

National Agricultural Market Rationale, Roll-out and Ramifications

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The creation of the National Agricultural Market in India is a welcome move against the backdrop of the agricultural produce marketing committee reforms, 2013 and APMC Model Act 2003. With the twin objectives of spot price discovery and real-time price dissemination, the NAM is aimed at introducing a technology-enabled trading environment at regulated markets and integrate primary and secondary markets at the regional and national levels. To improvise the market structure, appointing a diverse and discursive group of market agencies/service providers is essential.

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The Union Budget for 2014–15 proposed the idea of unified common market platform called National Agricultural Market (NAM). Cabinet Committee on Economic Affairs approved it after a year, allocating ₹200 crore Agricultural Technology Infrastructure Fund. The purpose of fund allocation is to integrate some 585 agricultural produce marketing committees (APMCs) into a common market platform; 250 APMCs are to be covered in the current fiscal, 200 APMCs in 2016–17, and the remaining 135 APMCs in 2017–18.

In other words, only 8% of total principal and sub-yard APMCs are to be renovated into a technology-enabled unified market in the stipulated period. These APMCs would receive ₹30 lakh as a subsidy for infrastructure and technology adoption such as a computer, very small aperture terminal (VSAT), broadband internet service, power connection, etc. A few states have already shown interest in rolling out the NAM project. The concerned state agricultural marketing boards (SAMBs) need to work closely with the national spot exchange and market infrastructure institutions (Dey 2015c). Small Farmers' Agribusiness Consortium (SFAC) would be a lead agency to implement this central scheme at the auspices of Ministry of Agriculture.

NAM can be seen as an infrastructural and technological improvisation of regulated markets upon the recommendations of Twelfth Plan Working Group on Agricultural Marketing (Planning Commission 2011), Committee of State Ministers, In-charge of Agricultural Marketing (Ministry of Agriculture 2013) and Committee of Karnataka Agricultural Marketing Reforms (Government of Karnataka 2013).

Since agriculture is a state subject, concerned states have been allowed to

introduce market reforms in a phased manner. These include provisions of private market, direct marketing, contract farming, forward market, electronic trading in the spot market, single point levy, and single licensing system (Ministry of Agriculture 2003). Out of the 23 states and union territories, only eight have initiated major reforms in their respective agricultural market (NIAM 2015). However, with the efforts bringing about some positive change in the erstwhile opaque marketing system in a few states, private investment is yet to be commensurate with the pace of commercialisation and diversification in the sector.

Rationale for NAM

The rationale for a national market can be twofold. First, electronic auction platform to be installed in earmarked APMCs can bring transparency in the price discovery process, and unified market platform might lead to real time, broad-based price dissemination. Second, the common market platform can promote a single licensing system across the implementing states, connecting principal and sub-yard APMCs, and effectuate a single point levy of market fee. Online portal will enable the buyer to transfer funds to the farmer's account and concerned APMC's accounts after the delivery of produce from the farmer to the purchaser is ensured.

The motivation for a unified market platform can be traced to the Rashtriya e-Market Services (ReMS), an initiative of Karnataka State Agricultural Marketing Board with National e-Markets Limited (NeML), erstwhile National Commodity and Derivatives Exchange (NCDEX) Spot Exchange, started in 2013. The joint venture has integrated some 55 out of 155 principal APMCs into a single licensing system and accommodated many farmers and traders in the electronic auctioning of pulses. Before the inception of Karnataka model, private sector has played a significant role in the trade of cereals, pulses, and oilseeds.¹

For example, ITC e-Choupal, initiated in 2003, acted as a private platform to purchase farmers' produce, mainly

soybean in Madhya Pradesh under a captive and market-oriented farming arrangement. Some development also took place in fruits and vegetables segment wherein Mother Dairy Fruit and Vegetables entered into a joint venture with the Multi Commodity Exchange (MCX) to promote the Safal National Exchange in 2007.

