

Electronic National Agricultural Market (eNAM) in Gujarat: Review of Performance and Prospects

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Foreword

Marketing of agricultural commodities in India is carried out through the state enacted Agricultural Produce Marketing Regulation Acts (APMRA). Under this system, a vast network of regulated markets has been established. However, over time, these markets have become restrictive and monopolistic and have failed in not only achieving their basic objectives owing to restrictive provisions of Acts, but also prevented a seamless integration of farmers and buyers and evolution of an efficient supply chain. Realizing the urgent need to address the challenges of the existing agricultural marketing system, the Union Government has introduced a Central Sector Scheme for Promotion of National Agriculture Market through a common electronic market platform, called the electronic National Agricultural Market or e-NAM.

The e-NAM aims to integrate all the agricultural markets of the country and envisages a common national market for agricultural commodities with seamless movement across state boundaries. This is envisioned as a solution to marketing issues of all stake holders - farmers, traders, retailers, consumers and logistic providers. The common e-market platform envisaged networking of selected 585 wholesale markets in desirous states/UTs by March 2018. It was recorded on eNAM portal that till July 31, 2017, out of 585 targeted markets, 455 markets across 13 states were live on e-NAM. Accordingly, a need was felt to assess the status of the extent of implementation of eNAM and the expected benefits derived therefrom. In view of same, the Ministry of Agriculture and Farmers Welfare, Government of India entrusted this study for the state of Gujarat to AERC Centre, Sardar Patel University, Vallabh Vidyanagar (Gujarat). The Agro-Economic Research Unit, Institute of Economic Growth (IEG), Delhi acted as a coordinator of this empirical study and provided sampling framework and table format. The study is based on both primary and secondary level data. The study proposes important and apposite policy implications which would facilitate suitable interventions to spread the benefits of electronic market to farmers in the country and also doubling the income of the farmers.

I am thankful to authors and the research team for putting in a lot of efforts to complete this excellent piece of work. I also thank the Directorate of Economics and

Statistics, Ministry of Agriculture and Farmers Welfare, Government of India for the unstinted cooperation and support. I hope this report will be useful for policy makers and researchers.

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Contents

<i>Foreword</i>		<i>iii</i>
<i>Acknowledgements</i>		<i>v</i>
<i>List of Tables</i>		<i>ix</i>
<i>List of Figures</i>		<i>x</i>
<i>List of Maps</i>		<i>x</i>
<i>List of Abbreviations</i>		<i>xi</i>
<i>Executive Summary</i>		<i>xiii</i>
Chapter I	Introduction	1
	1.1 Introduction	
	1.2 Importance of and Problems in Marketing of Agricultural Produce	
	1.3 Penetration of the Market (Marketed Surplus)	
	1.4 Recent Agricultural Marketing Reforms in India (eNAM)	
	1.5 Progress of e-NAM in India	
	1.6 Brief Review of Literature	
	1.7 Need of the Study	
	1.8 Objectives of the Study	
	1.9 Data and Methodology	
	1.9.1 Data Sources	
	1.9.2 Study Area and Time period	
	1.9.3 Sampling Framework	
	1.9.4. Development of Survey Schedules	
	1.9.4.1 Pilot Testing and Finalization of Schedules	
	1.9.5 Selection of Districts/Input Market	
	1.10 Limitations of the Study	
	1.11 Organization of the Study	
Chapter II	Government Interventions in Agricultural Marketing	21
	2.1 Introduction	
	2.2 Need and Different forms of Government Interventions in Marketing	
	2.3 Grain Marketing Parastatals around the Globe: Focus on Asia	
	2.4 Food Policy and Parastatals in India	
	2.5 Price Policy and Support for Farmers	
	2.6 Chapter Summary	
Chapter III	Agricultural Marketing Reforms in India	31
	3.1 Introduction	
	3.2 Agricultural Marketing Reforms in India	
	3.4 Karnataka Model for Agricultural Marketing	
	3.4 e-NAM: Replication and extension of Karnataka model	
	3.5 Supportive Schemes by Central Government	
	3.6 Chapter Summary	

