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Ed-Tech Policy Interventions for Improvement of Learning Outcomes in India: Trends and Trajectories

Dr. Neha Arora & Shri Ravi Shankar Shukla

Abstract

Education encompasses ideas of capability development, empowerment, and freedom. It is also recognised as a human right and a common good. Among the Sustainable Development Goals (SDGs), education plays a foundational role that impacts the realisation of other goals. There have been ongoing efforts to improve learning outcomes in public schools, including those in India. However, these efforts faced setbacks due to the COVID-19 pandemic. Interestingly, the pandemic presented opportunities for various educational technology (ed-tech) interventions, which emerged in different teaching and learning contexts. This paper explores the trends and trajectories of these ed-tech policy interventions by categorising them as 'learner-centric,' 'parent-centric,' 'teacher-centric,' and 'digital architecture level system-centric.'

The analysis finds that while creating a consistent learner-centric ecosystem across households may be challenging, parent-led initiatives may struggle due to issues with core adoption and sociocultural barriers. The paper highlights the potential of teacher-centric initiatives, emphasising the need to integrate these with a comprehensive supply-based digital architecture. This conclusion is supported by an analysis of the impact of online classes on public school students' learning outcomes. The paper ultimately advocates for an institutional and systemic digital architecture development that can serve as a framework to ensure technology acts as a catalyst for transforming public education in India.

Keywords- learning outcomes, ed-tech policy, demand and supply side interventions, learner-centric interventions, parent-centric interventions, teacher-centric interventions, and digital architecture level system-centric interventions.

Introduction

Education is considered essential for development.¹ (Smith, 1937) and economic growth (Hanushek & Woessmann, 2008 & 2010). It is recognised as a human right² and is also the fourth goal among the Sustainable Development Goals (SDG 4) adopted by the United Nations.³ The realisation of SDG 4, which

¹ Smith mentions that, 'For a very small expense, the public can facilitate, can encourage, and even impose upon almost the whole body of the people, the necessity of acquiring those most essential parts of education.'

² See Article 26 of the Universal Declaration of Human Rights, 1948.

³ As an SDG, education has its own dedicated Goal 4, which aims to 'ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.'

advocates for 'inclusive and equitable quality education' (Vare & Scott, 2007), is closely tied to the future of India's public education, particularly given its rich human capital and potential for global leadership. Being the world's largest democracy, there were high expectations that measures for public welfare in India would lead to sustained improvements in education. Significant economic advances created a foundation for further development, enhancing the education infrastructure. However, numerous empirical studies and research by scholars have shown that public education in India remains largely inadequate. Welfare economists Jean Dreze and Nobel laureate Amartya Sen (2015: 119) described the situation as 'terrible'. Public policy scholars like Anirudh Krishna (2018: 151) and Devesh Kapur (2020: 31-54), as well as development economists Abhijit Banerjee and Esther Duflo (2012: 117) and Kremer et al. (2005: 666), have highlighted the dismal performance in basic education and the deficiencies in the primary education system. These studies have led to a greater recognition of the significance of education as a public good among various stakeholders.⁴ Relative growth in the share of private expenditure in education has been one such manifestation. Despite a decline in public financing of education as a percentage of GDP in the past decade, there has been measured progress in the quality of public education in India.⁵ Steering the great expectations of overall human development, such progress holds a gleam of hope for a meaningful and timely realisation of SDG 4.

For example, SDG 4 attainment has gradually progressed in India through a shift in emphasis from the norms (Ostrom, 2000) of attendance to measuring the improvements in learning outcomes (Los).⁶ In an increasingly 'mega-tooled' (Escobar 2017, 08) and hegemonically global society, technology has presented itself as a *fait accompli*. In the backdrop of widespread absenteeism in public schools of certain states of India (Kremer et al, 2005; Basu, 2006, 04), a proliferation of neutral technologies⁷ signified greater accountability and prospective capability enhancement. While the general applicability of technology is well-established,⁸ and its particular utility is acknowledged in education, it was the complexity and uncertainty of the COVID-19 pandemic that manifested discourses around the technological interfaces in unparalleled ways.

⁴ Fukuyama identifies education as a public service with 'high transaction value'. Fukuyama, F. (2004). *State-building: Governance and world order in the 21st century*. Ithaca, NY: Cornell University Press at 79, 80. To Jean Dreze & Amartya Sen, school education manifests feature of, what Paul Samuelson called, public goods. See Dreze, J., & Sen, A. (2015). *An Uncertain Glory: India and its Contradictions*. Penguin Economics Politics at page 137.

⁵ For details see the UNESCO State of the Education Report 2021. The Director, UNESCO New Delhi acknowledges rightly that, 'India has made enormous strides in the education sector in the past decades.'

⁶ For details, see *A Reason to Go to School* by Anirudh Krishna

⁷ In one such example, Niti Aayog, the policy think tank in India, incorporated 'learning outcome' as an indicator to measure progress in education under its Aspirational Districts Program that was launched in 2018.

⁸ While arguing for a technology with a human face, Schumacher mentions that, 'The Modern world has been shaped by technology.' Schumacher, E. F. (1973). *Small is Beautiful: Economics as if People Mattered*. New York: Harper & Row at 120. For a critical approach, see Selwyn, N. (2015). *Technology and Education – Why it's crucial to be critical*. In S. Bulfin, N. F. Johnson, & L. Rowan (Eds.), *Critical Perspectives on Technology and Education* (pp. 245–255). Palgrave Macmillan.

On the one hand, the pandemic defied traditional learning by affecting the availability, accessibility, and affordability of quality education across the world; on the other, it also underlined education's role in the well-being of students. The emergence of various disruptions, such as online classes, recorded lessons, and artificial intelligence, among others, was followed by systemic and ad hoc measures at different levels. The situation worsened during the pandemic, as schools in India experienced one of the longest periods of closure.⁹ It caused a severe setback to the LOs by affecting, in the expression of Amartya Sen (2017: 345), the 'symmetrical opportunities of schooling'. Long school closures resulted in a perpetuation of deprivation in the aftermath of various waves of the pandemic. Attempts were made to mitigate the same through innovations and ingenious interventions. In one such instance, a school principal from Dumka district of Jharkhand in India painted the mud walls of the houses into a blackboard to continue classes with community support while adhering to social distancing norms during the lockdown.¹⁰ However, the interventions embedded in technologies drew the most significant traction at scale and left the largest imprints as they had cascading effects on account of their scalability and replicability.¹¹ This paper evaluates the role of such ed-tech policy interventions in providing affordable, inclusive, and quality education, as envisaged under the Sustainable Development Goals, while improving LOs among students in public schools of India. It also draws lessons from an empirical study regarding the challenges, utility, and effectiveness of online classes as a sustainable ed-tech measure in improving the learning outcomes in public schools.

Aspects of Ed-Tech

The pandemic posed serious challenges to accessing quality education everywhere. The Organisation for Economic Cooperation and Development's (OECD) Program for International Student Assessment (PISA) 2022 survey established unprecedented deterioration in mathematics and reading standards among OECD countries from 2018 to 2022.¹² The decline in learning, due to the restrictions of the pandemic, was more severe and significantly worsened in countries with less resilient educational systems.¹³

A comparison between students' learning levels in 2018 and 2022 by the *Annual State of Education Report (ASER)*¹⁴ 2022 in India shows a decline in reading and arithmetic abilities during the pandemic. The drop in reading ability, falling close to pre-2012 levels, was the starkest.

⁹ UNESCO Report (2022) (viewed on 25th May 2024).

¹⁰ Social distancing and teaching in Dumka (viewed on 25th May 2024).

¹¹ For a critical analysis, see *An Ed-Tech Tragedy* published by UNESCO.

¹² The mean scores dropped by almost 15 points in mathematics and 10 points in reading, on average across OECD countries. See OECD (2023), *PISA 2022 Results (Volume II): Learning During – and from – Disruption*, PISA, OECD Publishing, Paris (viewed on 25th May 2024).

¹³ See *supra* note.

¹⁴ ASER is an annual citizen-led survey providing reliable estimates of schooling and learning levels in rural India.

Grade	Reading Ability			Basic Arithmetic Ability		
	2018	2022	Delta	2018	2022	Delta
III	27%	21%	-6%	28%	26%	-2%
V	51%	43%	-8%	28%	26%	-2%
VIII	73%	70%	-3%	44%	45%	1%

Comparison of ASER findings 2018 v/s 2022

Evaluation of mean scores (scaled out of 500) in the National Achievement Survey (NAS)¹⁵ In 2021, the mean scores achieved by students in NAS 2017 also established significant learning losses during the pandemic. Here, it is pertinent to mention that the NAS survey was not conducted during 2018-2020. The 2019 ASER report is also available only for early years students. The data, as reported in the two charts, are representative of India.

Grade	Language			Mathematics			EVS (III & V) /Science (VIII)		
	2017	2021	Delta	2017	2021	Delta	2017	2021	Delta
III	336	323	-4%	321	306	-5%	321	307	-4%
V	319	309	-3%	310	284	-8%	310	283	-9%
VIII	307	302	-2%	269	255	-5%	274	250	-9%

Comparison of mean scores of NAS 2021 and NAS 2017

This drop in the learning outcome is attributable to several factors and has spatial-temporal and socio-economic reasons associated with it. School closures have been identified as one of the most significant and universal factors in such decline. School closures during the pandemic also coincided with a boom in India's ed-tech industry, which grew at a compounded annual growth rate of 17% between 2017 and 2022 to \$4.3 billion.¹⁶ This, to a large extent, had the potential to mitigate some of the setbacks due to the closures. However, entry barriers in terms of cost and availability limited this to high-income families or private schools, leaving children from low-income households and government schools behind. This situation warranted a uniform policy intervention with a sustainable framework of accessible digital architecture to check the iniquitous proliferation of technology.¹⁷

¹⁵ NAS is a large-scale national level competency-based assessment conducted by the Government of India.

¹⁶ Global Data (2023) (viewed on 25th May 2024). India EdTech Market Summary, Competitive Analysis and Forecast to 2027.

¹⁷ They address possible 'market failure' due to market dominance of proprietary products or pervading asymmetric information. See Kelkar, V. & Shah, A., 'In the Service of Republic: The Art and Science of Economic Policy', Penguin, 2019. Regarding 'informational neglect of positive freedoms' and 'importance of positive roles of supportive policies of state', see Sen, A. (2017). *Collective Choice and Social Welfare (Expanded Edition)*. Penguin at page 342 and at page 466.

Ed-Tech as a Policy Intervention: Promises and Perils

Ed-tech solutions may work by stimulating the demand and supply of such interventions. On one hand, better awareness or popularity of some features may increase demand, leading to investment in research and better acceptance of such interventions. On the other hand, desired availability to meet existing demand, while creating further demand.¹⁸ and widening the acceptance base could be the key.

Options for effective interventions, therefore, can be further classified depending on various teaching-learning interactions -

1. **Status Quo:** The proponents of traditional education models do not favour digital and online education due to concerns relating to accessibility and affordability in the wake of the digital divide. They are wary of the prospects of the commodification of education. Pedagogical concerns in the form of the diminishing role of the teacher and human interface aggravate such critiques. However, instead of finding ways to address these gaps by bridging the digital divide, the advocates of the status quo, by dismissing the potential of technology, cavil unreasonably in the guise of false admiration for expedient uniformity. Continuing to maintain a largely non-digital education ecosystem with traditional paper-based reading, writing, and counting pedagogy, while retaining the advantage of familiarity for all stakeholders, has the downside of divergence in learning outcomes among those with access to digital education and those without.¹⁹ It will forge a future, inadequately informed about the technological world. With the status quo, appropriate knowledge and perspective required to cope with the rapid and enormous changes of the digital ecosystem would not be imparted, and the education system would be failing in its mission to prepare the next generation.
2. **Learner-centric interventions:** Learner-centric interventions focus primarily on self-learning, where the students interact with a digital device through an application (app) or website. Such ed-tech solutions can provide a personalised and adaptive self-learning pathway for the student with an on-demand session for doubt clarification and a tailor-made curriculum. Muralidharan, Singh, & Ganimian (2017) have found that an after-school instruction programme led to better scores in mathematics and language. Bianchi, Lu, and Song (2022) studied the positive relation of

¹⁸ Supply and demand strategies have no reason to be mutually exclusive. For details see Banerjee, A., & Duflo, E. (2012). *Poor economics*, Public Affairs at page 117.

¹⁹ It is certainly distinct from what Raghuram Rajan refers to as an indifference to technology change in the context of school education. Rajan, R. (2019). *The Third Pillar: How Markets and the State Leave the Community Behind*, Harper Collins India at 162.

computer-assisted learning in improving students' labour-market outcomes and cognitive skills. A similar at-scale public programme has been attempted in India in the state of Rajasthan²⁰ and Haryana,²¹ where personalised learning software-enabled tablets have been distributed among public school students. Limited evidence regarding the utility of tablets in education has also been established in various studies (Habler, Major, & Hennessy, 2016).

However, such efforts have limitations in catering to a large group of students and may face structural challenges in the public education system. Further, device and technology availability may not necessarily result in the desired accessibility to electronic devices and comprehensible learning content quality (Selwyn, 2011). Another intervention, leveraging Massive Open Online Courses (MOOCs), faced similar limitations and was found to be more relevant for higher education (Liyanagunawardena, Williams & Adams, 2013). At-scale implementation of learner-centric solutions remains a challenge²² In India, it needs a hefty expenditure from the public exchequer. In a study, Goldhaber, Kane, *et al* (2022) have identified remote instruction as a primary driver of widening achievement goals. Existing rural-urban and rich-poor digital divides (Mazzucato, 2021) pose further problems in their implementation (Cristia *et al*, 2012 & Toyama, 2015). Unsupervised exposure also risks online safety and security issues and an undesirable increase in screen time for young children.

3. **Parent-led interventions:** They aim at informing and taking on board the parents, as those in a position of authority or facilitator vis-à-vis the child,²³ to communicate and engage to aid the child's learning. These solutions took prominence during the pandemic. The Bharat Survey of EdTech (*BaSE*) reveals that nearly 32% of children reported receiving 'teacher-directed materials' on their parents' smartphones.²⁴ Many states in India, like Assam²⁵ and Uttar Pradesh, involved parents through WhatsApp to impart lessons during school closures in the pandemic years. Even the PISA report has identified parents' involvement and strengthening the school-family association as an important indicator of study-system resilience.²⁶ Such

²⁰ Government of Rajasthan has started Mission Buniyad to distribute 2 million adaptive learning software-enabled tablets.

²¹ Government of Haryana launched *e-Adhigam* initiative to distribute tablets to 500,000 students from grades 9 to 12.

²² Muralidharan, Singh, & Ganimian noticed low parental willingness to pay for subsidized after-school Ed-tech solutions.

²³ Banerjee, A., & Duflo, E. (2012) *supra* note 18 at page 117.

²⁴ Bharat Survey of EdTech (viewed on 25th May 2024).

²⁵ Government of Assam directed school heads to create WhatsApp groups with parents and provide learning support (viewed on 25th May 2024).

²⁶ For effect of strong community support and involvement of parents, see Rajan, R. (2019) *supra* note 19 at pages 6 and 221.

interventions encourage parental involvement in children's education. Attended supervision also prevents potential online harm from exposure to the open internet. However, such ed-tech interventions are sporadic (Watkins, 2013) and face socio-economic²⁷ and cultural barriers. For example, Kapur and Mehta (2004) mention that parents are more likely to focus on their son's education than their daughter's.²⁸ Such interventions are often executed through *ad hoc* means like makeshift classes and on social media rather than an institutionalised intervention aiming at universal coverage, and undermines equity in the process. Undue proximity due to excessive parental involvement may compromise the personal space of growing children. With a low-technology interface, households and parents are mostly less comfortable with technology usage. It limits the extent to which they may be able to act as conduits or facilitators for the intervention.

4. **Teacher-led interventions:** These technology solutions focus on the teachers' professional development, lesson plan preparation, and assessment by integrating known learning techniques, administrative and monitoring tools, and modern communication modes into a singular tech interface that can improve LOs through better management of classrooms and schools (Buckenmeyer & Freitas, 2006). They are designed to assist the teachers and to improve pedagogy, thereby improving the student LOs. The National Council for Educational Research and Training (NCERT) has built the DIKSHA²⁹ (Digital Infrastructure for Knowledge Sharing) platform, which has been leveraged for use cases such as online courses, content authoring, content sourcing, interactive quizzes, and question banks.³⁰ They serve the function of globalising, standardising, and upgrading the content imparted and improving student engagement. However, findings corresponding to the subsequent impact of DIKSHA-based training on student LOs are limited, and the platform's uptake is largely driven by top-down instructions. Furthermore, the prevailing culture of 'teacher truancy' (Basu 2006, 06) in parts of India manifested by the absenteeism of teachers in remote area schools (Drèze & Sen, 2015), and

²⁷ For a reference regarding upper class bias and stratification/caste/class as a major barrier see Fukuyama, F. (2012). *Origins of political order: from pre-human times to the French revolution*. New York, N.Y., Farrar, Straus and Giroux at 151. Acemoglu, D., & Robinson, J. A. (2012). *Why nations fail: the origins of power, prosperity and poverty*. New York, Crown Publishers. See Drèze J., & Sen A., (2015). Supra note 4 at pages 25 and 109.

²⁸ Kapur, D. and Mehta, P. B. (2004). *Indian Higher Education Reform: From Half-Baked Socialism to Half-Baked Capitalism* (2004) (viewed on 25th May 2024).

²⁹ DIKSHA Website (2021) (viewed on 25th May 2024).

³⁰ As of July 2022, nearly 4.8 million teachers (Statement by the Ministry of Education) (viewed on 25th May 2024), Press Information Bureau (viewed on 25th May 2024), had enrolled for continuous professional development courses on the platform.

problems around subjective pedagogy (Banerji, 2015),³¹ competence issues (Bertschy, Künzli & Lehmann, 2013), low teacher motivation (Duflo, Dupas & Kremer, 2011 & Glewwe, Ilias & Kremer, 2010) and lack of quality teacher training present significant challenges.³² Insufficient digital infrastructure³³ – digital boards, smart boards, smart TVs, or PCs with integrated teaching-learning devices³⁴ – is another impediment to the implementation of teacher-led interventions.

5. **Digital architecture-level system interventions:** Digital architecture-level system (DALS) interventions envision at-scale integration of various ed-tech use cases into a single unified system made of interoperable and unbundled public digital components. As a supply-side intervention, interactive AV/VR-based classrooms and smart classes/boards have resulted in better engagement of students and consequently improved learning outcomes. However, digital architecture is more than mere physical infrastructure and has the potential to serve as a platform for interaction and excellence through capacity building³⁵ of all the stakeholders in their respective roles. Such digital architecture, when used in schools, can also serve as a hub for the personality development of students.

In line with India's National Education Policy 2020, the National Digital Education Architecture (NDEAR), a public digital infrastructure, has been created for learning-level and administration-level interactions. NDEAR enables 'multi-channel and multi-modal learning at school, after school, at a community centre, or at home'.³⁶ It can bring uniformity in ed-tech infrastructure³⁷ through universal, inclusive, and measurable changes. It can enable seamless integration of ed-tech in classrooms to enhance learning outcomes while allowing teachers and administrators to consistently and

³¹ For details see, 'How Do Systems Respond to Disruptive Pedagogic Innovations' available at https://doi.org/10.35489/bsg-rise-wp_2015%2F002. She mentions at page 30 of the paper that the view that teachers are not capable 'emphasizes the need for deep and long run investment in developing teacher capacities through strengthening of institutional ability for teacher pre-service and in-service training and reworking teacher preparation curriculums.' For a different philosophical connotation, one may refer to Montaigne's essays where he observes that, '*Obestplerumqueiis qui discerevolunt auctoritaseorum qui docent*'. (The authority of those who teach is very often an impediment to those who desire to learn) Montaigne, M. D. (1993). *The complete essays* (M. A. Screech, Ed. and Trans.), Penguin Books at 169.

³² Labour issues are equally significant in such forms of digital education (viewed on 25th May 2024).

³³ Only 14% government schools in India have functional smart classrooms as per UDISE 2021-22.

³⁴ Only 3.6% government schools in India have PCs with functional integrated teaching learning devices as per UDISE 2021-22.

³⁵ However, efforts undertaken for capacity building need to be scrutinized and guarded against development of vested interests in the process. It is in this context that, Fukuyama refers to capacity building as another form of 'tough love' and cautions against its tendency to displace institutional capacity, through donations. See Fukuyama, F. (2004). *Supra* note 4 at page 55.

³⁶ NDEAR Website (viewed on 25th May 2024).

³⁷ It can be achieved by promoting start-ups and the open-source ecosystem rather than proprietary software.

reliably track the impact of interventions. Additionally, it can bridge geographical gaps, connect teachers with students through digital media, and lead to proper usage monitoring. Further, the integration must be navigated by a 'deliberative model of governance' rather than a 'legalistic model' (Mangla 2015, 907). Finally, it may take a significant time to build the full range of features under the NDEAR framework while addressing the issues of teacher capacity building and data privacy.³⁸ Uniform onboarding of different states, in a federal set-up, on the NDEAR platform also remains a challenge.

Empirical Analysis of Online Classes in Public Schools:

Dumka is an 'aspirational district' with a significant tribal population in the state of Jharkhand, and has a relatively poor record of the performance of its students from public schools in the annual board exams. An intervention was devised with a mix of application of technology, private sector efficiency, student involvement, and system improvement in collaboration with a start-up (Filo) to provide subject-specific online guidance to the students from 24 public schools without teachers of such subjects.³⁹ It envisaged a two-way interactive live digital lesson to ensure timely syllabus completion for grades 11 & 12, where historically, students were missing classes due to the unavailability of teachers.⁴⁰

Guiding students through online classes is primarily a learner-centric intervention.⁴¹ However, when such guidance is provided for selected subjects and to the students of public schools through a public-private partnership, the spillover effect has ramifications across the roles of parents and teachers. It further requires a system-centric effort to ensure seamless availability of such online lessons. Studying and gathering evidence from such interventions may present relevant information regarding various aspects of 'online classes' as a potential ed-tech policy tool. As public schools in India face an acute shortage of subject specialists (PGT teachers), they may be important in covering the gaps due to their unavailability. They may also supplement the traditional learner-teacher interaction through diversification, revision, tests, and overall improvement in learning outcomes. The empirical analysis of such an attempt to improve learning outcomes in the Dumka district, across two years, provides interesting insights into the scope and limits of online classes as an ed-tech policy intervention. Some key findings of the intervention, as a policy measure, are discussed below:

³⁸ Dumping technology in the classroom or throwing gadgets at social problems may lead to a one-size-fits-all mentality. See Krishna, A. (2018). *The Broken Ladder*, Penguin Viking, at page 151.

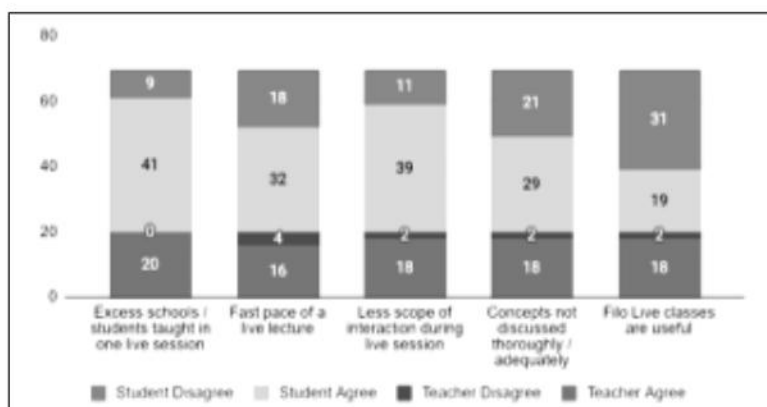
³⁹ Particularly, science education for higher grades faced a severe shortage of subject teachers in the district. For example, in 2023, only 3 physics teachers were available for 28 higher secondary government schools in the district.

⁴⁰ For reference, see Niti Aayog Report on SATH-E available at https://www.niti.gov.in/sites/default/files/2023-11/Project-SATH-Learings-for-Large-Scale-Tranformation-in-School-Education_compressed.pdf at page 64

⁴¹ For a comparative reference of efforts in the US, see *Students Are Making a 'Surprising' Rebound from Pandemic Closures. But Some May Never Catch Up* in the New York Times.

Graph 1 – Feedback

20 teachers and 50 students, spread randomly across the 15 schools, participated in providing feedback on various aspects of the Online learning initiative of which they were a part. Results are shared in the form of a graph as below:

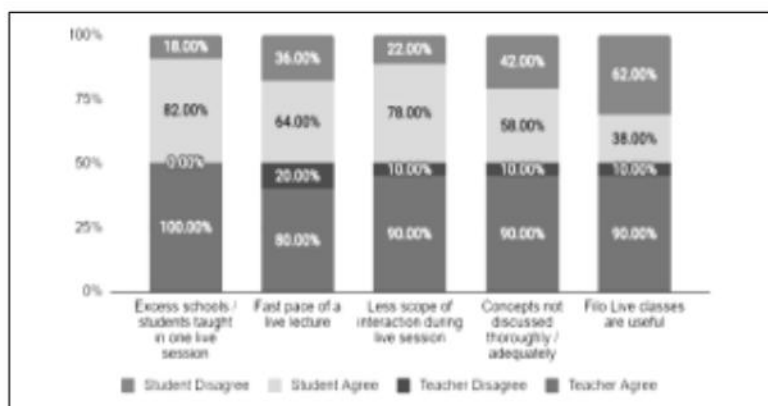


Graph 1.1: Feedback from teachers and students regarding online classes (in absolute numbers)

Results/Inferences:

As depicted in the graph, the teacher's students' response was: -

- Highly correlated in Q1 (excess students per class) and Q3 (Less scope for interaction in online lectures) and;
- Moderately correlated in Q2 (Fast Pace of live lectures) and Q4 (Concepts not thoroughly discussed).
- Diverged in Q5 (Overall Usefulness of Online Learning).



