are monitored through self-audit reporting and inspection.

Similarly, various evaluations<sup>28</sup> of ITIs over the years, including a parliamentary panel on labour,<sup>29</sup> have drawn attention to poor infrastructure, inadequate trainer capacity, outdated curriculum, poor level of skills imparted, lack of awareness about ITI among students with formal schooling, and the drive to set up new ITIs without standardising quality. In response, the MSDE informed the panel that it was reviewing existing civil infrastructure norms and affiliation procedures for setting up new ITIs in the future.

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<sup>9</sup> Industry-led bodies that create curriculums and oversee the execution of skill development.

## Conclusion

As the Indian economy recovers from the COVID-19 pandemic, there has been a shift in employment towards industry (manufacturing and construction) and services, and a decline in employment in agriculture.<sup>30</sup> Manufacturing and services are the core areas for imparting skills training. With this transition, there will be a greater need to create a skilled, disciplined, and committed workforce.

Getting the skilling agenda right with Skill India 2.0 represents an opportunity that must not be missed. The recommendations of the Sharada Prasad committee are extremely valid; skill development must take place by creating a credible and aspirational national system. The programmes must focus on quality of training and cater to industry needs with the objective of employment. The courses must be restructured to have market linkage and interaction with employers, and include on-the-job training and apprenticeship by scaling up programmes like NAPS. The quality of vocational education at the school level must be improved for it to be aspirational. All skilling programmes must incorporate training on soft skills like communication, critical thinking, problem-solving, attitudes and behaviours, and digital and financial literacy. Most crucially, skill development programmes must prepare for the future, keep pace with the transformations of the digital age along with changes in the economy and the job market.

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# Accelerating India's 'No Poverty' Goal: MGNREGA and Beyond



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If there is one key developmental concern that India has grappled with since independence, it is poverty. Centuries-long colonial rule, the country's massive geographical size, and the diversity of its huge population has posed unique impediments to poverty eradication. Although dealing with poverty has been a difficult task for successive political dispensations, various poverty mitigation schemes have been instrumental in lowering India's poverty rates, especially in the last decade. In an April 2022 report, the World Bank

estimated India's poverty head count ratio at 10.2 percent in 2019, down from 22.5 percent in 2011.<sup>1</sup> Another April 2022 study, this time by the International Monetary Fund, pegs extreme poverty levels to be lower than 1 percent in 2019 and 2020 (the first two years of the COVID-19 pandemic).<sup>2</sup>

The Indian government has initiated multiple programmes to provide social protection, ensure that poverty escapes are sustained, and generate employment to eradicate poverty. The NITI Aayog has identified<sup>3</sup> the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), the National Rural Livelihood Missions (NRLM), and the *Pradhan Mantri Jan Dhan Yojana* (PMJDY) as seminal programmes for rural poverty mitigation and achieving Goal 1 of the UN Sustainable Development Goals (SDGs), which aims to 'end poverty in all its forms everywhere'. As the first objective in the erstwhile Millennium Development Goals and the SDGs, poverty eradication is given utmost importance for emerging and developing countries such as India, since it is the first step towards ensuring just and equitable growth.

India also has a number of other social security programmes focused on poverty alleviation. These include the National Social Assistance Programme, which provides pensions to the elderly, widows, and persons with disabilities; the Pradhan Mantri Jeevan Jyoti Bima Yojana and the Pradhan Mantri Suraksha Bima Yojana, which facilitate citizens' access to life insurance and personal accident insurance; the Atal Pension Yojana, which guarantees pensions to those in the informal labour sector; and the Pradhan Mantri Mudra Yojana, which provides loans to entrepreneurs.<sup>4</sup> These policies have arguably had some impact in mitigating poverty,<sup>5</sup> as seen in the changes in SDG-1 scores for Indian states and union territories between 2018 and 2021 (Table 1). The pandemic, however, disrupted these programmes.<sup>6</sup>

**Table 1: SDG-1 Scores for Indian States and Union Territories (out of 100)**

	2018-19	2019-20	2020-21
<b>States</b>			
Tamil Nadu	76	72 (- 4)	86 (+ 14)
Mizoram	71	67 (-4)	80 (+13)
Tripura	71	70 (-1)	82 (+12)
Meghalaya	68	68	77 (+9)
Andhra Pradesh	67	69 (+2)	81 (+12)
Kerala	66	64 (-2)	83 (+19)
Uttarakhand	65	64 (-1)	74 (+10)
Sikkim	64	65 (+1)	80 (+15)
Goa	62	53 (-9)	83 (+30)
Himachal Pradesh	60	60	80 (+20)
Nagaland	59	56 (-3)	73 (+17)
Odisha	59	47 (-12)	41 (-6)
Rajasthan	59	56 (-3)	63 (+7)
West Bengal	57	52 (-5)	59 (+7)
Punjab	56	48 (-8)	69 (+21)
Assam	53	48 (-5)	51 (+3)
Arunachal Pradesh	52	34 (-18)	54 (+20)
Karnataka	52	49 (-3)	68 (+19)
Telangana	52	52	68 (+16)
Chhattisgarh	50	49 (-1)	49
Haryana	50	47 (-3)	69 (+22)
Gujarat	48	47 (-1)	66 (+19)
Uttar Pradesh	48	40 (-8)	44 (+4)
Maharashtra	47	47	66 (+19)
Bihar	45	33 (-12)	32 (-1)
Madhya Pradesh	44	40 (-4)	44 (+4)
Manipur	44	42 (-2)	60 (+18)
Jharkhand	37	28 (-9)	36 (+8)
<b>Union Territories</b>			
Jammu & Kashmir	61	58 (-3)	69 (+11)
Puducherry	61	56 (-5)	75 (+19)
Daman & Diu	58	58	65 (+7)
Andaman & Nicobar Islands	57	48 (-9)	71 (+23)
Ladakh		58	79 (+21)
Lakshadweep	43	56 (+13)	61 (+5)
Chandigarh	39	48 (+9)	75 (+27)
Delhi	30	54 (+24)	81 (+27)
Dadra & Nagar Haveli	21	33 (+12)	65 (+32)
<b>India</b>	<b>54</b>	<b>50 (- 4)</b>	<b>60 (+ 10)</b>

Source: Author's own, data from NITI Aayog<sup>7</sup>

## **MGNREGA, PMJDY, and DAY-NRLM in Action**

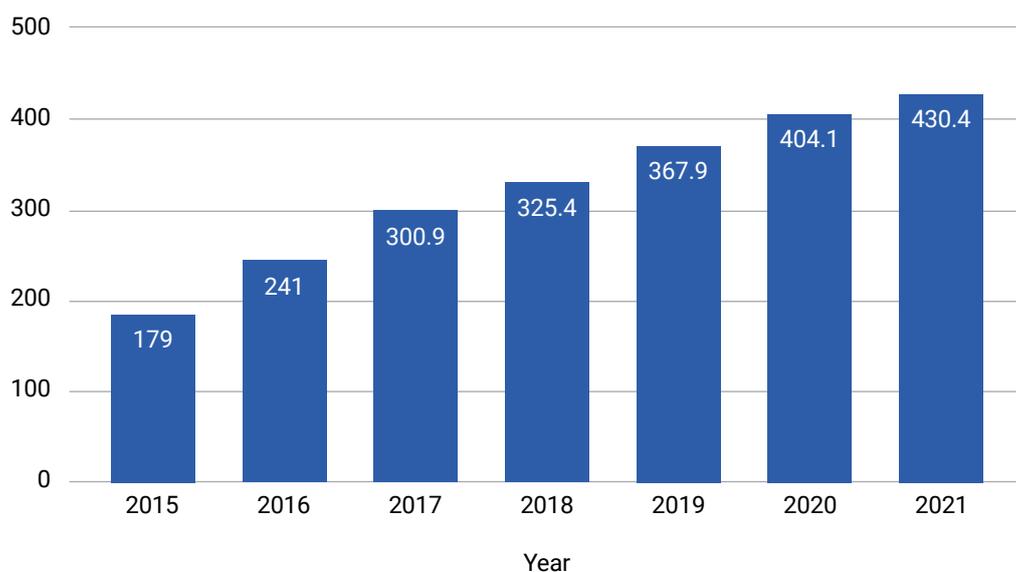
The MGNREGA,<sup>8</sup> established in 2005, is the world's largest social welfare programme. It mandates that 100 days of guaranteed employment in a financial year be provided to every rural household in the country. It can be considered as the culmination of several employment assurance schemes from the 1960s to the early 2000s, where instead of the government providing rights for the rural poor, the MNREGA makes the government partially responsible for the employment of the rural poor. A core objective of the programme is to strengthen the livelihood resource base of the poor, or failing which, to provide them compensation. The programme assures employment for unskilled labour for at least one adult individual in a family, and one-third of the employment is reserved for women. To ensure public accountability, the Act lays down provisions for a social audit function and the management of data and records of employment.<sup>9</sup>

The programme's early years were tainted with reports of corruption that deprived beneficiaries of their pay-outs.<sup>10</sup> Therefore, since 2016, the settlement of payments has been completely online under the Direct Benefit Transfer Scheme, which requires a bank account linked with an Aadhaar card for the funds to be transferred to the beneficiary. Since 2016, nearly 304.9 million bank accounts have been opened in rural and semi-urban banks under the PMJDY.<sup>11</sup>

In addition to complementing the MGNREGA pay-outs, the PMJDY helps provide low-income families access to basic financial services such as savings accounts. Launched in 2014, the PMJDY effectively leverages technology with an integrative approach. The scheme aims for all Indian citizens to be provided with a certain level of financial security: at least one bank account for every household, financial literacy, and access to credit, insurance and pension facilities.<sup>12</sup> Since its establishment, over 430 million beneficiaries have accessed banking facilities and the number of bank accounts has grown three-fold (see Figure 1).<sup>13</sup> As of 2021, 55 percent of account holders are women and 76 percent are in rural and semi-urban areas. A total of 310 million RuPay cards, which also

provides accident insurance, have also been issued.<sup>14</sup> Technological issues, such as poor electricity supply and network outage,<sup>15</sup> are also being addressed to further smoothen the objectives of the scheme.

**Figure 1: Number of PMJDY Accounts (in millions)**



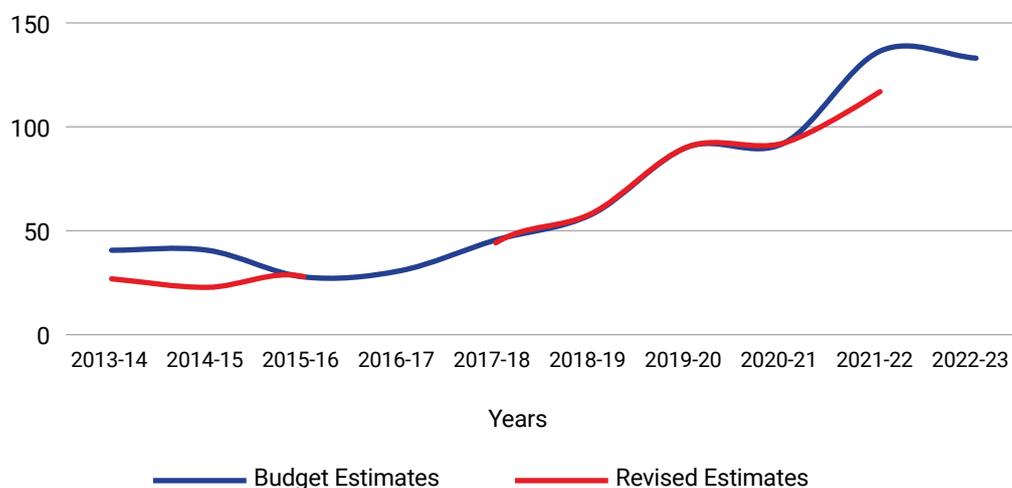
Source: Author's own, data from Ministry of Finance, Government of India<sup>16</sup>

Critics say MGNREGA devalues public infrastructure due to the dependence on manual labour. While the scheme addresses the short-term employment needs of rural labourers, it does not necessarily lay the groundwork for self-reliance. People might eventually become completely dependent on the government for employment in the long term. Indeed, welfare economics is at the heart of MGNREGA. As the government intervenes in areas with severe job shortage, the public exchequer bears the burden. Since the focus is on keeping such projects as labour intensive as possible, it diverts from the more economically efficient methods of production that would involve mechanisation or similar means.

The NRLM, for its part, focuses on a capability-building approach. The NRLM was developed in 2010 by the Ministry of Rural Development to address the challenge of rural poverty. In March 2016, the scheme was renamed the Deendayal Antyodaya Yojana-NRLM (DAY-NRLM). This mission aims at organising the rural women into self-help groups (SHGs), which will improve livelihood options, promote self-employment, and build necessary skills required for jobs. The objective is to promote sustainable livelihoods to overcome poverty.<sup>17</sup> While acknowledging that people have a right to work, it does not directly provide them with work. It instead helps them organise into units that can work together to create economic opportunities for themselves in the rural sectors. Since the scheme is extremely process-oriented with limited resources, the programme has been divided into phases. Implementation takes place at block levels, with each block working at an intended period of 10 years. The first three years are spent mobilising the poor into SHGs and the next three are devoted to strengthening the activities and addition of various layers such as health and nutrition. The last four years are used to build self-reliance among individuals during what is seen as the withdrawal phase.<sup>18</sup>

As of 30 November 2021, the DAY-NRLM was operational in 706 districts and had mobilised 80 million women living in poor and vulnerable conditions into 7.3 million SHGs.<sup>19</sup> However, the DAY-NRLM faces many challenges: the SHGs are crowded, low in productivity, and are held back due to the low absorption of technology. Additionally, the scheme classifies the livelihoods of the poor as identical instead of dynamic. Steps have been taken to put in place policies and interventions to bridge the existing gaps. SHG loans remain collateral-free and relief packages for women have been increased to INR 2 million amid the pandemic (see Figure 2).<sup>20</sup>

**Figure 2: Budgetary Allocations for DAY-NRLM (in INR billions, 2013-14 to 2022-23)**



Source: Author's own, data from Ministry of Rural Development, Government of India<sup>21</sup>

In a few instances, state governments have tried to combine the MGNREGA and DAY-NRLM, with varying degrees of success. A stellar example is the Kerala government's poverty eradication project, Kudumbashree. Since 1998, it has promoted the institutionalisation of women's SHGs across the state. Savings amongst members were promoted, which was used to further lend credit to those in need.<sup>22</sup> The average wage rates in Kerala, according to the 2011 census, were higher than what was offered under the MGNREGA, which led to lukewarm participation in MGNREGA. Kudumbashree identified that participation of women in the labour force, even as late as 2011, was around 18.23 percent.<sup>23</sup> Furthermore, the average wage rates for women, especially those from the Scheduled Castes and Tribes, were far below the state average. Mobilisation efforts were centred on gathering such women in groups and then pushing for employment under MGNREGA. The SHGs played an active role in linking the MGNREGA to existing agricultural and collective farming programmes. Currently, 94 percent of MGNREGA workers from the state are women.<sup>24</sup>

## The human face of MGNREGA: A story from Andhra Pradesh<sup>a</sup>

**T**he brutality of the summer sun in Andhra Pradesh's Kurnool district can easily make one dizzy, especially those not used to such merciless weather. Yet, Madhumalati Teluginti, from the Kammarichedu village in Andhra Pradesh, cannot be happier about the summer months each year. The 42-year-old passionately explains that MGNREGA has been extremely beneficial for women, especially in the summer months of February, March, and April, as there is little agricultural activity during this period. Madhumalati and other beneficiaries of the scheme earn more wages in the summer through additional MGNREGA jobs, such as collecting and delivering drinking water to the village households. She says enthusiastically that

the best part is that they also get complimentary buttermilk from the scheme during these months.