Chapter IV	Agricultural Marketing in Gujarat	41
	4.1 Introduction	
	4.2 The Gujarat Agricultural Produce Market Act 1963	
	4.3 Gujarat State Agricultural Marketing Board (GSAMB)	
	4.4 Programmes and Scheme for support in Marketing	
	4.4.1 <i>Contract Farming</i>	
	4.4.2 <i>Gujarat New Organic Policy 2015</i>	
	4.5 Status of implementation of eNAM in Gujarat	
	4.6 Chapter Summary	
Chapter V	Findings from Field Based Survey in Gujarat	51
	5.1 Introduction	
	5.2 Farmers Households	
	5.2.1 Profile of Farmers Households	
	5.2.2 Socio Economic Characteristics of Selected Farmers Households	
	5.2.3 Land Holdings and Sources of Irrigation with Farmers Households	
	5.2.4 Awareness about eNAM	
	5.2.5 Use of eNAM	
	5.2.6 Facilities Available at APMC reported by Farmers	
	5.2.7 Problems reported by Farmers about eNAM (perceptions)	
	5.2.8 Advantages of eNAM by Farmers (perceptions)	
	5.2.9 Suggestions to Improve eNAM by Farmers	
	5.3 Commission Agents	
	5.3.1 Profile of Commission Agents (CA)	
	5.3.2 Awareness about and Registration in eNAM	
	5.3.3 Crops Marketed through eNAM	
	5.3.4 Use of eNAM reported by CA	
	5.3.5 Facilities Available and its quality at APMC	
	5.3.6 Problems reported by CA about eNAM	
	5.3.7 Advantages of eNAM by CA (perceptions)	
	5.3.8 Suggestions to Improve eNAM by CA	
	5.4 Selected APMCs	
	5.4.1. Profile of Selected APMCs and Implementation of eNAM	
	5.4.2 Awareness about eNAM	
	5.4.3 Support received from Government	
	5.4.4 Participation in Trading	
	5.4.5 Facilities available and its quality at APMC premises	
	5.4.6 Problems reported by APMC in Implementation of eNAM	
	5.4.7 Advantages of e-NAM as per APMC respondent	
	5.4.8 Suggestions by APMC to Improve eNAM adoption	
Chapter VI	Summary and Conclusions	75
	References	91

List of Tables

Table No.	Title	Page
1.1	Number of Wholesale, Rural, Primary and Regulated Markets in India (as on 31.03.2011)	06
1.2	Growth in Marketed Surplus Ratio of Important Agricultural Commodities in India	07
1.3	Status of Marketing Reforms with reference to seven key areas vis-a-vis Model APMC Act as updated on 25/02/2016	09
1.4	Number of Stakeholders of e-NAM in India as on July 2017	13
1.5	List of Studies on e-auctioning/e-tendering/e-NAM	14
1.6	Details on Sample Respondents of Gujarat	19
2.1	Regulatory Framework to Facilitate Parastatal Operations in Asian Countries	24
2.2	Changes in MSPs for Selected Crops (according to Crop year)	29
4.1	Districtwise Number of Regulated Markets in Gujarat	44
4.2	Selected districts and Number of APMCs connected with eNAM in Gujarat	48
4.3	Details on APMCs connected with eNAM in Gujarat	49
5.1	Family Profile of Selected Farmers household	51
5.2	Socio-Economic Characteristics of Selected Farmers	52
5.3	Details on Occupation and KCC holding of Selected Farmers	53
5.4	Details on Land Holdings Size of Selected Farmers	54
5.5	Sources of Irrigation available with Selected Farmers	54
5.6	Awareness about eNAM and Sale of Commodity by Selected Farmers	55
5.7	Details on Use of eNAM by Selected Farmers	56
5.8	Facilities Available and Quality rank at APMC reported by Selected Farmers	57
5.9	Quality Testing and related Parameters at APMC reported by Selected Farmers	58
5.10	Other facilities available at the Market premises of APMC as reported by Respondent Farmers	58
5.11	Problems reported about eNAM by Sample Farmers	59
5.12	Advantages of e-NAM reported by Selected Farmers	60
5.13	Other features of e-NAM reported by Respondent Farmers	60
5.14	Suggestions to improve e-NAM by Selected Farmers	61
5.15	General Information of Commission Agents	62
5.16	Awareness about and Registration in eNAM by Commission Agents	62
5.17	Details on Crops marketed through eNAM by Commission Agents	63

5.18	Use of eNAM reported by Commission Agents	64
5.19	Facilities Available and its quality at APMC reported by Commission Agents	65
5.20	Quality Testing and related Parameters at APMC reported by Commission Agents	65
5.21	Problems faced in adoption of eNAM reported by Commission Agents	66
5.22	Advantages of e-NAM reported by Commission Agents	67
5.23	Other features of e-NAM reported by Commission Agents	67
5.24	Suggestions to improve e-NAM made by Commission Agents	68
5.25	Information about Selected APMCs and Implementation of eNAM	68
5.26	Awareness about Reforms in APMR Act	69
5.27	Grant-in-aid or financial support received from Government of India for different purposes	69
5.28	Participation in Trading during last one month	70
5.29	Commodity Trading Details for Last one month	70
5.30	Facilities Available and its quality at APMC premises	71
5.31	Quality Testing and related Parameters at APMC premises	71
5.32	Problems faced in adoption of eNAM by APMC	72
5.33	Advantages of e-NAM as per APMC respondent	73
5.34	Perception regarding other features of e-NAM by APMC	73
5.35	Suggestions by APMC to improve e-NAM	74

