

**IMPLEMENTATION GAPS IN PUBLIC POLICY:
A STUDY OF INDIA'S PUBLIC DISTRIBUTION SYSTEM IN
CHHATTISGARH**

By

Parinika S

Arpita Seal

Sajith Angathan M S

Sweety Kumari

Amit Kumar Sahni

Jyotsana

Purbasa Singh

Indian Institute of SDGs and Public Policy Research

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INTRODUCTION

The relationship between policy design and policy outcome in welfare governance has long constituted one of the central preoccupations of public administration scholarship. In the Indian context, this relationship is considered particularly complex due to the coexistence of an expansive legislative welfare architecture and persistent structural barriers to its implementation, particularly barriers in administrative capacity, infrastructural deficit, social stratification and the institutional incentives that shape bureaucratic behaviour at every level of the delivery chain. The result is a system in which the formal entitlements of citizens frequently diverge from the material benefits they receive. Understanding where this divergence narrows and under what conditions is among the most consequential questions to contemporary policy research.

The Public Distribution System (PDS) represents perhaps the most instructive site for this inquiry. As the primary instrument of food security policy in India, the PDS operates at an intersection of constitutional commitment, fiscal transfer and last-mile administrative execution that exposes the structural tensions inherent in large-scale welfare governance. Its chronic weaknesses, such as leakage, exclusion error, intermediary capture, and the persistence of informal power within formally regulated supply chains, have been extensively documented in this paper. Less thoroughly examined, however, are the conditions under which these pathologies can be meaningfully attenuated through deliberate institutional intervention and the structural limits that such intervention inevitably encounters.

It is precisely this question that the state of Chhattisgarh is positioned to answer. Established as a separate administrative unit in 2000, Chhattisgarh inherited a governance environment characterised by weak institutional capacity, high structural poverty, a significant Scheduled Tribe population concentrated in geographically remote and infrastructurally

underserved regions, and a PDS apparatus distinguished chiefly by the scale of its dysfunction. Estimates from the early reform period suggest that approximately 52% of allocated food grains were diverted before reaching their intended beneficiaries, a figure that reflects not merely administrative inefficiency but the systematic capture of the distribution mechanism by private intermediaries operating with impunity in the absence of credible oversight.



Figure 1: Key map highlighting Chhattisgarh in green

The reforms initiated from the mid-2000s onwards represent a substantive departure from this earlier condition. Through the de-privatisation of Fair Price Shops, the transfer of their management to decentralised community institutions, the introduction of doorstep delivery mechanisms, and the subsequent deployment of technology-driven monitoring systems, including biometric authentication and electronic Point-of-Sale devices, Chhattisgarh

undertook one of the more comprehensive attempts at PDS restructuring among Indian states. The empirical consequences of these interventions were measurable and significant, with leakage estimates declining from approximately 52% in 2004-05 to around 14% by 2017-18, beneficiary coverage expanded to encompass an estimated 85% of the state's projected population; and Scheduled Tribe households – historically the most systematically excluded – achieved inclusion rates approaching 97% within the beneficiary database.

These outcomes have attracted considerable scholarly and policy attention, positioning Chhattisgarh as a reference case for welfare reform in contexts of comparable structural disadvantage. The Supreme Court of India has acknowledged the state's achievements; researchers including *Reetika Khera*, *Himanshu and Sen*, and *Krishnamurthy, Pathania and Tandon* have documented the reform's empirical gains; and the *World Food Programme* has cited Chhattisgarh among India's comparatively better-performing PDS systems in terms of delivery efficiency.

This paper does not contest these findings. It proceeds from the premise that an adequate account of the Chhattisgarh experience demands equal analytical attention to the structural limits of reform as to its achievements. The reduction of leakage, while substantial, has not eliminated upstream corruption; it has displaced it into segments of the supply chain where institutional oversight remains insufficiently developed. Technological interventions that have strengthened accountability in well-connected districts have reproduced and in some instances deepened exclusion in remote tribal areas where digital infrastructure is unreliable and biometric failure rates remain disproportionately high. Verification drives intended to improve targeting precision have produced episodes of mass exclusion whose burden has fallen most heavily on the communities the system was designed to protect. And the commodity basket through which the PDS fulfils its nutritional mandate continues to fall materially short of the statutory obligations articulated in the Chhattisgarh Food Security Act.

These limitations are not peripheral to the reform narrative, they are constitutive of it. They reveal that the ceiling of institutional reform in welfare governance is determined not by administrative design alone but by the persistence of structural inequalities, such as geographic, infrastructural, social, and political ones that shape the conditions under which policy is implemented and the populations that implementation reaches. The Chhattisgarh case, examined with this analytical rigour, illuminates a broader paradox in Indian welfare governance, highlighting that the same state capacity which enables reform is often the capacity whose uneven distribution produces exclusion.

This paper proceeds through a systematic analysis of the Chhattisgarh PDS across its key reform phases, drawing on empirical data, scholarly literature, government audit reports, and investigative documentation to construct a comprehensive account of both the reform's substantial achievements and its structural limitations. The central argument advanced is that institutional intervention can produce meaningful improvements in welfare delivery outcomes but also that the sustainability and equity of those improvements depend upon institutional conditions, including independent oversight, grievance infrastructure, and last-mile logistical investment, that the reform process in Chhattisgarh has addressed only partially. It is in the gap between what the reform accomplished and what it left undone that the most important lessons for welfare governance in India are to be found.

RESEARCH OBJECTIVES

- To analyse the impact of institutional and technological reforms on the implementation of Public Distribution System in Chhattisgarh, particularly in reducing leakages, improving beneficiary coverage and strengthening welfare delivery

- To examine the structural limitations and implementation challenges within the PDS model of Chhattisgarh.

