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RESEARCH ARTICLE

ELECTRONIC NATIONAL AGRICULTURAL MARKET (E-NAM) IN INDIA- CHALLENGES AND OPPORTUNITIES AN OVERVIEW

P.Govindan

1. M.Com, M Phil., Ph.D., ICWAI Inter NET., Assistant Professor in Commerce K.S.Rangasamy College of Arts and Science (Autonomous) Tiruchengode 637 215, Namakkal, Tamil Nadu, India.

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Abstract

The main objective of the Electronic National Agricultural Market (E-NAM) in India is to improve transparency, competition, efficiency, and farmer participation in the agricultural industry. This is achieved by integrating different functions and participants. Currently, the Ministry of Agriculture and Farmers Welfare is implementing this initiative as a central sector scheme, with the goal of connecting more markets in the future. The success of this endeavor depends on a focused and balanced approach that involves states and commodities, establishes detailed guidelines for service providers and their responsibilities, charges, and methods for resolving disputes, and educates stakeholders about the benefits of the National Agricultural Market. It is also important to encourage states to implement necessary reforms in order to establish a nationwide market. To ensure effective implementation, an unbiased third party should be responsible for monitoring, supervision, and evaluation. These measures have the potential to revolutionize the national agricultural market and greatly impact Indian agriculture. The recommendations provided to practitioners and social policymakers emphasize the significance of improving e-trading, such as offering better prices for farmers, reducing transaction costs, expediting transactions, minimizing administrative obstacles, enhancing infrastructure, and ultimately increasing farmers' income by addressing the knowledge gap in agricultural pricing.

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Introduction:-

The e-National Agriculture Market (e-NAM) is an online platform that connects APMC/Mandis all over India to establish a unified national market for agricultural products. It was launched on April 14, 2016, by the Prime Minister of India. The responsibility for implementing e-NAM lies with the Small Farmers Agribusiness Consortium (SFAC), under the Ministry of Agriculture and Farmers' Welfare, Government of India. Farmers can sell their produce at nearby e-NAM mandis through the e-NAM portal, while traders can place bids online from anywhere. The portal offers services such as commodity arrivals, quality assessment using Artificial Intelligence, online bidding, direct payment to farmers' accounts, and more.

Corresponding Author:-P.Govindan

Address:-M.Com, M Phil., Ph.D., ICWAI Inter NET., Assistant Professor in Commerce K.S.Rangasamy College of Arts and Science (Autonomous) Tiruchengode 637 215, Namakkal, Tamil Nadu, India.

The primary goal is to establish an online platform that connects markets at the State/UT level and eventually nationwide, facilitating the trading of agricultural goods across India. The objective is to simplify marketing and transaction processes, ensuring consistency across all markets. Additionally, the aim is to provide farmers and sellers with more marketing opportunities by connecting them with a larger number of buyers and markets through an online platform. This will narrow the information gap between farmers and traders, resulting in improved and real-time price discovery based on actual supply and demand. Furthermore, measures will be implemented to assess the quality of products and enable buyers to make informed bids. Ultimately, the goal is to stabilize prices and ensure the availability of high-quality produce for consumers. The e-National Agriculture Market (e-NAM) Scheme was launched in India. It is a government-funded trading portal created by the Small Farmers Agribusiness Consortium (SFAC). The purpose of this scheme is to connect regulated and unregulated markets and establish a unified online platform for trading agricultural commodities. By March 2018, the plan is to introduce the e-NAM platform in 585 selected regulated wholesale agriculture market yards. The scheme also aims to develop systems for assessing product quality and enabling buyers to make informed bids. Its objective is to stabilize prices, ensure the availability of high-quality produce, and provide better marketing opportunities for farmers and sellers through online access to a wider range of buyers and markets. This will bridge the information gap and facilitate real-time price.