However, the supply constraint or transaction uncertainty, nature of contracting and its governance, among others, affected the viability of these entities. Then, the MCX in association with National Agricultural Cooperative Marketing Federation (NAFED) floated an independent spot exchange known National Spot Exchange Limited (NSEL) in 2008. NCDEX also took a similar initiative in 2009. Exchanges exploited the scope of electronic spot trading in agricultural commodities by obtaining the licence from the respective states' APMCs/SAMBS. NSEL, however, has suspended its operation post-crisis period. So NEML has been a single spot exchange facilitating trading in agricultural commodities (Dey 2015a).

Apparently, REMS could be a reference model for NAM. The central sector scheme might integrate those APMCs that have observed some amount of reforms. However, the reluctance of several states for the adoption of APMC Model Act has restricted the private sector entry in the market development (Chand 2012). Will the creation of NAM address these concerns by offering an inclusive market design? Will NAM bring efficiency in the existing marketing channel and benefit the stakeholders? What impact would it have on farmer organisation with respect to their marketing decision, information access, and price realisation?

Structural and Regulatory Norms

Role of SFAC: The SFAC expressed its intent to implement the NAM project through a formal bidding process. NEML might anchor the project and facilitate to design the trading architecture (Dey 2015c). The spot exchange has gained some domain expertise in facilitating the electronic spot trading of agricultural commodities in states like Karnataka,

Maharashtra, Gujarat, Madhya Pradesh and Rajasthan to name a few. While it can help concerned states to improvise their regulated markets into a software-enabled trading platform, implementation entails a well thought-out plan. SAMBS, Food and Civil Supplies Corporation and procurement agencies, namely, NAFED, Cotton Corporation of India and state-run agencies need to coordinate to speed up the project execution and ensure a hassle-free operation at the market yard or collection centre.

Here, Karnataka REMS model can be adopted to design mainframe architecture of supply chain flows, namely, information flow, product flow, and cash or payment flow. However, the success depends on the states' outlook to market-led agriculture that includes steady procurement, value addition to the marketable surplus, co-production/co-creation and profit-sharing model. Political instability might extend the implementation period.

Now, hiring of a consultant for implementing the project may require some time as the government needs to invite bids from competent agencies by issuing the tender. State government cooperation is essential to conduct a thorough market research and expedite the process of implementation. There is also a dire need for synergy of network organisations/institutions, namely, NCDEX, consultants, market agencies like warehousing and collateral management agencies, financial institutions, implementing states and the centre. As *mandi* modernisation aims to rope in a diverse and discursive group of clientele, interested public/private organisations could get an opportunity to provide customised services. These services include assaying or grading of the produce, price polling and reporting to a central database, warehousing and disposal, and commodity-based structured financing.

The lead agency for the project, SFAC has acquired some expertise by promoting more than 480 farmer producer companies (plus 396 are to be registered as legal entities) across Madhya Pradesh, Uttar Pradesh, Rajasthan, Maharashtra, Telangana, among others. Therefore, SFAC can identify these states

for implementing the NAM project on priority. The management support group of SFAC can take a dual responsibility of farmer organisation's monitoring and the mandi restructuring. The group can seek necessary support from the SAMB and Food and Civil Supplies Corporation of the respective state's administration. Traded volume, the proximity of traders and merchants, banking, and warehousing facility, and other utilities can be helpful to categorise the APMCs.

Integrating Value Chain: Creation of NAM needs a management information system for managing information flow, product flow, and payment flow in an electronic market. Technology can contribute to creating the system by synchronising value chain activities into layer-wise processes (Dey 2015b). For instance, dairy and other food processing industries manage to manoeuvre their value chain layer effectiveness deploying adequate resources supported by a robust information system. As a result, they can optimise cost-benefit metrics embracing a value chain reference model. The apex agency, SFAC can draw some lessons from these markets where technology, either computer or mobile played a role to moderate the production and marketing decisions of agents. Short message service (SMS)-based price information to traders and farmers through Reuters Market Light (RML) services has been quite popular in many states.