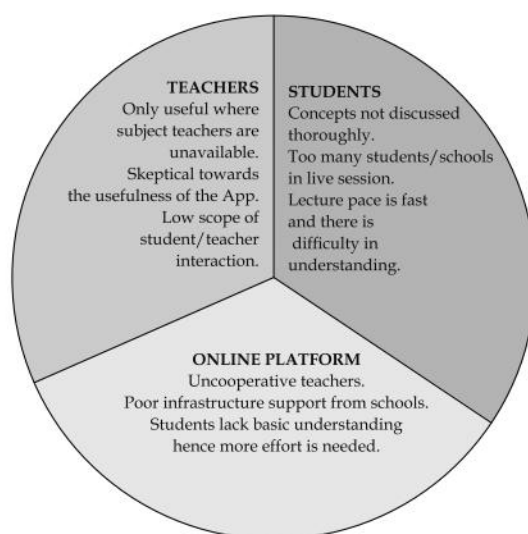
Graph 1.2: Teachers' & students' feedback regarding online classes (as a percentage of the total)

This brings forth the following points:

- Live online classes should not be conducted at the cost of physical ones; rather, they should be preferred as an alternative if physical classes are impossible.
- The efficacy of such online classes is limited, mostly due to batch size, pacing, and interaction issues.
- Students understand and appreciate the presence of an additional resource (in this case, the online learning platform) and thus agree to its usefulness despite all its shortcomings (viz batch size, fast pace, lack of interaction)
- Proper onboarding of teachers from the inception is crucial.

Graph 2- Stakeholders' Analysis

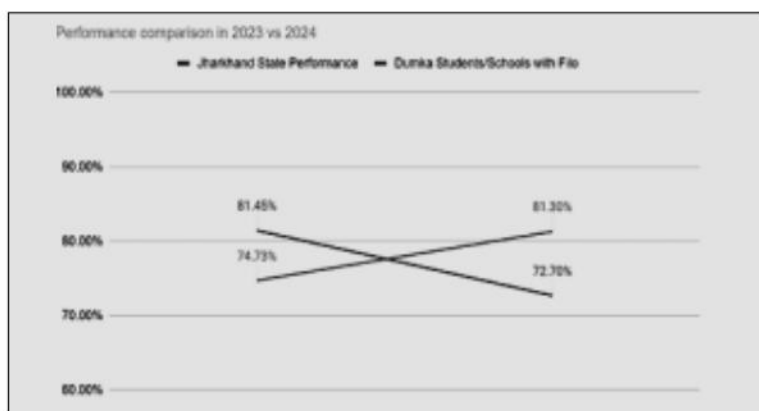
The second graph depicts feedback from students, teachers, and service providers. It establishes the need to align the stakeholders' objectives by identifying the common denominator and making sincere and systemic efforts to achieve it. It also outlines the importance of an overall digital architecture through adequate and relevant infrastructure and the need for effective implementation through open dialogue, enthusiastic teaching, and a 'skin in the game' (Taleb, 2018) for all the participants. The key challenges for the programme were digital infrastructure and internet connectivity gaps, along with apprehensions regarding online teaching from existing school teachers and hesitation towards transitioning to digital learning for students.



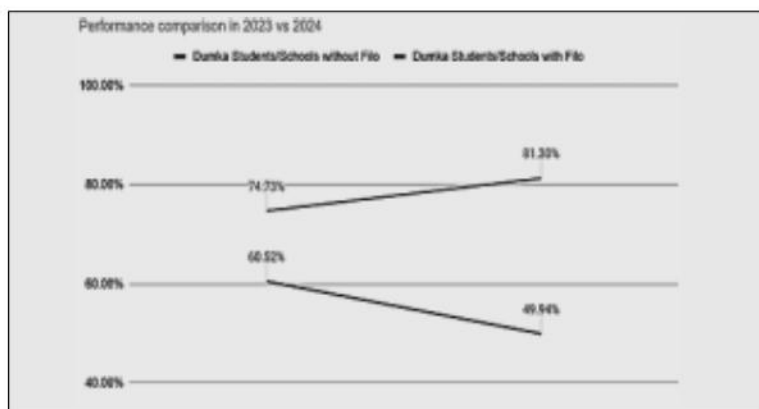
Graph 2: Student-Teacher-Service provider output matrix

Graph 3- Comparing Board Results

The final graph represents an improvement in the learning outcomes as measured through the pass percentage for students of class 12 in science. Academic performance improved by 14% in mathematics, with notable gains among rural students (12%), low-income families (12%), Scheduled Caste/Scheduled Tribe categories (24% for ST), female students (18%), and first-generation learners (21%), bridging foundational learning gaps and reducing the number of students at high risk of failure. Realising the potential of such an initiative, the number of schools was increased to 27 from 24 in the second year.



Graph 3.1: Comparative learning outcomes for schools in the Dumka district with Online platform support and schools in Jharkhand overall.



Graph 3.2: Comparative learning outcomes for schools in the Dumka district with and without online classes.

Graphs 3.1 and 3.2, interpreted together, bring forth the following points:

- Overall performance in the State of Jharkhand dipped from 81.45% to 72.70% - Indicates tougher question papers.
- Dumka district schools without the support of Online Platforms had below-average performance in 2023 at 60.52% and dipped further to 49.94% in 2024. Thus, the gap with the state average increased from 20.93% (2023) to 22.76% (2024).
- Dumka district schools, with the support of an Online Platform, improved their passing performance significantly from 74.73% to 81.30%, changing the gap with the state average from -6.72% to +8.6%.

The data presented above shows a correlation between online classes taught by subject specialist teachers and improved learning outcomes. However, it is important to note the potential causation trap. Factors such as the absence of a teacher for the covered subject and a history of poor performance should be considered to avoid drawing misleading conclusions.

The Filo (Online Platform) experience establishes a need to focus on new concepts and ensure a support system that is both online and offline (family & teachers). It reinforces the proposition that the availability of a well-equipped classroom to facilitate digital education and technical capability building of teachers, in tune with the proposed ed-tech interventions, is essential for sustainable outputs. As an ed-tech policy intervention, they had mixed results initially. However, due to its demonstrated potential for improving learning outcomes, it won the National E-Governance Award from the Government of India.

Conclusion

In a resource-scarce setting, where teacher availability is low and infrastructure is inadequate, it is crucial to leverage all available factors to enhance student engagement and knowledge retention. Empirical studies show that online education can effectively reach every student within a limited budget. However, its success relies on the active participation of all stakeholders, as well as the availability of necessary resources, infrastructure, and digital platforms at both the school and community levels. *Prima facie*, the adoption of a nationwide digital education architecture seems to be the most cost-effective.⁴² intervention for inclusive and affordable ed-tech solutions in public schools. It can create a virtuous cycle of inclusive education and serve as a sustainable and institutional measure of state-building (Fukuyama, 2004). Given the significant resource constraints at the household level, establishing a

⁴² Baker, A. (2016) in Online Education Can Help Africa—But it Can't Solve its Critical Need For Real Schools (viewed on 25th May 2024) says that it may counter the potential abuse by the profit education chains, which may flourish otherwise in the vacuum.

learner-centric ecosystem may be challenging, and parent-led initiatives might struggle to gain traction due to core adoption issues. While teacher-centric initiatives show promise, they may need to be integrated within a broader digital infrastructure, and the current situation must evolve. A comprehensive ed-tech strategy should include the development of a digital framework that facilitates and monitors these various elements, ensuring that technology acts as a catalyst for transforming public education in India. The ed-tech ecosystem has yet to achieve maturity. Effective institutions, supported by essential infrastructure and appropriate incentives for all stakeholders, could serve as a model for sustainable ed-tech solutions. To uphold the spirit of the Sustainable Development Goals (SDG), such development should promote a culture of trust (Fukuyama, 1995) informed by a sense of justice and fairness.⁴³ In this way, up-to-date access to technology and reform in the governance framework shall promote the interwoven use of knowledge and technology across diverse spheres. Thus, it is in the interest of policymakers to work with credible research communities to evaluate ongoing efforts in ed-tech and align them with the interests of all the participants to complement traditional classroom learning in public schools.⁴⁴

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⁴⁴ Krishna, A. (2018) in *The State of Rural Education in India* (viewed on 25th May 2024) says privatization of the government system cannot be an option in the process.

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Policy Analysis of Solar Governance: Case Study of Rajasthan

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Abstract

The paper intends to highlight the importance of renewable energy in development and environmental commitments. Using Rajasthan as a case study, the paper examines its renewable energy policy, including its strengths and weaknesses, and provides a comparative analysis of similar policies across the states. Through a data-driven approach, the analysis aims to emphasise the importance of policymaking in facilitating the growth of solar power in Rajasthan.

Keywords - Policy analysis, solar governance, renewable energy, Rajasthan

Introduction and Context

Energy is the proxy of a nation's development. With the declaration of *Panchamrita* goals by our Honourable Prime Minister (PM), aiming to achieve net zero in emissions by 2070, India finds itself at the cusp of an energy transition. The balance between fulfilling the nation's ever-increasing energy demands and net-zero emissions goals is walking a tightrope. With thermal energy being the mainstay of power generation, it will take coordinated efforts of technical, political and administrative structures to tackle this challenge.

In this context, solar energy will become the focal point of this energy transition. Solar energy is an intermittent source of power, adding to the grid's variability. It is also spatially favourable because of the differences in isolation based on geographic conditions. Being blessed with the dual advantage of abundant solar power and land resources, Rajasthan presents itself as the harbinger of change. It, too, has its share of disadvantages. It lacks fossil fuel resources such as coal/ lignite, unlike states in the eastern belt. Water is a scarce resource in Rajasthan. Water is the second most important input required to operate any power plant, the first being fuel itself. Furthermore, there is no significant natural drainage in the state, and the state usually depends on interstate water transfers to meet its domestic and industrial requirements.

Despite having such advantages and disadvantages, it is only through effective policy and administrative interventions that the state has exceeded all performance benchmarks. With the installed solar capacity nearing 20 GW, a quarter of the nation's solar strength, Rajasthan is aiming sky high to touch the sun and the stars. Renewable energy has been the centrepiece of all energy-

related discussions, not only at the global and national levels, but also at the state-level planning exercises. One such intervention has been the new renewable energy policy of the state.

Analysis of Rajasthan Renewable Energy Policy

Rajasthan has taken definitive steps towards augmenting its solar capacity. The recently unveiled Rajasthan Renewable Energy Policy solidifies its stance on this matter. The policy is forward-looking, ambitious and fulfils the nation's aspirations for energy security and sustainability. Through this policy, Rajasthan aims to establish 90 GW of renewable energy capacity by 2029-30. Solar has been allotted 65 GW of this mix, along with wind-solar hybrid being given 15 GW. As per various surveys, the solar potential of the state is approximately 150 GW. Rajasthan aims to harness half of its potential and become a frontrunner in embracing solar energy.

Solar energy parks are the preferred vehicle for the development of energy capacity. Rajasthan currently has four solar parks in the dry land of the Thar desert, located at Bhadla, Nokh, Fatehgarh and Phalodi. These solar parks have been facilitated by outlining the provisions for allotment of government and private lands for such projects. With technological support from RVPN (Rajasthan Vidyut Prasaran Nigam) for developing green corridors and improving grid infrastructure to evacuate this quantum of power, the solar parks have been a success story. With such handshaking of administration and industry, such projects will be successful models of developing large-scale solar and renewable energy parks.



Fig 1: Location of Renewable energy parks in Rajasthan.

Ease of setting up such renewable energy parks has also been further enhanced. A single-stage clearance formula has been introduced in this policy. Through

the earlier policy, there was a two-stage clearance. The in-principle clearance was granted through a State-Level Screening committee. The final approval was granted through the State-level Empowered Committee as per the respective project. To simplify this process, through the new policy, the in-principle approval or sanction will be granted through the State-level sanction committee as per the project scenario. Simplifying this approval process will boost industry sentiments and scale up the renewable energy projects coming up in the state.

Another important administrative innovation to facilitate such solar parks has also been envisioned. Payment of development charges to the state government has a two-fold aspect to it. One, it adds to the revenue stream of the government. Second, and more importantly, it incentivises the project proponent to commission their projects as these charges are linked to the date of commissioning. The grid evacuation infrastructure allows onboarding of such projects only on receipt of such developmental charges. There have been cases elsewhere in which, after land allotment and project clearances, the proponent has delayed the setting up and commissioning of projects in the absence of policy certainty.

While the earlier policy had these charges linked to annual generation (to the tune of 2-5 lakhs/MW/year), the new policy sets this rate on the basis of land area under development (50,000 per Hectare per year). Shifting from a generation-based charge to a land-area-based regime, it has ensured that variability in generation does not affect the revenue stream. On the other hand, it ensures land use efficiency on the part of the developer. These charges would be termed as Renewable Energy Development and Facilitation Charges (REDFC).

There is no end to creativity and innovation in the policy-making space. One such aspect is highlighted here. As per the new policy, the power producer would be able to exercise an option between either paying REDFC charges or supplying 7% of power free to state distribution companies (DISCOMs), free of cost, by installing such required additional capacity. And the trend has been that the developers are usually choosing the second option. It adds to the power procured by the state, helping the DISCOMs to bridge the demand-supply energy gap. It also eases the burden on the account books of developers, while simultaneously providing assured power to the state.

Alternative Modes of Harnessing Solar Power

Rooftop solar is another underexplored domain of solar energy. Although the first principles of such energy use cases have been well known for many years, it is only through effective policy nudges that adoption scales up. The Central government, through its PM Surya Ghar Muft Bijli Yojana (PM-SGMBY), is incentivising rooftop solar adoption. Through an initial investment of 75000

crores, the policy aims to benefit one crore households by providing them with up to 300 units of free electricity each month.

In line with the above policy, the new renewable energy policy of Rajasthan has made provisions to promote Rooftop Solar power systems. It aims to develop 'Green energy cities' through ease of regulatory compliance and urging people to take up rooftop solar installations. It allows such development in two modes: net metering and gross metering. While the former feeds power into the grid to meet domestic requirements, the latter feeds the entire power generated into the grid. The requirement of a bidirectional energy meter in the latter is the additional technological aspect required.

The policy outlines several measures for the same. It allows setting up of these installations up to 50% of the distribution transformer capacity of the area. It aids the adoption through ease-of-use IT applications and a web portal for a single window application. The policy mandates timelines for approval of various processes through the DISCOMs, such as issuance of NOC (7 days), net meter testing (7 days), execution of the agreement (3 days) and commissioning of the system (3 days). This guided timeline puts these projects on a fast track, enhancing their adoption. The subsidy and incentive under the policy have been aligned with the PM-SGBY.

The policy also touches on the aspect of decentralised solar capacity addition. Since such decentralisation of generation helps in the reduction of transmission and distribution (T&D) losses or aggregate technical and commercial losses (AT&C). These losses are a clear indicator of the inefficiency of the transmission system. As per the latest reports available, Rajasthan records losses to the tune of 17%, close to the national average. Hence, decentralising such solar generation would reduce these losses as they would be located close to the load centres. The in-house stations would not only act as a captive power source, but would also enhance grid stability by feeding in excess power.

The policy is also inclusive in its approach. Farmers, for instance, have been given a role in the energy space. For the uncultivable land that they possess, they can, either independently or through a private developer, set up a decentralised solar generation. Further, since pump sets for irrigation have been causing stress on the grid in the peak hours, this policy talks about the solarisation of these pump sets. The policy statements are in line with the central government's ambitious Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM-KUSUM) scheme. Greening agriculture is a far-sighted step towards a sustainable future.

Development of renewable energy (RE) parks through this policy is a game-changer for the state. Through the public-private partnership mode, it aims to establish new RE parks all throughout the state. For this initiative, it sets up the Rajasthan Solar Park Development Company Ltd, a special purpose vehicle

(SPV) envisioned to be a subsidiary company under the Rajasthan Renewable Energy Corporation Ltd (RREC). The aims of this setup are multi-fold. Primarily, it aims for a faster approval process for these parks. This leads to project risk minimisation due to a swift and agile decision-making structure.

On the other hand, through the SPV, supporting infrastructure to the project, such as approach roads, connectivity, water, and various other administrative liaising, can be executed smoothly. Project delays due to ancillary services have been a case in point for multiple infrastructure projects. Even the operations and maintenance of projects post their commissioning are facilitated by the enabling infrastructure.

The policy facilitates the establishment of RE parks by the private sector. Through this policy, it mandates the power park developer (PPD) to develop infrastructure facilities such as roads, water, grid, supporting evacuation infrastructure and administrative support systems. This would act as a prospect for multiple bidders to competitively bid for a share in the same park, fostering effective development. A known case is that of the Bhadla Solar Park, being developed by a range of organisations from the Public Sector Undertakings to the Private sector. It has evolved as one of the most successful models of public-private participation in infrastructure projects.

Another policy innovation included is land allotment. Land in our nation is under immense pressure from an ever-increasing population. Fortunately, for Rajasthan, vast tracts of land are abundantly available, especially in the Western sector. As per various estimates, 1 kW of solar capacity requires six square metres of land. Thus, for setting up renewable energy parks of the tune of hundreds of MW, it would require several acres of land. The policy facilitates tackling this challenge.

As per the policy, the power park developer (PPD) would be allowed to acquire agricultural land from the title holder (known as Khatedar in local parlance) in excess of the ceiling imposed by the Rajasthan Imposition of Ceiling on Agricultural Holding Act, 1973. Accordingly, the Rajasthan Land Revenue (Allotment of land for setting up power plant based on renewable energy sources) rules of 2007 were modified. As per these rules, land for any renewable energy power plant shall be allotted on a leasehold basis for an initial period of 30 years. These enabling provisions have facilitated tackling the complex cases of vast land requirements for these power parks.

Yet another enabling provision enumerated in the policy is the formation of joint ventures (JV). It nudges the state to co-participate in the development of these renewable parks by equity participation of up to 50% or any other percentage of equity as decided by the state government. Here, an interesting provision in the policy is that the cost of land allotted by the state government will be included in the value of equity participation. This proactive partnership

synergises the coordination between the state and the private sector. Through equity investment, the Cost of Capital (CoC) is significantly reduced, leading to the discovery of low tariffs for solar and hybrid energy.

Thus, we see that through multiple enabling provisions, this policy comes across as not only a promoter of renewable energy but also involves the government as a partner. It opens up multiple opportunities at the state as well as at the national level. However, this policy is not without its own share of challenges. An examination of these is attempted to analyse this policy.

Opportunities and Challenges

This policy primarily aims to enhance installed capacity and generation and, as a result, improve the power position of the state. The natural geography of Rajasthan deprives it of abundant water, coal or significant fossil fuels for energy. The discovery of oil fields in the Barmer area is exceptional in this regard. Without these natural resources, Rajasthan depends mostly on smaller power plants located in the bordering areas of Madhya Pradesh, Uttar Pradesh, Delhi and Haryana. Renewable energy has proved to be a miracle, though.

Rajasthan has emerged as a frontrunner: Through the commissioning of solar, wind, hybrid and biomass-based projects, it has become a surplus power state, exporting its renewable energy generation. First, it has improved the power situation of the state. Second, it has spurred industrial growth through a cluster-based manufacturing approach. Third, it is helping the nation achieve sustainable energy targets. And lastly, it has become an important source of revenue for the exchequer.

Converging it with other ongoing programmes of the government, such as RAJEEVIKA (Rajasthan Rural Livelihoods programme) and R-CAT (Rajasthan Centre for Advanced Technology): Through RAJEEVIKA and Mission Panchratna, the government is trying to promote self-help groups (SHGs). It involves revolving fund, handholding and a cluster-based marketing approach. R-CAT is an incubation and learning centre for emerging start-up ideas, located in prominent cities in the state. R-CAT is further linked to the I-START scheme of the government, aimed at startups.

The RAJEEVIKA mission already has SHGs that are involved in the solar module assembly activity. This can be scaled up with convergence and technical support. The ALMM issue (approved list of models and manufacturers), which essentially means that solar components can be procured from specific vendors (to prevent dumping from China), can be tackled if the assembling of modules can be done at scale using RAJEEVIKA as a pilot. It will have a multiplier effect on the solar economy of the state. Indigenisation of solar power is a focus area of the Ministry.

Through these SHGs, women can participate in the renewable energy space. The case of Odisha having 'bijulee didis' in every village by upskilling them under a Memorandum of Understanding (MOU). This created safe, sustainable and productive jobs for rural women. This scheme also falls in sync with our PM's vision of creating 'lakhpati didis' through these SHGs. Financing for such green SHGs is comparatively easier. It only requires certain semi-technical skill sets to be imparted. Multiple organisations can be leveraged for this purpose, such as NISE (National Institute of Solar Energy), among others.

Startups in the renewable energy domain are ever-evolving: They are right from manufacturing, supply chain, components, installation, commissioning, as well as the services sector. R-CAT has multiple startups working in these sectors. One particular start-up was giving services for periodical cleaning of solar panels (removal of dust to improve their efficiency) through the execution of AMCs (annual maintenance contracts). This is a bright example to show how effective policy interventions and handholding can help these budding firms to cater to the industry.

The policy, in a forward-looking step, aims to promote the manufacturing of solar and wind energy equipment, leading to the development of a complete ecosystem. The benefits would be extended to eligible Micro, Small and Medium Enterprises (MSMEs). These manufacturing units would be incentivised as per the existing Rajasthan Investment Promotion Scheme (RIPS). The policy also states that incentives linked to manufacturing would be linked to renewable generation, hence promoting a production-linked incentive.

The challenges clouding the development of solar, in particular, and renewable energy, in general, are myriad. Let us examine these to get a wholesome understanding of the scenario.

The issue of the great Indian bustard (GIB) is much talked about. GIB is an endangered bird, with a remaining population of a few hundred. Their natural habitat is in Rajasthan and Gujarat. Unfortunately, their natural space intersects with that of green grid evacuation lines. Over the years, the GIB population has declined steeply. One of the reasons attributed to this is the collision of birds with the transmission lines. This has led to various court stays on the development of grid infrastructure, ultimately halting projects.

In the *MK Ranjitsinh v. Union of India* (2021) case, the Hon'ble Supreme Court adopted a balanced approach between conservation of GIB and the fight against climate change. Since stalling of green grid projects would ultimately increase India's dependence on coal-fired thermal power, the Supreme Court has now allowed the installation of overhead cables in the affected area. The petition included the plea to replace existing overhead high-tension transmission cables with underground cables, but it was rejected because of severe cost implications.

On the other hand, technical constraints are hindering the pace of renewable energy development in Rajasthan. In the third quarter of 2023, it ranked fifth, behind states such as Maharashtra, Karnataka and Gujarat. One key aspect of this is the evacuation infrastructure. Apart from the GIB issue, grid constraints are hampering progress. The substations are already running at near full capacity, with no margin to include green power in their operations. The infrastructure upgradation of these substations is expected to be completed by December next year. Industry sentiments in this aspect are turning negative.

Land acquisition remains a challenge. Even though the policy has facilitated conversion of land through suitable changes in the Land Revenue Rules, allowing increased ceiling, the entire process of acquiring land for the projects is tedious and time-consuming. There are sacred groves (locally known as Orans), which are treated as forest land, and allotment becomes complex (*T.N. Godavarman Thirumulkpad v. Union of India & Others* (1996)). Usually, erstwhile lands on which water bodies existed previously are banned from allotment or conversion (*Abdul Rahman vs State of Rajasthan & Others* 2004). Negotiations with multiple stakeholders involving forest bodies, water, civil societies and the public at large make the process cumbersome. These delays also add to the project costs. Since the tariff quoted by the successful bidder is the lowest with wafer-thin margins, any addition to the project cost leads to unviable financials.

One other significant roadblock on these projects is the restrictive policies imposed by the DISCOMs and RREC with regard to group captive projects registration. In a group captive model, multiple off-takers are involved, and their combined equity typically amounts to 26%. As per the Electricity Rules 2005, they are required to procure a minimum of 51% of the power produced, up to a maximum of 100% of the project capacity. The other solar developers then fund the remaining 74% equity to facilitate development. Here, the DISCOMs have a distinct interpretation of the offtake ratio, emphasising that the offtake of power in this scenario should be aligned with the shareholding pattern. The DISCOMs insist that the developers must take 74% of the power in line with their investment, creating hurdles, as this group's captive projects are meant to sell electricity to the open market for their viability. This is a significant constraint in the renewable energy landscape of Rajasthan.

The policy is also silent on the issue of solar waste generated. As per the Council for Energy, Economics and Water (CEEW) report titled *Enabling a Circular Economy in India's Solar Industry*, Rajasthan will account for 24% of the total solar waste generated by 2030, which is estimated to be around 600 kt. There are social, economic and environmental concerns around the solar photovoltaic (PV) waste management in the industry. The discarded solar modules usually

have cadmium, tellurium, silicon and copper, which have been identified as critical minerals by the Ministry of Mines (MoM 2023). Recycling solar waste can help recover these minerals, reduce import dependency and enhance the mineral security of the nation. It also promotes a circular economy in the value chain. The Ministry of Environment, Forests and Climate Change (MoEFCC) had recently amended the Electronic Waste (Management) rules to include solar waste in the ambit. The Ministry of New and Renewable Energy (MNRE) has also identified solar PV recycling as one of the priorities thrust areas under the Renewable Energy Research and Technology Development (RE-RTD) Programme.