Madhumalati has been working on various tasks under the MGNREGA programme, such as creating trenches and planting trees, for approximately 17 years. For the first seven years, the family elders and her husband managed her earnings, but she has now taken charge. Currently, she works for about six days a week for about INR 200 per day. She also runs a tailoring business, which is now her main source of income, while earnings from MGNREGA go to sundry household expenses and savings. Many men in the village do not think the income from MGNREGA is sufficient to create savings for durable

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<sup>a</sup> Based on an in-person interview with Madhumalati Teluginti from on 29 June 2022. She has permitted the use of her name and age for this report.

assets, such as land or farm equipment. In contrast, Madhumalati argues, "in our region, MGNREGA is more beneficial to the women than men. Men are lazy. They would rather do nothing than work for nominal wages. Women on the other hand would diligently work in the MGNREGA programmes to contribute whatever they can to the household expenses and children's education."

Madhumalati lost her husband some months ago and has been on her own since then. She proudly mentions that her son is pursuing his final year studying Engineering in Tirupati, and her daughter was married in 2020 to a boy from the neighbouring village. She adds that she does not rely on loans anymore and has undertaken all these family expenses with her own earnings. Madhumalati recounts that MGNREGA has been a blessing during the pandemic, providing employment to the bulk of migrant labourers who had returned to the village. "My son had returned home when his college was shut during

the lockdown. Even he secured work under MGNREGA such as making farm ponds that, in turn, helped us with the household expenses when our income from other sources was constrained. Although my son is about to become an engineer, he does not see MGNREGA as menial labour."

Her savings from her MGNREGA earnings helped her pay off her husband's debt, allowing her to earn the respect of the villagers.

The vastness of the black soil-filled agricultural fields on both sides of the highways in Kurnool, and the perpetually glittering mirage in front add a different dimension to the harshness of Indian summers. One that is riddled with poverty, livelihood, and the stories of India's valiant women like Madhumalati. Indeed, inclusive growth is a necessary condition for any kind of progress to be equitable, and MGNREGA is one such catalyst toward making development truly sustainable.

## Pandemic, Poverty, and a Sustainable Future

The economic fallout of the pandemic has caused a slowdown in India's growth, achieved over the previous years. At the height of the pandemic, a portion of the urban population, especially those engaged in the unorganised sectors, had to shift to rural areas due to the lack of available urban employment during the lockdowns. This led to an excess supply of labour in the rural workforce, which were considerably subsumed by employment schemes such as MGNREGA and DAY NRLM, ameliorating the poverty crisis to a large extent (see Table 2 for a comparison of employment numbers under MGNREGA during April-August 2020, the initial phase of the COVID-19 pandemic).

**Table 2: MGNREGA Employment During the Initial Phase of the COVID-19 Pandemic (in millions)**

Months	2019	2020	Increase
April	273.94	141.31	(-) 48%
May	369.52	568.69	54%
June	321.43	640.71	99%
July	194.17	391.63	102%
August	153.05	238.98	56%

Source: Author's own, Ministry of Rural Development, Government of India<sup>25</sup>

Additional income was required to support individuals who had returned to their rural households. However, due to the country-wide restrictions, households suffered an average of 12 percent loss in annual income during the 2020-21 fiscal year. An additional 218 million people are estimated to have entered poverty in 2020-2021, with the total number estimated to be between 381 million and 418 million.<sup>26</sup> The onset of the second wave in April 2021 further impacted the Indian economy. While there was no complete lockdown, the various restrictions led to an increase

in India's poverty rates. Both, rural and urban areas were gravely impacted—58 percent of businesses showed high negative impacts; rich households were said to have lost less than a quarter of their pre-pandemic incomes; and poorer households faced the brunt of the impact, with 20 percent losing their entire incomes.<sup>27</sup>

During this time of turmoil, the government-led poverty schemes acted as crucial safety net for the poor. Data for the months between April 2019 and April 2021 shows a 30-percent increase in the demand for MNREGA work, indicating that widespread rural unemployment during the second wave of the pandemic either led to people seeking guaranteed employment or disrupted the assured pay-outs.<sup>28</sup> The pandemic also led to a surge in the number of PMJDY accounts, which increased by 30 million in the year 2020, a 60-percent increase compared to pre-pandemic levels.<sup>29</sup>

Similarly, DAY-NRLM has helped communities maintain their expenditure levels for the member-families during the pandemic. A study<sup>30</sup> indicated that SHG households experienced a smaller decline in consumption levels than non-SHG households. SHGs also mobilised member households to produce protective gear and hand sanitisers. The Ministry of Rural Development reported that 3,00,000 members from 60,000 SHGs were involved in the production of over 200 million masks, and women collectives set up under DAY-NRLM in nine states produced approximately 115,000 litres of sanitisers by mid-April 2020.<sup>31</sup>

Undoubtedly, poverty is a contentious political issue in India, and is prominently reflected in election campaigns—from Indira Gandhi's '*Garibi Hatao, Desh Bachao*' (Remove Poverty, Rescue the Country) in 1971 to Narendra Modi's more holistic slogan '*Achhe Din Aane Waale Hain*' (Good Days Are Coming) in 2014. The current government's growing disinvestment in the public sector<sup>32</sup> is ample evidence of its faith in market forces arriving at more efficient outcomes in job-creation. Privatisation in the micro and small industries sector will not only free up

funding for the government but will also push people to innovate and move away from government dependency for their employment and other financial needs.

Beyond the politics, poverty mitigation and advancement toward SDG-1 in India has direct implications on other interlinked developmental objectives,<sup>33</sup> such as SDG-2 (zero hunger), SDG-3 (good health and wellbeing), SDG-4 (quality education), SDG-5 (gender equality), SDG-6 (clean water and sanitation), SDG-7 (affordable and clean energy), SDG-8 (decent work and economic growth), SDG-10 (reduced inequalities), SDG-11 (sustainable cities and communities), SDG-13 (climate action), SDG-15 (life on land), and SDG-16 (peace, justice, and strong institutions). Harnessing India's large human capital base is dependent on the poverty eradication measures adopted, especially for a country that has a long history of pervasive poverty. The achievement of the SDG-1 objectives is crucial for a swift synchronisation between the irreconcilable trinity of 'sustainomics'—society, economy, and environment. Therefore, policies such as MGNREGA, along with the complementary schemes, form the backbone of India's developmental journey, catering to the needs of the poor by creating employment and nurturing long-term capacity-building through associated skilling measures.

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# Smart Cities Mission: Preparing Indian Cities for the Future



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Several transformative developments have been crucial to India becoming a US\$3.1-trillion economy and setting the stage for it to transform into one of five largest economies globally.<sup>1</sup> India must reflect on these policies to realise the goals of self-reliance, sustainable development, and inclusive growth, and transform into a US\$5-trillion economy. At the same time, India must also confront the major domestic and global challenges. The most pressing concerns in the country's development paradigm are climate change and health

emergencies like the COVID-19 pandemic. Policy efforts targeted at achieving India's economic development goals must be able to address these challenges.

A key scheme in India's development narrative is the Smart Cities Mission (SCM), launched by the Ministry of Urban Development (MoUD) in June 2015. SCM aimed to promote cities as the engines of growth, supporting them with the necessary infrastructure to achieve a clean and sustainable environment to provide a decent quality of life for all through the application of 'smart solutions'. The scheme's focus was to achieve sustainable and inclusive development through replicable model cities.

The SCM seeks to address issues related to urbanisation in 100 cities and town across the country. Concerns related to climate change are foremost. Indeed, climate change could negatively impact India's economic development by depleting between 3 percent to 10 percent of annual GDP by 2100.<sup>2</sup> According to the Global Climate Risk Index 2020, extreme climate events between 1999 and 2018 caused losses of more than INR 2.7 lakh crore (US\$33.8 billion) to Indian infrastructure.<sup>3</sup> Moreover, the Intergovernmental Panel on Climate Change (IPCC) ranked India among the countries most affected by climate change (see Figure 1).<sup>4</sup>

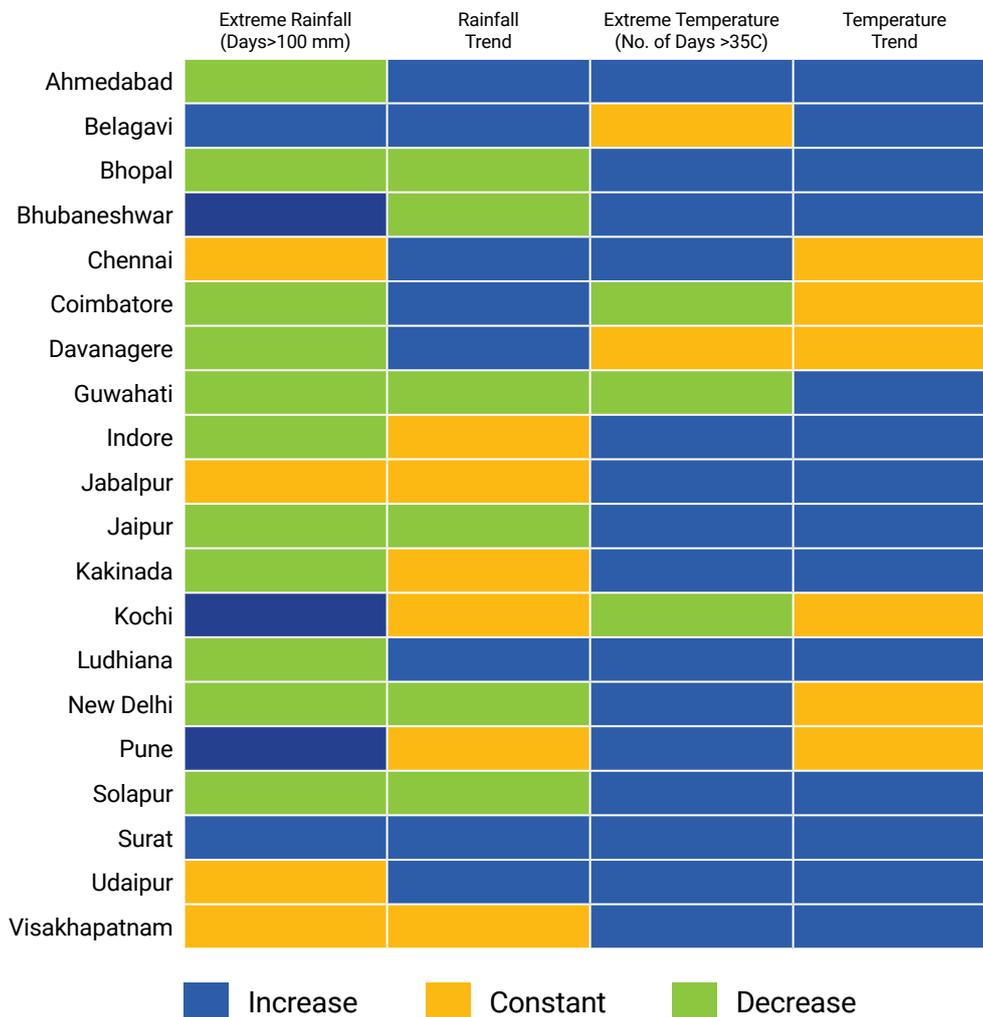
Indian cities are expected to bear the climate burden disproportionately. Given this context, low-carbon solutions, decarbonisation of the economy, sustainable lifestyle, and technological advancements must be manifested in all aspects of the urban policy to attain Goals 11<sup>a</sup> and 13<sup>b</sup> of the Sustainable Development Goals (SDGs) and meet equitable growth.

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<sup>a</sup> SDG-11 requires countries to make cities and human settlements inclusive, safe, resilient, and sustainable.

<sup>b</sup> SDG-13 requires countries to take urgent action to combat climate change and its impacts.

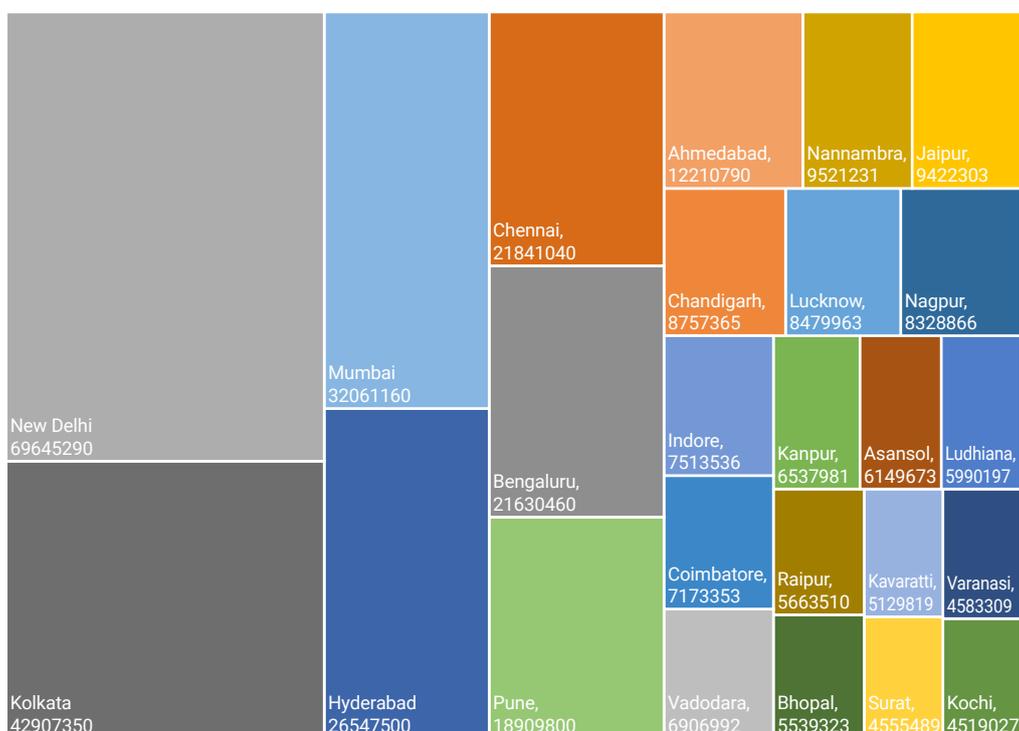
**Figure 1: Mapping Climate Trends in India's Smart Cities**



Source: *Down to Earth and India Climate Dialogue*<sup>5</sup>

The first phase of assessing smart cities on their climate change mitigation and adaptation status concluded in 2019 (Figure 2 depicts annual carbon footprint of major Indian cities recorded in 2018). In the ongoing second phase, launched in 2020, the objective is to rank and assist cities in realising the GHG emission mitigation potential of the planned strategies under the SCM.<sup>6</sup>

**Figure 2: Annual Carbon Footprint of Major Indian Cities (in tonnes)**



Source: *City Carbon Footprints*<sup>7</sup>

Issues of transportation, sanitation, water supply, electricity, waste management, and people’s unsustainable lifestyles have been key factors affecting the realisation of sustainable and inclusive growth in India. These issues can easily be tackled through the Climate Smart Cities Assessment Framework. However, if left unaddressed, they can result in a US\$1.8-trillion loss for the Indian economy by 2050, which translates to almost 20 percent of average household incomes.<sup>8</sup>

### Exploring the Smart Cities Mission

The SCM’s objectives are to drive economic growth, and to improve quality of life through comprehensive work a city’s social, economic, physical, and institutional pillars.

