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Changing Pattern of Agriculture Marketing in Madhya Pradesh: A Review

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Abstract - Agriculture marketing in Madhya Pradesh has not changed gradually. It has changed in bursts, each one triggered by a different combination of policy pressure, market failure, or technological opportunity. The state that once relied almost entirely on a network of licensed market committees now operates across multiple channels, several of which would have been unrecognisable to a mandi trader in 2005. This paper maps those changes and asks what they have actually delivered for farmers across the state's varied agricultural geography.

The review draws on two decades of secondary data covering 2001 to 2023. Sources include market statistics compiled by the Madhya Pradesh State Agricultural Marketing Board, electronic transaction records from the SFAC-managed e-NAM portal, crop arrival data from the state Directorate of Agriculture, and published assessments from NITI Aayog, NABARD, and the Ministry of Agriculture and Farmers Welfare. The analysis covers infrastructure expansion, pricing channel comparison, scheme-level outcomes, and institutional gaps.

Three findings stand out. Mandis integrated with e-NAM recorded average price gains of 11.3 per cent over traditional auction outcomes by 2022-23, a commercially meaningful improvement for farmers who transacted through the platform. The Bhavantar Bhugtan Yojana reached 18.4 lakh farmers but carried a design vulnerability that allowed traders to suppress mandi prices strategically. FPO-linked marketing produced the strongest price outcomes across commodities studied, yet fewer than 30 per cent of registered FPOs in Madhya Pradesh were financially viable in their first three operating years. The paper argues that irrigation access, digital connectivity, and institutional affiliation are the primary determinants of which farmers benefit from market reform, and that the majority of small and marginal cultivators in rain-fed and tribal districts remain structurally outside these gains.

***Key Words*:** *Agriculture Marketing, Madhya Pradesh, e-NAM, APMC Reform, Bhavantar Bhugtan Yojana, FPO, Price Discovery, Mandi, Agricultural Commerce, Marketing Channel Efficiency*

1.INTRODUCTION

Madhya Pradesh is a state of agricultural contradictions. It produces 45 per cent of India's soybean. It surpassed Punjab as the country's largest wheat-producing state in 2016-17. Its eleven agro-climatic zones generate surpluses of wheat, pulses, oilseeds, and horticulture across four distinct ecological belts. Yet a farmer cultivating black soil in Seoni occupies a fundamentally different market position than a large producer in the irrigated Malwa belt. Distance to the nearest regulated mandi, access to cold storage, digital literacy, and whether a commission agent is the only buyer available on a given day are not trivial details. They are the actual architecture of agricultural commerce as it operates on the ground [8].

The Madhya Pradesh Krishi Upaj Mandi Adhiniyam of 1972 was the formal beginning of regulated agricultural trade in the state. Market committees were established, commission agents were licensed, and produce was required to pass through designated yards before changing hands. The regulated structure reduced some extreme forms of trader exploitation that had characterised pre-independence rural trade. What it did not do was bring competition into the auction room. With a fixed set of licensed buyers and a produce seller who typically could not afford to return home unsold, price formation in many MP mandis reflected the buyer's terms more than the seller's costs [1].

By 2003, when the central government circulated a Model APMC Act recommending states to liberalise their marketing frameworks, Madhya Pradesh was already under pressure from two directions. Farmer income surveys were consistently showing that cultivators received less than 60 per cent of the final consumer price for most commodities after accounting for mandi charges, transport, and commission. At the same time, corporate procurement was expanding in adjacent states, creating

visible examples of direct buyer-farmer arrangements that bypassed the mandi entirely [3].

The two decades between 2001 and 2023 produced a sequence of interventions that collectively reshaped the marketing landscape. The state amended its APMC Act, introduced digital trading through e-NAM, launched the Bhavantar Bhugtan Yojana, supported the formation of farmer producer organisations, and permitted private market entry in stages. This paper examines that sequence not as a list of policy events but as a set of commercial outcomes. The central question is whether the marketed surplus of MP farmers now fetches a materially better price than it did before these changes, and if so, for which farmers and in which districts.

2. REVIEW OF LITERATURE

The study of agricultural marketing in India has produced a large literature, though much of it concerns the national picture rather than individual state conditions. Reviewing that literature in the context of Madhya Pradesh requires selecting work that speaks to the specific structural features of the state: the dominance of commission-agent intermediation, the concentration of infrastructure in irrigated districts, and the particular volatility of soybean and pulse markets.