Way Forward for This Policy

The policy has incorporated futuristic provisions: one on energy storage systems and another on renewable-based Electric vehicles (EV) charging stations. The policy elaborates on developing 10 GW of storage capacity from a mix of hydro plants with in-built pumped storage plants (PSP) and Battery Energy Storage Systems (BESS). It, however, does not enumerate the split amongst these modes of storage. In the case of hydro-PSP plants, the policy mentions the role of RREC in facilitating site allocation as well as water allocation through the water resources department.

The primary objective of a battery storage system is to reduce the variability of renewable energy. It turns this energy into a reliable power source for a defined period, enabling advanced planning and improved forecasting. The mandated norm of developing the storage system would be half of the installed capacity of the plant. For instance, a 50 MW solar plant would be required to set up a storage system for 25 MW of power. The policy also mentions that the state will promote research and development in the areas of energy storage. Interestingly, the policy has also outlined that in case of a standalone Battery Energy Storage System (BESS), 85% of the total energy procured on an annual basis shall be from Renewable energy sources. This will fulfil the Renewable Energy storage Obligations from the specified ministries, such as MNRE.

The policy also mentions the development of Renewable energy-based Electric vehicle charging stations. As is widely known, the transport sector is heavily dependent on fossil fuels and is one of the major contributors to greenhouse gas emissions, air pollution and distorting the balance of payments by inflating the import bill. Electric vehicles are seen as a landmark in greening the transport sector. Developing the grid-scale battery charging station is seen as a major push for promoting the adoption of electric vehicles. There would be an option for the eV charging station developer to have an in-house Renewable energy captive plant or to source power through open access. Setting up an electric vehicle charging station would also promote EV adoption, as this is a major impediment to this industry.

Additionally, the renewable energy policy elaborates on the promotion of wind-solar hybrid plants. Wind and solar are natural complements in the power scenario. Solar generation maximises generation during daytime, while the wind speeds in most areas are highest during early morning and late evening hours. Thus, together, they not only enhance the installed capacity but also contribute to grid stability despite being infirm sources of power. The tariff discovered in such hybrid cases would be discovered through a transparent bidding process. The generated energy would also be used to fulfil the solar and non-solar Renewable Energy Obligations (RPO) as mandated by the orders of the Centre and State electricity regulatory commissions (CERC/SERC).

Comparison of renewable energy policies across states

Below is an analysis of the major policy highlights of other states vis-à-vis Rajasthan.

Andhra Pradesh: Andhra Pradesh has opted for multiple-approach strategies in order to facilitate the RE. Some major strategies of the state include Andhra Pradesh Solar Policy 2015, Wind Policy 2015, Solar-Wind Hybrid Policy, Solar Parks and Decentralised Projects. Within decentralised projects, some key incentives that are leading towards additions of high solar capacity within Andhra Pradesh include Compact Secondary Substations (CSS), exemption from electricity duty, 100 per cent facility for banking, transmission and wheeling charges within the state, Pollution Control Board (PCB) clearances and benefits in Clean Development Mechanism (CDM). Andhra Pradesh was the first state to consider solar parks under the Solar Energy Corporation of India (SECI) Scheme.

Gujarat: Gujarat, being blessed with solar and wind energy potential, has taken many steps to harness the renewable energy. It strengthened the policy and regulatory environment within the state in three areas: ease in carrying out business, comprehensive incentives offered to the renewable energy sector by Gujarat and notification of the revised Renewable Purchase Obligation (RPO).

Punjab: Despite being a renewable energy resource-deprived state, Punjab is performing above par in renewable energy capacity addition. The New and Renewable Sources of Energy (NRSE) Policy and the Punjab Solar Rooftop Policy are continuously working towards achieving the RE targets. The NRSE policy focuses on solar, biomass, waste management and solar thermal, which also includes initiatives of RE for fulfilling the needs of the rural sector and energy needs in the industrial, commercial and urban sectors. Since there are no large-scale solar projects in the state, the Punjab Solar Rooftop Policy works towards this thriving sector. This policy provides multiple incentives, including exemption from cross-subsidy, banking and wheeling charges and losses, additional surcharges, etc.

Conclusion

This article attempts to encapsulate the efforts being taken by Rajasthan to harness its enormous renewable energy potential. Through effective policy-making tools that enable ecosystem development, it aims to be a frontrunner in this space. Single window and speedy clearances, along with reduced charges for the development of Renewable energy parks, are the bedrock of this policy. The policy displays innovative features in the form of land-based REDFC instead of generation-based REDFC. This discussion includes decentralised and distributed generation through rooftop solar, aimed at reducing AT&C losses. Farmers are to play a critical role in actualising this policy through the solarisation of pump sets. The land allotment rules have been simplified for setting up these parks.

There are ample opportunities for convergence and a whole-of-government approach. Coupled with schemes such as RAJEEVIKA Mission PanchRatna, which can boost SHGs, especially women, can have positive multiplier effects. Promoting start-ups in the renewable energy landscape through I-START is an opportunity in itself. The policy intends to promote MSMEs in manufacturing solar components to reduce import dependency in solar modules.

This policy is not without its fair share of challenges. Land allotment remains a delaying factor in these projects despite the legislation. Environmental concerns around the Great Indian Bustard (GIB) persist. The poor health of DISCOMs and their reluctance to install the group captive model are posing a hindrance to the development of renewable energy.

Multiple futuristic aspects are touched upon. Electric vehicle charging stations using renewable energy are a thrust area envisioned in this policy. A Battery Energy Storage System (BESS) is being promoted to decrease variability and to provide a firm supply to the grid for finite intervals. Hybrid wind-solar parks are incentivised through a competitive-based tariff.

The comparative analysis of multiple states vis-à-vis Rajasthan shows that states are competing to gain space in the upcoming Renewable sector through competitive and cooperative federalism.

Renewables are the future of energy. Serving multiple purposes such as reducing greenhouse gas emissions, air pollution, and fulfilling the nation's commitment through the Nationally Determined Contributions (NDC). It also boosts the economy, empowering women and helping establish energy security and energy independence. With policy interventions like the Rajasthan RE policy, India is well set to achieve its ambitious Panchamrita goals, as well as achieve the Sustainable Development Goals (SDGs).

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Better, Transparent and Accessible Services to Beneficiaries of TPDS: West Bengal: A Case Study

Shri Vivek Pankaj

Abstract

The article examines the transformative journey of West Bengal's Public Distribution System (PDS) under the Khadya Sathi Programme, which integrates the National Food Security Act (NFSA) and the Rajya Khadya Suraksha Yojana (RKSY). As of FY 23-24, this initiative ensures food security for approximately 8.85 crore beneficiaries, covering nearly 85% of the state's population. The study highlights innovative reforms and technological advancements aimed at enhancing transparency, accountability, and accessibility in the PDS. Key achievements include the high percentage of Individual-level Aadhaar-seeded ration cards, the introduction of e-Ration cards, and the implementation of electronic Point of Sale (e-PoS) devices. The department's efforts to bridge the inclusivity gap are underscored by initiatives like the issuance of ration cards to vulnerable groups and the Duare Ration scheme. Additionally, advancements in supply chain management, such as the procurement of paddy through Centralized Procurement Centers, Self-Help groups, and enhanced godown management systems, are detailed. Despite significant progress, challenges remain, particularly in strengthening beneficiary awareness and addressing ground-level implementation issues. The article concludes by emphasizing the importance of continuous improvement through systematic and structural reforms and the leveraging of technology to sustain the gains in the PDS, presenting West Bengal's model as a potential blueprint for other states.

Introduction

West Bengal boasts one of the highest levels of beneficiary coverage under its food security programme. Under the umbrella of the KhadyaSathi program, the Public Distribution System in West Bengal integrates the National Food Security Act (NFSA) and the State's Rajya Khadya Suraksha Yojana (RKSY) for providing a comprehensive safety net for both urban and rural populations. As of FY 23-24, this program is instrumental in ensuring food security for approximately 8.85 crore beneficiaries, covering nearly 85% of the state's population.

In recent years, the Food and Supply Department of West Bengal has embarked on a transformative journey to enhance the effectiveness and reach of its Public Distribution System (PDS) and related services. Through

innovative reforms and technological advancements, the department aims to ensure food security for millions while addressing the inherent challenges in the system. This article delves into the various reforms and initiatives implemented by the department, evaluates their effectiveness and highlights challenges and ground-level issues within West Bengal's Public Distribution System.

Enhancing Transparency and Accountability

The nationwide Public Distribution System (PDS) was initially plagued by several challenges, including leakages, errors in beneficiary inclusion and exclusion, and the poor quality of food grain supplies delivered to beneficiaries. The structural and procedural reforms that leverage IT-based solutions have significantly curtailed these issues. Growing digital penetration in various governance activities and a changed mindset of the policymakers and citizens to its acceptability have facilitated the Food and Supply Department of West Bengal to capitalize on IT-backed advancements to enhance transparency, accountability, accessibility, and effectiveness of its Public Distribution System. This strategic alignment has enabled significant improvements in the system's efficiency and effectiveness.

One of the significant achievements of West Bengal is the high percentage of Aadhaar-seeded individual ration cards. As of early 2024, 98% of the 8.85 crore active ration cards are linked with Aadhaar, making it one of the highest in the country. This high integration level has been achieved through a meticulous door-to-door survey conducted from July to October 2021, coupled with multi-modal avenues which were made available to the public through the portal, WhatsApp Chatbot, Mobile App, common service centres (Bangla Sahayata Kendras) and offices. As of now, 99.98 % of the delivery transactions are authenticated through Aadhaar verification, which is also one of the highest in India.

West Bengal introduced the e-Ration card (digital copy of the ration card), removing the need for traditional ration card required for obtaining rations from the ration shops way back in 2020. Multi-modes are available to the public to avail all services related to ration card in both online as well physical mode. At the first interface itself physical applications are converted to digital form with a digital acknowledgement of receipt of the application. All the applications are processed in online mode. Some applications are processed and approved in the Central Processing Centre (CPC).

The department has introduced several self-service facilities for the beneficiaries, allowing them to apply for ration cards, update ration card details, change Fair Price Shops (FPS), and link or delink Aadhaar and mobile numbers without having to visit any office. These modifications take immediate effect, enhancing convenience and efficiency for the beneficiaries.

Continuous database cleansing has been a priority for the department to eliminate duplicate, defunct and ineligible beneficiaries. The ration cards belonging to dead persons and those surrendered voluntarily have been deleted, and ration cards due to reasons such as deduplication, non-lifting of food grains for more than six months, and non-seeding with Aadhaar have been deactivated. In 2020, the department established a dedicated IT and Reforms cell to create an institutional mechanism to identify potential areas for reforms and IT-enabled solutions in its functioning and service delivery to the beneficiaries and to the other stakeholders like fair price shop dealers, distributors, etc. related with PDS, Ration card Management, Procurement, Supply Chain Management, Billing and payments, etc. The process has resulted in the generation of a clean and reliable database, benefits for stakeholders, and savings for the government.

The introduction of electronic Point of Sale (ePoS) devices has further streamlined the distribution process and made it transparent. These devices authenticate beneficiaries through fingerprint, iris scan, or Aadhaar-linked mobile OTP, ensuring that transactions are accurately recorded and monitored. In early 2024, the department also introduced electronic weighing scales integrated with e-PoS devices to ensure that beneficiaries receive the correct and entitled quantity of food grains. This integration ensures that the process of delivery and reporting to the central server does not proceed unless the entitled weight of food grains is assured accurately.

In line with the e-PoS device as a medium of capturing and authenticating transactions at the consumer point, the electronic Point of Purchase (e-PoP) device was also introduced at the point of procurement of paddy at the Minimum Support Price from the farmer to record and authenticate every transaction to make the whole supply chain of TPDS system transparent and accountable.

Also, with the availability of data, backed by a robust technological platform, the department has keenly taken several initiatives to ensure inclusiveness, and reduce inclusion errors as far as possible to ensure maximum governance reaches the most downtrodden.

Bridging the Inclusivity Gap

West Bengal has made significant efforts to ensure that all eligible individuals are covered under the Food Security net. Special drives to cover left-out but eligible and needy persons are conducted regularly. The efforts of the state government are complemented by the special outreach program of the government, namely *Duare Sarkar*, which provides an opportunity to any left-out eligible person to get themselves registered as a PDS beneficiary.

To improve access to government services for more vulnerable groups, West Bengal has prioritised the issuance of ration cards to transgender individuals,

persons with disabilities, sex workers and economically disadvantaged women too. With a policy initiated in August 2020, the state relaxed certain regulations and actively involved district authorities to expedite this process. To date, 2,583 transgender individuals, and 14,764 sex workers and economically disadvantaged women have received ration cards. The state has also identified 1,32,113 persons with disabilities (PWD) and converted ration cards of their families, comprising 5,41,346 members, to the AAY category, providing them with higher benefits.

Additionally, the state has provided a practical solution to allow old and infirm beneficiaries who find it difficult to obtain Aadhaar and seed it or perform authentication to lift ration by themselves. Under this, such beneficiaries can nominate a representative, who is himself Aadhaar -verified, to collect ration on their behalf.

A notable initiative, the Duare Ration (Ration at Doorstep) scheme, launched in 2021, exemplifies the state's commitment to inclusivity and convenience. This scheme ensures that food grains are delivered directly to the beneficiaries' doorsteps. On an average, about seven crore beneficiaries receive their ration every month at their doorsteps under Duare Ration, thereby reducing the need for them to travel to FPS and carry a heavy load. Remaining beneficiaries receive food grains from FPS as per their choice and convenience.

The IT-backed solutions that transformed the Public Distribution System at the consumer end are the core element to ensure that the system remains as transparent as possible. Needless to say, for the whole system to function smoothly, every element of the TPDS should function in a sound manner. The Supply Chain Management system of TPDS encapsulates everything from procuring foodgrains like paddy from farmers, to rice and flour mills for processing, to maintaining storage spaces and godowns, distribution through the network of Distributors to delivery of foodgrains to Ration shops and finally to the end beneficiaries. For the TPDS to be effective, transparent, accountable and cost-effective, systematic and structural transformations which are stakeholder-centric are required at every stage. Only then maximum governance can be ensured through minimal government.

Advancements in the Supply Chain: Ensuring MSP, Seamless Procurement of Foodgrains and Proficient Godown Management System

West Bengal, being a decentralised procurement (DCP) state, has seen significant improvements over the years in the procurement of paddy and related operations. The state now procures paddy directly from farmers through a network of Centralised Procurement Centres (CPCs) and mobile CPCs, and through about 2,000 paddy purchasing societies (Self Help Groups, FPOs, and PACS) reaching even the most remote areas. In the 2023-24 Kharif Marketing Season (KMS), 535 CPCs and 98 mobile CPCs were operational,

facilitating the procurement process. Technological advancements have played a crucial role in streamlining the procurement process. The use of the e-Procurement portal, capable of recording and validating all relevant information of farmers and transaction details, has been mandatory since the KMS 2015-16. Recently, electronic Point of Purchase (ePoP) devices were introduced to further ease the registration and transaction processes. These devices come with features like GPS tracking, photo capture, and biometric scanning, making the process more efficient and transparent.

To ensure timely payment of MSP to farmers, the department has implemented a system where payments are made directly to the bank accounts of the farmers via NEFT within three working days. Farmers can also update their details and schedule dates and time slots for the sale of paddy online, reducing the need for physical visits to procurement centers.

Apart from this, one of the crucial elements required to run this state-wide TPDS system is maintaining the required quantity of foodgrains within the optimum quality norms. The Department has focused on developing safe and hygienic storage facilities. The state has increased its storage capacity from 63,000 MT in 2011 to about 12 lakh MT as of 2024. This expansion ensures that all districts have sufficient storage to meet at least four months' food grain requirements. The Godown management system has been revamped to include the creation of master data for each godown and stacks, enabling real-time monitoring of receipt, dispatch, and storage capacity and minimizing discrepancies between physical and online stock balances. This system also facilitates the online capture of closing balances for distributors and flour mills, ensuring transparency and accountability in stock management. This is important since, the distributors supply rice and wheat directly to Ration shop owners from these Godown storages.

These advancements in Supply Chain Management have been instrumental in running a Public Distribution System that is as transparent, efficient, and economical as possible.

Addressing Ground Realities

From 65.3% leakages in 2011-12 (as per the report by a noted economist John Dreze, 2015 and Mishra, 2015), and 31.74% and 10.23% exclusion and inclusion errors (*Performance Evaluation of Targeted Public Distribution System (TPDS)*, 2005), the state has come a big way forward. As discussed above, the department now has one of the cleanest and well-managed databases in West Bengal. And backed by IT reforms and stringent monitoring mechanisms established now, these issues that persisted earlier have significantly reduced. Despite many advancements, mostly backed by technological advancements, some issues remain, mostly in the implementation stage at the ground level.

The most significant issue that still requires attention is further strengthening the awareness and capacity building of the beneficiaries regarding entitlements and other rights at the ground level. These beneficiaries, being among the most vulnerable population, and because of their ignorance regarding entitlement and rights, have often been taken advantage of by Ration shop owners. The department sends SMS to the registered mobile of the beneficiary at the beginning of the month and at the time of receiving ration regarding the numbers of ration cards, entitled quantity and price, if any, in addition to a printed invoice. Some beneficiaries end up accepting smaller quantities of ration, as many still view receiving rations not as a right but as a favour since it is provided free of cost.

Educating beneficiaries about their rights and the functionalities of new systems is also crucial. Increased awareness and capacity building empower beneficiaries to assert their rights alongside government efforts, ensuring that reforms translate into tangible benefits at the ground level.

While introducing ePoS and ePoP devices, Aadhaar seeding and integrated weighing scales in ration shops, there was some resistance in urban localities from pressure groups. Despite numerous obstacles in implementing these reforms, the government has continued its efforts through stakeholder consultations and involvement. The concerns of the stakeholders have also been addressed through reforms and IT-based solutions. The entire process for registration and empanelment of ration dealers, distributors, rice and flour mills is also online, time-bound and transparent. The payments for the services rendered by these stakeholders are also online and time-bound. The requirement of physical touch points has been almost eliminated, thus obviating any rent seeking. The system of inspection and monitoring has also been made online. The penal provisions for non-compliance and offences by the licensee of fair price shops, distributors, rice mills, etc. have been made well-defined and objective, largely reducing discretion. Beyond just technical solutions, the system has put in place continuous monitoring and robust enforcement mechanisms to address manipulations by some stakeholders and to prevent misuse.

In support of these goals, the department actively engages in awareness and capacity-building efforts, including sending SMS notifications during the delivery of food grains and using posters, banners, and social media. Furthermore, initiatives like the Upvokta Samparka Abhijan exemplify the department's commitment to directly engage with beneficiaries to address their concerns. Launched in April 2022, the fourth round of this outreach initiative took place on February 17-18, 2024, involving visits to approximately 10,000 FPS from urban and rural regions from Kolkata to the Sunderbans by department officials, including the Minister. This proactive approach is pivotal in reinforcing the reforms and enhancing the overall effectiveness of the PDS.

Towards a Sustainable Future and Way Forward

Financial constraints and delays in the release of central funds can hamper the timely implementation of various initiatives. Although the state has managed to maintain a steady flow of funds through efficient financial management, occasional delays in the release of central funds have posed challenges.

While West Bengal has made significant strides in improving its PDS and procurement systems, mutual learning from other states can provide valuable insights and areas for further improvement.

West Bengal's Food and Supplies department has made commendable progress in ensuring food security through innovative governance practices, technological integration, and inclusive policies.

The key is to practice less government and more governance. Indeed, IT-related reforms have significantly transformed the state's Public Distribution System, enhancing the transparency of the various processes involved in the delivery of rations, ensuring accountability from all stakeholders, and enabling easy access to various ration card-related services at the fingertips of beneficiaries. These IT reforms have also improved oversight and monitoring capabilities for officials. The entire supply chain network, from the procurement of food grains at procurement centers, to the network of rice millers, distributors, and godowns, and finally to distribution at ration shops, can now be effectively monitored with a click of a button. This monitoring and oversight facility make it easier to identify issues and implement corrective actions in real time.

In summary, while West Bengal's Food and Supply department has achieved significant milestones in reforming the PDS and procurement systems, it must continue to address emerging challenges and leverage technology and best practices to ensure sustained improvement. The department's commitment to transparency, efficiency, and inclusivity serves as a model for other states, highlighting the importance of good governance practices in public administration.

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New Initiatives in Karnataka School Education and Assessment Board

Shri Ramachandran R

Introduction

The State of Karnataka runs schools from the primary to the higher secondary level. The Department of School Education and the Department of Pre-University Education monitor and supervise the administration of all schools, including those in the private space. There are 54,529 primary schools with 2,52,875 teachers and 84.95 lakh students, and there are further 9,498 secondary schools with 92,287 teachers and 13.84 lakh students. There are three kinds of schools in the system:

1. Government-run schools
2. Private aided schools (financial aid is provided by the government)
3. Private unaided schools (no aid is given by the Government)

Examinations and Assessments are an integral part of the learning process. It is important to have a robust assessment system to ensure quality education. Examination boards are responsible for evaluating students' academic knowledge and skills and serve as a systematic way to assess what students have learned and how well they have mastered the curriculum.

The Karnataka School Examination and Assessment Board (KSEAB) encompasses a range of standardised assessments and examinations conducted within the state of Karnataka, aimed at evaluating students' academic knowledge and skills at various levels of education. These examinations play a crucial role in ensuring quality education in Karnataka. The Board conducts examinations for both Class 10 and Class 12 annually and is an integral part of the education system in Karnataka. It serves as a bridge between Secondary Education and Higher Education. The emphasis of the Principal Secretary, School Education and Literacy has been on the importance of promoting student-friendly initiatives at all levels.

Background

The KSEAB encompasses different wings that complete the assessment and accreditation needs of the Department of School Education;

- Examination Board– conducts the Class 10 and the Class 12 examinations.
- KSQAAC (Karnataka State Assessment and Accreditation Council)– conducts assessment surveys of learning, examinations for scholarships,

related examinations for posts, accreditation of schools and entrance exams for state-run Model Schools.

- Other Examinations– conducts D.El.Ed./Drawing/Arabic/Computers/Commerce Examinations.

The SSLC (Senior School Leaving Certificate-Class 10) and PUC (Pre University Course-Class 12) examinations are standardised and conducted at the state level, ensuring that students from different schools are evaluated on the same criteria. This helps maintain uniformity and fairness in the evaluation process. While SSLC (Class 10) marks are important in helping a child determine his/her aptitude for a particular stream/course of study, PUC 2 (Class 12) marks are crucial for students seeking admission to undergraduate programs in colleges and universities. Good scores in these exams can open doors to various educational and career opportunities. The PUC system allows students to explore different subject areas and make informed decisions about their career paths. It helps them specialise in their chosen fields and develop relevant skills.

The school system encompassing the assessment prepares students for higher education by building a strong academic foundation. It equips them with critical thinking, problem-solving, and reasoning skills necessary for university-level studies.

Many competitive examinations for professional courses like engineering, medicine, and management in India consider the PUC score as an eligibility criterion. Scoring well in the PUC exams is crucial for securing seats in prestigious institutions.

By having a standardised examination system, the Karnataka Examination System holds schools accountable for the quality of education they provide. This can incentivise schools to maintain high educational standards. Thus, the KSEAB plays a pivotal role in shaping the academic and professional future of students in Karnataka.

The Karnataka State Examination and Assessment Board has undertaken several initiatives to improve the education system and benefit students. These initiatives are aimed at enhancing the quality of education, providing students with better opportunities, and ensuring a smoother transition from school to higher education. Some of the key initiatives:

1. Online Application and Result Declaration

- **Objective:** To streamline the application process, reduce paperwork, and provide quicker access to results for students.
- **Implementation:** The multiple online services provided by the board are one of the first initiatives of its kind in the country, which promote ease

through technology. The services include registration of candidates, procurement of admission tickets, internal assessment marks entry, marks porting from evaluation centres, declaration of results with HM login, photocopy and revaluation of answer scripts, re-totalling of marks, database collection of evaluators' details, application and issue of migration certificate, application and attestation of Marks card verification, computerization of marks card correction data in Divisional Offices, Certificate Chain technology for Secured storage of marks cards, DigiLocker facility for viewing the marks card, online application for second/third/fourth and fail marks cards, online application for school code, and online evaluators' bill generation in evaluation centres.

- **Impact:** Improved accessibility and convenience for students and reduced administrative workload for the board.

2. Model Question Papers and Question Bank

- **Objective:** To assist students in exam preparation by providing them with a clear understanding of the exam pattern and types of questions.
- **Implementation:** The board publishes model question papers for 38 subjects for both Class 10 and Class 12, which students can use for practice.
- **Impact:** Helped students prepare more effectively for exams by familiarising them with the question format.

3. Question Paper Pattern

- **Objective:** To help students score better and provide scope for assessment of different domains of learning.
- **Implementation:** The question papers are set for 100 marks each; subjects without practical components have 80% theory and 20% Multiple Choice Questions, and subjects with practical have 70% theory and 30% practical. For all subjects, 20% of questions are of application level, and all papers are competency-based.
- **Impact:** Helped students not only to face examinations without stress and fear, but also score better and prepare students for competitive examinations.

4. Competency-Based Assessment

- **Objective:** To assess and evaluate a person's abilities, skills, and knowledge based on specific competencies or outcomes rather than just rote memorisation or general knowledge.
- **Implementation:** The question papers are competency-based and focus on assessing skills and knowledge that are directly relevant to real-world tasks and job requirements. This ensures that students are well-prepared to

apply what they have learned in practical settings. It goes beyond theoretical knowledge and evaluates one's ability to apply that knowledge effectively. Competency-based assessments often align with specific learning objectives or outcomes, allowing educators to tailor their teaching methods and curricula to ensure students achieve the desired competencies.