METHODOLOGY

This study adopts a qualitative case study approach to analyse the implementation of the Public Distribution System in Chhattisgarh. The research examines how institutional reforms, decentralisation and technological advancement affected welfare delivery outcomes and structural limitations despite such reforms. The study primarily depended on secondary sources which include government reports, scholarly articles, National Food Health Survey (NFHS) data, and World Food Programme assessments.

The case study method has been adopted because Chhattisgarh represents a significant example of welfare reform in India. And this study will comparatively evaluate both achievements and implementation gaps within the PDS system.

LITERATURE REVIEW

The relationship between policy design and implementation outcome remains a central focus of public administration scholarship. In the Indian context, this relationship is particularly complex due to the presence of a vast legislative welfare architecture alongside enduring structural barriers such as deficits in administrative capacity, infrastructural bottlenecks and social stratification (Dreze & Sen, 2013). The Public Distribution System (PDS) is an important site for this inquiry, as it operates at the interface of constitutional commitments and last-mile administration, where citizens' formal entitlements often diverge

from the material benefits they actually receive (Sukhtankar, 2016). In the past, the PDS in different states of India was characterised by “structural pathologies” such as huge diversions of grains, exclusion errors and capture by private intermediaries (Swaminathan, 2000). But the sub-national experiment in Chhattisgarh, carved out of Madhya Pradesh in 2000, offers an instructive case study. Once a highly corrupt and inefficient state, Chhattisgarh underwent a number of institutional and technological restructurings, turning it into a much-lauded “model state” of welfare delivery. But subsequent implementation gaps have shown the limits of these reforms.

1. Baseline pre-reform and institutional reorganisation

Leakage and systemic inefficiencies had severely undermined Chhattisgarh’s PDS before the extensive reform era. As Reetika Khera (2011) argues, the eventual revival of the PDS in states such as Chhattisgarh shows that structural pathologies are not an inevitable feature of the Indian state. The turnaround was catalysed by deliberate administrative steps aimed at eliminating the profit motives driving grain diversion.

As Raghav Puri (2012) notes in his “Reforming the Public Distribution System: Lessons from Chhattisgarh”, key institutional reforms such as the de-privatisation of fair price shops (FPS), the introduction of doorstep delivery of food grains and reformed monitoring systems were critical to the success of the model. The state introduced localised accountability by doing away with private retail licences and transferring the management of FPS to collective community institutions like Gram Panchayats, cooperative societies and women’s self-help groups (SHGs), which brought down distribution leakages drastically and made it more accessible to economically vulnerable populations (Drèze & Khera, 2015).

These reforms have had, as documented by empirical works, material effects on household well-being. Krishnamurthy, Pathania and Tandon (2014), by their empirical analysis, have demonstrated that PDS reforms in Chhattisgarh substantially enhanced household food consumption and improved the food security of poor, marginalised and tribal communities who depend a lot on subsidised food grains for their livelihoods.

2. Technological Interventions: Accountability or Exclusion?

The second major phase in the evolution of Chhattisgarh's PDS was a heavy transition to an information and communication technology (ICT) architecture. The state took steps to digitise and computerise supply-chain monitoring and introduce ePoS devices, Aadhaar-based biometric authentication, and the COREPDS (Centralised Online Real-time Electronic PDS) system. According to scholars Namrata Sharma and Sumeet Gupta (2019), from a stakeholder and agency theory perspective, e-governance and information technology were effective in curbing localised corruption through enhanced transparency of procurement and delivery mechanisms. But this rapid digitisation created a heated policy paradox. Technological developments enhanced administrative tracking but at the same time produced new forms of exclusion (Muralidharan, Niehaus, & Sukhtankar, 2016). Structural issues including poor internet connectivity, frequent biometric authentication failures, data errors, and a lack of digital literacy had a serious impact on vulnerable populations. The rigid insistence on Aadhaar upset what was a highly successful system, leading to a 'denial of service' where eligible families were turned away because ePoS terminals could not read their fingerprints or lost network connectivity, as noted in the broader literature (Drèze, Chaudhuri, & Hussain, 2021). This dynamic reveals that administrative performance indicators, such as the level of digitisation or the decrease in beneficiary rolls, cannot adequately measure true welfare efficiency.

3. Structural, Geographic and Administrative Barriers

The state has a vision of an inclusive welfare framework, but there are major geographic and structural disparities, especially in remote tribal-dominated and forested areas like Bastar and Abujhmad. Particularly Vulnerable Tribal Groups (PVTGs) still face physical isolation as a major barrier. Many remote villages have a sparse distribution of shops and poor road networks so that a Fair Price Shop is not physically accessible in every local neighbourhood. As a result, Dalit and tribal women, the elderly, and the disabled often find it difficult to travel long distances to collect rations or to negotiate the bureaucratic distance required to register their names (Khera, 2019).

In addition, the nutritional value of the distribution basket content is still limited. PDS in Chhattisgarh continues to be overwhelmingly limited to a narrow crop base, rice and wheat being the main commodities. This heavy demand-supply dependency on one grain limits the long-term nutritive impact of the programme, failing to comprehensively address broader dietary diversity and persistent malnutrition (Pingali, 2015). Finally, the “model state” narrative has come under heavy strain from high-level institutional vulnerabilities and aggressive verification campaigns based on outdated lists. The genuine, economically weaker beneficiaries were caught up in a verification crisis, where they had to face hurdles in documentation and bureaucratic delays in proving their eligibility, resulting in an abrupt cut-off of their valid entitlements. Moreover, investigation results such as those of the 2015 PDS fraud allegations indicated that corruption can flow upstream if the power is too centralised around the middleman, top officials, and cooperative rice millers without independent audit mechanisms.