List of Figures

Figure No.	Figure	Page
1.1	Coverage and process of eNAM Portal	12
1.2	Sampling Framework	18
4.1	Status of Trading of Produce under eNAM in Gujarat in tones (as reported)	50

List of Map

Map No.	Maps	Page
1.1	Location Map of the Study Area in Gujarat	19

List of Abbreviations

APC	-	Agricultural Prices Commission
APMC	-	Agricultural Produce Marketing Committee
Av.	-	Average
CA	-	Commission Agent
C.I.	-	Cropping Intensity
CACP	-	Commission for Agricultural Costs and Prices
CAGR	-	Compound Annual Growth Rate
CMS	-	Cooperative Marketing Society
CoC	-	Cost of Cultivation
DES	-	Directorate of Economics and Statistics
Dist.	-	District
DM	-	Dry Matter
DOC	-	Division of Cooperation
FAO	-	Food and Agriculture Organization
FAQ	-	Fair Average Quality
FASR	-	Food & Agribusiness Strategic Advisory & Research
FCI	-	Food Corporation of India
GCA	-	Gross Cropped Area
GDP	-	Gross Domestic Product
GIA	-	Gross Irrigated Area
GOG	-	Government of Gujarat
GOI	-	Government of India
GSDP	-	Gross State Domestic Product
GVA	-	Gross Value of Agriculture
GVO	-	Gross Value of Output
ha	-	Hectare
HH/hh	-	Household
HYV	-	High Yielding Variety Seeds
I.I.	-	Irrigation Intensity
IGFRI	-	Indian Council of Agricultural Research
JCI	-	Jute Corporation of India
KCC	-	Kisan Credit Card
kg	-	kilograms
mha	-	Million hectares
MIP	-	Market Intervention Price
MIS	-	Market Intervention Scheme
MOA	-	Ministry of Agriculture
MSP	-	Minimum Support Price
mt	-	Metric Tonnes
NAFED	-	National Agricultural Cooperative Marketing Federation of India Ltd.
NATP	-	National Agricultural Technology Programme
NBHC	-	National Bulk Handling Corporation
NCA	-	Net Cropped Area
NCAER	-	National Council of Applied Economic Research

NCDFI	-	National Cooperative Dairy Federation of India
NCMSL	-	National Collateral Management Services Limited
NDDB	-	National Dairy Development Board
NIA	-	Net Irrigated Area
NITI	-	National Institution for Transformation India
Nos	-	Numbers
NSA	-	Net Sown Area
NSDP	-	Net State Domestic Product
NSSO	-	National Sample Survey Organization
PDS	-	Targeted Public Distribution System
PSS	-	Price Support Scheme
Rs.	-	Rupees
SAU	-	State Agricultural Universities
SC	-	Scheduled Caste
ST	-	Scheduled Tribe
TE	-	Triennium Endings

Executive Summary

Electronic National Agricultural Market (eNAM) in Gujarat: Review of Performance and Prospects

S. S. Kalamkar, Kinjal Ahir and S.R. Bhaiya¹

1 Introduction:

Marketing of agricultural commodities in India is carried out through the state enacted Agricultural Produce Marketing Regulation Acts (APMRA). Under this system, a vast network of regulated markets had been established. However, over time, these markets have become restrictive and monopolistic and have, therefore, failed to achieve their basic objectives owing to restrictive provisions of Acts. It also prevented a seamless integration of farmers and buyers and evolution of an efficient supply chain. Realizing the urgent need to address the challenges of the existing agricultural marketing system, the Union Government introduced a Central Sector Scheme for Promotion of National Agriculture Market through a common electronic market platform, called the electronic National Agricultural Market or e-NAM on 1 July 2015. The e-NAM aims to integrate all the agricultural markets of the country and envisages a common national market for agricultural commodities with seamless movement across state boundaries. This is envisioned as a solution to marketing issues of all stake holders - farmers, traders, retailers, consumers and logistic providers. The common e-market platform envisaged networking of selected 585 wholesale markets in desirous states/UTs by March 2018. It was recorded on eNAM portal that till January 24, 2018, out of 585 targeted markets, 471 markets across 15 states were live on e-NAM.

