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Study on APMC Regulated Markets in Tripura

ICFAI University Tripura

आर्थिक विश्लेषण एवं अनुसंधान विभाग

Department of Economic Analysis & Research

राष्ट्रीय कृषि और ग्रामीण विकास बैंक, मुंबई

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Department of Economic Analysis & Research (DEAR), National Bank for Agriculture and Rural Development (NABARD)

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ICFAI UNIVERSITY TRIPURA

NABARD

STUDY ON APMC REGULATED MARKETS IN TRIPURA

Research Team

Prof. Sujoy Hazari
(Principal Investigator),
Dr. Trinankur Dey
(Co-Principal Investigator),
Mr. Kyajari Mog
(Research Assistant),
Mr. Bibaran Chakma
(Research Assistant).

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"Study on APMC Regulated Markets in Tripura"

R & D Project Funded by

Department of Economic Analysis & Research (DEAR),

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Research Team

Prof. Sujoy Hazari

Dr. Trinankur Dey

Mr. Kyajari Mog

Mr. Bibaran Chakma

ICFAI UNIVERSITY TRIPURA

For more information:
Prof. Sujoy Hazari, Principal Investigator
Assistant Professor (Agril. Economics)
Faculty of Management & Commerce
ICFAI University, Tripura (I)-799210
Cell/WhatsApp: +91-9089836350
Email: sujoyhazari@iutripura.edu.in
Website: www.iutripura.edu.in

Preface

Tripura, a state in India's north-east noted for its rich culture and tradition, has contributed to the country's growth through rubber plantations, tea, bamboo goods, and more. The state is also known for its agrarian economy, with more than 40 per cent of the state's population directly dependent on agriculture and related activities, but with limited opportunities for small-scale farmers, marginal farmers, and traders, as identified by a preliminary study on Tripura's regulated markets. Despite a rise in agricultural GDP, farmers are becoming poorer. In December 2021, National Bank for Agriculture and Rural Development (NABARD) authorized the project to the ICFAI University Tripura, based on the description of the current scenario of the stated problem. In order to carry out the project titled – "A Study on APMC Regulated Markets in Tripura" with a specific focus on selected 8 regulated markets concerned with 8 districts of the state.

Acknowledgement

The Study titled – "A Study on APMC Regulated Markets in Tripura " has been carried out by The ICFAI University Tripura with a collective objective to assess the present scenario of Agri. Produce Regulated Markets of eight selected markets situated in different districts of the state. The ICFAI University Tripura would like to express gratitude to National Bank for Agriculture and Rural Development (NABARD) for financial assistance to carry out the project.

We would like to express our special thanks to Dr. G.R. Chintala, Ex-Chairman, NABARD, Dr.K.C.Badatya, Chief General Manager, DEAR, Dr.K.J.S.Satyasai, Chief General Manager (Retd.), Mr. M.R. Gopal, General Manager, Mr. Loken Das, General Manager, Ms. Balwinder Kaur, Deputy General Manager, Mr. Kishore K. Rava, Manager, Mrs. Deblina Patra, Manager, Mr. Benjamin Thomas, Assistant Manager, Mr. Bodhayan Ghosh, Assistant Manager and all other officials of NABARD. We are also grateful for the support from Department of Agriculture & Farmers Welfare societies.

The Research team would like to extend gratitude to the Prof. (Dr.) Biplab Halder, Vice Chancellor and Dr. Avula Ranganath, Registrar, The ICFAI University Tripura. We are also grateful to our colleagues and staff of the Faculty of Management and Commerce for their support and cordial cooperation.

We also extend our sincere gratitude to PRI bodies, market functionaries, local governance, market committees, farmers and all the people and organizations for their immense cooperation, direct and indirect help and support. The study would not have been possible without them.

Research Team

Disclaimer

This study has been supported by the National Bank for Agriculture and Rural Development (NABARD) under its Research and Development (R&D) Fund. The contents of this publication can be used for research and academic purposes only with due permission and acknowledgement. They should not be used for commercial purposes. NABARD does not hold any responsibility for the facts and figures contained in the book. The views are of the authors alone and should not be purported to be those of NABARD.

About NABARD Research Study Series

The NABARD Research Study Series has been started to enable wider dissemination of research conducted/sponsored by NABARD on the thrust areas of Agriculture and Rural Development among researchers and stakeholders. The study titled *'Study on APMC Regulated Markets in Tripura'* completed by ICFAI University, Tripura is the thirty sixth in the series. The list of studies in the series is given at the end of this report.

Agricultural marketing plays an important role not only in stimulating production and consumption, but also in accelerating the pace of economic development. An efficient agricultural marketing system leads to the optimization of resource use and output management, can contribute towards increase in marketable surplus by scaling down the losses arising out of inefficient processing, storage and transportation, ensures high level of income for the farmers by reducing the number of middlemen or by restricting the cost of marketing services/ malpractices in the marketing of farm produce. To improve marketing of agricultural produce, the government proposed the APMC regulated market Act,1938(Model Bill) to every state in India, and during the 1960s - 1970s most of the states enacted this act which was recommended by the Royal Commission on Agriculture in 1928.

There are 21 regulated markets in the state of Tripura established to improve the agricultural marketing system. To enhance the livelihood of the farmers, the state government ought to thrust on price stability of produce by farmers. In this scenario, the study attempts to analyse eight APMC regulated markets in eight districts in the state. The study shows that regulated markets of Tripura lack major infrastructural amenities, where market functionaries are not found exposed to advanced marketing system and functions. Land holding of functionaries, quantity of produce marketed, selling prices of products and transportation charge for marketing activity are found to be significantly affected on the income of market functionaries for marketing of agricultural produce in the regulated markets of Tripura.

Hope this report would make a good reading and help generate debate on issues of policy relevance. Let us know your feedback.

Dr. K. C. Badatya
Chief General Manager
Department of Economic Analysis and Research

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List of Abbreviations

ABD	Agribusiness Development
ACU	Association of Commonwealth Universities
AGMARK	Agriculture Marketing
AIU	Association of Indian Universities
AMDISA	Association of Management Development Institutions in South Asia
AMI	Agriculture Market Infrastructure
AMIF	Agri-Market Infrastructure Fund
AMIGS	Agricultural Marketing Infrastructure, Grading & Standardization Scheme
APEDA	Agriculture and Processed Food Products Export Development Authority
APMC	Agriculture Produce Marketing Committee
ARDC	Agricultural Refinance and Development Corporation
ATIF	Agri-Tech Infrastructure Fund
BCE	Before the Common Era
CCTV	Closed-circuit Television
CIPHET	Central Institute of Post-Harvest Engineering and Technology
Co-Op	Co-Operatives
COSAMB	Council of State Agricultural Marketing Boards
CWC	Central Warehousing Corporation
DA & FW	Department of Agriculture &Farmer's Welfare
DEAR	Department of Economic Analysis and Research
DMI	Directorate of Marketing and Inspection
eNAM	Electronic National Agriculture Market
e-Trading	Electronic Trading
FAO	Food and Agriculture Organization
FCI	Food Corporation of India
FPO	Farmers, Producers Organization

FPO	Farmer Producer Organization
GBY	Grameen Bhandaran Yojana
GDP	Gross Domestic Product
GOI	Government of India
Govt	Government
GrAM	Grameen Agriculture Market
Ha	Hectare
ICT	Information and Communications Technology
ISAM	Integrated Scheme for Agriculture Marketing
J&K	Jammu and Kashmir
KCC	Kisan Credit Card
KG	Kilogram
KV	Kilovolt
KVA	Kilovolt-ampere
Mbps	Megabits per second
MFP	Minor Forest Products
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MISC	Miscellaneous
MME	Modified Marketing efficiency
MRIN	Marketing Research and Information Network
MSP	Minimum Support Price
MT	Million Tonnes
NABARD	National Bank for Agriculture and Rural Development
NAFED	National Agricultural Cooperative Marketing Federation
NAM	National Agriculture Market
NCDEX	National Commodity Derivative Exchange
NCTE	National Council for Teacher Education
NER	North Eastern Region
NIAM	National Institute of Agricultural Marketing
PC	Personal Computer

PCC	Police Clearance Certificate
PDF	Project Development Facility
PMFBY	Pradhan Mantri Fasal Bima Yojana
POS	Point of Sale
PRI	Panchayati Raj Institution
Pvt	Private
RBI	Reserve Bank of India
RCI	Rehabilitation Council of India
ReMS	Rashtriya e-Market Service Private Limited
RIDF	Rural Infrastructure Development Fund
Rs	Rupees
SAGF	Strengthening of Agmark Grading Facilities
SFAC	Small Farmers Agribusiness Consortium
SPSS	Statistical Package for the Social Sciences
Sq.m	Square metre
TPS	True Potato Seed
TRIFED	Tribal Agricultural Cooperative Marketing Federation
TTAADC	Tripura Tribal Areas Autonomous District Council
UGC	University Grants Commission
UMP	Unified Market Platform
UPS	Uninterruptible Power Supply
UTs	Union Territories
VCA	Venture Capital Assistance
Wi-Fi	Wireless Fidelity

Executive Summary

The Indian agricultural sector is undergoing rapid change in production and distribution. In this discourse, the government has been taking initiatives to control as well as consolidate agricultural market activities. A regulated market is an endeavor that tends to streamline the entire process of production to consumption of agricultural products. This project attempts to provide a comparative study between the standard models of the regulated market and prevailing trends in market infrastructure by identifying the problems and impact of regulated markets (APMCs) on farmer's income in Tripura. This approach will be landing relevant policy recommendations for regulated markets even if it will strive to identify the barriers to set up eNAM. This project also ventures on the effectiveness of RIDF funding and Integrated Scheme for Agriculture Marketing (ISAM) in Tripura. Overall, this work of research aims to study the APMC regulated market and its functions at the grassroots level in the context of Tripura.

This project started to study the regulated market with an objective to present a comparative analysis between the standard models of the regulated market and prevailing trends in market infrastructure. While conducting the research, this project attempt to identify the problems and impact of regulated markets (APMCs) on farmer's incomes in Tripura. It also aims at finding out the marketing efficiency and marketing margin of the stakeholders and existing pattern in commodity arrivals in the regulated markets (APMCs) of Tripura. To facilitate e-trading government of India has launched e-NAM; this study also tried to identify the barriers in adoption and also estimate investment requirements for a specific regulated market into eNAM. This project also endeavoured to study the effectiveness of RIDF funding in agri-market infrastructure and Integrated Scheme for Agriculture Marketing (ISAM) and identify the factors that prevents local markets from benefiting from it. Based on the findings, this study strived to formulate a set of prospects, policy recommendations that facilitate a healthy trade and business in the regulated market.

The research was carried out using a survey-based descriptive technique that included both qualitative and quantitative investigations. The primary goal of this research was to determine the current state of the regulated market, present market infrastructure developments and marketing efficiency of regulated markets as well as other pertinent government programmes

and schemes.The research carried out in the Indian state of Tripura, which is located in the north-eastern section of the continent.A simple random sampling approach has been employed to collect responses from specified regulated markets using survey method with a set of structured questionnaire from the respondents.A total of 160 samples were collected on proportionate basis from eight regulated markets throughout Tripura's eight districts. The data have been collected primarily from farmers, market functionaries, government officials and PRI bodies.Five key crops, Paddy, Chilli, Potato, Tomato, and Brinjal, have been chosen for studying the marketing cost, margin, and efficiency.

The findings of the study reveal the following:

A field research was conducted for this survey-based project, from which various topics were retrieved. The following inferences have been made based on these field investigation and data analyses, and they are as follows:

- Bishalgarh Agri, one of the eight controlled marketplaces considered for the study, was the state's first market to be regulated in 1964, followed by the regulation of two additional markets in 1981, namely Santirbazar and Teliamura Agri. Produce Regulated Market.
- With a total of 26 villages in both markets, the Agri. Produce Regulated Markets of Mohanpur and Natunbazar cover the most villages.
- Teliamura Agri. Produce Regulated Market is the largest of the regulated markets, with 1005.67 square kilometres, followed by Kulai Agri. Produce Regulated Market, covering 800 square kilometres.
- With the exception of one regulated market, Mohanpur regulated market; almost all regulated markets feature amenities such as an office, office premises, and sales platform, as well as direct purchasing and miking/announcing capabilities. Create a regulated marketplace. All permitted marketplaces, with the exception of SantirbazarAgri, have sanitary facilities. Create a regulated marketplace. The only market with appropriate godown facilities and a market boundary is Panisagar Agri. Create a regulated marketplace.

- In any of the controlled markets, moisture metres, ice crushing machines, sorting and grading devices, and other marketing equipment were not present.
- The several independent factors such as education status, age of the respondents, land holding pattern, agricultural produce marketed, marketing fee at regulated market, distance of market, and transportation charge for marketing, weighing charge at regulated market, selling price of agricultural products may predict 85.9 % of the variation in income scores.Total land holding, agricultural produce marketed to the regulated market and the selling prices of agricultural products in the market are found to be positively significant whereas transportation charge for marketing activity was negatively significant to the market functionaries income. The results can explains that the variables like land holding of functionaries, quantity of produce marketed, selling prices of products and transportation charge for marketing activity are found to be significantly affected on the income of market functionaries for marketing of agricultural produce in regulated markets of Tripura.
- One of the functions, granting licences to various functionaries, was found to be performed in all of the regulated markets mentioned, whereas other functions, such as displaying market-related information, rate charts, notices, guidance information for all market participants, and providing insurance to market functionaries, were not performed in any of the markets.
- Chilli demonstrates highest number of channel members with channel III which means more number of intermediaries is involved in this crop; consequently producers of chilly in channel III are getting less profit instead of one level marketing channel. Paddy which is a leading crop in Tripura has been found maximum in two tier channel. Tomato has been showing highest in channel I which indicates that very less number of intermediaries involved in that crop and producers get highest profit in that product. In case of brinjal it can be observed that the highest number of intermediaries participated in marketing of this crop.
- The overall marketing cost for chilly in Channel I was Rs. 48.25, Rs. 118.58 in Channel II, and Rs. 69.16 in Channel III, according to the findings. The marketing was greater in Channel II because it includes two middlemen, a wholesaler and a retailer, to get the

produce into the hands of the customer. In channel III, the sole intermediate was a store, but in channel I, there were no middlemen because the food was sold straight from the farmer to the customer.

- Paddy marketing costs totaled Rs. 72.64 in Channel I, Rs. 198.08 in Channel II, and Rs. 106.25 in Channel III. Because there are two intermediaries, a wholesaler and a retailer, involved in getting the produce into the hands of the customer, the marketing cost was greater in Channel II.
- The *Acharya* Approach was used to assess the marketing efficiency (MME) of tomato, and it was observed that Channel I had the highest marketing efficiency, with a value of 0.98, followed by Channel III, having a value of 0.82. The marketing efficiency in channel II was regarded low since the value was not close to 1, i.e. 0.69.
- The barriers of implementing e-NAM in Tripura are like- less number and improper management of storage structure, small and marginal land holding,transportation and connectivity, awareness, lengthy and complex process, fear of not getting reliable prices, collection of payment from bank, financial weakness, low literacy rate among the farmers, purchasing of produce without any inspection, no proper infrastructure system in the market.

The recommendation of the study reveals the following:

This study is basically a survey based project conducted for regulated market in Tripura. Based on the findings of the survey research, some proposal, suggestions and recommendations are presented below:

- The state should amend their APMC Acts on the lines of Model Act (The Tripura Agricultural Produce Markets {Second Amendment} Act, 2007) and may encourage the development of Self Help Groups, Farmers/Farmer Producer Organization (FPO) etc. in order to reap the full advantages of reforms by small and marginal farmers.
- Presently Tripura having inadequate number of cold storage facilities (14 numbers with the capacity of 46354 MT, Ministry of Agriculture and Farmers Welfare, 2020) which are an essential part supply chain management of agricultural products. Hence, number of cold storage and warehouses needs to be setup adjacent to the market district wise. Most

of the farmers sell their produce at open market yards. During the rainy season, it will be very difficult for them to carry out this trading activity. Such facility will provide security to producers when they keep their produce overnight, help them sell their produce within a short period of time, and help to reduce post-harvest losses.

- As per the observation all the market functionaries are found to be marginal farmer (table 4) hence, initiatives are to be taken so that farmers co-operate with FPOs to tackle productivity problems, cooperative farming, and small farm challenges, marketing practices etc. And also encourage contract farming system in the state, thus state should support small and marginal Farmers' Groups/Associations or their Company/Society.
- The requirement of marketing infrastructure in the North-Eastern region and Hilly areas is different than rest of the country. Government of India should flow fund for development of marketing infrastructure in that areas. A separate agricultural marketing strategy for North Eastern Region and Hilly areas may be adopted and proper utilization of fund may be carried out.
- As data is not available and updated on continuous basis, consistent and accurate data entry is required in the AGMARKNET nodes (www.agmarknet.gov.in) installed in the state's regulated markets.
- A processing unit/industry may be set up in a nearby market place where raw agricultural products are treated to boost their value. The presence of processing plants near a market increases demand for the product.
- Electronic trading in the market, at least at the district level, is required to maintain transparency in agricultural produce transactions and to obtain the best price for the produce;
- Farmers' benefit can be increased by providing market grading and standardization services. But presently in regulated markets of Tripura, non-standard produce grading system has been following by farmers which have a lower value or price. Producers would have more negotiating power with dealers if there would have been a proper grading facility in the market.
- Market cantered physical infrastructural facilitiesincluding auction room/place, platform for sales, cattle shed, market information facility(local and non-digital), price notification

board, e-trading, market boundary, drying yard, farmers rest shed, sanitary facilities, drinking water facilities, drainage system, cleaning, sweeping facility, garbage movement facility, electricity and medical facility are found to be inadequate which further required setup to boost the marketing practices in the regulated markets of Tripura.

- A network of rural storage centres should be built on a priority basis in order to prevent distress sales, wastage and loss arising out of inadequate and defective storage facilities; These storage centres may be constructed and managed by panchayats, cooperatives, APMC and other suitable agencies selected by the State Government.

- Each APMC should have a marketing officer/manager, preferably from the local area and he should be trained in the basic essentials of marketing functions by attaching him to a storage centre, eNAM cell etc.; Requires technical guidance, supervision and assistance should be provided by the State Agricultural Marketing Boards/Directorates.
- Continuous and comprehensive training and awareness programmes should be introduced for the farmers and other market functionaries to assist them in increasing their understanding of the advanced marketing system, grading system and post-harvest loss process etc. in order to create an efficient marketing system.

About the organizations

The ICFAI University, Tripura:

The ICFAI University, Tripura was established under the provisions of the Institute of Chartered Financial Analysts of India (ICFAI) University, Tripura Act 2004 (Act No.8 of 2004), vide Government of Tripura Notification No. F.2 (529)-DHE/UDCA/2003 dated 15.06.2004. The University Tripura is approved, recognized, and listed by the UGC, under Section 2(f) of the UGC Act, 1956. The University is certified by ISO 9001:2015 for its Quality Management Systems. It is recognized as Institution Innovation Council (IIC) by MHRD. The Sponsor Society of the University is registered with NGO Darpon / NitiAyog of India. The University has received "Best Universities & Colleges 2018-19 in the special category from Rubber Skill Development Council (RSDC), New Delhi on 21stNovember 2019. The University is a member of The Association of Commonwealth Universities (ACU), London, UK, Association of Indian Universities (AIU), New Delhi, India and The Institution of Engineers (India), Confederation of Indian Industry(CII), VignanaBharati, Academy of Hospital Administration, New Delhi(AHA), AMDISA (Association of Management Development Institutions in South Asia), DSIR(Department of Scientific & Industrial Research, Ministry of Science & Technology) Govt. of India, National HRD Network (NHRDN)- Gurgaon, Tripura State Yoga Association, etc. IUT become a member of the Inter-University National Cultural Board (IUNCB), 2019 of AIU. IUT become DSWSE certified Institution for the Persons with Disabilities. IUT become Atal Community Innovation Centre-IUT Foundation certificate from Ministry of Corporate Affairs, Govt. of India.

At present the ICFAI University, Tripura is promoting quality education, research, training, and consultation with a global perspective to meet the challenges of the fast-changing trends in the field of Engineering and Technology, Basic Science, Liberal Arts, English, Law, Commerce, Education, Special Education, Physical Education& Yoga, Psychology, Clinical Psychology, Management, Rural Management, Healthcare Management, Library & Information Sciences, Paramedical Sciences, Nursing, Hospital Administration, Laboratory Technician and certificate course in Data Science, HR Analytics and French Languages. The University is offering several numbers program of Diplomas, undergraduate, Post-graduates, and Ph.D.

programs. The University believes in creating and disseminating knowledge and skills in core and frontier areas through innovative educational programs, research, consulting, and publishing and developing a new cadre of citizens with a high level of competence and a deep sense of ethics and commitment to society.The University is one of the leading Private Universities in the North Eastern States of India and contributing to providing high-quality education with State-of-the-art Campus with necessary hardware and software infrastructure, Facilitating research and publication, Employment generation, Socio-economic development, Improvement in school education through teacher training programs, development of service sector through manpower training, Industry interface, etc.

The ICFAI University, West Tripura, Tripura is now a Recognized by Mahatma Gandhi National Council of Rural Education, Department of Higher Education, Ministry of Education, Government of India as Social Entrepreneurship, Swachhta & Rural Engagement Cell (SES REC) Institution w.e.f: 28/08/2020.Besides excellent academic infrastructures, the University has also developed and established 18 Centers of Excellence to Promote Quality education. These are Centre for Skill Development& Vocational Training, Entrepreneurship Development Centre (EDC), Atal Community Innovation Center (ACIC), MSME Design Center, Start-up and Incubation Centre, Counselling Centre, Alumni Relations Center, Vivekananda Study Circle Central Instrumentation Center, Central Fabrication Center, Research & Consultancy Centre, Centre for Renewable Energy, Centre for E-Learning, Centre for Disability Studies & Educational Lab, IUT- Intellectual Property Rights (IPR) Cell, NJY Centre for Post-Graduate Legal Research, Centre for Career Development & Placement, Media Centre, etc.

National Bank for Agriculture and Rural Development (NABARD):

NABARD came into existence on 12 July 1982 by transferring the agricultural credit functions of RBI and refinance functions of the then Agricultural Refinance and Development Corporation (ARDC). Our initiatives are aimed at building an empowered and financially inclusive rural India through specific goal oriented departments which can be categorized broadly into three heads: Financial, Developmental and Supervision. Through these initiatives we touch almost every aspect of rural economy. Over the years our initiatives have touched millions of rural lives across the country. Our milestone achievements have been India's

achievements as well. The SHG Bank Linkage Project launched by NABARD in 1992 has blossomed into the world's largest micro finance project.

The Department of Economic Analysis and Research (DEAR) provides policy and action-oriented research support through macro-level data analysis and field-based feedback on issues of relevance to NABARD, the government and other stakeholders. It specialises in knowledge-driven activities relating to agriculture and rural development, as per the mandate of NABARD."To develop into a quality research wing of NABARD that conducts and coordinates research to generate ideas, help evolve policy inputs, evaluate policy alternatives that would help the management in realising the objectives of the organisation, and produce research output that improves NABARD's understanding of the dimensions of rural credit in particular and overall rural development in general."

Study on APMC Regulated Markets in Tripura

Chapter – 1

INTRODUCTION

Introduction

In the Indian economy, agriculture plays an important role proving a living for almost 70% of the rural families. This sector contributes a significant part of the Indian economy, accounting for over 17% of total GDP and employing approximately 58 percent of the population. Over the last few decades, Indian agriculture has seen significant expansion. Agriculture is the lifeblood of the Indian economy and is at the heart of the country's socio-economic progress. It accounts for over 19% of GDP and employs roughly two-thirds of the population. Agriculture's backward and forward connections rely heavily on the success of other industries and the general economy. It is not only a source of livelihood and food security for a large portion of India's people, but it also has special relevance for the poor, low-income, and vulnerable. Despite its importance, Indian agriculture has a number of challenges, including traditional agricultural practices, excessive reliance on the monsoon, land fragmentation, low productivity, and low investment (Golait and Lokare, 2008).

According to FAO, agriculture, with its allied sectors, is the largest source of livelihoods in India. Agriculture continues to be the primary source of income for 70% of rural households, with 82 percent of farmers being small and marginal. Total food grain output was predicted to be 275 million tonnes in 2017-18 (MT). India is the world's largest producer of pulses (25 percent of global output), consumer (27 percent of global consumption), and importer (14 percent). India's annual milk output was 165 MT in 2017-18, making it the world's largest producer of milk, jute, and pulses, with 190 million cattle in 2012. It is the world's second-largest producer of rice, wheat, sugarcane, cotton, and groundnuts, as well as the second-largest producer of fruits and vegetables, accounting for 10.9 percent of global fruit and vegetable output and 8.6 percent of global fruit and vegetable production, respectively. Agriculture's proportion to GDP has consistently decreased from 1951 to 2011, as the Indian economy has diversified and risen. Despite reaching food sufficiency in production, India still has a quarter of the world's hungry people and over 190 million people who are undernourished. Poverty has already reached approximately 30% of the population. According to the Global Nutrition Report (2016), India ranks 114th out of 132 nations in terms of under-five stunting, 120th out of 130 countries in terms of under-five wasting, and 170th out of 185 countries in terms of anemia prevalence. In the country, anemia continues to afflict 50% of women, including pregnant women, and 60% of children.

India needs to enhance its agriculture management for a sustainable development. Agriculture can still improve nutrition in a variety of ways, including increasing farm household incomes; diversifying crop production, empowering women; strengthening agricultural diversity and productivity; and designing careful price and subsidy policies that should encourage the production and consumption of nutrient-rich crops. Diversification of agricultural livelihoods through agri-allied industries such as animal husbandry, forestry, and fisheries has increased livelihood options, boosted resilience, and increased labour force participation in the sector significantly. As the economy and agricultural sectors have changed, marketing has become increasingly vital for the overall growth of agriculture and farmer welfare. The marketable excess of crops has become increasingly obvious in recent years as a result of technical breakthroughs, necessitating the adoption of a market-oriented agricultural approach (Baskar and Shalendra, 2022). The Royal Commission on Agriculture in India recognised the significance of an effective marketing system as a critical connection between the farmer and the customer in 1928 (Acharya, 1996). Since then, agricultural marketing has progressed significantly, thanks to the periodic implementation of numerous administrative and legislative measures. Some of the measures taken before independence to improve the marketing situation included the establishment of the Directorate of Marketing and Inspection in 1935, the enactment of the Act for grading and marking of agricultural produce in 1937, commodity market surveys; and the establishment of regulated markets in the States under the Agricultural Produce Marketing Regulations Acts.

India is a country where the Govt has been thrusting the agricultural sector from post independence phase till date; several initiatives have been undertaken and implemented but still this sector remained unorganized. Improving the rural markets and providing benefits to farmers, Govt has started to take several initiatives and among them Regulated market or APMC markets hold a significant position. North Eastern states have been lagging behind in marketing management of agricultural produce. Therefore a study has been attempted to explore the problems faced by the APMC markets in Tripura.

1.1 The background of the study

A market is a place where people (buyers, traders and consumers) gather on a single piece of land, and marketing is the process of exchanging goods from one person to another person through direct contact or intermediaries, and paying a value for goods while exchanging. Again, marketing is defined as the activity, set of institutions, and procedures of developing, communicating, delivering, and exchanging valuable offerings for customers, clients,

partners, and society as a whole (Keelson, 2012). The word "market" is a Latin word that comes from "mercatus" i.e. marketplace. The original bazaars are thought to have originated in Persia, from where they expanded throughout the Middle East and Europe, with the first market being established around 3000 BCE.

Agricultural marketing is a process of transferring agricultural products from farmers to the ultimate consumers, the agricultural products includes farm, horticultural and other allied sectors products (Rehman, Selvaraj and Ibrahim, 2012). Agriculture contributes a big percentage in the Indian economy i.e. around 13.5% of the gross domestic product (Sharma, 2021) and also calls it the backbone of the growing economy in India. Before the green revolution people were faced with a huge food crisis because of low production and a low marketing system, nowadays the production of agricultural and allied sectors goods are produced in surplus amounts. With the improvement of science and technology, new inputs and technology were come out for the betterment of Agriculture sectors, for this improvement our country has come out in deficit oriented production to surplus oriented production (Rehman, Selvaraj and Ibrahim, 2012) but the marketing system is still not up to the mark. The main reason for this problem is improper attention on farmers' marketing of their produce, this remains a major threat for farmers because of improper attention by the central and state government on marketing of agricultural produce (Shinde,2021).