CASE STUDY

In public policy, accountability and effectiveness cannot be identified by policy formulation alone but by the welfare entitlements and the extent to which they successfully reach citizens in the common masses. Welfare schemes in the Indian context have been designed with cross-disciplinary development objectives; broadly, policy execution often divulges significant gaps between policy intent and policy results. The empirical study on Chhattisgarh is peculiarly crucial for understanding this paradox because the state is simultaneously regarded as one of India's successfully implemented models of the public distribution system (PDS) reform, despite the fact that there are still examples where the question of unequal welfare accessibility arises mainly in tribal regions.

The Public Distribution System in Chhattisgarh as a case study demonstrates that welfare reforms, institutional restructuring and administrative intervention substantially improve welfare accessibility, and the outcomes lie within structurally marginalised regions.¹ It also challenges the assumptions regarding the misconduct within the administrative activities while conducting welfare initiatives, and this is an unavoidable feature of the existing system in Indian states. *Reetika Khera*, in her writing, argued that "the revival of the PDS in states like Chhattisgarh signifies that the 'structural pathologies' cannot be assured as the product of any specific institutional setup which may have the possibility of alterations"²

Tracing back the historical trajectory of Chhattisgarh, it is significant to analyse the weak infrastructure, high poverty, tribal population and governance challenges related to the Maoist insurgency³. Despite the structural barriers, Chhattisgarh successfully achieved implementation goals such as reducing grain diversion, expanding beneficiary coverage and establishing a strong food security delivery mechanism. This case also uncovers the persistent realities of exclusion, technological constraints, and regional disparity within the

implementation of welfare entitlements. So this case study is an excellent demonstration of possible expected outcomes and structural constraints within welfare reforms in the Indian context.

What was the pre-reform condition, and why did this model face structural constraints?

In an earlier phase, during the pre-performance era, Chhattisgarh's administration was inefficient and widely corrupted. At that time PDS was distinguished by fake ration cards, grain diversion, irregular supply chains, weak monitoring mechanisms, and exclusion of the vulnerable from welfare benefits (not having proper documentation, etc.)⁴. *The National Institute of Transforming India (NITI AAYOG)* report on the 'Targeted Public Distribution System' came up with the analyses that the public distribution system across several states was affected by the 'large-scale leakage and food grain diversion intended for BPL holders'⁵.

Reetika Khera came up with the observation that in the early 2000s the diversion rates were extremely high in Chhattisgarh; for instance, the data show that in 2004-2005 approximately 52% of allocated food grains were diverted before they were intended to reach the beneficiaries. This instance, for purposes of reflection, shows that the whole distribution chain was controlled by private intermediaries, and such a high level of leakages shows a lack of administrative supervision and a weak monitoring mechanism⁶. The role of private intermediaries is important to understand because they are the ones who are engaged in quantity manipulation and black marketing, so they control fair price shops which are primary distribution outlets under PDS⁷. This has strong implications in the failure of PDS, as a large section of the population, primarily rural and tribal, is dependent upon subsidised grain for food security. *NFHS data reflects that Chhattisgarh consistently shows a high level*

*of poverty and nutritional inadequacy among the ST population, which affects consumption and survival within the PDS directly.*⁸

How did institutional reforms help in policy restructuring?

By *de-privatisation of Fair Price Shops*, the government, by taking progressive steps, transferred the control of the management of these outlets to the Gram Panchayats, co-operatives, women's SHGs, and local community institutions⁹. This gradually decreased the presence of privatisation of FPS outlets, which was formed to gain strong incentives from the diversion of food grains¹⁰. Raghav Puri, in his article, suggested that this is an “institutional intervention in Chhattisgarh in reforming the PDS”, as it came up with an outcome of decreasing the role of private dealers and a good initiative to address increasing community participation in food distribution; this restructuring decreased the possibility of getting profit within the supply chains and strengthened local accountability.¹¹ The doorstep delivery mechanism was introduced to transport food grains directly from the state warehouse to FPS under official supervision, decrease the opportunity for food grain diversion during transportation, and improve accountability. This is the central mechanism noted by Khera because it minimised the role of intermediaries within grain transportation. The reform therefore strengthened monitoring and administrative control over distribution channels.

To address leakages in the measurement of the grains allocated by FCI (Food Corporation of India), the reliable methodology was developed in the academic literature by *Reetika Khera (2011)* and others. It triangulates FCI-denoted data against the NSSO survey on household consumption estimates and PDS receipts, with the residual interpreted as leakage. It also has its own limitations; the surveys conducted by the NSSO have the possibility of under-reporting consumption and timing differences in administrative and survey data.

As an outcome, the central achievement in diversion reduction occurred in 2004 and 2014, which represents a massive success in the reform programme by using tribulation methodology. *Reetika Khera* estimated diversion of around 52% of grains allocated in 2004-05.

Universalization of Beneficiary Coverage

In Chhattisgarh, the coverage expansion effected through successive reforms has resulted in one of the highest beneficiary inclusion rates among Indian states. As of 2022–23, the Government of Chhattisgarh's Civil Supplies Department reported approximately 68.5 lakh priority household ration cards covering an estimated 2.78 crore beneficiaries – equivalent to approximately 85 per cent of the state's total projected population¹².