As per the MoUD, the aim is to build and promote cities that provide core infrastructure and give citizens a decent quality of life, a clean and sustainable environment, and the application of 'smart solutions'.<sup>9</sup> As such, the SCM has three components:

- Area-based development that will transform existing localities, including slums, into better planned ones, by retrofitting and redeveloping thereby improving livability of the whole city
- Green-field projects that will develop new areas in the city to accommodate the expanding population in urban areas
- Pan-city development, which envisages the application of selected smart solutions to existing city-wide infrastructure

There are two crucial indicators to measure the performance of the SCM: urbanisation and economic growth; and climate change mitigation, adaptation, and resilience.

- **Urbanisation and Economic Growth**

A key metric to measure SCM performance in addressing concerns related to urbanisation and economic growth is the utilisation of funds disbursed for the various activities envisioned under city-level action plans. This is because the stated objectives of the SCM are expected to be met through the finances allocated, disbursed, and utilised under the mission itself.

As of 27 June 2022, the project has covered 100 cities across India, completing 5,151 projects and utilising INR 2,05,018 crore (US\$29 billion) in funding, with no projects remaining in tender or work order stage.<sup>10</sup> However, none of the works sanctioned under the project have been completed and the MoUD has extended the scheme till 2023, with the delay attributed to the COVID-19 pandemic.

Only about 6 percent of financing will come from the urban local bodies own resources, as 76 of the 100 smart cities do not have the capacity contribute resources. Additionally, 51 cities do not have investment grade credit rating, which may substantively change with the integration

of a calibrated 'green' agenda. Furthermore, under the SCM, average per capita development cost is INR 1,67,000 and per square kms cost is INR 334 crore (US\$41.8 billion; against normal cost of INR 80,000 per capita or about INR 100 crore per square km).<sup>11</sup>

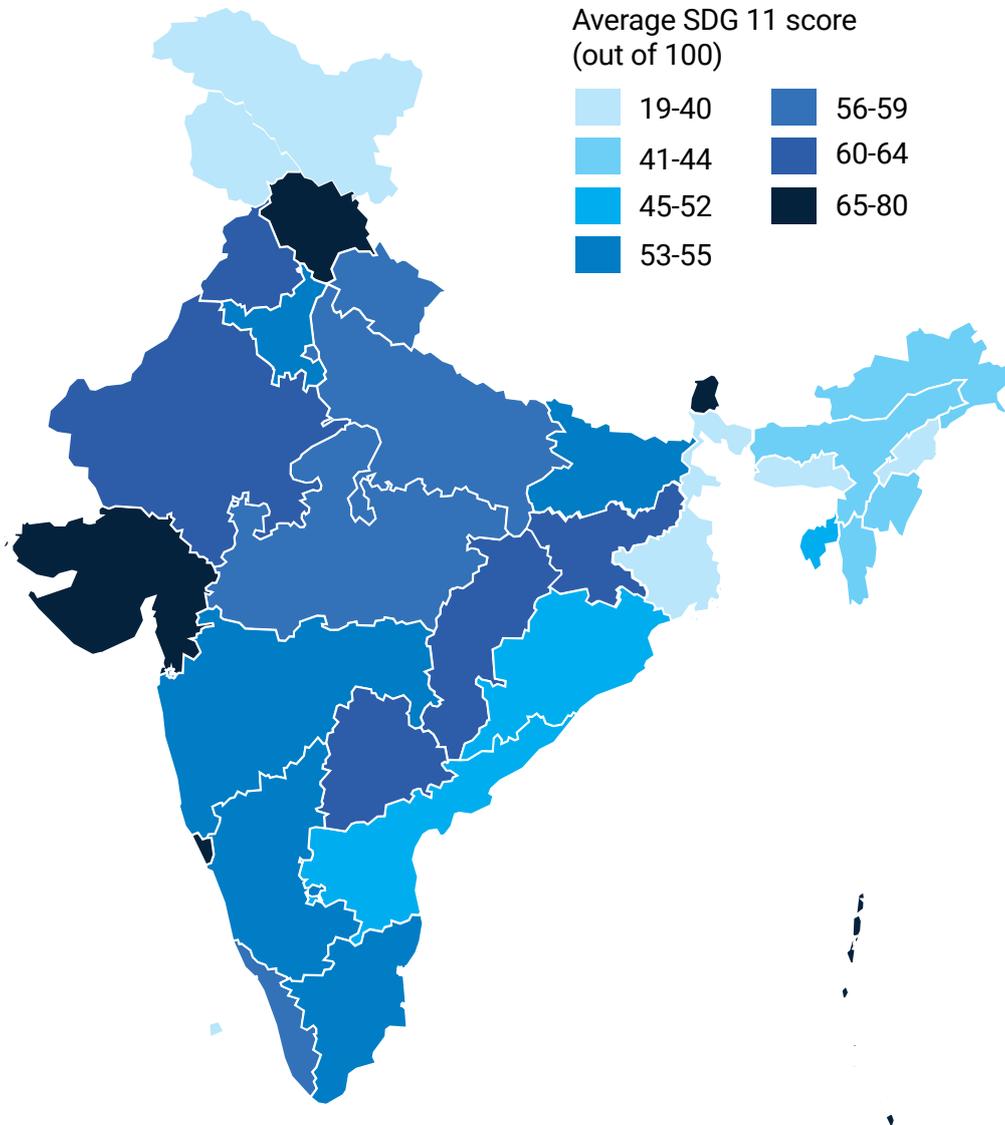
This presents a few learnings. Several states, including Bihar and most in the Northeast, have a low fund utilisation under the SCM. At the same time, Maharashtra, Uttar Pradesh, and Gujarat are top performers that can guide other states in terms of sharing their experiences and implementation mechanisms (see Figures 3 and 4 for states' and union territories' performance on SDG-11 and SDG-13). However, each state is likely to have a unique and complex approach to climate issues; therefore, a repository of local solutions may be a better way to spur learning amongst states.

- **Climate Change Mitigation, Adaptation and Resilience**

Climate change mitigation and adaptation are covered under the SCM as an intrinsic element within the city-level action plans and through supplementary initiatives in the form of international collaborations, partnerships, and stand-alone policy initiatives.

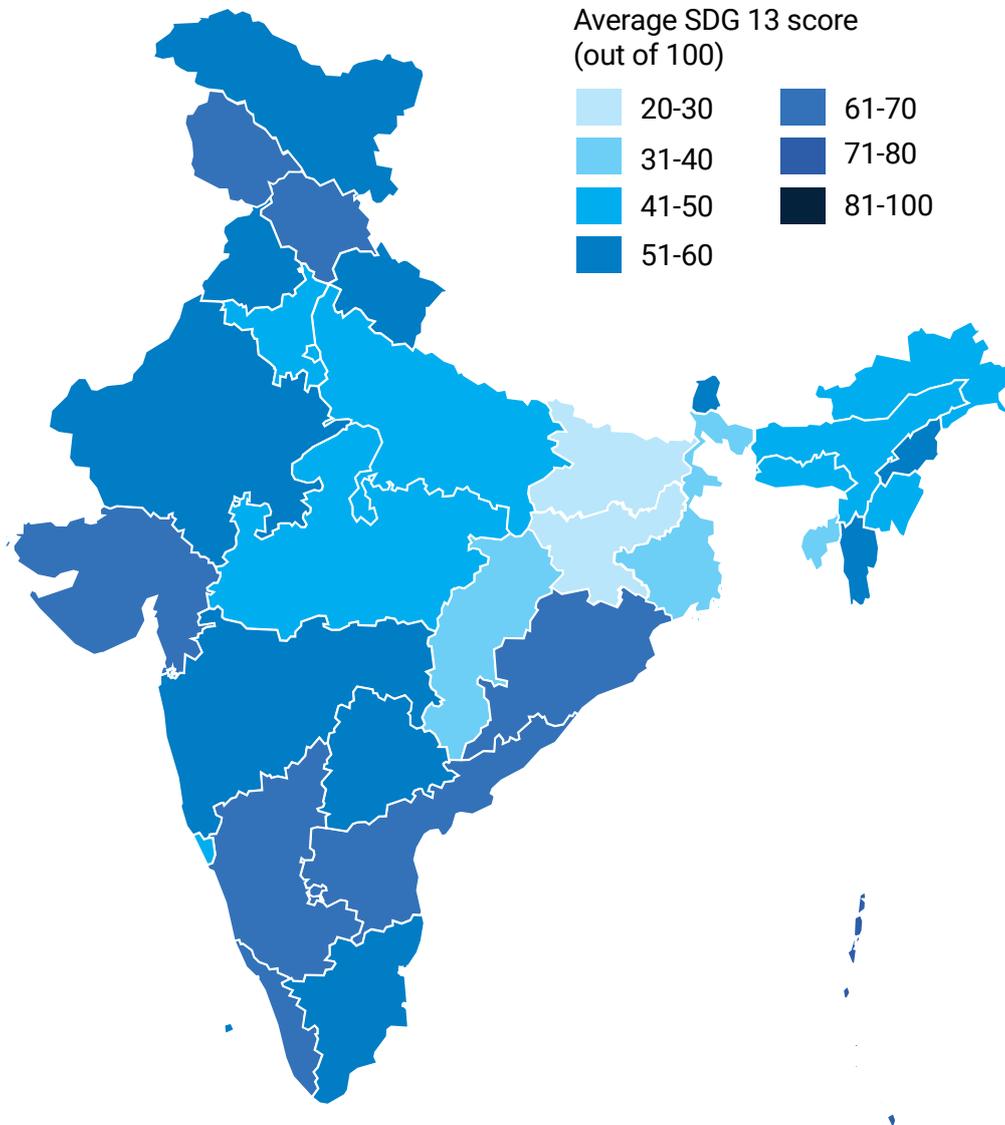
The green component of funds allocated and utilised under the SCM are not separately reported, which is a major concern in assessing the mission's performance in terms of climate sustainability. Initiatives in industrial decarbonisation, air quality improvement, green mobility, and waste management are present in almost all smart city action plans. Thus, separately reporting on green projects and initiatives within the SCM would be prudent for the mission. An Indian taxonomy on green activities will help eliminate any confusion over the classification of 'green'.

**Figure 3: Performance Average of States and Union Territories on SDG-11 (2019-20)**



Data Source: SDG India Dashboard<sup>12</sup>

**Figure 4: Performance Average of States and Union Territories on SDG-13 (2019-20)**



Data Source: SDG India Dashboard<sup>13</sup>

In April 2022, the 'Smart Cities, Smart Urbanization' conference, organised by the Ministry of Housing and Urban Affairs in Gujarat's Surat, saw many discussions on climate change aspects, such as collective carbon trading, climate adaptation plan, and strategies to promote climate actions and communicate climate-related risks and challenges. These measures can instill a positive change in reporting, monitoring, and implementing climate conscious activities under the SCM.

The SCM is supplemented with the Climate Smart Cities Assessment Framework, which aims to aid cities in providing a clear roadmap to mainstream climate mitigation efforts into the planning and implementation stages of their action plans, including attracting investments (see Figure 5).<sup>14</sup> This framework comprises of 28 indicators across five categories:

- **Energy and Green Buildings:** Cities can reduce their carbon footprint by adopting measures such as distributed energy generation, energy efficiency, electric mobility, climate responsive architecture, and alternate fuel transportation systems.
- **Urban Planning, Green Cover, and Biodiversity:** Cities can improve and increase their greenspaces and natural systems and promote biodiversity, thereby becoming more resilient to climate-related shocks.
- **Mobility and Air Quality:** Actions like enhancing public transportation, creating sustainable transport infrastructure, monitoring industrial emissions, and providing access to clean cooking fuel reduce greenhouse gas (GHG) emissions and mitigate cities' impact on public health and the environment.
- **Water Management:** Water scarcity, water quality and sanitation, along with climate-related disasters such as droughts, heavy rainfalls, floods, landslides, and coastal flooding, are critical issues for municipal and state governments.
- **Waste Management:** Scientific waste management, a commitment towards a circular economy, and adherence to integrated solid waste management principles can reduce GHGs and associated pollution.

Figure 5: Climate Smart City Assessment Framework



Source: Smart Cities Mission<sup>15</sup>

## Puducherry: Climate action through technology and community participation

The Puducherry region had substantial freshwater reserves, but heightened water demand due to increased agriculture, industrialisation, urbanisation, population growth, and economic development, has impacted this resource.<sup>16</sup> The Central Ground Water Board has estimated that the region's groundwater resources are now overexploited.<sup>17</sup> Rampant urban flooding is a consistent issue, most recently in 2021, and climate change risks exacerbating the problem through uneven precipitation, rise in sea levels, and cyclones.<sup>18</sup>

In this context, the city administration adopted a community-based approach to tackle the effect of urban flooding and exploitation of groundwater resources. It employed an area-based development approach to tackle urban flooding by restoring traditional water bodies. Through the *neerum-oorum* (water village) initiative, the city administration will adopt, renovate, and protect water bodies. Community participation is at the programme's core with the convergence of multiple stakeholders municipal government, public works department, non governmental organisations, companies (through corporate social responsibility funds), local schools, and the National Bank for Agriculture and Rural Development. Since the programme's inception, about 197 ponds desilted and

about 200 km canals were constructed.<sup>19</sup> In the process, several lost water bodies were restored. As per the central groundwater authority, Puducherry has seen an about 15-foot rise in groundwater levels.<sup>20</sup> The administration also launched *Neer Padhivu*, a mobile application that digitises water bodies through geotagging and provides unique IDs to these structures. The app, developed by the National Institute of Environment Engineering Research Institute, also ensures protection from encroachment.

The SCM's Climate Smart City Assessment Framework includes rejuvenation of water bodies in the urban planning, green cover, and biodiversity category, and flood risk and water resource management in the water management category. Community participation is a vital tool to tackle the effects of climate change and the Puducherry city administration recognised this through its experiences with extreme weather conditions. Puducherry has also improved its score for SDG-11 in the NITI Aayog's annual Sustainable Development Index, from 27 in 2018 to 76 by 2020.<sup>21</sup> Puducherry is also one of the 15 smart cities chosen the French Development Agency's City Investments to Innovate, Integrate and Sustain programme, which focuses on sustainable mobility, urban e-governance, and social innovation for low-income settlements.

## Converging with Other Initiatives for Climate Responsiveness

Several other initiatives and programmes can be converged within the SCM to enhance its climate responsiveness. Some of the most prominent ones include:

- **Panchamrit Announcement at COP26**

Achieving a net-zero economy by 2070<sup>22</sup> and meeting the stated renewable energy targets by 2030 require tangible city-level action plans. This is currently missing in the SCM. City level climate action plans are now being devised in cities like Mumbai and Gurgaon. Such plans create an emission repository, assess historical data on GHG emissions of a particular city, and provide immediate, short-term and long-term solutions to restrict emissions considerably.

- **C40 Cities Initiative**

The C40 Cities Climate Leadership Group is a global consortium of mayors taking urgent action in their respective cities to confront the climate crises and create an inclusive future for future generations. It covers 96 cities, accounting for 20 percent of the global economy and 582 million people. Five Indian cities—Delhi, Mumbai, Kolkata, Chennai, and Bengaluru—are part of this network. These cities can be models for other smart cities under the SCM to share knowledge, technology, and strategies from the C40 network.<sup>23</sup>

- **Coalition for Disaster Resilient Infrastructure**

The India-led Coalition for Disaster Resilient Infrastructure (CDRI) is a partnership of national governments, UN agencies, multilateral development banks and financial institutions, the private sector, and knowledge institutions that aims to promote the resilience of new and existing infrastructure systems against climate and disaster risks in support of sustainable development. CDRI promotes rapid development of resilient infrastructure to respond to the SDGs' imperatives of expanding universal access to basic services, enabling prosperity, and decent work. Such initiatives can drive change at the city-level by

inculcating the key components under it as part of city-level roadmaps and action plans devised under the SCM.