To improve the marketing of agricultural produce, the government proposed APMC regulated market Act,1938 (Model Bill) to every state in India and during the 1960s - 1970s most of the state enacted this act which was recommended by the Royal Commission on Agriculture in 1928. Before this all the market came into the un-organized marketing sector and after adoption of this act, state established APMC regulated markets in their respective states which markets come into the organized marketing sector. The main aim of forming a regulated market is to provide fair price of the commodities of the farmers creating a fair environment on supply and demand and with maintaining a transparency in transaction. First Regulated market in India was established under the Hyderabad Residency Order in 1886. In the end of 1950,286 Regulated markets were established in India (https://dmi.gov.in).In India at present there are about 2479 principal regulated markets based on geography (the APMCs) and 4267 sub-market yards regulated by the respective APMCs in India (NABARD, 2018).In Tripura there are 21 regulated markets established with the aim of improving the agricultural market. Even though several improvement for marketing, government didn't got much success of improving farmer’s income, till date farmers do not get satisfactory price of their

produce during peak season of production. Farmers went through several problems such as high transportation cost, small quantity of lot, low price of the produce, no grading and sorting produce, low value addition during marketing channel of the produce, inadequate numbers of warehouse and cold house facility etc. (Mathur,2021).

Table 1.1: List of Regulated Market, Sub Market Yard in India

Sl. No	States/ UTs	Rural Primary Retail markets	Regulated Markets			APMCs selected under eNAM*
			Principal markets	Sub Market yards	Total	
1	Andhra Pradesh	157	190	157	347	22
2	Bihar**	1469				0
3	Chhattisgarh	1132	69	118	187	14
4	Goa	24	1	7	8	0
5	Gujarat	129	213	187	400	40
6	Haryana	195	107	174	281	54
7	Himachal Pradesh	35	10	44	54	19
8	Jammu & Kashmir	8	11	0	11	0
9	Jharkhand	602	28	173	201	19
10	Karnataka	730	157	356	513	0
11	Kerala@	1014	0	0	0	0
12	Madhya Pradesh	0	254	284	538	58
13	Maharashtra	3500	305	603	908	45
14	Odisha	1150	54	382	436	10
15	Punjab	1390	150	274	424	0
16	Rajasthan	312	134	312	446	25
17	Tamil Nadu	0	277	6	283	15
18	Telangana	110	150	110	260	44
19	Uttar Pradesh	3464	250	365	615	100
20	Uttarakhand	30	26	32	58	5

21	West Bengal	3250	20	464	484	0
22	Assam	735	20	206	226	0
23	Arunachal Pradesh	66	0	0	0	0
24	Manipur	95	0	0	0	0
25	Meghalaya	85	2	0	2	0
26	Mizoram	218	0	0	0	0
27	Nagaland	174	18	0	18	0
28	Sikkim	12	0	0	0	0
29	Tripura	470	21	0	21	0
30	A & N Islands	28	0	0	0	0
31	Chandigarh	0	1	0	1	0
32	Delhi	0	7	8	15	0
33	Puducherry	0	4	5	9	0
34	Total	20389	2479	4267	6746	470

(Note: * Progress under eNAM as on 31 October 2017; ** APMC Act repealed in Bihar; @ No APMC Act in Kerala; @@ 160 APMCs under UMP in Karnataka); Source: Prabhakar, 2018

Strengthening the economy of the country, the government has to focus on the growth in farmers' income by developing the agricultural marketing facilities of their produce as rural people mostly depend on agriculture for their livelihood. To enhance the livelihood of the farmers, the government ought to thrust on price stability of produce by farmers as a market has instability in prices that varies season to season and supply and demand of the produce. E.H. Derby truly stated that 'A Fertile soil alone does not carry Agriculture to perfection"(Mathur, 2021). To stabilize this price volatility, the government of India launched e-NAM platform for all the traders and farmers across the states or UTs to make uniformity in prices of the commodities and ensure that consumers should get quality produce with reliable prices. With this aspect, on 14th April,2016 e-NAM was launched by Shri Narendra Modi with the aim ofproviding single window service where traders and producers get all the information about the commodities. Money transactions will occur directly to farmers' accounts via online transaction and have to pay only a single fee. Initially, 21 regulated

markets were included under e-NAM across 8 states and till 2021, there are 1000 e-NAM markets functioning across 18 states and 3 union territories. Through this e-NAM portal, e-Trading is done for a number of products (175 commodities) with remunerative prices (e-NAM, 2021). In the North-East states, including Tripura, e-NAM still remains non-functioning in regulated markets (e-NAM, 2021). The reasons for the non-implementation of e-NAM are lack of awareness among the people about e-NAM, small unit of production as most of the farmers come under marginal and small category, low literacy among the farmers and traders, less exposure of grass root level training etc.

Table 1.2: List of e-NAM coverage of 18 states and 3 union territories of India:

No.	Name of State/UT	Mandis registered on e-NAM	Registered Traders on e-NAM	No. of Unified licenses issued by State
1	Andhra Pradesh	33	3,454	3,454
2	Chandigarh	1	99	0
3	Chhattisgarh	14	3,114	34
4	Gujarat	122	9,351	105
5	Haryana	81	12,938	29
6	Himachal Pradesh	19	1,975	0
7	J&K	2	63	0
8	Jharkhand	19	2,217	83
9	Karnataka	2	635	635
10	Kerala	6	253	35
11	Madhya Pradesh	80	22,014	962
12	Maharashtra	118	20,935	0
13	Odisha	41	6,735	6,735
14	Puducherry	2	166	0
15	Punjab	37	2,417	1
16	Rajasthan	144	74,657	74,657
17	Tamil Nadu	63	3,798	358
18	Telangana	57	5,757	5,757
19	Uttar Pradesh	125	34,864	110
20	Uttarakhand	16	4,711	4,711
21	West Bengal	18	3,691	18
Total		**1,000**	**2,13,844**	**97,684**

Source-e-NAM portal,2021

1.2. Government Initiatives for improving the Agricultural market

The agriculture sector a due attention since the country gained independence. The following are some of the government measures aimed at improving the agriculture market:

1.2.1 Regulated market: Regulated market is a market where producers sell their produce to traders with sophisticated manners with the guidance of a market committee, who are governed by the state government**.** The regulation on the market continued during Britisher'speriod and the first regulated market was formed in 1886 under the Hyderabad residencyCommission. In 1928 Royal Commission on Agriculture recommended the formation of a Regulated market across the country. With this recommendation in 1938, the government proposed to every state to enact APMC regulated market Act (DMI, 2020)**.**The main aim of forming a regulated market is to provide fair price of the commodities of the farmers creating a fair environment on supply and demand and with maintaining a transparency in transaction. This was effective from the 1960s and 1970s and to run the market fairly each regulated market has an Agricultural Produce Market Committee**.** To improve this act reforms were done on this act and formed a Model Act in 2003, to add new rules and regulations for betterment of marketing.

1. 2.2. Cooperative Marketing: Cooperative marketing is a group of farmers association for selling the produce collectively by helping each other, this secures the price of the produce in bulk quantities trading (Faroogi and Ahmad, 2015). This was established in 1912. The concept of cooperative marketing arises due to the irresponsive marketing system, more number of middlemen and high charge of middlemen and having credit by farmers from traders or money lenders (Faroogi and Ahmad, 2015). The main objectives of forming cooperative marketing are-

i. To provide opportunity in bargaining. ii. To increase the earning of the farmers. iii. To have a credit facility from the government institutions.

1.2.3. Agricultural Produce (grading and marketing) Act, 1937(AGMARK): This is formulated by the government to carry out the standard and grade of agricultural products. This makes the product at export standard. It was established in 1937 and acts as a third party quality certifier (DMI, 2020)**.**

1.2.4.State trading: State trading refers to the participation of governments or its agents at local and international trade. The trading mainly depends on government desire and ensures adequate quantities of produce supply at reliable prices at local meet to meet the local demand. State trading corporation of India established in 1956. The major goal of state trading is to enable trade development with nations where trade is controlled by the government (Faroogi and Ahmad,2015).

1.2.5.Central Warehouse Corporation: In 1957, the Central Warehousing Corporation (CWC) was established. It is governed by the Warehousing Corporations Act of 1962 and is responsible for the storage of agricultural produce and other selected commodities. Main objectives are Building of warehouses, providing storage facility of Agricultural goods, seeds, fertilizers etc. (Faroogi and Ahmad,2015).

1.2.6. Council of State Agricultural Marketing Boards (COSAMB): COSAMB (Council of State Agricultural Marketing Boards) was founded in 1988. It is the state marketing board's apex body, created to coordinate the operations of state marketing boards, particularly those related to marketing. Credit mobilization, provides financial support for market development and for few other relatable problems. This body also organizes seminars, exhibitions and other programmes to educate the farmers. This organization also works with national and international level organizations to increase the flow of agricultural marketing (Faroogi and Ahmad,2015).

1.2.7. National Agricultural Cooperative Marketing Federation (NAFED): This is the apex body in India of cooperative organizations, established in the year of 1958. It mostly deals with the purchase, distribution, export, and import of certain agricultural goods. It influences the inter-state export of farm produce and the export commodities are onion, garlic and pulses (Faroogi and Ahmad,2015).

1.2. 8. Food Corporation of India (FCI): Food Corporation of India was established in the year of 1965 by the government of India. FCI buys surplus amounts of food grains from the farmers with a fixed MSP, which ensures remunerative prices for the farmers and also provides quality produce at a reliable price for the consumers. FCI helps to maintain the stable price of commodities in the Nation (Faroogi and Ahmad,2015).

1.2.9. NABARD: National Bank for Agriculture and Rural Development or NABARD was established in the year of 1982 with the capital of Rs.100 crores. The primary objective of NABARD is to ensure prosperity, encourage participatory financial and non-financial initiatives, innovations, technology, and institutional development in agriculture and rural development.

1.2.10. Agricultural and Processed Food Products Export Development Authority (APEDA): APEDA was set up by the Government of India under the Agricultural and Processed Food Products Export Development Authority Act, 1985. This came into force

from 1986. This body mainly focuses on the export of raw or processed agricultural produce. This body also provides financial help to registered personnel to run the business fairly.

1.2.11.TRIFED: Tribal Agricultural Cooperative Marketing Federation or TRIFED was established under the Multi-State Cooperative Societies Act, 1984 under the ministry of Tribal Affairs, Government of India. It was formed in 1987 and came into force from 1988. The main objectives to form TRIFED is to institutionalize the trade of Minor forest products (MFP), to provide the tribal's of India a fair price for the surplus agricultural products produced by them. Again to support the handicrafts product, the government organized an Aadimahotsav festival specially for tribal products to encourage them.

1.2.12. Agricultural Market Infrastructure (AMI): In India most of the farmers live in rural areas and they mostly come under small and marginal land holding category. Now to give them benefit by providing a warehouse facility to the government formed Grameen BhandaranYojana, this Yojana facilitates building of rural godown to provide storage facility of the surplus produce. This aim is to build scientific storage houses which lead to quality grains after storage, avoid the products from rodents and insects and remunerative price(https://dmi.gov.in/). This Grameen Bhandaran Yojana was formed in 2001.This Grameen Bhandaran Yojana scheme and Strengthening/Development of Agricultural Marketing Infrastructure, Grading & Standardization (AMIGS) scheme (Forced from 2004) subsumed into one scheme called Agricultural Market Infrastructure(AMI) in 2014. This AMI again merged into the ISAM scheme in 2016.

1.2.13.Integrated Scheme for Agricultural Marketing(ISAM): IntegratedScheme of Agricultural Market (ISAM) scheme was formed on 13 November, 2013 with the proposal of the Department of Agriculture and Cooperation and came into force from 1 April,2014(Operational guidelines 2014, ISAM). This schemes is integrated with five on-going central scheme namely (Operational Guidelines 2014, ISAM)- (i) Agricultural Marketing Infrastructure (AMI);(ii)Marketing Research and Information Network (MRIN); (iii) Strengthening of Agmark Grading Facilities (SAGF); (iv) Chaudhary Charan Singh National Institute of Agricultural Marketing (NIAM); (v) Agribusiness Development through Venture Capital Assistance (VCA) and Project Development Facility(PDF). Main focus of ISAM is to overall growth of the agricultural market with special consideration of farmers(Operational guidelines 2014). During the XII Plan, ISAM will receive a total budgetary allocation of Rs.4548 crores. AMI receives Rs.4000.00 crores, MRIN receives

Rs.12.00 crores, SAGF receives Rs.6.00 crores, and ABD receives Rs.500.00 crores. For NIAM, the amount is Rs.30.00 crores.

1.2.14. e-NAM: It is an electronically trading portal which provides an online trading platform of agricultural commodities. This is managed and controlled by SFAC (small farmers' agribusiness consortium) under the Department of Agriculture, Cooperation and Farmers' Welfare). e-NAM was launched on 14 April,2016, byHon'ble Prime Minister Shri Narendra Modi with the aim of Providing single window service where traders and producers get all the information about the commodities, money transaction will occur directly to farmers account via online transaction and have to pay only a single fee. Initially 21 regulated markets were included under e-NAM across 8 states and till 2021, there are 1000 e-NAM markets functioning across 18 states and 3 union territories. Through this e-NAM portal e-Trading is done on a number of products (175 commodities) with remunerative prices.(e-NAM ,2021). In Tripura there are 21 regulated markets but none of the markets have e-NAM marketing systems. Budget allocated for establishing e-NAM regulated markets in India on 1st July, 2015 is Rs. 200 crores (DMI, 2020).

1.2.15. AMIF: Government of India during 2018-2019 budget announced to develop the market infrastructure in Grameen sectors. Government announced to upgrade the Grameenhaat into Grameen Agricultural Market (GrAM) for increasing the selling of the producer's goods. For this the government approved Rs. 200 crorespassed through the Agricultural marketing Infrastructure Fund (AMIF). This AMIF work to developed and upgrade the agricultural market infrastructure i.e. Up gradation of Rural Haat into GrAM and development of APMC market infrastructure.

1.2.16. Farmers, Producers Organization (FPO): FPO scheme was launched by the hon'ble prime minister Shri Narendra Modi in the year of 2020 at Chitrakoot, UP.FPO scheme is a central sponsored scheme which formulated to form 1000 FPOs within 5 years from 2019-20 to 2023-24.Budget allocated for the scheme is Rs. 6865 Cr. in 9 years. FPOs form specialist Cluster Based Business Organizations (CBBOs) which link with different implementing agencies like NABARD, SFAC etc. For a project loan up to Rs. 2 crores, there is a credit guarantee cover provided per FPO. In 2020-21 government targeted to form 2200 FPOs across the country (DAC&FW,annual report, 2020-21).

1.3 Literature Review

The purpose of this chapter is to present the findings and interpretations of previous research studies done by various research specialists, as well as their perspectives and opinions on various aspects of the study in light of the stated objectives. This would make it easier for the current research study to use relevant data and apply sound reasoning and interpretation to it. The following subheads are used to organize this chapter:

- APMC Regulated Market
- e NAM and its barriers
- Rural Infrastructure Development Fund
- Integrated Scheme of Agricultural Market

1.3.1. APMC Regulated market

Kathayat (2019) did research on Performance of Regulated Markets in Odisha Under New Agricultural Marketing Reforms Regime and said Regulated market is a market where trading is done between buyers and sellers in bulk under the control of state government by APMC present in the regulated market. The National average area of a regulated market is 487.40 sq.km. The problems faced by the farmers while trading in the market are transportation cost is high, inadequate channel of market information, unsatisfactory price, No grading facility, more number of middlemen , No storage facility , belated payment, very few Access to market credit, lack of drinking water, farmer shed facility.

In 2019, Palanichamy and Murugan studied the performance of regulated markets in Tiruvannamalai district in Tamil Nadu. The study showed that the APMC regulated market plays an important factor in increasing the income of the farmers by providing a fair price of the commodities. 92% of the total farmers in Tamil Nadu are come to sell their produce at APMC regulated market which is twenty times more than the established year of the regulated market (comparison from established year to 2017-18).Regulated market provides fair price, rest room, storage house and drinking water facility to the farmers which proving them to show interest on regulated market. In addition to that, the Regulated market provides loan facility, market information to help the producers to get available inputs during crop production and thus increase the output.

Sharma et al (2021) studies the impact of APMC act on marketing of Indian agricultural produce. In India 58% of total population are connected with Agriculture and it contributes 17% of Indian GDP(2018-19). This sector also provides more than 55% employment to people. But if we see the service sector, it has 33% of the workforce which contributes 57-58% of national GDP. To increase the contribution of Indian GDP by the agricultural sector the Government formulated APMC to demolish exploitation and distress sale with the aim of doubling farmers income. To increase the market efficiency, the government reforms the marketing system and formulated Model Act 2003. APMC helps the farmers of Punjab to increase the income of the farmers, increase the sale 32.2% of pulses, cereals and cash crops, improvement of marketing system increased the numbers of agro-processing unit in the state and influence the farmers to increase the production using suitable machineries, technologies and improved seeds.

Impact of amended APMC Act on apple business in Himachal Pradesh, India was conducted by Saxena et al (2016) to understand the impact and efficiency of marketing. They showed the contribution of prices during the marketing channel of Apple. The primary producers only got 53% of the ultimate consumer price of the apple, Middlemen shares is 31% and the remaining 16 % is used as marketing cost. To restrict this, the government declared that no agents or persons are allowed to do wholesale marketing. Reforms of APMC Act creates a market only at Regulated market thus increasing the barrier free trading, increasing more numbers of licensed traders, linking the farmers with more numbers of traders which gives them more choices to sell their produce with remunerative prices, this also encourages the private traders to trade. The researchers did a research on marketing of the apple by the producers; they have taken 2 groups containing 58 people and 30 people. The group 1(58 people) is Growers who follow only the traditional supply chain and group 2(30 people) is Growers who follow the traditional as well as modern supply chain and they have seen 98.2% from group 1 and 100% of group 2 went to direct procurement of companies.

Mallik (2019) worked on Performance of Agricultural Regulated Markets in Tripura-A Quest for Rapid Development and overviewed the marketing infrastructure of a regulated market and the existing infrastructure in the regulated market, auctioning system performed in the market. Five year plans in which regulated markets are formed(3^{rd} 6^{th} and 7^{th} five year plan) and their distribution pattern across the state. He also pointed out the reason for improper functioning of the regulated market and possible suggestions to improve the performance of regulated markets.

Ravi and Uthaiyasuriyan (2012), in their study "regulated Market – an Overview" discussed about the reforms of APMC regulated market from the beginning from First regulated market in India formed by Hyderabad Residency Order in 1888 to APMC model Act 2003.Role of APMC regulated market for improving market infrastructure and the constraints of regulated market which includes can't buy directly from the producer or from store house, marketing only done at regulated market yard, processing plant didn't get desire qualities of commodities because the product is go through several process. They also explained about the impact of regulated markets in agricultural produce marketing.

Ankush (2017) studies on "a study of socio-economic analysis of Solapur APMCs in Maharashtra" revealed that agricultural marketing in regulated markets plays an important role. It helps to keep prices stable, restrict malpractices in the market etc. He also explains the challenges that are faced by the farmers to run the trading in regulated markets and possible findings to increase the marketing of the agricultural produce with remunerative prices.

Thippeswamy and Sharada (2014), in their research paper "Performance Of Regulated Markets In Karnataka: A Case Study of Chitradurga District" explain about the performance of the regulated market of Chitradurga District. They show the growth of the trading interest by the farmers increased by 20 times(in the year 2011-2012) as compared to the established year. This Chitradurga regulated market covers 92% of the farmers, But the study showed only 75% of the farmers come to sell their produce at regulated markets. The remaining part of the farmers does not show interest because of dissatisfaction among middlemen and weight men. This study explains that regulated market in Chitradurga plays an important role in agricultural commodities marketing with increasing savings and providing fair price of the commodities.

Kadrolkar(2012), conducted research on "Agricultural Marketing in India, Role of Agricultural Produce Marketing Committee (APMC)", Tarikere APMC, Chikmagalur district of Karnataka. For his research he has taken 100 numbers of farmers as a test sample. Through this APMC around 30-35 commodities are traded in a year. Arrival of coconut is increased from 46% to 78% in the period of 2006-2007 to 2010-2011.Maximum amount paid to farmers of coconut during 2010-2011 was Rs.5936.66.2% of the farmers are sell their coconut through commission agents and almost 80% are satisfied of regulated marketing system. Major problems in the Tarikere APMC are transportation, storage facilities and financial weakness. The researcher said that, a good agricultural marketing system is important for the development of the agriculture sector because it provides outlets and

incentives for increasing production and it also helps subsistence farmers commercialize. Main three pillars which help increase the agricultural sector are production, processing and marketing.

Patel and Patel(2013), in their study "A comparative study of arrivals and prices of agricultural commodities at APMC using Time Series Analysis' ' Discussed about the impact of arrival and price of the commodity. They have shown the Unjha APMC in Gujarat of cumin and fennel produce. The cumin arrival is more during April-June and Fennel arrival is more during July- September and the relation between arrival and price of the commodity shows negative or inverse relation. The arrival during July month of cumin is 233.2 kg and the price is Rs.91.1. To stabilize the availability they have suggested improving the market infrastructure and creating processing units around the market.

Hazari and Dey (2020) in their study" Regulated market in Tripura: for sustainable local governance" explained about the performance of the regulated market in Tripura. regulated markets are recognised as accountable entities for carrying out all tasks involved with the sale of agricultural produce while keeping the farming community's and final customers' best interests in mind. According to the research paper Assam holds first position in the number of regulated markets in the state, followed by Tripura and Meghalaya. First regulated market in Tripura established in the year of 1964 and subsequently 3 regulated markets in 1981 and 17 regulated markets in 1986. The regulated market in Tripura is more backward than the standard regulated market. The marketing infrastructure and storage facility is inadequate for storing goods and most of the storages are katcha type except Meghalaya which has Pacca storage facility. The main reason for getting low price of the produce by the farmers is numbers of middlemen which increase the marketing channel and decrease the market efficiency. They recommended few policies such as up gradation of market infrastructure, providing of grading facility to farmers and also mention about the electronic trading system of agricultural commodities to accelerate the marketing system in the state Tripura.

1.3.2. e-NAM and its barriers

Pavithra et. al.(2018) done researched on"Innovations in agricultural marketing: a case study of e-tendering system in Karnataka, India" at Gulbarga, Chittapur and Sedam taking the sample size 30. They explained that only 7% of farm products come to market after grading. To increase the marketing efficiency, the Government of Karnataka and National Commodity Derivative Exchange (NCDEX) collectively formed Unified Market Platform (UMP) in 2014

and Rashtriya e-Market Service Private Limited (ReMS) with the aim of providing e-trading service of the agricultural commodities. After this Government of India formed a platform e-NAM in 2016. At the beginning there were 250 Regulated markets. It has shown the systematic working flow of e-trading and said e-trading takes 40% less time than open auctioning of the commodity selling and saving 2.5 hours/ transaction. The researchers show that e-NAM trading is actively functional in larger markets than in smaller markets.

Meena et. al.(2019) work on the research paper of " Electronic-National Agricultural Market (e-NAM): Initiative towards Doubling the Farmers' Income in India" discussed e-trading in increasing market efficiency. E-Nam was launched on 14 April, 2016 with the aim of improvement of market infrastructure, providing remunerative price of commodities and improvement of regulation of the market. The government has set a target of establishing 585 e-NAM within March 2018 across 16 states and 2 UTs. Their research paper shows that only 11% of the total wholesale market comes under e-NAM. They also discussed the problems of implementing e-NAM, such problems are quality of the product, time of getting license, transportation cost etc.

Bisen and Kumar, 2017, on their research "Agricultural marketing reforms and e-national agricultural market (e-NAM) in India: a review" discussed evolution of the e-NAM system including Model Agricultural Marketing (Development and Regulation) Act, 2003 and its role in India. They mentioned that 48% of the households are linked with agriculture and 80% of the rural households come under poor families. The marketing of the goods increased from 30-35% to 70% from the early 1950s to 2015. But today also produced food gets wasted and it is 10-25% for perishable goods like meat, fish, egg, milk.30-40% for fruits and vegetables. According to CIPHET annual loss of food produced is Rs.92651 crores (Jha et al,2015).They also discussed the Karnataka model of Agriculture marketing. The state of Karnataka follows its own marketing system called ReMS, a e-market platform. The main challenges of implementing e-NAM in India are Infrastructure, Institutions and Innovations. Number of e-NAM in India till 23 March 2018, are 585 in 16 states and 2 UTs.The adopted states are Andhra Pradesh, Goa, Gujarat, Haryana, Himachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan and Tamil Nadu and partially adopted states are Chhattisgarh, Jharkhand, Mizoram, Punjab and Chandigarh.

"Knowledge of Farmers on Functioning of e-NAM " research paper was done by Raju et al in the year of 2022 in Andhra Pradesh of Guntur district taking 6 e-NAM, for conducting research they were taken 20 samples from each e-NAM. e-NAM was launched in the year of

2016 which is led by the Small Farmers Agribusiness Consortium. One of the aims of forming e-NAM is to "create one nation, one market".Thereare a total of 1000 e-NAM till 2021 in 18 states and 3 UTs. For research work they categorize the farmers knowledge into 3 phases i.e. gate entry, quality assaying and e-bidding. According to this they have seen most of the farmers come under the medium knowledge category. Percentage wise medium knowledge category shares 58.33%, low knowledge category shares 22.50% and high knowledge category shares 19.17% on e-NAM. The main problem of restricting adoption of e-NAM is the lack of knowledge of accessing e-NAM. This may be increased through conducting training programmes and giving real life experience.

Munishwar in his research paper "Performance evaluation of e-NAM in Telangana" in 2019, discussed briefly about the e-NAM. The main focus is to double the income of the farmers by 5 years and make "one Nation, one Market" in the country. This will be effective when the produce of the farmers maintain international standards and give effort to the stakeholders.

1.3.3. Rural Infrastructure Development Fund(RIDF)

Ghosh in his research "Infrastructure and Development in Rural India" in 2017 discussed the rural infrastructure facilities in 16 states in the country and several initiatives related to rural infrastructure, among such initiatives one of them is Rural Infrastructure Development Fund(RIDF). The work revealed that RIDF was created in 1995-96 by NABARD and these schemes look after 36 activities which are included in 3 separate categories, these are (i) Agriculture and related sectors, (ii) Rural connectivity and (iii) Social sector. To improve the rural infrastructure government as on 31 march,2016 sanctioned a total of RIDF (RIDF-I–XXI) assistance of 2,601,585.5 million which includes Bharat Nirman at around 0.582 million projects. The scheme provides assistance of 20% of total investment. The share of investment in 3 categories are 42% for Rural connectivity (roads and bridges), 40% for agriculture and related sectors and 15% for social sector projects.

Rajeev 2008, in her study "Rural Infrastructure Development Fund: Need For A Track Change" explained different phases of RIDF and its fund flow across the states in the country. The first phase of RIDF stated during 1995-96 and during that time interest rate was 13%, then during RIDF II to RIDF III it lower down to 12%, 7% during phase IV to VI and at present the(RIDF XIII) this interest rate link with bank and lower down to 6%. In North East through RIDF in 2006 a total of Rs. 934.52 crores were sanctioned from which the state Tripura shared Rs. 21.7 crores and disbursement amount was Rs.21.27 crores. This released

amount of money was used in construction of roads, constructions of bridges, providing Irrigation facility, Watershed development, Power sector, Rural drinking water and Other works.

Dadhich in 2014 in his research paper "Revisiting Rural Infrastructure Development Fund (RIDF) Scheme" revealed that the scheme RIDF was launched in 1995-96 and was created by NABARD to finance the state government and state corporation at a lower interest rate. He also discussed briefly on the RIDF scheme and its work in different categories, the investment pattern and investment amount in every state across the country from RIDF I(1995-1996) to RIDF XVIII(2012-2013)till 31 March 2013 a total of Rs.180583 crores were sanctioned in India from which Rs. 129463 crores were disbursed. Share of the amount in different activities are 42% in the Agricultural and allied sector, 32% in rural roads, 14% in social sectors and 12% in bridges. Highest amount of money sanctioned through RIDF is in Andhra Pradesh. In India only 50% of the farm family out of 14 crores family used institutional credit. This can be increased when priority sectors focus on the advancement of the agriculture sector.

Rajaraman in 2003 in his study "Financing Rural Infrastructure in Developing Countries: The Case Of India" explained the scheme RIDF is fully funded by the commercial banks of India. RIDF is funded through NABARD. Across the country 25 states are benefiting RIDF for infrastructure development. Rajaraman studied the last 5 year tranche of RIDF I to RIDF II.

Satish in his research study "Rural Infrastructure and Growth: An Overview" in 2017 explained infrastructure plays a major role in developing an area economically and industrially. Infrastructure leads to extension of the agricultural sector, increasing yield through sufficient input and technology, increasing marketing of the produce which helps to generate employees in different fields in the rural areas.

Patel(2013)in his study “Infrastructure For Agriculture & Rural Development In India Need For A Comprehensive Program & Adequate Investment" revealed that the annual growth rate in the agricultural sector in India is 4.5% during 9 five year plans. Almost 70% people live in rural villages in the country and they are directly and indirectly linked with agriculture. To improve the economic status of the rural people, they need to improve the rural infrastructure. To develop the agriculture sector and other sectors during 1995-96 the government set up the scheme RIDF which is operated by NABARD. At present only 0.5% above the bank rate

have to be returned back by the institute. This scheme provides 90% of the total cost in agriculture and allied sector, 85% in social sector but for hilly and North East states it is 90% and for construction of roads and bridges it is 80% but for hilly and North East states it is 90%. Through this scheme till RIDF XIII, extended the field to irrigation potential in Central Eastern and North Eastern states are 38.8%, 17.3% and 2.6% of 13,430,184 hectares with constructed roads of 16.5%, 8.1% & 1.5% of 246,670 km.