Significance of the Study:-

The implementation of e-NAM involves various activities including informing and trading commodities, increasing trader participation, aggregating the quantity and value of supplies, promoting cashless transactions, providing access to soil testing laboratories, offering amenities for farmers in the Mandi, creating logistics and infrastructure for inter-market trade, undertaking local initiatives, and ensuring transparency and accountability. The government is allocating Rs.30 lakhs to agriculture mandis, and farmers will have the opportunity to use a helpline service. The Small Farmers' Agribusiness Consortium (SFAC) is responsible for the National Agricultural Market (eNAM) and selects a partner to maintain the platform. The digital platform called e-NAM brings together 1260 APMC mandis in 22 States and 3 UTs, enabling online trading of 203 agricultural and horticultural products. Its primary aim is to assist farmers in obtaining better prices for their crops. E-NAM plays a significant role in transforming mandi operations and facilitating electronic trading of agricultural products. As of December 31, 2022, more than 1.74 Crore farmers and 2.39 Lakh traders have registered on the e-NAM portal. The platform has facilitated a total trade of 69 million metric tonnes worth Rs. 2.42 lakh crore.

e-NAM offers several benefits to farmers and stakeholders including access to current commodity prices through a mobile app, a GPS-based feature for locating e-NAM mandis and mandi prices within a 100 km radius, a route map and pre-registration of plots, SMS notifications regarding the final bid price and payment receipt, real-time competitive price bids through e-NAM, accurate weighing integration, bid progress updates on mobile devices, direct trade between farmers and dealers, direct payment to farmers' bank accounts, reduced transaction costs for buyers and sellers, and a FPO trading module for facilitating electronic trading of FPOs through e-NAM. The introduction of the 'Platform of Platforms (PoPs)' as part of e-NAM has created a digital ecosystem that utilizes the expertise and capabilities of individual service platforms in various sectors of the agricultural value chain. Through digitalization, e-NAM empowers citizens and makes operations more accessible, transparent, and efficient, ultimately leading to improved price discovery for farmers.

Importance of the Study:-

The National Agriculture Market (NAM) is a digital platform that links APMC Mandis across India, creating a unified national market for agricultural products. It is managed by the Small Farmers' Agribusiness Consortium (SFAC) under the Department of Agriculture, Cooperation & Farmers' Welfare. Acting as a central hub, the NAM Portal provides APMC-related information and services. At present, it connects APMCs from various states, offering a range of commodities such as staple food grains, vegetables, and fruits for trade. Traders and exporters must register with the portal to access its services, which include commodity arrival and price information, trade offers, and the ability to respond to these offers. However, the current fragmented market structure hinders the smooth movement of produce, even within a single state, without benefiting the farmers. The e-NAM initiative aims to establish a unified online trading platform at both state and national levels, with the objective of enhancing transparency, facilitating real-time price discovery, and providing farmers with access to a nationwide market.

Review of Literature:-

Amarender Reddy (2018) proposed the implementation of a campaign aimed at increasing farmers' awareness and develop user-friendly mobile applications for traders and commission agents. According to Jaiprakash Bisena and

Ranjit Kumar (2018), they propose that the back-end of the supply chain can be strengthened through fostering collaborations between the public and private sectors. Furthermore, they advise on the importance of informing farmers about the benefits of e-NAM. Shanmukh Raju et al. (2022) discovered that there is a significant opportunity to provide farmers with training on different aspects of e-NAM. The aim is to enhance its utilization in a more effective and efficient way. According to Nitish Kumar Singh and M. V. Alagawadi (2021), there exists a notable potential for the future growth of E-NAM. This could greatly benefit farmers and ultimately boost their income. In 2019, it was found by Reddy, A. A., and Mehjabeen that the advantages of eNAM consist of the prompt online transfer of sales earnings to farmers' bank accounts and a decrease in the likelihood of collusion among traders. Ramakrishna Bandaru (2019) has demonstrated that the successful implementation of e-NAM in India is positively correlated with the dimensions of awareness, infrastructure, and investment support. Srivastava et al. (2021) found that the implementation of eNAM in India provides farmers with a more efficient online trading platform.