- **Green Building Rating Policies**

Although the SCM does not allude to energy efficiency explicitly, a smart city and its implementation of clean and green infrastructure to promote sustainable living are inextricably linked. Studies have evidenced that the construction industry presents the greatest potential for improved energy efficiency.<sup>24</sup> India uses three rating systems: the Leadership in Energy and Environmental Design and Indian Green Building Council (private initiative), the Green Rating for Integrated Habitat Assessment and the Energy Resources Institute (under Ministry of New and Renewable Energy), and the Energy Performance Index started by the Bureau of Energy Efficiency.<sup>25</sup> Using these ratings is necessary to measuring a city's progress towards creating a sustainable environment.

## Gaps and Recommendations

Cities are the engines of economic growth. The SCM aims to establish and promote cities that provide crucial infrastructure and a decent quality of life for all. However, several critical gaps need to be addressed for the mission to achieve its objective and tackle the threat of climate change in urban areas.

- **Infrastructure auditing:** According to the Global Climate Risk Index 2020, extreme climate events have caused losses of more than INR 2.7 lakh crore (US\$33.8 billion) to infrastructure.<sup>26</sup> The IPCC ranked India among the countries most affected by climate change.<sup>27</sup> According to the official data from the SCM, until July 2022, INR 2,05,018 crore (US\$29 billion) has been spent on a total of 5,151 projects. For these projects to be sustainable and resilient, a climate performance audit of the planned infrastructure must be conducted based on the guidelines issued by the Comptroller and Auditor General of India.<sup>28</sup> It is important to enhance, integrate, and harness nature-driven green-blue infrastructure. More attention

is needed to realise the vital role of green infrastructure, which includes more tree cover, urban forests, parks and gardens, and blue infrastructure, which includes wetlands, rivers, seas and lakes. Green-blue infrastructure can be achieved with little expense, leading to less destructive flooding, more water to harvest and recharge, and lower peak temperatures.

- **Cities as inclusive spaces:** While acknowledging the threat posed by climate change, it is crucial to raise awareness among vulnerable communities as they are the first to be affected by such events. Urban planning should be ground-up to fully grasp how an action might affect different facets of society. Recognising informalities should be at the core of smart city policy reforms in the coming years.

A two-pronged policy approach can be adopted to enhance the SCM:

- **Mainstreaming climate agenda:** SCM includes an element of low-carbon solutions. However, the need of the hour is to explicitly include climate action as a key pillar to execute the mission and adopt the latest green technologies to reduce the carbon footprint of economic development in all sectors. One strategy is the convergence of ongoing initiatives, both domestic and global, with the SCM action plans and implementation frameworks, including India's nationally determined contributions, the C40 Cities Initiative, and CDRI. The utilisation of funds is a key indicator to monitor the progress of cities and the country towards building climate-resilient cities. A study assessing the fund utilisation of 20 Indian cities found that in 17 cities, the requested funds went towards area-based development across sectors instead of pan-city initiatives.<sup>29</sup> These figures highlight that although the SCM is successful in envisioning sustainable and future-ready cities, the focus is on individual and area-specific projects. Development plans ought to have climate resilience as one of their pillars. For instance, development plans related to energy

efficiency, water optimisation, and sewage treatment can take broader geographies under their fold. These plans will certainly achieve the objectives of the SCM while maintaining and working towards the government's commitment to achieve net-zero emissions by 2070.

- **Engaging multiple stakeholders:** Intermediary organisations at the district level can ensure the implementation of ambitious climate change plans at the grassroots level. Rightly called 'delivery partners', they create capacity and assure administrative free flow. A local citizen-led organisation engaged in building climate resilience for the SCM will also lead to an efficient use of funds.

## Conclusion

India has rapidly urbanised in recent decades. Urban centres are now considered engines of economic and social growth. Growth in urban spheres is an organic process that cannot be done away with and must be harnessed in a calibrated way, taking into consideration climate change and key aspects of sustainability. However, urbanisation has associated externalities that may hinder the achievement of climate goals. But the SCM can help India counter this challenge. It can help establish more data-centric approaches to planned urbanisation and facilitate urban centres to emerge as growth hubs, while simultaneously combatting the climate challenge. This is also an opportunity to embark upon a green growth agenda for Indian cities, one that is aligned with the SDGs.

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# The *Gati Shakti* Connectivity Plan: Taking India's Infrastructure into the Future



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**W**hile infrastructure development has been a critical policy focus for successive governments in India, planning and effective implementation have suffered from significant backlogs and severely impacted the overall sectoral performance. Logistics cost in India, like in most developing nations, can be around 14 percent of GDP, much higher than the 10 percent average among developed countries.<sup>1</sup> As such, the high logistics costs in India is a crucial factor

contributing to supply chain inefficiencies, low competitiveness of domestic production in national and international markets, and increasingly lower incentives to attract private investments.

As the fifth largest economy in the world (in terms of nominal GDP) and one of those with the fastest growth,<sup>2</sup> India provides for a significantly large market and vast reserves of resources to support growing businesses. However, India must contend with some key issues before it can follow in the footsteps of countries such as Japan, South Korea, or even China in quality infrastructure development and emerging as an industrial hub in South Asia.<sup>3</sup> These challenges include:

- a) **Coordination failure in planning and implementation:** Infrastructure projects in India are envisioned and planned under different dedicated departments across central and state governments. As such, this departmental structure and individual decision-making at various levels translate into a coordination failure in terms of implementation. Moreover, public infrastructure projects also entail social appraisals, in addition to the financial and economic, mostly undertaken by the planning department in coordination with other concerned stakeholders. In certain cases, such extensive cost-benefit analyses have often been missed, bearing implications for the overall scope and implementation of the project.
- b) **Inefficiencies in capacity utilisation:** Even after timely completion, several infrastructure projects are often underutilised, primarily due to inefficiencies in last-mile connectivity to demand centres, or other regulatory and compliance issues. These not only hinder the achievement of optimum outcomes and generate revenue loss, but also bear upon the public exchequer as wasteful expenditure. To avoid such issues, it is imperative to align different project timelines and their design.

- c) **Lack of standard operating procedures:** Each department follows their own rules of operation for planning, designing, and implementation of infrastructure projects, although most of these projects require inter-departmental approvals across various levels and at different stages of implementation. The lack of standardisation in such cases makes the approval processes severely time-consuming, causing inconvenience for end consumers, delaying the project, and increasing related transaction costs.
- d) **Hefty regulatory frameworks:** Project executions often require several regulatory approvals, such as environmental clearances and land acquisition permits, leading to high transaction costs. Moreover, regulatory authorities often have insufficient information, are lacking in workers with suitable skills, and suffering from conflicting interests across various departments. Regulatory frameworks are also riddled with loopholes, which are often left to be exploited.

To be sure, there have been significant improvements in India's logistics environment since 2015, including in procedural domains such as customs and other official clearances, trade, transport and communications infrastructure, and logistics regulation. Solutions to cyber security threats are also being developed. As a result, there has been an overall improvement in perception among key stakeholders about the changes in India's logistics environment since 2015 (see Table 1).

Despite these improvements, certain issues remain. The PM Gati Shakti

**Table 1: Perceptions on India's Logistics Environment**

Changes in the Logistics Environment	Responses
<b>Since 2015, have the following factors improved or worsened in your country of work?</b>	<b>Percent of respondents answering <i>improved</i> or <i>much improved</i></b>
Customs clearance procedures	80
Other official clearance procedures	72
Trade and transport infrastructure	65
Telecommunications and IT infrastructure	65
Private logistics services	80
Regulation related to logistics	60
Solicitation of informal payments	37
<b>Developments since 2015</b>	<b>Percent of respondents indicating <i>much decreased</i> or <i>decreased</i></b>
Demand for traditional freight forwarding as a commercial service	20
Increased use of electronic trading platforms (B2B and B2C) by shippers mean that business volumes have	10
Cyber security threats in logistics	10
Firms preparedness for cyber threats	5

Source: World Bank's Domestic Logistics Performance Index<sup>4</sup>

National Master Plan for Multi-Modal Connectivity, announced on 15 August 2021 (and launched on 13 October 2021), recognises these persisting problem areas in India's infrastructure development. It puts together a vision for an integrated national platform involving various official departments across different levels of governments to enable coordination on quality infrastructure development, agglomeration of industrial clusters across various economic zones, and overall improvements

in logistics environment leading to lower costs and higher global competitiveness. All such efforts have been envisaged to advance India's vision for sustainable economic growth and development over the next 25 years.

### **The 'PM Gati Shakti' Initiative: Advancing Multimodal Connectivity**

The PM Gati Shakti plan envisages the development of a multimodal connectivity network (both physical and digital) through the establishment of economic zones; the aim is to boost last-mile connectivity.<sup>5</sup> Establishing last-mile connectivity is usually the most difficult task, be it in transportation, infrastructure, or economic advancement. To overcome this, an integrated platform was put in action under the Gati Shakti plan, bringing together as many as 21 ministries/departments (see Table 2).<sup>6</sup> The primary objective is to bridge the large gap between the macro-planning and micro-implementation,<sup>7</sup> speeding up and strengthening infrastructural development in the country, and breaking out of the departmental silos to achieve the timely completion of infrastructure projects in the industrial zones and ensuring seamless connectivity. Planning integration will also enable better assessment and monitoring of progress of ongoing projects across different sectors, and make operations cost-effective as a result of better prioritisation of projects.

**Table 2: Ministries and Departments Integrated Under PM Gati Shakti**

Ministry/Department	
1.	Ministry of Railways
2.	Ministry of Road, Transport & Highways
3.	Ministry of Ports, Shipping and Waterways
4.	Ministry of Civil Aviation
5.	Ministry of Petroleum & Natural Gas
6.	Ministry of Power
7.	Department of Telecommunications
8.	Ministry of Coal
9.	Ministry of Mines
10.	Department of Chemicals & Petro-Chemicals
11.	Department of Fertilizers
12.	Ministry of Steel
13.	Department of Expenditure
14.	Department for Food and PDS
15.	Ministry of Agriculture and Farmer Welfare
16.	Ministry of Fisheries, Animal Husbandry & Dairying
17.	Ministry of Tourism
18.	Ministry of Commerce and Industry
19.	NITI Aayog
20.	Ministry of Housing and Urban Affairs
21.	Ministry of Electronics and Information Technology

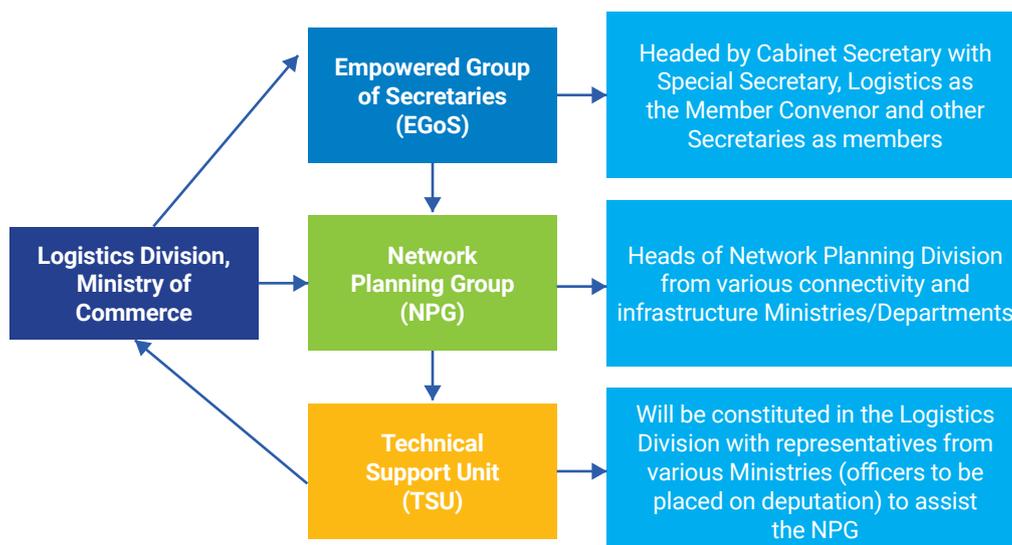
Source: PM Gati Shakti, National Portal of India<sup>8</sup>

The PM Gati Shakti plan complements the National Monetisation Pipeline (NMP), the National Infrastructure Pipeline (NIP), and the 'Make in India' motto. By integrating different modes of transport and communications in the country and establishing efficient connectivity across economic zones, it can support the creation of a more self-reliant India and, at the same time, increase the employment opportunities available to the youth. With US\$150 billion budgeted to fulfill the goals of

the *Gati Shakti* plan, India's focus is on enhancing the 'seven engines'—roads, railways, airports, ports, mass transport, waterways, and logistics infrastructure—to achieve world-class modern infrastructure and overall harmony in logistics.<sup>9</sup> The *Gati Shakti* plan is monitored by a group of secretaries that are headed by the Cabinet secretary. There is also a Network Planning Group (NPG) that will assist the group of secretaries and oversee the entire project. Issues that arise are addressed by the NPG, which gives suggestions on how the issues need to be resolved (see Figure 1).<sup>10</sup>

A plan for the construction of expressways is to be formulated in

**Figure 1: PM *Gati Shakti* Governance Framework**



Source: *PM Gati Shakti, National Portal of India*<sup>11</sup>

2022-23 along with the 25,000-km expansion of the National Highways network. To make data exchange more efficient and easily accessible, the Unified Logistics Interface Platform has been established to provide immediate information to investors. Small businesses will be prioritised, and to support them, the railways will develop new products for efficiency, integrated along with the postal services, to smoothen the movement

of parcels across the country. To improve the safety and capacity augmentation of railways, 2,000 km of network will be placed under *Kavach*, the automatic train protection system. The railways will also see the addition of 100 new cargo trains and 400 new *Vande Bharat* trains over the next three years. Better financing and faster implementation to complete building metros around India will also be put to action as a priority.<sup>12</sup>

Public-private partnerships to build sustainable and conventional roads in hilly areas are also under consideration. This will promote tourism and improve connectivity and access. To fulfill the multiple targets set by the Gati Shakti plan, there is a need for substantial amounts of planning, resources, and partnership. Digital solutions can help bridge information gaps, making data available and accessible to investors. This will also help improve trust-building, contributing towards positive outcomes for the plan and increased chances of further investments.