Morris and Morris in 2003" did research on "The Rural Infrastructure Development Fund: A Review" and discussed RIDF. RIDF is operated by NABARD which was set up in 1995-96, mainly to provide funds on incomplete irrigation projects with an initial corpus fund of Rs. 2000 crores. The credit amount provided by NABARD on different projects through the scheme RIDF is guaranteed by the respective state and for a few projects guaranteed by SHGs, NGOs and Panchayati Raj Institution. Till RIDF I to RIDF VI NABARD have sanctioned 179 projects from where 75 were completed (At targeted time period 40 projects) and others will complete after 1-3 years of targeted time. In their paper they discussed the money flow during the period of RIDF I to RIDF 6 and the work structure by the RIDF in the state of different sectors.

1.3.4. Integrated Scheme For Agricultural Marketing (ISAM)

According to the 'Directorate of Marketing and Inspections' in Operational Guidelines,2014 ISAM is constitute of five sub-schemes, these are Agricultural market infrastructure(AMI),Market Research and Information Network(MRIN), Strengthening of Agmark Grading Facilities (SAGF), Chaudhary Charan Singh National Institute of Agricultural Marketing and Agribusiness Development through Venture Capital Assistance (VCA) and Project Development Facility(PDF). Main objective is to create a good marketing facility of the existing commodities through benefiting farmers and reducing post harvest losses of the produce. DMI also included the subsidy rate for different schemes. In AMI the subsidy rate for North Eastern and other hilly states is 33.33%. In the state Tripura under MRIN scheme, 22 numbers of Computer provided, 21 Market Nodes, Installation of Computers are 22, No. of Markets Reporting on through this scheme 11.During XII five year plan Rs. 6 crores has been approved for SAGF scheme to boost the grading and machineries required in marketing.

According to the Annual Report 2019-20 by "Department of Agriculture and Farmers Welfare " the scheme ISAM was functional from 1st April, 2014. The scheme at initial phase

has five sub-schemes, but during XII five year plan another scheme is added i.e. National Agricultural Market which is commonly known as e-NAM. The sub-schemes are (i) Agricultural Marketing Infrastructure (AMI) (ii) Marketing Research and Information Network (MRIN) (iii) Strengthening of Agmark Grading Facilities (SAGF) (iv) Training, Research and Consultancy through Chaudhary Charan Singh National Institute of Agricultural Marketing (NIAM) (v) Agribusiness Development through Venture Capital Assistance (VCA) and ProjectDevelopment Facility (vi) National Agriculture Market (e-NAM). All the schemes have different objectives but a common goal is to make efficient marketing and provide more benefits to farmers. Small Business Farmers Consortium trying to form 1000 FPOs of the farmers group to give direct benefit to the farmers.

In " Compendium of Government of India Schemes and Programmes Relevant to the North Eastern States" briefly discussed the scheme MRIN which comes under ISAM. The schemes focus on nation-wide information collection and dissemination of market information like price of the commodity, arrival, stock quantity etc. to access efficient marketing for all. In this paper several objectives were raised on MRIN and also discussed eligibility criteria of it.

The Ministry of Agriculture and Farmer welfare in Integrated Scheme for Agricultural Marketing has discussed the objectives of forming the ISAM merging different sub-schemes. It also includes brief discussion of each sub-scheme namely AMI, NIAM, SAGF, MRIN and Agribusiness Development (ABD) through Venture Capital Assistance (VCA) and Project Development Facility (PDF). The main objective of forming this ISAM is to strengthen the marketing infrastructure and marketing system for increasing market efficiency.

1.4. Needs of the study

1. To understand the present Agricultural marketing system.

2. To understand the problems and difficulties faced by the traders and farmers while marketing the produce.

3. To get the information about the marketing channel of the commodities and the pricing of the commodities.

4. To understand the drawback if non-implementing e-NAM.

5. To get the idea of earning status for the traders and farmers.

6. To find out the grass root level problems of the farmers and traders.

7. To find out the agencies and the schemes that is helping to boost the market infrastructure development in the state of Tripura,

8.To understand the fund flow and utilization status of developing market infrastructure.

1.5. Importance of the study

1. To integrate the problems into a single platform and find probable solutions to improve the marketing efficiency.

2. This helps to know the economic condition of the farmers.

3. It also helps to know the efficiency of the schemes which are functioning in agricultural marketing in Tripura for agricultural marketing development.

1.6. Objectives ofthe Study

1. To conduct a comparative study between the standard models of the regulated market and prevailing trends in market infrastructure.
2. To identify the problems and impact of regulated markets (APMCs) on farmer's incomes in Tripura.
3. To study the marketing efficiency and marketing margin of the stakeholders and existing pattern in commodity arrivals in the regulated markets (APMCs) of Tripura.
4. To formulate a set of prospects, policy recommendations that facilitate a healthy trade and business in the regulated market.
5. To estimate the required capital investment/requirement for efficient market operation.
6. To study the current state of eNAM in Tripura, as well as identify the barriers to adoption and also estimate investment requirements for a specific regulated market into eNAM.
7. To study the effectiveness of RIDF funding in agri-market infrastructure in the selected market of Tripura.
8. To investigate the Integrated Scheme for Agriculture Marketing (ISAM) and identify the factors that prevents local markets from benefiting from it.

Study on APMC Regulated Markets in Tripura

Chapter – 2

METHODOLOGY

Methodology:

2.1. Type of research:

The study was conducted by the survey-based descriptive method, comprising both qualitative and quantitative studies. The main objective of the present study was to understand the present status of the regulated market, prevailing trends in market infrastructure and estimate marketing efficiency of regulated markets along with the other relevant government programs and schemes. The methodology was used for conducting the study under the following:

2.2. Identification of the study area.

2.3. Sampling design and sample size.

2.4. Identification of variables under the study.

2.5. Data collection

2.6. Data Analysis Techniques

2.2.Identification of the study area:

The study has been conducted in the state of Tripura of India, located in the north-eastern part of the subcontinent. It is bordered to the north, west, and south by Bangladesh, to the east by the state of Mizoram, and to the northeast by the state of Assam. The latitude and longitude coordinates are 23.745127, 91.746826 respectively. The study was confined to eight (08) regulated markets in eight different districts of Tripura.

2.3.Sampling design and sample size.

Sampling Technique*:*

The study was conducted by the survey-based descriptive method, comprising both qualitative and quantitative studies. The study has been conducted in the state of Tripura of India, located in the north-eastern part of the subcontinent. The study was confined to eight (08) regulated markets in eight different districts of Tripura. To collect responses a simple random sampling technique has been used followed by group discussion and meeting with PRI body APMC market committee and market functionaries.

Figure No. 2.1: District wise distribution of selected regulated markets of Tripura

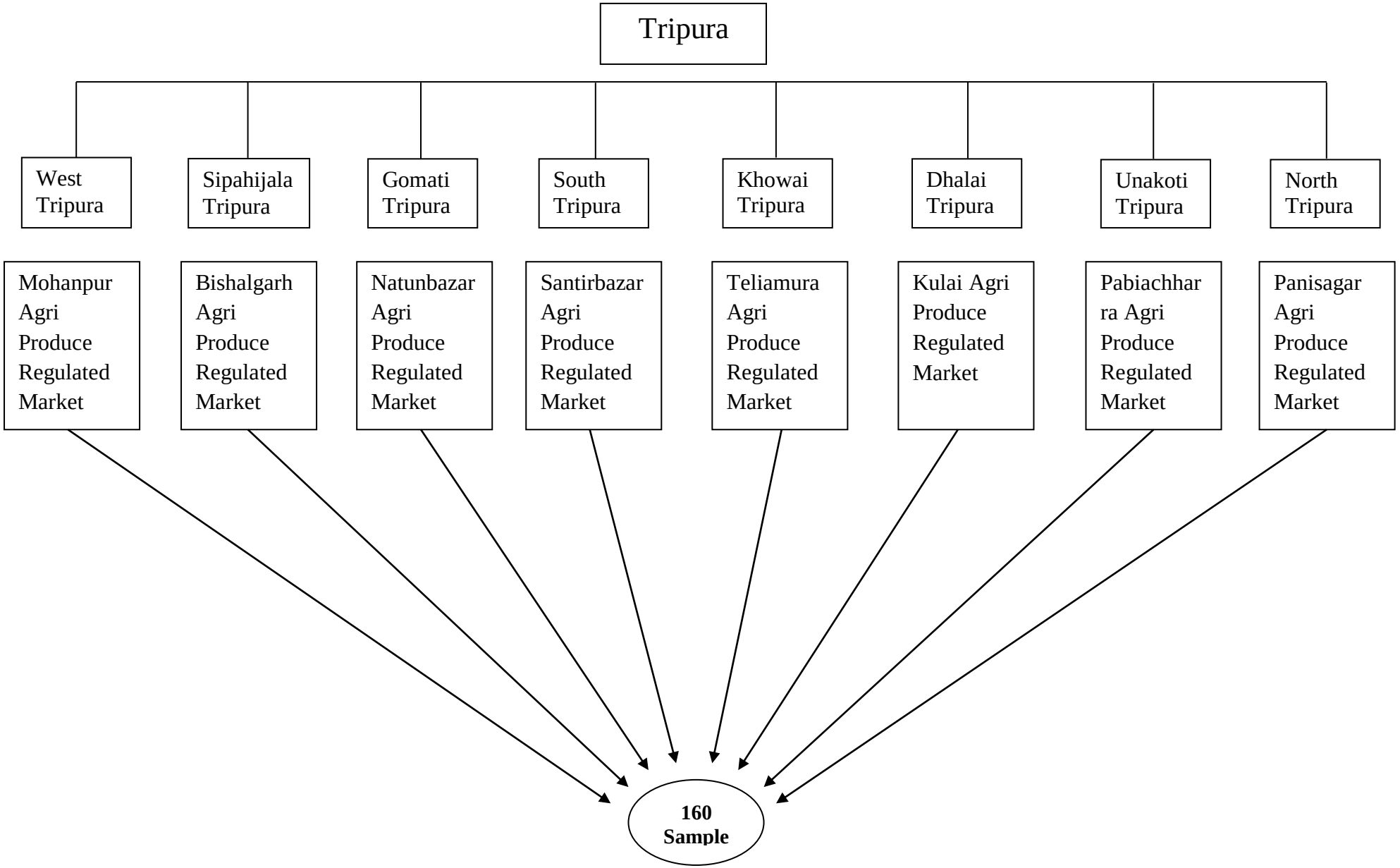


Figure No. 2.2:Sampling design and sample size

Sample Size:

A total of one hundred sixty sample households and market functionaries have been investigated by a personal interviewing method during February to April, 2022with the help of a structured interview schedule for collecting household information's. Primary data was collected on proportionate basis from different market functionaries like farmers, retailers, wholesalers, local governance (member from panchayati raj institution body), and local the market committee (member from APMC).

Table 2.1: Distribution of selected market and sample

Sl. No	District	Name of the Markets	Sample
3.	West	Mohanpur Agricultural Produce Regulated Market	20
4.	Sipahijala	Bishalgarh Agricultural Produce Regulated Market	20
5.	Gomati	Natunbazar Agricultural Produce Regulated Market	20
6.	South	Santirbazar Agricultural Produce Regulated Market	20
7.	Khowai	Teliamura Agricultural Produce Regulated Market	20
8.	Dhalai	Kulai Agricultural Produce Regulated Market	20
9.	Unakoti	Pabiachharra Agricultural Produce Regulated Market	20
10.	North	Panisagar Agricultural Produce Regulated Market	20
11.	**08 No of Regulated Markets**		**160**

2.4.Identification of variables under the study.

A plethora of variables has been identified for the purpose of this project research. Every variable has been chosen for its relevance to this work.

Table 2.2: List of Variables

Sl No	Variables	Relevance
I	**Physical Facilities**	A pertinent component for development of agricultural marketing is its infrastructural facilities for effectively managing marketable produce of the farmers. Studying these physical facilities will render the knowledge of the market and its functioning from infrastructural facilities perspective.It also reveals the shortcomings and the challenges for the smooth functioning of the market.
1	Office premises	
2	Water supply	
3	Computer	
4	Auction room/place	
5	Platform for sales	
6	Store / Godown	

7	Office	
8	Cattle Shed	
9	Own Land	
10	Price Notification board	
11	E-Trading	
12	Direct purchasing facility	
13	Export facility	
14	Forward / Future Trading	
15	Adequate Godown facility	
16	Market boundary	
17	Market information facility (local and non digital)	
18	Miking / announcing facility	
19	Drying Yard	
20	Farmers Rest Shed	
21	Sanitary Facilities	
22	Drinking water facilities	
23	Drainage system	
24	Cleaning, Sweeping facility	
25	Garbage movement facility	
26	Cold storage	
27	Electricity	
28	Medical facility	
29	Availability of private market yards	
30	Option e-trading (a software based platform for transaction of agricultural commodities which includes order processing, online payment, product details etc.)	
31	Conduct training for former	
II	Marketing Equipment's	Market equipment necessitates basic

1	Weighing	requirements for the functioning of the market like weighing, measuring equipment, ice, Studying etc these aspects will uncover the present status of the features as well as the deficiencies available in the market at the grassroots level.
2	Moisture meter	
3	Ice crushing machine	
III	Special Arrangements	Every market requires some basic amenities like sorting, storing, grading, packaging, payment system and other activities pertain to production and distribution of agricultural produce.
1	Sorting	
2	Grading	
3	Payment	
4	Administrative help (grievance)	
5	Packaging	
6	Methods of Sales	
7	Market Levies or Fees	
8	Separate constitution of special markets	
IV	Marketing channel	Distribution or channel management of agri-products is one of the post market activities which ensures profit margin, accessible marketing cost, increasing marketing efficiency and smooth movement of the products from producers to consumers. Studying these aspects will focus the gap or problems that are prevalent in the market.
V	Marketing Cost	
VI	Marketing Margin	

2.5.Data collection

The selected regulated markets were surveyed with a structured set of questionnaires to collect responses from the market. For that purpose, primary data from the selected market and secondary data from other published and unpublished sources are collected.

2.6.Data Analysis Techniques

The collected data was filtered and analysed through Microsoft Excel, SPSS software where different measures of central tendency and measures of dispersion.

2.6.1 Data Analysis tools:

Marketing margin: For studding the marketing cost, margin andefficiency five major cropshave been selected i.e. Paddy, Chilli, Potato, Tomato and Brinjal. The said commodities have been

selected depending on the high concentration of gross area under this selected crop, farmer's engagement and producer surplus of the product in the market throughout the year (DES, and Directorate of Horticulture & Soil Conservation, Department of Agriculture and Farmers Welfare, Tripura).Marketing margin was calculated based on the difference in prevailing price for the selected commodity at the successive stages of marketing at a given point in time.

Absolute Marketing margin of i^{th} stakeholders (Ami)=PRi – (PPi + Cmi)

Where, PRi = Total value of receipts per unit (sale price), Ppi = Purchase value of goods per unit (purchase price), Cmi = Cost incurred on marketing per unit.

Marketing cost: It explains the total cost incurred on marketing by producer and by various intermediaries involved in the sales and purchase of selected commodity till the commodity reaches to the ultimate consumer, and which may be computed as follows: C = CF + Cmi + Cm2 + Cm3 + …. + Cmn. Where, C = Total cost of marketing of the commodity, CF = Cost paid by the producer from the time the produce leaves the farm till he sells it, and Cmi = Cost incurred by the ith stakeholders in the process of buying and selling the product.

Price spread: It is the difference between the price paid by the consumer and the price received by the producer from the farm product, (Dinesh and Sharma, 2019).

Producers share in consumers rupee = (Price received by the producer)/(Price paid by the consumer) X 100

Marketing Efficiency:The marketing efficiency was estimated by using theAcharya approach (Kumar, 2014&Acharya and Agarwal, 2007). According to Acharya, a modified measure of marketing efficiency can be calculated by using the formula:

Modified Marketing efficiency (MME) = Net selling price of grower / (Total marketing cost + Total marketing margin).

Production efficiency: This study utilized a Cobb-Douglas production function model (Cobb and Douglas, 1928) to empirically quantify the relative influence of various factors in the decision as,

$Y = a\ X_1^{b1}\ X_2^{b2}\ X_3^{b3}\ X_4^{b4}\ X_5^{b5}\ X_6^{b6}\ X_7^{b7}\ X_8^{b8}\ X_9^{b9}\ldots\ldots\ldots\ldots\ X_n^{bn}$.

Where, Y is the total annual income, 'a' is constant or intercept term, 'X_1, X_2, X_3, X_4,X_5,X_6,X_7,X_8,X_9,.....X_n' are education, age, land holding, agricultural produce marketed, marketing fee at regulated market, distance from the market, transportation charge, weighing charge, selling price of agricultural product, owned transportation facility and storage facilityetc. Variables, b_i (i = 1 to n) are the regression coefficients of factor inputs and 'u' is the Error-term.

Regression test has been applied to ascertain the relative importance of the specific variables. This study embarks with nine numbers of Hypotheses on the basis of eleven valuables which are mentioned below:

H_{11}: Income of the market functionaries significantly affected by education.

H_{12}: Income of the market functionaries significantly affected by age.

H_{13}: Income of the market functionaries significantly affected by their land holding.

H_{14}: Income of the market functionaries significantly affected by agricultural produce marketed.

H_{15}: Income of the market functionaries significantly affected by marketing fee at regulated market.

H_{16}: Income of the market functionaries significantly affected by distance from the market.

H_{17}: Income of the market functionaries significantly affected by transportation charge.

H_{18}: Income of the market functionaries significantly affected by weighing charge.

H_{19}: Income of the market functionaries significantly affected by selling price of agricultural product.

H_{110}: Income of the market functionaries significantly affected by owned transportation facility.

H_{111}: Income of the market functionaries significantly affected by storage facility.

To study the current state of e-NAM, Integrated Scheme for Agriculture Marketing (ISAM), and effectiveness of RIDF, followed by estimation of capital investment requirements for efficient market operation, an expert panel interviews and content analysis method was used.

Study on APMC Regulated Markets in Tripura

Chapter – 3

A BRIEF PROFILE OF TRIPURA

A Brief Profile of Tripura

Tripura, a princely state, transformed into a completely developed State on the 21st January, 1972 and is the third smallest State in the country, which is located in the North Eastern Region (NER) of India. It is surrounded by the neighbouring country Bangladesh on three sides i.e. south, west and north. The State's Forest area is over 60% of its land use statistics and the net area cropped in the state is only 255548 hectare (24% of geographical area). Maximum part of the land is upland / *tilla* land and hilly, with altitudes varying from 15 to 940 meters above sea level, though majority of the population tends to live in the plain areas.

Currently, the state has 8 Districts (West Tripura District, North Tripura District, Dhalai District, Gomati District, Unakoti District, South Tripura District, Sipahijala District and Khowai District), 23 Sub-Divisions, 58 Blocks and 1 Tripura Tribal Areas Autonomous District Council (TTAADC) formed under the Sixth Schedule of the Constitution.

Tripura is having primarily an agrarian economy in which more than 40% of total population of the state directly depends on Agriculture and Allied Activities. Small and Marginal farmers constitute about 96% of the total farmers in the State against 78%, that of the country. Agriculture and Allied Activities are still the backbone of the state's economy. Only 24% of Tripura's geographical area is cultivable, compared to the national average of 43%. Hilly terrain covers two-thirds of the state's overall land area. Reserved Forests cover a large portion of the geographical area. Small and marginal farmers account for roughly 96% of agriculturists. For a long time, Agriculture Scenario of Tripura was reliant on nature, with the majority of the land producing only one crop every year. Drought and excessive rain had a negative impact on productivity. Irrigation, fertilizer use, and hybrid seed use were all modest. Increased cultivable land area, reclamation of fallow land, irrigation extension, modern agricultural technologies, and the adoption of high yielding seed varieties were all used to boost production and productivity.

The state's favourable agro-climatic conditions, fertile soils, subtropical climate, large tilla lands, and abundant rainfall of around 2200 mm, evenly distributed throughout the year, provide enormous potential for the development of the Horticulture Sector, which includes fruits, vegetables, spices, plantation crops, floriculture, medicinal and aromatic plants, and other crops. Agriculture, in addition to being a supply foundation for food and raw materials, offers a significant potential demand base for both industry and services. Agriculture's improved performance has a direct and multiplier influence throughout the economy.

Horticulture**:** The state's favourable agro-climatic conditions, deep fertile soils, and sub-tropical humid climate with abundant rainfall provide enormous potential for the horticulture sector's development. Among the primary horticultural crops grown in Tripura, the pineapple is commonly regarded as the best in the country, along with high-quality orange, banana, jackfruit, mosambi, mango (Amrapali), and cashew nut cultivation. The state continues to be the country's top producer of True Potato Seed (TPS) and has a surplus of other vegetable crops such as cabbage, cauliflower, tomato, and several cucurbitaceous crops.

Horticultural development, in light of the State's favourable agro-climatic conditions, would not only suggest better land use planning, but it would also be a boon to the State's large number of Small and Marginal Farmers in obtaining good yields and improving the socio-economic condition of the rural people. Horticultural crops are high-value commercial crops that play a distinctive role in the state's economic development, nutritional security, poverty reduction, and job creation, crop diversification, and value addition for the people's socio-economic development.

Tripura's floriculture industry is rising day by day. Because of the continual increase in demand for cut flowers, floriculture has become one of the state's most important industries. The area is rapidly increasing, and commercially produced flowers include marigold, gladiolus, and tuberose, which are grown in open fields, as well as exotic flowers such as gerbera, orchids, and anthurium, which are grown under controlled conditions.

The government's focus on rural development is evidenced in the fact that the state has a separate Rural Development and Panchayat Raj Department to implement different rural-specific development programmes such as the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) and others.

The programs/schemes primarily aim to reduce poverty, improve infrastructure, and empower vulnerable groups in rural areas. As a result, the intended benefits of the schemes have been reached to the deserving target groups; as a result, the socio-economic conditions of the rural people have greatly improved; as a result, the socio-economic conditions of the rural people have greatly improved; as a result, the socio-economic conditions of the rural people have greatly improved; as a result, the socio-economic conditions of the rural people The successful execution of the schemes resulted in the active and tangible participation of vulnerable groups, particularly women, in the planning, implementation, monitoring, and assessment of the programme.

Table 3.1 Land use statistics (area in ha)

Sl. No.	LAND USE CLASSES		2020-21 (ha)
1	Geographical area		1049169
2	Forest Area		629426
3	Land Not Available for Agri Use	Land put to non Agri. use.	140775
4		Barren & uncultivable land	8213
5		Total (3+4)	148988
6	Land under Misc.tree Crops & groves not including in net Area sown		9838
7	Permanent pasture & other grazing land		888
8	Cultivable Waste land		2478
9	Total (6+7+8)		13204
10	Fallow Land	Current Fallow	896
11		Fallow Land Other than Current fallow	1189
12	Total (10+11)		2085
13	Net Cropped area		255466
14	Gross cropped Area		487400
15	Area sown more than once		231934
16	Cropping Intensity (%)		191
17	Cultivable land		270755

Source: Land Use Statistics, Department of Agriculture and Farmers Welfare, Tripura2022

Table 3.2.Station/District wise Annual Rainfall (mm)

Sl. No.	Stations	Total	
		Actual Rainfall (mm)	No. of Rainy Days
1	Kailasahar	2026.9	110.0
2	Unakoti	2026.9	110.0

3	Dharmanagar	2108.7	101.0
4	Kanchanpur	2189.0	98.0
5	North	2148.9	99.5
6	Kamalpur	3654.5	128.0
7	Chawmanu	1815.4	92.0
8	Gandacherra	1532.4	90.0
9	Dhalai	2334.1	103.3
10	Khowai	2245.0	124.0
11	Teliamura	2173.3	105.0
12	Khowai	2209.2	114.5
13	Sonamura	2253.0	95.0
14	Bishalgarh	1019.5	50.0
15	Sepahijala	1636.3	72.5
16	Sadar	2175.0	83.0
17	Jirania	1883.7	103.0
18	West	2029.4	93.0
19	Udaipur	1946.4	91.0
20	Amarpur	2246.0	93.0
21	Gomati	2096.2	92.0
22	Belonia	2319.1	90.0
23	Sabroom	2318.8	82.0
24	Bogafa	2482.6	105.0
25	South	2373.5	92.3
26	Tripura	2160.1	99.4

Source: Department of Agriculture and Farmers Welfare, Tripura2022

In Tripura, Khowai District has the highest rainfall record of 114 rainy days annually, followed by Unakoti District which gives annual rainfall of 110 rainy days. The state has the minimum rainfall in Sipahijala District with 72 rainy days throughout the year.

Cropping Pattern

Table 3.3.Area, Production & Yield of Agricultural Crops during 2020-21

Sl No	Name of Crops	2020-21		
		Area in Ha	Production in MT	Yield in Kg/Ha
1	Aush	34881	93760	2688
2	Aman	147750	475016	3215
3	Jhum	15493	16423	1060
4	Total *Kharif* Rice	198124	585199	2954
5	Total Kharif Maize	13456	23548	1750
6	Sorghum	189	161	852
7	Foxtail / Kaon	978	782	800
8	Total Foxtail / Kaon&Sorghm	1167	943	808
9	Arhar	5191	4049	780
10	Moong	1879	1212	645
11	B/Gram	4856	3472	715
12	Cow pea, Assam valley etc	3855	3123	810
13	Rajmash	13	12	923
14	Total *Kharif*Pulses	15794	11868	751
15	*Kharif*Foodgrains	228541	621558	2720
16	Sesamum	6056	4088	675
17	*Kharif* Ground nut	1075	1548	1440
18	Soyabean	7	5	714
19	Total *Kharif* Oilseed	7138	5641	790
20	Jute *	429	3754	8.75
21	Mesta *	255	2206	8.65
22	Total Jute & Mesta	684	5960	8.71
23	Cotton **	589	895	1.52
24	Sugarcane	741	41663	56225
25	Boro Rice	66500	219317	3298
26	Wheat	150	343	2287
27	Rabi Maize	6000	14910	2485
28	Foxtail / Kaon (R)	600	510	850
29	Moong	2150	1613	750
30	Black gram	3500	2800	800
31	Lentil	2250	1631	725
32	Pea	4500	3938	875
33	Gram	255	159	624
34	Khesari	50	34	680
35	Rajmash	1055	897	850
36	Total Rabi Pulses	13760	11072	805
37	Rape & Mustard	8500	7242	852
38	Rabi Groundnut	1250	1938	1550
39	Total Rabi Oilseed	9750	9180	942
40	Rabi Food grains	87010	246152	2829
41	Total Food grains	315551	867710	2750
42	Total Rice	264624	804516	3040

* indicates Production in Bales of 180 Kg each.
** indicates Production in Bales of 180 Kg each.

Source: Department of Agriculture and Farmers Welfare, Tripura, 2022

Looking at the cropping pattern of Tripura, it is observed that the total production of Kharif Food Grains is 6, 21,558 MT on a total cropping area of 2, 28,541 ha and Total Rabi Food Grains is 2, 46,152 MT on a cropped area of 87,010 hectare. The productivity of Kharif food grains is 2,720 Kg per hectare and Rabi Food Grains is 2,829 Kg per hectare. The total production of Kharif Rice is 5, 85,199 MT on a land area of 1, 98,124 ha with a productivity of 2,954 Kg per hectare. The Total production of Kharif Pulses is 11,868 MT from a land area of 15,794 ha. The Productivity of Total Kharif Oilseed is 790 Kg per hectare and it gives a total production of 5,641 MT in an area of 7,138 ha. The production of Total Jute & Mesta is 5,960 MT on a land area of 684 ha. The production of Total Rabi Pulses is 11,072 MT with a productivity of 805 Kg per hectare and production of Total Rabi Oilseed is 9,180 MT with a productivity of 942 Kg per hectare.