The eNAM portal provides a single window service for all APMC related information and services, including commodity arrivals, prices, bids and offers. Some of the expected benefits from e-NAM include accessibility of farmers to a common agriculture market; real time price discovery; transparency in the agriculture marketing system; reduce the transaction costs of buyers and sellers; real time information on prices, market arrivals; bidding on quality parameters of commodities; online bidding for more transparency; online payment system to reduce the payment risk and ensure timely payments to farmers, cleaning, sorting, grading and weighing facilities and additional services such as soil testing laboratories at the e-NAM. Small Farmers' Agribusiness Consortium (SFAC) is designated as Lead Agency to roll out the eNAM in partnership with a strategic partner, which will be responsible for developing, running and maintaining the proposed e-marketing platform. To facilitate assaying of commodities for trading on NAM, common tradable parameters have been developed for 90 commodities. eNAM is a virtual market but it has a physical market at the back end. While one time registration of farmers / sellers, lot details at the entry gate, weighment, quality assaying, auctions / trade transactions, payment by buyers to sellers and other agencies involved in the chain of transaction will take place online on e-NAM, actual material flow will happen physically through the market. Entire arrivals of agricultural commodities selected for trading on e-NAM will be traded on-line itself. In order to facilitate both - unification of market and online trading, it is necessary for each State to undertake reforms prior to seeking assistance under the scheme in respect of (i) a single license to be valid across the State, (ii) single point levy of market fee and (iii) provision for electronic auction as a mode for price discovery. Only those States/UTs that have completed these three pre-requisites are eligible for assistance under the scheme. The States must ensure that the reforms are carried out both in letter and spirit through appropriate and unambiguous provisions in the APMC Acts and rules. Besides, the State Marketing Boards/APMCs must enable the promotion of the e-auction platform.

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2. Progress of e-NAM in India

The electronic trading portal for national agricultural market is an attempt to use modern technology for transforming the system of agricultural marketing. Thus, eNAM is an online inter-connectivity of e-mandis, aimed at ushering in much needed agriculture marketing reforms to enable farmers to get better price. The common e-market platform envisaged networking of selected 585 wholesale markets in desirous states/UTs to be deployed in three phase, viz. 200 wholesale markets by September 2016, another 200 markets by March 2017 and remaining 185 markets by March 2018 (Shalendra and Jairath, 2016). The electronic trading platform for National agriculture market was launched on April 16, 2016 in 21 Mandis across 8 States with pilot trading of 24 commodities namely Apples, Potato Onion, Green Peas, Mahua Flower, Arhar whole (Red Gram), Moong Whole (green gram), Masoor whole (lentil), Urad whole (black gram), Wheat, Maize, Chana whole, Bajra, Barley, Jowar, Paddy, Castor Seed, Mustard Seed, Soya bean, Ground nut, Cotton, Cumin, Red Chillies and Turmeric. As of October 31, 2017, it was reported/ uploaded on the website of eNAM that, out of 585 targeted markets, 470 regulated markets from 14 states were live on e-NAM. The target of bringing 455 mandis online by May 2017 was achieved and it was reported that total 5076501 farmers and 96118 buyers were registered on e-NAM portal with a turnover of Rs. 31424.04 crore from the trading of 11371.72 tonne produce covering about 90 commodities including vegetables. The state-wise coverage of markets after phase II indicate that the highest number of selected markets that are live on eNAM portal are from the state of Uttar Pradesh (100) followed by Madhya Pradesh (58), Haryana (54), Maharashtra (45), Telangana (44), Gujarat (40), Rajasthan (25), Andhra Pradesh (22), Himachal Pradesh (19), Jharkhand (19), Chhattisgarh (14), Odisha (10) and Uttarakhand (5).

The growth in number of stakeholders of e-NAM in India by July 2017 indicated that progress is very slow and number is disappointing given the fact that there are more than 13.8 crore farmers with approximately 20 lakh commission agents and traders in more than 7320 markets across India. The six major states with the most mandis under eNAM are Uttar Pradesh, Madhya Pradesh, Haryana, Maharashtra, Telangana and Gujarat. These states collectively accounted for three fourth of targets achieved. However, in these states too, the market remains isolated, with traders from outside the APMC not being able to buy farmers' produce from the mandi and buyers having to physically inspect quality of produce due to absence of required infrastructure. While studying the impact of e-markets in Karnataka, Reddy (2016) made a mention about some teething problems in its implementation.

3. Need of the Study:

Some of the expected benefits from e-NAM include accessibility of farmers to a common agriculture market; real time price discovery; transparency in the agriculture marketing system; reduce the transaction costs of buyers and sellers; real time information on prices, market arrivals; bidding on quality parameters of commodities; online bidding for more transparency; online payment system to reduce the payment risk and ensure timely payments to farmers, cleaning, sorting, grading and weighing facilities and additional services such as soil testing laboratories at the e-NAM. It was felt important to assess the implementation and benefits derived from eNAM in the state of Gujarat. Therefore, AERC, SPU, Vallabh Vidyanagar centre was entrusted by the Ministry of Agriculture and Farmers Welfare, GOI to conduct this survey in Gujarat.