Acharya and Agarwal [1] produced a detailed survey of marketing channels across Indian states and found a consistent inverse relationship between the number of intermediary tiers and the share of final price received by the producer. Their Madhya Pradesh data showed that a wheat farmer selling through a commission agent in a principal mandi yard received an average 58 paise for every rupee the commodity fetched at wholesale. The regulated market structure had formalised the transaction without improving its terms for the farmer.

Chand [3] examined pricing behaviour in mandis and argued that licensing restrictions on commission agents effectively insulated the buyer's side of the market from competitive pressure. Because only a limited number of registered agents could operate in any given yard, informal coordination among them was not difficult to maintain. His analysis of soybean auction data from two MP mandis showed price clustering at levels just below MSP across multiple trading sessions, a pattern inconsistent with independently determined bids.

Birthal, Joshi, and Gulati [2] offered a different entry point by examining what happened when vertical coordination replaced spot market transaction. Their comparative study of vegetable and poultry supply chains in several Indian states found that farmers who entered formal procurement or contract arrangements consistently received prices 15 to 25 per cent above those available in open spot markets. The gain came not only from higher prices but from reduced transaction costs and the elimination of distress-driven timing of sales.

Sharma [21] assessed the physical infrastructure of agricultural marketing across major producing states and placed Madhya Pradesh in a mid-tier position: adequate in terms of number of yards, deficient in post-harvest handling capacity. His analysis found that cold storage coverage in MP served approximately 12 per cent of the state's perishable production volume, a figure he identified as structurally inadequate given the rate at which horticulture was expanding in Narmada irrigation districts.

Kumar, Sharma, and Joshi [11] conducted the first published farmer-level assessment of e-NAM integration, surveying participants in three MP mandis before the platform was formally active and again in 2017-18 after integration. Their before-and-after data showed statistically significant improvements in price received per quintal for soybean and wheat in the integrated yards. They also recorded that 68 per cent of farmers who had not registered with e-NAM were unaware the platform existed, reframing the adoption problem as one of outreach rather than resistance.

Ghosh [5] examined price deficiency payment programmes internationally and concluded that their effectiveness depends entirely on whether the reference price used for deficiency calculation is protected from manipulation. Programmes using market-generated modal prices as the benchmark created an incentive for buyers to depress market prices, since a lower market price increased government liability rather than imposing a cost on the buyer. The Bhavantar scheme design in MP matched this vulnerability precisely.

Rashid, Cummings, and Gulati [20] reviewed grain marketing interventions across six Asian countries and found that price liberalisation without complementary investment in storage, grading, and transport infrastructure consistently produced gains for large surplus farmers and stagnation for marginal cultivators. That pattern has replicated itself in Madhya Pradesh since 2016.

Jha et al. [10] quantified post-harvest losses at the national level and found that the economic cost of post-harvest wastage exceeded Rs. 92,000 crore annually. Their Madhya Pradesh data showed vegetable loss rates between 28 and 37 per cent, driven primarily by the absence of pre-cooling infrastructure at farm-gate and sub-market yard levels. Swaminathan [24] argued that post-harvest infrastructure was not a supplementary concern in agricultural marketing but a primary determinant of

whether production gains translated into income gains for farmers.

Singh [22] reinforced this with supply chain-level data from vegetable markets, showing that the income difference between a farmer with access to a collection centre and one without was approximately Rs. 4,200 per acre per season for tomato, a commodity that Madhya Pradesh has been actively promoting through its horticulture expansion programme.

Lele [12] identified a structural tension in Indian grain marketing that has not resolved itself in the decades since: formal market institutions tend to generate rules that protect established participants over time, and the farmer is rarely the participant with the greatest rule-making influence. This observation applies directly to MP's regulated mandi system, where the architecture of charges, licensing, and dispute resolution has historically favoured the commission agent and the licensed trader over the cultivator arriving with produce on a given morning.

3. OBJECTIVES OF THE STUDY

The review pursues the following six specific objectives:

(i) To trace the regulatory and legislative evolution of agricultural marketing in Madhya Pradesh from the MP Krishi Upaj Mandi Adhiniyam, 1972 through successive APMC amendments and the central market access legislation of 2020, and to assess how each legislative shift altered the operational conditions for farmers, traders, and private buyers.

(ii) To examine the growth and geographic distribution of physical market infrastructure across MP districts between 2001-02 and 2022-23, with specific reference to the gap between infrastructure availability in irrigated surplus districts and that in rain-fed, tribal, and economically backward districts.

(iii) To evaluate the commercial and institutional outcomes of e-NAM integration in Madhya Pradesh between 2017-18 and 2022-23, with reference to registered farmer counts, total trade volume, number of commodities traded, and the rate of active transaction uptake relative to the state's total agricultural household population.