This expansion became significant to address targeted welfare. Schemes frequently exclude deserving households due to bureaucratic errors and rigid poverty categorisation. The Chhattisgarh government, therefore, adopted a broader inclusion strategy within this covered population; the National Food Security Act mandates coverage up to 50% of the urban population and 75% of the rural population of households nationally¹³. Chhattisgarh's state-level coverage exceeds national floors as it postulates deliberate actions in the policy of near-universalisation that was adopted by the Chhattisgarh Food and National Security Act 2012¹⁴.

The rural and urban tribal coverage differentials show geographical demography and social categorisation play a significant role in segregating the coverage data. For instance, rural covered 91% and urban covered 71% of households in Chhattisgarh; this identifies a gap between updating the beneficiary database because of population shifts and high income diversity in urban households, which complicates near universalisation¹⁵. The STs' household

population, which constitutes the state's most food-insecure population, shows inclusion in the PDS database at 97%; this shows a dramatic shift of improvement where once the tribal population was excluded due to lack of credentials required for administrative accessibility. So the reflection of this experiment identifies that welfare accessibility improves when the beneficiary systems become more inclusivity-centric rather than narrowly targeted.

The Ration Card Issuance study shows that the progressive expansion of ration card coverage between 2004 and 2022 marked a trajectory in the preceding section. Empirical evidence prior to 2004 shows 40% of poor households lacked valid ration cards, either by misclassification as APL or because they had never been surveyed. The 2017 CAG audit noted some persistent leakages in updating the database of newly formed households, internal migrants, and those returning from their state; those who were displaced by Maoist conflict were often not reflected in the ration card database for a period of two years. This is an administrative lag which causes short-term problems. Exclusion within a system in the near universalisation.

Analysing it with an interstate comparative perspective, the significant leakage reduction is sharpened by comparing states with similar income levels and comparing governance challenges with states like Bihar, UP and Jharkhand, which continued to exhibit a diversion rate of 35% to 45% in 2017–2018. Comparing Chhattisgarh with better-performing states such as Tamil Nadu , Kerala and Himachal Pradesh. This comparison is intrusive because Tamil Nadu and Kerala are considered governance outliers in the Indian context with strong bureaucratic traditions and civil society. Chhattisgarh, as a state formed in the 2000s, faced left-wing extremism despite successfully achieving comparable leakages through institutional reforms and inherited governance capacity.

The first phase (2011-2012) of these institutional reforms was introduced, such as de-privatisation, doorstep delivery mechanisms, and coverage expansion.

Does technology adoption really work or enhance administrative accountability?

The second phase introduced technology-based welfare reforms. Technology-driven reforms became another central feature of the Chhattisgarh PDS model. The state introduced Aadhaar-linked ration cards, biometric authentication systems, Point-of-Sale (PoS) devices, and digital transaction monitoring¹⁶. The development of electronic point-of-sale devices at Fair Price Shops was the cornerstone of Chhattisgarh's technology reform. PoS-enabled biometric authentication of beneficiaries at the time of grain collection, real-time recorded transaction, and automated upload of off-take data to the central state server. According to the official data as of October 2023 (*Deployment Status Report*), the state reported PoS devices have been installed at 100 per cent of the 11,930 functional FPS outlets in the state.

Sharma and Gupta, in their writing "*An Investigation of IT Intervention Adoption in Public Distribution System: A Stakeholder and Agency Theory Perspective*", analysed the rollout of PoS devices across Chhattisgarh using a stakeholder theory framework and came up with the observation that adoption was smooth in better-connected plains districts but encountered significant resistance and technical difficulty in tribal hill districts, where electricity supply was unreliable and FPS management training programmes did not fully address these challenges, though the *CAG (2017)* identified that offline transaction capability remained underutilised due to a lack of training¹⁷.

Aadhaar Seeding and Biometric Authentication : Aadhaar seeding of ration card records is a process of linking each beneficiary's identity to their Aadhaar biometric profile in the state PDS database, which is a prerequisite for biometric authentication at the PoS device. Taking note of demographic differentials by the government of Chhattisgarh, reported in the plains districts of Durg, Raipur and Bilaspur, seeding rates exceed 97%; on the other hand, in the tribal-dominated districts of Bijapur, Bastar, Narayanpur and Sukma, seeding rates fall to between 74% and 84%, demonstrating the lower Aadhaar enrolment among the remote tribal

population and the instance of higher incidence of biometric failure of the manual labour community.

Online Monitoring and Administrative Surveillance

The introduction of online transaction monitoring improved the state's ability to supervise grain movement and FPS-level activities¹⁸. Digital records enabled officials to track transactions more efficiently and identify irregularities within the distribution system. The *CAG (2017)* noted, however, that while the technology infrastructure for monitoring existed, its use for supervisory follow-up was inconsistent: anomalous transaction patterns flagged by the system were not always investigated, and district supply officers did not consistently act on alerts generated by the dashboard. This reflects a broader gap between the availability of information and its translation into administrative action—a gap that is institutional rather than technological in character.

The reforms therefore strengthened administrative visibility and reduced duplication within beneficiary databases.

Empirical Outcomes of the Reforms

Reduction in Leakage and Diversion

The reduction in leakage remains the most significant empirical outcome of the Chhattisgarh reforms. *Khera* estimated that grain diversion declined from approximately 52 per cent in 2004–05 to around 24 per cent by 2011–12¹⁹.

Further assessments by *the World Food Programme (2019)* estimated that leakage declined to nearly 14 per cent by 2017–18 after the expansion of technology-based monitoring

systems²⁰. The report observed that Chhattisgarh had become “one of the comparatively better-performing PDS systems in India in terms of delivery efficiency”²¹.