4. Data and Methodology:

The study is based on both primary and secondary level data. The secondary data on market, marketed surplus, eNAM coverage and activities and related information were collected from the government publications, research papers/reports and various relevant websites. Primary data was collected by using a pilot-tested structured interview schedule

canvassed in 2017 over sample farmers, commission agents and APMCs' office bearers during Phase I of this study in two selected APMCs of Gujarat, viz. Petlad (Anand) and Ahmedabad. The Phase II of the study, the current research, is confined to the State of Gujarat and covers 31 APMCs from 31 districts of the state (23 eNAM and 8 APMCs not under eNAM) covering the agriculture year 2018-19. Out of the total 40 APMCs covered under the eNAM, total 23 APMCs from 23 districts of the State of Gujarat were selected for the study. As some of the districts had two APMCs under eNAM, in such cases, randomly one APMC was selected. Besides, 08 APMCs were selected from remaining eight districts that were not covered under eNAM to know about the awareness and related parameters of the eNAM. From every district, minimum five farmers and five Commission Agents and selected APMC office bearers were contacted. Accordingly, the information related to eNAM implementation and its implications were collected in pre-tested schedules from 155 farmers and 155 commission agents and 31 APMC officers.

5. Status of e-NAM in Gujarat:

Gujarat government has aggressively pursued an innovative agriculture development programme by liberalizing markets, inviting private capital, reinventing agricultural extension, improving roads and other infrastructure. The state government has a comprehensive Agri-Business Policy to facilitate projects of value addition in value chain from farm to market, develop agri-infrastructure, encourage research and development, promote food safety management system at the farm level and processing units. A total of 400 regulated markets exist in the State serving on an average 45 villages per market and about 491 sq km area. On 14th of April 2016, eNAM scheme had been launched on a pilot basis in three selected APMCs of Gujarat, viz. Patan, Botad and Himmatnagar with specified commodities such as castor seed, chana (black gram) and wheat respectively. Out of total 585 mandis selected at national level, total 40 APMCs area from 24 districts of Gujarat were selected for eNAM. It was reported that by the completion of second phase (May 2017), all targeted 40 mandis were live on e-NAM. About 308346 farmers and 7399 buyers were registered on e-NAM portal. The turnover of Rs. 3693.164 crore from the trading of 907.05 tonne produce covering agriculture commodities like Castor Seed, Cotton, Wheat, Sesame Seed, Groundnut was observed. Though the state of Gujarat has made provisions for three identified reform measures and have basic infrastructure facilities like auction platform, information dissemination mechanism, banks, etc. as compared to other states of India (IFPRI, 2016; Shalendra and Jairath, 2016), APMCs are facing problems in implementation of this scheme.

6. Findings from Field Based Survey:

Farmers Households

- The profile of selected farmer households indicated that more than 98 per cent of the respondents were male under eNAM category while all respondents were male in Non eNAM APMC category. Average age of the respondents was around 45-46 years having average education of 9-10 years with average farming experience of 22 years in both categories. Average household size was 6-7 persons. The share of family members working in farming and dairy was relatively higher in Non eNAM APMC category than eNAM category.
- The socio economic characteristics of selected farmers indicate that majority of respondent were Hindus. More than half of the selected farmers belonged to 'open category' followed by Other Backward Classes and Scheduled Caste category. More than 79 per cent of farmers from both category belonged to 'above poverty line' group and thus possibly for the same reason more than 89 per cent of farmers from eNAM group and 80 per cent from Non eNAM APMC group had pucca or semi pucca house.
- Crop cultivation was the main occupation of the selected farmers from both groups and animal husbandry was the secondary source of income for these households. Around 40

per cent farmers' households maintained the farm records and more than 60 per cent of households have Kissan Credit Card with them.

- Average operational land holdings with eNAM group farmers was 3.86 ha of which 82 per cent land was irrigated, while corresponding figure for Non eNAM APMC group was 3.5 ha with 93 per cent having irrigation facility. The average rental value of irrigated land was obviously higher than the unirrigated land and ranged between Rs. 25000-30000/- per hectare for a year's period. The major source of irrigation with selected farmers was groundwater (tube well and open well) along with minor share of canal water.
- More than 83 per cent of farmers have sold their produce in APMC through commission agents (through action method of sale) followed by sale to village traders while some of them sold at both places. None of eNAM group farmer had sold their produce through eNAM procedure of sale being implemented in selected APMCs of the Gujarat.
- Hardly one third of selected famers from eNAM group were aware about eNAM, despite of the fact that these selected APMCs are provided with grant-in-aid and infrastructure for implementation of eNAM which also includes creating awareness among the farmers and other stakeholders. Those who were aware about eNAM, for them the main source of information was APMC. Thus, there is a need of mega awareness campaign inside APMC as well as villages around particular APMCs. None of the crop was marketed through eNAM (intrastate or interstate biding and sale as per the guidelines of eNAM).
- There are many uses of eNAM as one can check prices of commodities in various markets on different dates, sale of commodity, online payment, etc. Though no sale of commodity was reported under eNAM, attempt was made to check whether farmers make use of this electronic platform and website for any other purpose. But it was observed that none of the farmers have reported any use of the same for any such purpose.
- The implementation of eNAM market necessitates infrastructural facilities in selected APMCs covered under eNAM such as assaying (quality testing), e-auction, weighing, etc. All the mandis have weighing facility besides other facilities like grain storage, soil testing and bid management. In terms of the quality parameters across all services, weighing facility was assessed with 'good' to 'satisfactory level'.
- As no sale was undertaken under electronic market, none of the samples of agricultural produce was tested and uploaded on the eNAM platform. Thus, none of the farmer have responded on quality testing and related parameters at APMC. The other facilities available at the market premises of APMC were bank, agriculture input shops, telephone, storage, internet, canteen, and guest house.
- Certain problems were reported by sample farmers about eNAM (these may be perceptions of the farmers as no one has transacted through electronic process). The major five perceptions reported as problem about electronic marketing include online transaction process is difficult; sale process is complicated than before; delay in receiving online payment, discovering prices is cumbersome, and sorting facilities are not adequate.
- The selected farmers perceived that marketing through eNAM would be transparent, would involve convenient transfer of money and cost of marketing will be lower. The rating for eNAM given by famers indicate that a lot of things need to be done to prepare farmers to transact with electronic market.
- The selected farmers have suggested all the necessary requirement for better implementation of eNAM.