(iv) To analyse the design logic and field-level outcomes of major government marketing schemes active in Madhya Pradesh during the study period, and to assess whether their combined operation produced coordinated or fragmented benefits for the farming communities they were designed to serve.

(v) To compare price realisation per quintal for selected kharif and rabi crops across three distinct marketing channels, specifically the traditional regulated mandi, the e-NAM electronic trading platform, and FPO-mediated collective sales, using 2022-23 transaction data benchmarked against the corresponding government-notified Minimum Support Price.

(vi) To examine the structural, institutional, and geographic factors that determine differential access to reformed marketing channels among farming communities in Madhya Pradesh, and to identify the conditions under which market reform benefits reach or fail to reach small, marginal, and tribal cultivators.

4. RESEARCH METHODOLOGY

This paper uses secondary data exclusively and is structured around a Marketing Channel Efficiency Framework, which evaluates agricultural marketing systems along four dimensions: price realisation at producer level, intermediary cost and margin, market access equity across producer categories, and institutional sustainability of marketing channels. This framework has been applied to review and compare the three principal marketing channels operating in Madhya Pradesh during the study period.

The study period runs from 2001-02 to 2022-23, chosen to span the pre-reform era under the original APMC Act, the transition period following the Model APMC Act of 2003, and the digital and institutional reform phase initiated with e-NAM in 2016. The principal data sources are listed below:

(a) Annual market statistics from the Madhya Pradesh State Agricultural Marketing Board, covering infrastructure, arrivals, and trade values.

(b) SFAC e-NAM transaction and registration data disaggregated by state and mandi.

(c) Crop production and market arrival statistics from the Directorate of Agriculture, Government of Madhya Pradesh.

(d) Scheme implementation reports from NITI Aayog and NABARD.

(e) Ministry of Agriculture notifications on Minimum Support Prices for 2022-23.

(f) Peer-reviewed research published in refereed journals between 1971 and 2023.

Quantitative data are presented in five tables and two visual diagrams covering market infrastructure growth, commodity-wise arrivals, e-NAM performance indicators, inter-channel price comparison, and scheme-level outlay. Price comparison across channels uses 2022-23 data

benchmarked against the government-notified MSP for the same crop year. The analytical approach is descriptive and comparative. The study does not claim causal inference but draws reasoned associations between data patterns and the policy conditions that produced them.

5. AGRICULTURE MARKETING INFRASTRUCTURE IN MADHYA PRADESH

5.1 Physical Market Network: Scale and Distribution

Madhya Pradesh entered the twenty-first century with 217 principal market yards and 881 sub-market yards. By 2022-23, those numbers had grown to 265 and 1,617 respectively, spread across 55 districts. On the face of it, the expansion looks substantial. The reality is more complicated. The growth in yards has not been uniform across the state's agricultural geography, and the distance that a farmer must travel to reach the nearest regulated market has remained a significant cost factor in districts where road infrastructure is poor and produce is perishable.

Districts in the Malwa plateau, which produce soybean and wheat at commercial scale, have principal market yards at distances averaging under 18 kilometres from the majority of cultivated land. In districts of Bundelkhand, southern Vindhya, and the tribal-majority areas of Baiga territory, average access distances to the nearest regulated market are significantly longer. This geographic asymmetry corresponds closely to existing irrigation infrastructure and road density, suggesting that market infrastructure investment has followed productivity rather than need [8].

Table 1: Growth of Agriculture Market Infrastructure in Madhya Pradesh (2001-02 to 2022-23)

Year	Principal Markets	Sub-Markets	Storage Capacity (MT)	e-NAM Mandis
2001-02	217	881	2,45,000	N/A
2006-07	228	1,104	3,12,000	N/A
2011-12	239	1,358	4,18,000	N/A
2016-17	251	1,489	5,63,000	25
2018-19	257	1,541	6,82,000	58
2020-21	259	1,600	7,91,000	78
2022-23	265	1,617	9,14,000	89

Source: MPSAMB Annual Reports 2001-2023 [13, 14]; Ministry of Agriculture and Farmers Welfare, e-NAM Progress Reports [13].

Storage capacity in Table 1 grew from 2,45,000 metric tonnes in 2001-02 to 9,14,000 metric tonnes by 2022-23. Studies of actual capacity utilisation in MP's mandi storage network show peak seasonal occupancy averaging around 71 per cent in principal yards and under 40 per cent in sub-yards, with very low utilisation during the pre-kharif quarter. This seasonal mismatch limits the value of storage capacity as a price-smoothing instrument for farmers who need to sell at harvest time rather than hold for a better market [10].