The effective implementation of the plan is estimated to reduce the costs of logistics and supply chain in India from 14 percent to 8 percent of GDP.<sup>13</sup> Since India's transport systems are lacking in interconnections, a synergy will be brought about in the workings of all transport sectors. The Gati Shakti initiative can help encourage a paradigm shift in decision-making, from being in silos to synergised.<sup>14</sup>

Targeted goals are beginning to be met in the suggested economic zones that have been mapped to improve multimodal connectivity infrastructure. For instance, while the Ministry of Road and Highways aimed to set up 200,000 km of highways by 2024-2025, 141,190 km of national highways have already been constructed as of March 2022.<sup>15</sup> Similarly, the Ministry of Petroleum and Natural Gas has set up 20,000 km of the planned 34,500-km pipeline.<sup>16</sup> The Department of Telecommunications too has set up a network of 3,300,997 km of optical fibre cables (OFC), but the target to achieve 4G connectivity in all villages is lagging

behind schedule. Non-fiberised towers through the OFC are being set up to provide 50 Mbps of bandwidth to areas that fall under the National Broadband Mission.<sup>17</sup>

The plan aims to employ modern technologies and tools. For example, a GIS-based Enterprise Resource Planning system to ensure evidence-based decision-making will help in efficiently modernising the process. Digitisation of certain aspects—such as ensuring on-time approvals, recognising and overcoming potential issues, and the monitoring of projects—will be more prevalent. The digitisation process will be enabled with the setting up of resilient broadband connectivity.<sup>18</sup>

### **Transforming Infrastructure Development in India**

Since its launch, the Gati Shakti initiative has flagged 'infrastructural gaps' in over 130 projects across various ministries.<sup>19</sup> Of these, most fall under the Ministry of Shipping, Ports and Waterways; however, several other departments need to come together to address the critical issues that have been identified (such as ports-road linkages, integrated waterways development across adjoining ports). Several projects under the Ministries of Steel and Coal have also been identified for enhancement. With over 850 projects already mapped on to the national master plan, the attempt has been to improve coordination among different agencies at the planning stage.

Based on a conservative estimate of compound annual growth rate (CAGR) of 8 percent, India is expected to grow to a US\$13-trillion economy (from its current nominal GDP of US\$3.3 trillion in FY 2021-22) over the next 18 years.<sup>20</sup> However, the Gati Shakti plan envisages an additional US\$150-billion public investment in streamlining ongoing infrastructure projects and creating additional capacities, which is likely to boost growth rates up to 10.5 percent CAGR in the following years. This could propel India's nominal GDP to US\$20 trillion over the same period.

Through the Gati Shakti plan, infrastructure planning and development in India can witness major transformations that will generate opportunities for economic growth and development. Such transformations will help address the backlogs in the infrastructure sector by:

- Streamlining the work of various government offices, departments, and agencies, aligning them to the NMP and NIP, and enabling prioritisation of urgent needs that should be addressed, and later complemented by working towards additional capacity building in the longer horizon.
- Identifying forward and backward linkages to an envisaged infrastructure development plan; breaking the departmental silos and ensuring optimal use of available resources in terms of improving cost efficiency and time-use and management.
- Generating scope for a dynamic feedback mechanism on overall developments and newer challenges in India's infrastructure sector, supported through constant analyses and project evaluations to be implemented under the plan.

### **Feeding into the SDG Agenda**

Goal 9 of the Sustainable Development Goals (SDGs) aims to build inclusive and sustainable industries, along with innovation and infrastructure. It aims to promote dynamic systems against competitive economic forces, and play a role in facilitating new technology and international trade relations, and enable the efficient use of resources.<sup>21</sup> The Gati Shakti scheme can play a transformative role in the achievement of this goal. Since the initiative is driven by developing India's infrastructure, it will encompass economic transformation, synergise connectivity, and ensure efficient development.

All ministries involved in infrastructure have set for themselves ambitious targets for 2025, and India will see a massive change in its infrastructure landscape in the coming years. Moreover, these infrastructure projects are to be complemented by the ramping up of the 153 GW renewable energy sector to 500 GW of installed non-fossil fuel-based

electricity capacity by 2030, essentially contributing to 50 percent of the total energy supply of the country.<sup>22</sup> As per the plans, infrastructure development is to be powered by clean energy; this could lead to an improvement in SDG 7 (affordable and clean energy) as well. The *sabka prayas* (everyone's effort) approach to sustain the efforts of the Centre, state governments, and the private sector towards a green transition can enable simultaneous economic growth and climate risk mitigation.<sup>23</sup>

The Gati Shakti initiative is also expected to lead to a massive increase in job opportunity, generating employment growth and greater entrepreneurial opportunities, especially for the country's youth.<sup>24</sup> These higher levels of employment can then feed into demand creation for the Indian economy, leading to still higher levels of economic growth and improvements in income levels, indicating a progress along SDG 8 (decent work and economic growth). Sustainable economic growth and access to quality infrastructure for larger populations can also lead to financial and social inclusion among the most marginalised citizens, eradicating poverty, improving gender parity, and reducing overall levels of income or resource inequality.

The economic growth and development of a country is critically dependent upon its productive capacities, flowing from the stock of capital assets that the country owns at a given time. However, to ensure effective utilisation and simultaneous expansion of the productive potential of these different kinds of assets, infrastructure investment and planning is crucial. Infrastructure development enhances productivity and returns from other forms of capital, making overall investments profitable. Capital investments in infrastructure also generate opportunities for crowding-in private investments in the economy. Additionally, estimates indicate that the multiplier effect of revenue expenditure is significantly lower than the capex multiplier across the central and state governments in India (see Table 3).

**Table 3: Fiscal Multiplier Estimates in India**

Variables	Impact multiplier	Cumulative multiplier
Capital expenditure Multiplier	2.45	4.80
Transfer Payments Multiplier	0.98	0.95
Other Revenue Expenditure Multiplier	0.99	0.96

Source: Bose and Bhanumurthy (2014), NiPPF<sup>25</sup>

The policy implication of a higher multiplier effect for capex on infrastructure development becomes even more relevant in the context of an economic downturn and fiscal consolidation efforts. During an economic contraction, fiscal expansion becomes important for macroeconomic stabilisation. In such cases, the expansion of transfer payments or other revenue expenditure can also lead to immediate demand creation in the economy, producing a counter cyclical effect, albeit to a lower magnitude compared to capital expenditure.

India was already on its path to achieving extremely low rates of absolute poverty by 2020, but due to the COVID-19 pandemic, 7 million jobs were lost in a span of one year.<sup>26</sup> Women were disproportionately pushed out of their jobs, leading to increases in levels of inequality.<sup>27</sup> The Gati Shakti plan will lead to employment generation, creation of additional capacities, and the efficient utilisation of the existing ones, providing the Indian labour markets with additional income and eventually lowering poverty and inequality rates in the country, thus bringing India a step closer to achieving SDG 1 (no poverty). These improvements can feed into other interlinked SDG targets such as food and nutritional security (SDG 2), access to good healthcare (SDG 3), and quality education (SDG 4), and advancements along peace, justice and strong institutions (SDG 16).

## The Way Forward

The comprehensive nature of the Gati Shakti initiative can potentially contribute to the augmentation of all four types of national wealth—physical, human, social, and natural. Efficient logistics networks can provide a foundation for the elimination of supply chain inefficiencies and reduction in transaction costs, improving the competitiveness of Indian markets in the global economy. The following are key areas that *Gati Shakti* should focus on to enable better integration:

- a) Framing of individual logistics master plans by the states/union territories within the aegis of Gati Shakti to incorporate freight volumes, existing capacities and future requirements, and socioeconomic contexts in line with regional challenges and prospects.
- b) Establishment of standard rules of procedures and institutional mechanisms for resolving conflicts-of-interest across various departments, grievance redressal and, most importantly, dispute resolution among key stakeholders.
- c) Streamlining of regulatory frameworks across levels and departments within a single-window clearance system to help reduce transaction costs, such as unsolicited informal payments in local settings.
- d) Sufficient focus on skills development for the smooth functioning of an efficient, vast, and inter-connected logistics sector by partnering with the National Skill Development Corporation.

Improvements in infrastructure development in the short run can help drive sustainable development in the Indian economy with the generation of inclusive wealth over the longer term. Overall, these functional improvements can aid India's strategic shifts in meeting its targets of becoming a US\$5 trillion-dollar economy by 2025 and a global powerhouse by 2040.

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# *Swachh Bharat* Mission: Towards Good Sanitation for All



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**T**he *Swachh Bharat* Mission (SBM), the world's largest and India's most transformative sanitation and hygiene campaign, was introduced in 2014. The first phase of SBM (2014-2019) was targeted at making India open-defecation free (ODF), managing solid and liquid waste, and enhancing the overall coverage of improved sanitation practices in the country. Constituting two sub-missions, *grameen* (rural) and urban, the ambitious programme was spearheaded by the Ministry of Jal Shakti (which subsumed the

former Ministry of Drinking Water and Sanitation) and the Ministry of Urban Development. The ultimate aim was to achieve total sanitation coverage with access to safe water by 2019, in line with Goal 6 of the Sustainable Development Goals (SDGs).

Between 2000 and 2017, central and southern Asian countries, including India, have significantly reduced their open defecating population. Global analyses predict that at the current annual rate of reduction, less than 2 percent of the population will still be defecating in the open by 2030.<sup>1</sup>

### **India's Long Battle with Open Defecation**

Open defecation has been a key cause for India's disease burden. Water-borne diseases (such as cholera, typhoid, enteric fever, and viral hepatitis A and E) pose an economic burden of about US\$600 million each year. Further, poor sanitation coverage is estimated to result in a loss of about 7.9 percent of GDP.<sup>2</sup>

India has had a long history of hits and misses when it comes to curbing open defecation. Although awareness of the ill-effects of poor sanitation and its differential vulnerabilities informed policy, the implementation has typically been constrained. The first policy to expand sanitation coverage in independent India was the Central Rural Sanitation Programme (1986-99), which had a supply-driven, top-down toilet construction approach.<sup>3</sup> Sullied by poor strategy and flawed theory that open defecation was driven by poverty, the programme did not result in much change. The Total Sanitation Campaign (TSC) was launched in 1999, initiating, for the first time, a behavioural change effort while creating accessibility to toilets. Studies show that despite increased latrine coverage, these initiatives could not break the oral-faecal pathway, resulting in minimal impact on water-borne diseases, malnutrition, and diarrhoeal incidence.<sup>4</sup> This is speculated to be because of one of two factors—failure to maintain effective motivation among populations to adhere

to hygienic behaviour; or poor usability of constructed toilets.<sup>5</sup> Poor usability may entail no lighting, doors, or locks, no water facility, risky locations, dirty facilities, and more. The Indian government claimed to have built 78 million toilets between 2001 and 2011 for the estimated 108 million households that did not have a toilet in 2001. But in contrast to what was predicted, the 2011 Census revealed that, after accounting for the population increase, the number of households that did not have a toilet actually increased to 116 million.<sup>6</sup>

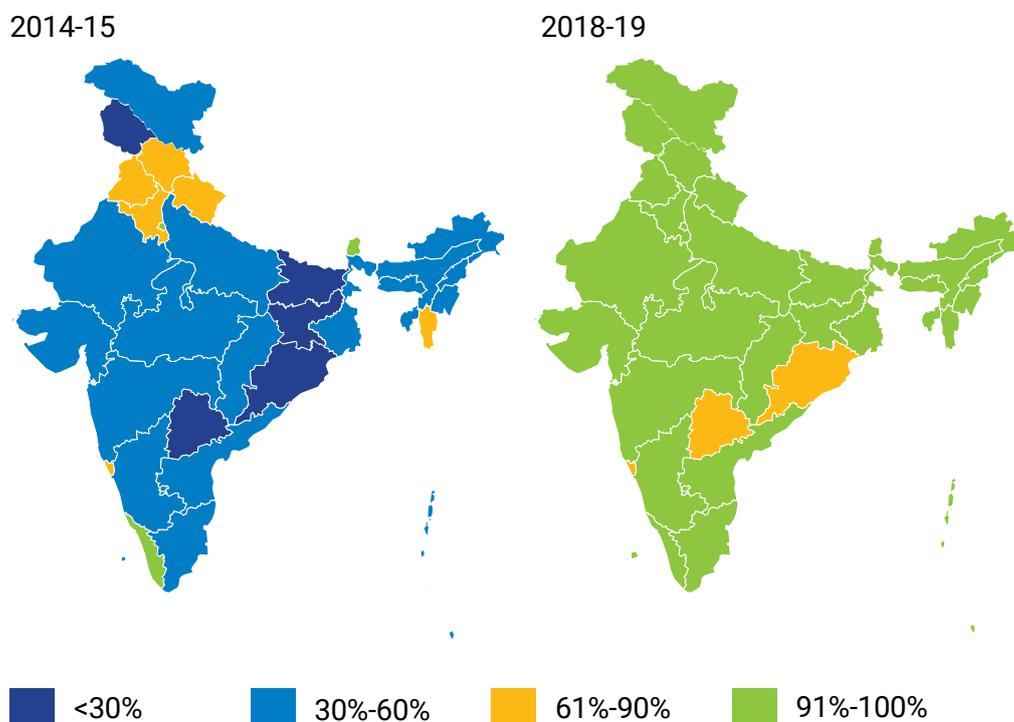
The TSC was eventually scrapped and replaced by the *Nirmal Bharat Abhiyan* (NBA) in 2012, shifting the policy focus to keywords like 'people-centric'. The NBA increased the subsidy offered on each toilet to INR 5,500 (US\$70), borne by the Centre and states in a 60:40 ratio. This subsidy was, for the first time, extended to households above the poverty line. It was also the first programme to be converged with the Mahatma Gandhi National Rural Employment Guarantee Scheme, but despite this, only 6 percent of all toilets were constructed through the NBA. In addition, the NBA could not utilise the allocated expenditure entirely.<sup>7</sup>

The NBA was restructured after it failed to achieve its intended targets, evolving into the first phase of the SBM in 2014.<sup>8</sup> The SBM emerged as a massive success, resulting in all states and union territories achieving ODF status in 2019 (see Figure 1).<sup>9</sup> In February 2020, the second phase of SBM-grameen was launched to operate between 2020-21 and 2024-25, aiming to upgrade and sustain ODF-plus communities and villages.<sup>a</sup> It further emphasises continued efforts in behavioural change towards using toilets and other hygienic practices among rural populations, and creating infrastructure for appropriate solid and liquid waste management.<sup>10</sup>

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<sup>a</sup> An ODF-plus village is one that sustains its ODF status, ensures solid and liquid waste management, and is visually clean.

**Figure 1: Improvement in Household Toilet Coverage Across Indian states (2014-19)**



Source: Swachh Bharat Mission-Grameen Phase-I archives<sup>11</sup>

The media played a key role in SBM's success. The local and global coverage of key points, inspirational stories, and effective public health messaging drove behavioural change through communication.<sup>12</sup> This was supplemented by public health education, social marketing, and enabling community action and proximate pressure. Moreover, deploying technologies like geotagging to track and monitor the progress of new toilets—ensuring that data is recorded and analysed—smoothened the model.

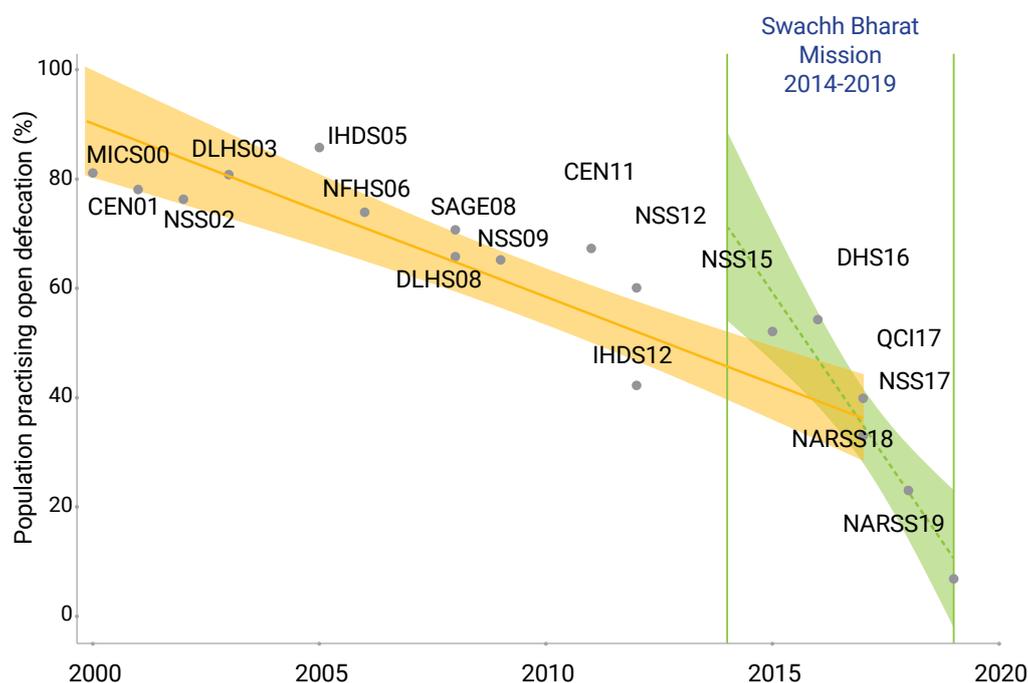
### Rapid Strides: How Far, How Fast?