Table 3.4.Area irrigated in Tripura for the year 2019-20 (Area in Ha)

NAME OF DISTRICT	NET IRRIGATED AREA (IN HA)								GROSS IRRIGATED AREA (IN HA)							
	Canals			Tanks	Wells		Others Sources	**Net Irrigated Area**	Canals			Tanks	Wells		Others Sources	**Gross Irrigated Area**
	Govt.	Prvt.	Total		Tube well	Others Well			Govt.	Prvt.	Total		Tube well	Others Well		
North	0	0	0	76	462	0	7086	**7624**	0	0	0	133	597	0	8993	**9723**
Unakoti	0	0	0	66	264	0	4555	**4885**	0	0	0	165	496	0	5924	**6585**
Dhalai	250	0	250	85	239	0	6259	**6833**	350	0	350	180	401	0	9216	**10147**
Khowai	80	0	80	75	714	80	5947	**6896**	180	0	180	149	1333	280	10092	**12034**
West	521	0	521	233	2319	120	9987	**13180**	756	0	756	439	3766	180	11200	**16341**
Sepahijala	216	0	216	1153	2020	8	9359	**12756**	512	0	512	2322	3110	44	11289	**17277**
Gomati	3340	0	3340	136	823	345	14062	**18706**	5212	0	5212	280	2424	569	14590	**23075**
South	1822	0	1822	220	926	60	15153	**18181**	3225	0	3225	299	2878	152	16323	**22877**
STATE	**6229**	**0**	**6229**	**2044**	**7767**	**613**	**72407**	**89060**	**10235**	**0**	**10235**	**3967**	**15005**	**1225**	**87627**	**118059**

Source: Department of Agriculture and Farmers Welfare, Tripura, 2022

Table 3.5. Distribution of Agri.Sub Seed Stores in Different district of Tripura

Sl. No.	Districts	Agri Sub Division	Agri Sub Seed Store
1	West	Mohanpur	22

		Jirania	18
		Dukli	8
		Mandai	8
2	Khowai	Khowai	17
		Teliamura	19
		Tulasikhar	6
3	Sipahijala	Melaghar	36
		Bishalgarh	22
4	Gomati	Matarbari	28
		Amarpur	15
5	South	Bogafa	16
		Rajnagar	27
		Satchand	15
		Rupaichari	7
6	North	Panisagar	11
		Kanchanpur	18
		Kadamtala	13
7	Unakoti	Kumarghat	29
8	Dhalai	Chawmanu	13
		Salema	16
		Gandacherra	4

Source: Department of Agriculture and Farmers Welfare, Tripura, 2022

There are total numbers of 368 Agri Sub Seed Stores in Tripura. Among which South District has the maximum number of agriculture stores with a total number of 65 stores and Dhalai District is the least one with a total number of 33 stores. The total number of stores under remaining districts such as West Tripura, Khowai, Sipahijala, Gomati, North and Unakoti are 56, 42, 58, 43, 42 and 29 respectively.

Table 3.6: Statement showing the present status of Cold Storages of Tripura

Sl. No.	Name of Cold Storage	Govt/Pvt	Functioning/Non-functioning	Year of Commissioning	Single/Multipurpose	Capacity (MT)
A. Functioning Cold Storages						
1	Teliamura	Govt.	Functioning	2002	Potato	500
2	Melaghar	Govt.	Functioning	2007	Potato	2500
					Fruits & Veg.	1000
3	Baikhora	Govt.	Functioning	2002	Single	2000
4	Satchand	Govt.	Functioning	2013	Potato	750
					Fruits	100
					Vegetable	150
5	Amarpur	Govt.	Functioning	2014	Potato	750
					Fruits	100
					Vegetable	150
6	Belonia	Govt.	Functioning	2014	Potato	1700
					Fruits	100
					Vegetable	150
					Betel Leaf	50
7	Kumarghat	Govt.	Functioning	2004	Single	2000
8	Sherowali	Pvt.	Functioning	2001	Multipurpose	5000
9	Haflong	Pvt.	Functioning	2008	Potato	5000
10	Harina	Pvt.	Functioning	2014	Multipurpose	5000
Sub-total: Functioning Cold Storages						27000
B. Non-functioning Cold Storages						
11	Khumtaya	Co-Op	Non-functioning	2011	Single	3000
12	Khumtaya	Co-Op	Functioning	1986	Single	2000
13	C.W.C	GOI	Non-functioning	1987	Single	1000
14	Bhuturia	Private	Non-functioning	1987	Single	2000
15	Agt. Food Processing	Private	Non-functioning	2005		24500
Sub-total: Non-functioning Cold Storages						32500
Total of existing Cold Storages						59500
C. Up-coming Cold Storages						
16	Khowai	Govt.	Under Construction		Potato	750
					Fruits	100
					Vegetables	150
17	Udaipur	Govt.	Under Construction		Potato	1500
					Fruits	250
					Vegetables	250
18	Dharmanagar	Govt.	Under Construction		Potato	1500
					Vegetables	250
					Fruits	250
19	Ambassa	Govt.	Under Construction		Potato	650
					Fruits & Veg.	350

Sub-total: Up-coming Cold Storages	6000
Grand Total (A+B+C)	65500

Source: Department of Agriculture and Farmers Welfare, Tripura, 2022

Introduction to Market: In Tripura, the type of market structure adopted by the people and the government bodies are Regulated market, Wholesale market, Primary Market, Weekly market, Bi-weekly market, and Daily market. In the regulated structure of market, the market functionaries and activities are governed by a regulatory body (i.e. Government rules and regulations) whereas in other remaining market structures there is no such direct government interference. They are carried out by market committees that vary from place to place.

Regulated Market: Market Regulation was adopted in India under the Agriculture Produce Markets Act, which regulates the sale and acquisition of agricultural products while also ensuring fair competition. The Directorate of Marketing and Inspection assists states in establishing and enforcing legislation by providing them with necessary guidance and assistance. Almost every Indian state has approved market regulation legislation, including Tripura.

The first regulated market was established in Bishalgarh (1964). Following that, in 1981, three markets were regulated, and in 1986, seventeen markets were regulated. In Tripura, there hasn't been a controlled market since 1986. In Tripura, there are currently 21 regulated marketplaces for farmers. Regulated markets have not evolved considerably due to a lack of proper support from the federal and state governments, and a large number of agricultural markets continue to operate outside of the framework of regulated markets. Aside from that, Tripura's accreditation of regulated markets differs significantly based on the five-year plan. During the third five-year plan, the first regulated market in Tripura is established, and three more regulated markets are established during the sixth five-year plan.

Table 3.7: Distribution of different Markets in Tripura

Sl. No.	Type of Market	No. of Markets
1	Regulated Market	21
2	Wholesale Market	84
3	Primary/Weekly Market/Bi-weekly/Daily	470

Source: Department of Agriculture and Farmers Welfare, Tripura, 2022

In Tripura, there are 21 total regulated markets in which the marketing functions and activities are carried out under the regime of government rules and regulations. And the state also has 84 wholesale markets from which the retailers purchase goods in bulk quantities and resell them to the consumers. Apart from these, there are many other markets which occur once in a week (Weekly Market), twice in a week (Bi-weekly Market), and daily occurring markets. As a whole, there are 470 numbers of such markets in the state. Those markets are mainly vegetable markets and daily essential needs.

Study on APMC Regulated Markets in Tripura

Chapter – 4

REGULATED MARKET OF TRIPURA

Regulated Market of Tripura:

Different market functionaries were interviewed to elicit their perspectives on regulated markets, including (their) reasons for adopting it, infrastructure facilities of the market, features, problems, and ideas for improving the regulated market of Tripura. The chapter discussed the regulated market of Tripura and prevailing trends in market infrastructure.

4.1 Brief Introduction to Regulated Market of Tripura

Regulated market is a market where producers sell their products to traders with sophisticated manners with the guidance of a market committee, who are governed by the state government. To smoothly run the marketing system the government of state forms this type of market so that farmers get benefited through selling their produce at once/ in bulk. To sell their produce, the committee comes forward and provides an auction of their produce to the traders, this helps them to get reasonable prices for their produce.

The aim of forming the regulated market is to provide a good marketing channel to the producers with reducing the marketing charges and providing facilities to producers and sellers in the market. In the unregulated market the producers sell their produce to the middlemen or local dealers with very low prices which leads to low profit margins to the producers, but in the Regulated market producers sell their products directly to the traders via auction which is regulated by the market committee with a very minimal price. This gives them more profit margins by directly selling the products to the traders and during the auction the market committee also looks after the standard of the products so that buyers also have fresh and standard products. The main threats of agricultural marketing are short weight, excessive market charges, adulteration of produce, transport and absence of machinery to settle disputes between sellers and buyers. Many numbers of agricultural products are found in the Indian market. To weigh the products the weighing balance should be good enough so that there would be no fear of weight reduction or weight increase while balancing the product. The unbalance of weighing leads to loss to the buyers or sellers. Sometimes producers face the market committee or dealer charging more margins of profit from them which is unhealthy for sellers. To reduce these factors producers should sell their products in regulated markets where they get a fair price of that produce with minimal charge by directly selling the produce to traders. To get a fair price from the traders the produced product should have a good stage i.e. product should be in fresh stage, rotting free, should possess good grade. Now if the product is not good enough after buying the product, the trader may face a huge loss from that product while trading or selling. For this the producers should maintain a

standard of the product. The absence of machinery and infrastructure facilities may cause marketing problems within the market. Sometimes traders buy a bulk quantity of produce from the seller. To transport the produce needs big trucks and machinery to load the produce. Absence of proper infrastructure and cold storage facility may reduce the quality of the perishable products which may raise difficulties during trading of different places by the traders.

The main objectives of forming regulated market by the state government are to correct the weighing of the produce with using good weighing balance machine, to regulate the payment transaction system with quick and fair way to the farmers for their sold produces, and to reduce the activities of middlemen while handling the produced by the farmers, this allows the producers to get direct benefit.

Agriculture is an important sector in India for economic purposes as almost 70% people are directly and indirectly related to this field. Since the early period India has held a well-known position in Agriculture. India is an excellent grower of cotton, pulses,cereals spices, fruits etc. with the interest of these products britishers came to India .The agriculture produce market in India is regulating since British period, they formed the regulation with the attraction of cotton, raw material of textile mills in Manchester(UK).The first regulated market in India was established in the year of 1886, at Karanja under Hyderabad residence order. For regulating the market produce and smoothly buying and selling of the produce at a place on assigned district britisher's pass a legislation called Berar Cotton and Grain Market Act of 1887, this is the first legislation in India. The major landmarks in Indian marketing are seen after the recommendation of Royal commission on Agriculture, 1928 for regulation of marketing practices and establishment of regulated markets. This was formed to regulate trade practices between buyer -seller and to establish market yards across the country. Before independence a bill was prepared by the government of India in 1938, and circulated to all of the states in India but not much response was seen on it. After Independence, during the 1960s and 1970s most of the states passed this bill and enacted Agricultural Produce Markets Regulation(APMR) Act throughout the states. All the primary wholesalers came under this act after enacting the act by the state government. For each market area an "Agricultural Produce Market Committee" was formed to frame the rules and regulations and enforce them. In this way, the Indian market system came in existence with organized manners i.e. Regulated Market (DMI 2009). In India at present there are about 2477 principal regulated markets based on geography (the APMCs) and 4843 sub-market yards regulated by the respective APMCs in India. To smoothly conduct market regulations and to give maximum

benefits to the buyers and sellers there are 2477 regulated markets and 4843 sub yards across the country which is regulated by the state government.

4.2. Salient features of regulated market

1. Regulated market should consist of a market committee with 15 members. The committee includes 10 members from farmers, 3 from traders and one each from government and local bodies.

2. Government should notify a specific area to regulate trade practices.

3. The sales methods are followed by open auction and close tender methods with the supervision of an official of the market committee. This will give fair and remunerative prices to the producers.

4. To trade in the market the trader should carry a license from the market committee and should maintain all the accords according to the regulated market law.

5. To trade in the regulated market both buyers and sellers should pay an amount to the market committee which is based on the volume of the commodity sold or bought. Sometimes charge is paid based on cartload or truckload.

4.3. Agricultural Produce Market Committee in Tripura

Tripura is an agrarian state; almost 60% people directly depended on agriculture for their livelihood and contribute about 25% state GDP. Only 27% of the total land area is cultivable in the State (Study Report On To Set Up Food Processing Industries In The States Of Assam, Mizoram & Tripura,2015) and within that area the state is the producer of different types of fruits ,vegetables, spices etc. The Tripura Agricultural Produce Markets (Amendment) Act, 1983 was enacted to establish the Tripura Agricultural Produce Market Board. After forming this Board many amendments were done to increase APMC regulated market. To provide powers to the marketing Board and committees an act The Tripura Agricultural Markets (Amendment) rules,1985 was framed. Till date there are only 21 markets under APMCs regulated market.

(Rural Marketing System in the North Eastern States: Problems, Diagnosis and Strategy Perspective). Due to improper infrastructure 30-40% commodities have gone as wastage (Rural Marketing System in the North Eastern States: Problems, Diagnosis and Strategy

Perspective).To reduce this percentage the government should come forward to build good infrastructure in market areas.

Table No 4.1: List of Regulated Markets in Tripura

Sl. No	District	Name of the Regulated Markets	Year of regulations
1.	West	Mohanpur Agricultural Produce Market Committee	1986
2.	Tripura	Champaknagar Agricultural Produce Market Committee	1986
3.	Sipahijala	Bishalgarh Agricultural Produce Market Committee	1964
4.		Melaghar Agricultural Produce Market Committee	1981
5.		Jampuijala Agricultural Produce Market Committee	1986
6.		Sonamura Agricultural Produce Market Committee	1986
7.	Gomati	Garjee Agricultural Produce Market Committee	1986
8.	Tripura	Natun Bazar Agricultural Produce Market Committee	1986
9.	South	Santirbazar Agricultural Produce Market Committee	1981
10.	Tripura	Barpathari Agricultural Produce Market Committee	1986
11.		Kalashi Agricultural Produce Market Committee	1986
12.		Silacharri Agricultural Produce Market Committee	1986
13.	Khowai	Teliamura Agricultural Produce Market Committee	1981
14.		Kalyanpur Agricultural Produce Market Committee	1986
15.		Bachaibari Agricultural Produce Market Committee	1986
16.	Dhalai	Chawmanu Agricultural Produce Market Committee	1986
17.		Gandachharra Agricultural Produce Market Committee	1986
18.		Kulai Agricultural Produce Market Committee	1986
19.	Unakoti	Pabiachharra Agricultural Produce Market Committee	1986
20.	North	Panisagar Agricultural Produce Market Committee	1986
21.	Tripura	Dasda Agricultural Produce Market Committee	1986

Source: Economic Review of Tripura 2018-19

4.4. Area coverage of selected regulated markets of Tripura

Table No.4.2: Area coverage of selected regulated markets of Tripura

Sl. No.	Regulated Markets	No. of Villages	Area of operation per market (sq. km.)	Market yard (Area ha)	Market Days
1	Mohanpur Agri. Produce Reg. Market	26	188.51	1.6	Weekly
2	Kulai Agri. Produce Reg. Market	18	800	1.09	Weekly
3	Teliamura Agri. Produce Reg. Market	19	1005.67	2.43	Biweekly
4	Panisagar Agri. Produce Reg. Market	20	481.5	1.28	Biweekly
5	Santirbazar Agri. Produce Reg. Market	17	383.55	1.57	Biweekly
6	Pabiachharra Agri. Produce Reg. Market	21	591.93	0.88	Biweekly
7	Bishalgarh Agri. Produce Reg. Market	23	348.26	1.12	Biweekly
8	Natunbazar Agri. Produce Reg. Market	26	761.4	1.37	Weekly

Source-Authors compilation from field study

The table 4.2 represents that, there are 8 selected regulated markets for the study among whichBishalgarh Agri. Produce Market was the first market which has been regulated in the state

during the year 1964 followed by the regulation of 2 other markets in the year 1981 i.e. Santirbazar Agri. Produce Regulated Market and Teliamura Agri. Produce Regulated Market. The last regulations of market were done during the year 1986 in which remaining 4 markets were regulated which includes MohanpurAgr. Produce Regulated Market, Kulai Agri. Produce Reg. Market, Panisagar Agri. Produce Regulated Market, Pabiachharra Agri. Produce Regulated Market and Natunbazar Agri. Produce Regulated Market.

The mentioned regulated markets i.e. Mohanpur and Natunbazar Agri. Produce Regulated Market covers maximum number of villages with total 26 villages in both the market. And Santirbazar Agri. Produce Regulated Market with total 17 villages is observed to be the market that covers least number of villages. The number of villages which other remaining markets like Bishalgarh Agri. Produce Regulated Market, PabiachharraAgri. Produce Regulated Market, Panisagar Agri. Produce Regulated Market, Teliamura Agri. Produce Regulated Market and Kulai Agri. Produce Regulated Market covers are 23, 21, 20, 19 and 18 respectively.

Among all the selected regulated markets, Teliamura Agri. Produce Regulated Market has the maximum area of operation i.e. 1005.67 sq. km. followed by Kulai Agri. Produce Regulated Market with area of operation 800 sq. km. The area of operation for other markets i.e. Panisagar Agri. Produce Regulated Market, Pabiachharra Agri. Produce Regulated Market, Mohanpur Agri. Produce Regulated Market, Santirbazar Agri. Produce Regulated Market, Bishalgarh Agri. Produce Regulated Market and Natunbazar Agri. Produce Regulated Market are 481.5 sq.km, 591.93 sq.km, 188.51 sq. km., 383.55 sq. km., 348.26 sq. km. and 761.4 sq. km. respectively. Mohanpur regulated market has the less area of operation compared to other markets.

Teliamura Agri. Produce Regulated Market with 2.43 hectare has the largest market yard in which the activities like selling and purchasing of agri. Produce takes place followed by Mohanpur Agri. Produce Regulated Market with market yard of 1.6 hectare then Santirbazar Agri. Produce Regulated Market with market yard of 1.57 hectare followed by Natunbazar Agri. Produce Regulated Market, Panisagar Agri. Produce Regulated Market, Bishalgarh Agri. Produce Regulated Market and Kulai Agri. Produce Regulated Market, with market yard of 1.37 ha, 1.28 ha, 1.12 ha and 1.09 ha respectively. Pabiachharra Agri. Produce Regulated Market has the smallest market yard of 0.8 ha. From the above 8 regulated markets in the table, 5 markets i.e. Teliamura Agri. Produce Regulated Market, Panisagar Agri. Produce Regulated Market, Santirbazar Agri. Produce Regulated Market, Pabiachharra Agri. Produce Regulated Market and Bishalgarh Agri. Produce Regulated Market occur twice (Bi-weekly market) a week and other 3 markets i.e. Mohanpur Agri. Produce Regulated Market, Kulai Agri. Produce Regulated Market and Natunbazar Agri. Produce Regulated Market occur once (weekly market) a week.





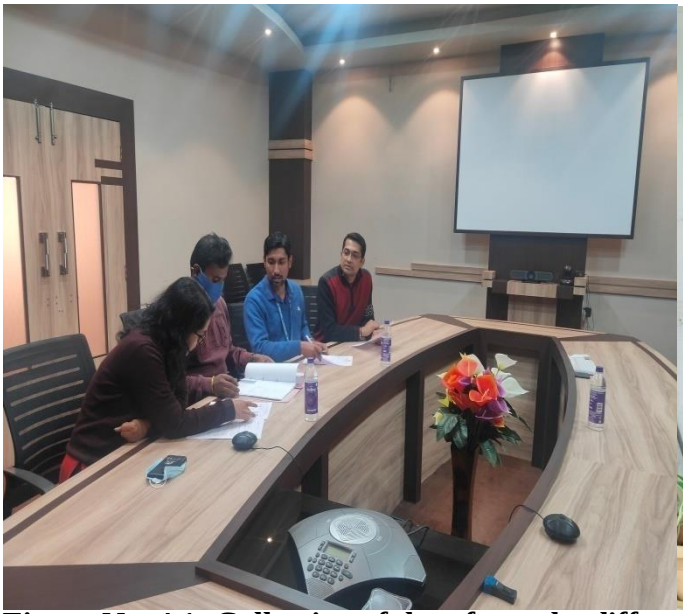



Figure No. 4.1: Collection of data from the different market functionaries and government officials

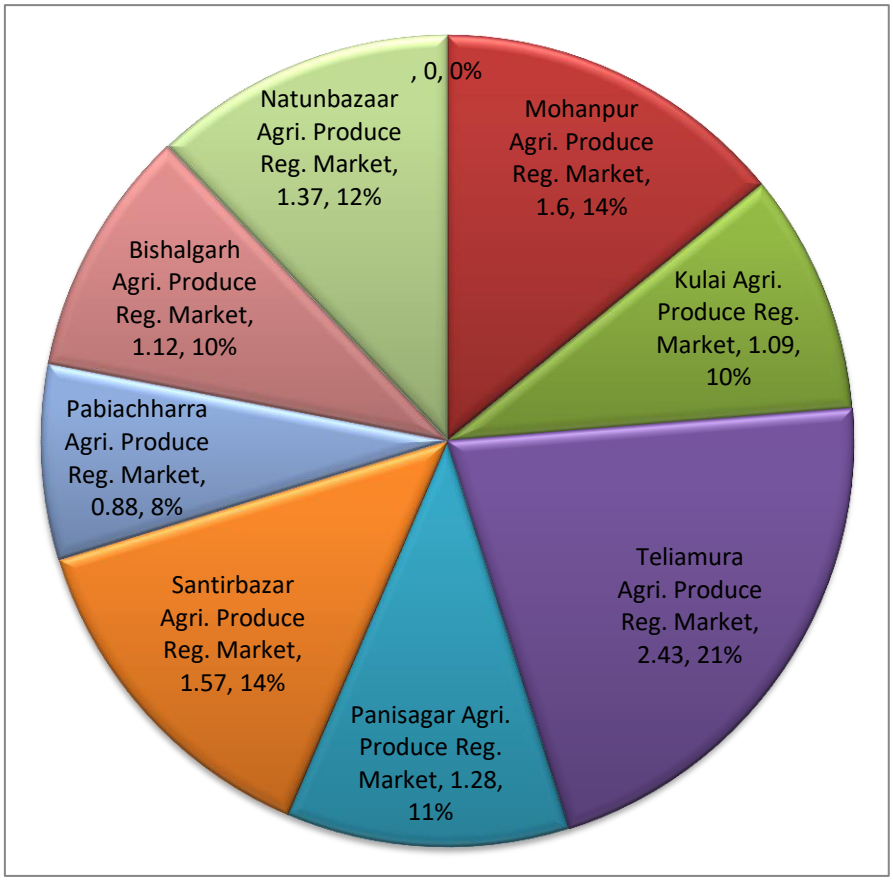


Figure No. 4.2: Distribution of regulated market yard (Area ha)

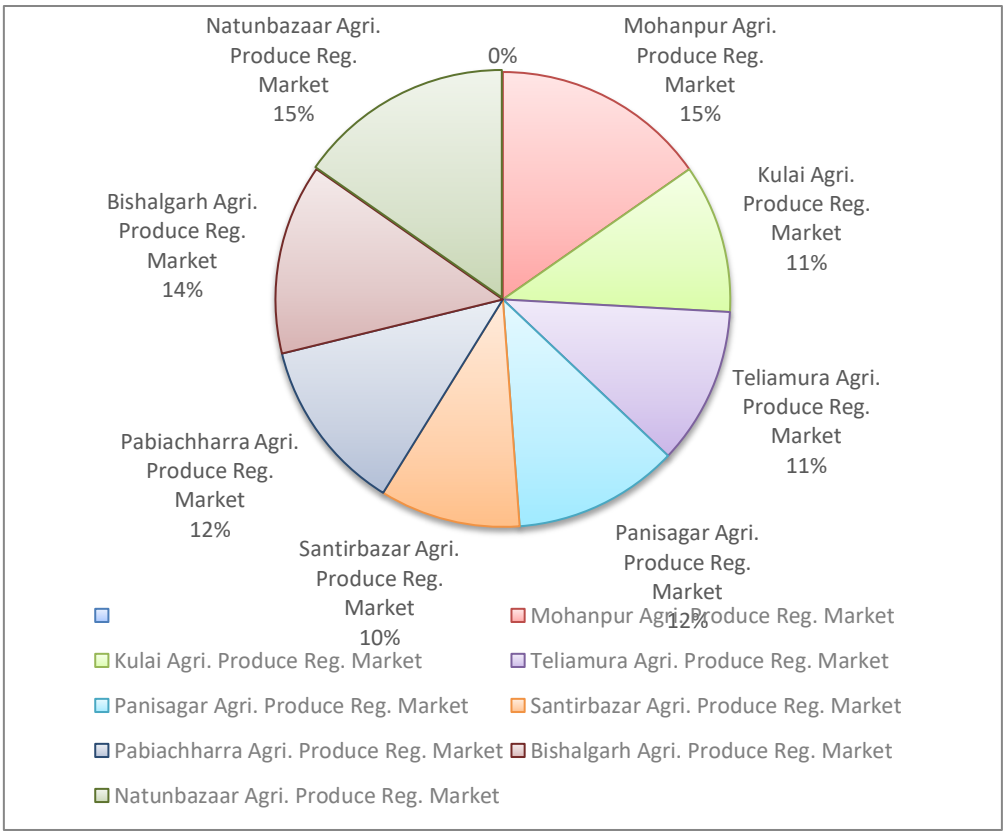


Figure No. 4.3: Area coverage of regulated market (no of village)

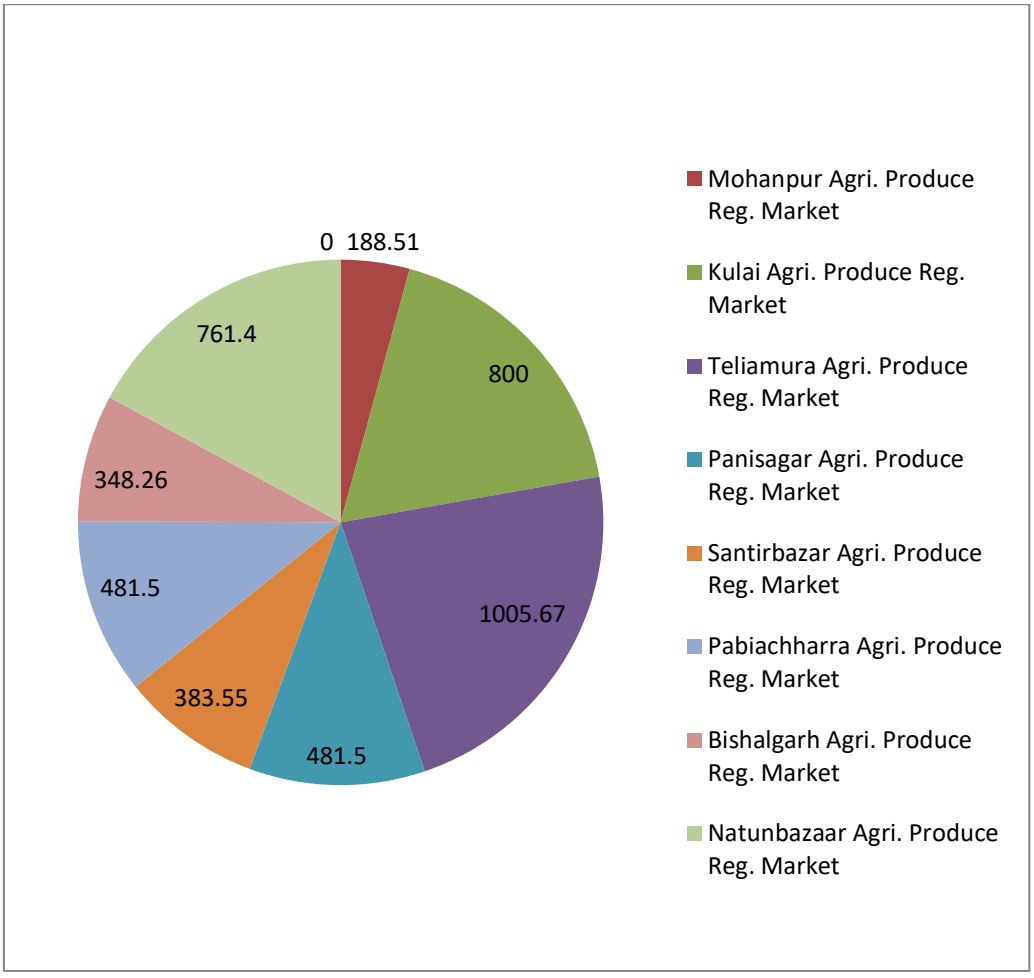


Figure No. 4.4: Area of operation per market (sq. km.) of regulated market

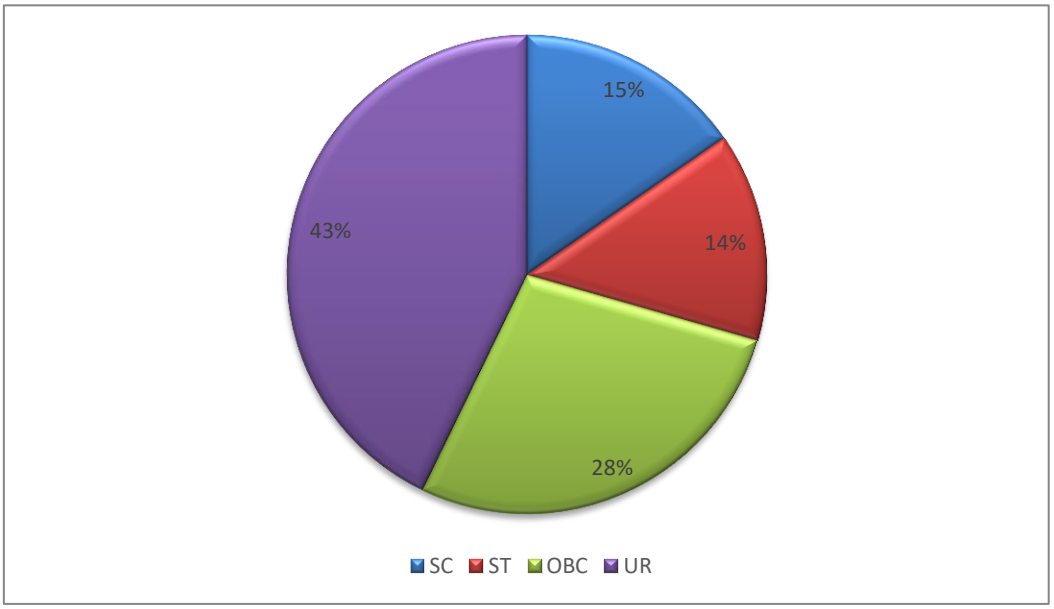


Figure No. 4.5: Distribution of Human Resources Strength of Market committee

4.5. Distribution of Human Resources Strength of APMC Market committee

In all the regulated markets there are market committees from different categories such as SC, ST, OBC and UR among which maximum market committee members belong to Pabiachharra Agri. Produce Regulated Market with SC, ST, OBC and UR Committee of 3, 3, 5 and 7 respectively followed by Teliamura Agri. Produce Regulated Market with SC, ST, OBC and UR market committee of 2, 2, 4 and 7 respectively. Panisagar Agri. Produce Regulated Market has the least strength of market committees with SC, ST, OBC and UR of 1, 1, 2 and 4 respectively. The committee strength of other regulated markets i.e. Mohanpur Agri. Produce Regulated Market, Kulai Agri. Produce Regulated Market, Santirbazar Agri. Produce Regulated Market, Bishalgarh Agri. Produce Regulated Market and Natunbazar Agri. Produce Regulated Market are (1, 1, 3 and 4), (2, 1, 2 and 5), (2, 2, 4 and 4), (2, 2, 4 and 6) and (2, 2, 3 and 4) respectively.