5.2 Market Arrival Trends Across Commodities

Mandi arrival data across major commodities between 2015-16 and 2021-22 show consistent growth that the marketing infrastructure has only partially kept pace with. Wheat arrivals grew from 68.4 lakh metric tonnes to 92.3 lakh metric tonnes, a 35 per cent increase over six years. Larger arrivals without a corresponding expansion of buyers tend to depress market prices precisely at the high-arrival moments when farmer income most needs support.

Table 2: Market Arrivals for Major Commodities in MP Mandis (Lakh Metric Tonnes), 2015-16 to 2021-22

Commodity	2015-16 (LMT)	2017-18 (LMT)	2019-20 (LMT)	2021-22 (LMT)	% Change
Wheat	68.4	74.2	81.6	92.3	+35.0%
Soybean	56.2	61.8	70.4	78.1	+38.9%
Gram (Chana)	42.1	45.3	49.7	53.6	+27.3%
Maize	18.5	21.4	24.8	29.2	+58.0%
Vegetables	22.7	28.9	34.5	41.3	+81.9%
Fruits	8.4	11.2	15.8	19.4	+131.0%
Pulses (Other)	31.4	34.6	36.1	42.7	+35.9%

Source: Directorate of Agriculture, Government of Madhya Pradesh [8]; MPSAMB Market Arrival Data, various years [13, 14]. LMT = Lakh Metric Tonnes.

The most dramatic arrival growth has been in fruit and vegetables, where figures of 131 per cent and 81.9 per cent over six years reflect the deliberate horticultural expansion under state government programmes and the spread of tube-well irrigation. These are also the commodities where cold chain absence creates the sharpest losses. A soybean farmer who cannot sell immediately loses money. A tomato farmer in the same position often loses the crop entirely [22].

6. REGULATORY EVOLUTION AND LEGISLATIVE CHANGES

The trajectory of agricultural marketing regulation in Madhya Pradesh across the past five decades reflects a slow movement from state control toward competitive openness, punctuated by periods of stalled reform. The 1972 Adhiniyam established the regulatory frame that held essentially intact for three decades. Produce could not be sold outside designated yards. Buyers required licences. Commission charges were fixed. The intent was to protect farmers from unregulated exploitation. The practical effect was to protect a licensed intermediary class from the competition that might have driven charges down [4].

The Government of India's Model APMC Act of 2003 recommended that states create legal space for contract farming, private market yards, and direct procurement. Madhya Pradesh responded with amendments in 2004 that permitted single-point levy and some categories of direct purchase. These were genuine changes but their reach was limited. The commission agent remained the organising figure of most mandi transactions, and private market entrants found the practical regulatory environment less welcoming than the amended text suggested.

A more consequential shift came with amendments following the Farmers' Produce Trade and Commerce Act of 2020 at the central level. The removal of cereals, pulses, and oilseeds from Essential Commodities Act restrictions eliminated stockholding limits for private buyers and allowed corporate procurement at scale outside the physical mandi. MP's amended rules aligned with this framework, and the years 2020 to 2023 saw a visible increase in direct procurement activity by agribusiness firms in soybean and wheat markets [15]. The central act was subsequently withdrawn at the national level, but state-level provisions creating parallel legal space remained largely intact [25].

One dimension of regulatory reform that has received less attention than it deserves is the grading and standardisation framework. Without common quality grades that buyers and sellers across locations recognise and trust, remote trading and price discovery remain structurally limited. MP has made some progress in aligning mandi-level quality certification with AGMARK standards, but implementation varies considerably across districts [25].