Unlike other Indian and global sanitation programmes, SBM yielded rapid results as it mobilised into a people's movement. Since October 2014, more than 109 million individual household latrines have been constructed, resulting in an almost 62-percent growth in the coverage of households with private latrines.<sup>13</sup> Additionally, 711 districts

and 262,187 gram panchayats have been declared ODF.<sup>14</sup> In Phase-II, as of July 2022, 26,813 ODF-plus model villages have been identified, 51,331 villages have augmented infrastructures in both solid and liquid waste management, and 81 districts have been covered with a faecal sludge management plant.<sup>15</sup>

There has been a rapid decline in the population that used to defecate in the open before and during the rollout of SBM-grameen (see Figure 2). A triangulated comparison of estimates by the National Family Health Survey (NFHS), National Annual Rural Sanitation Survey, National Sample Survey, Census and other household level assessments highlight the SBM's vital role in accelerating the mission's toilet-adoption objective.

**Figure 2: Estimated Percentage of the Population Practicing Open defecation in Rural India, 2000-2017 (in %)**



Note:  
 CEN: Census (2001 and 2011); NSS: National Sample Survey (2002, 2009, 2012, 2015, 2017); NFHS/DHS: National Family Health Survey/Demographic Health Survey (2006, 2016); NARSS: National Annual Rural Sanitation Survey (2018, 2019); MICS: Multiple Indicator Cluster Survey (2000); SAGE: Study on Global AGEing and Adult Health (2007-08); DLHS: District Level Household and Facility Survey (2008); IHDS: India Human Development Survey (2005, 2012); QCI: Quality Council of India Survey (2017)

Source: UNICEF and WHO Joint Monitoring Report<sup>16</sup>

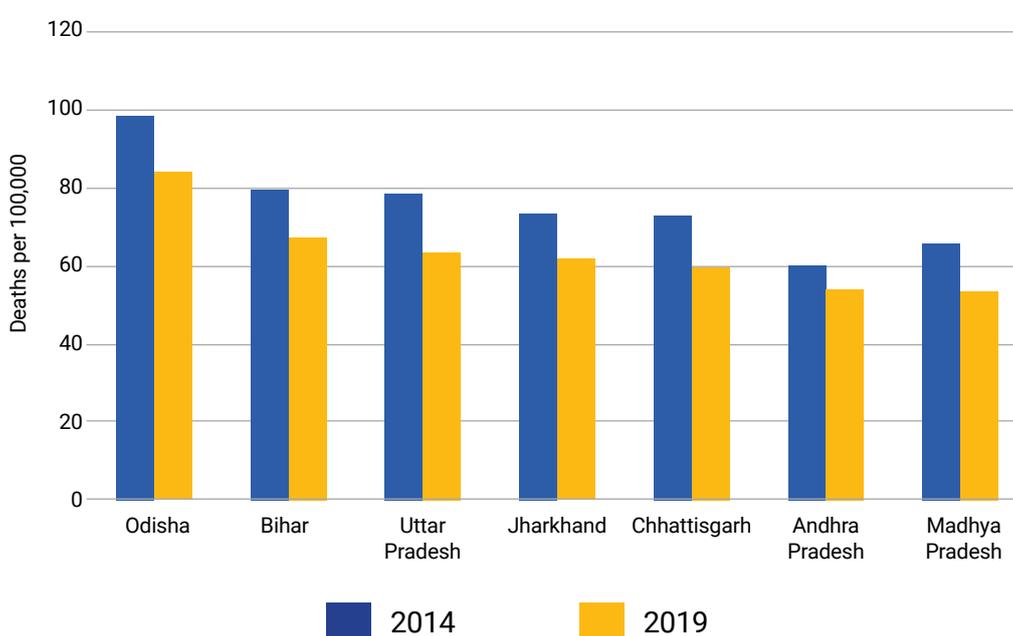
A UNICEF report estimates that households that adopted toilets saved INR 8,024 (US\$124) in medical costs due to reduced illnesses, INR 24,646 (US\$382) in economising time from falling ill or searching for spots to defecate, and INR 17,622 (US\$273) through reduced mortality rates per year.<sup>17</sup> These benefits will be higher if the decline in sanitation-related disorders, childhood nutritional ailments like stunting and underweight, and educational outcomes are accounted for. Technical and design barriers to usability can be overcome by taking local and environmental factors of the area (such as drought flood-proneness, soil quality, and reliable access to water) into consideration while installing the facility. From a business perspective, the sanitation economy market opportunity in India is estimated at US\$97 billion in 2021, with a potential to reach US\$148 billion by 2030.<sup>18</sup> As sanitation, hygiene, and health priorities increase among populations, community, portable, and smart toilets are gaining ground. At the same time, early adopters of toilets are upgrading to newer, greener, and automated alternatives. Private entities and entrepreneurial players are beginning to see enormous scope for growth in this sector.

Faecal matter, when left in open spaces or near water bodies, not only contaminates the water and land but also acts as an active transmissible agent (excreta-related bacteria, virus and helminths) for enteric infections. While diarrhoeal and enteric diseases are indicative of poor access to clean water, unsafe disposal of human waste, and poor socioeconomic conditions, these are among the top causes of mortality in India.

The Empowered Action Group (EAG) states of Bihar, Uttar Pradesh, Madhya Pradesh, Chhattisgarh, Jharkhand, and Odisha—where maternal and neonatal mortality and morbidity indicators are among the worst in the country—have benefitted significantly from the SBM. Odisha has the highest death rate in India from diarrhoeal diseases, which fell from 98.49 to 84.1 deaths per 100,000 between 2014 to 2019 (see Figure 3). Similarly, neonatal and infant mortality due to diarrhoeal diseases is highest in Bihar, but has declined from 152.99 to 91.23 deaths

per 100,000 children under five years between 2014 to 2019. Although these focus states perform the worst in sensitive indicators, their dip is slow yet noteworthy. The World Health Organization estimated that SBM was able to avert 300,000 deaths and over 14 million disability-adjusted life years due to diarrhoea and protein-energy malnutrition between 2014 and 2019.<sup>19</sup>

**Figure 3: Deaths Due to Diarrhoeal Diseases in Empowered Action Group States (2014-19)**

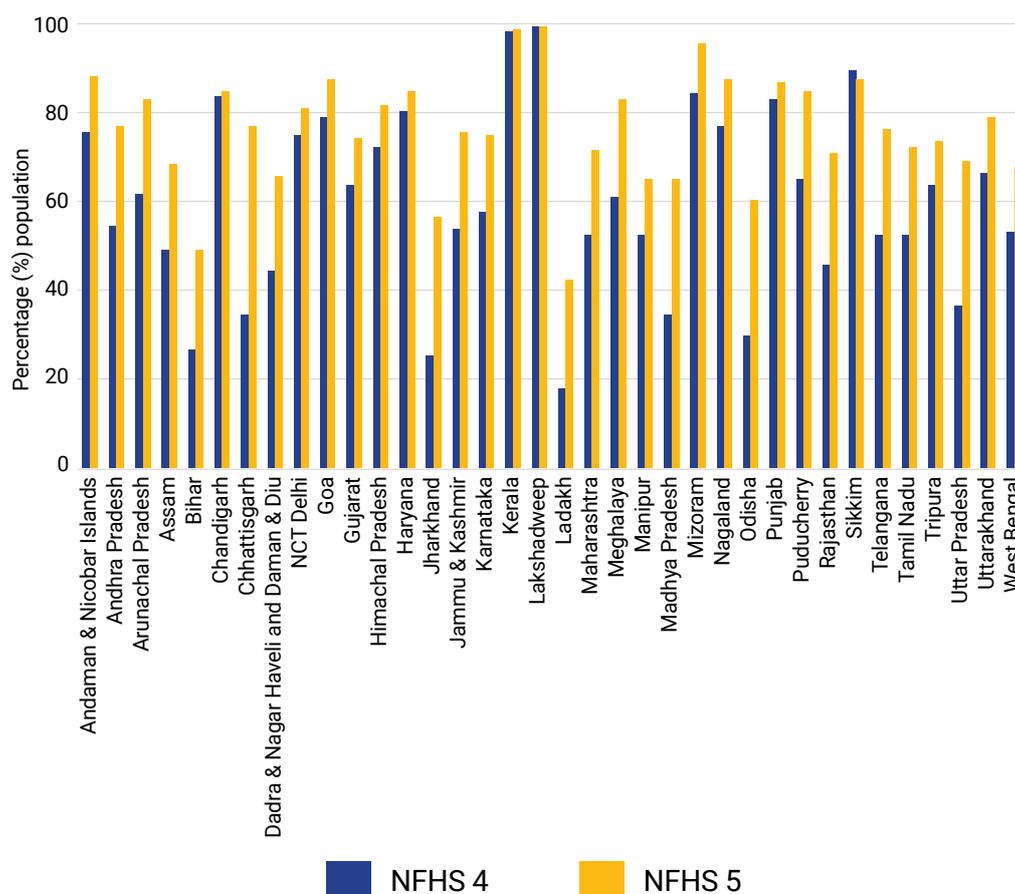


Source: Author's own, based on data from the Global Burden of Disease study<sup>20</sup>

The health gains from augmented sanitation facilities and clean water are also visible in better pregnancy, maternal, and neonatal health outcomes,<sup>21</sup> along with the well-documented lower incidence of malaria, stunting, respiratory infections, and measles. Studies have shown that with growing endeavours in faecal containment and as transmission has slowed, the incidence of diarrhoea outbreaks have reduced.<sup>22</sup> As per data from the NFHS-4 (2015-16) and NFHS-5 (2019-21), there has been a 21.7-percent

improvement in the population living in households with modern and improved sanitation facilities.<sup>b</sup> Further, all states have seen an enhancement in toilet ownership and coverage as the SBM progresses (see Figure 4).

**Figure 4: Improved Sanitation Facilities Across States and Union Territories (2015-2016 to 2019-2021)**



Source: Author's own based on data from NFHS-4 and NFHS-5<sup>23</sup>

<sup>b</sup> 'Improved' sanitation includes flush/pour to piped sewer system, or septic tank, or pit latrine; and ventilated improved pit latrine, pit latrine with slab and twin pit/composting toilet.

The increased use of improved sanitation in households can be a tricky measure to assess success as it is not an individual-level indicator. Research has established that men and children have often chosen to defecate in the open as a matter of preference. Based on data from Bihar, Madhya Pradesh, Uttar Pradesh, Rajasthan and Haryana, researchers have computed that among all rural households with a toilet facility within the premises, at least 40 percent would still defecate in the open.<sup>24</sup> The difference between the household-level indicator and person-level indicators (collected through surveys) was found to be highest in Haryana, a comparatively richer state, implying that individuals from latrines-owning households were also defecating in the open—a ‘preference’ that undermines the on-ground prevalence of this practice. Within rural households, the preference differs demographically. Women’s use of latrines increased rapidly as they reached teenage owing to the cultural norm that young, unmarried and menstruating girls in their reproductive years should remain in the house. On the contrary, males have a more pronounced propensity to relieve themselves in open throughout their lifetime, and this even increases with age.<sup>25</sup>

Another key component of the SDG-6 target was to ensure dignity for sanitary workers and inclusivity for vulnerable populations (young girls and women) in the new infrastructure. Despite Indian law banning manual scavenging, post-success surveys from Rajasthan, for instance, showed that *gram panchayats* reverted to using manual scavengers to clean the toilet pits.<sup>26</sup> Not acknowledging the caste system as a major deterrent to village unionisation and overarching rural development ambitions was a huge flaw in SBM. It was found that open defecation was more prevalent in villages with rigid caste hierarchies and conflict.<sup>27</sup> Field surveys from Bihar, Madhya Pradesh, and Uttar Pradesh further reinforced that scheduled caste and scheduled tribe communities are more likely to be victims of social surveillance and shame, threats of fine, coercion, and even police detention to ensure adherence to policy-prescribed practices.<sup>28</sup>

Families with toilets agree that the convenience of use during the night or in rough weather, and safety for women and the elderly are the best intangible benefits of owning a toilet within the household. Many young girls and women have reformed their menstruation practices with the convenience and privacy afforded to them by toilets. Women felt relieved about changing absorbent materials, and eating or drinking water at their own will. Further, rural women now save almost an hour each day, which was earlier spent walking to secluded defecating sites. More than 90 percent of women reported feeling safer from sexual assaults, molestation or animal attacks.<sup>29</sup>

## Conclusion

Despite impressive strides in toilet coverage and use in the past decade, the hardest last mile is still left to tread. According to the World Bank, 15 percent of the overall population and 22 percent of the rural population in India still practiced open defecation in 2020.<sup>30</sup> Therefore, achieving representative access to complete sanitation does not imply a behavioural shift. Overcoming this preference will take sustained efforts, which the second phase of SBM is aiming to do. The 10-year strategy for sanitation (2019-2029) is a positive step towards the long-term guidance of the mission.<sup>31</sup>

SDG-6 promises access to clean water and accessible, dignified, and hygienic sanitation facilities. Its vitality lies in its strong linkages with other SDGs in terms of good health, gender equality, food security, and livelihoods. It is a growth enabler for climate action, zero hunger, and affordable and clean energy. Accelerated by COVID-19, there is an increased need for public hygiene among populations. With the SBM metamorphosing into a people's movement, the country has

indicated its desire for a healthier future. The aim of SDG 6.2 (by 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation), was achieved nearly 10 years earlier than the target, becoming a huge learning experience for the international community of what can be accomplished through political leadership, well-rounded approaches to development concerns, and behavioural change communication. To truly reap the gains made through the mission, it is crucial for resilient communities to engage in dignified and safe hygiene and sanitation practices.

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# *Aadhaar: The Twelve Digits Transforming Governance*



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In December 2019, *Aadhaar*—India’s unique digital identity programme and the world’s largest biometric identification system—crossed a new milestone. In less than a decade since its launch, enrolment in the *Aadhaar* programme touched the 1.25 billion-mark. This was accompanied by the recognition that more and more people across the country were using the *Aadhaar* card as their primary identity document.<sup>1</sup>

Other data also pointed to the steady integration of *Aadhaar* into the government ecosystem and

private services used by citizens. As of end 2019, the Unique Identification Authority of India (UIDAI), the statutory body that administers Aadhaar, received 30 million Aadhaar authentication requests every day and nearly 400,000 daily requests to update personal demographic and biometric data,<sup>a</sup> which appeared to show that Indians are inclined to keep their Aadhaar details up to date.

It would seem project's core conviction—articulated by an early focus group participant as "*pehchaan hi jeevan ka aadhaar hai*" (identity is the foundation of life)<sup>2</sup>—was increasingly being internalised by Indians, a growing awareness of the benefits that Aadhaar enrolment could bring.