Table No.4.3Distribution of Human Resources Strength of Market committee

Sl. No.	Regulated Markets	Human Resources Strength of Market committee				
		SC	ST	OBC	UR	Total
1	Mohanpur Agri. Produce Reg. Market	1 (11.11)	1 (11.11)	3 (33.33)	4 (44.44)	9 (100)
2	Kulai Agri. Produce Reg. Market	2 (20.00)	1 (10.00)	2 (20.00)	5 (50.00)	10 (100)
3	Teliamura Agri. Produce Reg. Market	2 (13.33)	2 (13.33)	4 (26.67)	7 (46.67)	15 (100)
4	Panisagar Agri. Produce Reg. Market	1 (12.50)	1 (12.50)	2 (25.00)	4 (50.00)	8 (100)
5	Santirbazar Agri. Produce Reg. Market	2 (16.67)	2 (16.67)	4 (33.33)	4 (33.33)	12 (100)
6	Pabiachharra Agri. Produce Reg. Market	3 (16.67)	3 (16.67)	5 (27.78)	7 (38.89)	18 (100)
7	Bishalgarh Agri. Produce Reg. Market	2 (14.29)	2 (14.29)	4 (28.57)	6 (42.86)	14 (100)
8	Natunbazar Agri. Produce Reg. Market	2 (18.18)	2 (18.18)	3 (27.27)	4 (36.36)	11 (100)
9	Overall	1.88 (15.34)	1.75 (14.09)	3.38 (27.74)	5.13 (42.82)	12.13 (100)

Note: Figures in parentheses indicates percentage

Source-Authors compilation from field study

UR i.e. the general category of market committee members are maximum in all the markets with overall average number of 5.13 which means UR holds total 42.82% of market committee compared to other categories like SC, ST and OBC. The least market committee is from SC category with overall average of 1.88 i.e. 15% of total strength.

4.6. **Availabilities of physical facilities**

The Common physical facilities which are present in all the 8 selected regulated markets are market connectivity (farm gate to regulated market); own land, drainage system, cleaning & sweeping facility and electricity facility are presented on table No.4.4. There are also some facilities which are not present in any of the markets such as computer, e-trading (a software based platform for transaction of agricultural commodities which includes order processing, online payment, product details etc.), export facility, forward/future trading, drying yard, farmers rest shed, cold storage, medical facility, availability of private market yards, option e-trading and training program for farmers. Facilities like office, office premises, and platform for sales, direct purchasing facility and miking/announcing facility are present in almost all the regulated markets except in one market i.e. in MohanpurAgri. Produce Regulated Market. Sanitary facility is also one such facility which is there in all the selected regulated markets except in Santirbazar Agri. Produce Regulated Market. The only market which has the facility of godown facility and market boundary is Panisagar Agri. Produce Regulated Market.

Water Supply facility was present in 5 regulated markets, they are – Mohanpur Agri. Produce Regulated Market, Kulai Agri. Produce Regulated Market, Pabiachharra Agri. Produce Regulated Market, Bishalgarh Agri. Produce Regulated Market and Natunbazar Agri. Produce Regulated Market. Auction room facility was present only in Pabiachharra Agri. Produce Regulated Market, Bishalgarh Agri. Produce Regulated Market and Natunbazar Agri. Produce Regulated Market. Store/Godown facility was not there in maximum regulated market except for 2 markets i.e. Mohanpur Agri. Produce Regulated Market and Panisagar Agri. Produce Regulated Market. Price Notification Board facility was found to be present in Panisagar Agri. Produce Regulated Market, Bishalgarh Agri. Produce Regulated Market and Natunbazar Agri. Produce Regulated Market. Market Information facility (local and non digital) was present in Kulai Agri. Produce Regulated Market, Teliamura Agri. Produce Regulated Market, Santirbazar Agri. Produce Regulated Market and Pabiachharra Agri. Produce Regulated Market. The facility of drinking water was present in 5 regulated markets and they were Kulai Agri. Produce Regulated Market, Santirbazar Agri. Produce Regulated Market, Pabiachharra Agri. Produce Regulated Market, Bishalgarh Agri. Produce Regulated Market and Natunbazar Agri. Produce Regulated Market. Only Kulai Agri. Produce Regulated Market and Teliamura Agri. Produce Regulated Market did not have the facility of Garbage Movement and rest of the regulated market has facility to move garbage into particular dumping area.

Table No.4.4: Availabilities of physical facilities in different regulated markets of Tripura

Sl. No.	Physical Facilities in Markets	Mohanpur Agri. Produce Reg. Market	Kulai Agri. Produce Reg. Market	Teliamura Agri. Produce Reg. Market	Panisagar Agri. Produce Reg. Market	Santirbazar Agri. Produce Reg. Market	Pabiachharra Agri. Produce Reg. Market	Bishalgarh Agri. Produce Reg. Market	Natunbazar Agri. Produce Reg. Market
1	Market connectivity(farm gate to regulated market)	✓	✓	✓	✓	✓	✓	✓	✓
2	Office premises	×	✓	✓	✓	✓	✓	✓	✓
3	Water supply	✓	✓	×	×	×	✓	✓	✓
4	Computer	×	×	×	×	×	×	×	×
5	Auction room/place	×	×	×	×	×	✓	✓	✓
6	Platform for sales	×	✓	✓	✓	✓	✓	✓	✓
7	Store/godown	✓	×	×	✓	×	×	×	×
8	Office	×	✓	✓	✓	✓	✓	✓	✓
9	Cattle shed	×	×	×	✓	×	×	×	✓
10	Own land	✓	✓	✓	✓	✓	✓	✓	✓
11	Price Notification board	×	×	×	✓	×	×	✓	✓
12	E-trading	×	×	×	×	×	×	×	×
13	Direct purchasing facility	×	✓	✓	✓	✓	✓	✓	✓
14	Export facility	×	×	×	×	×	×	×	×
15	Forward / future trading	×	×	×	×	×	×	×	×
16	Godown facility	×	×	×	✓	×	×	×	×
17	Market boundary	×	×	×	✓	×	×	×	×
18	Market information facility(local and non	×	✓	✓	×	✓	✓	×	×

	digital)								
19	Miking / announcing facility	×	✓	✓	✓	✓	✓	✓	✓
20	Drying yard	×	×	×	×	×	×	×	×
21	Farmers rest shed	×	×	×	×	×	×	×	×
22	Sanitary facilities	✓	✓	✓	✓	×	✓	✓	✓
23	Drinking water facilities	×	✓	×	×	✓	✓	✓	✓
24	Drainage system	✓	✓	✓	✓	✓	✓	✓	✓
25	Cleaning, Sweeping facility	✓	✓	✓	✓	✓	✓	✓	✓
26	Garbage movement facility	✓	×	×	✓	✓	✓	✓	✓
27	Cold storage	×	×	×	×	×	×	×	×
28	Electricity	✓	✓	✓	✓	✓	✓	✓	✓
29	Medical facility	×	×	×	×	×	×	×	×
30	Availability of private market yards	×	×	×	×	×	×	×	×
31	Option e-trading	×	×	×	×	×	×	×	×
32	Conduct training for former	×	×	×	×	×	×	×	×

Source-Authors compilation from field study

4.7.Availabilities of Marketing Equipment's and Special Arrangements

From the table No. 4.5**,** it was found that marketing equipment's like Moisture metre, Ice crushing machine, Sorting and Grading were not present in any of the mentioned regulated markets. And special arrangement like Administrative Help for Grievance was present in all the regulated markets except in MohanpurAgri. Produce Regulated Market and Payment was present only in one market i.e. in Panisagar Agri. Produce Regulated Market. Weighing equipment was present in Kulai Agri. Produce Regulated Market, Teliamura Agri. Produce Regulated Market and Natunbazar Agri. Produce Regulated Market. Packaging equipment was present only in 2 regulated markets; they are Teliamura Agri. Produce Regulated Market and Natunbazar Agri. Produce Regulated Market. 3 markets namely; Teliamura Agri. Produce Regulated Market, Santirbazar Agri. Produce Regulated Market and Natunbazar Agri. Produce Regulated Market got the arrangement of availability of promotion of Public Private Partnership (PPP) for management and development of markets. Another market arrangement i.e. availability of separate direct purchase centers in village was found to be present in maximum market except in Panisagar Agri. Produce Regulated Market and Santirbazar Agri. Produce Regulated Market.

Table No. 4.5 MarketingEquipment's and Special Arrangements in Market

Sl. No.	Particulars	Mohanpur Agri. Produce Reg. Market	Kulai Agri. Produce Reg. Market	Teliamura Agri. Produce Reg. Market	Panisagar Agri. Produce Reg. Market	Santirbazar Agri. Produce Reg. Market	Pabiachharra Agri. Produce Reg. Market	Bishalgarh Agri. Produce Reg. Market	Natunbazar Agri. Produce Reg. Market
1	Weighing	×	✓	✓	×	×	×	×	✓
2	Moisture metre	×	×	×	×	×	×	×	×
3	Ice crushing machine (for fish / meat)	×	×	×	×	×	×	×	×
4	Sorting	×	×	×	×	×	×	×	×
5	Grading	×	×	×	×	×	×	×	×
6	Payment	×	×	×	✓	×	×	×	×
7	Administrative help (grievance	×	✓	✓	✓	✓	✓	✓	✓
8	Packaging	×	×	✓	×	×	×	×	✓
9	Availability of promotion of public private partnership (PPP) for the management and development of markets	×	×	✓	×	✓	×	×	✓
10	Availability of Separate direct purchase centers in village	✓	✓	✓	×	×	✓	✓	✓

Table No. 4.6 Functions of Regulated Markets

Sl. No.	Particulars	Mohanpur Agri. Produce Reg. Market	Kulai Agri. Produce Reg. Market	Teliamura Agri. Produce Reg. Market	Panisagar Agri. Produce Reg. Market	Santirbazar Agri. Produce Reg. Market	Pabiachharra Agri. Produce Reg. Market	Bishalgarh Agri. Produce Reg. Market	Natunbazar Agri. Produce Reg. Market
1	Provide licenses to different functionaries	✓	✓	✓	✓	✓	✓	✓	✓
2	Maintain the register containing the names of all licenses traders and general commission agents	✓	✓	✓	✓	×	✓	✓	✓
3	Manage the income, incurring from expenditure and investing surplus funds etc	×	✓	✓	✓	×	✓	×	✓
4	Contribute in prescribed rates to the State Agricultural Produce Fund	×	✓	✓	✓	×	✓	×	✓
5	Maintain price records of commodity	×	✓	✓	✓	×	✓	×	✓
6	Display market related information, rate chart, notices, guidance information for all market participants	×	×	×	×	×	×	×	×
7	Issue all directions necessary for the guidance of the persons using the market by publishing them on the notice board	✓	×	×	×	×	✓	✓	×
8	Offer insurance to the market functionaries	×	×	×	×	×	×	×	×

Source-Authors compilation from field study

4.8.Functions of Regulated Markets

From the table 4.6, which shows the presence and non-presence of functions of regulated market it was observed that one of the functions i.e. providing of license to different functionaries was done in all the mentioned regulated markets whereas functions like displaying market related information, rate chart, notices, guidance information for all market participants and offering of insurance to the market functionaries was not done in any of the market. All the market maintains the register containing the names of all licenses traders and general commission agents except in one market i.e. SantirbazarAgri. Produce Regulated Market. Some of the other functions like managing the income, incurring from expenditure and investing surplus funds, to contribute in prescribed rates to the State Agricultural Produce Fund and maintaining the price records of the commodity were done only in KulaiAgri. Produce Regulated Market, Teliamura Agri. Produce Regulated Market, Panisagar Agri. Produce Regulated Market, Pabiachharra Agri. Produce Regulated Market and Natunbazar Agri. Produce Regulated Market. The issuing of directions necessary for the guidance of the persons using the market by publishing them on the notice board was done only in Mohanpur Agri. Produce Regulated Market, Pabiachharra Agri. Produce Regulated Market and Bishalgarh Agri. Produce Regulated Market.

4.9.Availability of Separate construction of special markets

From the table 4.7, it was observed that Vegetables, Fish and Meat were the only commodities for which separate constitution of market was available in all the selected regulated markets and for flowers it was not available in any of the market. Separate constitutions for commodities such as food grains (Rice/Pulse), Fruits, iron equipments and dry fish were also found to be available in 6 regulated markets i.e. MohanpurAgri. Produce Regulated Market, Kulai Agri. Produce Regulated Market, Teliamura Agri. Produce Regulated Market, Panisagar Agri. Produce Regulated Market, Bishalgarh Agri. Produce Regulated Market and Natunbazar Agri. Produce Regulated Market. For Livestock product it was available in 4 regulated markets i.e. Kulai Agri. Produce Regulated Market, Teliamura Agri. Produce Regulated Market, Panisagar Agri. Produce Regulated Market and Natunbazar Agri. Produce Regulated Market and plastic goods was present only in 2 markets i.e. Mohanpur Agri. Produce Regulated Market and Bishalgarh Agri. Produce Regulated Market. 3 markets namely; Kulai Agri. Produce Regulated Market, Teliamura Agri. Produce Regulated Market and Natunbazar Agri. Produce Regulated Market have got the availability of separate constitution of market for commodity such as Cow/Goat/Buffalo and regarding

milk only 2 markets i.e. Panisagar Agri. Produce Regulated Market and Bishalgarh Agri. Produce Regulated Market got special market.

Table No. 4.7. Availability of Separate construction of special markets for commodities

Sl. No.	Particulars	Mohanpur Agri. Produce Reg. Market	Kulai Agri. Produce Reg. Market	Teliamura Agri. Produce Reg. Market	Panisagar Agri. Produce Reg. Market	Santirbazar Agri. Produce Reg. Market	Pabiachharra Agri. Produce Reg. Market	Bishalgarh Agri. Produce Reg. Market	Natunbazar Agri. Produce Reg. Market
1	Food grains (RICE / PULSE)	✓	✓	✓	✓	×	×	✓	✓
2	Fruits	✓	✓	✓	✓	×	×	✓	✓
3	Vegetables	✓	✓	✓	✓	✓	✓	✓	✓
4	Livestock Product	×	✓	✓	✓	×	×	×	✓
5	Plastic goods	✓	×	×	×	×	×	✓	×
6	Iron equipment	✓	✓	✓	✓	×	×	✓	✓
7	Flowers	×	×	×	×	×	×	×	×
8	Fish	✓	✓	✓	✓	✓	✓	✓	✓
9	Meat	✓	✓	✓	✓	✓	✓	✓	✓
10	Dry fish	✓	✓	✓	✓	×	×	✓	✓
11	Cow / Goat / Buffalo	×	✓	✓	×	×	×	×	✓
12	Milk	×	×	×	✓	×	×	✓	×

Source-Authors compilation from field study

4.10. Land Holding Pattern of farmers

The table 4.8 illustrates the total number of agricultural land, irrigated land, and *vastu* land possessed by market functionaries. In case of agricultural land, it can be observed that Bishalgarh regulated market is having the highest land holding (0.89 ha.) by the market functionaries followed by Pabiachharra (0.74 ha.) and Panisagar (0.56 ha.) regulated market. The highest area of fishery land possessed by market functionaries can be observed maximum in Panisagar regulated market (0.13 ha.) followed by Santirbazar (0.10 ha.) and Natunbazar(0.10ha.) regulated market simultaneously. For wasteland possession, it can be

found that Mohanpur regulated market is having the highest area coverage (0.18 ha.). From the data, it is evident that highest area possession of *vastu* land has been found in Panisagar and Bishalgarh (0.12 ha.) followed by Teliamura and Santirbazar (0.08 ha.) regulated market.

Table No.4.8: Land Holding Pattern of selected farmers (Ha.)

Sl No	Particulars	Mohanpur	Kulai	Teliamura	Panisagar	Santirbazar	Pabiachharra	Bishalgarh	Natunbazar
1	Agriculture	0.31	0.36	0.38	0.56	0.44	0.74	0.89	0.66
a	Area under irrigated land	0.13	0.24	0.23	0.31	0.24	0.23	0.25	0.30
b	Area under rainfed land	0.16	0.06	0.03	0.13	0.12	0.39	0.47	0.29
c	Area under unirrigated land	0.02	0.06	0.12	0.12	0.08	0.12	0.17	0.07
2	Fishery	0.01	0.09	0.01	0.13	0.10	0.04	0.03	0.10
3	Wasteland	0.18	0.06	0.04	0.05	0.03	0.02	0.07	0.05
4	*Vastu* land/ Home land	0.02	0.06	0.08	0.12	0.08	0.10	0.12	0.07
5	**Total land (1+2+3+4)**	**0.52**	**0.57**	**0.51**	**0.86**	**0.65**	**0.90**	**1.11**	**0.88**

Source-Authors compilation from field study, 2022

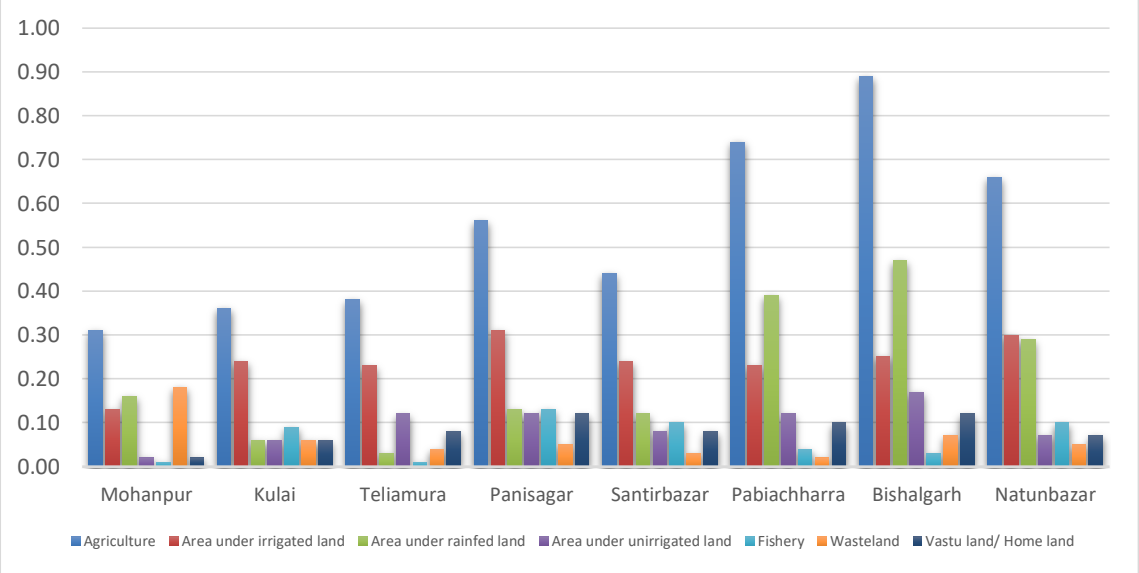


Figure No. 4.6: Land Holding Pattern of selected farmers (Ha)

4.11.Present status of Bishalgarh Agricultural Produce Market

Bishalgarh APMC comes under the west Tripura district and has two market days a week (Tuesday and Saturday). The market was established by the Department of Agriculture and farmers' welfare and trading is going on between traders-commission agents, wholesalers, and farmers. The most common problem of the market is the non-availability of shade market yards, during the rainy season traders and farmers cannot sit in the open area which restricts them to trade. The market has a tin shade closed market yard and these are given to the traders for trading during rainy seasons also. The customer didn't go to buy from there; rather they went to an open place which forced them to trade on

the open market. During covid-19 pandemic numbers of markets were formed scattered in a single village. The number of open market outlets kept away the buyers from the market and reduced the sale in the regulated market and sometimes post-harvest loss went high of perishable commodities. Farmers face difficulty in bringing their produce to regulated markets because of transportation problems and they didn't get any information about the price of the commodity and arrival of the commodity before reaching the market. Non-availability warehouse or cold house facility for the traders and farmers for storing the surplus produce and have good prices during the lean season.

4.12. Present status of Teliamura Agricultural Produce Market:

The Teliamura Regulated market is controlled by the Teliamura APMC and the merchant committee of Teliamura. On market day, farmers and traders sell their produce in the open field as no market shade facilities under the regulated market. The absence of adequate numbers of stalls, and sanitary and drinking water facilities create a difficult situation for the farmers and traders to trade. Numbers of open outlet markets nearby regulated markets and outside the regulated market resist the consumer to enter the market to buy the product. The traders are paid money for the garbage movement to the municipal authority but the garbage movement is not satisfactory to the market traders. Traders want to move the garbage outside the market but authorities are dumping nearby the market boundary and it's produced malodorous nearby the meat and fish market, according to them this bad smell also restricts customers. The market committee provided the traders a separate vegetable market yard but apart from the market yard, other vegetables sellers are seated to run their business, these outsiders letting their income low. The commission agent also got affected by these numbers of outlet markets as in the market less quantity of produce came to him to weigh and to sell. No stalls or shade market yards are made for the fruit sellers. The road system inside the regulated market has become narrow because of the unpleasant seating by the traders, these giving problems to inside traders to bring their commodities to shop by vehicle.

4.13. Present status of Natunbazar Agricultural Produce Market:

Natunbazar APMC comes under the district Gomati Tripura and holds one market day a week i.e. on Sunday. The market does not have a warehouse facility to store the produce during the peak season to have good prices during the lean season. The markets not having any separate bidding hall for vegetables and other commodities. In the cattle market, the yard shed house is there but not good enough and adequate to mitigate the problems of the shed. Having a shortage of land in the market area for the traders and farmers to trade. To build a stall in the fruits like banana wholesale market, farmers and traders have to trade their products under direct sunlight and sometimes it's difficult to trade during the rainy season. Farmers face transportation problems due to poor road connectivity and also high transportation costs. During the production of crops, farmers face water crises and sometimes do not carry irrigation at the required time. The farmers are also facing problems of irregular functioning of submersible water supply systems for irrigating the field; some units are non-

functional for many days due to machinery problems. No sanitary system within the market area and also not having proper drainage channels to drain out the water during the rainy season.

4.14. Present status of Santirbazar Agricultural Produce Market:

The Teliamura Regulated market is controlled by the Santirbazar APMC and the merchant committee of Santirbazar. Farmers and traders sell their goods on market days in open fields because there aren't any adequate shade structures for the market's regulated market. The lack of sufficient numbers of stalls, sanitary amenities, and drinking water facilities makes it difficult for farmers and traders to conduct business. After a covid pandemic number of small markets are established near the market and at respective para's which leads the traders to low selling of the product to consumers. There is a requirement for setting up stalls in the market for smooth buying and selling of the produce. Need to focus on the trading system of the produce of the farmers and traders by the APMC committee.

4.15. Present status of Panisagar Agricultural Produce Market:

Panisagar APMC comes under the North Tripura district and was established in 1986. This is the only selected regulated market that has a boundary wall. The garbage movement facility is not good in the market by the Municipal Corporation, people in the market paid money for the movement of the garbage timely but the movement of garbage is not done daily. Because of this, farmers and dealers do not have access to the amenities, including the computer facility, marketing information, cold storage facilities, drinking water, and price notification board at the market. Farmers had trouble getting their products to markets since they had to bring the reserved automobile, which cost them a lot of investment to do. During the rainy season, trading in the market is very difficult because of the *katcha* road. In the market areas, the drainage facility is there but not in a good condition, and needs a renewal of drainage system. The land is short for traders; outside traders do not get land during market days to trade at the market. After the covid-19 pandemic trading in the market is reduced by a large proportion compared to the pre-covid period.

4.16. Present status of Pabiachharra Agricultural Produce Market:

Pabiachharra APMC regulated market is one of the regulated markets in the Unakoti district. The market does not have any dumping stations to throw the waste outside. The market also does not have a separate bidding hall, and needs a stall and shade house market for smooth trading during the rainy season. Selling of the product is reduced after covid pandemic as less number of consumers comes to the regulated market. Unavailability of shade houses in the wholesale market, trading occurs under the open sunlight, during the rainy season it's very difficult to continue trading during the rainy season.

4.17. Present status of Kulai Agricultural Produce Market:

Kulai APMC regulated market comes under the Dhalai district. The market has a land shortage and needs to stall for better trading of the market. The market does not have a good sanitary system, separate vegetable market yard, drinking water facility, and storage facility under the regulated market. On market day traders sit on either side of the main road, these sitting sometimes block the road which makes the communication problem.

4.18. Present status of Mohanpur Agricultural Produce Market:

The farmers of Mohanpur cultivate Brinjal, Potatoes, Bottle gourd, etc. All the farmers are having small land holding i.e. marginal and produce less quantity of produce. They sell their products to their nearest market orient chowmani and Mohanpur regulated markets. The farmers used vehicles as the transport medium to transport commodities to other markets and also used their bicycles to carry a small number of products to market to reduce the transportation cost. Apart from the Mohanpur regulated market, producers also come to kamalghat market to sell their produce at remunerable prices. And nowadays kamalghat is the most attractive market for them to sell products because of the price differentiation. At nearby primary markets like Kamalghat, farmers get more prices than the Mohanpur market.

Figure No. 4.7: Interaction with market functionaries during data collection at BishalgarhAgri-Produce Regulated Market

Figure No. 4.8: Interaction with market functionaries during data collection at TeliamuraAgri-Produce Regulated Market

Figure No. 4.9: Interaction with market functionaries during data collection at NatunbazarAgri-Produce Regulated Market

Figure No. 4.10: Interaction with market functionaries during data collection at SantirbazarAgri-Produce Regulated Market

Figure No. 4.11: Interaction with market functionaries during data collection at PanisagarAgri-Produce Regulated Market

Figure No. 4.12: Interaction with market functionaries during data collection at PabiachharraAgri-Produce Regulated Market

Figure No. 4.13: Interaction with market functionaries during data collection at KulaiAgri-Produce Regulated Market

Figure No. 4.14: Interaction with market functionaries during data collection at MohanpurAgri-Produce Regulated Market

4.19. Impact of the variable on the income at regulated market

Table No.4.9: Impact of the variable on the income at regulated market

Sl. No	Particulars	Coefficients	Standardized Coefficients (Beta)	t value	Remarks
1.	Constant	20048.19		1.018	
2.	Education	-2022.43	-.021	-.658	H_{11} rejected
3.	Age	114.107	.014	.435	H_{12} rejected
4.	Total land holding	48626.09	.487	7.738***	H_{13} accepted
5.	Agricultural produce marketed	27.864	.228	4.120***	H_{14} accepted
6.	Marketing fee at regulated market	5.571	.002	.065	H_{15} rejected
7.	Distance from the market	533.345	.021	.622	H_{16} rejected
8.	Transportation charge for marketing	-640.209	-.120	-3.374***	H_{17} accepted
9.	Weighing charge at regulated market	-1427.69	-.010	-.307	H_{18} rejected
10.	Selling price of agricultural products	11.976	.295	4.742***	H_{19} accepted
11.	Owned transportation	12409.27	.061	1.625	H_{110} rejected
12.	Storage facility	1099.436	.007	.179	H_{111} rejected
13.	Adjusted R Square	0.859***			

Source-Authors compilation from field study, 2022

R-Square (0.859) is the proportion of variance in the income of market functionaries that can be anticipated from the several independent variables, according to the Cobb-Douglas production function efficiency. This table 4.9 suggests that independent factors such as education status, age of the respondents, total land holding, agricultural produce marketed, marketing fee at regulated market, distance of market, transportation charge for marketing, weighing charge at regulated market, selling price of agricultural products, owned transportation facility and storage facility in the market may predict 85.9 percent of the variation in income scores. Total land holding, agricultural produce marketed to the regulated market and the selling prices of agricultural products in the market are found to be positively significant whereas transportation charge for marketing activity was negatively significant to the market functionaries income. The results can explains that the variables like land holding of functionaries, quantity of produce marketed, selling prices of products and transportation charge for marketing activity are found to be significantly affected on the income of market functionaries for marketing of agricultural produce in regulated markets of Tripura. The result is also confirmed by Nnamdi et al. (2013).