The evidence demonstrates that corruption within welfare systems is not merely a consequence of scarcity but is deeply linked to institutional design, monitoring mechanisms, and administrative oversight.

Improvement in Household Food Consumption

The reforms also improved household food accessibility. *Krishnamurthy, Pathania, and Tandon’s* comparative analysis using NSSO consumption data found measurable increases in cereal consumption among poorer households after the reforms²². The authors concluded that “PDS reforms in Chhattisgarh significantly increased household access to subsidised grain²³.”

NFHS data similarly reflected gradual improvements in nutritional indicators, including reductions in child stunting and food insecurity over time²⁴. While nutritional outcomes are influenced by multiple factors, the strengthening of food distribution mechanisms contributed significantly to improving household consumption among poorer populations.

The ceiling of reform

The Chhattisgarh Public Distribution System reforms represent one of the most important examples of welfare restructuring in contemporary India. Through decentralised governance, institutional reforms, expanded beneficiary coverage, and technological monitoring, the state significantly reduced leakage and improved food distribution outcomes²⁵.

However, the case also demonstrates the structural limitations of welfare governance. The persistence of technological exclusion, regional disparities, and infrastructural barriers reveals that administrative and technological reforms alone cannot fully eliminate implementation gaps²⁶.

The Chhattisgarh experience therefore highlights a broader contradiction within welfare governance in India: while institutional reforms can substantially improve efficiency and accountability, structural inequalities related to geography, infrastructure, and state capacity continue to shape actual access to welfare benefits.

PROBLEMS AND FINDINGS

Root-Cause Analysis

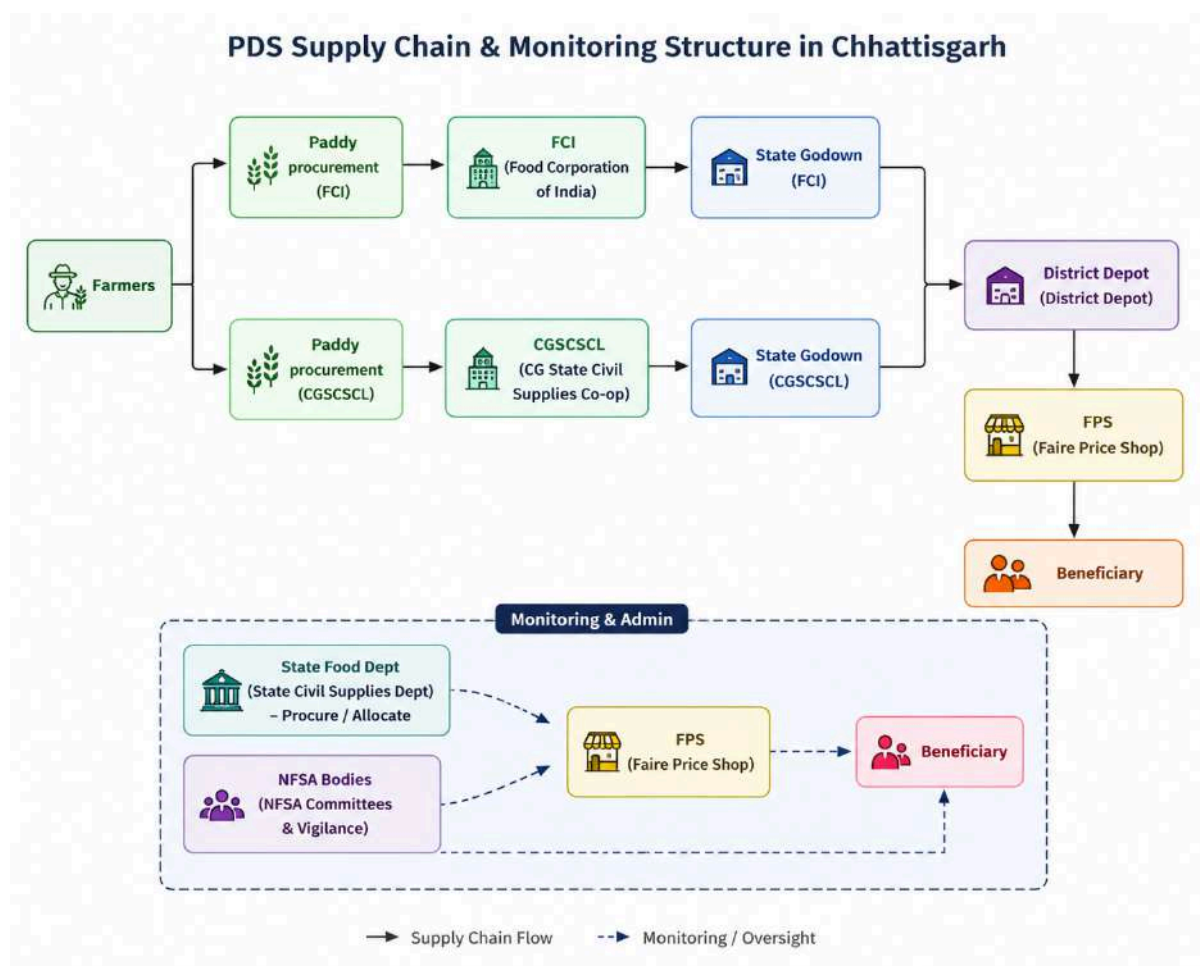


Figure 2: Current Operational Model

Figure 2 maps the current PDS supply chain and monitoring structure in Chhattisgarh. Grain moves through two parallel procurement channels – the Food Corporation of India

(FCI) and the CG State Civil Supplies Cooperative (CGSCSCL) – before passing through state godowns, district depots and Fair Price Shops (FPS) to reach the beneficiaries. Oversight is administered by the State Civil Supplies Department and NFSA Vigilance Committees, both of which monitor the FPS-to-beneficiary interface rather than the upstream supply chain.