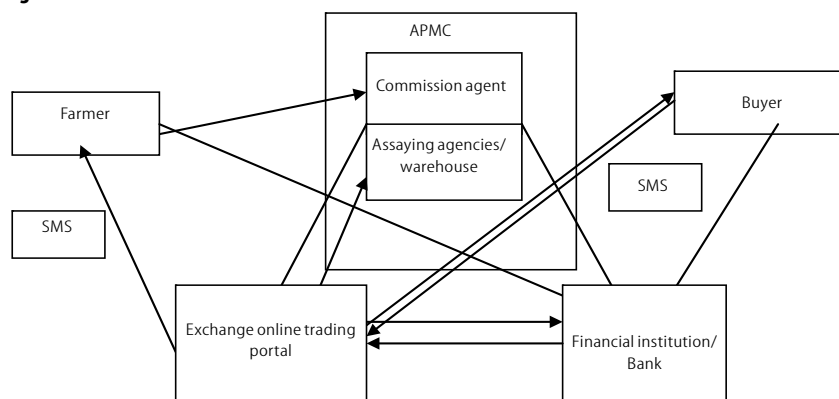
Process Flow at Market Yard: REMS model process flow at the market yard can be adopted by the implementing states (Government of Karnataka 2013). The process can begin with farmer-lot-wise entry and lot-identity-code creation, and farmers need to unload their produce at commission agent's doorstep. Commission agents should then update the inventory record and draw the sample from the heap. The concerned APMC staff should conduct the electronic bidding as per unique lot identification number generated.

The auction leads to bring about best bid (buy) and best ask (sell) price, and that should be communicated to the bidder and farmer through SMS-based/in-call

service. Once the order gets matched, final weighing needs to be recorded for generating a sale receipt. The buyer/commission agent should then transfer the required amount to the farmer account and pay the market fee to the respective APMC account. Before the amount gets transferred to the farmer account, APMC should generate farmer receipt and update the buyer's inventory. APMC officials, agents and farmers need to be financial and system literate for a systemic or standardised market operation. A pictorial presentation of the transaction process is depicted in Figures 1a and 1b.

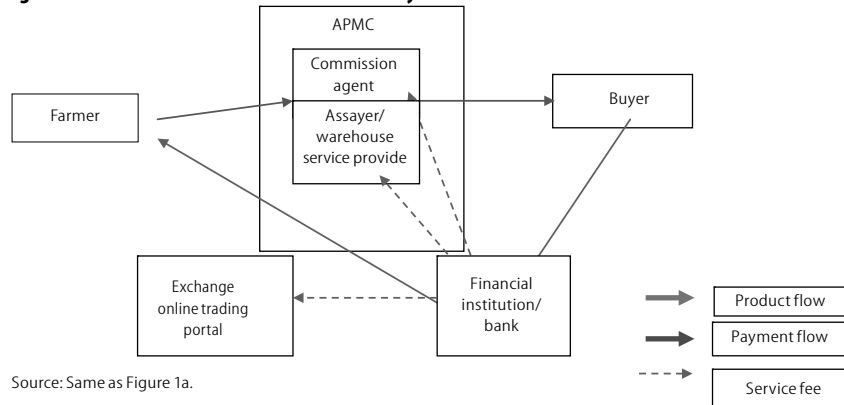
Partnership Model: The public-private partnership (PPP) can help integrate the information flow, product flow, and cash

Figure 1a: Transaction Process—Information Flow



Source: Concept adapted from the Report of Agricultural Marketing Reforms Committee, Karnataka (2013).

Figure 1b: Transaction Process—Product and Payment Flow



Source: Same as Figure 1a.

flow in the trade. Combining the three streams could have significance to value chain stability. While a resilient value chain can preserve flexibility and complement the competing intermediaries, stability of the system calls for an enabling environment (Dey 2015b).

We can consider a typical PPP model value chain. In Rajasthan, a private warehousing company has constructed an integrated market (auction platform, warehouses, and silos) called private mandi for farm produce procurement, storage and preservation, and distribution. Licensing from the Rajasthan SAMB is necessary to facilitate the trading and distribution. For a successful intervention, the company may contract out an end-to-end solution to farmer producer companies.

National Bank for Agriculture and Rural Development (NABARD) as a promoter of Farmers' Club could be a financial intermediary between the producer company and service agencies. National spot exchange, say NEML can set up an electronic auction platform and link-up

Council of SAMB and National Institute of Agricultural Marketing (NIAM) can coordinate with the SFAC for implementing the model under PPP mode. A revenue sharing model along with the resolution for operating the private market under the aegis of state legislation is important to agricultural value chain stability (Dey 2015d).