4.20. Problems of Regulated Market in Tripura

1. Lack of warehouse and storage facility in the market: To store goods in a market for a few or more days, it needs a warehouse. To sell the produce in the market, producers carry bulk quantities of produce from a distance to make more profit. If on that day the producer cannot sell his produce via auction, then he may face a great problem of keeping the product in the market overnight because to return home with the bulk quantity of produce he may pay a big amount of

transportation cost. Similarly, it may happen with the traders too. So lack of warehouses in the market arise losses for both traders and sellers.

2. Improver transport and communication facilities: For efficient transporting and marketing of goods from one place to another place, one of the most important factors is having excellent road and transport facilities within the area. If the roads are not good enough to transport the produce from the village to the market they may take more time to cover a short distance and may charge most transport charges. Sometimes vehicles may not reach village areas due to the improper or very bad condition of *kaccha* road as most of the roads in the village are of the *kaccha* or unpaved type.

3. Inefficient marketing work: To increase the work efficiency in the market, the marketing committee should install a modern mechanization system to load and unload the bulk produce within a short period with maximum efficiency. Loading the bulk quantity of produce in the truck is very labour-intensive and cost-ineffective. Having proper mechanized techniques may reduce the time and cost of loading and unload for both buyer and seller. Mallik, 2019, Performance of Agricultural Regulated Markets in Tripura-A Quest for Rapid Development, confirms the findings of the study.

4. Use of traditional weighing balances for weighing the produce: Most of the regulated markets use old-age weighing balances that are substandard or improperly balanced. The use of this weighing balance in measuring produce may give an underweight result underweight, which is unfair for traders. The use of modern electrical weighing balance gives correct results which reduce the unfairness between both buyers and traders.

5. Non-availability of grading and standardization facilities in the market: Mostly all the market functionaries in the selected markets are not availing of grading and standardization facilities as the facilities are not available. Every trader or consumer checks the quality of the product before buying from the seller, as everyone wants to pay the price according to the standard of that product. The standard-grade product has a higher maximum value or price than non-standard produce. Having a grading facility in the market would give producers better bargaining power with the traders. This may encourage the producer, while cultivating the crops, to maintain the grading standard to have maximum profit from a single crop.

6. Large number of distributors is present between producers and consumers, who act as a catalyst for the increasing price of the produce and eat away at the pockets of farmers and consumers: The presence of middlemen or distributors between producers and consumers acts as a catalyst for the increasing price of the product by increasing the length of the market channel. Every middleman handling the product makes a profit by changing ownership. Thus increasing the price of the product when it reaches the market. This makes the producer and consumer unsatisfied when they see the profit margin of the product. Venkatesan & Sahad, 2020 at the regulated market in Tamil Nadu: overview validated the study.

7. Not having proper information sources about the market condition and the current price of the product: Most of the time the current price of the product in the market is unknown by the sellers, which may de-motivate them to carry the bulk quantity of produce in the market. Traders and sellers are sometimes unaware of the marketing condition, as the condition of the market also influences the marketing between buyers and sellers. Now, if the market condition is bad i.e. not having a shed, proper management system, etc. then the number of traders and sellers will not come to sell or buy the bulk quantity of produce.

8. Lack of processing unit nearby market: A processing unit is a unit/Industry where raw agricultural products are processed to increase the value of the produce. For example raw turmeric into powder turmeric. Having processing units nearby the market creates demand for the product. This increases the selling of the produce of the producers at a fair price. Hazari and Dey, 2021 at Regulated Market in Tripura: For Sustainable Local Governance validated the findings of the study.

9. Literacy level of almost all of the farmers is very low: Most of the farmers are not very educated. They don't know much about marketing channels and regulated markets and their working principles. Using this low literacy, distributors gain much profit from their produce (Venkatesan & Sahad, 2020).

10. Less number of licensed traders is seen in the regulated market who bet on the auction. The traders are the main buyer of the product in the regulated market as no other person is allowed to buy the product. Lesser traders act like a monopolistic nature of competition in the auction, so they might not see the high price level of the auction of the produce.

Conclusion:

This present chapter dealt with the grassroots study of APMC market in Tripura. It has also been studied minutely the operations of several market functionaries who are involved in regulated markets such as farmers, traders, PRI bodies, government officials etc. attempts have also been initiated to study several marketing amenities like physical facilities, equipment, special arrangements etc. Existing status of market infrastructure of selected regulated markets in Tripura have been studied and found that most of the market infrastructure is not satisfactory. Along with this, farmers' problems pertaining to marketing of the produce have been identified and it is observed that regulated markets (APMCs) have an undeniable impact on the income of farmer’s incomes.

Study on APMC Regulated Markets in Tripura

Chapter – 5

MARKETING EFFICIENCY, MARGIN AND PRICE SPREAD OF REGULATED MARKET IN TRIPURA

Marketing Efficiency, Margin and Price Spread of Regulated Market in Tripura:

This chapter examines the sale and purchase of specific crops at Tripura's several regulated markets. This comparison is made across several marketing channels, efficiency, margins, and price spreads.

Market efficiency is a platform where all the available and relevant information on the market is incorporated and made available form to all to reflect market prices and provide opportunities for traders to trade easily without paying any transaction charges. Market efficiency helps provide all the information about the past and current data of the market. An efficient market records all the data, this allows the traders to analyze the market condition and invest according to that. It also helps reduce arbitrage by providing all types of information to sellers that are available to traders. Marketing margin is the difference between the purchase price of the commodity by the traders and the selling price of that commodity to retailers or ultimate consumers. From this definition, we can easily say that marketing margins also show the profit gained by the traders after selling the produce to ultimate consumers or retailers. Marketing margins have no constant value, it differs from market to market or commodity to commodity or time to time and it has an inverse relation with farm price (Acharya, 1996).

5.1. Factors affecting the market efficiency:

· **Number of Participants in the Market**: More active participants in the market represent more market efficiency. The number of participants varies from market to market and country to country. That's why efficiency also varies from market to market. A lower number of participant’s shows inefficiency and a higher number of participants show good market efficiency.

· **Availability of information:** The availability of information to investors about the past and current data of the market makes the market efficient. To make the market efficient, the market should disclose all the information to the public and traders.

· **Hindrances on trading:** Restrictions on trading make the market inefficient. Most traders buy assets when the cost of the assets goes down and sell the assets when the price gets high to make a higher profit. This buying of assets at low prices and selling them at high prices is called arbitrage. In this situation, buyers make a profit without any risk. This makes the price of the commodity high and makes it inefficient in the market.

· **High Transaction cost and other costs**: More charge for the trading of goods and transaction of money makes the market inefficient. Non-availability of price charging information systems to traders and buyers also reduces the efficiency of the market.

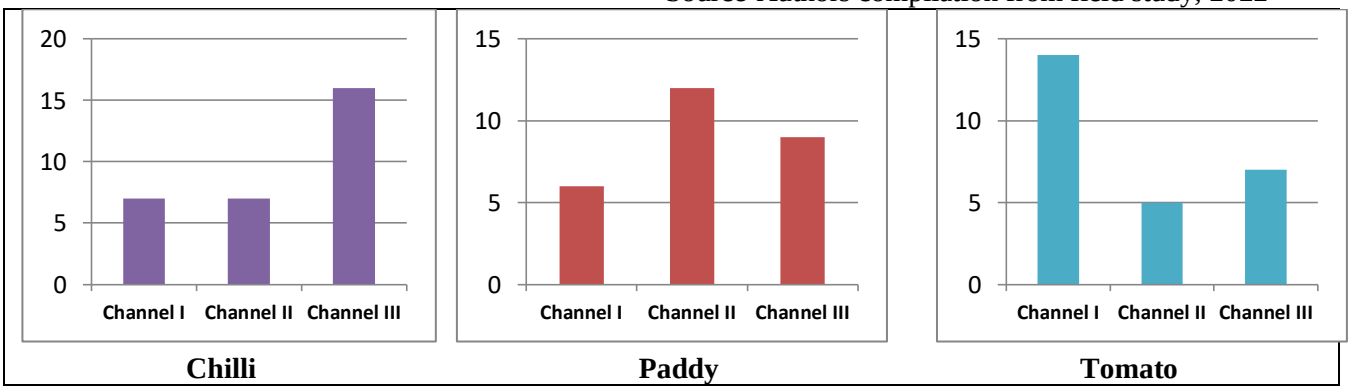
5.2. Distribution of marketing channel

The table 5.1 illustrates the marketing channels of chilli, paddy, tomato, potato and brinjal which involve three different marketing channels consisting of producer, wholesaler, retailer trader and consumers. Chilli demonstrates highest number of channel members (16) with channel III which means more number of intermediaries is involved in this crop; consequently producers of chilly in channel III are getting less profit instead of one level marketing channel. Paddy which is a leading crop in Tripura have been found maximum in two tier channel (12) which indicates that only wholesaler and retailers and involved between producers and consumers of paddy. It can be said that for paddy, farmers' profit has not yet been completely leveraged. Tomato has been showing highest (14) in channel I which indicates that very less number of intermediaries involved in that crop and producers get highest profit in that product. Potato is having a high yielding crop and has been found of having two intermediaries in the marketing channel. In case of brinjal it can be observed that the highest number (13) of intermediaries participated in marketing of this crop; it can be ascertained that the more number of presence of intermediaries, the less percentage of profit for brinjal producer. Thus it can be understood that that if producers involve more number of intermediaries their profit would be shared.

Table No. 5.1: Distribution of marketing channel of selected crops under different regulated markets

Sl. No.	Crop	Channel I	Channel II	Channel III
1	Chilli	7	7	16
2	Paddy	6	12	9
3	Tomato	14	5	7
4	Potato	9	20	4
5	Brinjal	9	6	13

Source-Authors compilation from field study, 2022



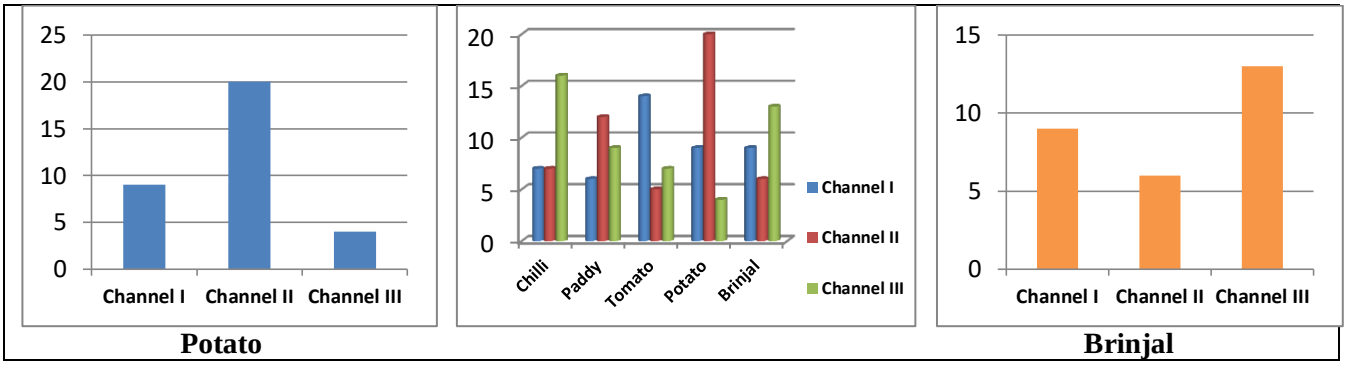


Figure No. 5.1: Distribution of marketing channel of selected crops under different regulated markets

5.3. Marketing of Chilli

Table No. 5.2: Marketing of Chilli in Tripura (Rs./qt)

Sl No	Particulars/Crops	Chilli		
		Ch- I	Ch- II	Ch- III
1	**Marketing cost incurred by Farmer**			
a	Cost of gunny bags/ plastic bag	5.19	4.90	5.22
b	Cost of packing	4.61	4.29	4.29
c	Cost of loading& Unloading	9.37	8.68	9.65
d	Transportation near market	22.04	22.76	22.31
e	Naka /market charge	4.64	4.48	4.64
f	Weighing charge	2.40	2.32	2.36
g	Total Marketing Cost	48.25	47.43	48.47
2	Selling price of Farmer	8644.00	7755.00	10250.00
3	Net Price received by Farmer	8595.75	7707.57	10201.53
4	**Marketing cost incurred by wholesaler**			
a	Storing	-	11.45	-
b	Transportation	-	17.18	-
c	Labour charges	-	12.41	-
d	Gunny bags	-	-	-
e	Market Fee	-	3.03	-
f	Weighing charges	-	2.40	-
g	Total Marketing Cost	-	46.47	-
5	Selling price of wholesaler	-	7985.00	-
6	Marketing margin of wholesaler	-	183.53	-
7	**Marketing cost incurred by retailer**			
a	Storing	-	2.89	2.80
b	Transportation	-	14.53	10.67
c	Labour charges	-	4.95	4.92
d	Market Fee	-	-	-
e	Gunny bags	-	-	-
f	Weighing charges	-	2.31	2.30
g	Total Marketing Cost	-	24.68	20.69
8	Selling price of retailer	-	8195.00	10519.44
9	Marketing margin of retailer	-	185.32	248.75
10	Price spread	100.00	94.63	97.44

Note: Absolute Marketing margin of i^{th} stakeholders (Ami)= PRi – (PPi + Cmi), Where,PRi = Sale price, Ppi = Purchase price), Cmi = Cost incurred on marketing per unit.

Source-Authors compilation from field study

The above table shows about the marketing information of chilli for farmer, wholesaler and retailer under three different marketing channels i.e. (I) Farmer/Producer – Consumer (II)

Farmer/Producer – Wholesaler – Retailer – Consumer and (III) Farmer/Producer – Retailer/Trader – Consumer. Under Channel I, II and III, the total marketing cost incurred by farmer was Rs. 48.35, Rs.47.47 and 48.47 respectively. It was almost the same marketing expenses that the farmer had to incur in all the three different channels. Among the marketing costs like cost of gunny bags, packing cost, cost of loading and unloading, transportation cost, market charge, weighing charge etc. the cost of transportation was higher compared to other costs. The farmer's selling price for chilli under channel I, II and III was Rs. 8664, Rs. 7755 and Rs. 10250 respectively. The net price received by farmer was different in all the channels i.e. under channel I it was Rs. 8595.75, under channel II it was Rs. 7707.57 and under channel III it was Rs. 10201.53.

Wholesaler was involved only in channel II i.e. Farmer/Producer – Wholesaler – Retailer – Consumer and total marketing cost incurred was Rs. 46.47 in which transportation cost was higher as compared to other related cost followed by labour cost and storing cost. The selling price incurred for chilli was Rs. 7985 and the marketing margin was Rs. 183.53.

Retailer bears the lowest marketing cost than the farmer and wholesaler which were involved in channel II and III. The total marketing cost incurred under channel II and III was Rs. 24.68 and Rs. 20.69 respectively. The retailer's selling price was Rs. 8195 in channel I and Rs. 10519.44 in channel III. The retailer's marketing margin for chilli was higher in channel III i.e. Rs. 248.75 followed by marketing margin in channel II i.e. Rs. 185.32.

Table No. 5.3: Marketing efficiency of Chilli in Tripura

Sl. No.	Particulars	Ch- I	Ch- II	Ch- III
1	Consumers purchase price	8644.00	8195.00	10519.44
2	Total Marketing cost	48.25	118.58	69.16
3	Total net margins of intermediaries	8595.75	8076.42	10450.28
4	Net price received by farmer	8595.75	7755.00	10250.00
5	Marketing Efficiency (MME, Acharya approach)	1.00	0.95	0.97

Source-Authors compilation from field study

In the above table 5.3, it was observed that the total marketing cost incurred in Channel I was Rs.48.25, Rs. 118.58 in Channel II and Rs, 69.16 in Channel III. The marketing was higher in Channel II as it involves two intermediaries to reach the produce in consumer's hand, they are wholesaler and retailer. In channel III, the intermediary involved was retailer only and Channel I has no intermediaries as the produce was directly sold by farmer to consumer.

Here the Marketing Efficiency was calculated by using Acharya Approach in which it was observed that among the three channels, higher marketing efficiency was seen in channel I as the value was 1 followed by other two channels which were close to 1 i.e. 0.95 and 0.97 under channel II and III respectively.

5.4. Marketing of paddy

Table No. 5.4: Marketing of Paddy in Tripura (Rs./qt)

Sl. No	Particulars	Channel I	Channel II	Channel III
1	Marketing cost incurred by Farmer			
a	Cost of gunny bags/ plastic bag	18.33	20.81	18.75
b	Cost of packing	-	-	-
c	Cost of loading& Unloading	7.16	7.19	7.74
d	Transportation near market	37.33	34.54	30.75
e	Naka /market charge	6.66	7.00	11.25
f	Weighing charge	3.16	3.05	3.06
g	Total Marketing Cost	72.64	72.59	71.55
2	Selling price of Farmer	3276.66	2951.00	3013.75
3	Net Price received by Farmer	3204.02	2878.41	2942.20
4	Marketing cost incurred by wholesaler			
a	Storing	-	5.33	-
b	Transportation	-	21.01	-
c	Labour charges	-	10.33	-
e	Gunny bags	-	18.63	-
f	Market Fee	-	33.11	-
g	Weighing charges	-	3.64	-
h	Total Marketing Cost	-	92.05	-
5	Selling price of wholesaler	-	3158.18	-
6	Marketing margin of wholesaler	-	115.13	-
7	Marketing cost incurred by retailer			
a	Storing	-	3.68	3.53
b	Transportation	-	11.68	11.26
c	Labour charges	-	6.64	7.18
d	Gunny bags	-	9.09	10.00
e	Weighing charges	-	2.35	2.73
f	Total Marketing Cost	-	33.44	34.70
8	Selling price of retailer	-	3394.54	3297.50
9	Marketing margin of retailer	-	202.92	249.05
10	Price spread	100.00	86.93	91.39

Source-Authors compilation from field study

The above table depicts rice marketing data for farmers, wholesalers, and retailers throughout three marketing channels: (I) Farmer/Producer – Consumer, (II) Farmer/Producer – Wholesaler – Retailer – Consumer, and (III) Farmer/Producer – Retailer/Trader –

Consumer. The total marketing cost incurred by the farmer in Channels I, II, and III was Rs. 72.64, Rs. 72.59, and Rs. 71.55, respectively. It was discovered that the farmer's marketing costs in each of the three channels were nearly identical. The cost of transportation was higher than other marketing charges, such as the cost of gunny bags, packing, loading and unloading, transportation, market fee, weighing charge, and so on. Under channel I, II, and III, the farmer's selling price for rice was Rs. 3276.66, Rs. 2951 and Rs. 3013.75 respectively. The net price received by farmer was different in all the channels i.e. under channel I it was Rs. 3204.02, under channel II it was Rs. 2878.41 and under channel III it was Rs. 2942.20.

The wholesaler was solely involved in channel II, i.e. Farmer/Producer – Wholesaler – Retailer – Consumer, and the overall marketing cost was Rs. 92.05, with the market charge (Rs.33.11) being greater than other related costs, transportation cost (Rs.21.01), and gunny bag cost (Rs.21.01) (Rs.18.63). The wholesaler's Rice selling price was Rs. 3158.18, and the marketing margin obtained was Rs. 115.13.

Retailers have the lowest marketing costs compared to farmers and wholesalers in channels II and III. Retailer's total marketing costs for channels II and III were Rs. 33.44 and Rs. 34.70, respectively. In channel II, the retailer's selling price for rice was Rs. 3394.54, while in channel III, it was Rs. 3297.50. The marketing margin received by the retailer for rice was higher in channel III, at Rs. 249.05, than in channel II, at Rs. 202.92.

Table No. 5.5: Marketing efficiency of paddy in Tripura

Sl. No.	Particulars	Ch- I	Ch- II	Ch- III
1	Consumers purchase price	3276.66	3394.54	3297.50
2	Total Marketing cost	72.64	198.08	106.25
3	Total net margins of intermediaries	3204.02	3196.46	3191.25
4	Net price received by farmer	3204.02	2951.00	3013.75
5	Marketing Efficiency (MME, Acharya approach)	0.98	0.87	0.91

Source-Authors compilation from field study

According to the table 5.5, the total marketing cost for Channel I was Rs. 72.64, Rs. 198.08 for Channel II, and Rs. 106.25 for Channel III. The marketing cost was higher in Channel II because it involves two middlemen, a wholesaler and a retailer, to get the produce into the hands of the consumer. In channel III, the only intermediate was a retailer, but in channel I, there were no intermediaries because the produce was sold directly from the farmer to the consumer. The Marketing Efficiency was determined using the Acharya Approach, and it was discovered that channel I had the highest marketing efficiency, with a value of 0.98, followed

by the other two channels, which were similarly near to 1 i.e. 0.87 and 0.91 under channel II and III respectively.

5.5. Marketing of Tomato

Table No. 5.6: Marketing of tomato in Tripura (Rs./qt)

Sl. No	Particulars	Channel I	Channel II	Channel III
1	Marketing cost incurred by Farmer			
a	Cost of gunny bags/ plastic bag	11.76	12.44	21.50
b	Cost of packing	22.93	2.93	6.19
c	Cost of loading& Unloading	3.94	3.82	4.15
d	Transportation near market	30.00	24.32	23.98
e	Naka /market charge	10.83	11.25	11.62
f	Weighing charge	2.20	2.16	2.77
g	Total Marketing Cost	81.66	56.92	70.21
2	Selling price of Farmer	4473.00	3448.00	3807.00
3	Net Price received by Farmer	4391.34	3391.08	3736.79
4	Marketing cost incurred by wholesaler			
a	Storing	-	10.91	-
b	Transportation	-	39.00	-
c	Labour charges	-	2.30	-
d	Market Fee	-	6.56	-
e	Weighing charges	-	2.00	-
f	Total Marketing Cost	-	60.77	-
5	Selling price of wholesaler	-	4201.66	-
6	Marketing margin of wholesaler		692.89	-
7	Marketing cost incurred by retailer			
a	Storing	-	5.10	4.96
b	Transportation	-	19.03	43
c	Labour charges	-	6.46	6.4
d	Market Fee	-	9.00	9.25
e	Weighing charges	-	2.35	2.15
f	Total Marketing Cost	-	41.94	65.76
8	Selling price of retailer	-	4995.00	4640.00
9	Marketing margin of retailer	-	751.40	767.24
10	Price spread	100.00	69.03	82.05

Source-Authors compilation from field study

The marketing information for Tomato for farmer, wholesaler, and retailer in three different marketing channels (I) Farmer/Producer – Consumer (II) Farmer/Producer – Wholesaler – Retailer – Consumer and (III) Farmer/Producer – Retailer/Trader – Consumer) is shown in the table above. The overall marketing costs incurred by the farmer in Channels I, II, and III

were Rs. 81.66, Rs. 56.92, and Rs. 70.21, respectively. The marketing expenses that the farmer had to incur in all three distinct channels for tomato were not the same, and they varied at a medium gap. The cost of transportation was higher than other marketing charges, such as the cost of gunny bags, packing, loading and unloading, transportation, market fee, weighing charge, and so on. Under channel I, II, and III, the farmer's selling price for tomato was Rs. 4473, Rs. 3448, and Rs. 3807, respectively. The net price received by the farmer via channel I was Rs. 4391.34, Rs. 3391.08 under channel II and Rs. 3736.79 under channel III.

The wholesaler was only active in channel II, i.e. Farmer/Producer – Wholesaler – Retailer – Consumer, and the overall marketing cost was Rs. 60.77, with transportation cost (Rs.39) being greater than other connected costs, followed by storing cost (Rs.10.91), and market fee (Rs.10.91) (Rs.6.56). The tomato's selling price was Rs. 4201.66, and the marketing margin obtained was Rs. 692.81.

The farmer and wholesaler, who are active in channels II and III, bear the highest marketing costs compared to retailers. Retailers spent a total of Rs. 41.94 and Rs. 65.76 on marketing through channels II and III, respectively. In channel II, the retailer's tomato selling price was Rs. 4995, whereas in channel III, it was Rs. 4640. The marketing margin for rice received by the retailer in channel III was larger, at Rs. 767.24, than in channel II, at Rs. 751.40.

Table No. 5.7: Marketing efficiency of tomato in Tripura

Sl. No.	Particulars	Ch- I	Ch- II	Ch- III
1	Consumers purchase price	4473.00	4995.00	4640.00
2	Total Marketing cost	81.66	159.63	135.97
3	Total net margins of intermediaries	4391.34	4835.37	4504.03
4	Net price received by farmer	4391.34	3448.00	3807.00
5	Marketing Efficiency (MME, Acharya approach)	0.98	0.69	0.82

Source-Authors compilation from field study

The overall marketing cost for Channel I was Rs.81.66, Rs. 159.63 for Channel II, and Rs. 135.97 for Channel III, according to the table above. The most expensive marketing channel is Channel II, because it involves two middlemen, a wholesaler and a retailer, to get the product into the hands of the consumer. Because there were no intermediaries in channel III and no intermediates in channel I, the produce was sold directly from the farmer to the consumer. The Marketing Efficiency was determined using the Acharya Approach, and it was discovered that, among the three channels, Channel I had the highest marketing efficiency,

with a value of 0.98, followed by Channel III, with a value of 0.82. Because the value was not near to 1, i.e. 0.69, the marketing efficiency in channel II was deemed low.

5.6. Marketing of Potato

Table No.5.8: Marketing of Potatoin Tripura (Rs./qt)

Sl. No	Particulars	Channel I	Channel II	Channel III
1	Marketing cost incurred by Farmer			
a	Cost of gunny bags/ plastic bag	12.38	14.16	15.00
b	Cost of packing	6.97	7.33	7.50
c	Cost of loading& Unloading	3.31	3.33	4.00
d	Transportation near market	23.36	23.41	30.00
e	Naka /market charge	10.50	9.31	5.00
f	Weighing charge	2.40	2.41	2.04
g	Total Marketing Cost	58.92	59.95	63.54
2	Selling price of Farmer	2365.00	2250.00	1800.00
3	Net Price received by Farmer	2306.08	2190.05	1736.46
4	Marketing cost incurred by wholesaler			
a	Storing	-	6.48	-
b	Transportation	-	22.36	-
c	Labour charges	-	11.28	-
d	Gunny bags	-	43.19	-
e	Market Fee	-	7.28	-
f	Weighing charges	-	2.31	-
g	Total Marketing Cost	-	92.90	-
5	Selling price of wholesaler	-	2557.30	-
6	Marketing margin of wholesaler	-	214.40	-
7	Marketing cost incurred by retailer			
a	Storing	-	7.53	8.5
b	Transportation	-	20.20	23
c	Labour charges	-	4.39	4.15
d	Market Fee	-	8.73	7
e	Gunny bags	-	14.77	14.2
f	Weighing charges	-	2.28	2.02
g	Total Marketing Cost	-	57.90	58.87
8	Selling price of retailer(INR/qt	-	2863.00	2500.00

9	Marketing margin of retailer(INR/qt	-	247.80	641.13
10	Price spread	100.00	78.59	72.00

Source-Authors compilation from field study

The table 5.8 depicts Potato marketing data for farmers, wholesalers, and retailers throughout three marketing channels: (I) farmer/producer – consumer, (II) farmer/producer – wholesaler – retailer – consumer, and (III) farmer/producer – retailer/trader – consumer. Farmers spent Rs. 58.92, Rs. 59.95, and Rs. 63.54 on marketing under Channels I, II, and III, respectively. In all three channels, the marketing costs were quite similar. The cost of transportation was higher than the other marketing charges, such as the cost of gunny bags, packaging, loading and unloading, transportation, market charge, and weighing charge. Under channel I, II, and III, the farmer's selling price for potato was Rs. 2365, Rs. 2250, and Rs. 1800, respectively. The net price received by the farmer differed throughout the channels, with channel I receiving Rs. 2306.08, channel II receiving Rs. 2190.05, and channel III receiving Rs. 1736.46.