Commission Agents (CA):

- All the commission agents were male in eNAM category while 2.5 per cent were female respondents in Non eNAM APMC group. The average age of the respondent commission agent was around 46-47 years with 13 years of education.
- Almost 96 per cent of CA in eNAM mandi were aware about the electronic market while corresponding figure for Non eNAM APMC group was 62.5 per cent. The main source of the information about electronic market was APMC itself and media coverage. The CA

were registered under eNAM in 2016 and reported transactions by six CA which were within APMC sale entry made in eNAM software.

- As none of the farmer had sold their output under electronic market platform, while entry of transaction in APMC was made under eNAM software and shown as sale under this form of marketing. The commodities which were transacted were bajara, mustard, gram, wheat and maize only in four eNAM mandis, viz. Dahod, Deesa, Jamnagar and Patan. The quantity reported transacted under eNAM was very small, while rate per quintal of commodities was same as reported under auction method of sale. Thus, there is no difference in price rate realised under new method of marketing.
- The use of eNAM was reported to be very rare by the selected commission agents in the mandis covered under eNAM while none of the commission agents in APMC group even know about the use of same.
- All the mandis have weighing facility, grain storage, soil testing and bid management. In terms of the quality parameters of all services, weighing facility was responded with 'good' to 'satisfactory' level.
- Though some quantity of sale was reported under eNAM by few commission agent, but no sale was undertaken under electronic market, thus no sample of commodity was tested and uploaded on the eNAM platform. Thus, no CA have responded on quality testing and related parameters at APMC. While required supporting facilities like Bank, Agriculture Input Shop, Telephone, Storage, Internet, Canteen, and Guest house are available in APMC premises.
- Problems reported by CA about eNAM (most of them may have given their perceptions as no one has transacted through electronic process) are, discovering prices is cumbersome, sale process is complicated than before, delay in receiving online payment, online transaction process is difficult, and sorting facilities are not adequate.
- Few CAs have opined that marketing through eNAM would give better access to national markets, low cost of marketing and better price realisation for farmers. The rating for eNAM indicates that a lot of things need to be done to prepare CAs to transact with electronic market.

Selected APMCs

- On an average, every eNAM mandi covers 90 villages while corresponding figure for APMC group was 151 villages. The average number of commission agents registered were 123.79 per eNAM mandi which indicates successful implementation of first step of registration of CA under new marketing system. Large number of farmers are also registered at each eNAM mandi, while none of the market mandi has recorded sale transaction or inter markets sale under eNAM.
- It was strange to note that about 17 per cent of APMC respondents were not aware about the reforms in agricultural marketing such as specific provision for electronic trading, single trading licenses valid for trading in all mandis of the state, and single-point levy of transaction fee.
- As per the guidelines of the Enam, Central Government provides the software free of cost to the all the states along with Rs. 30 lakh per selected mandi for setting up the hardware and related equipment/infrastructure, which was later increased to Rs.75 lakh per mandi. Out of total 23 eNAM mandis surveyed, 48 per cent mandis have received the grant-in-aid or financial support from the Government of India for different purposes, while only 22 per cent of the selected mandis have received the infrastructure support.
- About 90,000 farmers had visited the mandi for selling the produce during the last month, and of them about 6,000 farmers have registered in eNAM software and arrival details of about 10 per cent of registered farmers are made in eNAM software. Although, no sale was conducted under eNAM.
- As mentioned earlier, all the mandis have only weighing facility and lack assaying (quality testing), E-auction facilities, while other facilities available are grain storage, soil testing and bid management. In terms of the quality parameters of all services, weighing facility was ranked with 'good' to 'satisfactory' level by APMC representatives.