### **Identity, Inclusion, and Equity: The Raison d'être of Aadhaar**

Since 2000, most developing, low- and middle-income countries that have rolled out foundational national identity (ID) programmes have done so for broadly similar reasons.<sup>3</sup> In the absence of a unique ID, government subsidies and transfers, or critical services and welfare programmes often fail to reach their intended beneficiaries. Besides boosting social protection and economic security by facilitating access to services and the targeted transfer of benefits, unique IDs could also bolster tax collection, and enable transparent and fair elections by helping clean voter registries.<sup>4</sup>

Historically, India has struggled to ensure that subsidies and other resources reach their intended beneficiaries, a challenge that has been well documented since the 1980s. In 1985, a review of the public distribution system (PDS) by the Planning Commission found that "beneficiary households were not drawing the ration even for one out of 11 commodities because of their irregular supply and poor quality" and

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<sup>a</sup> As of December 27, 2019, the UIDAI had recorded 3.31 billion successful updates of Aadhaar data.

reported “irregularities in the quality, quantity and reach of the programme”.<sup>5</sup> The following year, then Prime Minister Rajiv Gandhi pointed out that out of every INR 100 allocated to an antipoverty project, only INR 15 was actually reaching the people and the rest was being swallowed by “middlemen, power brokers, contractors and the corrupt”.<sup>6</sup>

Between 1986 and 2004, even as food subsidy allocations more than quintupled from INR 20 billion to INR 270 billion, a series of studies by the Planning Commission and World Bank revealed that foodgrains were not reaching beneficiaries and there was a massive leakage.<sup>7</sup> By 2005, nearly 58 percent of centrally-issued subsidised foodgrains were failing to reach below poverty line (BPL) families, with the Planning Commission citing “identification errors, non-transparent operation and unethical practices” as causes.<sup>8</sup> In 2009, the deputy chairman of the Planning Commission echoed Gandhi’s concerns nearly 25 years prior, observing that only 16 paise of each rupee was reaching the targeted poor. The pilferage was by no means limited to the PDS for foodgrains; fuel subsidies and funds for welfare programmes, including the Mahatma Gandhi National Rural Employment Guarantee Act and *Sarva Shiksha Abhiyan*, were being abused as well.<sup>9</sup> Intended recipients often struggled to prove their identities, resulting in delayed service delivery, the outright denial of benefits, or the illicit diversion of public funds.

The idea that a unique ID could incontrovertibly establish individual identity and streamline the targeted delivery of benefits is not a new one. Past initiatives in India included the issue of electoral ID cards in the 1990s to validate the authenticity of voters; the rollout of a multipurpose national identity card project in 2003;<sup>10</sup> and the “Unique ID for BPL Families” project of 2006 that sought to sharpen subsidy transfers to the poor (and was the precursor to Aadhaar).<sup>11</sup> These efforts, however, were limited by their focus on specific use cases, by wrangling between the centre and states over implementation, and, most crucially, because no single ID was accepted across the board for different public or private services.

The rationale for the Aadhaar programme launched in 2009, therefore, was to:

- Create a unique identity by leveraging technology to establish that an individual was indeed who they claimed to be
- Strengthen inclusion by accurately determining the identities of intended beneficiaries, thus enabling the focused movement of welfare resources and minimising leakages
- Promote equity by alleviating poverty, offering consumers multiple ways of accessing public service systems, and allowing them to confirm the receipt of their benefits.

### Early Challenges

In January 2009, the UIDAI was created as an executive body under the Planning Commission. Its objective was to identify what data would be used to define identity and, thereafter, to issue 12-digit unique identity (or UID) numbers to all residents of India.<sup>12</sup> The UIDAI would eventually be established as a statutory authority governed by the Aadhaar Act of 2016 under the Ministry of Electronics and Information Technology.<sup>13</sup>

- **Collecting demographic and biometric data**

Among the Aadhaar project's early challenges was the need to settle on the demographic data to be collected for every individual. In the interest of simplicity and relevance, only four mandatory data fields were selected: name, date of birth, gender, and communication address. Next, it was critical to ensure that an individual was who they claimed to be, necessitating the capture of their biometrics. Fingerprint identification was far from flawless as many Indians, particularly the rural poor and those engaged in manual labour, were found to have bald fingerprints.<sup>14</sup> The UIDAI decided on the biometric registration of all 10 fingers as well as iris scans to strengthen reliability and authentication, despite the escalation in costs and computing power this would entail. Due to the sheer scale of biometric scans required, this had unexpected consequences. Not only has India emerged as the

world's single largest user of iris recognition for governance,<sup>15</sup> it has also disrupted the entire biometric devices ecosystem, causing prices of iris and fingerprint scanning hardware to decline, and triggering a cycle of demand and supply.<sup>16,17</sup>

- **Enrolling individuals and de-duplicating records**

Given that India had multiple government databases, none of which contained records of all Indian residents and most of which were mutually inconsistent and interoperable, a major challenge before the UIDAI was to enrol a billion-plus residents from scratch, and create a new repository of their demographic and biometric records.<sup>18</sup> The UIDAI's chief innovation has been to design the Aadhaar enrolment ecosystem and to manage the Central Identities Data Repository (CIDR), while outsourcing the enrolment process itself. Enrolment is outsourced to 'registrars' with authorised connections to the CIDR, who in turn usually outsource enrolment on a competitive basis to UIDAI-certified agencies that run on-ground enrolment centres.<sup>19</sup> Importantly, this process has given residents the freedom to enrol anywhere they choose and helped achieve significant economies by introducing competition into the system.

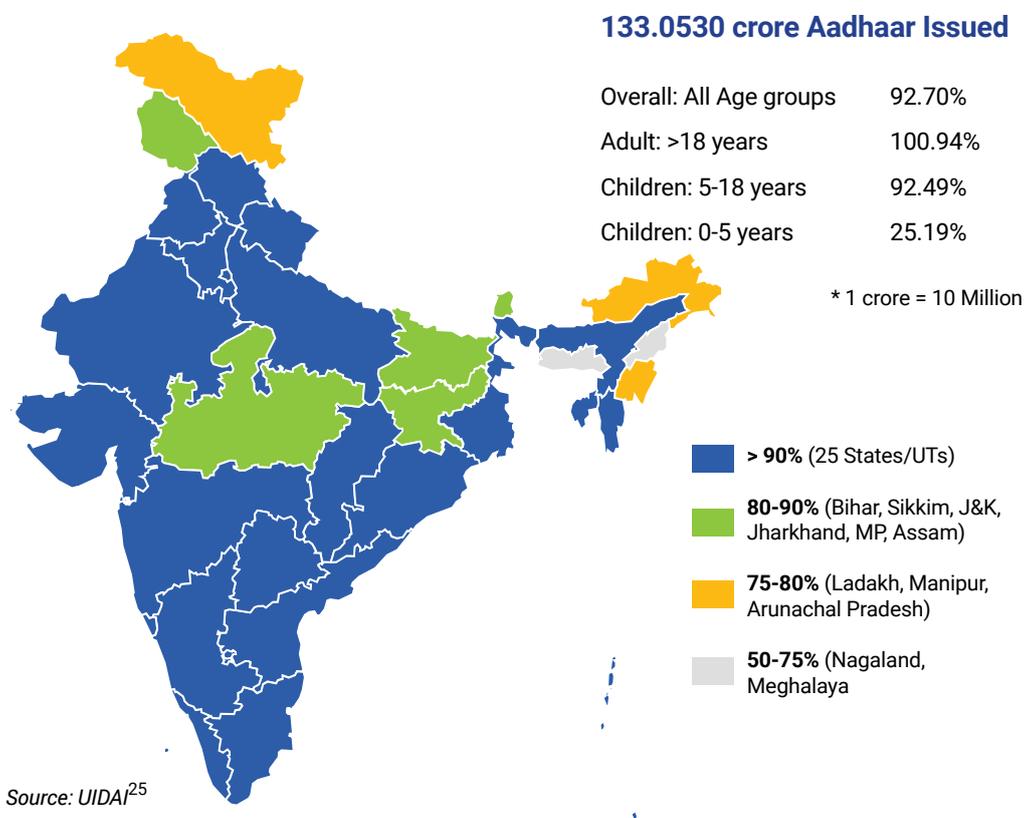
Aadhaar's de-duplication process—checking each fingerprint and iris scan of every enrollee against all the other biometrics in the database to eliminate duplicates—remains unprecedented in scale, and staggering in its computational complexity.<sup>20</sup> At a billion people, for example, the system would have to perform 700 million billion biometric comparisons, only after which a new record would be authenticated and a unique 12-digit Aadhaar number generated. To operationalise the system, large-scale hardware and software trials were conducted, errors diagnosed, software patches written, and creative fixes deployed to rectify anomalous images.<sup>21</sup>

## Present Status and Major Milestones

In 2018, Nobel laureate and World Bank economist Paul Romer observed that Aadhaar was the “most sophisticated system” he had ever seen, adding that it was “the basis for all kinds of connections” and “it could be good for the world if this became widely adopted.”<sup>22</sup> Today, Aadhaar is recognised globally as the world’s largest digital identity programme, and its uptake in India has soared. As of April 2022, the UIDAI had successfully issued around 1.33 billion Aadhaar cards and authenticated 73.58 billion Aadhaar-based transactions.<sup>23</sup>

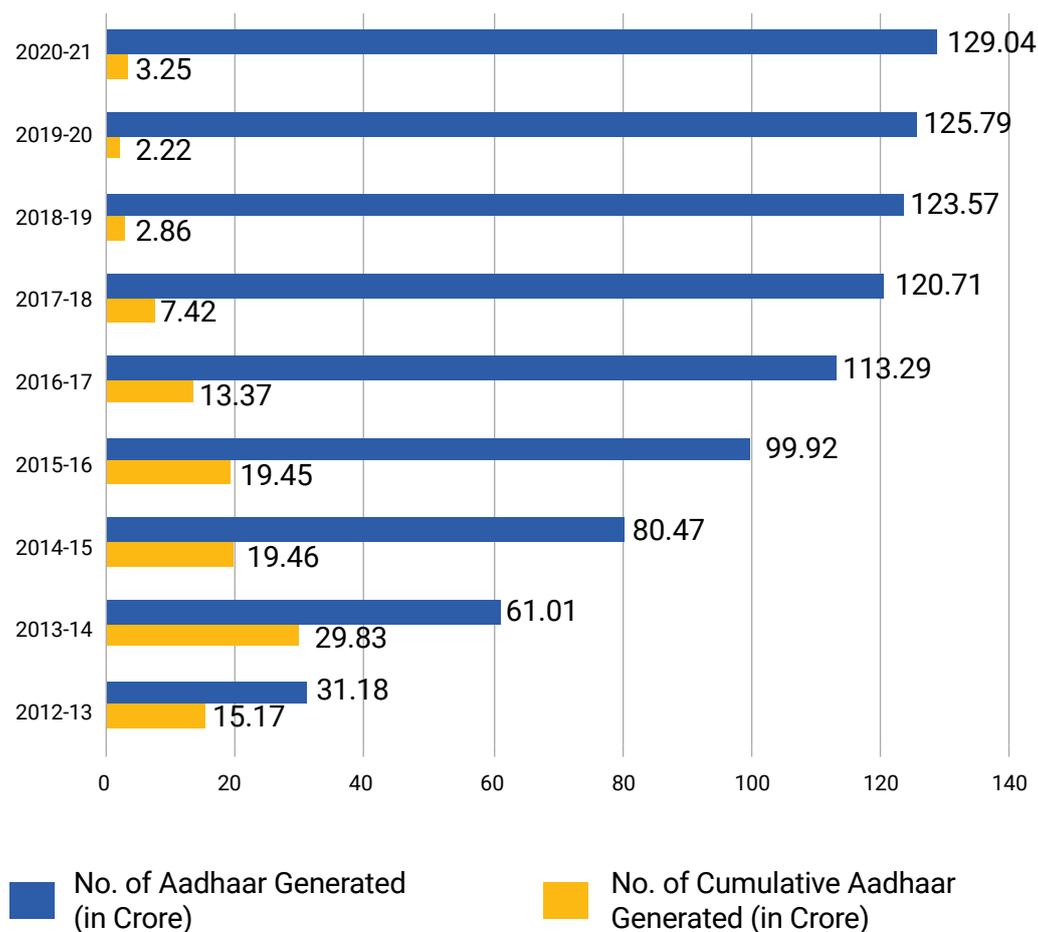
Aadhaar adoption across states has been impressive. As of April 2022, Delhi, Goa, Himachal Pradesh, Kerala, Lakshadweep, and Punjab had over 100 percent Aadhaar saturation. Most other states have saturation between 80 percent and 100 percent, and even the four lowest performing states have a saturation level of 59 percent to 79 percent (see Figure 1).<sup>24</sup>

**Figure 1: State-wise Distribution of Aadhaar (as of April 2022)**



In early 2022, the minister of state for electronics and IT explained in the Lok Sabha that the Aadhaar enrolment process is a continuous one that takes into account new births every year.<sup>26</sup> Aadhaar generation has seen a steady year-on-year increase over the last decade (see Figure 2).

**Figure 2: Year-wise Generation of Aadhaar, 2012–2021**



Source: Comptroller and Auditor General of India<sup>27</sup>

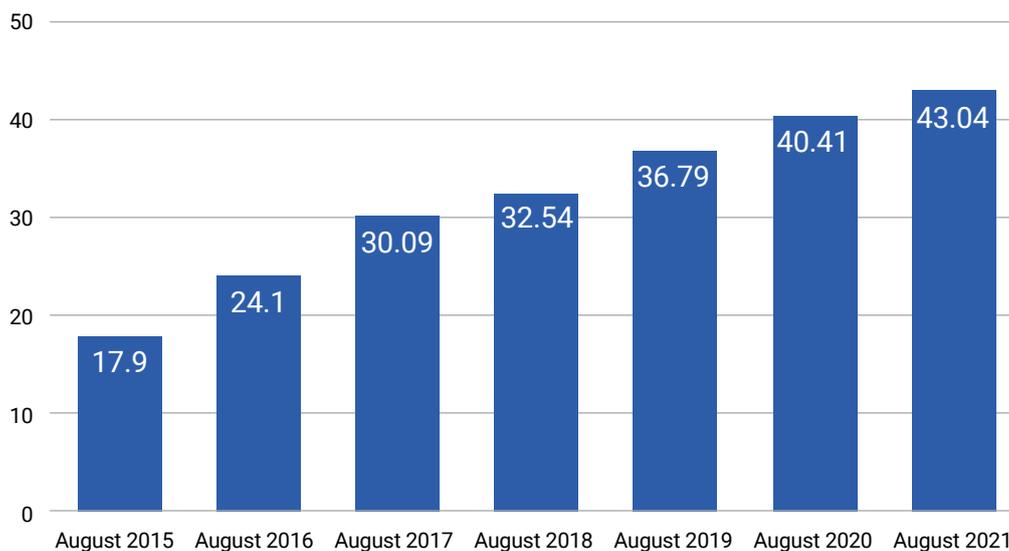
Of the broad spectrum of Aadhaar-seeded programmes and schemes that have evolved since 2009, three stand out for their transformative impact on governance, the unmediated flow of benefits to targeted recipients, and the acceleration of India’s digital economy. These are the integration

of Aadhaar with: (i) *Jan Dhan* bank accounts and mobile phones, popularly known as the JAM trinity; (ii) the Direct Benefit Transfer (DBT) Mission; and (iii) India Stack, the national digital infrastructure for promoting access to financial services.