Wholesaler was involved only in channel II i.e. Farmer/Producer – Wholesaler – Retailer – Consumer and total marketing cost incurred was Rs. 92.05 in which gunny bags cost (Rs.43.19) was higher as compared to other related cost followed by transportation cost (Rs.22.36) and labour charges (Rs.11.28). The selling price incurred for Potato was Rs. 2557.30 and the marketing margin received was Rs. 214.40.

The retailer has the lowest marketing costs compared to the farmer and wholesaler in channels II and III. The retailer's overall marketing costs for channels II and III were Rs. 57.90 and Rs. 58.87, respectively. Potato was sold at a retail price of Rs. 2863 in channel II and Rs. 2500 in channel III. The retailer's marketing margin for rice was higher in channel III, at Rs. 641.13, than in channel II, at Rs. 247.80.

Table No. 5.9: Marketing efficiency of Potato in Tripura

Sl. No.	Particulars	Ch- I	Ch- II	Ch- III
1	Consumers purchase price	2365.00	2863.00	2500.00
2	Total Marketing cost	58.92	210.75	122.41
3	Total net margins of intermediaries	2306.08	2652.25	2377.59
4	Net price received by farmer	2306.08	2250.00	1800.00
5	Marketing Efficiency (MME, Acharya approach)	0.98	0.79	0.72

Source-Authors compilation from field study

According to the table 5.9, the total marketing expense for Channel I was Rs.58.92, Rs. 210.75 for Channel II, and Rs. 122.41 for Channel III. The marketing cost was higher in Channel II because it involved two middlemen, a wholesaler and a retailer, to get the produce into the hands of the consumer. In channel III, the sole middleman was the retailer, but in channel I, there were no intermediates because the produce was sold directly from the farmer to the consumer. The Marketing Efficiency was calculated by using Acharya Approach in which it was observed that among the three channels, higher marketing efficiency was seen in channel I as the value was closest 1 i.e. 0.98, followed by other two channels which were also moderately close to 1 i.e. 0.79 and 0.72 under channel II and III respectively.

5.7. Marketing of Brinjal

Table No.5.10: Marketing of Brinjal in Tripura (Rs./qt)

Sl No	Particulars	Channel I	Channel II	Channel III
1	Marketing cost incurred by Farmer			
a	Cost of gunny bags/ plastic bag	19.25	20.56	19.49
b	Cost of packing			
c	Cost of loading& Unloading	12.58	12.47	12.55
d	Transportation near market	27.67	34.75	28.26
e	Naka /market charge	10.81	11.08	11.12
f	Weighing charge	2.35	2.47	2.32
g	Total Marketing Cost	72.66	81.33	73.74
2	Selling price of Farmer	3175.00	2937.00	2890.00
3	Net Price received by Farmer	3102.34	2855.67	2816.26
4	Marketing cost incurred by wholesaler			
a	Storing	-	11.25	-
b	Transportation	-	30.75	-
c	Labour charges	-	4.50	-
d	Market Fee	-	4.02	-
e	Weighing charges	-	2.37	-
f	Total Marketing Cost	-	52.89	-
5	Selling price of wholesaler	-	3466.00	-
6	Marketing margin of wholesaler	-	476.11	-
7	Marketing cost incurred by retailer			
a	Storing	-	4.78	2.72
b	Transportation	-	12.38	11.27
c	Labour charges	-	7.01	6.84
d	Market Fee	-	10.00	9.66
e	Gunny bags	-	-	12.44
f	Weighing charges	-	3.25	2.11

g	Total Marketing Cost	-	37.42	45.04
8	Selling price of retailer	-	3921.00	3412.00
9	Marketing margin of retailer	-	417.58	476.96
10	Price spread	100.00	74.90	84.70

Source-Authors compilation from field study

The table 5.10 depicts Brinjal marketing data for farmers, wholesalers, and retailers through three different marketing channels: (I) Farmer/Producer – Consumer, (II) Farmer/Producer – Wholesaler – Retailer – Consumer, and (III) Farmer/Producer – Retailer/Trader – Consumer. The farmer's overall marketing costs were Rs. 72.66, Rs. 81.33, and Rs. 73.74 for Channels I, II, and III, respectively. The cost of transportation was higher than other marketing charges, such as the cost of gunny bags, packaging, loading and unloading, transportation, market charge, and weighing charge. The farmer's selling price for Potato under channel I, II and III was Rs. 3175, Rs. 2937 and Rs. 2890 respectively. The net price received by farmer was different in all the channels i.e. under channel I it was Rs. 3102.34, under channel II it was Rs. 2855.67 and under channel III it was Rs. 2816.26.

Wholesaler was involved only in channel II i.e. Farmer/Producer – Wholesaler – Retailer – Consumer and total marketing cost incurred was Rs. 52.89 in which transportation cost (Rs.30.75) was higher as compared to other related cost followed by storing cost (Rs.11.25) and labour charges (Rs.4.50). The wholesaler's selling price incurred for Brinjal was Rs. 3466 and the marketing margin received was Rs. 476.11.

Retailer bears the lowest marketing cost than the farmer and wholesaler which were involved in channel II and III. The total marketing cost incurred by retailer under channel II and III was Rs. 37.42 and Rs. 45.04 respectively. The retailer's selling price for Brinjal was Rs. 3921 in channel II and Rs. 3412 in channel III. The retailer's marketing margin received for Brinjal was higher in channel III i.e. Rs. 476.96 followed by marketing margin in channel II i.e. Rs. 417.58.

Table No. 5.11: Marketing efficiency of Brinjal in Tripura

Sl. No.	Particulars	Ch- I	Ch- II	Ch- III
1	Consumers purchase price	3175.00	3921.00	3412.00
2	Total Marketing cost	72.66	171.64	118.78
3	Total net margins of intermediaries	3102.34	3749.36	3293.22
4	Net price received by farmer	3102.34	2937.00	2890.00
5	Marketing Efficiency (MME, Acharya approach)	0.98	0.75	0.85

Source-Authors compilation from field study

From the above table 5.11, it was observed that the total marketing cost incurred in Channel I was Rs.72.66, Rs. 171.64 in Channel II and Rs, 118.78 in Channel III. The marketing cost was higher in Channel II as it involves two intermediaries to reach the produce in consumer's hand, they are wholesaler and retailer. In channel III, the intermediary involved was retailer only and Channel I has no intermediaries as the produce was directly sold by farmer to consumer. The Marketing Efficiency was determined by using Acharya Approach in which it was seen that among the three channels, higher marketing efficiency was seen in channel I as the value was closest 1 i.e. 0.98, followed by channel III i.e. 0.85 and channel II i.e. 0.75

Conclusion:

This chapter examined the sale and purchase of selected five crops, their different marketing cost which includes cost of packing, loading, unloading, transportation, market charge and weighing charge etc. at several regulated markets. In terms of marketing efficiency, it has been observed that the greater channels have lesser efficiency and vice versa. Even while studying the channel of marketing of five selected crops, it has been observed that different marketing channels are predominantly working for different crops. .

Study on APMC Regulated Markets in Tripura

Chapter – 6

STATUS OF E-NATIONAL AGRICULTURE MARKET

Status of E-National Agriculture Market:

Various market functionaries and stakeholders were interviewed to obtain their perspectives on e-NAM, particularly in regards to (their) motives for adopting e-NAM, infrastructural facilities at regulated markets, primary characteristics of eNAM, challenges encountered, Barriers and factors influencing of implementing, financial requirement for setting up of e-NAM and ideas for improving e-NAM. This chapter discusses the response of farmers and traders.

6.1. Introduction to e-National Agriculture Market

e-NAM is an electronically trading portal which provides an online trading platform of agricultural commodities. This is managed and controlled by SFAC (small farmers' agribusiness consortium) under the Department of Agriculture, Cooperation and Farmers' Welfare. After adopting liberalization by the government of India for the betterment of the country and betterment of the livelihood of the people, the government thought that they should reform the policies of agricultural marketing. The agricultural marketing reforms were done for the betterment of the farmer's livelihood income by providing equal price across the state or UT of the same commodities. The Agricultural marketing reforms are follows- Setting up of wholesale markets in private and cooperative sectors; setting up of farmer-consumer markets; Contract Farming or forward trading or future trading; Direct marketing of the commodities without any middlemen; online trading of the commodities; one time market fee on trading same commodities in the state or UT, provide single trading license across the state or UT. To implement the reforms, the government of India introduced a central sponsored scheme called e-NAM through Agri-Tech Infrastructure Fund (ATIF) (e-NAM Directory,2021). e-NAM was launched on 14 April,2016, by Hon'ble Prime Minister Shri Narendra Modi with the aim of Providing single window service where traders and producers get all the information about the commodities, money transaction will occur directly to farmers account via online transaction and have to pay only a single fee. At first 21 regulated markets were included under e-NAM across 8 states and till 2021, there are 1000 e-NAM markets functioning across 18 states and 3 union territories. Through this e-NAM portal e-Trading is done on a number of products (175 commodities) with remunerative prices (e-NAM ,2021). In Tripura there are 21 regulated markets but none of the markets has e-NAM marketing systems. The Department of Agriculture, Cooperation, and Farmers Welfare provides one-time fixed costs for associated equipment and infrastructure up to a maximum of Rs.75.00 lakhs per mandi. Initially, a one-time fixed grant

of Rs.30.00 lakhs per mandi was allocated for computer hardware, internet access, and assaying equipment. Additional funds of Rs.40.00 lakhs per mandi were approved for the construction of facilities such as sorting, grading, cleaning, and packing, among other things and for Bio-composting unit Rs. 5 lakh were allocated (Annual Report, 2021, DAC&FW).

India is an agrarian country and almost half of the total population are directly and indirectly related to agriculture for their livelihood (Bisen& Kumar,2018).India is a large producer of vegetables, cereals, fruits etc. Not only produce a large quantity of produce, India also exports to different countries through the international market maintaining all the necessary requirements of the produce and earning millions of rupee from it. At the International market the value of the produce is much higher than the local market as it has quality and grade. At a global level India holds second position in food production(Bisen& Kumar,2018) and has a good opportunity to earn by exporting the produce, it will directly benefit the producer by selling the produce with good prices. Now to pay benefits to a large number of farmers all over India it needs large scale implementation through which all the farmers and traders come to a single platform and trade. In India till now 1000 e-NAM markets are established in 18 states and 3 UTs (e-NAM Directory,2021). An e-NAM product has grade and quality as the product goes through sorting and grading, quality testing processes and maintains all the parameters to satisfy the traders at reliable cost. In India around 20-25% perishable goods and around 30-40% fruits and vegetables are seen as post harvest loss, which also influence the economy of India (Bisen& Kumar,2018).This can be reduced by proper marketing channels of the produce.). e-NAM works in APMC regulated markets to boost the farmers income by providing linkage with a number of traders to sell their produce with remunerative price (Bisen& Kumar,2018). In India Rajashtan(144), Uttar Pradesh(125) and Gujrat(122) are the top 3 leading states having maximum numbers of e-NAM APMC market(e-NAM, 2021).

Tripura is an Agricultural state where most of the rural people are directly linked with cultivation for their livelihood. Almost 42 per cent of the population directly depends on agriculture and 33 percent of the GDP is contributed by the agriculture sector (Rani et al,2017). In rural households, the main source of income comes from the agriculture sector which plays a major role for survival (Hazari&Dey). As rural people engage with agriculture they cultivate different types of vegetables and fruits and produce quintals of produce at once. Most of the producers harvest good and fresh vegetables with good quality and sell their harvested produce at Regulated market or at open market to village traders or traders and commission agents at high commission charge. Most of the producers didn't get remunerative

prices for their produce because of the limited number of traders within the regulated area. Till now no e-NAM system is functioning in Tripura but implementation of the e-NAM system at regulated markets can help to boost the income of the farmers by providing remunerative price of the produce and also help to reduce the post harvest loss. Some farmers go to commission agents present in the regulated market to sell their produce at a high commission charge(10%). Introduction of e-NAM in Tripura regulated markets help the farmers to get more return from the produce by paying a very minimal commission charge. When the farmers registered to e-NAM he may have lakhs of traders who were always ready for auctioning the produce at remunerative prices. So, there is a chance of establishing e-NAM under the APMC regulated market.

6.2. Basic needs before starting e-NAM

1. Proper infrastructure in the market
2. Provide awareness about the sorting and grading system and its importance.
3. Should have a sorting, grading and quality testing lab.
4. Cold house system at market area to avoid quality reduction.
5. Provide awareness among the traders and farmers on e-NAM.
6. Hands on training by the expert personnel to the traders and farmers.
7. Provide registration facility from the market committee.

6.3. Advantages of e-NAM

1. Provide transparent trading and bidding platforms to all.

2. Provide all the information related to the price of the commodity. Farmers can easily check the current price of the commodity and can sell produce according to their choices.

3. For trading, buyers and sellers have to pay once for one commodity which reduces the transaction cost and other cost.

4. Helps in maintaining stable price of the commodity, this makes both consumer and producers satisfactory.

5. This e-NAM trading platform reduces the market channel and provides an efficient market chain. This efficient chain of marketing helps in maintaining a stable price of the commodity.

6. e-NAM provides quality certificates of the commodities to the seller and traders which makes fair trading of the commodities and get the maximum price of that commodities by the producers. This platform also provides a good warehouse system where both buyer and seller can keep their commodity safely.

7. e-NAM ensures to the traders about the delivery of the product with a scheduled time period and also ensures the sellers about the transaction of money. Traders directly paid value to farmers' accounts via online.

8. e-NAM platform provides maximum opportunities to farmers to receive maximum profit of their produce.

6.4. Objectives of e-NAM

1. **Issuing quality certificate of the produce:** To run an e-trading regulated committee should take responsibility to issue quality certificate of that produce. Quality certificates of that produce provide satisfaction to traders to buy the produce without any hesitation. To provide this quality certificate to the seller a quality testing lab should be there within the Regulated market. Most of the regulated market in Tripura has enough area for building a quality testing lab within the market area. Having a quality testing lab within the market area provides an opportunity to producers to bargain to their produce for remunerative prices as quality produce can be marketed at the International Market.

2. **Provide sorting and grading facility of the produce:** Simply sorting is the process of separating the produce and grading means classification of the produce. So, sorting and grading means separation and classification of products according to the size, quality, rank etc. The producers in Tripura bring their produce to market without any grading i.e. all the produce are mixed. Sorting and grading of the produce provide them a high price of the produce while selling to traders. As sorting and grading makes the produce more valuable at international and other markets.

3. P**roviding more options to producers to sell their produce with remunerative prices**: e-NAM is an electronically trading system which means a person can trade without any physical action in that particular place. The E-NAM platform has lakhs of registered traders in different states or places who are always ready to buy the fresh and quality produce

with remunerative prices from the producers. In Tripura most of the rural people are engaged with cultivation and produce tons of produce having good quality, but limited numbers of traders restrict them to have high prices of the produce. E-NAM platform has lakhs of traders which provide an opportunity to producers to have remunerative prices of that produce and also give them a platform to link with more numbers of traders.

4. **Improvement of market channel between buyers and sellers:** In e-NAM producers sell their produce directly to the buyers without any middlemen. As the producers and sellers do trade directly they are having direct contact between them and reduce the marketing channel which leads to improves the market efficiency.

6.5. Present status of e-NAM in India:

The integration of electronic agricultural markets across the nation, as noted by Venkatesh et al. in 2021, is anticipated to have a variety of effects on how much farmers get paid. To give just two examples, e-tendering would increase openness, and even intra-market trades would lessen trader cartelization. E-commerce is also anticipated to increase competition by expanding the pool of purchasers. The effectiveness and development of the e-NAM and how it affects farmer pricing to meet the objectives established, the e-NAM still has a long way to go. The percentage of APMC marketplaces with links is just about 15%, and farmers' involvement is likewise erratic, hovering around 13%. Cereals, which make up roughly 40% of overall trade volume and 25% of total trade value in 2020–21, are the main traded commodities.

Table No.6.1: The performance of e-NAM in India

Stakeholder registration	No. of farmers	1.70 crore
	No. of traders	1.64 lakh
	Commission Agent	90980
Trade records	Total trade	4.31 crore MT
	Trade value	Rs.130753 crore
	No. of tradable commodities	175

(Source-e-NAM Directory,2021)

Table No.6.2: List of e-NAM coverage of 18 states and 3 union territories of India:

No.	Name of State/UT	Mandis registered on e-NAM	Registered Traders on e-NAM	No. of Unified licenses issued by State
1	Andhra Pradesh	33	3,454	3,454
2	Chandigarh	1	99	0
3	Chhattisgarh	14	3,114	34
4	Gujarat	122	9,351	105
5	Haryana	81	12,938	29
6	Himachal Pradesh	19	1,975	0
7	J&K	2	63	0
8	Jharkhand	19	2,217	83
9	Karnataka	2	635	635
10	Kerala	6	253	35
11	Madhya Pradesh	80	22,014	962
12	Maharashtra	118	20,935	0
13	Odisha	41	6,735	6,735
14	Puducherry	2	166	0
15	Punjab	37	2,417	1
16	Rajasthan	144	74,657	74,657
17	Tamil Nadu	63	3,798	358
18	Telangana	57	5,757	5,757
19	Uttar Pradesh	125	34,864	110
20	Uttarakhand	16	4,711	4,711
21	West Bengal	18	3,691	18
Total		**1,000**	**2,13,844**	**97,684**

Source-e-NAM portal,2021

Table No.6.3: Different types of commodities trade in e-NAM in India

Sl. No	Commodity Category	No. of Commodities
1	Food Grains/ Cereals	26
2	Oilseeds	14
3	Fruits	31
4	Vegetables	50
5	Spices	16
6	Misc.	38

Source-e-NAM portal,2021

According to Reddy, 2018 the e-NAM implementation in the market creates a great impact on prices of the commodities which signify farmers income. In a market system there are a number of middlemen who restrict farmers to get the maximum price of the commodities, to eliminate the middlemen government from e-NAM with the aim of doubling the income.

Table 6.4 illustrate the comparisons between the price and arrival of the commodities before implementing and after implementing e-NAM. And it observed that for all three commodities, there was a greater growth in pricing and market arrivals in e-markets compared to non-e-markets. This suggests that the influence of e-markets on market arrivals and pricing is favourable.

Table 6.4: Comparison on prices, arrivals between the before and after implementing e-NAM

Sl. No	Name of commodity	e-Market			Non e-Market			Difference in per cent change
		Before implementing e-NAM (2008)	After implementing e-NAM (2016)	Per cent change	Before implementing e-NAM (2008)	After implementing e-NAM (2016)	Per cent change	
A	Average price(Rs./Quintal)							
1	Copra	4197	11420	172	3899	8156	109	63
2	Rice	1702	3000	76	1338	2220	66	10
3	Groundnut	2099	4776	128	2243	4205	87	40
B	Average arrivals(tonnes/month)							
1	Copra	3145	10946	248	772	630	-18	226
2	Rice	5343	11404	113	1309	1946	49	65
3	Groundnut	4305	18950	340	1301	3240	149	191

Source:Reddy, 2018

A variety of studies have shown that the arrival and price of commodities have improved following the introduction of e-NAM, which may have an impact on the producers' ability to make a living. Development of physical infrastructure, market information and communication technologies, well-defined, transparent agricultural policies, and market measures in the state are all necessary for further strengthening a single, uniform electronic economic marketing in the region and the country as a whole.

6.6. Barriers of implementing e-NAM in Tripura

Despite the benefits, certain states, such as Tripura, have repudiated the need to build up an e-NAM system. Some of the barriers are mentioned below:

1. Less number and improper management of storage structure - To store the produce /commodity needs a good and big warehouse. In the village areas there was no proper warehouse facility or no warehouse. Due to this lack of warehouse around 15-30% agricultural commodities were lost annually. To reduce the loss producers are forced to sell their produce with non-remunerative prices.

2. Operation: To operate all this equipment committees have to hire a few expert people. To trade online, traders and buyers should have knowledge about trading methods, but most of the farmers are not very educated and will face difficulties. For e-trading the selected product should contain a quality certificate to bid. To issue quality certificates there should be a quality certification lab. Most of the regulated market does not have this type of lab, this hindrance on trading. Immediate payment has to be paid by the traders to the seller. No credit purchase facility will work on e-trading.

3. Small and marginal land holding: 96 per cent of the farmers in Tripura are marginal and small land holders (DA&FW, Govt. of Tripura). Therefore, their production is also not in bulk and they use to sell on their own and to village traders. They do not have a separate warehouse to store the commodities for long to sell the products when their price goes high. To live and to cultivate the crops, distress sale occurs which leads them to sell their produce with non-remunerative prices to traders or moneylenders. Marginal and small farmers produce little quantity of produce. To carry this little amount of produce in the regulated market farmers have to bear transportation costs and other costs which makes them unsuitable to them. Again in e-platform to bid the commodities needed in bulk, this makes restrictions to small and marginal farmers.

4. Transportation: Improper transportation and road facility- In village areas there is a lack of transport system and also having poor road system which makes them unable to carry their produce to market. Due to this they sell their produce to local markets or to local traders with low prices.In rural areas the road system and transport facility is not good enough, for that reason they were paid a big amount on transportation. To bear this amount they need cash in hand which restricts them in online trading.

5. Awareness: Farmers are unaware about the prices of the commodity of the big markets; hence sell their produce to local traders. The traders and producers, those who are functioning in the selected regulated market are not aware about the facility of e-NAM. All the markets are old age and they were not much aware about the online system. In the market almost 100% of the traders don’t know about e-NAM and its role in trading.

6. Lengthy and complex process: To sell the produce in e-NAM the produce should have quality certificate. To have a quality certificate the producer has to go to a quality testing lab and also have to go for sorting and grading processes which take time to complete the process. This lengthy and complex process makes them unsatisfied with e-trading.

7. Fear of not getting reliable prices: Farmers also have fear of sorting and grading facilities. They are afraid if the produce does not come according to the grading system, the produce he can't sell any more. This restricts them from coming forward and registering under e-NAM.

8. Collection of payment from bank: Most of the farmers come under small and marginal farmers and the production of crops is also not in bulk. The price also varies from crop to crop. To collect a small amount of money from the bank makes him unsatisfied which restricts e-trading.

9. Financial weakness: Farmers do not have enough cash to buy all the necessary items for the family. They mainly depend on the cash to mitigate the everyday needs for the family. This financial weakness restricts online trading.

10. Low literacy rate among the farmers: To trade online a person should have a mobile phone or laptop. But apart from that the most important factor is reading and understanding of sent SMS, without any proper information farmers do not go to sell their produce.

11. Purchasing of produce without any inspection: In e-trading traders cannot see the produce physically i.e. traders have to purchase the produce according to the online report available in website. Buying without any physical inspection makes them uncomfortable with the produce and restricts e-trading.

13. Traders have fear that Lengthy and time consuming process may decrease the quality of the produce. This may decrease the selling price of the commodity.

12. No proper infrastructure system in the market: There is no such infrastructure in the regulated market all over Tripura to have experience of the traders. No IT system in the market restricts online trading.

13. Collection of money by the money lender from the credit takers provides an additional headache, as the sale amount will go directly to the bank account. When the sell amount will withdraw by the person or when the person come to market with money than only money lender will able to collect money from the credit taken person.

6.7. Factors influencing e-NAM

1. **High commission charge to local commission agents**: Depends on the quantity and selling price of the commodity the producer earns money. If the charge will be more by the commission agents, the income of the producer will be reduced as the charge amount will directly cut from the total selling price. E-NAM charges every low amount from the producer for selling the produce which directly increases the income of the farmers.

2. **Farmers sell their produce to the wholesale market**: Most of the farmers in India go for wholesale of the produce to village traders, commission agents and other traders. The main reasons for wholesale of the produce are bulk quality (50-100 kg), short time to sit in the market and always give time to the crop field. As the farmers go for wholesale, they can go for e-trading to wholesale produce. To implement this e-NAM committee needs to organize training and awareness camps on e-NAM and benefits of it.

3. **Uniformity of the price**: In APMC regulated market and local market the price of the commodity does not stay stable, it depends on market days and arrival of the commodity. Trading on e-NAM helps the farmers to get stable and remunerative prices of the commodity i.e. e-NAM keeps the uniformity of the price of the produce. The remunerative price of the produce encourages the farmers for shifting e-trading under e-NAM.

4. **No time bound of trading the commodities:** Almost all the APMC regulated markets have a particular market day where all the traders and farmers come from different places to trade commodities. During peak season production of the commodities increases at high quantities and it impacts the arrival of the commodities. Farmers bring their produce on the same day which decreases the price of the commodity. But in e-NAM farmers can bring bulk quantities of produce at any day of the week to sell at remunerative prices. This helps to keep the supply and price stable of the commodities.

5. **Educated farmers and traders are coming out to trade in present days**: At present who are involved in farming and trading almost all are young age farmers and traders. They were educated and can have knowledge on online trading. Awareness among them on e-NAM can help to boost e-Trading of commodities.

6.8. Facilities required for setting up an e-NAM in regulated market of Tripura

6.8.1. Types of civil construction

1. New Construction for Bidding Hall Building

2. Covered Auction Platform
3. Conversion of Existing Building for Bidding Hall
4. Estimate for construction for Grading, sorting & cleaning facility with assaying unit
5. Estimate for the Conversion of Existing Building for Grading, sorting & cleaning facility with assaying unit
6. Crop specific Assaying Lab (need based)
7. Construction of 500 MT godown
8. Construction of 1000 MT godown
9. Construction of 2000 MT godown
10. Internal Roads (PCC)
11. Boundary Wall (1.5 meter height)
12. Covered drainage
13. Drinking Water
14. Fire Fighting
15. Sub-total (new infrastructure)

6.8.2. Machinery and equipment's

1. Automatic Weighing and Bagging machine (up to 100 kg)and Grading and Sorting machine (5 ton per hour)with civil structure, including Installation and Commissioning, 3-phase & Earth connections etc.,
2. Paddy drier
3. Electronic weighing machine (300 kg) capacity
4. CCTV camera
5. Generator (25 KV)
6. Weigh Bridge

6.8.3. Hardware system

1. Desktop
2. Tablet PC
3. Android (POS)
4. Network Printer
5. Laser Printer
6. Dot Matrix
7. Bluetooth printer
8. Router (AC 1900 Mbps speed D-link)
9. Internet with WiFi (8 mbps)
10. UPS (10KVA)
11. LED Monitor (48 inches)
12. Multifunctional Xerox machines

6.8.4. Finance required for establishment of one unit e-NAM APMC regulated market

A. Unit Costs of Investments in APMCs

Investment required for installation of an APMC regulated market. Estimation for development of a basic Market infrastructure for e-NAM APMC regulated market, the required cost are follows:

Table No.6.5: Financial requirement for civil construction, machinery and equipments for establishment of one unit e-NAM

Sl No	Particulars	Size	Cost(Rs. Lakh)
A	**Types of civil construction**		
1	New Construction for Bidding Hall Building	121.8 sq.m	30
2	Covered Auction Platform	400 sq.m	30
3	Conversion of Existing Building for Bidding Hall	200 sq.m	22
4	Estimate for construction for Grading, sorting &	240 sq.m	40
5	cleaning facility with assaying unit		
6	Estimate for the Conversion of Existing Building for Grading, sorting & cleaning facility with assaying unit	240 sq.m	13
7	Crop specific Assaying Lab (need based)	50 sq.m	50
8	Construction of 500 MT godown	500 MT	70
9	Construction of 1000 MT godown	1000 MT	80
10	Construction of 2000 MT godown	2000 MT	175
11	Internal Roads (PCC)	100 metres	35
12	Boundary Wall (1.5 metre height)	100 metres	15
13	Covered drainage	100 metres	10
14	Drinking Water	lms	2
15	Fire Fighting	lms	1
16	Sub-total for civil construction		573
B	**Machinery and equipment's**		
1	Automatic Weighing and Bagging machine (up to 100 kg)and Grading and Sorting machine (5 ton per hour)with civil structure, including Installation and Commissioning, 3-phase & Earth connections etc.,	5 MT per hour (8 hours a day)	150
2	Paddy drier	25 MT per day	25
3	Electronic weighing machine (300 kg) capacity	1	1
4	CCTV camera	5	5
5	Generator (25 KV)	25 KVA	10
6	Weigh Bridge	60 MT	25
7	Sub-total for Machinery and equipment's		**216**
C	**TOTAL**		**789**

Source: Authors compilation

B. **Cost required for hardware's to e-trading:**

Around Rs. 10 Lakh investment is required to install hardware systems in the APMCs regulated market to include markets under e-NAM to e-trading. The unit cost are shown in the table-

Table No.6.6: Cost required for hardware's to e-trading

Sl. no.	Hardware	Rs. per Unit
1	Desktop	65,000
2	Tablet PC	15,000
3	Android (POS)	20,000
4	Network Printer	35,000
5	Laser Printer	20,000
6	Dot Matrix	12,000
7	Bluetooth printer	10,000
8	Router (AC 1900 Mbps speed D-link)	20,000
9	Internet with WiFi (8 mbps)	2,75,000
10	UPS (10KVA)	2,80,000
11	LED Monitor (48 inches)	60,000
12	Multifunctional Xerox machines	1,50,000
	Total	**9,62,000**

Source-Authors compilation

Conclusion:

This chapter describes e-NAM and its features as well as benefits and also the present status of e-NAM in India. This techno based e trading facilities has been found not implemented in Tripura whereas other states of India are getting benefit of e-NAM. Implementation of e-NAM has been a challenge in north east India. This study emphasized on the barriers pertaining to the implementation and operation of e-NAM. Some factors which directly influence the e-NAM operation as well as the facility required to set up e-NAM infrastructure like material and equipment requirements, financial requirements, technological know-how etc have been thoroughly discussed. All the efforts are supposed to be directed towards the augmentation of e-trading facilities for the farmers and traders.