7. DIGITAL TRANSFORMATION: e-NAM AND ITS COMMERCIAL OUTCOMES

7.1 Platform Architecture and Integration Progress

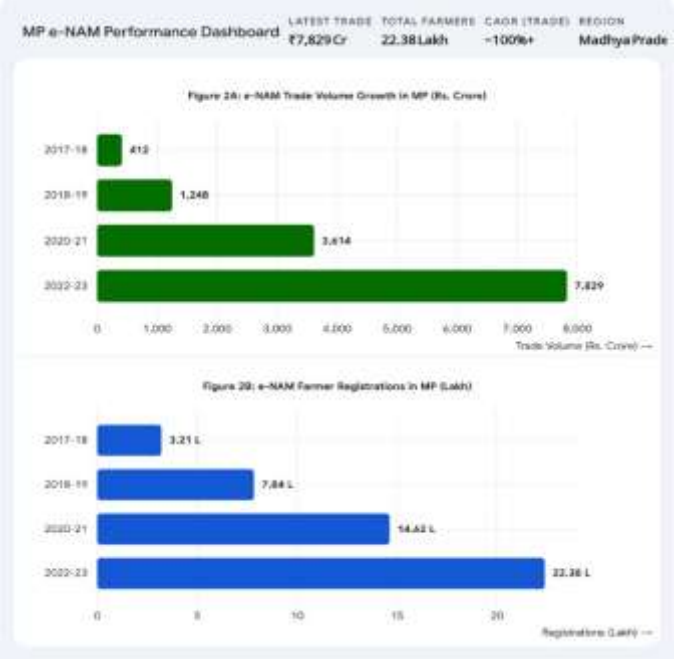
The e-NAM platform is not, in the first instance, a technology story. It is a market access story. Before e-NAM, a wheat farmer arriving at an MP mandi yard faced only the buyers physically present in that yard on that day. After integration, that farmer's lot could in principle attract bids from registered buyers anywhere in the country. The practical question is how far that principle has translated into practice.

Madhya Pradesh integrated 25 mandis in 2016-17 and had reached 89 by 2022-23. Farmer registrations grew from 3.21 lakh to 22.38 lakh over the same period. Total trade volume through the platform expanded from Rs. 412 crore to Rs. 7,829 crore, a near-nineteen-fold increase in six years. Figure 2 below presents these growth trends visually.

Table 3: e-NAM Performance Indicators for Madhya Pradesh (2017-18 to 2022-23)

Performance Indicator	2017-18	2018-19	2020-21	2022-23
Registered Farmers (Lakh)	3.21	7.84	14.62	22.38
Trade Volume (Rs. Crore)	412	1,248	3,614	7,829
No. of Commodities Traded	18	31	44	57
Price Gain over Mandi (%)	4.2	6.1	8.7	11.3
Integrated Mandis in MP	25	58	78	89

Source: SFAC e-NAM Progress Reports 2017-2023 [15]; Ministry of Agriculture and Farmers Welfare, Annual Reports [16]; Kumar, Sharma, and Joshi [11].



The price gain figure in Table 3, which rose from 4.2 per cent in 2017-18 to 11.3 per cent in 2022-23, represents the average premium that e-NAM transaction prices showed over conventional auction prices in the same mandi during the same commodity season. An 11.3 per cent premium on soybean priced at Rs. 4,000 per quintal translates to approximately Rs. 452 per quintal of additional income. For a farmer selling 50 quintals, that is Rs. 22,600 from a single seasonal transaction.

The gain is commercially real. It is not, however, uniformly available. Farmers who benefit most from e-NAM match a predictable profile: producers with lots large enough to attract remote buyers, with produce cleaned and graded to a level that allows remote quality assessment, and with bank accounts linked to Aadhaar for direct payment settlement. These conditions exclude a substantial share of the state's smallholder and marginal farming population, who sell small lots through the commission agent who has extended seasonal credit and therefore already holds an informal prior claim on the sale [11].

7.2 Assaying Infrastructure as a Binding Constraint

Remote electronic bidding functions only if the buyer trusts what the quality certificate says. In MP's e-NAM-integrated mandis, quality assaying capacity as of 2021 was operational for moisture content and foreign matter in most principal yards but limited for protein content, oil content, and aflatoxin levels in a large proportion of sub-yards. For a soybean buyer deciding between lots across three states on an electronic platform, a quality certificate that cannot verify oil content cannot support a confident bid. This gap has been identified as a primary reason why remote bidder participation in MP e-NAM transactions has grown more slowly than farmer registration numbers would suggest [17].

8. GOVERNMENT SCHEMES AND THEIR MARKET OUTCOMES

8.1 Bhavantar Bhugtan Yojana: Design, Reach, and Limitations

When the Madhya Pradesh government launched the Bhavantar Bhugtan Yojana in October 2017, it was responding to a specific and recurring problem: the MSP framework promised farmers a floor price for their produce, but the government's own procurement machinery was not large enough to enforce that floor across the state's entire surplus. The gap between the promised floor and the price available in the mandi was being absorbed by farmers as income loss each season.

The BBY's solution was to let the market set the price and compensate farmers for the difference between that price and the MSP through direct bank transfer. In practice, the scheme's reference price, calculated as the modal price across designated MP mandis during the scheme window, was determined by the very transactions it was meant to supplement. Traders who understood the mechanism could coordinate purchases at prices that depressed the modal price figure, thereby transferring fiscal cost from the state to the central government's deficiency calculation while continuing to purchase produce at sub-MSP levels [18].