Phased Roll-out: Capacity building of stakeholders, from farmers to the director of the apex institutions for implementing the project is necessary to tighten the regulation and project implementation. NIAM has outlined a capacity building plan for various actors, namely, farmers, traders/market agents, APMC secretaries, and principal secretaries/directorate of agricultural marketing.

At the farmer level, the training programme should include understanding of the idea, product specification, market trends and pledge financing facilities. Traders and other market agents should be trained on the adoption of grades, dispute settlement and arbitration, payment facilitation, and produce handling. APMC secretaries/chairman need to build their capacity on operation and management of electronic market, change management, and dispute redressal. Directorate of Agricultural Marketing and Principal Secretaries of the Ministry of Agriculture needs to understand the importance of NAM and facilitate the reform process.

Furthermore, NIAM, a nodal institute of agricultural marketing in India should sensitise financial institutions, regulatory bodies including SFAC about the vision and scope of NAM. The institute can draw some lessons from African countries about the functioning of the common national market. For instance, East African Community Common Market (EACCM) and Common Market for Eastern and Southern Africa (COMESA) have been in existence. The technology-enabled market can also be found in Ethiopia and Turkey. In Ethiopia, the creation of commodity exchange and formal monitoring and enforcement has affected social relations and trust in commodity value chain (Meijerink et al 2014). Traders broaden their trading network and

reduce the degree of association with the known trading entities. Farmer organisations get access to reliable price information to strengthen their marketing decision.

In Turkey, the enactment of Wholesale Markets Law in 1995 allowed small farmers to supply their produce to super-market through cooperatives that could draw a parallel from the farmer markets in India. However, investigating the ownership and transaction costs of these markets is critical to their viability and competitive edge over commission agents or traders (Lemeilleur and Codron 2011).

There are some components or areas of concern to be taken into account before rolling out the project. These include, namely, enabling environments, market infrastructure and institutions, grades/assaying, functions, scope for farmer participation, skills enhancement, promotion, finance and insurance, input and extension, focus and ecology. The development depends on how these components are being used or adopted in different phases. NIAM proposes a phase-wise perspective plan of NAM (Table 1).

Necessary Ramifications

The consequence of the project might be far-reaching and could consider several contours of markets and policy environment. First, creation of NAM could reduce pricing anomaly at the wholesale and primary rural markets through a network of electronic spot regulated markets.

Price polling exercise, on the one hand, would be more transparent and reliable. Real-time price information, on the other, can be transmitted and stored into a central database of agricultural marketing research and information system, known "Agmarknet" portal.

Second, the creation of electronic market could make farmers system and financially literate and exposed them to spot trading mechanics through in-built trading architecture called "CommTrack." The provision of farmer and trader account in electronic spot market would enable the participant fund management on a real-time basis. The fund management could have a signalling effect on price evolution and market condition. By optimising transaction costs and customising the contract, farmers could obtain a better price for their graded produce.

Third, organised spot markets can support forward/futures markets for reference pricing and final settlement of the forward/futures contracts. Traders will be more informed as they may observe frictionless trading in both the markets. Option instrument can also gain ground if the contract design appeals to farmers, trading agencies, and centre-designate procurement agencies. Delivery might not be an issue since warehousing and collateral management business would receive a ripple effect of the project. Commodity-based structured financing might also be a fruitful outcome of the project that might

restore the confidence of financial institutions on the negotiability of warehouse receipt. Warehouse receipt-based sales can also help in mitigating farm marketing risk.

Fourth, commodity prices tend to be less distorted, and primary stakeholders will be able to compare commodity prices across the secondary and terminal markets that could reduce their information searching costs and improve the bargaining power.

Fifth, the implementing state needs to issue a single license to traders for registering with the national online market portal. The permit should be valid across the boundary of the state. The regulated market officials need to issue mandate for electronic trading and the license to traders across the state, who can trade online. Also, the provision of a single point levy of the market fee would enable traders reduce the cost of transaction.