Study on APMC Regulated Markets in Tripura

Chapter – 7

GOVERNMENT SCHEMES AND PROGRAMS TOWARDS THE DEVELOPMENT OF AGRICULTURE MARKET

Government Schemes and Programs towards the Development of Agriculture Market:

Couple of decades, the agricultural sector has been receiving a continuous focus. Some of the government initiatives to improve the agricultural market sector with their features and barriers for proper implementation in Tripurahave been discussed in this chapter:

7.1. RIDF(Rural Infrastructure Development Fund)

RIDF was formed in the year of 1995-1996 by the government to finance ongoing developmental projects for the development of rural infrastructure. The developmental works include (i) Agriculture and related sectors, (ii) Social sector and (iii) Rural connectivity**.** Till now 37 developmental activities were done through this scheme which made the rural infrastructure good and economic. This scheme also reduces the barrier of rural people by providing necessary infrastructure in their areas such as constructing market yards, hospitals, schools etc. Initially RIDF was set with the corpus of Rs.2000 crores, but in 2021-22 the government allocated Rs. 40490.95 crores for developing the rural infrastructure (www.nabard.org). With the private sector not focusing on development of different infrastructure development work across the country, the government of India came forward for developing the rural infrastructure for the public with available resources**.** Though the development works funded by RIDF in the state of Tripura is not at par in comparison to other states of India**.** From the year 2012-13 to 2021-22 government disbursed Rs. 1662.71cr for the rural infrastructure development in Tripura.

Table No 7.1: Financial Year Wise Distribution of Fund Flow (Cr.) Under RIDF in Tripura

Sr No	FY	Sanctioned Amount in Cr.	Disbursed Amount in Cr.
1	1995-96	-	-
2	1996-97	-	-
3	1997-98	-	-
4	1998-99	21.70	21.27
5	1999-00	43.94	21.75
6	2000-01	35.4	28.07
7	2001-02	-	-
8	2002-03	50.13	41.08
9	2003-04	3.17	3.17
10	2004-05	-	-
11	2005-06	-	-
12	2006-07	161.3	141.11
13	2007-08	153.69	136.25
14	2008-09	305.03	285.77

15	2009-10	142.49	96.4
16	2010-11	86.15	71.07
17	2011-12	67.15	61.25
18	2012-13	99.34	70.61
19	2013-14	115.71	96.6
20	2014-15	174.44	148.41
21	2015-16	342.12	310.33
22	2016-17	270.9	226.14
23	2017-18	264.26	178.68
24	2018-19	152.22	145.23
25	2019-20	221.91	173.47
26	2020-21	304.46	155.07
27	2021-22	410.39	158.17
	Total	3425.9	2569.9

Source: NABARD, Tripura, 2022

Though the RIDF started in1995-96 in India but its actual operation started in Tripura from the year 1998-99 with the allotment of fund Rs. 21.70 Cr. The state received 21.27 Cr. as its first fund from this source and consecutively received fund from RIDF till the financial year 2000-01. Apart from that three years (2001-02, 2004-05, 2005-06) Tripura did not receive and funding from RIDF. But from 2006-07 Tripura has been receiving good amount of RIDF funds. If the table of sanctioned funds and disbursement is analyzed it can be seen that there is a consistent difference between sanctioned and disbursement amount and the trend is increasing gradually almost in the consecutive years. The highest amount that Tripura received Rs. 158.17 In the year 2021-22 but same year also the state has witnessed a huge gap of Rs. 252.22 Cr in sanctioned and disbursement.

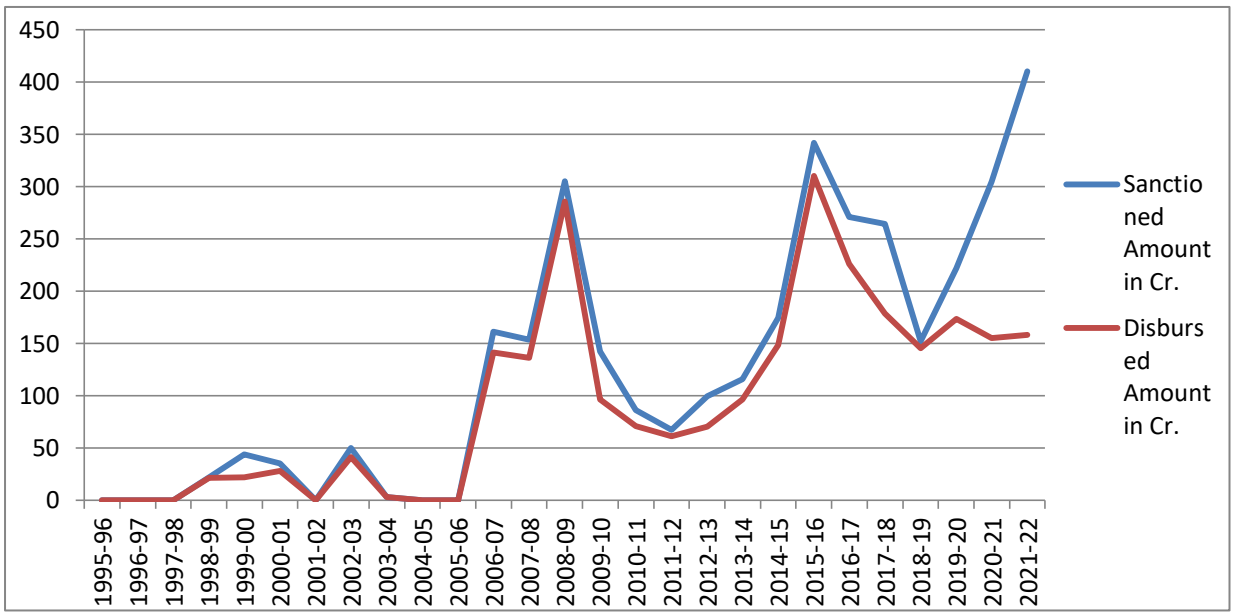


Figure 7.1Financial Year Wise Distribution of Fund Flow (Cr.) Under RIDF in Tripura

Table No 7.2: Sector Wise Distribution of Fund Flow (Cr.) Under RIDF in Tripura

Sr No	Sector Name	Amount (Cr)
1	Agriculture - Irrigation	242.27
2	Agriculture - Other than Irrigation	271.94
3	Social - Drinking Water	96.65
4	Social - Other than Drinking Water	287.94
5	Rural Connectivity - Bridges	1116.55
6	Rural Connectivity - Roads	554.53
	Total	2569.88

Source: NABARD, Tripura, 2022

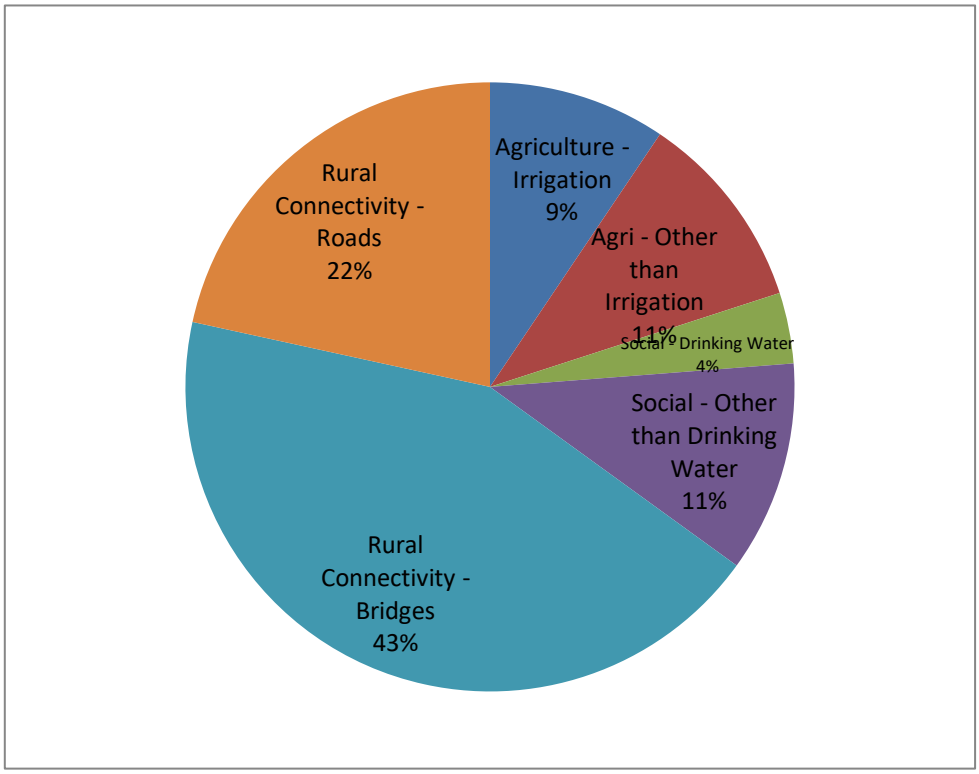


Figure 7.2Sector wise distribution of disbursed fund flow (Cr.) under RIDF for the state Tripura

The above figure demonstrates that the highest allocation (43%) and utilisation of RIDF fund has been executed in the constructing of bridges in the rural areas to improve the connectivity of the rural markets and areas with the towns constituting of Rs. 1116.55 Cr. Even the road connectivity in the rural areas has been found beefed up with the aid (Rs.554.53 Cr.) from RIDF fund and constitutes 22% of the total utilization of funds. Agri-allied activities other than irrigation and social sector other than management of drinking water facilities have been found almost similar thrust with 11% from the total fund flow of the fund constituting Rs. 271.94 and Rs. 287.94 Cr. respectively. It can be noticed that the lowest amount (Rs. 96.65

Cr.) disbursed and utilized in the areas of social- drinking water supply management and constituted only 4% of the total fund flow. And this area needs to be more focused and more allocation of funds accordingly.

7.2. ISAM (Integrated Scheme of Agricultural Market)

With the dedication of farmers and scientists, the country India emerged from major importer country to the major exporter country of the food grains and other agricultural commodities in the world after the independence. Though the country produces a surplus quantity of commodities, the farmers do not get the satisfactory value of their produce because of the improper marketing infrastructure system and post harvest management system. This makes the country have a commodity crisis at the market varying from season to season. To mitigate this problem and to have a good price for the commodities of the farmers, the government focuses on a cold chain logistic system, this will not only provide good prices to the farmers, this will also provide fresh and nutritious goods to the ultimate consumers with remunerative prices. To implement this chain, the government of India approved Integrated Scheme of Agricultural Market(ISAM) scheme on 13 November, 2013 with the proposal of Department of Agriculture and Cooperation(Operational guidelines 2014, ISAM). This schemes is integrated with five on-going central scheme namely (Operational guidelines 2014), ISAM)- (i) Agricultural Marketing Infrastructure (AMI);(ii)Marketing Research and Information Network (MRIN); (iii) Strengthening of Agmark Grading Facilities (SAGF); (iv) Choudhary Charan Singh National Institute of Agricultural Marketing (NIAM); (v) Agribusiness Development through Venture Capital Assistance (VCA) and Project Development Facility(PDF). This scheme was launched on 1 April, 2014 during XII five year plan (2012-2017). During the XII Plan, ISAM will receive a total budgetary allocation of Rs.4548 crores. AMI receives Rs.4000.00 crores, MRIN receives Rs.12.00 crores, SAGF receives Rs.6.00 crores, and ABD receives Rs.500.00 crores and for NIAM, the amount was Rs.30.00 crores.

7.2.1 Objectives of ISAM

1.To promote market infrastructure development by providing subsidies to state government, cooperative and private investors.

2. Provide funds to create warehouses to store agricultural commodities for the benefits of farmers. Ultimate focus is to create profit for farmers.

3.To integrate the value chain via processing of the goods.

4. To establish the one networking system from which everyone can access all the data i.e. price of the goods, commodity arrival, bidding time etc. with speedy networking system. This will provide a symmetry information system to all.

5. It promotes the creation of grading and certification labs within the market areas. This will give the producers an opportunity to grab a better price of the same produce and with this certification traders also ensure that produce has quality.

6. Through this scheme a private investor also gets credit which creates an opportunity to strengthen the agribusiness system by providing funds to backward agribusiness projects.

7. To provide training and awareness programmes related to the market to stakeholders and entrepreneurs. Teach the process of market functionaries to all to increase market efficiency. During training and awareness programmes experts exchange knowledge about the grading and sorting process, standardization and quality certification process to make the market more efficient and get a more remunerative price.

7.2.2. Component of ISAM

7.2.2.1.Agricultural Market Infrastructure (AMI):

This scheme is created by merging two sub-schemes; these are Grameen Bhandaran Yojana (GBY) and Development / strengthening of Agricultural Marketing Infrastructure, Grading and Standardization(AMIGS). This helps in infrastructure development in the market through scientific manner to save maximum perishable goods and reduce post-harvest loss.The barriers of Agricultural Market Infrastructure are as follows:

1. **Marginal and small land holding:** Most of the farmers are marginal and small in nature in India and also in Tripura (96%). They go for cultivating different types of crops in small pieces of land; this leads them to harvest small amounts of produce at a time of the commodities. This small amount of commodities they sell at the Regulated market or market outlet to have cash at instant to mitigate livelihood commodities for the family. Production of a small quantity of produce restricts them to go for storage of the produce.

2. **Production of Perishable commodities**: Most of the farmers cultivate perishable crops like Brinjal, mustard, tomato etc. To store these types of crops need a good cold storage system to increase shelf life of the commodities without breaking quality. No such infrastructure around the market restricts the farmers to get benefit on storage.

3**. Lack of knowledge on post harvest management**: Till date also farmers and traders of Tripura are not much aware of post harvest management of the commodities. In India around 20-25% perishable goods and around 30-40% fruits and vegetables are seen as post harvest loss. This can be reduced by providing training and awareness camps and good post harvest management. Lack of good infrastructure within the market and awareness among the farmers and traders on post harvest leading to post harvest loss and reducing earnings from as expected amount.

4**. No processing unit around the regulated market**: A processing unit is a unit where value is added to the product by changing the form of the product. For example raw turmeric into powder turmeric, drychilli into powder chilli. The Functioning of a processing unit around the area creates demand for the produce and a remunerative price of the produce which indirectly benefits the farmer's income. No processing unit besides the regulated market forces the farmers to sell their produce at market outlets or at regulated markets at unsatisfactory prices.

5. **Less focus on Warehousing**: Bulk quantities of produce can't sell at once to consumers or buyers, so they have to go for storing the produce. Non-adequate or non-satisfactory warehouses facilities in around the market of different districts in Tripura force them to store at non-scientific godowns, this leads to post harvest loss and instability of price at the market.

7.2.2.2. Market Research and Information Network(MRIN):

This scheme is created for collection of available information and proper dissemination of all the necessary information related to the markets. The information includes price of the commodity, arrival of the commodity etc. All the market information provided through this is complete and accurate which provides better opportunities for farmers to get remunerative prices of the commodities. This helps to make a wide market information network across the nation.The barriers of MRIN are discussed as follows:

1. **Market information system:** Market information includes arrival of the commodities, price of the commodities, availability of commodities etc. Proper market information among the traders and farmers can help them to earn satisfactory prices of the commodities. No proper market information is available to the farmers and traders create instability of prices of the commodities varying from market to market. This sometimes gives a very high price and another day very much low price of the same commodity.

2. **Lack of knowledge on ICT among the farmers and traders**: To run an ICT system the person at least should read and understand the written form. Low literacy among the farmers and traders restrict them to use advanced ICT systems and run it smoothly. This restricts them from getting all the information about commodities across the state and across India and this prevents them from taking advantage of it.

3. **Data recording system**: No proper data recording on prices and quantities of commodities by the market committee restricts the researchers to get all the information necessary for the research. For that research scholar and institution didn't get any idea on it and left this field behind.

4. **Infrastructure and office premises:** To increase the trading the market should have satisfactory infrastructure including office. No proper management of market yards and buildings inside the market and imprecise offices do not provide such an environment to work precisely. Lack of these facilities in the market restricts them to provide all the information to all.

7.2.2.3. Strengthening of AGMARK Grading Facilities (SAGF):

This scheme helps to provide grading and quality certificates of the Agricultural produce through AGMARK certified labs. This grade standard and quality of commodity allows trade on e-trading which provides better price to the farmers. The main aim of forming the scheme are- to look into the purchasing of machinery, different lab equipment, chemicals, renovations and repairing of the certified lab.The barriers of SAGF are discussed as follows:

1.Number of cold storage houses: To store the perishable goods, potatoes etc. needs a cold warehouse. Less number of cold storage houses allowing the farmers to sell their produce at low prices.

2**. Sorting and grading facility:** Non availability of sorting and grading facility in the regulated market restricting the farmers to grab maximum price of the produce. This facility provides bargaining power to a number of traders and has a good price for that. Lack of this facility reduces their bargaining power and sales at the local market.

3. **AGMARK Certification lab:** To trade at International market or other state the product should have a grade and quality certificate. Quality certificates of the produce increase the value of the commodity at international and local/national markets which provide a good and

satisfactory price to the farmers. Lack of this type of lab keeps them away to trade at international or other state markets.

7.2.2.4. Choudhary Charan Singh National Institute of Agricultural Marketing:

This institution looks into the research studies of the farmers and markets and finds out the problems facing the farmers and finds out the relevant solution to it. This institute also coordinates different research studies and transfer of technology in agriculture related fields. This Institute provides training and awareness, capacity building etc. to farmers on related topics.The barriers of NIAM are discussed as follows:

1. Negligible number of research: Very few numbers of research published on marketing and benefit on farmers. Less research on that field keeps the scholars, institutions, and other bodies away from it and does not get much information about the farmers and their income status. Less research on that keeping away the report of actual beneficiaries at field level.

2. Training and awareness camp organization: To make people aware about something, the institution or other bodies should organize training and awareness programmes at field level. Very less numbers of training and awareness programmes with farmers and traders making them unaware of different necessary schemes and the benefit of the schemes.

3. **Research study on farmers and traders:** Very few scholars and institutions study the problems and solutions of the farmers and development of market infrastructure. Less study provides less information in that field. Very low numbers of problems will be found at research level as compared to the number of practical problems. Lack of information restricts the development work.

7.2.2.5. Agribusiness Development through Venture Capital Assistance (VCA) and Project Development Facility (PDF)

This scheme provides assistance to the new and fresh Agri-Business entrepreneurs up to 25-33% of total capital of the project through different financial institutions like Grameen Bank, SBI etc. The barriers of VCE and PDF are discussed as follows:

1. **Low interest in entrepreneurship**: In our society people get respect when a person does a government job rather than an entrepreneur. For this reason people run for government jobs and show little or no interest in entrepreneurship. This is why the capital assistance does not come into investment.

2. **Financial weakness:** Most farmers or traders' families come into low earning category, now for developing and setting up a business needs time and investment at initial phase and also stay in fear of failure. For this reason the youth could not move for entrepreneurship.

3. Training and awareness camp on entrepreneurship: To move young youth into entrepreneurship the Institutions and other bodies should focus on training and awareness programmes on different fields at grass root level. Lack of awareness and lack of information on different schemes on subsidies keeping them away to initiate the business.

4. **Lack of knowledge on marketing Channel:** Lack of knowledge on marketing of the product or produce product gives them an extra burden of being not sold. So, knowing a good market channel before starting a business is most important. Lack of knowledge on marketing channels not forcing them to start business.

Conclusion:

This chapter focused Rural Infrastructure Development Fund and Integrated Scheme of Agricultural Market (ISAM) with their several components like agricultural market infrastructure, market research and information network, strengthening of Agmark grading facilities, Choudhary Charan Singh national institute of agricultural marketing, agribusiness development through venture capital assistance (VCA) and project development facility (PDF). It has also been discussed on the barriers of NIAM, VCE and PDF.

Study on APMC Regulated Markets in Tripura

Chapter – 8

FINDINGS, CONCLUSION AND RECOMMENDATION

8.1. Findings

This survey based project has undertaken a field study from where several issues have been extracted. Based on these responses from the field and analysing these data, the following inferences have been found out and these are as below:

- BishalgarhAgri Produce Regulated market is one of the eight regulated marketplaces chosen for the study which was the first market in the state to be regulated in 1964, followed by the regulation of two more markets in 1981, namely Santirbazar Agri. Produce Regulated Market and Teliamura Agri. Produce Regulated Market. MohanpurAgr. Produce Regulated Market, Kulai Agri. Produce Regulated Market, Panisagar Agri. Produce Regulated Market, Pabiachharra Agri. Produce Regulated Market, and Natunbazar Agri. Produce Regulated Market were the final four markets to be regulated in 1986.
- The Agri. Produce Regulated Markets of Mohanpur and Natunbazar cover the largest number of villages, with a total of 26 villages in both markets.
- Teliamura Agri. Produce Regulated Market, with an area of operation of 1005.67 sq. km, is the largest of the regulated markets, followed by Kulai Agri. Produce Regulated Market, with an area of operation of 800 sq. km.
- Market connectivity, own land, drainage system, cleaning and sweeping facility, and electrical facility are all common physical facilities found in all eight regulated markets. There are also various services that are not available in any of the markets, such as computer, e-trading, export facility, forward/future trading, drying yard, farmers rest shed, cold storage, medical service, availability of private market yards, option e-trading, and farmer training.
- Except for one regulated market, Mohanpur, practically all other regulated markets have facilities such as an office, office premises and sales platform, direct purchasing facility and miking/announcing capability.
- In five regulated markets, a water supply infrastructure existed. Only PabiachharraAgri had an auction room facility. Except Bishalgarh and NatunbazarAgri. Produce Regulated Market for two regulated marketplaces, no store/godown facility was available. In five regulated marketplaces, there was a facility for drinking water.
- Moisture metres, ice crushing machines, sorting and grading machines, and other marketing equipment were not present in any of the regulated marketplaces.
- It was discovered that one of the functions, granting licences to various functionaries, was carried out in all of the regulated markets mentioned, whereas functions such as displaying market-related information, rate charts, notices, guidance information for all market participants, and providing insurance to market functionaries were not carried out in any of the markets.
- It was observed that all the farmers and market functionaries are marginal land holding in nature.

- According to the study, independent factors such as respondents' educational status, age, land holding pattern, agricultural produce marketed, marketing fee at regulated market, market distance, transportation charge for marketing, weighing charge at regulated market, and selling price of agricultural products can predict 85.9 percent of the variation in income scores. The results can explains that the variables like land holding of functionaries, quantity of produce marketed, selling prices of products and transportation charge for marketing activity are found to be significantly affected on the income of market functionaries for marketing of agricultural produce in regulated markets of Tripura.
- Chilli demonstrates highest number of channel members (16) with channel III which means more number of intermediaries is involved in this crop. Paddy which is a leading crop in Tripura has been found maximum in two tier channel (12) which indicates only wholesaler and retailers and involved between producers and consumers of paddy. Tomato has been showing highest (14) in channel I which indicates that very less number of intermediaries involved in that crop and producers get highest profit in that product. Potato is having a high yielding crop (20) and has been found of having two intermediaries. In case of brinjal it can be observed that the highest number (13) of intermediaries participated in marketing of this crop. Thus it can be understood that that if producers involve more number of intermediaries their profit would be shared.
- The overall marketing cost for chilly in Channel I was Rs. 48.25, Rs. 118.58 in Channel II, and Rs. 69.16 in Channel III, according to the findings. The marketing was greater in Channel II because it includes two middlemen, a wholesaler and a retailer, to get the produce into the hands of the customer. In channel III, the sole intermediate was a store, but in channel I, there were no middlemen because the food was sold straight from the farmer to the customer.
- Paddy marketing costs totalled Rs. 72.64 in Channel I, Rs. 198.08 in Channel II, and Rs. 106.25 in Channel III. Because there are two intermediaries, a wholesaler and a retailer, involved in getting the produce into the hands of the customer, the marketing cost was greater in Channel II.
- The Acharya Approach was used to assess the marketing efficiency of tomato, and it was observed that Channel I had the highest marketing efficiency, with a value of 0.98, followed by Channel III, having a value of 0.82. The marketing efficiency in channel II was regarded low since the value was not close to 1, i.e. 0.69.
- The barriers of implementing e-NAM in Tripura are like- less number and improper management of storage structure, small and marginal land holding,transportation and connectivity, awareness, lengthy and complex process, fear of not getting reliable prices, collection of payment from bank, financial weakness, low literacy rate among the farmers, purchasing of produce without any inspection, no proper infrastructure system in the market.

8.2. Conclusion

After studying the whereabouts of the regulated markets in Tripura, it can be ascertained that the development echelon of the farmers' lives remained unsatisfactory. It has been observed that rural farmers are still unaware of the optimized utilization of market resources. Farmers as well as traders are found not to be technologically sound enough to handle online trading of their agricultural products, and most of the transactions are being solemnized by cash. Even so, they are found not to be comfortable with smart phones and computers, which lead them to avoid such things. The inefficient functions of the market do not help them to maximize their profit.

8.3. Recommendation

This study is basically a survey based project conducted for regulated market in Tripura. Based on the findings of the survey research, some proposal, suggestions and recommendations are presented below:

1. The state should amend their APMC Acts on the lines of Model Act (The Tripura Agricultural Produce Markets {Second Amendment} Act, 2007) and may encourage the development of Self Help Groups, Farmers/Farmer Producer Organization (FPO) etc. in order to reap the full advantages of reforms by small and marginal farmers.
2. Presently Tripura having inadequate number of cold storage facilities (14 numbers with the capacity of 46354 MT, Ministry of Agriculture and Farmers Welfare, 2020) which are an essential part supply chain management of agricultural products. Hence, number of cold storage and warehouses needs to be setup adjacent to the market district wise. Most of the farmers sell their produce at open market yards. During the rainy season, it will be very difficult for them to carry out this trading activity. Such facility will provide security to producers when they keep their produce overnight, help them sell their produce within a short period of time, and help to reduce post-harvest losses.
3. As per the observation all the market functionaries are found to be marginal farmer hence, initiatives are to be taken so that farmers co-operate with FPOs to tackle productivity problems, cooperative farming, and small farm challenges, marketing practices etc. And also encourage contract farming system in the state, thus state should support small and marginal Farmers' Groups/Associations or their Company/Society.

4. The requirement of marketing infrastructure in the North-Eastern region and Hilly areas is different than rest of the country. Government of India should flow fund for development of marketing infrastructure in that areas. A separate agricultural marketing strategy for North Eastern Region and Hilly areas may be adopted and proper utilization of fund may be carried out.
5. As data is not available and updated on continuous basis, consistentand accurate data entry is required in the AGMARKNET nodes (www.agmarknet.gov.in) installed in the state's regulated markets.
6. A processing unit/industry may be set up in a nearby market place where raw agricultural products are treated to boost their value. The presence of processing plants near a market increases demand for the product.
7. Electronic trading in the market, at least at the district level, is required to maintain transparency in agricultural produce transactions and to obtain the best price for the produce;
8. Farmers' benefit can be increased by providing market grading and standardization services. But presently in regulated markets of Tripura, non-standard produce grading system has been following by farmers which have a lower value or price. Producers would have more negotiating power with dealers if there would have been a proper grading facility in the market.
9. Market cantered physical infrastructural facilities(Annexure I)including auction room/place, platform for sales, cattle shed, market information facility(local and non digital), price notification board, e-trading, market boundary, drying yard, farmers rest shed, sanitary facilities, drinking water facilities, drainage system, cleaning, sweeping facility, garbage movement facility, electricity and medical facility are found to be inadequate which further required setup to boost the marketing practices in the regulated markets of Tripura.
10. A network of rural storage centres should be built on a priority basis in order to prevent distress sales, wastage and loss arising out of inadequate and defective storage facilities; These storage centres may be constructed and managed by panchayats, cooperatives, APMC and other suitable agencies selected by the State Government.
11. Each APMC should have a marketing officer/manager, preferably from the local area and he should be trained in the basic essentials of marketing functions by attaching him to a storage centre, eNAM cell etc.; Requires

technical guidance, supervision and assistance should be provided by the State Agricultural Marketing Boards/Directorates.

12. Continuous and comprehensive training and awareness programmes should be introduced for the farmers and other market functionaries to assist them in increasing their understanding of the advanced marketing system, grading system and post-harvest loss process etc. in order to create an efficient marketing system.

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