



## Role of e-NAM in Strengthening Agricultural Market Efficiency

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Agricultural marketing in India has historically been governed by the regulated market system under the Agricultural Produce Market Committees (APMCs), established to protect farmers from exploitation and ensure fair trade practices. However, over time, these markets became fragmented across states, operating under diverse regulations that restricted free movement of agricultural commodities. The presence of multiple intermediaries, limited competition among buyers, and inadequate market infrastructure often resulted in information asymmetry, high transaction costs, and weak price discovery mechanisms. Small and marginal farmers, who constitute a majority of India's farming population, were particularly disadvantaged due to their limited bargaining power, small marketable surplus, and dependence on local traders. Consequently, inefficiencies in agricultural markets translated into lower farm incomes despite rising production levels.

### Emergence of Digital Solutions

Recognizing the need for reform, the Government of India launched the Electronic National Agriculture Market (e-NAM) in April 2016 under the broader framework of the Digital India initiative. e-NAM was conceptualized as a pan-India electronic trading platform to integrate existing APMC mandis into a unified national market. The reform aimed to enhance transparency, improve price discovery, and enable seamless interstate trade of agricultural commodities. By leveraging digital technology, e-NAM seeks to modernize agricultural marketing and align it with principles of competitive and efficient markets.

### Conceptual Framework of e-NAM

#### What is e-NAM?

e-NAM is a nationwide electronic trading portal designed to link APMC mandis across states, creating a unified virtual marketplace for agricultural commodities. It enables farmers, traders, buyers, processors, exporters, and Farmer Producer Organizations (FPOs) to participate in transparent online bidding. The platform facilitates real-time price discovery, quality-based trading, and electronic payment settlement, thereby reducing geographical and informational barriers.

## Objectives of e-NAM

### The core objectives of e-NAM include:

- Ensuring transparent price discovery through competitive online auctions.
- Providing real-time price information to farmers and traders.
- Reducing transaction costs and dependence on intermediaries.
- Expanding market access beyond local mandis, enabling interstate trade.
- Promoting standardization of quality parameters and scientific grading.
- Enhancing farmers' share in the consumer's rupee through improved bargaining power.

Collectively, these objectives align with the broader goal of strengthening agricultural market efficiency and improving farmers' income.

## Operational Components

### The operational architecture of e-NAM comprises:

- Online bidding system: Transparent and competitive electronic auctions.
- Quality assaying and grading facilities: Standardized quality certification to support scientific price realization.
- Single trader license: Valid across integrated markets within a state.
- Electronic payment integration: Direct transfer of sale proceeds to farmers' bank accounts.
- Mobile application support: Enhancing accessibility for stakeholders.

These components work together to reduce friction in agricultural transactions and promote efficiency.

## Theoretical Underpinnings: Market Efficiency and e-NAM

### Market Efficiency in Agriculture

Market efficiency in agricultural economics refers to a situation where prices accurately reflect supply-demand conditions, product quality, and transaction costs. Efficient markets minimize information asymmetry, reduce marketing margins, and allocate resources optimally. In traditional agricultural markets, inefficiencies arise due to fragmented markets, lack of transparency, and dominance of intermediaries. Therefore, reforms aimed at improving information flow and competition are central to enhancing efficiency.

### How e-NAM Enhances Efficiency

#### e-NAM strengthens market efficiency through multiple channels:

- Real-time price dissemination reduces information asymmetry between farmers and traders.
- Increased buyer participation intensifies competition, leading to improved price realization.
- Digital payments and electronic documentation lower transaction costs and reduce settlement delays.
- Standardized quality grading enables value-based pricing rather than quantity-based sales.
- Interstate market integration improves spatial price integration and reduces arbitrage gaps.

From a theoretical perspective, e-NAM promotes allocative efficiency by enabling farmers to sell where prices are highest and buyers to source commodities competitively.

## Empirical Evidence on Market Efficiency

### Price Discovery and Transparency

e-NAM provides dynamic and publicly accessible price information across integrated markets. Online competitive bidding has, in several cases, led to better price realization compared to traditional auction systems. Transparent price dissemination reduces the scope for collusion and exploitation, thereby strengthening trust in the marketing system.

### Transaction Costs

Electronic bidding, digital documentation, and direct bank transfers reduce marketing costs associated with physical negotiation, delayed payments, and intermediary commissions.

Lower transaction costs improve both producer and consumer surplus, enhancing overall market efficiency.

### Regional Performance Variations

Adoption and impact of e-NAM vary across states. States like Gujarat, Telangana, and Maharashtra have shown stronger integration and higher trading volumes, whereas some northern states exhibit slower adoption due to regulatory and infrastructural constraints. These variations underline the importance of state-level institutional support in realizing efficiency gains.

## Challenges and Constraints

### Structural Challenges

- Limited digital literacy among farmers and traders.
- Inadequate assaying laboratories and grading infrastructure.
- Connectivity issues in rural areas.
- Inconsistent implementation of APMC reforms across states.

### Socio-Economic and Behavioral Barriers

- Resistance from commission agents and entrenched intermediaries.
- Smallholders' reluctance due to risk aversion and unfamiliarity with digital platforms.
- Limited trust in online transactions.

Addressing these constraints is crucial to ensuring inclusive and sustainable market efficiency.

## Policy and Institutional Implications

### Strengthening Digital Infrastructure

Expanding rural broadband connectivity, improving portal usability, and integrating multilingual support can enhance participation.

### Capacity Building

Structured training programs, awareness campaigns, and digital literacy initiatives are essential to empower farmers and traders.

### Regulatory Harmonization

Uniform grading standards, interstate license recognition, and harmonized APMC rules can facilitate seamless national integration.

Policy alignment with market efficiency theory suggests that digital reform must be complemented by institutional reforms to achieve allocative and operational efficiency.

## Tables and Data Suggestions

**Table 1: Growth of e-NAM (2016–2025)**

Include:

- Number of integrated mandis
- Commodities traded
- Registered farmers and traders
- FPO participation

**Table 2: Major Constraints and Suggested Mitigation**

Constraint	Impact on Efficiency	Policy Recommendation
Digital literacy gap	Low participation	Training programs
Poor assaying facilities	Weak quality pricing	Infrastructure investment
Regulatory fragmentation	Limited interstate trade	Policy harmonization

## Future Research Directions

- Integration of AI-driven price forecasting tools within e-NAM.
- Application of blockchain for traceability and secure transactions.
- Longitudinal studies on income enhancement and price volatility reduction.
- Comparative evaluation with private digital agri-platforms.

## Conclusion

The Electronic National Agriculture Market (e-NAM) represents a transformative step in India's agricultural marketing reforms. By promoting transparency, competitive price discovery, digital transactions, and interstate integration, it contributes significantly to strengthening agricultural market efficiency. Nevertheless, digital divides, infrastructural bottlenecks, and institutional heterogeneity continue to constrain its full potential. A holistic approach combining technological innovation, regulatory harmonization, and capacity building is essential to transform e-NAM into a truly unified and efficient national agricultural.

## References

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