The architecture reveals a structural vulnerability that is central to understanding how Chhattisgarh's PDS fails despite strong formal design. Accountability mechanisms are concentrated at the last mile, i.e., between the FPS and the beneficiary, while the upstream nodes, where procurement volumes and financial stakes are highest, remain comparatively insulated from independent scrutiny. The millers, godown operators and intermediary officials who sit between state procurement and district distribution occupy precisely the positions where monitoring is weakest and diversion is most consequential.

This is not a failure of the diagram's intent but rather of its institutional execution. The strong state control over procurement and distribution that made Chhattisgarh an early reform success also concentrated systemic risks – when political interference entered cooperative mills in 2015, there was no independent audit mechanism upstream to detect or contain the breach. The result was a corruption network that operated not at the FPS counter where ePoS and biometric systems now provide reasonable accountability, but within the supply chain itself through false stock entries, fabricated dealer records and collusion between millers and senior officials.

Reading Figure 2 analytically, five root causes emerge from this operational structure, each corresponding to a node or relationship in the chain:

1. **Institutional controls without upstream independence:** Chhattisgarh has been successful due to the strong state control and monitoring through the State Civil Supplies Department and NFSA Committees which has no formal jurisdiction over

FCI and CGSCSCL procurement decisions. However, the 2015 fraud allegations show that even this model can be subverted when oversight is weak (e.g., political interference in cooperative mills). The root cause seems to be power concentrated in a few middlemen (millers, top officials) without independent audit.

2. **Infrastructure deficits:** The linear flow from district depot to FPS to beneficiary assumes adequate physical connectivity. Physical isolation is a barrier for tribes, particularly in PVTG areas and remote hamlets; this final link breaks down entirely with the absence of roads, FPS outlets being sparse and beneficiaries requiring travel distances that make collection effectively impossible.
3. **Bureaucratic hurdles in beneficiary identification:** The beneficiary node at the end of Figure 1 is treated as administratively fixed – a name on a list that is tied to a particular FPS. In practice, beneficiary rolls are updated infrequently, and verification drives have produced mass exclusion of genuine ration cardholders. Ration card inclusion errors (*as noted by the 2015 NCAER report*) suggest that beneficiary targeting still relies on dated lists. Excess cards (10.8 lakh by 2014) had to be weeded out. Some of these excesses might still linger in pockets, reflecting gaps in on-the-ground verification.
4. **Technology adoption barriers:** ePoS is common, but its benefits are contingent upon user fluency. Older and less educated FPS dealers and beneficiaries sometimes find digital operations intimidating, resulting in underuse of features (like SMS alerts) and occasional data errors.
5. **Demand-Supply imbalance:** The supply chain shown moves food grains efficiently in volumetric terms, but the grain being moved, predominantly rice, does not meet the nutritional mandate of the Chhattisgarh Food Security Act. In cases of general inflation or low production at the local level, the state has to import rice or rely on the

Food Corporation of India. Additionally, Chhattisgarh has a narrow crop base (mainly paddy), meaning it has a low stock of alternative grains, making the system vulnerable to disruption in rice supplies.

Each of these root causes is examined in detail in the section that follows.

QUALITATIVE FINDINGS: CHALLENGES AND BOTTLENECKS

Corruption and Systemic Failure

The designation of Chhattisgarh as a model PDS state was premised on a set of reforms initiated in the mid-2000s, including the discontinuation of private Fair Price Shop (FPS) licences in 2004 and the introduction of community-based monitoring mechanisms. These reforms produced measurable early gains, documented by researchers including Khera (2011) and Himanshu and Sen (2011), and contributed to the Supreme Court's recognition of the state's achievements.

However, as Down to Earth's investigative reporting (2015) detailed, corruption gradually corroded the system's integrity. The failure was not one of initial design but of institutional durability. Specific pathologies identified include:

- Collusion between FPS dealers and supply chain intermediaries enabling systematic diversion of subsidised grain.
- Creation and maintenance of bogus ration cards, inflating beneficiary rolls while syphoning allocations.
- Black marketeering of food grains, with subsidised commodities re-entering commercial markets at higher prices.

- Absence of grassroots transparency mechanisms, allowing these practices to persist without accountability.

Digitisation through ePoS and online records has substantially reduced day-to-day pilferage. However, fraud that persists has simply migrated upstream through false stock entries, fabricated dealer records and insider manipulation; these now constitute the primary corruption vectors rather than shopkeeper-level diversion. This pattern suggests that technological accountability tools, while effective against low-level leakage, require complementary institutional mechanisms independent audits, whistleblower protections, and political insulation of oversight bodies to address systemic fraud.

The Accountability Initiative at the Centre for Policy Research notes that despite the state government's attempts to manage these failures, the robust food security mechanism crumbled under the weight of its own administrative complexity. This trajectory — from celebrated reform to contested failure — raises important questions about the sustainability of governance innovations in the absence of continuous institutional reinforcement.

The Verification Drive and the Mass Exclusion Crisis

A recurring tension in PDS administration across India is the conflict between inclusion and verification — between maximising coverage for the poor and eliminating fraudulent beneficiaries. Chhattisgarh's experience with this tension represents one of its most significant policy failures.