R. Munishwar (2019) provides suggestions on how to improve the efficient functioning of e-NAM, as well as proposes solutions for the obstacles encountered by stakeholders. In their study, Garg et al. (2023) discovered that the findings hold substantial implications for diverse stakeholders, encompassing policymakers, farmers, investors, traders, and individuals aiming to mitigate price risks through the utilization of information acquired from the spot prices of the E-NAM market. Devang Shrivastava et al (2023) suggest in their proposal that the government should evaluate the e-NAM platform, tackle the challenges encountered by different stakeholders, and promote awareness among farmers and traders by means of campaigns and training programs. In their work, Sanjay Chaudhary and Pradeep Kumar Suri (2022) emphasized the need to support farmers by providing them with better prices, decreasing transaction expenses, expediting transactions, reducing administrative obstacles, improving infrastructure, and ultimately helping them generate higher income.

This agricultural marketing policy initiative is considered a significant effort. Its purpose is to unite all agricultural markets in the country, creating a national market that enables smooth movement of goods between states. However, the successful implementation of this innovative initiative relies on widespread adoption of e-NAM, ultimately achieving the goal of a unified agricultural produce market. Nevertheless, there are currently obstacles hindering the implementation of e-NAM. The e-NAM scheme encourages states to incorporate provisions in their APMC Act that support online trading, such as requiring a single license for the entire state, establishing a central collection point for market fees, and offering electronic auctions for price discovery. Additionally, integrated mandis must have the necessary online connectivity, hardware, and equipment for quality assessment. By utilizing information on commodity arrivals, prices, trade offers, and the ability to respond to these offers, payments to farmers can be expedited. The present study analyzed the obstacles and potential of the after implementing E-National Agriculture Market (EAM) in India.

Objectives of the Study:-

1. To study on the challenges and opportunities of the Electronic National Agricultural Market (E-NAM) in India.
2. To examine agricultural production of sugarcane, cotton, jute, and groundnut after the implementation of the Electronic National Agricultural Market (E-NAM) in India.
3. To assess the sugarcane, cotton, jute, and groundnut minimum support price after the implementation of the Electronic National Agricultural Market (E-NAM) in India.

Research Methodology of the Study:-

The current study investigated various previous studies on the challenges and potential of the E-National Agriculture Market in India. The aim of the study was to explore the difficulties and opportunities that arise from implementing the Electronic National Agricultural Market (E-NAM) in India, specifically regarding the agricultural production and minimum support price of sugarcane, cotton, jute, and groundnut. Data was gathered from credible sources such as the Ministry of Agriculture & Farmers Welfare, Government of India, Coffee Board of India, and Tea Board of India. Additionally, relevant information from the Handbook of Statistics on the Indian Economy-2022-23 and the Economic Survey by the Government of India was utilized. The analysis utilized the ANOVA F test. This investigation led to a valuable conclusion that could be beneficial for policymakers and other stakeholders in future research in this field.

Data Analysis and Interpretation:-**Agricultural Production - Major Commercial Crops during 2015-16 to 2022-23:-**

This table shows that the after implementation of the Electronic National Agricultural Market (E-NAM) in India has resulted in a positive upward trend, stabilizing prices, ensuring the availability of high-quality produce, and providing better marketing opportunities for farmers and sellers through online access to a wider range of buyers and markets. This will help bridge the information gap and facilitate real-time pricing.