- **Impact:** Competency-based exam patterns shifted the focus of education and assessment from mere knowledge acquisition to the development of practical skills and abilities that are relevant in today's dynamic and competitive world. They empowered individuals to become more capable, adaptable, and ready for the challenges they will face in their education and careers.

5. Training for Paper Setters

- **Objective:** To help teachers understand the various dimensions of a good question paper and set standardised Question Papers.
- **Implementation:** The board in collaboration with Azim Premji University, provided training to 80 Master Resource Persons (MRPs), who in-turn trained Resource Teachers from all streams, so that several sets of Question papers are prepared by different teams under complete confidentiality.
- **Impact:** Has ensured accuracy and coverage of competencies in assessments.

6. Inclusive Education

- **Objective:** To ensure that Children with Special Needs (CSN) have equal access to educational opportunities.
- **Implementation:** The exam board provides half an hour extra time to support students with disabilities, and provides scribe facilities to write the exams on behalf of the students.
- **Impact:** Promoted inclusivity and equal educational opportunities for all students.

7. Renaming the three exam patterns for Class 12 board exams as "Board Exam 1, 2, and 3"

- **Objectives:** To ensure that the focus remains on making the examination process more transparent and standardised.
- **Implementation:** Considering the level of stress that students experience to write exams in one and only one attempt and the rest being supplementary exams, the State introduced the 3-exam pattern from 2024-2025, in an attempt to provide the opportunity to students to write their annual board exams at their own pace. Under this 3-exam pattern, the

student may choose to attempt any of the three exams (the first, second or the third exam) or appear for one or two of the exams and then retain the best score.

- **Impact:** The term "Board Exam 1, 2, and 3" has promoted a positive mindset among our students. They are now approaching each attempt as an opportunity to showcase their depth of learning, rather than an attempt to just improve their scores or as a chance to pass. The conduct of the third exam in 2022-23 has positively impacted around 45,000 students pass the Class 12 board examinations, and 8 students scoring 100 percent in the examinations.

8. Conduct of State Achievement Survey

- **Objective:** To assess student learning at various grade levels, to ensure accountability, make data-driven informed decisions and to provide transparency and inform stakeholders about the quality of education.
- **Implementation:** The surveys are conducted for Classes 3,5,8,9, and 10. Competency-based subject-wise, class-wise standardised assessment tests are designed to align with state standards and grade-level expectations. State achievement surveys are administered on specific dates and under standardised conditions to ensure fairness. Tests are scored, and results are reported at various levels, including individual student scores, school-level averages, district averages, and state averages. This data is often broken down by demographic factors to identify achievement gaps. The data is also analysed to identify trends, strengths, and weaknesses in the education system. Schools and teachers receive feedback on student performance, which can be used to improve instruction and curriculum.
- **Impact:** State achievement surveys have helped identify areas where students excel and where they struggle. This information has led to targeted interventions and support for students who need it. These surveys have influenced education policy at the district and state levels, leading to changes in funding, accountability measures, and curriculum standards.

The KSEAB has encountered various obstacles and challenges during the implementation of its initiatives aimed at benefiting students. These challenges can impact the effectiveness and smooth execution of these programmes. Some common challenges include:

1. **Resource Constraints:** Limited financial and human resources can hinder the implementation of initiatives. Budgetary constraints may restrict the board's ability to scale up programmes or provide additional support.
2. **Infrastructure Limitations:** Insufficient infrastructure, like a lack of high-speed internet connectivity, outdated computers, etc., especially in rural areas,

can hinder the delivery of digital resources and online examination systems. Inadequate facilities may also affect the speed of the exam process completion.

3. **Digital Divide:** The digital divide among students, with some lacking access to technology and the internet, can limit the reach and effective use of digital learning initiatives like access to chapter-wise e-content that are created and uploaded in the online education portal.
4. **Resistance to Change:** Resistance to change among educators and subject forums can initially slow down the adoption of the new evaluation and assessment reforms, curriculum changes, and technological innovations.
5. **Evaluation Challenges:** Ensuring the accuracy of the evaluation during the time-bound three-exam pattern can be challenging as the applications for revaluation may increase.
6. **Logistical Issues:** Coordinating the logistics of conducting exams for a large number of students across the state can be challenging, leading to administrative complexities.
7. **Security Concerns:** Maintaining the security and integrity of online examination systems and digital resources is crucial to prevent cheating and fraud. Security is paramount in the digital age, and the board continuously updates security measures.
8. **Data Privacy and Security:** Ensuring the privacy and security of student data in digital systems is a significant concern, given the sensitive nature of educational information. The Board follows strict data privacy protocols and cybersecurity measures and hence has successfully created a secure system. Protecting student data is non-negotiable, and the board prioritises data security.

Despite these challenges, the Board's commitment to improving the examination system and benefiting students remains steadfast because of the continuous support of the Secretary and the Hon'ble Minister for the Department of School Education and Literacy. The need to address these issues was crucial for the Board to ensure an improved assessment system and quality education. Addressing these obstacles required strategic planning, collaboration with stakeholders, and continuous efforts to adapt and refine initiatives over time. Initiatives were first and foremost prioritised, based on available resources. Efficient allocation of available resources was crucial.

To address the issue of resistance, it was necessary to conduct extensive training and awareness programs for educators and stakeholders. The logistic issues were streamlined through better planning, advanced scheduling, and improved coordination with examination centres.

Overall, the KSEAB's experience in addressing these challenges has led to a more adaptive and proactive approach to improving the education system.

Lessons learned emphasise the importance of inclusivity, resource management, stakeholder engagement, and ongoing innovation to ensure the best outcomes for students.

The board intends to plan and evolve more such exam reforms to ensure a thoughtful and comprehensive approach. Various stakeholders, including teachers, students, parents, academics, and policymakers, will also be involved in the reform process. Input and feedback will be taken to ensure that reforms reflect the needs and perspectives of all stakeholders.

Clear objectives and goals for the reform process will also be defined to improve fairness, reduce stress, enhance the validity of assessments, or align with the new educational standards. A comprehensive review of the current system will also be taken up to ensure that the examination system is aligned with broader educational goals and standards. Assessments will measure what is truly important for student learning and development.

The board is also looking at reducing the high-stakes nature of the school exams by implementing a more holistic approach to the evaluation and assessment. This can include multiple measures of student performance over time. Professional development and training for teachers on how to use assessments effectively, align curriculum with assessments, and differentiate instruction based on assessment results will be provided.

The ultimate goal of all the initiatives is to create a fair, meaningful, sustainable and effective assessment system that supports the evaluation of students' learning levels while preparing them to face the challenges they may encounter in their various walks of life.

About the Author

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Strengthening Panchayati Raj Institutions for human development: An enquiry into the National data on important related indicators and suggesting necessary interventions

Dr. Chandra Shekhar Kumar & Shri Manoj Sharma

Abstract and Introduction

Governance encompasses processes and systems that guide and manage a society or community. It can be defined as a framework of judicious decision-making, policy formulation, implementation of governmental flagship programmes and delivery of services to citizens that affect the day-to-day lives of individuals and communities. When governance is transformative, it not only maintains order and efficiency but also strives to uplift and enhance the well-being of every individual. This form of governance is crucial for advancing human development, a multidimensional concept that goes beyond mere economic progress to encompass various aspects of human life, such as health, education, gender equality, and environmental sustainability.

As a committed signatory to the United Nations' 2030 Agenda for Sustainable Development, India has embraced the objectives of achieving Sustainable Development Goals (SDGs) number 16, 'Peace, Justice and Strong Institutions'. Governments at the Central and State levels are both taking necessary interventions towards this objective; however, local governments can also play a significant role in governance at the grassroots levels. In this context, Elinor Ostrom's Nobel Prize-winning analysis is instrumental, which puts significant importance on community actions that can solve problems in the absence of national and state-level programmes through the trust factor that can be durably built at the local level.

It is in this context that rural local governance units, termed as Panchayati Raj Institutions (PRIs), have emerged as pivotal agents of change in advancing human development and facilitating the realisation of SDGs in India. India is predominantly a rural country with about 60% of people residing in more than 6 lakh villages, with 70 per cent of its workforce living in rural areas that contribute to about 46 per cent of the economy. These villages are amalgamated into around 2.6 lakh Gram Panchayats (GPs) with 31.65 lakh elected representatives. These are institutions of local self-governance at grassroots levels with a key role in planning, implementation and monitoring of a large number of flagships programmes. Further, fostering robust institutions is a

critical global imperative that serves as a fundamental element in the pursuit of sustainable development and good governance.

The essence of transformative governance lies in devolving powers to grassroots governance bodies for the effective implementation of schemes and interventions. The 73rd Constitutional Amendment Act, 1992, mandates States to endow powers to Panchayats on 29 subjects listed in the Eleventh Schedule of the Constitution to enable them as institutions of self-governance. However, merely empowering Panchayati Raj Institutions (PRIs) will not suffice for effective grassroots leadership. Capacity building is essential to raise awareness among elected representatives about government policies and ensure efficient service delivery. Development partners, including international organisations such as the United Nations and other non-governmental organisations, have played a significant supporting role. Continuous efforts from all the stakeholders are essential for timely progress. Peer learning among Panchayats fosters continuous improvement and a stronger local governance system, aided by substantial untied grants provided by the Central Finance Commission. National Panchayat Awards conferred by the MoPWR serve as a platform for PRIs to showcase their performance and learn from awardee Panchayats.

The paper analyses the status of governance in India globally as per the SDG Index Report (2023) and internally as per the Good Governance Index report (2020-21)² released by the Government of India. Also, the significance of good governance is established through its correlation with metrics relating to poverty, revenue mobilisation capacity of Panchayats and strengthening of local governments, namely, the National Multidimensional Poverty Index (2021), Own Source Mobilisation data and Devolution Index (2015-16).

The paper further discusses the constraints of effective governance at the Panchayat level, the impact of these constraints on the functioning of Panchayati Raj Institutions (PRIs), initiatives and approaches taken by the Ministry of Panchayati Raj towards strengthening these Institutions and ensuring good governance at the grassroots level, and realizing larger role of Panchayats in human development through climate action and women empowerment. The paper concludes with a way forward and a strategic vision for Panchayats for establishing good governance.

Keywords: Transformative Governance and Institutions for Advancing Human Development, Governance and Panchayats, Panchayats and Human Development, Panchayats and Good Governance, Approaches for good governance in Panchayats

Self-assessed status of India in the governance aspect

The Good Governance Index report (2020-21)³ released by the Government of India measures the inter-State performance across 58 indicators under ten

sectors, mostly related to human development aspects and their implementation, primarily dependent on local governance at the Panchayat level. These ten sectors are (1) Agriculture and Allied Sectors, (2) Commerce & Industries, (3) Human Resource Development, (4) Public Health, (5) Public Infrastructure & Utilities, (6) Economic Governance, (7) Social Welfare & Development, (8) Judicial & Public Security, (9) Environment, and (10) Citizen-Centric Governance.

The overall results show that 20 States have improved their composite Good Governance Index scores over the previous report released in the year 2019⁴. A state-wise Good Governance Index score is presented in Table 1.

Table 1: Good Governance Index (2020-21) score of 33 states/UTs

(Values in percentage)

Sl.No.	State/UT	Good Governance Index composite score (2020-21)
1	Gujarat	57
2	Maharashtra	54
3	Goa	53
4	Haryana	53
5	Kerala	52
6	Himachal Pradesh	51
7	Karnataka	51
8	Tamil Nadu	51
9	Punjab	50
10	Chhattisgarh	49
11	Madhya Pradesh	49
12	Mizoram	49
13	Rajasthan	49
14	Jharkhand	48
15	Telangana	48
16	Uttarakhand	48
17	Puducherry	47
18	Bihar	46
19	Odisha	46
20	Uttar Pradesh	46
21	Andhra Pradesh	45
22	Daman & Diu	45
23	Tripura	45
24	West Bengal	45

Table 1: Good Governance Index (2020-21) score of 33 states/UTs *(Values in percentage)*

Sl.No.	State/UT	Good Governance Index composite score (2020-21)
25	Sikkim	44
26	A&N Islands	42
27	Assam	40
28	Dadra & Nagar Haveli	39
29	Nagaland	36
30	Manipur	35
31	Meghalaya	35
32	Lakshadweep	34
33	Arunachal Pradesh	28
Average		46

Source: Good Governance Index report (2021)⁵

Global status of India in the governance aspect

Global rankings of countries in good governance may be a dynamic aspect; however, India is vigilant on its SDG ranking globally owing to its commitment to the 2030 Agenda of Sustainable Development and is taking intrinsic measures to establish a good governance aspect at the local level through its various programmes, schemes, trainings to local bodies, etc. The significance lies in the adoption of the critical reviews and rankings for a well-informed way forward. In the global context, ranking of a few developed and neighbouring countries, specifically in SDG 16 - 'Peace, Justice and Strong Institutions' as per the SDG Index report 2023⁶, is given in Table 2.

Table 2: Ranking of a few countries in SDG 16 as per the SDG Index report 2023 and Good Governance as per SolAbility Think Tank

Country		Rank	
		SDG 16-'Peace, Justice and Strong Institutions'	'The Global Governance Index'
1	United States of America	39	61
2	Bhutan	61	43
3	China	63	51
4	Sri Lanka	83	111
5	Bangladesh	101	122
6	India	112	91

***Source:** Sustainable Development Report Index Report 2023 of United Nations (<https://dashboards.sdgindex.org/>)

****Source:** [SolAbility (members of Dow Jones World Sustainability Index) on 33 indicators including public services (Source:<https://solability.com/the-global-sustainable-competitiveness-index/the-index/governance-capital/>)]

However, India's score in the SDGs has improved significantly in recent years, as shown in Table 3.

Table 3: Score of India in SDG achievement (2015 to 2022)

Year	SDG scoreIndia
2015	57.94
2016	58.6
2017	60.06
2018	60.94
2019	62.19
2020	62.6
2021	62.78
2022	63.45

Source: <https://dashboards.sdgindex.org/map>

Significance of good governance on the human developmental aspect: Correlation of Good Governance Index (2020-21) with National Multidimensional Poverty Index (2021) and Devolution Index (2015-16)

Since it is perceived that good governance could have substantial implication on various other factors of human development and strengthening of local governments, it is worthwhile correlating it with two other indices namely, the National Multidimensional Poverty Index (2021)⁷ brought out by NITI Aayog which measure poverty across three equally weighted dimensions i.e. health, education, and standard of living, and SDG India Index (2020) score⁸ computed by NITI Aayog, as shown in table 4.

Table 4: State-wise scores/values on SDG India Index (2020), National Multidimensional Poverty Index (2021) and Good Governance Index (2020-21)

(Values in percentage)

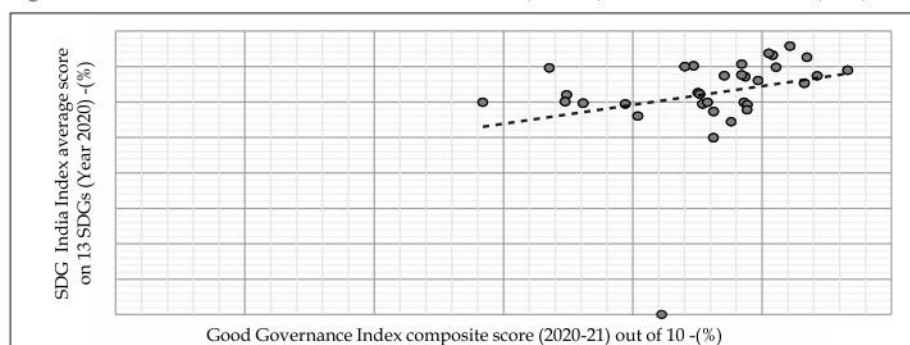
Sl.No.	State	SDG India Index average score on 13 SDGs (Year 2020)	National Multidimensional Poverty Index (Year 2021)	Good Governance Index composite score (Year 2020-21)
1	A&N Islands	0	4	42
2	Andhra Pradesh	70	12	45
3	Arunachal Pradesh	60	24	28
4	Assam	56	33	40
5	Bihar	50	52	46
6	Chhattisgarh	60	30	49
7	D&N Haveli	59	27	39
8	Daman & Diu	59	7	45
9	Goa	73	4	53
10	Gujarat	69	19	57
11	Haryana	65	12	53
12	Himachal Pradesh	73	8	51
13	Jharkhand	54	42	48
14	Karnataka	70	13	51
15	Kerala	76	1	52
16	Lakshadweep	70	2	34

Table 4: State-wise scores/values on SDG India Index (2020), National Multidimensional Poverty Index (2021) and Good Governance Index (2020-21)*(Values in percentage)*

Sl.No.	State	SDG India Index average score on 13 SDGs (Year 2020)	National Multidimensional Poverty Index (Year 2021)	Good Governance Index composite score (Year 2020-21)
17	Madhya Pradesh	59	37	49
18	Maharashtra	67	15	54
19	Manipur	62	18	35
20	Meghalaya	60	33	35
21	Mizoram	67	10	49
22	Nagaland	60	25	36
23	Odisha	60	29	46
24	Puducherry	67	2	47
25	Punjab	66	6	50
26	Rajasthan	58	29	49
27	Sikkim	70	4	44
28	Tamil Nadu	74	5	51
29	Telangana	68	14	48
30	Tripura	63	17	45
31	Uttar Pradesh	57	38	46
32	Uttarakhand	71	18	48
33	West Bengal	62	21	45
Average		62	18	46
Correlation Coefficient:				
• Good Governance Index (2020-21) versus SDG India Index (2020) score = +0.3				
• Good Governance Index (2020-21) versus National Multidimensional Poverty Index (2021) = -0.2				

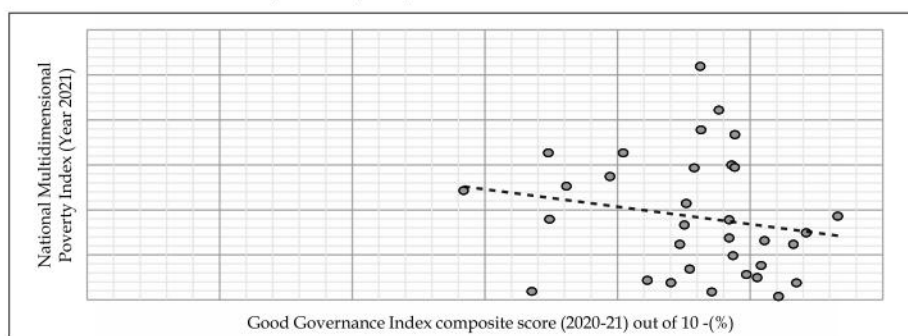
Source: National Multidimensional Poverty Index (2021)⁹ by NITI Aayog, SDG India Index (2020) score¹⁰ computed by NITI Aayog and Good Governance Index report (2021)¹¹

The data in Table 4 shows that the Good Governance Index has a positive correlation (+0.3) with the SDG India Index (2020) and a negative correlation (-0.2) with the National Multidimensional Poverty Index (2021), implying that good governance may lead to lower incidences of poverty and better performance in achieving SDGs in a time-bound manner. The correlation between these three metrics is represented in Figures 1 and 2.

Figure 1: Correlation between Good Governance Index (2020-21) and SDG India Index (2020) score

Source: SDG India Index (2020) score¹² computed by NITI Aayog and Good Governance Index report (2021)¹³

Figure 2: Correlation between Good Governance Index (2020-21) and National Multidimensional Poverty Index (2021)



Source: National Multidimensional Poverty Index (2021)¹⁴ by NITI Aayog and Good Governance Index report (2021)¹⁵

Significance of Panchayati Raj Institutions in ensuring good governance at the grassroots levels

The 2030 Agenda considers that local governments across the world are key actors to fulfil the SDGs. People's confidence and trust in public institutions at all levels, and in the people who lead such institutions, is critical. SDG 16 aligns with the broader human development aspect, inter alia, including the target 16.6 'Develop effective, accountable and transparent institutions at all levels'. Within this context, local governments have a vital role in this as they are the closest to the people, have in-depth knowledge of challenges that citizens face, and are the most immediate to act and be accountable.

While progress is being made at the national level towards achieving good governance for a sustainable human development cause, it can be further catalysed at the local level. Particularly in the context of India, the Panchayati Raj Institutions, especially Gram Panchayats, play a significant role in local governance because of their omnipresence as the Constitutional local self-governance units comprising 60 per cent of the country's population in more than 6 lakh villages. The 73rd Constitutional Amendment Act, 1992, mandates these Panchayats to function as an institution of self-governance to plan and implement activities on 29 subjects listed in the Eleventh Schedule of the Constitution, which includes subjects with a critical bearing on human development. Therefore, their association has the necessary potential to get people involved in all possible measures on an institutionalised basis.

Status of Panchayati Raj Institutions in the aspect of good governance

The governance at grassroots levels serves as a foundation for the broader governance structure at the State and National levels. Hence, it is important to observe this effect based on evidence. Ministry of Panchayati Raj frequently

assesses the status of Panchayats across various other parameters, such as delivery of public services, etc., as important parameters of good governance at the Panchayat level.

A study conducted by the Ministry of Panchayati Raj on “*Status, Processes, Problems in Preparation of Gram Panchayat Development plan (GPDP) and its Impact on Panchayat Service Delivery and Way forward for further strengthening of GPDP*” (2023) ranks the States on parameters, inter alia, relating to governance at the Gram Panchayat level. Ten parameters relating to and affecting the functioning of Gram Panchayats have been considered for the analysis here, and the ranking of the States on these parameters, exactly as per the study, is shown in Table 5.

Table 5: Ranking of States on ten governance parameters relating to and affecting functioning of Gram Panchayats

Sl. No	State	Availability of Man power for GPDP	Digital Connectivity in the GP	Convergence of Schemes in GPDP	Mobilisation of Own Sources of Revenue	Participatory Decision Making through Gram Sabhas	Grievance Redressal System	Construction and Maintenance of Office Buildings	Status of Citizens services through ICT	Public disclosure of panchayat activities	Average Devolution Index ranking (2005-06 to 2016-17) as per MoPR records	Average ranking on eleven parameters
1	Andaman and Nicobar Islands	24	25	21	10	15	13	19	29	15	16	19
2	Andhra Pradesh	7	7	8	8	5	5	2	4	10	10	7
3	Arunachal Pradesh	26	26	27	26	26	26	26	13	26	21	24
4	Assam	5	8	12	15	3	8	10	25	4	16	11
5	Bihar	29	23	25	20	25	25	24	14	27	18	23
6	Chhattisgarh	9	11	16	23	19	14	13	3	16	10	13
7	Goa	8	16	10	3	9	15	15	28	7	18	13
8	Gujarat	17	14	5	6	10	10	9	15	12	9	11
9	Haryana	15	9	6	18	14	7	11	6	19	10	12
10	Himachal Pradesh	14	3	6	11	7	4	4	7	3	12	7
11	Jharkhand	18	15	24	22	23	24	25	24	22	19	22
12	Karnataka	12	18	19	21	17	19	22	23	18	3	17
13	Kerala	2	1	1	4	2	2	1	2	2	2	2
14	Lakshadweep	28	29	28	28	29	28	29	10	29	17	26
15	Maharashtra	10	21	26	29	27	29	27	21	5	4	20
16	Manipur	6	5	22	24	18	16	3	19	21	20	15
17	Madhya Pradesh	23	22	17	12	21	21	20	22	23	6	19
18	Odisha	21	24	20	16	24	22	14	26	24	12	20

Table 5: Ranking of States on ten governance parameters relating to and affecting functioning of Gram Panchayats

Sl. No	State	Availability of Man power for GPDP	Digital Connectivity in the GP	Convergence of Schemes in GPDP	Mobilisation of Own Sources of Revenue	Participatory Decision Making through Gram Sabhas	Grievance Redressal System	Construction and Maintenance of Office Buildings	Status of Citizens services through ICT	Public disclosure of panchayat activities	Average Devolution Index ranking (2005-06 to 2016-17) as per MoPR records	Average ranking on eleven parameters
19	Puducherry	30	28	30	30	30	30	30	9	30	18	27
20	Punjab	25	27	23	25	22	23	23	30	25	19	24
21	Rajasthan	20	19	14	17	13	11	8	5	14	8	13
22	Sikkim	4	4	4	2	4	3	12	18	8	7	7
23	Tamil Nadu	1	2	2	1	1	1	5	1	1	5	2
24	Telangana	11	10	9	14	6	6	6	8	13	14	10
25	Tripura	13	13	11	7	8	18	17	27	9	13	14
26	Uttar Pradesh	22	20	18	19	20	20	18	17	20	14	19
27	Uttarakhand	16	12	13	9	11	9	16	12	6	16	12
28	West Bengal	3	6	3	5	12	12	7	16	11	5	8

Source: Study conducted by the Ministry of Panchayati Raj on “Status, Processes, Problems in Preparation of Gram Panchayat Development plan (GPDP) and its Impact on Panchayat Service Delivery and Way forward for further strengthening of GPDP”(2023)

It would be significant to correlate this ranking of States on ten governance parameters with the ranking on availability of infrastructure/facilities in a village or a Gram Panchayat as per Mission Antyodaya Survey 2020, as in Table 6 above. The analysis shows a positive correlation of +0.5, as shown in Table 6, implying that the Panchayats and States should take necessary measures to improve upon these parameters.