During a state-wide verification drive conducted in July–August of the relevant period, the government identified approximately 1.3 million 'unnecessary' ration cards and cancelled them. The intent — to purge bogus beneficiaries — was administratively rational. The outcome, however, was deeply harmful to genuine beneficiaries. As documented by *Down to Earth* (2015):

Genuine beneficiaries were left without ration supplies even as their names continued to appear on Fair Price Shop lists — caught in a bureaucratic limbo where they existed on paper but were denied material entitlements.

This pattern mirrors the national literature on exclusion errors in PDS. Reetika Khera's research and subsequent scholarship have established that verification-driven exclusions systematically disadvantage the most vulnerable — those without adequate documentation, awareness of appeal mechanisms, or social capital to navigate administrative corrections. The Chhattisgarh case is thus not an anomaly but an illustration of a structural problem in how Indian welfare systems police their own boundaries.

The episode also raises questions about the metrics of 'efficiency' in welfare administration. A reduction in beneficiary rolls may register as administrative success in performance reports while simultaneously constituting a material failure for those wrongfully excluded.

Gender and social exclusion compound this problem. Dalit and tribal women in remote hamlets often face particular difficulty having their names registered on renewed cards when bureaucratic offices are distant, pointing to a need for mobile camp registration drives and more accessible grievance infrastructure. While Chhattisgarh has introduced online grievance portals and toll-free numbers, evidence suggests that well-informed urban users disproportionately benefit from these channels. In backward districts, a meaningful share of complaints face delays beyond the stipulated 7–15 day resolution window, and rural communities remain reliant on local PDS committees or informal phone calls rather than formal redressal systems.

Geographic and Tribal Access Barriers: The Case of Bastar and Abujmad

Chhattisgarh's geographic diversity — encompassing plains, forests, and remote tribal regions — creates access barriers that no administrative reform alone can resolve. The most acute case is Abujhmad, a deeply forested and historically isolated region in the Bastar division, home to Adivasi communities with limited connectivity to administrative infrastructure.

As documented by government and media sources (*New Kerala, 2026*), villagers in Abujhmad previously had to trek 50 to 70 kilometres through rocky terrain and monsoon rains to access rations at designated distribution points. This alone represents a structural injustice — the PDS formally covered these communities but was functionally inaccessible to them. The problem was compounded by Naxalite activity, which at various points blocked access entirely, effectively cutting off entire populations from their statutory food entitlements.

The state government has recently introduced a tractor-based doorstep delivery system at the Gram Panchayat level as a last-mile reform. While meaningful, it remains a recent and geographically partial intervention in the form of a correction for a decades-old structural gap rather than a systemic solution. The deeper infrastructure deficit, such as sparse roads, absent FPS outlets in remote hamlets, and low literacy, remains unresolved. Female-headed households and elderly beneficiaries face particular difficulty in collecting rations on time, especially during monsoon season when access deteriorates further.

This case illustrates a principle with direct implications for how PDS coverage is measured and reported, highlighting how formal coverage and functional access are distinct categories. A beneficiary listed on PDS rolls but unable to physically access rations is, in material terms, excluded. Closing this gap requires not just administrative reform but sustained logistical investment in last-mile delivery infrastructure — a more expensive and politically less visible undertaking than digitisation.

COREPDS: Technological Intervention Between Promise and Ground Reality

The Centralised Online Real-time Electronic Public Distribution System, known as COREPDS, represents Chhattisgarh's most significant technological intervention in its food-delivery architecture. The system allows beneficiaries to collect food from any Fair Price Shop in the state using smart cards, Aadhaar-based biometric verification, or mobile OTP authentication. Its design logic addresses several of the system's chronic problems as it reduces the scope for dealer manipulation, enables portability of entitlements, and generates real-time transaction data for monitoring.

However, the gap between COREPDS's design promise and its implementation reality reflects the broader challenge of deploying technology in structurally disadvantaged contexts. Key limitations include:

- **Digital access barriers:** For families lacking smartphones or with limited digital literacy, OTP-based authentication remains inaccessible. Older FPS dealers sometimes find digital operations unfamiliar, creating data errors and underuse of monitoring features such as SMS alerts.
- **Institutional conditionality:** Research from the Institute of Development Studies (*IDS, 2018*) on COREPDS's credibility and portability demonstrates that real-time monitoring technology strengthens accountability only under specific institutional conditions including capable frontline administration, functioning grievance mechanisms, and political will to act on monitoring data. These conditions are not uniformly present across Chhattisgarh.
- **Connectivity constraints:** In remote areas, including those discussed in the preceding section, the digital infrastructure on which COREPDS depends is itself absent or unreliable, limiting the system's reach precisely where it is most needed.

An important empirical illustration of this last point is the documentation of biometric authentication failures in 2017, when families in outlying areas received as little as 20% of their entitled rations because ePoS terminals could not verify their identity. The COREPDS experience thus contributes to a growing body of evidence that ICT-based interventions in welfare systems produce heterogeneous outcomes depending on the socioeconomic and institutional environments in which they are deployed. Technology can extend accountability, but it cannot substitute for the underlying conditions that make welfare administration function.

The Narrow Commodity Basket and Persistent Malnutrition

Another limitation of the PDS in Chhattisgarh concerns not its delivery failures but its substantive content. The Chhattisgarh Food Security Act articulated an ambition of providing balanced nutrition with maximum protein content to beneficiaries. The operational reality has fallen considerably short of this aspiration.

Despite distributing over 260,847 metric tonnes of food grain through 11,077 Fair Price Shops across the state which is a substantial logistical achievement in its own right, the commodity basket remains dominated by rice and wheat, with minimal nutritional diversity (Jain, MA Dissertation, Academia.edu). Pulses, edible oils, and other protein-rich commodities remain irregularly or insufficiently included, leaving the PDS's nutritional mandate effectively unfulfilled. This is compounded by a structural vulnerability in Chhattisgarh's agricultural base: with a narrow crop profile centred on paddy, the state has limited buffer capacity in alternative grains, making the system disproportionately susceptible to rice supply disruptions.