Table 1: Agricultural Production - Major Commercial Crops during 2015-16 to 2022-23

Year	Agricultural Production - Major Commercial Crops (Lakh Tonnes)			
	Sugarcane	Cotton	Raw Jute & Mesta	Groundnut
2016-17	3060.7	325.8	109.6	74.6
2017-18	3799.1	328.1	100.3	92.5
2018-19	4054.2	280.4	98.2	67.3
2019-20	3705.0	360.7	98.8	99.5
2020-21	4054.0	352.5	93.5	102.4
2021-22	4394.3	311.2	101.5	101.4
2022-23	4942.3	343.5	94.9	102.8
Source: 1. Ministry of Agriculture & Farmers Welfare, Government of India, Coffee Board of India, Tea Board of India. 2. Handbook of statistics on the Indian Economy--2022-23				

The production of sugarcane in the agricultural sector has been documented in lakh tonnes from 2016-17 to 2022-23. The production figures for each year are as follows: 3,484 lakh tonnes in 2015-16, 3,060.7 lakh tonnes in 2016-17, 3,799.1 lakh tonnes in 2017-18, 4,054.2 lakh tonnes in 2018-19, 3,705.0 lakh tonnes in 2019-20, 4,054.0 lakh tonnes in 2020-21, 4,394.3 lakh tonnes in 2021-22, and 4,942.3 lakh tonnes in 2022-23. In terms of cotton production, the totals are 300.0, 325.8, 328.1, 280.4, 360.7, 352.5, 311.2, and 343.5 lakh tonnes respectively. The production of raw jute & mesta amounts to 105.2, 109.6, 100.3, 98.2, 98.8, 93.5, 101.5, and 94.9 lakh tonnes respectively. As for groundnut, its production is 67.3, 74.6, 92.5, 67.3, 99.5, 102.4, 101.4, and 102.8 lakh tonnes respectively.

Hypothesis I

H0: $\mu_1 = \mu_2$: There is no association between the production of sugarcane, cotton, jute, and groundnut after the implementation of the Electronic National Agricultural Market (E-NAM).

H1: $\mu_1 \neq \mu_2$: There is association between the production of sugarcane, cotton, jute, and groundnut after the implementation of the Electronic National Agricultural Market (E-NAM).

Results of Hypothesis I: The results of Hypothesis I indicated a significant correlation between the production of sugarcane, cotton, jute, and groundnut in India, measured in lakhs of tonnes, following the implementation of the Electronic National Agricultural Market (E-NAM). The f-ratio value of 299.06067 and a p-value below .00001 suggest that the findings are statistically significant at a significance level of $p < .05$.

Minimum Support Price for Non-Food Grains during 2016-17 to 2022-23:-

This table shows that the after implementation of the Electronic National Agricultural Market (E-NAM) in India has resulted in that the introduction of the e-NAM system has made online trading easier by implementing measures such as a single license for the entire state, a central collection point for market fees, and electronic auctions for price discovery. It has been noted that the minimum support price for non-food grains has experienced a positive increase corresponding to the crop year, and farmers can conveniently receive payments by accessing information on commodity arrivals, prices, trade offers, and the ability to respond to these offers.

Table 2: Minimum Support Price for Non-Food Grains during 2016-17 to 2022-23

Minimum Support Price For Non-Food grains				
According To Crop Year (Fair Average Quality)				
Year	(Rs per quintal)			
	Sugarcane	Cotton	Jute	Groundnut
2016-17	230	4160	3200	4220
2017-18	255	4320	3500	4450
2018-19	275	5450	3700	4890
2019-20	275	5550	3950	5090
2020-21	285	5825	4225	5275
2021-22	290	6025	4500	5550
2022-23	305	6380	4750	5850
2023-24	315	7020	5050	6377
Source: 1. Ministry of Agriculture & Farmers Welfare, Government of India, Coffee Board of India, Tea Board of India. 2. Handbook of statistics on the Indian Economy-2022-23. 3. Economic Survey, Government of India.				

Table 2 presents the minimum support prices for non-food grains from the crop year 2016-17 to 2022-23, which are determined based on fair average quality. The table also shows the yearly prices in Indian rupees per quintal for sugarcane, cotton, jute, and groundnut. Each year, the table displays the minimum support price for non-food grains. For example, in 2016-17, the price for sugarcane is 230 rupees per quintal, which then increases to 255 rupees in 2017-18. The price for sugarcane continues to rise in the following years, reaching 315 rupees in 2023-24. Similar price fluctuations can be observed for cotton, jute, and groundnut.