The scheme did benefit 18.4 lakh farmers and disbursed Rs. 1,500 crore in its operational years. Those benefits were real for the farmers who received them. A procurement-based alternative, where government agencies physically purchased produce at MSP and sold into open markets, would close this vulnerability but would require substantially larger operational infrastructure than currently exists under MP's state procurement machinery [20].

8.2 Farmer Producer Organizations: Promise and Operational Reality

FPO-mediated marketing received substantial policy attention during the period under review. The logic of the FPO model is straightforward: individual farmers with small lots cannot negotiate effectively with large buyers, but an aggregated lot of 500 or 1,000 quintals from 50 to 100 members is a commercially different proposition. FPOs can invest in grading equipment, maintain buyer relationships across seasons, and access institutional finance at group level.

Price data from FPO collective marketing in MP in 2022-23 confirm the premium. As shown in Table 4, wheat sold through FPO channels fetched Rs. 2,215 per quintal, against Rs. 2,080 through e-NAM and Rs. 1,950 through traditional mandi channels. The MSP for wheat in 2022-23 was Rs. 2,015, meaning that traditional mandi prices were below MSP while FPO prices exceeded it by Rs. 200 per quintal.

Table 4: Price Realisation Comparison Across Marketing Channels, Selected Crops, 2022-23 (Rs. per Quintal)

Crop	Trad. Mandi (Rs./Qt.)	e-NAM Price (Rs./Qt.)	FPO Channel (Rs./Qt.)	MSP 2022-23 (Rs./Qt.)
Wheat	1,950	2,080	2,215	2,015
Soybean	3,820	4,120	4,380	3,950
Gram	4,510	4,840	5,100	5,230
Maize	1,650	1,810	1,920	1,962
Moong Dal	6,940	7,420	7,680	7,755

Source: MPSAMB Price Monitor 2022-23 [13]; e-NAM Transaction Records [15]; FPO Collective Marketing Returns, NABARD MP Regional Office, 2023 [17]; MSP Notifications 2022-23 [16].

A survey of NABARD-supported FPOs in Madhya Pradesh found that 68 per cent were either non-operational or operating below breakeven in their first three years. Working capital shortages, inability to retain skilled management staff, and difficulty maintaining consistent quality across member lots were the most commonly cited reasons. An FPO that cannot maintain a line of credit to aggregate produce on a given market day loses the operational continuity that generates buyer trust and sustained price premiums [9].

Table 5: Major Government Schemes in MP Agriculture Marketing (2016-2023)

Scheme Name	Launch Year	Beneficiaries (Lakh)	Outlay (Rs. Cr.)	Primary Objective
Bhavantar Bhugtan Yojana	2017	18.4	1,500	Price Deficiency Pay.
e-NAM Integration (MP)	2016	22.4	220	Digital Market Trade
MP Agriculture Infra Fund	2020	6.2	780	Storage and PHM
FPO Promotion Scheme	2018	4.8	340	Collective Marketing
PM-AASHA	2018	12.6	650	MSP Procurement
PMFBY	2016	54.5	2,240	Crop Risk Coverage

Source: Government of Madhya Pradesh, Budget Documents and Scheme Reports, 2016-2023 [7, 8]; NABARD Annual Reports [17]; Ministry of Agriculture and Farmers Welfare [16].

Table 5 shows that six major schemes active in MP agriculture marketing between 2016 and 2023 covered a wide spread of objectives. Together, they represent an outlay of over Rs. 5,700 crore and a reach of more than 118 lakh farmer beneficiaries across different categories. Whether they operated as a coordinated system or as independent programmes with separate administrative tracks is a different question. Independent assessments suggest the latter. Farmers most in need of simultaneous support on price, storage, and insurance fronts have not consistently received all three from the same institutional point of contact [19].

9. AGRICULTURAL MARKETING CHANNEL STRUCTURE: A DIAGRAMMATIC VIEW

Figure 1 presents the three principal agricultural marketing channels operating in Madhya Pradesh as a comparative flow diagram. The diagram illustrates the stages through which a farmer's produce passes before reaching the end consumer, the number of intermediary hands involved, and the point at which price is determined in each channel.