Another important finding from *Krishnamurthy, Pathania, and Tandon (2013/2014)* adds further complexity: following the discontinuation of private FPS licences in 2004 — itself a reform designed to reduce corruption — PDS rice consumption temporarily fell by

approximately one-third in the immediate aftermath. This illustrates how policy transitions, even well-intentioned ones, can create short-term access disruptions for the most vulnerable beneficiaries — a dynamic relevant to any future reform of the commodity basket.

The persistence of leakage alongside nutritional inadequacy represents a compound failure where the system simultaneously loses grain to diversion and fails to deliver the nutritional diversity that its own statutory mandate requires. Addressing this requires not only plugging leakage but also expanding the commodity basket, which is a costlier and more politically complex undertaking than operational reforms alone.

Policy Perspective and implementation challenges of Public Distribution System

The implementation of the Public Distribution System (PDS) in Chhattisgarh is one of the widely successful examples of welfare policy implementation in India. The reforms introduced under PDS have turned the corruption-prone and insufficient mechanism which was prevailing before into a comparatively transparent and accessible food-security system.

A few scholars have acknowledged the fact behind the successful working of PDS in Chhattisgarh. *Raghav Puri*, in his article “*Reforming the Public Distribution System: Lessons from Chhattisgarh*”, stated that the model of PDS that has been adopted in Chhattisgarh is successful due to the institutional reforms such as de-privatisation of fair price shops, doorstep delivery of food grains and reformed, technologically improved monitoring systems. The system significantly reduced distribution leakages and improved accessibility for economically vulnerable populations (Puri, 2012). Another significant aspect of PDS in Chhattisgarh is its food security and welfare governance. As studied, Chhattisgarh has a large tribal population that heavily depends on subsidies for food grains and other means of livelihood. Scholars like *Krishnamurthy, Pathania and Tandon* in their study “*Public*

Distribution System Reforms and Consumption in Chhattisgarh”, demonstrated that the reforms in PDS substantially increased household consumption and food accessibility among poor communities. The state-supported welfare measures have largely benefited the marginalised communities who were previously excluded from welfare schemes (Krishnamurthy, Pathania & Tandom, 2014).

Further coming to the point of the implementation model adopted by Chhattisgarh, it should be highlighted the importance of decentralisation and technological innovation in governance. The state introduced biometric, digitisation and computerised supply chain monitoring to strengthen accountability in the distribution system. Namrata Sharma and Sumeet Gupta also argue that e-governance and information technology have reduced corruption by increasing transparency in procurement and delivery mechanisms (Sharma & Gupta, 2019). At the same time, Chhattisgarh has also experienced local governance structures and active community participation, which has further contributed to effective policy implementation.

At last, however, despite these achievements, several challenges continue to affect the functioning of PDS in Chhattisgarh. Remote tribal regions often face infrastructural difficulties and technological barriers, furthermore. Excessive dependence on biometric authentication and digital systems may have led to exclusion errors, especially for the economically weaker sections. Therefore, digitisation has improved transparency. Implementation should be accessible to all the sections of the society (Joshi, Sinha & Patnaik, 2016).

CONCLUSION

In the case of the Public Distribution System (PDS) in Chhattisgarh, the implementation of institutional reforms, decentralisation, and technology can be a game-changer in enhancing

welfare delivery in structurally weaker areas. The PDS had been plagued with corruption, fake ration cards, diversion of food grains, inadequate monitoring systems, and failure to reach the poor and marginalised, particularly tribal people, before the reforms. The state has taken steps like de-privatisation of Fair Price Shops, doorstep delivery of food grains, widening the beneficiaries' base and introducing a technology-driven monitoring system to minimise leakages and improve food security delivery. Researchers like *Reetika Khera* and *Raghav Puri* have shown that food grain diversion substantially decreased over time and that the availability of subsidised grain to the household level significantly increased. The reform also led to an increase in welfare inclusion, with almost 85 per cent of the state covered by the food security framework and tribal coverage very high.

The Chhattisgarh model also shows that the structural constraints of welfare governance in India remain the same. Although transparency and accountability have improved, corruption evolved within upstream supply chains, including through falsification of the stock, creation of fake dealer records, and collusion between the officials and the intermediaries. Technological changes like Aadhaar seeding, biometric authentication, ePoS machines and COREPDS have helped in better monitoring, and at the same time, they also generated new types of exclusion. Poor connectivity, lack of digital literacy, biometric failures, and weak grievance redressal systems severely impacted tribal beneficiaries, elderly beneficiaries, women, and those residing in remote forested areas like Bastar and Abujhmad. Formal welfare coverage often did not provide for functional access to food entitlements.

The study also reveals that administrative performance indicators alone (e.g., reduction in rolls of beneficiaries or level of digitisation) cannot be used to measure welfare efficiency. Documentation problems and delays prevented genuine beneficiaries from being included in verification missions. Further, while the system achieved good success at distributing large

amounts of grain, the small commodity basket with primarily rice and wheat meant that its nutritive effect was restricted.

Overall, this experience of Chhattisgarh PDS reveals the potential and paradoxes of welfare reform. It demonstrates that institutional restructuring and state interventions can strengthen food security and minimise leakages, but ongoing administrative accountability, participatory implementation, infrastructure investment and awareness of regional and social inequalities are essential to success.

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