- As no sale was undertaken under electronic market, no sample of any commodity was tested and uploaded on the eNAM platform. Thus, no APMC has responded on quality testing and related parameters at APMC.
- Major constraints in implementation of electronic marketing are, farmers are not interested, commission agents are not willing to do transactions, assaying laboratory not yet established, long time required for e-transactions, farmer need quick settlement and cash in hand, sale process is complicated, online payment process is difficult and delay in online payment. Therefore, it is very important and urgent to educate and convince the farmers and commission agents as well as other authorities of the APMC to adopt the electronic trading system may be gradually to gain confidence of the farmers and commission agents. Few successful cases of transparent speedy transaction need to be recorded and disseminated through social media.
- The selected APMC authorities have mentioned that marketing through eNAM will cost lower, satisfaction of being part of the national market, it would be transparent, better price realisation, online payment is more convenient, convenient transfer of money. It was a surprise to note that 26 per cent of CAs have reported use of eNAM app to APMC, while corresponding figure reported by farmers to APMC was 4.35 per cent only. The rating for eNAM given by APMC authorities indicates that a lot of things need to be done to prepare farmers and CAs to transact with electronic market. Average score regarding the superiority of electronic market over APMC was between 'worse' to 'no change'. Open auction method of sale is used for transaction of commodities in market.
- The selected APMC respondents have suggested all the necessary requirement for better implementation of eNAM.

7. Conclusions:

From the field visits and survey, it was observed that though (visited) APMCs are linked and now live on eNAM portal, but so far nowhere actual e-trading has been recorded or taken place. Whatever business has been reported on eNAM portal is the entry of agricultural produce in market as uploaded in eNAM software; however, produce is auctioned and sold through regular process adopted in the market premises. At few places, local commission agent/trader attempted to trade through new system, but they faced some problems. In true sense, stakeholders are not yet ready to go with e-trading due to following reasons.

- Most of the farmers do not have complete knowledge about eNAM due to which they are hesitant to share their bank details and adhaar card number required for registration with system. They have certain apprehensions about eNAM and subsequent use of their income details for income tax purpose. Some APMCs organized meetings with farmers and traders as well as distributed printed leaflet for creating awareness about eNAM, but could not succeed in their goal. Thus there is an urgent need to have clear time bound strategy to educate stakeholder on various aspects of eNAM concept. Also there is need to build trust among farmers and traders over new technology based system.
- Generally, in APMC market, one physical auction gets completed within a duration of as small as a minute. Therefore, farmers and traders' perceive that eNAM process would take a lot of time to complete one auction and they may face difficulty in settling payment within same day.
- The APMC management have also raised their concern about completion of auction of all produce that arrives in APMC premises for sales during glut or harvest seasons. Besides, apathy of commission agents for online payment is another concern.
- Farmers have mentioned that they always stay connected with local commission agents/traders and sometimes they take advance money to meet the expenditure on crop cultivation and domestic needs with an agreement that produce after harvest would be sold through same commission agent or to same trader. In such cases, selling produce under eNAM to desired trader would not be possible, and therefore farmers fear that traditionally existing business relations/ associations over generations may get spoiled.
- Most of the farmers mentioned that they sell their produce when they require some money for procurement of agriculture inputs or for domestic requirements. Thus they sell

their produce in market as and when required. In present system, they are able to sell produce and procure inputs on same day, which may not be possible under new system.

- As per the present practice of auction, traders first physically check the quality of grains and then bids for the produce in presence of other bidders, farmers and APMC inspector and then, highest quoted receipt is given to farmers by APMC inspector/officer for weighing and billing process, followed by payments either by cheque or cash. The traders are opposing this scheme because they are not ready to purchase agricultural commodities without physical verification, whereas electronic assaying is an important component of this scheme (providing online information on type/variety of commodities, quality specifications, moisture content, etc). Thus there are hesitations towards e-auctions and e-testing / assaying quality of the produce. Besides ambiguity related to whether the sample was same as the original produce or not, remains.
- Some of the traders have mentioned that they are aware about the soil quality and production practices followed in particular crop production by the particular farmer or by farmers of particular village/area and therefore they prefer to quote higher price for agricultural produce that comes from those villages/areas. Such confidence and empirical assessment would not be possible in eNAM by the traders, while they would not know that they are bidding for which farmer's produce if they rely only on electronic market.
- Most of the farmers are marginal with small land holdings and they prefer to sell their produce in small quantity. It is not exactly clear how their produce would be sold through the process specified in eNAM and how bargaining power of these farmers will be protected. Whereas in the current system even the smallest of the lot (as low as about 25 kgs) of agricultural produce, involves bidding by traders in the presence of APMC officials.
- APMC officials and Traders have mentioned that trading of agricultural produce is not assigned HSSN code due to which they face difficulty in uploading the trade details for tax purpose, especially in the post GST regime.
- In order to participate in e-trading, commodities are required to be converted from physical form to electronic form, which requires assaying labs and skilled manpower. At present, the availability of such labs as well as skilled personnel is meagre. Though few staff of all APMCs are provided training on quality parameters by AGMARK, but follow-up training with hardware support needs to be undertaken at each mandi. Besides, there is a lack of infrastructure required for eNAM such as scientific sorting/grading facilities, speedy internet connection, etc. Thus even the trained personnel do not get to test their skills in the real market, since the infrastructure is itself not yet developed.
- There is a need to set up e-auction hall equipped with computers for uploading of buy quotes / bids by traders and large monitor / projector with speedy internet access. Broadband penetration and digital infrastructure in rural areas is very poor. Internet-literacy is minimal among farmers which may lead to a new kind of exploitation by middlemen who are more tech savvy.
- Some of the mandis have come up with mobile application to keep farmers informed about the prices on daily basis which would certainly help farmers to decide about time of sale of their produce. If similarly, farmer has an access to price information in all nearby APMC mandis, it will facilitate his decision making and reduce reliance on middlemen or atleast have a better bargaining power in negotiation with middlemen.
- There is no proper channelling laid down for sale of produce to outside buyer and then settlement of accounts and transfer of material, which has created confusion and negative thinking about eNAM.