Hypothesis II

H0: $\mu_1 = \mu_2$: There is no association between the sugarcane, cotton, jute, and groundnut minimum support price after the implementation of the Electronic National Agricultural Market (E-NAM).

H1: $\mu_1 \neq \mu_2$: There is association between the sugarcane, cotton, jute, and groundnut minimum support price after the implementation of the Electronic National Agricultural Market (E-NAM).

Results of Hypothesis II: There is a relationship between the minimum support price of sugarcane, cotton, jute, and groundnut production following the introduction of the Electronic National Agricultural Market (E-NAM). The f-ratio value is 101.53472, and the p-value is less than .00001. This indicates that the result is statistically significant at a significance level of $p < .05$.

Results and Discussion:-

These findings are the result of analyzing secondary data from multiple studies on the challenges and opportunities of the E-National Agriculture Market in India, which ultimately led to the conclusion of the current research study. The e-NAM scheme has the potential to increase farmers' income and protect them from exploitation by middlemen. To achieve these benefits, it is important to implement reforms that ensure transparency and cost-effectiveness in the system. The challenges faced by the e-NAM scheme need to be addressed and necessary changes made to ensure that all parties involved can fully benefit from its potential. Since the government made the e-NAM scheme mandatory on April 14, 2016, it is crucial to evaluate its performance. This study aims to provide a comprehensive understanding of the scheme, including a comparison between e-NAM and traditional offline market practices. The research will

identify any barriers to access and propose appropriate solutions. It is clear that individuals who can understand and use e-NAM services effectively will have a promising future. People want durable, high-quality, and affordable services. Lastly, my research will uncover pricing issues faced by farmers, technical problems with the electronic platform, and complaints from farmers, along with potential solutions that authorities can implement. Numerous studies have been conducted to examine the functionality and benefits of the e-NAM platform. Some of these studies have focused on the challenges encountered during its implementation. The aim of this article is to evaluate and acknowledge the difficulties faced by farmers, traders, and market officials when using the e-NAM system for marketing purposes. This research has identified various issues experienced by stakeholders, such as time-consuming processes, lack of awareness, complexity compared to traditional auctions, trader's not manually inspecting produce, and others. To overcome these challenges, the government should redesign the e-NAM platform, taking into account the concerns of different stakeholders based on previous studies. It is important to promote awareness campaigns and provide training to farmers and traders to build trust in the e-marketing system and enhance their understanding of price formation in regulated markets. Additionally, services like credit linked to commodities and accessible storage facilities should be offered to strengthen the long-term relationship between farmers and traders, with separate payment accounts established.

Conclusion:-

The research revealed that the e-NAM online trading platform has been established at both state and national levels in order to enhance transparency, facilitate real-time price discovery, and provide farmers with access to a nationwide market. This initiative is viewed as a policy effort that will bring significant changes to the agricultural marketing sector. Its aim is to establish a national agricultural market by merging all agricultural markets in the country and allowing the movement of goods across state borders. However, the research discovered challenges in implementing eNAM and suggested that states incorporate suitable provisions in their APMC Act to promote online trading. The research proposed that states meet specific requirements to be eligible for assistance under the scheme, such as maintaining a single valid license for the entire state, establishing a centralized collection point for market fees, and conducting electronic auctions for price discovery. Additionally, the research recommended that State Marketing Boards/APMCs support the e-auction platform and ensure that integrated mandis have the necessary online connectivity, hardware, and equipment for quality assessment. Payments to farmers will be facilitated through Direct Benefit Transfer (DBT) linked to their Aadhaar card. This research found that e-NAM provides various services, including information on commodity arrivals and prices, trade offers for buying and selling, and the ability to quickly respond to trade offers at a lower cost for its stakeholders. Ultimately, the research concluded that there are challenges that need to be addressed, such as convincing stakeholders to transition to the online platform, addressing the lack of sorting/grading facilities, technical expertise, and internet access.

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