Table 6: Correlation of MA 2020 Survey ranking of States as per their score and Ranking of States on ten governance parameters as per GPDP study of MoPR, as shown in Table 6

Sl.No.	State	MA 2020 Survey		Average ranking of States on ten parameters relating to and affecting the functioning of the Gram Panchayats (as per MoPR's study on GPDP depicted in Table 5)
		(average percentage of facilities available in a representative village out of 34 parameters analysed)	Ranking as per the average percentage score	
1	A&N Islands	35	7	19
2	Andhra Pradesh	34	9	7
3	Arunachal Pradesh	24	26	24
4	Assam	27	23	11
5	Bihar	30	15	23

Table 6: Correlation of MA 2020 Survey ranking of States as per their score and Ranking of States on ten governance parameters as per GDP study of MoPR, as shown in Table 6

Sl.No.	State	MA 2020 Survey		Average ranking of States on ten parameters relating to and affecting the functioning of the Gram Panchayats (as per MoPR's study on GDP depicted in Table 5)
		(average percentage of facilities available in a representative village out of 34 parameters analysed)	Ranking as per the average percentage score	
6	Chhattisgarh	32	11	13
7	Goa	36	5	13
8	Gujarat	43	2	11
9	Haryana	38	4	12
10	Himachal Pradesh	29	20	7
11	Jharkhand	27	23	22
12	Karnataka	32	11	17
13	Kerala	49	1	2
14	Madhya Pradesh	30	15	19
15	Maharashtra	32	11	20
16	Manipur	26	25	15
17	Odisha	29	20	20
18	Punjab	32	11	24
19	Rajasthan	30	15	13
20	Sikkim	34	9	7
21	Tamil Nadu	39	3	2
22	Telangana	36	5	10
23	Tripura	35	7	14
24	Uttar Pradesh	30	15	19
25	Uttarakhand	29	20	12
26	West Bengal	30	15	8
Correlation co-efficient: +0.5				

Source: Study conducted by the Ministry of Panchayati Raj on "Status, Processes, Problems in Preparation of Gram Panchayat Development plan (GDP) and its Impact on Panchayat Service Delivery and Way forward for further strengthening of GDP"(2023) and Mission Antyodaya Survey 2020 (<https://missionantyodaya.nic.in/>)

Although the performance of the Panchayats has picked up the pace in the last few years, empowering panchayats with planning and implementation of 29 subjects as envisaged in the 73rd Constitutional Amendment has remained work in progress. A brief discussion on this is presented in the next sections.

Primary constraint affecting governance at the Panchayat level

Among various other factors, the level of governance in Panchayati Raj Institutions is primarily affected by devolution of funds, functions and functionaries by the States to enable them to function as institutions of self-governance. This ultimately affects the timely and effective implementation of the flagship schemes of the government and the dispersal of benefits to the beneficiaries.

Provisions of devolution of powers to Panchayats by the States as mandated by Article 243G of the 73rd Constitution of India are only recommendatory and not mandatory in nature, due to which the devolution of functions to Panchayats varies widely across States. This ultimately reflects in the varied levels of governance administered by Panchayati Raj Institutions across the States.

Table 7 shows the average rank of the States in the Devolution Index over the period of around eleven years from 2005-06 to 2016-17 and the Good Governance Index (2020-21) score of 30 States / UTs. It is significant to see that the Good Governance Index score of States has a negative correlation (-0.6) with the numerical value of the Devolution Index Rank, which implies that devolution of powers to Panchayats may have a positive impact on the overall governance levels in the State.

Table 7: Devolution of subjects by States to the Panchayati Raj Institutions and its correlation with the Good Governance Index (2020-21)

Sl.No.	State	Average Devolution Index ranking (2005 -06 to 2016 -17)	Good Governance Index composite score (2020 -21)
1	A&N Island	16	42
2	Andhra Pradesh	10	45
3	Arunachal Pradesh	21	28
4	Assam	16	40
5	Bihar	18	46
6	Chhattisgarh	10	49
7	Dadar & Nagar Haveli	20	39
8	Daman & Diu	18	45
9	Goa	18	53
10	Gujarat	9	57
11	Haryana	10	53
12	Himachal Pradesh	12	51
13	Jharkhand	19	48
14	Karnataka	3	51
15	Kerala	2	52
16	Lakshadweep	17	34
17	Madhya Pradesh	6	49
18	Maharashtra	4	54
19	Manipur	20	35
20	Odisha	12	46
21	Puducherry	18	47
22	Punjab	19	50
23	Rajasthan	8	49
24	Sikkim	7	44
25	Tamil Nadu	5	51
26	Telangana	14	48
27	Tripura	13	45
28	Uttar Pradesh	14	46
29	Uttarakhand	16	48
30	West Bengal	5	45

Source: • Records of MoPR (<https://pib.gov.in/PressReleaseframePage.aspx?PRID=1814116>)

• Good Governance Index report (2020-21)⁶⁶

Impact of constraints of effective governance on the functioning of the Panchayati Raj Institutions

The approach of State Governments regarding the delegation of financial resources and administrative responsibilities can vary based on their policies, administrative decisions, and priorities. This indirectly may affect the important catalysts of effective Panchayat functioning, which have been discussed below:

- i. **Inadequate basic infrastructure (such as Panchayat Bhawans):** For effectively performing their functions, GPs must have their own Panchayat building having at least a Meeting Hall, one Room, a mini auditorium, computers well connected with internet, video conference facilities and Common Service Centres (CSCs) to be co-located. These self-sufficient structures for GP play a pivotal role in facilitating local governance, community development, and public engagement.

Although more than 90 per cent of the Panchayats have Panchayat Bhawans, many may need the facilities required as mentioned above to develop an overall ecosystem for the effective functioning of Panchayats.

- ii. **Inadequate manpower:** GPs must be equipped with an adequate number of human resources congruent to the population, quantum and nature of functions of the Panchayat for efficient delivery of public services, effective implementation of schemes and community engagement for participatory decision-making processes. However, a study conducted by MoPR on Human Resources in Panchayats (2022-23) shows that there is wide variation across states regarding criteria for engagement of manpower, which are mainly on an ad-hoc basis and without performance-based outputs and remuneration.

- iii. **Inadequate number of training centres at Panchayat level:** There is a large pool of local leaders of around 32 lakh Panchayat elected representatives (Ers), including 14 lakh women ERs, responsible for the governance at grassroots levels. Merely electing or appointing them will not enhance their capacities needed for decision-making, the decision-making process, and prepare them for leadership roles in future. Capacity building serves as a catalyst for not only bolstering the confidence of elected leaders but also updating them on government policies and programmes, which helps in the efficient delivery of services to the citizens. The Ministry of Panchayati Raj has been supporting the training needs of these ERs and has provided around 30 lakh trainings during the past three years. For addressing the training needs of elected representatives, it is important that the training centres are established at the Block and District levels for better accountability. However, as per the data of the Ministry of Panchayati Raj, there are only 565 out of 6707 Block Panchayats and 328 out of 667 District Panchayats that have Panchayat Resource Centres in the country. However, there is a need to establish more training centres at the block and district levels.

The National Institute of Rural Development & Panchayati Raj with its pool of Mater Trainers along with and State Institutes of Rural Development provide basic trainings to elected representatives of PRIs on the functioning of Panchayats and flagship programmes. To supplement these

efforts and efforts of states, MoPR has been providing support for infrastructure and manpower for the functioning of state, district and block Panchayat Resource Centres (SPRC, DPRC & BPRC) through financial resources under the Rashtriya Gram Swaraj Abhiyan scheme.

- iv. Ability to generate own resources:** A Higher amount of Own Sources of Revenue (OSR) can help panchayats in delivering better services to people and advance the causes of good governance. Also, for the effective functioning of a panchayat, it is essential that they have enough decision-making autonomy and resource mobilisation capacity. As per the study conducted in 2021 by the National Council of Applied Economic Research on various issues related to the challenges faced by panchayats on augmenting their own sources of revenue (OSR 2021), an estimated Rs. 4 lakh OSR is being generated per Gram Panchayat versus the potential of Rs. 20 lakhs approximately, as shown in Table 8.

Table 8: Revenue Generated at the Gram Panchayat Level [Data for various Years (2016-17 to 2019-20)]

Sl. No.	State	Total Gram Panchayats (as on December 2023)	Total Revenue Collected	Estimated Revenue Collected per Gram Panchayat	Potential Revenue Per State	Estimated Potential Revenue Per Gram Panchayat
1	Andhra Pradesh	13325	1364	0.10	1829	0.14
2	Assam	2634	3	0.00	26	0.01
3	Bihar	8181	8	0.00	2904	0.35
4	Chhattisgarh	11656	110	0.01	150	0.01
5	Goa	191	4	0.02	15	0.08
6	Gujarat	14552	178	0.01	834	0.06
7	Haryana	6223	115	0.02	345	0.06
8	Himachal Pradesh	3615	8	0.00	197	0.05
9	Jammu & Kashmir	4291	2	0.00	339	0.08
10	Jharkhand	4345	5	0.00	2968	0.68
11	Karnataka	5953	547	0.09	783	0.13
12	Kerala	941	298	0.32	1223	1.30
13	Madhya Pradesh	23016	71	0.00	375	0.02
14	Maharashtra	27898	1920	0.07	2349	0.08
15	Odisha	6767	132	0.02	533	0.08
16	Punjab	13241	77	0.01	717	0.05
17	Rajasthan	11234	196	0.02	458	0.04
18	Tamil Nadu	12525	713	0.06	908	0.07
19	Telangana	12769	294	0.02	778	0.06
20	Uttar Pradesh	57661	5	0.00	4355	0.08
21	Uttarakhand	7795	91	0.01	337	0.04
22	West Bengal	3339	130	0.04	2733	0.82
Total/Average		Total	Average	Average	Average	Average
		252152	285.05	0.04	1143.45	0.20

Source : “Study to Assess the Availability of Resources for Creating the Assets and Initiatives taken for Generating Various Own Sources of Revenue” by the National Council of Applied Economic Research (<https://www.ncaer.org/publication/study-to-assess-the-availability-of-resources-for-creating-the-assets-and-initiatives-taken-for-generating-various-own-sources-of-revenue>)

It is also significant to note that Panchayats of the States with the better Good Governance Index (2020-21) may exhibit better capabilities to generate own sources of revenue as positive correlation coefficient of +0.4, as shown in table 9.

Table 9: Correlation between the Good Governance Index (2020-21) and per capita revenue generated in 19 States/Union Territories

Sl.No.	State	Per Capita revenue (OSR 2021)-Rs. In actuals	Good Governance Index composite score (202021)-Out of 10
1	Andhra Pradesh	233	4.47
2	Assam	1	4.04
3	Bihar	1	4.62
4	Chhattisgarh	53	4.86
5	Gujarat	51	5.66
6	Haryana	69	5.33
7	Himachal Pradesh	12	5.08
8	Jharkhand	2	4.76
9	Karnataka	146	5.11
10	Kerala	170	5.22
11	Madhya Pradesh	14	4.89
12	Maharashtra	312	5.43
13	Odisha	38	4.58
14	Punjab	44	4.97
15	Rajasthan	33	4.88
16	Tamil Nadu	181	5.05
17	Telangana	92	4.84
18	Uttar Pradesh	0.32	4.63
19	West Bengal	21	4.52
	Average	78	5
Correlation coefficient = +0.4			

Source: • “Study to Assess the Availability of Resources for Creating the Assets and Initiatives taken for Generating Various Own Sources of Revenue” by the National Council of Applied Economic Research (<https://www.ncaer.org/publication/study-to-assess-the-availability-of-resources-for-creating-the-assets-and-initiatives-taken-for-generating-various-own-sources-of-revenue>)
 • Good Governance Index report (2020-21)¹⁷

Apart from training, basic infrastructure and manpower needs of the Panchayats, a comprehensive ecosystem of facilities is required in the Panchayats and their villages for ensuring effective functioning of Panchayats and their holistic development. In this context, 34 parameters of the Mission Antyodaya Survey conducted by the Ministry of Rural Development for the year 2020 have been analysed relating to the availability of infrastructure/facilities. As per this analysis, 31% of the facilities are available in a representative village on average, as shown in Table 10.

Table 10: Performance gradation of 34 parameters under MA 2020 Survey

Sl.No.	Parameters	% of facilities available/ parameters applicable on an average basis in a representative village
National Average: 31%		
States above National Average: Kerala, Gujarat, Tamil Nadu, Haryana, D&NH and D&D, Goa, Mizoram, Telangana, A&NI, Tripura, Andhra Pradesh, Sikkim, Chhattisgarh, Karnataka, Maharashtra and Punjab		
States below National Average: J&K, Ladakh, Nagaland, Bihar, MP, Rajasthan, UP WB, HP, Odisha, Uttarakhand, Assam, Jharkhand, Meghalaya, Manipur and Arunachal Pradesh		
(A): Well Performing parameters (8)		
1.	Rural Electricity-Availability of Electricity for Domestic Use	96
2.	Aanganwadi Centre	79
3.	Primary School	77
4.	Drainage Facilities	69
5.	Connected to All Weather Road	68
6.	Area irrigated (ha.)	64
7.	Total SHGs Accessed Bank Loans	54
8.	Total SHGs Federated into Village Organisations	50
(B): Average Performing parameters (5)		
9.	Public Distribution System	48
10.	Panchayat Bhawan	41
11.	Middle School	39
12.	Community Rain Water Harvesting System	39
13.	Mother and Child Health facilities	31
(C) : Low Performing parameters (21)- Below National Average		
14.	Villages with > 75% HHs Using Clean Energy	29
15.	Post office/Sub-Post office	22
16.	Piped tap water-100% Habitations Covered	21
17.	Internal Pucca Roads-Fully Covered	19
18.	High School	18
19.	Milk Collection Centre /Milk routes / Chilling Centres	17
20.	Telephone services - (Landline and Mobile)	16
21.	Recreational centre/Sports Playground-Outdoor	15
22.	Markets/Weekly Haat	15
23.	Community Forest	15
24.	Common Service Centre-Separately located	14
25.	Banks	12
26.	Minor forest production	12
27.	Veterinary Clinic or Hospital	11
28.	Primary Processing facilities	10
29.	Non-Conventional Energy-Count of Villages with Solar/ Wind Energy	10
30.	Public Library	9
31.	Public Health Centre	8
32.	Cottage and small-scale units	7
33.	Vocational Training Centre /Polytechnic/ITI/ RSETI /DDU-GKY	4
34.	Community Health Centre	4

Source: Kumar, C. S., & Sharma, M. (2023). Realisation of Sustainable Development Goals Through Panchayati Raj Institutions. *Indian Journal of Public Administration*, 69(4), 877-902. <https://doi.org/10.1177/0019556123119622> (Sage Publications)

It is significant to note that the availability of infrastructure/facilities in villages/ Panchayats has a positive correlation coefficient of +0.6 with the Good Governance Index (2020-21) score of the States, as shown in Table 11, implying that better-governed States may have better facilities and infrastructure.

Table 11: Correlation between the Good Governance Index (2020-21) and the Mission Antyodaya (2020) Survey score of 29 States/Union Territories

Sl.No.	State	Good Governance Index composite score (2020-21) (%)	MA 2020 Survey (average percentage of facilities available in a representative village out of 34 parameters analysed)
1	A&N Islands	42	35
2	Andhra Pradesh	45	34
3	Arunachal Pradesh	28	24
4	Assam	40	27
5	Bihar	46	30
6	Chhattisgarh	49	32
7	Goa	53	36
8	Gujarat	57	43
9	Haryana	53	38
10	Himachal Pradesh	51	29
11	Jharkhand	48	27
12	Karnataka	51	32
13	Kerala	52	49
14	Madhya Pradesh	49	30
15	Maharashtra	54	32
16	Manipur	35	26
17	Meghalaya	35	27
18	Mizoram	49	36
19	Nagaland	36	31
20	Odisha	46	29
21	Punjab	50	32
22	Rajasthan	49	30
23	Sikkim	44	34
24	Tamil Nadu	51	39
25	Telangana	48	36
26	Tripura	45	35
27	Uttar Pradesh	46	30
28	Uttarakhand	48	29
29	West Bengal	45	30
Average		46	32
Correlation coefficient = +0.6			

Source: •Records of MoPR (<https://pib.gov.in/PressReleaseFramePage.aspx?PRID=1814116>), Good Governance Index report (2020-21)¹⁸ and Mission Antyodaya Survey 2020 (<https://missionantyodaya.nic.in/>)

The analysis done above shows that States have made varying degrees of progress in the governance parameters; however, much needs to be done to improve the functioning of Panchayats and States. In this context, the role of the Ministry of Panchayati Raj is critically important. The Ministry of Panchayati Raj (MoPR) is responsible for advocacy, monitoring and implementation of the 73rd Amendment to the Constitution. The role of the Ministry of Panchayati Raj involves strengthening the administrative infrastructure, basic services, etc., by leveraging technology and capacity building of the functionaries of Panchayati Raj Institutions for the realisation of the United Nations' Agenda of Sustainable Development by 2030. Since its inception, MoPR has taken several initiatives towards strengthening Panchayati Raj Institutions and ensuring good governance at the grassroots level, as discussed in the next section.

Initiatives taken by the Ministry of Panchayati Raj towards strengthening Panchayati Raj Institutions and ensuring good governance at the grassroots level

Although 'Panchayat', being "Local government", is a State subject and part of the State list of the Seventh Schedule of the Constitution of India, the Ministry of Panchayati Raj (MoPR) in Government of India has the primary role for the implementation of Part IX of the Constitution of India and provide policy guidelines and advisory support to the states to realize aspirations of Constitutional provisions. Some of the key achievements and initiatives taken by the Ministry during the past years for strengthening Panchayats, benefiting the rural population at large, are listed in Table 12.

Table 12: Governance initiatives of the Ministry of Panchayati Raj towards strengthening Panchayati Raj Institutions

1	Capacity Building & training of PRIs	✧ Around 30 lakh trainings given to Panchayat elected representatives (2020-2023) ✧ Real-time progress monitoring of trainings - Training management portal of MoPR (https://trainingonline.gov.in/).
2	Digitalisation of Panchayats	
2.1	E-Gram Swaraj	✧ Work-based accounting software developed ✧ Single platform for planning and accounting
2.2	Audit Online	✧ Audit Online (https://auditonline.gov.in/) facilitates the audit of Panchayati Raj Institutions in a very transparent manner. ✧ 2.42 lakh (2021-22) and 63,810 (2022-23) audit reports generated

Table 12: Governance initiatives of the Ministry of Panchayati Raj towards strengthening Panchayati Raj Institutions

2.3	e-Gram SWARAJ-PFMS Interface (eGSPI)	✧ Planning and implementation at the Panchayat level and payments through this interface ✧ Online transactions of approximately Rs.1.35 lakh crores made by Panchayats ✧ (https://egramswaraj.gov.in/pfmsDashboard.do)
2.4	Service Delivery by the Panchayats / Citizen Charter	✧ 2.19 lakh GPs have prepared Citizen Charter and are delivering large number of services to their citizens
2.5	e-Gram SWARAJ-Government e-MarketPlace (GeM) Interface	✧ Enables Panchayats to procure their goods and services through GeM, leveraging the e-Gram SWARAJ platform ✧ Pilot successfully conducted in 12 States, and other States are in the process of completing the pilot process
2.6	Mobile App-GSNirnay	✧ Mobile application called “GS NIRNAY,” which stands for National Initiative for Rural India to Navigate, Innovate and Resolve Panchayat decision ✧ Provides easy access to critical information discussed during a Gram Sabha
2.7	Svavitva scheme	✧ 1.29 Cr property cards prepared for 78 thousand villages recognised by the State Revenue/Panchayati Raj Acts
2.8	Local Government Directory (LGD)	✧ Assigns a unique code for each local government body (https://lgdirectory.gov.in/)
2.9	E-Governance awards to MoPR	✧ Gold Award (First Place) under National Award for e-Governance 2022 for “Excellence in Government Process Re-engineering for Digital Transformation” ✧ Award for AuditOnline-ITU-World Summit on the Information Society (WSIS) Awards 2023-International Telecommunication Union, Geneva, Switzerland ✧ National Award for e-Governance 2023-SVAMITVA
3	Localisation of SDG-based Gram Panchayat Development Plan	✧ 17 SDGs aggregated into 9 LSDGs themes ✧ 2.5 lakh GPs have planned one crore activities under 9 LSDGs themes (GPDP 2023-24) with a resource envelope of more than Rs.1 lakh crore
4	Incentivisation of Panchayats / National Panchayat Awards	✧ 2,680 awards and Rs. 323.96 Crore award money given (2016 to 2023) ✧ Direct transfer of award money electronically to awardee Panchayats since 2021 ✧ Entire process of filing nominations made online since 2015 ✧ 92% (2.41 lakh GPs) participated during year 2023. Earlier, on an average, only 20 thousand GPs used to participate
5	Fivefold jump in Central Finance Commissions grants to local Rural Bodies	✧ Finance Commission releases grants to Panchayats based on recommendation of Ministry of Panchayati Raj ✧ Amount of Central Finance Commission Grants increased from Rs. 20,000 crores in 12th Finance Commission (2005-2010) to Rs. 2.36 lakh crore in 15th Finance Commission (2021-26)

Table 12: Governance initiatives of the Ministry of Panchayati Raj towards strengthening Panchayati Raj Institutions

		✧ The 14th Finance Commission and 15th Finance Commission grants were released directly in the accounts of Rural Local Bodies, whereas earlier grants were routed through State/ District treasuries.
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Source: MoPR records

Panchayats are not only the executing agencies but also institutions of local self-governance that provide a platform for the implementation of a large number of flagship programmes of Central and State Governments, congruent with 29 subjects listed in the Eleventh Schedule of the Constitution of India, as shown in Table 13. To ensure that such holistic implementation of the programmes and convergence takes place, strengthening of Panchayats in a systematic and synergetic manner is necessary. In the sections below, approaches for strengthening the Panchayati Raj Institutions to enable them to function as institutions of self-governance at the local level and fully realise the aspirations of Vision 2047 have been discussed.

Table 13: 29 subjects listed in the Eleventh Schedule of the Constitution of India

1.	Poverty Alleviation Programme
2.	Agriculture, including agricultural extension
3.	Animal Husbandry, Dairying and Poultry
4.	Fisheries
5.	Public distribution system
6.	Technical training and vocational education
7.	Markets and fairs
8.	Khadi, village and cottage industries
9.	Minor Forest Produce
10.	Small-scale industries, including food processing industries
11.	Rural Housing
12.	Health and sanitation, including hospitals, primary health centres and dispensaries
13.	Family Welfare
14.	Adult and non-formal education
15.	Education, including primary and secondary schools
16.	Women and child development
17.	Minor irrigation, water management and watershed development
18.	Drinking Water
19.	Non-conventional energy sources
20.	Fuel and fodder
21.	Social forestry and farm forestry

Table 13: 29 subjects listed in the Eleventh Schedule of the Constitution of India

22.	Land improvement, implementation of land reforms, land consolidation and soil conservation
23.	Roads, culverts, bridges, ferries, waterways and other means of communication
24.	Rural electrification, including distribution of electricity
25.	Maintenance of community assets
26.	Libraries
27.	Social welfare, including the welfare of the handicapped and mentally retarded
28.	Welfare of the weaker sections, and in particular, of the Scheduled Castes and the Scheduled Tribes.
29.	Cultural activities

Source: THE CONSTITUTION OF INDIA, [As on May, 2022]-<https://cdnbbsr.s3waas.gov.in/s380537a945c7aaa788ccfcd1b99b5d8f/uploads/2023/05/2023050195.pdf>

Approaches towards strengthening the Panchayati Raj Institution for advancing human development

Broadly, there could be two approaches that may support effective governance and implementation of flagship programmes and interventions of the Government at the Panchayat level. The first one is a bottom-up approach. The simple explanation of a bottom-up approach could be that the development largely must occur from within or ingeniously through convergence of resources, policy interventions and people's participation with a little support from external sources. The second approach is a top-down approach. Since there is a great variation in the extent of devolution of powers to Panchayats by states, as an alternative to the bottom-up approach, the central government can take the lead through a top-down approach by defining the national policies, strategies and programs for implementation at the state/UT level.

However, these two approaches are cross-cutting in nature, and therefore, an integrated approach is suggested and discussed below for strengthening the Panchayati Raj Institutions and enabling them to function as institutions of self-governance.

Approach No. 1: Convergence of implementation of flagship programmes at the Panchayat level

There has been an upward trend of a huge influx of grants to Panchayats of more than Rupees 2 lakh crore by the Central Finance Commissions, especially in the Fifteenth, which has provided Panchayats with vital financial resources for local development, autonomy and efficient service delivery. This has enabled them to undertake infrastructure projects, social welfare programmes, and poverty alleviation schemes, leading to inclusive and sustainable

development. Further, a substantial role regarding planning, implementation and monitoring has been given to Panchayats in guidelines of major flagship schemes of the Central Government with an annual budget of Rs. 670 thousand crores approximately, accounting for around 15 per cent of the total budgetary allocation of Rs. 45 lakh crores of all Central Government Ministries/ Departments as given in Table 14. If the State schemes' allocations are also considered, this annual budget figure may reach around Rs. 12 lakh crores, which is approximately 25 per cent of the annual budget of schemes in which Panchayats have substantial defined responsibilities.