8. Policy Implications:

The setting up of eNAM aims to integrate all the agricultural markets of the country and is thus a landmark initiative. It envisages a common national market for agricultural commodities with seamless movement across state boundaries. But, it will happen when e-NAM becomes fully operational throughout the country and when the eventual goal of 'One Nation One Market' for agricultural produce will become a reality. At present, APMCs are

facing some teething problems in its implementation and no selected markets in Gujarat have actually participated in e-trading. Accurate information, institutions and infrastructure are the basic pre-requisites for successful implementation of any government programme/scheme. The infrastructural impediments include poor back-end infrastructure like inadequate scientific storage and warehousing, assaying and grading facilities in some markets only, limited number of cold storage, lacking refrigerated vans, low market density, limited capacity of these equipment to deal with high volume of agricultural commodities in the peak season, different standards for agricultural commodities, fragmented APMCs, lack of synergy between marketing organizations and service providers, involvement of traders in the marketing of agricultural produce, poor internet connection, inadequate number of computers, servers and kiosks in the market, interrupted power supply, poor quality of rural road, etc. Institutional impediments can be further subdivided into two- a) legal and b) human resource impediments.

- There is an immediate need to enhance the clarity amongst different stakeholders about eNAM concept and processes, stakeholders' role and responsibility through well-developed time bound strategy covering publicity, awareness campaign and capacity building of different stakeholder with a focussed approach for producer grower to avoid exclusion of farmers from the system.
- It is very important and urgent to educate and convince the famers and commission agents as well as other authorities of the APMC to adopt the electronic trading system, may be gradually, to gain confidence of the famers and commission agents. Few successful cases of transparent speedy transaction need to be recorded and disseminated through social media. Inadequate skilled manpower in the APMCs, limited number of trained traders to trade in the electronic platform and low literacy level of farmers are among the important human resource bottlenecks.
- There is urgent need to build trust among farmers and traders over new technology based system. Besides requisite infrastructure such as assaying facilities with skilled manpower and high speed internet connectivity to all selected markets for uninterrupted trading processes need to be provided without further delay.
- Suitable dispute resolution mechanisms need to be constituted in respect of assaying, weighment and e-payment related matters with respect to trades on e-NAM at APMC level.
- Though this system may take few years to become fully functional, it is an important reform in agricultural marketing system for which immediate appropriate steps need to be taken for its proper implementation and adoption.

Informational impediments need to be removed, like lack of awareness of the farmers about the e-NAM, limited knowledge of e-tendering process, lack of awareness about the benefits of e-NAM and farmers' apprehension about getting less price for their produce associated with their fears that their produce may be found to be of sub-standard quality on assaying, fragmented agricultural markets make a perfect case for a unified platform like National Agricultural Market (NAM). Although facing initial hiccups for successful implementation and lesser density of e-NAM across the existing wholesale regulated markets, there is tremendous scope for its further expansion and modernization. The common agricultural platform integrated with modern technologies will be an important catalyst to ensure best price to the producers for their produce and will also ensure the variety of quality products to the consumers. The expansion in the volume of trade in e-NAM platform will follow the strengthened back-end infrastructure for complete value chain of produce. Therefore, efforts must also be channelized towards development and up gradation of scientific warehouses, cold storage, refrigerated vans for perishables, awareness and training to the participants in the marketing process, high speed internet connectivity to the markets and among different components of the market. The benefits of e- NAM would be visible once it is implemented fully in the true sense as it has been conceptualized.