Figure 1: Agricultural Marketing Channel Flow Diagram, Madhya Pradesh

Channel	Stage 1		Stage 2		Stage 3		Stage 4
Traditional Mandi	Farmer	→	Commission Agent	→	Wholesaler / Retailer	→	End Consumer
e-NAM Platform	Farmer	→	Mandi (e-NAM Portal)	→	Remote Buyer (Anywhere)	→	End Consumer / Processor
FPO Channel	Farmer	→	FPO Aggregation	→	Direct Buyer / Processor	→	End Consumer

Three marketing channels are compared by stage: Traditional Mandi (red), e-NAM Platform (blue), and FPO Channel (green). Arrows indicate direction of produce flow from farmer to end consumer.

Source: Derived from MPSAMB channel structure data [18, 19]; Kumar, Sharma, and Joshi [11]; Birthal, Joshi, and Gulati [2].

The Traditional Mandi channel, shown in red, involves the greatest number of intermediary stages. The farmer delivers produce to the mandi yard, where a licensed commission agent manages the transaction on the farmer's behalf, typically at a commission of one to two per cent. The wholesaler or retailer who purchases the lot then handles onward sale to end consumers. Each stage carries a margin, and price is determined at the auction floor where buyer competition is constrained by licensing restrictions.

The e-NAM channel, shown in blue, reduces intermediary dependence by allowing registered remote buyers to bid through the electronic portal. Price discovery is more competitive, and the direct settlement mechanism reduces the commission agent's role, though the agent continues to play a facilitation role in many integrated mandis.

The FPO channel, shown in green, aggregates produce at the FPO level before approaching buyers directly. This eliminates the commission agent entirely in well-functioning FPOs and allows the organisation to negotiate from a position of volume rather than individual-lot weakness. The FPO's ability to maintain direct buyer relationships across seasons is the core commercial advantage of this channel.

10. CONTRACT FARMING AND DIRECT PROCUREMENT ARRANGEMENTS

Contract farming in Madhya Pradesh has a longer history than its policy documentation suggests. Seed multiplication contracts between farmers in Malwa and national seed companies operated informally through the 1990s. What the 2004 APMC amendment created was a legal basis for formalising these arrangements across a wider set of crops and buyers.

The most frequently cited example of private market infrastructure in the state is ITC Limited's e-Choupal network, which established direct digital procurement links to soybean and wheat farmers across more than 40 MP districts. The e-Choupal model worked by providing market price information to farmers through internet kiosks and offering direct purchase at prices frequently above the prevailing mandi price, giving farmers a genuine alternative to the mandi without requiring them to travel or engage with the commission agent. Birthal, Joshi, and Gulati [2] documented that farmers who participated in direct procurement schemes in similar models received income premiums of 15 to 35 per cent over mandi-equivalent sales.

The risks in contract farming should not be understated. A farmer who has shifted acreage from a mixed cropping pattern to a single contract crop depends entirely on the contracting company's continued interest in that district. If the company discontinues procurement because of a national surplus or a processing capacity adjustment, the farmer has no buyer for a crop that was specifically requested from them. Lele [12] identified this asymmetry of dependence as a structural feature of formal contract systems operating in conditions of weak legal enforcement, and Madhya Pradesh has not yet developed a contract farming dispute resolution mechanism that effectively balances this asymmetry.

11. POST-HARVEST INFRASTRUCTURE: THE STRUCTURAL GAP

Cold chain infrastructure is a commercial necessity for any agricultural system that produces perishables at scale. Madhya Pradesh produces tomato, potato, onion, capsicum, and a variety of cucurbits across its horticulturally active districts. None of these commodities survive more than two to four days in ambient conditions during the April-to-June harvesting window without significant quality loss. As of 2021, functional cold storage facilities were concentrated in four urban districts. Jhabua, Dhar, Chhindwara, and Seoni, which together produce a substantial share of the state's vegetable output, had fewer operational cold storage facilities per lakh of farming households than the national average for non-hilly states [21].

Jha et al. [10] put the post-harvest loss figure for vegetables in states with similar cold chain profiles to Madhya Pradesh at between 28 and 37 per cent of production value. At a conservative 30 per cent, applied to MP's 2021-22 vegetable arrival volume of 41.3 lakh metric tonnes, the commercial loss from absent cold chain infrastructure runs into several thousand crore rupees annually.

The Agriculture Infrastructure Fund, activated in 2020, has created a credit-linked subsidy pathway for cold chain investment by FPOs, agripreneurs, and cooperatives. Madhya Pradesh had sanctioned approximately Rs. 780 crore in AIF-linked projects by March 2023. Disbursement data show that sanctioned projects are concentrated in districts with existing cooperative networks and NABARD-supported FPO clusters. Districts where infrastructure investment is most urgently needed tend to have the thinnest institutional base for accessing credit-linked schemes, a recurring pattern in rural development finance [17].