Table 14: Flagship schemes of the Government of India and their budgetary allocation

Sl.No.	Flagship Schemes	Ministry /Department	Annual Budget (2023-24; or the latest year available) (Rs. in thousand crores)
Total budget of all Ministries for year 2023-24 (Rs. in thousand crores) = 4500			
1	Samagra Shiksha Abhiyan	Department of School Education	37.53
2	Mid-Day Meal	Department of School Education	11.60
3	POSHAN Abhiyan/ ICDS	Department of Women & Child Development	20.55
4	Beti Bachao Beti Pado / State Specific Scheme	Department of Women & Child Development	0.6*
5	Jal Jeevan Mission (JJM)	Department of Drinking Water Sanitation	70
6	Pradhan Mantri Krishi Sishayee yojana	Ministry of Agriculture and Farmers' welfare	10.79
7	Swachh Bharat Mission - Grameen (SBM-G)	Department of Drinking Water and Sanitation	7.2
8	Mahatma Gandhi National Rural Employment Guarantee scheme	Department of Rural Development	60
9	National Rural Livelihood Mission (NRLM)	Department of Rural Development	14.13
10	Pradhan Mantri Awas Yojana (PMAY)	Department of Rural Development	54.49
11	Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDUGKY)	Department of Rural Development	0.09
12	Pashudhan scheme	Department of Animal Husbandry & Dairying	0.6
13	Matsya Yojana (Pradhan Mantri Matsya Sampada Yojana)	Department of Fisheries	2
14	National Health Mission	Department of Health & Family Welfare	29.09

Table 14: Flagship schemes of the Government of India and their budgetary allocation

Sl.No.	Flagship Schemes	Ministry /Department	Annual Budget (2023-24; or the latest year available) (Rs. in thousand crores)
Total budget of all Ministries for year 2023-24 (Rs. in thousand crores) = 4500			
15	Janani Suraksha Yojana	Department of Health & Family Welfare	2.03*****
16	Pradhan Mantri Matru Vandana Yojana	Department of Women & Child Development	2.59****
17	Ayushman Bharat (Pradhan Mantri Jan Arogya Yojana (PMJAY))/ State Specific Scheme	Department of Health & Family Welfare	7.20
18	National Biogas and Manure Management Programme (Bio Energy Programme)	Ministry of New and Renewable Energy	0.38
19	Pradhan Mantri Ujjawala Yojana (LPG Subsidy)	Ministry of Petroleum and Natural gas	22.57
20	Deen Dayal Upadhyay Gram Jyoti Yojana	Ministry of Power	46.55**
21	National Social Assistance Programme (NSAP)	Department of Rural Development	9.65*****
22	Pradhan Mantri Kisan Samman Nidhi (PM-Kisan)	Ministry of Agriculture and Farmers' Welfare	60
23	Pradhan Mantri Garib Kalyan Ann Yojana	Ministry of Finance	200
Total			670 thousand crore approx.
State Budgetary allocation			Rs. 5 lakh crore
Total Central and State scheme budgetary allocation in which Panchayats have substantial roles and responsibilities for planning/implementation/monitoring			Around 12 lakh crore

Source: <https://www.indiabudget.gov.in/>

*Budget for Mission Shakti (Sambal), of which Beti Bachao Beti Padhao is a component

** Data for 2021-22; no further allocation information available

***Source: https://rural.nic.in/sites/default/files/RTI_DDUGKY_05112021.pdf

****Budget for SAMARTHYA, of which Pradhan Mantri Matru Vandana Yojana is a component

*****Data for 2022-23; no further allocation information available

*****Data for 2019-20; no further allocation information available

*****Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY) is a demand-driven

A scheme where funds are not allocated state-wise / sector-wise. However, during 2022-23, a total of Rs. 94.05 crore (<https://sansad.in/getFile/annex/260/AU2353.pdf?source=pqars>).

In this context, the Ministry of Panchayati Raj is engaging in a synergistic mode with States and line Ministries / Departments for complete involvement of Panchayats in planning and implementation of flagship schemes and other interventions of the Government. The success of this approach varies from State to State. Accordingly, MoPR adopted a thematic approach towards India's commitment to achieving the 2030 Agenda of SDGs in a time-bound manner and has enabled GPs to prepare theme-based GPDPs converging resources from flagship programmes of the Government. These are one of the 9 Localisation of SDGs themes,⁴⁵ amalgamated from 17 SDGs by the MoPR for making them easily relatable and understood by the rural masses and Panchayats for ease of planning. Notably, LSDGs' themes include 'Panchayat with good governance' and 'Self-Sufficient Infrastructure in Panchayats', which aim to address the governance and infrastructure aspects at the GP level.

This approach has enabled GPs to cater to national and international agendas simultaneously through community-based planning. Resultantly, around 2.5 lakh GPs in 28 States/UTs have planned Rs. 1 crore activities under 9 LSDGs themes in their GPDP 2023-24 with a resource envelope of more than 1 lakh crore, as shown in Table 15.

Table 15: Activities and resource envelope under GPDP 2023-24 under 9 LSDGs theme (As on October, 2023)

Sl.No.	State/UT	Total no. of GPs	Total no. of GPDP 2023-24 uploaded	Total no. of activities planned under GPDP 2023-24	Total resource envelope covering all schemes (Rs. in crore)
1	A&N Islands	70	70	7251	323
2	Andhra Pradesh	13325	13307	524899	3644
3	Arunachal Pradesh	2108	1528	29575	103
4	Assam	2627	2194	130599	1251
5	Bihar	8181	8056	686473	6397
6	Chhattisgarh	11143	11482	340510	4167
7	Goa	191	87	3963	54
8	Gujarat	14589	14252	175924	3075
9	Haryana	6223	6027	108757	1676
10	Himachal Pradesh	3613	3580	190481	2062
11	Jammu & Kashmir	4291	3933	89474	1835
12	Jharkhand	4345	4343	208512	1135
13	Karnataka	5953	1798	90487	523
14	Kerala	941	936	58808	989
15	Ladakh	193	192	1018	80
16	Madhya Pradesh	22727	23000	696785	7060

⁴⁵ 9 themes are (i) Poverty free and enhanced livelihoods village, (ii) Healthy village, (iii) Child friendly village, (iv) Water sufficient village, (v) Clean and Green village, (vi) Self-sufficient infrastructure in village, (vii) Socially Just and Socially Secured village, (viii) Village with good governance and (ix) Women-friendly village

Table 15: Activities and resource envelope under GPDP 2023-24 under 9 LSDGs theme (As on October, 2023)

Sl.No.	State/UT	Total no. of GPs	Total no. of GPDP 2023-24 uploaded	Total no. of activities planned under GPDP 2023-24	Total resource envelope covering all schemes (Rs. in crore)
17	Maharashtra	27874	27477	1625006	15841
18	Odisha	6763	6788	681756	6478
19	Punjab	13241	13231	68115	1566
20	Rajasthan	11140	11242	386266	7218
21	Sikkim	199	190	5718	53
22	Tamil Nadu	12525	12444	397131	5686
23	Telangana	12769	12600	666121	4465
24	D&NH and D&D	38	36	2451	10
25	Tripura	1176	1176	100559	699
26	Uttar Pradesh	57641	57570	2037527	16760
27	Uttarakhand	7785	7784	271419	1309
28	West Bengal	3339	3188	405899	6320
Total		2,55,010	2,48,511	99,91,484	1,00,779

Source: https://egramswaraj.gov.in/FileRedirect.jsp?FD=Bulletin&name=MonthlyBulletin_Oct_V01.pdf

Discussion on table 14 and 15:

The analysis above shows that although the Panchayats have a substantial role in a large number of Central and State schemes with an annual budget of around Rs. 12 lakh crores (roughly 25 per cent of the budget of schemes of the Government of India), only around 8 per cent, i.e. Rs. 1 lakh crore, is reflected as a resource envelope in the GPDPs. Hence, it is suggested that:

- Panchayats and States should capture the visibility of flagship programmes in the GPDPs, including in their resource envelope, assets created and beneficiaries and should target to increase this figure to at least Rs. 5-6 lakh crore during the next five years of the upcoming period of the 16th Finance Commission, commencing from the year 2026-27 and progressively thereafter.
- Data of beneficiaries, institutions, and infrastructure created under all the schemes must be in the Local Government Directory (LGD)⁴⁶ seeded for uniformity and easy monitoring.
- Merge Parallel Committees of Gram Panchayats with statutory Standing Committees of GPs to streamline the roles of Panchayats and avoid parallel mechanisms.

Approach No. 2: Upgradation of manpower at the Gram Panchayat level

Capacity Building of Panchayati Raj Institutions cannot be done in silos and requires a trained number of staff congruent with the tasks to be performed by

⁴⁶ Local Government Directory application assigns unique code for each local government body (<https://lgdirectory.gov.in/>)

the Panchayats. Through convergence of funds, revenue mobilisation and availability of schematic funds, GPs could fulfil their staff requirement congruent to their tasks.

A study conducted by MoPR on “Human Resources in Panchayats” (2023) has identified that, barring a few states, the human resources status is inadequate. The study has assessed and recommended the nature and structure of human resource distribution in the Gram Panchayats. This is especially important as the new tasks and functions have been assigned to the Panchayats, a huge influx of grants from the Central Finance Commission, planning and implementation of GPDPs and also coordinating or implementing various governmental flagship programmes.

The study has recommended tentative staff requirements for the GPs, congruent with their population and estimated annual cost, as shown in Table 16. Around 25 per cent of the said requirement could be met from the Administrative Cost Head of Account of Central Finance Commission grants (Fifteenth), and the remaining could be converged from resources of the States or other schemes.

Table 16: Tentative staff requirements for the GPs as per study conducted by MoPR on “Human Resources in Panchayats” (2023)

Group	Population of GP	Minimum staff requirement	Category of staff	Total annual cost (Rs. In crores)	Expected annual share from Central Finance Commission grants (Rs. In cores)
1	Less than 2500	6	Panchayat Development Officer/Secretary, Junior Clerk, Computer Operator/Technical Assistant/Clerk, Tax Collector, Cleaning/Health Staff, Rojgar Sevak	13,443	3733.75
2	2500 to 5000	8	Panchayat Development Officer/Secretary, Junior Clerk, Overseer, Computer Operator/Technical Assistant, Tax Collector, Water Pump operator, Cleaning/Health Staff, Rojgar Sevak	19,053	3856.25

Table 16: Tentative staff requirements for the GPs as per study conducted by MoPR on “Human Resources in Panchayats” (2023)

Group	Population of GP	Minimum staff requirement	Category of staff	Total annual cost (Rs. In crores)	Expected annual share from Central Finance Commission grants (Rs. In cores)
3	5000 to 10,000	12	Panchayat Development Officer/Secretary, Junior Clerk, Engineer, Computer Operator/ Technical Assistant, Tax Collector, Water Pump Operator, Peon/Office Assistant, Cleaning/Health Staff, Rojgar Sevak	3,937	571.25
4	More than 10,000	18	Panchayat Development Officer/Secretary, Assistant Secretary, Junior Clerk, Senior Clerk, Engineer, Overseer, Computer Operator/ Technical Assistant, Tax Collector, Water Pump operator, Peon/Office Assistant, Cleaning/Health Staff, Rojgar Sevak	5,218	496.25
Total		44		41,651	8657.5 (i.e. 25% of the total annual cost)

Source: Study conducted by MoPR on “Human Resources in Panchayats” (2023)

It may be, therefore, suggested that by allocating and utilising around 25 per cent grants from each of the Central Finance Commission and State Finance Commission and also the own resources of States and Panchayats, upgradation of the manpower may be done by the end of the upcoming 5-year period of the 16th Finance Commission commencing from year 2026-27.

Approach No. 3: Upgradation of GP Bhawan infrastructure

The GPs must have their own Panchayat building having at least a meeting hall, one room, a mini auditorium, computers well connected with internet, video conference facilities and Common Service Centres to be co-located or anywhere in the GP for effectively performing their functions. These self-sufficient structures for GP play a pivotal role in facilitating local governance, community development, and public engagement. For this, the Central and State Finance Commission grants and the States' own resources could be allocated and utilised.

Estimates made by the Ministry, as shown in Table 17, show that the financial implication for infrastructural upgradation of GP Bhawans would cost around 51,784 crore rupees.

Table 17: Estimates on financial implications for infrastructural upgradation of GP Bhawans

Item	Number	Estimated unit cost needed to provide lacking facility	Total estimated cost (Rs. in crore)
GP Bhawans	30,568	Rs.50 lakh	15284
GP Bhawans infrastructure upgradation	1.30 lakh	Rs.25 lakh	32500
Logistic upgradation of GP Bhawans	2 lakh	Rs.2 lakh	4000
			51784

Source: MoPR records

Approach No. 4: Training of Panchayat elected representatives

As discussed in previous sections, the Ministry of Panchayati Raj provided 30 lakh training to Panchayat elected representatives during the last three years. However, Panchayat Resource Centres are present in only 565 out of 6707 Block Panchayats, 328 out of 667 District Panchayats and 25 States. Estimates made by the Ministry show that financial implications for establishing Panchayat Resource Centres in rented buildings at the Block, District and State level in the remaining Panchayats would cost around Rs. 714 crore, which includes recurring costs. This could be availed from the Central Finance Commission Grants and Own Source Revenue of the State and panchayats in equal proportions.

Realising a larger role of Panchayats in human development through climate action and women's empowerment

Human development is intricately tied to climate change and women's empowerment. Climate change aggravates poverty, impacting vulnerable communities disproportionately. Women, often responsible for resource management, bear the brunt of environmental degradation. Empowering women through education and economic opportunities not only enhances their resilience but also fosters sustainable development. Women's involvement in climate action is crucial for effective, inclusive solutions. Addressing gender disparities and supporting women's rights contributes to a more resilient society, better equipped to mitigate and adapt to the challenges posed by climate change, fostering a holistic approach to sustainable human development.

Significance of Panchayats in women's empowerment

India is primarily a rural nation, where over 60 per cent of the population lives in over 6 lakh villages. About 60.8 per cent of its workforce resides in these rural areas, contributing significantly to the nation's economy, accounting for approximately 46 per cent of its Gross Domestic Product. Within this context, it is essential to acknowledge the notable presence of a 48 per cent women's population (as per Census 2011) and women's Labour Force Participation Rate in rural areas of 41.5 % during 2022-23¹⁹. This demography is significant, not just in terms of numbers but also because of the vital roles that women play across various aspects of human development. International Monetary Fund Chief Christine Lagarde and Norway's Prime Minister Erna Solberg, in a joint paper published by the World Economic Forum, have highlighted the importance of raising women's participation in the labour force to an equivalent of men, which could boost India's GDP by 27 per cent²⁰. India Skill Report (2019) estimates that the Indian economy can grow at a rate of up to 12 per cent if the share of the women workforce is increased to around 48 per cent. These figures and interpretations clearly signify the need for equitable inclusivity of women in all sectors for holistic development.

Women's empowerment is also a critical global imperative, which serves as a fundamental element in the pursuit of sustainable development. As a committed signatory to the United Nations' 2030 Agenda for Sustainable Development, India has embraced the objectives of achieving Sustainable Development Goals (SDGs) 5 and 16 relating to gender equality and fostering robust institutions, respectively. Panchayati Raj Institutions (PRIs) in India have also emerged as pivotal agents of change in advancing women's empowerment and facilitating the realisation of SDGs. Ensuring 33 per cent women's representation as elected officials in PRIs ensures that their perspectives shape the local and national policies as mandated through Article 243D(3) of the 73rd Amendment Act, 1992 of the Constitution of India.

Global Gender Gap report 2023, released by the World Economic Forum²¹, measures the progress of gender parity in 146 countries through an index under four categories (sub-index), namely, Economic Participation and Opportunity, Educational Attainment, Health and Survival and Political Empowerment. As per this report, India has been ranked 127 out of 146 countries with an overall score improvement of 1.4 percentage points and eight positions compared to the year 2022. A comparative score of India with respect to its neighbouring and high-ranking countries is given in Table 18.

Table 18: Ranking and score of a few countries as per the Global Gender Gap Report 2023

Sl.No.	Country	Rank	Sub-Index Score* (Percentage)				
			Economic Participation and Opportunity	Educational Attainment	Health and Survival	Political Empowerment	Average score
1	United States of America	43	78.00	99.50	97.00	24.80	74.80
2	Bangladesh	59	43.80	93.60	96.20	55.20	72.20
3	Bhutan	103	70.80	96.30	96.20	9.30	68.20
4	China	107	72.70	93.50	93.70	11.40	67.80
5	Sri Lanka	115	55.50	98.80	98.00	13.00	66.30
6	India	127	36.70	100	95.00	25.30	64.30
Global		-	60.1	95.2	96	22.1	68.35

Source: *Score as per the report has been converted to a percentage.

For analysing the progress on women's development, 18 indicators of NFHS 4 and 5 Surveys in 5 key areas and one indicator of political representation in PRIs have been used as presented in Table 19. These indicators show a correlation coefficient of +1.0 with an average score of 44 and 51.35 for the period corresponding to NFHS 4 and 5, demonstrating the reliability of these indicators and improvement in economic, health and political representation standards of women.

Table 19: Progression across women-related 6 key areas and 19 indicators as per NFHS-4 and 5 surveys, and political representation in PRIs as per the Ministry of Panchayati Raj records

Sl. No.	Key Areas of Women empowerment	Indicators	Average percentage (rounded off)		
			NFHS-4 (2015-16)	NFHS-5 (2019-21)	Percentage Point improvement
1	Economic empowerment	1. Married women employed	46	54	17.5
		2. Married women earn cash			
		3. Women with a bank account that they themselves use			

Table 19: Progression across women-related 6 key areas and 19 indicators as per NFHS-4 and 5 surveys, and political representation in PRIs as per the Ministry of Panchayati Raj records

Sl. No.	Key Areas of Women empowerment	Indicators	Average percentage (rounded off)		
			NFHS-4 (2015-16)	NFHS-5 (2019-21)	Percentage Point improvement
		4. Ownership of house alone or jointly by women			
		5. Ownership of land alone or jointly by women			
2	Digital empowerment	1. Women with a mobile phone that they use themselves	46	54	17.5
3	Health	1. Women who received Ante-natal care	54	63*	17
		2. Pregnant women with institutional deliveries			
		3. Households using clean fuel for cooking (Electricity, LPG/natural gas, biogas)			
		4. Total fertility rate (children per woman)			
		5. Pregnant women receiving any service under ICDS			
		6. Breastfeeding women receiving any service under ICDS			
		7. Non-anemic women			
		8. Women covered under health insurance or a health scheme (Central or State Govt.)			
4	Education	1. Females completed 10 or more years of schooling	52	57	10
		2. Literacy rate (women)			
5	Decision making	1. Currently married women making decisions regarding their own health care, major household purchases, and visits to their own family or relatives alone or jointly with their husband	39	43	10
		2. Women seeking help against violence			

Source: -NFHS-4 and 5 the of Ministry of Health and Family Welfare

-Records of the Ministry of Panchayati Raj

*Except for 'Total fertility rate (children per woman)', as this indicator is unique in nature, representing improved status with a decrease in its figure to a limited extent.

Also, to corroborate the observations of NFHS data as discussed earlier, we further analysed the relevant parameters of the SDG India Index (2020) score published by NITI Aayog. For this purpose, relevant women-related SDGs 1,2,3,4,5,8 have been mapped under a single theme 'Women Empowerment' with an average score of 59 as per NITI Aayog's SDG India Index 2020, as presented in Table 20. The average score obtained from the metrics of the NFHS-5 survey and records of the Ministry of Panchayati Raj on 6 key areas and 19 indicators, as analysed above, is 52.60. Comparison of these scores establishes the robustness of observations discussed in earlier sections.

Table 20: Corroboration of data analysed on 6 key areas as per NFHS-5 and records of the Ministry of Panchayati Raj with SDG India Index score (2020)

Theme	SDGs mapped	Average SDG India Index (2020) score as per NITI Aayog's dashboard	6 key areas (with 19 indicators relating to women) as per NFHS-5 and records of the Ministry of Panchayati Raj	Average score on theme 'women empowerment' in 6 key areas across 19 indicators as per NFHS-5 and records of the Ministry of Panchayati Raj
Women Empowerment	1,2,3,4,5,8	59	Economic empowerment, digital empowerment, health, education, decision making and political representation	52.60

Source: • Records of the Ministry of Panchayati Raj

• NITI Aayog. (Various Years). SDG Index India Dashboard. <https://sdgindiaindex.niti.gov.in/#/ranking>

Some of the actions and initiatives that could be taken at the Panchayat level towards women's empowerment are mentioned below:

- I. Focus on prioritisation of women's issues by PRIs and incorporation of activities relating to women's development in the annual GPDPs can catalyse the efforts on women's empowerment. GPDPs of around 2.5 lakhs GPs for the year 2023-24 include 1 crore activities of the resource envelope of Rs. 1 lakh crore, and include large numbers of flagship programmes of the Government of India. The outcome of many of these activities has a direct or indirect bearing on the well-being of women living in rural areas.
- ii. Leadership and managerial role-specific trainings for women: Specialised / theme-based trainings need to be provided through institutes of excellence such as the Indian Institute of Management, Institute of Rural Management and such others. Panchayats should also initiate cross-learning and peer learning among elected women representatives.

- iii. Addressing women's economic empowerment through Self-Help Groups (SHGs): In the context of women's economic empowerment, Self-Help Groups (SHGs) have emerged as a powerful medium for socio-economic empowerment, especially for women in rural India. As per the Mission Antyodaya Survey 2020, around 26 per cent of households have been mobilised into SHGs, and 54 per cent of SHGs are accessing bank loans. States and Panchayats should actively engage with SHGs in uplifting the economic well-being of women.
- iv. Incentivisation of Panchayats through awards: Recognising the performance of Panchayats through incentivisation (both awards and monetary terms) acts as a triggering factor in advancing the leadership quality and motivating quality service delivery by elected representatives, including women, in the Panchayats. This could be observed from the trend of increasing women-led Panchayats being awarded under the annual National Panchayat Awards conferred by MoPR from 45 per cent in the year 2020 to 48 per cent during the year 2023.

Significance of Panchayati Raj Institutions at the local level in addressing climate change

The COP 28 Summit in Dubai during December 2023 marks a pivotal moment, with nations coming together to solidify their commitments to combating climate change. Despite challenges posed by around 15 per cent of a multi-dimensionally poor population seeking a life of prosperity driven by climate-intensive advancements, India pledged that it would attain net zero emissions by the year 2070 at the 26th Conference of the Parties (COP26).

World Bank's emissions data and the United Nations Emissions Gap Report 2023 provide an overall summary of the present CO₂ emissions as presented in Table 21.

Table 21 : Global CO₂ emissions status

Region	Present CO ₂ Emission (tonne)*	Per Capita CO ₂ Emission (tonne)**	2030 Target Per Capita Emission (tonne)***
	Data for year 2020		
India	220.08 cr.	1.76	3.08
China	1094.47 cr.	8.60	11.02
United States of America	432.05 cr.	14.33	3.09
Global	3356.64 cr.	4.73	2.60***

Source: * https://data.worldbank.org/indicator/EN.ATM.CO2E.KT?end=2020&name_desc=false&start=1990&view=chart

** https://data.worldbank.org/indicator/EN.ATM.CO2E.PC?name_desc=false

*** <https://www.unep.org/resources/emissions-gap-report-2023>

**** (Projecting 45% reduction in emission as per Paris Agreement - <https://www.un.org/en/climatechange/net-zero-coalition>)

The above data shows that India, with the highest population in the world, still stands below other big countries and the world’s average in CO₂ emissions.

Further, the global adoption of renewable energy is a key component of international efforts to limit global warming and transition to a more sustainable and climate-resilient future. Table 22 shows the present usage of renewable energy in the world and India, and the target for the year 2030.

Table 22: Renewable Energy Installed Capacity (Status-Year 2023 and Target-year 2030)

Region	Renewable Energy Installed Capacity (Year 2023)	Renewable Energy installation Capacity target for Year 2030
India*	176.49 GW	500 GW
Global**	3,400 GW	10,200 GW

Source: * <https://www.investindia.gov.in/sector/renewable-energy>
**Projected 3 times increase as referred in newspaper article - Indian Express Article dated 12.09.2023 (<https://indianexpress.com/article/world/climate-change/g20-summit-triple-global-renewable-energy-capacity-2030-challenges-8934610/>)

The potential of Panchayats could be explored in the usage of renewable energy. Estimating that if one Panchayat generates 1 MW of renewable energy, and we target to amplify it to around 10 thousand Panchayats (4 per cent of total Panchayats) by the year 2030, it could generate 10 GW of renewable energy. This potential is boundless if concerted efforts are made to onboard all the Panchayats; it could meet 50 per cent of the target of India’s Renewable Energy installation by the year 2030.

In recent years, many Panchayats have come forward with the concept of carbon neutrality. A prominent example is that of the Meenangadi Gram Panchayat in Wayanad district of Kerala. Similarly, Palli Gram Panchayat of Samba district in Jammu and Kashmir has been officially declared as India’s first carbon-neutral Gram Panchayat and fully solar energy powered Panchayat on 24th April, 2023. MoPR has recognised Meenangadi with “Carbon Neutral Gram Panchayat Award-2023” along with two other Gram Panchayats for its outstanding efforts towards achieving net zero-carbon emissions.

Further, the Gram Urja Swaraj dashboard (<https://egramswaraj.gov.in/urjaDashboard.do>) of the Ministry of Panchayati Raj reflects that 2080 Gram Panchayats have already implemented Renewable Energy Projects, and further 4277 GPs propose to do so.