Sixth, NAM could bring the procurement activities in order. Price formation at the mandi level and real-time dissemination from a remote location to a central database can reflect the local demand and supply conditions. State authority can keep a vigil on the price movement and monitor the price evolution or its trend. The state-designate procurement agencies, by virtue of a transparent price discovery, can efficiently conduct procurement operation. Private trading bodies might also enhance competition in the process if they are allowed.

Table 1: Components of NAM in Different Phases of Development

Phases/Components	Phase 1 (0–2 Years)	Phase 2 (3–6 Years)	Phase 3 (7–12 Years)
Enabling environment	Legal (single and unified licence, e-trade, and others)	Complete reforms	Facilitating role
Infrastructure	Hardware and software	Upgradation of mandis	Creation of physical delivery or collection centres
Grade	Selected commodities	Comprehensive coverage	All commodities
Function	Electronic price discovery	Bank settlement, warehouse receipt financing, logistics	Management information system, promotion, demand creation
Farmer participation	Individual/groups	Farmer organisations	Producer companies
Skill development	Mass awareness	Specialised	As per global requirements
Institution	Establishing national level agency or promoting special purpose vehicle	Institute for functions like training, research, defining grades and international trade	Regulatory convergence between primary and secondary markets
Promotion	NAM Portal	Product	Branding
Finance and insurance	Direct payment	Payment and credit	Complete risk coverage
Input and extension	Information dissemination of factor markets	Advisory	Delivery of physical and technical inputs
Focus	Regional/local	National	Transnational
Ecology	Post-harvest management	Sanitary and phytosanitary measures	Zero carbon footprint

Source: Adapted from a concept note of NAM by NIAM (2015).

As a consequence, the agricultural market would be more efficient with respect to liquidity and participation.

Seventh, the project calls for an orchestration of service providers to attain a unified transaction process integrating product flow, information flow, and payment flow. The integration, on the one hand, can reduce transaction costs by optimising the search and negotiation costs of farmers, traders, and processors. The unification, on the other, can mitigate the potential threat of agency-cost and free-rider problems. However, unified clearing and settlement in the trade could constrain the innovation and product development (Ministry of Finance 2014).

Eighth, apparently, the electronic market could replace the ring system of trading or “open outcry” at the market yard. As ring system scores over a screen-based trading on several grounds, the two systems of trading should coexist to infuse efficiency in auctioning and ensure immediacy and liquidity in the trade.

In general, NAM creation can be a welcome move for introducing a structural reform in India’s traditional agricultural marketing system. The benefits can percolate to various stakeholders in the market through technology adoption and market integration. Regulatory architecture, on the one hand, is to be put in place to pan out the project, and orchestration of implementing agencies, on the other, needs to be attained.

Postscript

Electronic trading portal of NAM (e-NAM) has been officiated recently with a national interest to connect more than 580 APMCs across various parts of the country in a stipulated time period. While there is some amount of participation of traders in the spot price discovery of foodgrains, especially paddy/ rice and wheat, inclusivity in trading and participation needs to be attained. In other words, the benefits of negotiated dealing system in trading avenue and associated services in terms of price and quality information of traded commodities might not accrue to small and marginal farmers.

It may be plausible that besides a single point levy of market fees and single licence for a trader across all markets in the state concerned, connecting farmers with the market through a digital grid and realisation of a reasonable price with minimal transaction costs should be a prime objective of this project. To leave a positive impact of NAM on farmers and other stakeholders, there should be greater “harmonisation of quality standards of agricultural produce and provision of assaying (quality testing) infrastructure in every market to enable informed bidding by buyers” (Ministry of Agriculture and Family Welfare, no date).

Up until now, common tradable parameters have been specified for more than 20 commodities. Further, a provision of soil testing laboratories can enable farmers access the soil testing facility that might impact input use efficiency, soil fertility, and crop productivity. It may be noted that SFAC has appointed a Strategic Partner (Nagarjuna Fertilisers and Chemicals) who may be responsible for development, operation, and maintenance of electronic trading platform. The partner could offer customised services to the concerned APMCs and oversee the integration of those APMCs with the demutualised electronic spot trading portal.

NOTE

- 1 See the necessary amendments to Essential Commodities Act, 1955 in Chand (2012).

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