- **The JAM trinity**

The *Pradhan Mantri Jan-Dhan Yojana* (PMJDY) was launched in August 2014 with the aim of ensuring access to basic savings bank accounts, need-based credit, and facilities for delivering remittances, insurance and pension to excluded sections of society.<sup>28</sup> The mission provides every unbanked person with a savings bank account that is eligible to receive funds under different government schemes, such as the *Pradhan Mantri Suraksha Bima Yojana*, Micro Units Development and Refinance Agency Bank scheme, the DBT Mission, and others. Under the PMJDY, nearly 450 million beneficiaries have been banked so far—of these, 55 percent of account holders are women, and about 67 percent of the total accounts are in rural and semi-urban areas.<sup>29</sup>

Linking the Jan Dhan accounts to Aadhaar numbers and mobile phones—creating what is now called the JAM trinity—has been a pathbreaking innovation. First, Aadhaar acted as a proof of identity and address that could be used by banks for e-KYC, greatly simplifying the process of opening a PMJDY account.<sup>30</sup> Second, it allowed for the biometric identification of beneficiaries, helping reduce fraudulent claims and ensuring that the funds reach the intended beneficiaries directly without any leakage. Moreover, Aadhaar's link with the third element of the triad, mobile phones (coupled with the availability of cheap mobile handsets and data subscriptions) has driven a surge in mobile banking. The latter in turn has contributed to the ease of use and more varied use of PMJDY accounts.<sup>31</sup> Enabled by Aadhaar and powered by mobile phones, the number of PMJDY accounts, and the penetration of banking, has continued to grow steadily (See Figure 3).

**Figure 3: Number of Accounts Opened Under PMJDY (in crore)**

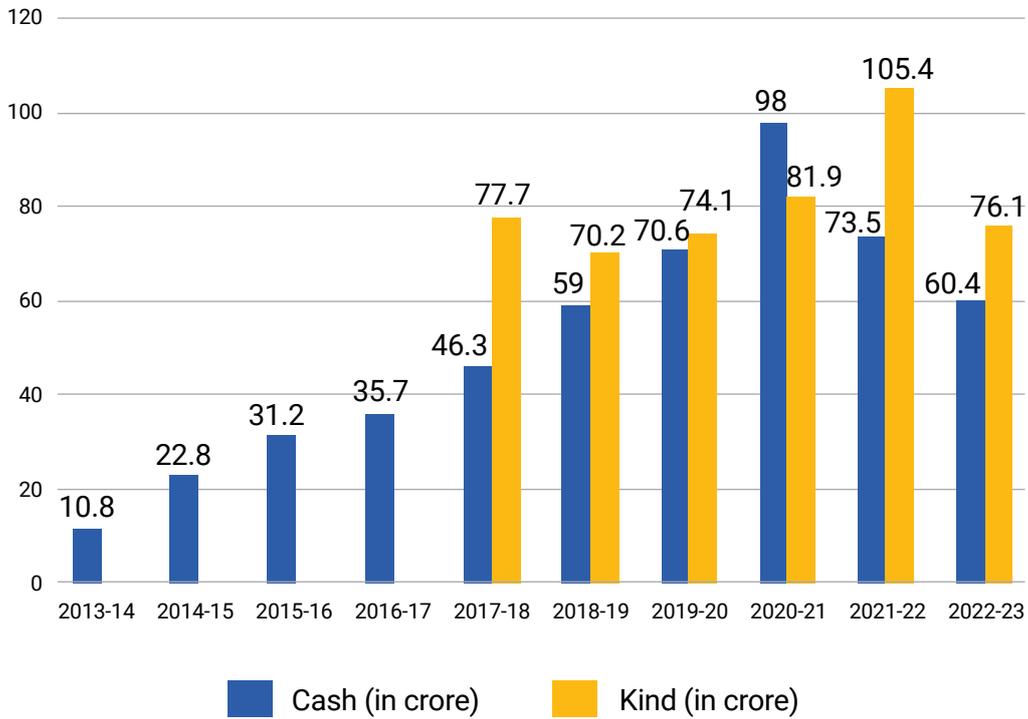
Source: Factly<sup>32</sup>

- **Aadhaar and the Direct Benefit Transfer Mission**

The DBT Mission was introduced in January 2013 to improve the delivery of cash subsidies and benefits to intended recipients. An innovative Aadhaar payment bridge system, developed by the National Payments Corporation of India, uses the Aadhaar number to electronically transfer benefits to Aadhaar-enabled bank accounts. Subsidies are thus transferred directly to the Aadhaar-seeded bank accounts of targeted beneficiaries.

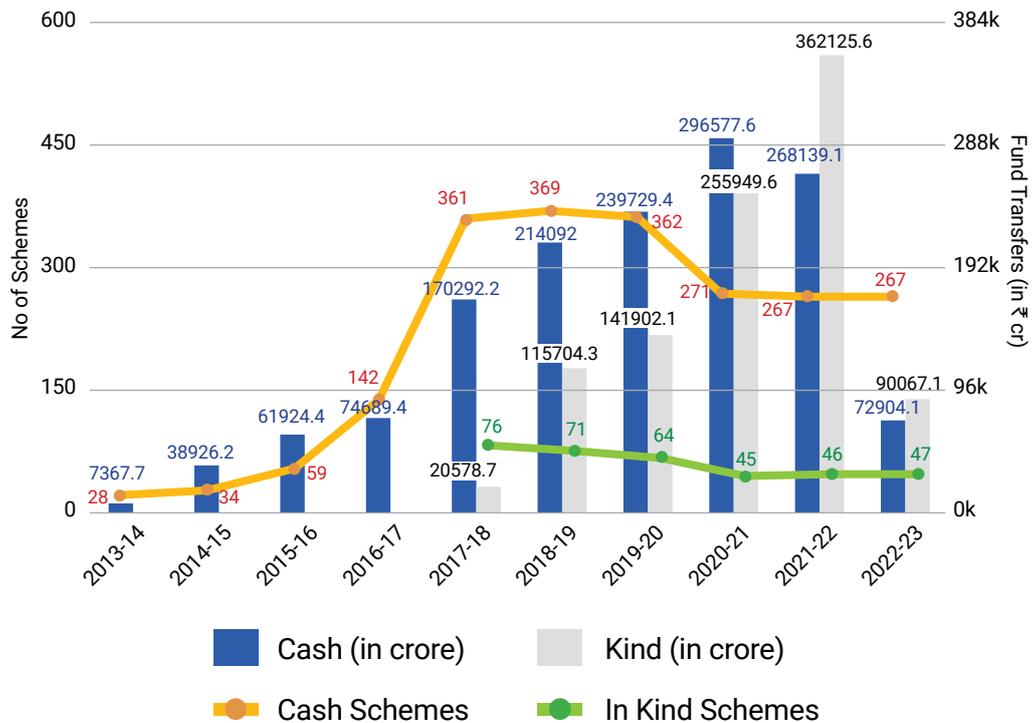
The DBT system has minimised leakages and optimised transparency in the Indian subsidy distribution system and has also helped reduce the time and cost of transferring funds. It is estimated that in FY 2019-20 alone, DBTs resulted in savings of INR 1,416.77 billion.<sup>33</sup> Another key advantage is that of security—the use of biometrics ensures that the funds are withdrawn by the beneficiaries themselves. Hence DBT has enabled “efficiency, effectiveness, transparency and accountability in all government-to-person (G2P) transfers”.<sup>34</sup> Consequently, like other programmes supported by Aadhaar, DBT too has witnessed extraordinary growth in the number of beneficiaries served (see Figure 4), the amounts transferred (see Figure 5), and the number of schemes brought under its purview.

**Figure 4: Year-wise DBT Beneficiaries (in crore)**



Source: Direct Benefit Transfer Mission<sup>35</sup>

**Figure 5: Year-wise DBT Fund Transfer (in INR crore)**



Source: Direct Benefit Transfer Mission<sup>36</sup>

- **Aadhaar and India Stack**

India Stack is the name used to describe a collection of “open Application Programming Interfaces (APIs) and digital public goods that aim to unlock the economic primitives of identity, data, and payments at population scale.”<sup>37</sup> India Stack has four distinct layers—a presence-less layer, paperless layer, cashless layer, and consent layer (see Figure 6).

Aadhaar and its digital identity services form the bedrock of India Stack.<sup>38</sup> By allowing for the remote authentication of name, age, address, mobile number, email address, and gender, Aadhaar is used to validate a user’s identity on India Stack, thereby eliminating the need for a customer to be physically present and produce any physical ID. Aadhaar thus constitutes the backbone of India Stack’s role as a digital public good, boosting access to a plethora of financial services, facilitating the large-scale adoption of digital payments services, and steering the transition from financial inclusion to national financial integration.<sup>39</sup> Among other outcomes, the fusion of Aadhaar and India Stack has catalysed the use of digital payments in a country traditionally dominated by cash payments. For example, the Unified Payments Interface—India’s flagship digital payments platform based on India Stack—has seen the value of its transactions double year on year, and in April 2022, it achieved a record high of 5.58 billion transactions totalling INR 9.83 trillion.<sup>40</sup>

### **Opportunities for Improvement**

**Figure 6: The Architecture of India Stack**

	COMMERCE (GSTN)	CREDIT (RBI)	INVESTMENTS (SEBI)	SKILLS	OTHERS
INDIA STACK	CONSENT LAYER		Provides a modern privacy data sharing framework	Open Personal Data Store	
	CASHLESS LAYER		Game changing electronic payment systems and transition to cashless economy	IMPS, AEP, APB and UPI	
	PAPERLESS LAYER		Rapidly growing base of paperless systems with billions of artifacts	Aadhaar E-KYC, E-sign, Digital Locker	
	PRESENCE-LESS LAYER		Unique digital biometric identity with open access of nearly a billion users	Aadhaar Authentication	
	JAM		JanDhan, Aadhaar, Mobile		

Source: India Stack<sup>41</sup>

There are three areas in which the Aadhaar system could be strengthened further. These have to do with (i) data privacy and security; (ii) inadvertent cases of exclusion; and (iii) a prevailing uncertainty whether the Aadhaar ID is mandatory or not.

- **Privacy and security concerns**

Internationally, the right to privacy is recognised as a basic human right under Article 12 of the Universal Declaration of Human Rights Act (1948). In India, the Supreme Court has declared privacy a fundamental right under Part III of the Constitution.<sup>42</sup> Concerns about the privacy of the Aadhaar framework have been addressed by the Supreme Court, which has assessed Aadhaar’s validity and held that it serves a legitimate State aim, is proportionate, and, therefore, a reasonable exception to the right to privacy.<sup>43</sup> However, in the absence of a data protection regime in India,<sup>44</sup> doubts persist about the privacy afforded by the Aadhaar

system. Instituting the required legislation governing personal data could strengthen public trust in Aadhaar as well.

The UIDAI must also address the issue of security. There have been several data breaches where biometric and other data were leaked in the public domain. For instance, in June 2022, a data leak reportedly exposed sensitive information of around 110 million Indian farmers.<sup>45</sup> A similar data breach was reported in 2018 as well.<sup>46</sup> Aadhaar's design allows it to access information "not just from the central UIDAI servers but also from other third-party private databases where Aadhaar numbers are linked with their respective dataset".<sup>47</sup> This is a cause for concern as there could be multiple points of leakage. Although the UIDAI has instituted a range of cybersecurity measures, these need to be regularly reviewed and upgraded. The UIDAI could also run public outreach activities to sensitise citizens about Aadhaar's privacy and security practices.

- **Instances of exclusion**

While Aadhaar has had a positive impact on economic inclusion, there have also occasionally been instances of exclusion from benefits or services because an individual did not have an Aadhaar card.<sup>48</sup> Benefits could also be denied because of authentication failures—for instance, several cases of starvation have been reported on account of dysfunctional Aadhaar authentications.<sup>49</sup> While service providers can usually deploy alternate authentication mechanisms and also have other methods for verifying beneficiaries,<sup>50</sup> stakeholders—particularly intended recipients—must be educated about these possibilities.

- **Protracted uncertainty**

In terms of perception and use, there has long been much uncertainty about whether the UID is mandatory or optional. As one commentator noted, "The tenor of pronouncements by senior government functionaries has changed. Initially, it was 'Aadhaar isn't mandatory'. Then it became 'Aadhaar isn't

mandatory but it will be extremely difficult to obtain public goods and services without Aadhaar.”<sup>51</sup>

The UIDAI has maintained that Aadhaar is a voluntary and optional proof of identity. In reality though, the number of essential services compulsorily requiring its validation has grown rapidly.<sup>52</sup> In 2015, the Supreme Court ruled that no person should be denied any benefits for not having an Aadhaar card.<sup>53</sup> By contrast, the Supreme Court’s 2018 judgement notes that private entities cannot insist on the Aadhaar but it is mandatory for a variety of other purposes, such as filing tax returns, PAN allotment, and availing of welfare schemes.<sup>54</sup> This has led to further confusion, compounded by the fact that many private service providers continue to demand the Aadhaar. It is, therefore, necessary to clarify decisively where the Aadhaar is mandatory and where it is not, and to ensure that these positions are respected.

### **Conclusion: Aadhaar and a Sustainable Future**

Today, virtually every Indian adult is an Aadhaar holder, and the use of the UID has become a near-indispensable part of everyday life. Aadhaar has done much more than grant people a unique and secure identity. It has fostered social, economic, and technological inclusion on a national scale. By ensuring that Indians receive the entitlements that are rightfully theirs, it is allowing them to build pathways to better lives.

Plans for a second generation of Aadhaar are under way. Aadhaar 2.0 is expected to extend the current system and allow faster automated biometric matching solutions with an increased focus on system security.<sup>55</sup> It will also aim to expand Aadhaar’s use cases with respect to “social security, healthcare, pension, disbursement of benefits and scholarships”.<sup>56</sup> These priorities underscore Aadhaar’s continued rootedness in the ideas of good governance, development, and digital transformation.

Sustainable development enabled by information and communication

technologies (ICT) has been a driving imperative of the Aadhaar programme. It has used technology to revolutionise faulty, porous systems for subsidy distribution and public service delivery; transform India's financial services landscape; and establish itself as an instrument of "transparency" and "people-centric governance". These attributes have made it an instant pillar of the Digital India campaign launched in 2015.<sup>57</sup>

Mapping Aadhaar's approach and outcomes against the UN Sustainable Development Goals (SDGs)<sup>58</sup> further highlights its achievements as an enabler of development. Its pro-poor orientation and focus on access to finance through grants and subsidies are aligned with SDG-1 that aims to "remove poverty in all its forms everywhere". Its efforts to strengthen social protection systems, achieve coverage of the poor, ensure access to basic services, and improve the targeting and cost-effectiveness of payments directly address targets 1.3 and 1.4. Moreover, attempts to close the gender gap in finance by using PMJDY accounts and leveraging the JAM trinity may be regarded as SDG-5 best practices—especially targets 5a (giving women access to financial services and economic resources) and 5b (using ICTs to promote women's empowerment).

Similarly, the educational and healthcare benefits that Aadhaar enables (SDG-4 and SDG-5), its support towards the management of public payrolls by eliminating ghost workers and generating public savings (target 16.5), and the use of UIDs to strengthen voter registries (target 16.7) all address key goals and targets. Aadhaar-enabled interventions are thus firmly embedded in the SDG framework and are helping India create a sustainable future.

As India moves deeper into a digital century, it must ensure that technology acts as a leveller and no one is left behind. Every citizen must be allowed to benefit from the new applications that will emerge as Aadhaar becomes even more entrenched.

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