Some of the actions and initiatives that could be taken at the Panchayat level towards climate change are mentioned below:

- i. **SDGs theme-based planning:** Around 2.5 lakh GPs in 28 States/UTs have taken up 31 lakh activities under the “Clean and Green village” LSDG theme in their GPDP 2023-24 with a resource envelope of more than Rs. 26

thousand crores. Further, around 1.20 lakh GPs have taken up 5.70 lakh activities under GPDP 2023-24, mapped with Mission LiFE actions with a resource envelope of more than Rs. 4 thousand crores.

ii. Disaster Management and Panchayats: GPs are the first responders in the event of unforeseen disasters, with a strong force of leaders of around 32 lakh Panchayat elected representatives. In response to high vulnerability, the Ministry of Panchayati Raj in India initiated a Disaster Management Plan, involving community-based planning from the village to the district levels. A pilot project with an estimated cost of Rs. 162.58 crores aims to enhance disaster risk reduction efforts, focusing on empowerment, capacity-building, and integrating disaster management into GPDP.

iii. Other actions:

- ◆ Frame policies for protecting and restoring key ecosystems such as forests, wetlands, and those that are significant for carbon sequestration
- ◆ Support small agricultural producers and resilient farming practices
- ◆ Combat short-lived pollutants such as methane and black carbon soot

Conclusion

India is committed to achieve 2030 Agenda of United Nations for Sustainable Development which, inter-alia, includes achieving Sustainable Development Goals (SDGs) number 16 of 'Peace, Justice and Strong Institutions'. Annually, India observes 'Good Governance Day' or "Sushasan Saptah" on December 25 to signify its importance towards economic and human development. Good governance needs good legislatures to ensure the accountability of the executive to the people and collaborative actions from various government and non-government stakeholders. However, it is the local bodies or the Panchayats that are the most proximate bodies at the grassroots levels, responsible for development on an institutionalised basis through community engagement. Hence, it is not only required to make a routine course corrective action in empowering Panchayats for good governance on aspects as discussed above, but also to strategise a long-term vision to enable Panchayats to function as institutions of self-governance to fulfil the aspirations of the 2030 Agenda of Sustainable Development.

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Revisiting the Question of Transferability of Land in the Santal Parganas

Shri Karn Satyarthi

The debate regarding the transferability of land in the Santal Parganas division of Jharkhand is at least one and a half centuries old. As far back as 1886, Mr Robert Carstairs, the then Deputy Commissioner (Collector) of the Santal Parganas, conducted an elaborate enquiry to ascertain the extent to which transferability existed in the district. The enquiry revealed that there had never been any practice or custom of transfer, except for some Khas villages. Through the letter number 86T-R, dated October 1887, the Government conveyed its approval of the view that occupancy rights are not saleable except where expressly so recorded at the settlement, and the burden of proof is on the person who asserts to the contrary. Perusal of evidence from Mr. McPherson's survey and settlement report of 1909 reveals that illegal land transfers posed a big problem even in the late 19th century.

The final report on the Survey and Settlement operations in the District of Sonthal (sic) Parganas 1898–1907, published in 1909, states that,

“After 1887, two fresh principles gradually began to assert themselves in the administration and case law of the Sonthal Parganas:

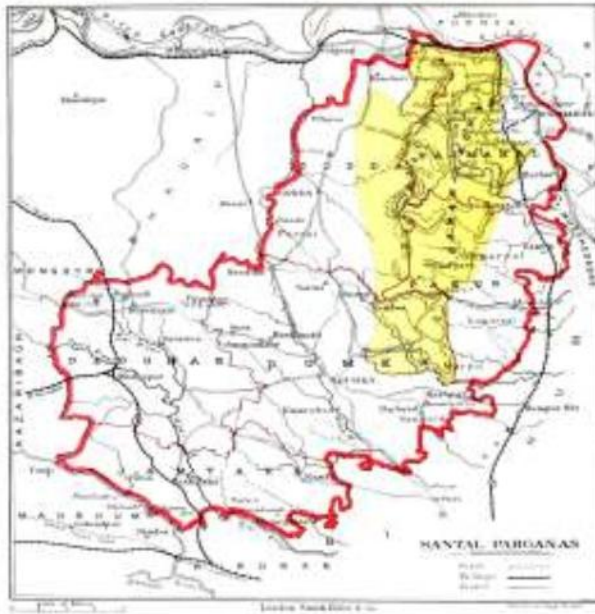
- (1) that alienations contrary to custom and the record-of-rights were not only voidable at the suit of the Zamindar, headman or village community, but were ipso facto null and void.
- (2) that it was the duty of the Deputy Commissioner and officers subject to his control, as guardians of the settlement, to interfere with all unauthorised alienations that came to their notice”.

We have come a long way in terms of codifying land laws in the Santal Parganas since the publication of McPherson's report; however, the question of transferability continues to vex policymakers, businesses, and citizens alike.

To arrive at a definitive opinion on whether a parcel of land situated within Santal Parganas can be considered transferable or not, let us first examine Section 20(1) of the Santal Parganas Tenancy (Supplementary Provisions) Act 1949, henceforth referred to as the Act. It states: “*Transfer of raiyat's rights-*

- (1) No transfer by a raiyat of his right in his holding or any portion thereof, by sale, gift, mortgage, will, lease, or any other contract or agreement, express or implied, shall be valid unless the right to transfer has been recorded in the record-of-rights, and then only to the extent to which such right is so recorded”.

Section 20 of the Act makes it implicit that transferability of land in Santal Parganas is an exception and not the rule.



To this effect, Mr JF Gantzer, in his Final Report on the Revision Survey and Settlement Operations in the District of Santal Parganas 1922–35, notes:

“Under the peculiar land system of the Sonthal Parganas, the Zemindar cannot interfere with the lands of settled villages, and the village headman is unable to settle waste or abandoned lands except for agricultural purposes; while the raiyat is debarred from effecting transfers in any form”.

If we read Section 20 of the Act along with Mr Gantzer’s report, it becomes explicit that no land lying within the ambit of the Act is transferable unless the right to transfer has been recorded in the record-of-rights. This leads to the conclusion that, if the right to transfer has not been clearly recorded in the record-of-rights, the said piece of land will not be considered transferable. The Hon’ble Jharkhand High Court, however, has ruled in *Dhena Hansda & Others v. State of Jharkhand* that.

“It is not in dispute that once the nature of land has changed from agricultural to Basauri land, thereby, it becomes transferable and such transfer does not fall within the mischief of Section 20 of the S.P. Tenancy Act, 1949”.

Dhena Hansda establishes that if a piece of land was converted from waste land or agricultural land to *Basauri* validly, even after the final publication of the record-of-rights under Regulation III of 1872, it can be considered of *Basauri* nature. The question before us now is how a land parcel can be converted into a *Basauri* holding, whether before or after survey and settlement operations. To answer this, the most crucial piece of documentary evidence, the Final Report by Mr JF Gantzer, needs to be examined. Mr Gantzer notes in paragraph 30 (page 16) of the report:

“Basauri tenancy in Zamindari Estates-

Basauri tenancies may be created in two ways: -

1. By settlement of wasteland under clause 3 of the record-of-rights and duties, and
2. By acquisition under the provisions of Section 25A of Regulation II of 1886

According to custom and practice, all Basauri holdings are transferable, and no distinction is ordinarily made in the incidents of such a holding, whether obtained by settlement under clause 3 of the record of rights and duties or by acquisition under section 25A of Regulation II”.

It follows from the above extract that there are only two ways in which a *Basauri* holding can be created. If the record of rights mentions that the nature of the land is *Parti Kadim* or waste land, *prima facie*, the land in question must be treated as waste land. This, however, does not preclude the possibility of the land parcel being converted into a *Basauri* holding after the publication of the record of rights. We must, therefore, test any claim of transferability by going into the origin of how the holding was created or converted into *Basauri*. Let us now examine the two ways of *Basauri* creation:

First, Clause 3 of the Third Programme Record-of-Rights and Duties *Khas* villages states that:

“The proprietor has full right to rent for shops, and to rent for dwellings which do not belong to cultivators, or in which cultivators do not live, or which are beyond the necessity of cultivators. The proprietor has the right to settle Basauri tenants on the unappropriated waste land of the village, but the Jamabandi raiyats, if aggrieved by the action of the proprietor in settling a Basauri tenant, may object before the Subdivisional (sic) Officer, who, after due enquiry, may set aside or modify such settlement”.

Clause 3 of the record of rights and duties for *Khas* villages appears to bestow upon the proprietor rights to settle *Basauri* tenants, subject to the concurrence of the Sub-Divisional Officer. However, this clause must be read with further discussion from Mr Gantzer’s report.

Paragraph 30 on page 16 states:

“The necessity of framing section 25A became urgent in 1906 on account of a ruling of the Calcutta High Court whereby the term “landlord” in section 84 of the Bengal Tenancy Act was declared to be applicable only to the village headman in a Pradhani village and to exclude the actual proprietor. As a consequence of this ruling, the proprietor could not make even Basauri settlements under clause 3 of the record-of-rights except in his *Khas* villages”.

It is clear from the extract quoted above that the Hon. Calcutta High Court had, by its judgment, placed constraints on the unbridled power of proprietors to settle wasteland into *Basauri* holdings. The judgement effectively curtailed the power of the *Zamindar* to create *Basauri* holdings in *Pradhani* villages. Thus, if

an entity claims that a land parcel is of *Basauri* nature due to settlement by the proprietor, they will also need to corroborate it with evidence of the village being a *khas* village at the time of settlement and the concurrence of the then Sub-Divisional Officer.

Second, Basauri holdings can also be created through acquisition by the proprietor using section 25A of Regulation II of 1886. If we enquire into the rationale behind enacting section 25A, we realise that this section was added to allow proprietors to acquire land for making improvements or constructing buildings. Such an acquisition could only be conducted after the prior permission of the Deputy Commissioner. This is clarified by Mr Gantzer:

“From a perusal of the correspondence leading up to the framing of Santal Parganas Rent (Amendment) Regulation, 1907, by which section 25A was added to Regulation II of 1886, it appears that this section was introduced as a substitute for section 84 of the Bengal Tenancy Act (1885) which had been in force in the Santal Parganas since 1897 and which was the only law under which a landlord could acquire land for building and other purposes”.

It is clear that the Calcutta High Court judgement of 1906 had severely constrained the ability of proprietors to settle *Basauri* tenants, and hence, Section 25A was added to Regulation II of 1886. However, the procedure prescribed under Section 25A states that any acquisition under this Section could be effected only after obtaining permission from the Deputy Commissioner. Section 53 of the Act further bolsters this argument. This Section has subsequently been held ultra vires of the Constitution of India by the Hon. Patna High Court in *Buddinath Mishra & Others v. State of Bihar and Others*. Nevertheless, it illuminates the link between Regulation II of 1886 and the Act.

Section 53 of the Act states:

“Acquisition of land by the landlord for building and other purposes. — (1) (a) The landlord of a village who is desirous of acquiring the holding may apply to the Deputy Commissioner for sanction to acquire the same”.

Section 84 of the Bengal Tenancy Act 1885 also provides for a certificate by the Collector before acquisition is authorised. This bolsters the view that permission of the Deputy Commissioner is mandatory for the execution of any action under Section 25A. Therefore, if an entity claims that a land parcel in question gained *Basauri* nature via acquisition under Section 25A of Regulation II of 1886, they must also corroborate it with the Deputy Commissioner’s sanction for such acquisition.

The examination of existing literature on land revenue laws of the Santal Parganas reveals that the default position regarding land parcels is non-transferability. The historical evolution of land laws in the region has also led to the development of clear-cut tests for establishing transferability. Therefore, any claim of transferability must be subjected to these well-defined tests.

Notes:

1. A *Khas* village is defined as a village that has no traditional village headmen, such as a *Pradhan* or *Mulraiyyat*.
2. *Basauri* can be loosely translated as homestead land. The Final Report on the Revision Survey and Settlement Operations in the District of Santal Parganas 1922–35 by Mr JF Gantzer establishes *Basauri* land to be freely transferable. This has been affirmed through subsequent court judgments.
3. *Parti Kadim* can be loosely translated as wasteland; however, it has a wide import and means any piece of land that has not been settled by the proprietor for agricultural or residential purposes.
4. Proprietor in the present context means the landlord or the *Zamindar*.
5. Survey and settlement operations are conducted for the assessment of land revenue. The village map and record of rights are published after the completion of the survey and settlement operations.

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Insights from Retrospective Analysis of Ayurveda OPD Camps in & around Mussoorie and Strategic Recommendations for Strengthening the Public Health Apparatus in Remote Areas

Dr. Anupam Talwar & Dr. Geeta Devi

Abstract

Background

Uttarakhand is largely a hill state in India with challenges of remote locations, difficult access to health facilities and a shortage of health workforce in many areas. Acknowledging the imperative for health camps in hilly terrains as an effective healthcare delivery approach and recognising the untapped potential of traditional medicinal systems like Ayurveda in providing holistic healthcare, coupled with their greater acceptance in rural areas, a case was felt to organise well-designed Ayurveda camps to potentially improve the traditional healthcare services in and around Mussoorie. Leveraging the goodwill and reputable standing of Lal Bahadur Shastri National Academy of Administration, Mussoorie (LBSNAA/ Academy), efforts were made to support the state health machinery through social outreach endeavours, with a focus on organising meticulously planned Ayurveda camps in and around Mussoorie. This paper explores the initiative of Free Ayurveda OPD (Outpatient Department) camps, discussing the rationale, findings, and recommendations for strengthening the public health apparatus from an administrative/policy perspective.

Material and Methods

Seventy-five schools, colleges and villages were identified in and around Mussoorie and were categorised under seven clusters. Camps were organised in each cluster on a fortnightly basis by the team of Ayurveda Wellness Centre, LBSNAA, so that one school/college/village of each cluster got covered on a rotation basis in each round. One round covering the seven clusters consisted of eight camps in eight different locations. Information (such as age, gender, disease/symptom) was obtained from the camp's register. The collected data from the first three rounds of such camps were analysed for the morbidity profile of patients who attended the camp.

Results

In the first three rounds, 1509 patients attended 24 free Ayurveda OPD/ health camps. Out of 1509 patients, children (<15 years) constituted about 45.26 %, adults (15-60 years) constituted 49.30% and elderly (>60 years) constituted 5.43% of the beneficiaries. Maximum patients, i.e. 526, were in the age group of 11 years -15 years, which may be because health camps were mainly conducted in schools and colleges. Among males, 47.65% were children, 45.59% were adults, and 6.75% were elderly. Among females, 43.95% were children, 51.33% were adults, and 4.71% were elderly. Overall, Kasa (Cough) was the most common disease/symptom (11.7%), followed by Shirashoola (Headache) (8.8%) among the patients.

Conclusion

Data-driven insights from the camps provide valuable information for understanding healthcare needs. Further, the camps have provided valuable insights into further strengthening health care delivery in remote areas from an administrative/policy perspective, in alignment with Sustainable Development Goal 3 and to achieve Universal Health Coverage in India. Such regular health camps can be the answer to the gaps in delivery of and access to health services in hilly or remote areas and can play a significant role in providing holistic healthcare through a dedicated focus on the preventive and promotive aspects of health, apart from the curative aspect. Further, by leveraging such camps to rope in the existing public health set up - including the Ayurveda Medical Officer (AMO), Accredited Social Health Activists (ASHAs) and the Health and Wellness Centres (HWCs) - during these camps, a bidirectional benefit in awareness and access can be obtained for the State's Public Health machinery as well as the residents/ beneficiaries. In this manner, such camps can contribute towards bridging the major gap in achieving Universal Health Coverage. Greater acceptance of traditional systems of medicine like Ayurveda in rural areas of Uttarakhand /India and the potential of Ayurveda (as a part of AYUSH systems of medicine) to share the burden and to supplement the delivery of health services in remote/ rural areas are additional benefits that can be achieved through such camps.

Keywords: Health, Ayurveda, Ayurveda Camp, Public Health, IEC, Uttarakhand

Introduction

Sustainable Development Goal 3 (SDG 3) of the United Nations aims to ensure healthy lives and promote well-being for all at all ages.^[1] As per the World Health Organisation (WHO) report of 2019, 88% of Member States have acknowledged their use of Traditional & Complementary Medicine (T&CM), which corresponds to 170 Member States of WHO.^[2]

Ayurveda, one of the widely practised traditional systems of medicine, will play a significant part in promoting health and contribute to accomplishing SDG 3 through its principles that have been time-tested, scientifically backed, validated, and accepted globally. [3] Ayurveda does not focus merely on symptomatic relief or even only on the curative aspect. The strength of Ayurveda lies in its three-fold holistic approach: prevention of disease, promotion of health and cure of disease. Some of the Ayurvedic medicinal plants and spices are widely used as home remedies in India for a wide range of common ailments. So, healthcare through Ayurveda is accessible and affordable for rural India. [4] Medicinal plants play an important role in the lives of people in Uttarakhand by providing basic health care.^[5]

With the objective, inter alia, to provide holistic healthcare as well as to sensitise and bring awareness about Ayurveda principles/ practices to Officer Trainees and staff of the Academy, an Ayurveda Wellness Centre (AWC) was established in Lal Bahadur Shastri National Academy of Administration, Mussoorie (LBSNAA/ Academy) - a premier civil services training institution in India) In collaboration with the All India Institute of Ayurveda, New Delhi (AIIA). MoU for the same was signed between the two institutions on 1st September, 2019. In recent times, the AWC has taken several initiatives to spread not only awareness but also the benefits of Ayurveda through multifarious activities [Table 1].

Table 1: A few recent initiatives of Ayurveda Wellness Centre, LBSNAA

Sr.No.	Activities done by AWC
1.	Workshop on AYUSH Dietary Advisory for Pregnant and Lactating Mothers as prescribed by the Ministry of AYUSH, Government of India
2.	Workshop cum Exhibition on Traditional Food recipes from AYUSH Systems of Medicine as prescribed by the Ministry of AYUSH, Government of India
3.	Prakriti Analysis Workshop for IAS Phase 1 Officer Trainees
4.	Telemedicine Consultation services in collaboration with AIIA, New Delhi
5.	Spaces for Yoga consultation ("SAMBHAAV") and Herbal garden ("AYURSHILA") at LBSNAA
6.	"Academy Amrit Aarogya -AYUSH Sewa", a social outreach initiative through free Ayurveda OPD camps

This article delves deep into one such social outreach initiative of free Ayurveda OPD camps, "Academy Amrit Aarogya-AYUSH Sewa," and endeavours to discuss the thought behind the initiative, the findings from the camps, as well as suggestions/ recommendations for strengthening the public health apparatus from an administrative/ policy perspective.

According to NITI Aayog Incremental Performance (Health Index) with Base year (2018-19) and reference Year (2019-20), Uttarakhand has an incremental progress rank of 13 and falls in the category of least improved states [Index score >0.01 & Index score <2]. In domain-wise analysis for base year (2018-19) and reference year (2019-20), despite positive incremental progress in governance and information, Uttarakhand has seen negative incremental changes in health outcomes. In the overall performance (Health Index) of NITI Aayog, Uttarakhand fell by one rank in 2019-20 as compared to 2018-2019 and got a rank of 15 (it was among the last five states in larger states) and fell in the category of 'Aspirants', having an Index score <48 .^[6]

To give a fillip to the public health machinery of Uttarakhand, LBSNAA initiated its endeavour towards holistic healthcare provision by launching the "Academy Amrit Aarogya-AYUSH Sewa" initiative as part of the Azadi Ka Amrit Mahotsav celebrations in September 2022. Conducted fortnightly, this social outreach programme aims to deliver Free Ayurveda OPD services, with a high emphasis on prevention of disease and health promotion through lifestyle modifications -- as explained in Ayurveda-- and increase access to the benefits of Ayurveda across 75 villages and schools, in and around Mussoorie. Further, social awareness talks on several relevant topics are being delivered during the camps to raise awareness about Ayurveda principles/practices. These camps, being organised with the dual purpose of social outreach and goodwill on one hand and training inputs for the Officer Trainees of the Academy on the other, stand as a testament to the commitment of Lal Bahadur Shastri National Academy of Administration, Mussoorie, to give back to nearby communities. Participation of Officer Trainees, wherever possible, has the bi-directional benefit of feeding into training as well as social engagement/contribution by them.

Methodology

Seventy-five Schools, colleges and villages were identified in and around Mussoorie and were categorised under seven clusters (I, II, III, IV, Va, Vb, VI and VII) in [Table 2].

Table 2: Categorisation of 75 schools/Colleges/Villages in and around Mussoorie under seven clusters

Sr. No.	Cluster	School/College/Village
I)	Dhanaulti	1. Govt. Inter College, Dhanaulti 2. Govt. Inter College, Rautu ki Beli 3. Primary School, Dhanaulti 4. Upper Primary School, Dhanaulti 5. Govt. Primary School, Rautu ki Beli 6. Govt. Primary School, Almas

Table 2: Categorisation of 75 schools/Colleges/Villages in and around Mussoorie under seven clusters

Sr. No.	Cluster	School/College/Village
II)	Thatyur Jaunpur block	7. Govt. Inter College , Bangseel 8. Govt. Inter College ,Thatyur 9. Primary School , Ontad 10. Primary School ,Moldhar 11. Primary School ,Bangseel 12. Primary School ,Teva
III)	Jakhan, Dehradun	13. Primary School, Kothal Gate 14. Primary School, Malsi 15. Upper Primary school , Malsi 16. Primary School, Sinola 17. Primary School, Johri 18. Upper Primary School, Johri 19. Primary School, Kishanpur 20. Govt. Inter College, Kishanpur 21. Govt. Primary School, Jakhan 22. Primary School, Jakhan 23. Primary School, Rajpur 24. Inter College, Shahenshahi
IV)	Kempty	25. Govt. Inter College, Kempty 26. Govt. Primary School, Kandi 27. Govt. Primary School, Sainji 28. Upper Primary School, Bhatoli 29. High School, Bhatoli 30. Bhatoli 31. Kempty
Va)	Mussoorie 1	32. Ghananand Govt. Inter College, Mussoorie 33. Mussoorie Balika Inter College 34. Sanatan Dharam Girls Inter College 35. Ramadevi Inter College 36. Nirmala Inter College 37. Sanskrit Mahavidyalaya 38. Oak Grove School 39. Primary School, Jharipani 40. Primary School, Barlow ganj 41. Primary School, Chhauvani 42. Primary School Landour, Chhauvani I 43. Primary School, Khulri 44. Primary School, Kitab ghar
Vb)	Mussoorie 2	45. Primary School, Charlville 46. Primary School, Hussainganj 47. Upper Primary School, Barlow ganj 48. Upper Primary School, Kulri bazar 49. Upper Primary School, Kitab ghar 50. Upper Primary School, Dodhili 51. Primary School, Bhatta 52. Upper Primary School, Bhatta 53. Primary School, Bansagaad 54. Upper Primary School, Bansagaad 55. Kendriya Vidyalaya, Mussoorie

Table 2: Categorisation of 75 schools/Colleges/Villages in and around Mussoorie under seven clusters

Sr. No.	Cluster	School/College/Village
		56. Central School for Tibetans 57. Manava Bharati India International School 58. St. Lawrence High School
VI)	Mussoorie Kempty Road	59. Beera Gaon 60. Thalwal Gaon 61. Ghatudhar 62. Nautha Gaon 63. Nawari Dhar 64. Kyarki Dhar 65. Ran Gaon 66. Rampur Gaon 67. Jinsi Gaon 68. Khnalti Gaon
VII)	Kempty Nainbagh Road	69. Lagwal Gaon 70. Matela Gaon 71. Dabla Gaon 72. Riyat Gaon 73. Talogi Gaon 74. Sainji Gaon 75. Bhatoli Gaon

To serve as an IEC (Information Education Communication) material during the camps, a booklet **आयुर्वेद: जीवन शैली का आधार** [‘Ayurveda: Jeevan Shaily ka Aadhar’] -- that provides a brief about a healthy lifestyle as per Ayurveda-- was compiled in Hindi, in a format easily understandable by the masses. This booklet was launched by the Honourable Governor of Uttarakhand, Lt Gen Gurmit Singh, on 19-09-2022 [Figure 1].



Figure 1: Launch of booklet ‘Ayurveda: Jeevan Shaily ka aadhar’ by Honourable Governor of Uttarakhand, Lt Gen Gurmit Singh on 19-09-2022.

The first camp was flagged off from LBSNAA on 23-09-2022. Camps were organised on a fortnightly basis in each cluster by the team of Ayurveda Wellness Centre, LBSNAA (one Doctor, one Pharmacist, three Multi-Tasking staff, one photographer, one driver) - so that one school/college/village of each cluster got covered on a rotation basis in each round. One round of camps covering the seven clusters consisted of eight camps in eight different locations has shown in Table-3.

Table-3: Round Wise Coverage/location of Camps

Sr.No.	Cluster	Coverage/ Location of Camp in Round 1	Coverage/ Location of Camp in Round 2	Coverage/ Location of Camp in Round 3
I)	Dhanaulti	Govt. Inter College, Rautu ki Beli	Govt. Inter College, Dhanaulti	Govt. Inter College & Govt. Primary School, Rautu ki Beli
II)	Thatyur Jaunpur block	Govt. Inter College, Bangseel	Vill.-Almas nearby Govt. Inter College Thatyur	Govt. Girls Inter College, Thatyur
III)	Jakhan, Dehradun	Bisht Modern Primary School, Selakui nearby Primary School Rajpur	Govt. Intercollege, Kishanpur	Shahenshahi Sarvhitkari Inter College, Rajpur
IV)	Kempty	Govt. Inter College, Kempty	Bhatoli	Vill.-Sendul nearby Govt. Primary School, Sainji
Va)	Mussoorie 1	Ghananand Govt. Inter College, Mussoorie	Mussoorie Balika Inter College	Sanatan Dharam Girls Inter College
Vb)	Mussoorie 2	Kendriya Vidyalaya	St. Lawrence High school	Upper Primary School & Primary School Barlow ganj, Kitab ghar
VI)	Mussoorie Kempty Road	Village-Ran gaon, Rampur, Lagwal	Vill.-Lalotana nearby Jinsi	Nawari dhar
VII)	Kempty Nainbagh Road	Vill.-Sainji	Vill.-Tator near Bhatoli	Vill.-Talogi

Camps were held every fortnight unless the dates had to be shifted due to exams in schools/ inclement weather/ administrative reasons.