12. FINDINGS AND DISCUSSION

Six substantive findings emerge from this review.

Physical market infrastructure in Madhya Pradesh has grown consistently over two decades but the gains have been asymmetric. Irrigated, surplus-oriented, and road-connected districts have received proportionally more infrastructure investment than rain-fed, subsistence-oriented, and tribally administered districts. This is not an accidental outcome of market forces. It reflects how infrastructure allocation decisions have been made, and it means that the gap in effective market access between the two halves of MP's farming geography has widened rather than narrowed during the reform period.

e-NAM integration has produced genuine commercial gains. An average price premium of 11.3 per cent over conventional mandi prices in 2022-23 is meaningful. That figure, however, applies to a platform with 22.38 lakh registered farmers in a state with approximately 1.3 crore agricultural households. Fewer than one in five MP farming households has transacted through the platform. Registration is not participation, and participation is not sustained economic benefit.

The Bhavantar Bhugtan Yojana reached 18.4 lakh farmers and delivered direct bank transfers that provided genuine income support in its operational years. Its fundamental architectural problem, the use of market-generated modal prices as the deficiency calculation benchmark, made the scheme vulnerable to buyer-side manipulation. NITI Aayog's own post-implementation assessment documented suppressed bidding patterns during BBY scheme windows that are statistically inconsistent with competitive price discovery [18].

FPO-mediated marketing consistently produced the highest price realisation of the three channels compared in Table 4. The wheat premium over traditional mandi was Rs. 265 per quintal. The soybean premium was Rs. 560 per quintal. These differences are commercially significant. The barrier to scale is institutional fragility: fewer than 30 per cent of NABARD-supported FPOs in MP were financially viable in their first three operating years. Policy support ending at registration without extending to working capital, management capacity, and grading equipment has consistently failed to close the gap between FPO potential and FPO performance.

Contract farming and private procurement have introduced competitive alternatives to the mandi for soybean, wheat, and select vegetables in districts where corporate buyers have established procurement infrastructure. They have not extended that competition to the majority of smallholder and rain-fed farmers who remain effectively dependent on the mandi system and the commission agent.

The broadest finding is that the benefits of agricultural market reform in Madhya Pradesh have been real but have not been shared equally. Irrigation, digital connectivity, institutional membership, and proximity to main roads are the variables that determine which farmers can engage with e-NAM, FPO marketing, and private procurement. Until policy action addresses those underlying inequalities directly, successive waves of market reform will continue to generate gains for farmers who are already better positioned and leave behind those who are not.

3. CONCLUSIONS

Madhya Pradesh's agricultural marketing system in 2023 is meaningfully different from what it was in 2001. The number of functioning market yards has grown. The electronic trading network covers 89 mandis and has generated measurable price improvements for participating farmers. Several price support and procurement schemes have reached tens of millions of farming households. Farmer producer organisations have demonstrated in specific districts that collective marketing can close a significant portion of the income gap between farmer and consumer. Private procurement has introduced competitive alternatives to the mandi in several major commodity chains.

None of this should be dismissed. The evidence assembled in this review, however, makes it difficult to argue that the marketing reform agenda has solved the problem it was designed to address. The farmer on a rain-fed holding in Tikamgarh or Sheopur, selling a small wheat lot through a commission agent who has extended seasonal credit, is not materially better positioned in 2023 than a comparable farmer was in 2005. The digital platforms, the FPO networks, the direct procurement channels exist, but they have not yet reached that farmer in any operationally meaningful way.

The path toward more evenly distributed marketing reform runs through several convergent investments. Rural road connectivity that reduces the transport cost penalty for farmers distant from principal mandis matters. Cold chain and primary processing infrastructure in rain-fed and tribal districts, rather than in the Malwa belt where it already exists, matters. FPO support that extends well beyond registration to include working capital finance, management training, and grading equipment matters. e-NAM adoption programmes that address digital literacy and connectivity gaps rather than simply counting registrations matter.

There is nothing inevitable about the geographic concentration of marketing benefit in irrigated and well-connected MP districts. It is the product of how infrastructure investment has been allocated and whose market access has been prioritised. If those allocation choices change in the next decade, the distributional outcome of agricultural market reform in Madhya Pradesh can also change. The commercial and institutional tools to produce a more inclusive marketing system already exist within the state's policy architecture. Using them for the farmers who remain outside current market channels is a question of administrative prioritisation, not of further legislative reform [24].

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