Information (like age, gender, disease/symptom) was extracted from the camp registers. The data collected from the first three rounds of such camps were analysed for the purposes of this article. By recording and analysing three pivotal variables, i.e. age, gender & prevalent disease/symptom within the community, a data-driven approach was used to understand the healthcare needs of diverse demographics.

The following services were provided at these camps: -

- **Free Ayurveda OPD consultation with free dispensing of Ayurveda medicines** - The OPD consultation at the Ayurveda camp involved a

comprehensive assessment of an individual's health, encompassing detailed discussions about their medical history, current symptoms and lifestyle factors. *The consultation extended beyond treating existing ailments, focusing on preventive measures and health promotion.*

Government-sourced Indian Medicines Pharmaceutical Corporation Limited (IMPCL) ayurveda medicines were given to patients free of cost. [Figure 2].



Figure 2: Free OPD Consultation with free dispensing of Government-sourced Ayurveda medicine

- **For health promotion and as immunity boosters-** Ayuraksha kits, Bal Raksha kits and Swasthya Raksha kits received from All India Institute of Ayurveda, New Delhi, were also distributed in camps free of cost, as shown in [Figure 3].



Figure 3: Distribution of Ayuraksha kits, Bal Raksha kits and Swasthya Raksha kit

- **Awareness talks** on ways to promote holistic health through Ayurveda were delivered. Topics included Dincharya (Daily regimen), Ritucharya (Seasonal Regimen), Menstrual Hygiene, Ayurveda and its principles, Importance of Yoga, Stress management, etc. [Figure 4]



Figure 4: Awareness talks on ways to promote holistic health through Ayurveda

- **Foundation Course and IAS Phase I Officer Trainees** also actively volunteered in facilitating the camp activities as per availability and delivered awareness talks on various health topics and health-related government schemes. [Figure 5]



Figure 5: Officer Trainees of Foundation Course/ IAS Phase I delivering social awareness talks during the camps

- **Free of cost distribution of the booklet आयुर्वेद: जीवन शैली का आधार''** " ['Ayurveda Jeevan Shaily ka Aadhar'] that provides a brief about a healthy lifestyle as per Ayurveda. [Figure 6]



Figure 6: Distribution of IEC material during the camps, booklet 'Ayurveda: Jeevan Shaily ka Aadhar'

- **Survey forms to get feedback** voluntarily from the beneficiaries were also introduced during the third round of camps. [Figure 7].

Figure 7: Survey Forms for feedback on a voluntary basis introduced during the third round of camps

"अकादमी अमृत आरोग्य आयुष सेवा शिविर" सर्वेक्षण प्रतिक्रिया प्रपत्र लाल बहादुर शास्त्री राष्ट्रीय प्रशासन अकादमी, मसूरी 1. क्या आपने पहले कभी लाल बहादुर शास्त्री राष्ट्रीय प्रशासन अकादमी के आयुर्वेदिक शिविर में भाग लिया है? i) हाँ ii) नहीं 2. आप उक्त आयुर्वेद शिविर के समग्र संगठन और प्रबंधन का मूल्यांकन कैसे करेंगे ? i) उत्कृष्ट ii) अच्छा iii) औसत iv) तुच्छ v) बहुत खराब 3. क्या आपको उक्त आयुर्वेद शिविर ज्ञानवर्धक और शिक्षाप्रद लगा? i) हाँ, बहुत जानकारीपूर्ण ii) हाँ, कुछ जानकारीपूर्ण iii) नहीं, बिल्कुल जानकारीपूर्ण नहीं 4. उक्त आयुर्वेद शिविर का कौन सा पहलू आपको सबसे अधिक मूल्यवान लगा ? i) आयुर्वेदिक परामर्श ii) जागरूकता वार्ता iii) योग और ध्यान सत्र 5. आप उक्त शिविर में प्रदान की जाने वाली आयुर्वेदिक दवाओं की गुणवत्ता का मूल्यांकन कैसे करेंगे? i) उत्कृष्ट ii) अच्छा iii) औसत iv) बहुत खराब अ) पहली बार आयुर्वेद शिविर में भाग लेने के कारण मूल्यांकन करने में असमर्थ 6. उक्त शिविर में हुए आयुर्वेद उपचार से आप कितने संतुष्ट हैं ? i) बहुत संतुष्ट ii) संतुष्ट iii) असंतुष्ट iv) पहली बार आयुर्वेद शिविर में भाग लेने के कारण मूल्यांकन करने में असमर्थ 7. क्या आयुर्वेद चिकित्सक जानकार और अनुभवी थे? i) हाँ अत्यधिक ज्ञानी और अनुभवी ii) हाँ मध्यम रूप से जानकार और अनुभवी iii) नहीं, जानकार और अनुभवी नहीं 8. क्या आप दूसरों को इस उक्त आयुर्वेद शिविर की सलाह देंगे? i) हाँ निश्चित रूप से ii) हाँ, कुछ आरक्षणों के साथ iii) नहीं 9. क्या यह उक्त शिविर आपके क्षेत्र में स्वास्थ्य सुविधाएं पहुंचाने में सफल रहा है ? i) हाँ निश्चित रूप से ii) हाँ, कुछ आरक्षणों के साथ iii) नहीं 10. उक्त आयुर्वेद शिविर की टीम का व्यवहार कैसा था ? i) उत्कृष्ट ii) अच्छा iii) औसत iv) बहुत खराब 11. शिविर में परामर्श के लिए आप क्या शिकायत लेकर आए थे? 12. क्या आप आयुर्वेद शिविर में अपने अनुभव के बारे में कुछ और साझा करना चाहेंगे? सहमति पत्र:- मैं उम्मीद निवासी लाल बहादुर शास्त्री राष्ट्रीय प्रशासन अकादमी, मसूरी द्वारा आयोजित आयुर्वेद शिविर के लिए सर्वेक्षण का हिस्सा बनने के लिए अपनी सहमति देता/देती हूँ। तिथि स्थान	हस्ताक्षर
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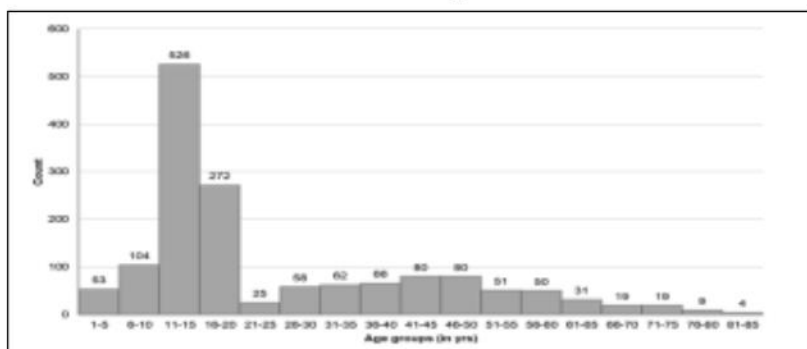
Results:

Of the 24 free Ayurveda OPD/ health camps which were held and attended by 1509 patients in the first three rounds, 545 patients availed the free OPD services during the first round, 558 and 406 patients availed free OPD services in the second and third rounds, respectively. [Table 4] Gender-wise and age-wise details of patients were recorded, along with the disease/ symptoms of the diseases among the patients who attended the camps. Out of 1509 patients, children (<15 years) constituted about 45.26 %, adults (15-60 years) constituted 49.30% and elderly (>60 years) constituted 5.43% of the beneficiaries.

Table-4: Details of Free Ayurveda OPD Camps organized in three rounds

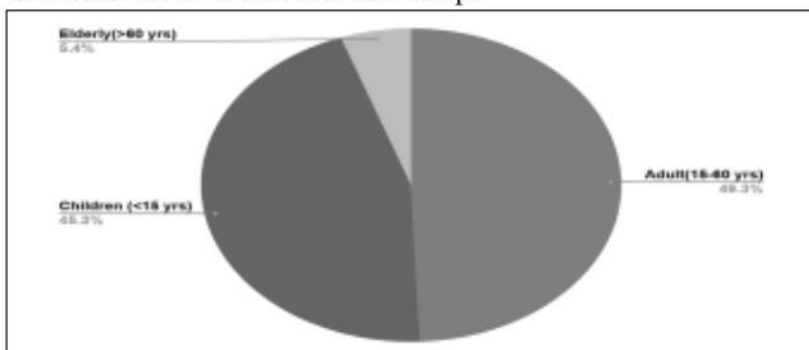
Round	Duration	Total camps	Total OPD patients	Percentage of Total Patients in the Three Rounds
First	23/09/2022 to 13/01/2023	8	545	36.12%
Second	03/02/2023 to 16/05/2023	8	558	36.98%
Third	16/06/2023 to 13/10/2023	8	406	26.90%
	TOTAL	24	1509	100%

Figure-8 (a): Age group-wise distribution of the total 1509 patients taking OPD consultation in the 3 rounds of camps



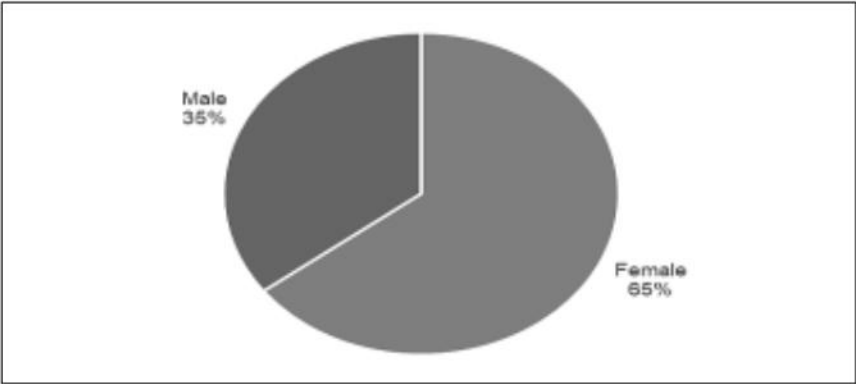
Source: Primary data collection of Camps Conducted in the study

Figure 8(b): Percentage-wise distribution of the total 1509 patients taking OPD consultation in the 3 rounds of camps



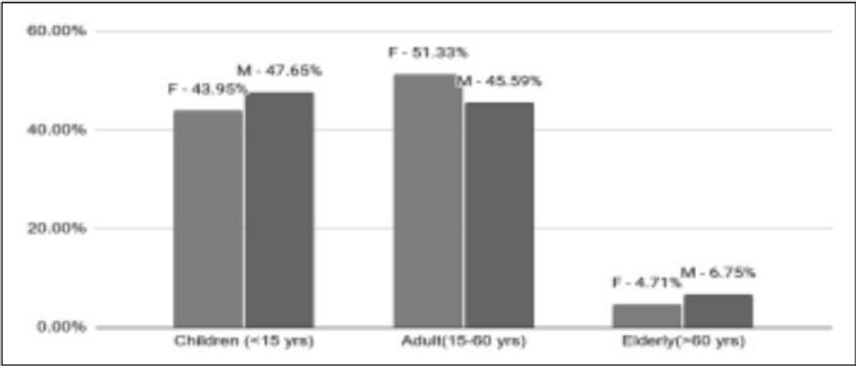
Source: Primary data collection of Camps Conducted in the study

Figure 9 (a): Gender-wise percentage distribution of the total 1509 patients taking OPD consultation in the 3 rounds of camps.



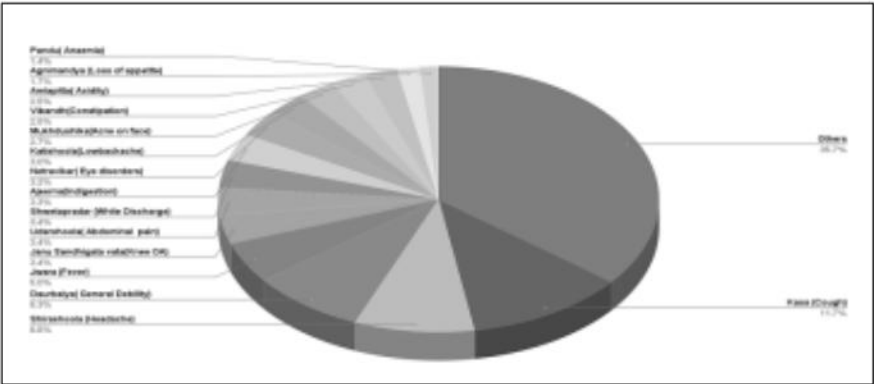
Source: Primary data collection of Camps Conducted in the study

Figure 9 (b): Gender wise distribution of the total 1509 patients in three age groups who took OPD consultation in all 3 rounds of camps (F- Female, M- Male)



Source: Primary data collection of Camps Conducted in the study

Figure 10: Top 15 prevalent Diseases/Symptoms (with a broad English translation) found in a total of 1509 patients taking OPD consultation in the 3 rounds of camps



Source: Primary data collection of Camps Conducted in the study

Discussion

From the above data, the following analysis can be made: -

Out of 1509 patients in the 3 rounds of camps, 533 (35%) were males, and 576 (65%) were females. Among males, 47.65% percent were children, 45.59% were adults, and 6.75% were elderly. Among females, 43.95% percent were children, 51.33% were adults, and 4.71% were elderly. Children (<15 years) constituted about 45.26 % of the total number of patients. Maximum patients, i.e. 526, were found in the age group of 11 years -15 years. The reason for this may be that these health camps were mainly conducted in schools. The slightly lower number of patients in the third round (406) as compared to the first and second rounds (545 and 558 patients, respectively) could be because of a combination of several factors. First, the period (June - October) in which the camps of the third round were held is the period during which the rainy season for Uttarakhand falls, because of which a smaller number of people can attend the camps, particularly in hilly areas. Also, some schools covered during this round had very low numbers of students enrolled, which could have also affected the attendance for the camps in the third round. On the contrary, generally, the schools picked up from a cluster during the first two rounds had large numbers of students enrolled. After the schools with higher enrollment were already covered in the first two rounds, the remaining institutions that had lower enrollment were picked from a cluster for the third round. Overall, Kasa (cough) was the most common disease/ symptom (11.7%), followed by Shirashoola (Headache) (8.8%) among the patients. In children, the maximum number of males (53) had the symptom/ disease of Kasa, while the maximum number of females (67) had the disease/ symptom of Shirashoola. In adults, the maximum number of males (27) and females (37) had the symptom/ disease of Kasa. In the elderly age group, the maximum number of males (3 each) had the symptom/ disease of Kasa/ Ajeerna (Indigestion)/ Sandhivata (Osteoarthritis [OA]), while the maximum number of females (5) had the disease/ symptom of Katishoola (Low back ache). [Table 5] In adults, Shirashoola was found in 32 females and 8 males. Among children, Shirashoola was found in 67 females and 21 males, while among the elderly, Shirashoola was found in 3 females and 2 males. Among total females, 43.95 % were from the age group of children (<15 years), but 67/88, that is, 76.14% of children with Shirashoola (Headache) were females. One possibility of a high percentage of Shirashoola in younger age groups could be eyesight-related issues. This and other gender linked variations need a deeper analysis.

Table 5: Age group and gender wise distribution of the 15 most common diseases/ symptoms during the three camps

Disease/ Symptom	Children (<15 years)		Children (<15 years) Total	Adult (15- 60 years)		Adult (15-60 years) Total	Elderly (>60 years)		Elderly (>60 years) Total	Grand Total
	F	M		F	M		F	M		
Kasa (Cough)	53	53	106	37	27	64	4	3	7	177
Shirashoola (Headache)	67	21	88	32	8	40	3	2	5	133
Daurbalya (General Debility)	51	43	94	17	12	29	2	1	3	126
Jwara (Fever)	28	18	46	24	4	28	2	0	2	76
Udarshoola (Abdominal Pain)	24	16	40	7	3	10	0	1	1	51
Netravikar (Eye Disorders)	16	12	28	15	5	20	0	0	0	48
Katishoola (Low Backache)	4	2	6	20	13	33	5	1	6	45
Mukhdushika (Acne on face)	13	5	18	17	6	23	0	0	0	41
Vibandh (Constipation)	10	3	13	12	13	25	0	0	0	38
Amlapitta (Acidity)	0	1	1	13	18	31	3	2	5	37
Janu Sandhigata Vata (Osteoarthritis)	10	6	16	24	8	32	1	3	4	52
Ajeerna (Indigestion)	10	7	17	13	14	27	2	4	6	50
Shweta Pradar (White Discharge)	14	0	14	37	0	37	0	0	0	51

Table 5: Age group and gender wise distribution of the 15 most common diseases/symptoms during the three camps

Disease/ Symptom	Children (<15 years)		Children (<15 years) Total	Adult (15-60 years)		Adult (15-60 years) Total	Elderly (>60 years)		Elderly (>60 years) Total	Grand Total
	F	M		F	M		F	M		
Agnimandya (Loss of appetite)	4	5	9	4	12	16	0	0	0	25
Pandu (Anaemia)	8	1	9	11	1	12	0	0	0	21
TOTAL	312	193	505	283	144	427	22	17	39	971

Recommendations for strengthening the public health machinery through Ayurveda OPD camps

The following recommendations, based on the data, experiences and observations during the first three rounds of free Ayurveda OPD camps organised by LBSNAA, Mussoorie, are being considered for adoption in future rounds of such camps. These recommendations may also be considered by administrators and policy experts for strengthening the public health machinery, particularly in remote and hilly areas of states like Uttarakhand: -

- 1. Use of Module-2 of The International Classification of Diseases- 11 (ICD-11) terminology for future Ayurveda OPD camps for standardised and uniform coding of symptoms/ diseases to help patients as well as researchers:** International Classification of Diseases-11 (ICD-11), Chapter 26, Module 2 was recently launched by the World Health Organisation in January, 2024 for Ayurveda, Unani and Siddha (ASU) systems of medicines. With its launch, ASU systems of medicine will now have the same morbidity codes across the globe, which, if used for future camps, will help mitigate the problems of uniformity in language used by different doctors as well as insurance-related issues for patients seeking recourse to these traditional medicine systems. The benefit of this uniform terminology will also accrue to the people who are associated with research work related to ASU.^[7]
- 2. Involvement of nearest posted Ayurvedic Medical Officers (AMOs):** So far, the camps have been conducted with the intimation of the Gram Pradhan / BDO / Head of the school concerned, to enable proper

identification of suitable locations for the camp and widespread awareness in a particular cluster. While this helps in making the public aware of the upcoming camp, there remains potential for increasing the benefits from such a camp. In future, it may be beneficial if these camps are conducted in collaboration with the Ayurvedic Medical Officer (AMO) posted in the nearest Ayurvedic dispensary/ PHC so that patients attending the camp can reach out to the AMO later for follow-up. This will enable continuity of health services to the patients even when the camp moves to other locations. Moreover, maintaining a proper record of the follow-up patients from the camp(s) by the AMO concerned will enable further studies and a deeper understanding of the impact of such camps.

3. **Availability of adequate Ayurveda medicines** as per the Essential Drugs List-Ayurveda by the Ministry of Ayush, Government of India, should be ensured for follow-up purposes in nearby dispensaries/ PHCs. The location of such dispensaries/PHCs can be informed to the community where such camps are held.
4. **Interlinkages with the nearest Health and Wellness Centres (HWCs) to enhance holistic health promotion:** During the Ayurveda OPD camps, it was observed while interacting with patients that many people are shifting from traditional food systems like millets (Ragi, local name: Mandua), which used to be the staple food of people of several states like Uttarakhand, to wheat and rice. Besides prescribing medicines in these free Ayurveda OPD camps being conducted by LBSNAA, a lot of emphasis is laid on holistic health promotion and disease prevention through yoga, diet and lifestyle consultation [including dincharya (daily regimen), ritucharya (Seasonal regimen)] as per Ayurveda and free distribution of IEC material. In order to enhance the longevity and impact of such consultations, it is important that there is revision and follow-up of such consultations at an institutional level, which can be done through the HWCs of the area if they are involved at the time of the camp(s). This will allow an opportunity for an en-masse interface between the general public of the area and the functionaries of the Health and Wellness Centres, which would increase patient/ beneficiary awareness about health promotion aspects of HWCs and will also enable HWC staff to take health promotion forward after the camps. In particular, this mechanism can be useful for preventing and combating Non-Communicable Diseases (NCDs).
5. **Leveraging the camps to spread awareness about Government Health Schemes:** Besides free OPD consultation, Awareness Talks on topics of relevance by the Officer Trainees (when possible) and the Panchakarma

Resident Doctor are an integral component of the free Ayurveda OPD camps being organised by LBSNAA. It was observed during camps that most females in the adult age group were still unaware of menstrual hygiene and family planning, and were hesitant to openly discuss such topics even with a female doctor. If ASHAs (Accredited Social Health Activists) also remain present during these camps, they can participate in the awareness talks and help articulate the queries and needs of the village community better, as well as reach out to the attendees of the camps en masse to make them better aware of different Government Health schemes and interventions. This would also help guide people about where to avail these services. Moreover, with proper prior intimation to the population, such camps can be leveraged to provide a one-stop centre for several additional solutions like enrollment for Ayushman Bharat Health Account card (ABHA ID), filling forms for the Old Age Pension scheme, etc. Such camps can also be leveraged to distribute IEC materials (like Professor Ayushman- a tinkle magazine by the Ministry of AYUSH) in schools.

6. **Prakriti Analysis (to identify Body Type as per Ayurveda)** may also be included as a part of Ayurveda OPD consultation camps. This can provide data for research and improve understanding of Ayurgenomics, which explores the concepts of Ayurveda, like Prakriti, with modern genetic research.
7. **Making the survey forms more elaborate:** Besides being an instrument of gaining feedback on the quality of services at the camp, the survey forms can be made more elaborate to gather more data related to public health, e.g. awareness levels, main health issues, main requirements or expectations from public health machinery, etc. Further, if such camps can be held for a community regularly, they can be a source of data on health outcomes pre- and post-camps.
8. **Scheduling Screening camps based on observations from the Ayurveda OPD camps for better health outcomes:** To better analyse the gender and age-linked variations observed in the results, and to link the observations with better health outcomes, further screening camps may be held in schools/ villages. For example, the high rates of Shirashoola (headache) in children could be due to eyesight-related problems, which can be screened through an Eye Camp, so that corrective treatment can be provided based on the exact diagnosis.
 - a. These recommendations are meant for using the traditional medicine systems like Ayurveda to supplement and strengthen the public health

machinery and the delivery of quality health services to all, in states like Uttarakhand. An integrative approach to leverage the strengths of both systems of medicine (modern and traditional), where both systems can complement each other, will further enhance the benefits of Ayurveda OPD camps.

Conclusion

This retrospective study contributes to providing suggestions for administrators for making Ayurveda OPD consultation camps more effective and for leveraging such camps to give a fillip to the state's public health machinery. By analysing a substantial dataset, it provides valuable insights for both practitioners and individuals seeking alternative health approaches. For doctors, staff and Officer Trainees who render their services, these camps serve as invaluable training grounds, instilling a profound understanding of their role in contributing to the governance and welfare of the society and help in compassionate and socially conscious professionals.

For sustaining and scaling up such initiatives, collaboration with local Ayurvedic Medical Officers, ensuring availability of prescribed medicines, and incorporating lifestyle counselling are recommended. Awareness programmes, interlinkages with HWCs, engagement of ASHA workers, and educating the community about government health schemes are crucial for improving healthcare accessibility and outcomes in remote areas. An elaborate survey and Prakriti analysis during the camps can be a source of data for measuring health outcomes and Ayurgenomics, respectively. An integrative approach to leverage the strengths of both systems of medicine (modern and traditional) will further enhance the benefit of Ayurveda OPD camps.

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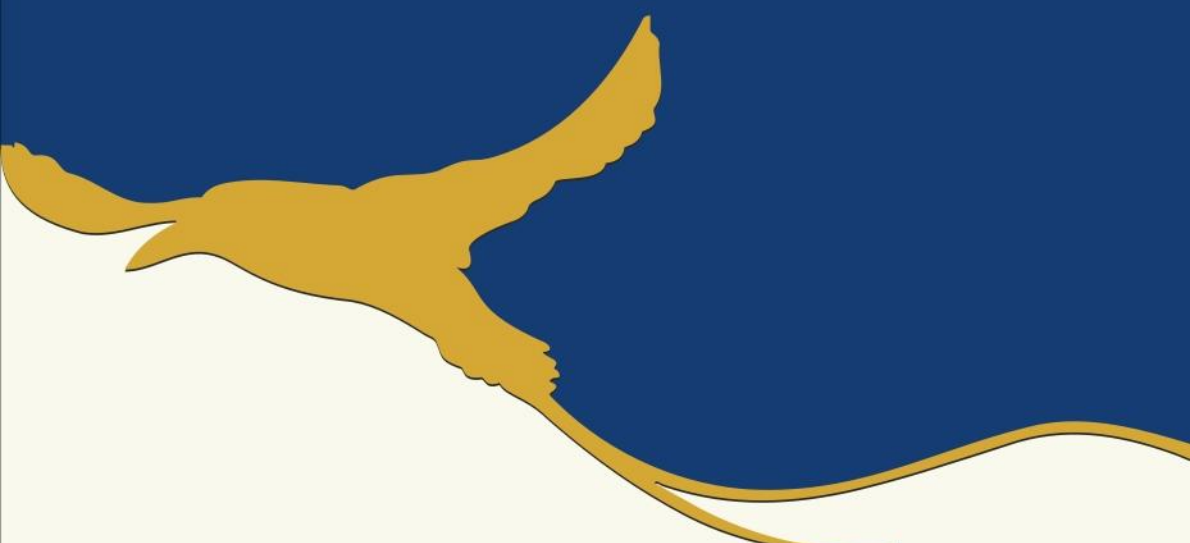
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