# VALUE CHAIN MAPPING OF PADDY IN THRISSUR DISTRICT

By

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**(2012-15-106)**

# THESIS

Submitted in partial fulfillment of the
requirement for the degree of

*Master of Science in Cooperation & Banking*

**(Rural Marketing Management)**

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2018

# DECLARATION

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# DECLARATION

I, hereby declare that the thesis entitled **"Value Chain Mapping of Paddy In Thrissur District"** is a bonafide record of research work done by me during the course of research and that the thesis has not previously formed the basis for the award to me of any degree, diploma, fellowship or other similar title, of any other university or society.

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# CERTIFICATES

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Certified that this thesis entitled **"Value Chain Mapping of Paddy In Thrissur District"** is a record of research work done independently by **Ms. Keerthi P N** under my guidance and supervision and that it has not previously formed the basis for the award of any degree, fellowship or associateship to her.

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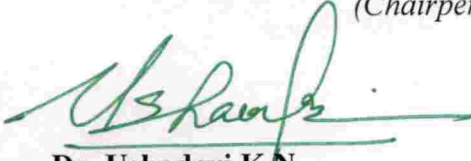Vellanikkara, Thrissur

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# ACKNOWLEDGEMENT

# ACKNOWLEDGEMENT

*First and foremost, I praise god, the almighty for providing me this opportunity and granting me the capability to proceed successfully. This thesis appears in its current form due to the guidance, advice, assistance, help, support, encouragement and prayers of numerous people including my well wishers and friends. It gives me great pleasure in expressing my gratitude to all those people who have supported me and had their contributions in making this thesis possible.*

*I express my profound sense of reverence to my guide and advisor, **Mr. Mohanan, M** Associate Professor, Department of Rural Marketing Management, College of Co-operation, Banking and Management. This work would not have been possible without his expert guidance, constant support, valuable suggestions and encouragement. No words in my vocabulary are would suffice to express my heartfelt thanks and gratitude for his untiring help, kind patience and personal care throughout my academic career. I am thankful to the Almighty for giving me an advisor like him.*

*I pay my homage to **Dr. K. N. Ushadevi,** Professor and Head, Department of Rural Marketing Management, College of Co-operation, Banking and Management, for her expert guidance, kind help and whole hearted co-operation that I have received during my work. This work would not have been possible without her help, support and encouragement. I express my deepest sense of gratitude to her for the great effort and keen interest she has taken in my work with valuable corrections, criticisms and suggestions.*

*I owe a deep intellectual debt to **Dr. Shaheena, P** Professor and Head, Department of Development Economics, College of Co-operation, Banking and Management, Kerala Agricultural University, for her kind help and whole hearted cooperation that I have received during my work. I am immensely indebted to her for the keen interest she has shown in my work, with a lot of valuable corrections and suggestions, positive encouragement and advice*

*I express my deepest gratefulness **Dr. E. Vinaikumar,** Professor and Head Department of Cooperative Management, College of Co-operation, Banking and Management, for providing valuable advises and suggestions during my period of Study.*

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# INTRODUCTION

# CHAPTER I

## INTRODUCTION

Rice has shaped the culture, diet and economy of thousands of millions of people. "Rice is life" for more than half of the humanity. It occupies 7.46 per cent of total cropped area in the state. During the year 1974-75 the total area under rice cultivation was 8.82 lakh hectares which has declined to 1.96 lakh hectares in 2015-16. The production also showed a decline, from 13.76 lakh MT to 5.49 lakh MT during the same period (Economic Review, 2016). Rice fulfils the role as a primary food for more than half of the people in the country and also we cannot ignore the use of other parts such as the straw and bran, which are commonly used for cattle feed and oil purposes. It means each and every parts of paddy is important. The cultivated varieties of Rice are *Oryza sativa* and *Oryza glaberrima*. We see the cultivation of *Oryza sativa* in all cultivating areas whereas *oryza glaberrima* in West Africa. It indicates that origin of cultivated rice is south-eastern Asia (India, Mayannmar and Thailand) and West Africa.

According to suitability of soil and availability of water, paddy cultivation in Kerala is divided in to three seasons namely Virippu, Mundakan and Punja. The first season of crop is Virippu/Autumn which extends from April- May to September- October, the second season is cultivated during September- October to December- January which is called as Mundakan/ winter and the third crop is Punja /summer is during December- January to March- April. Among all these three seasons, Mundakan is the highest producing season which cover maximum area. Palakkad, Alappuzha, Thrissur and Kottayam districts accounts 81.2 per cent of total production, district wise production being 41percent, 16 per cent, 14 per cent and 9 per cent respectively.

The decrease in the area of paddy production is attributed to high cost of cultivation, un-remunerative price compared to cost of cultivation, non availability of labours, conversion of paddy land for non-agricultural purposes, and switching over to other crops. It creates an adverse impact on food security of our state. So we want to depend more on our neighboring states like Tamil nadu, AndraPradeesh, Orissa and Bengal. Different government institutions intervene in this issue of decline in production by making interventions in labor shortage, remuneration, availability of machine, wasteland cultivation, subsidy for seeds and fertilisers etc. Price Support Policy is one such measure taken by GOI for ensuring better return. Even though Government ensures the procurement of paddy, the farmers are not fully satisfied.

The increased price of rice has not reached the farmers. In this context, analysis of value chain helps to trace product flows, shows value addition at different stages, identifies key actors and their linkages in the chain; identifies enterprises that contribute to production, services and required institutional support; provides a framework for sector-specific action; identifies strategy to help local enterprises to compete and to improve earning opportunities of actors.

Kaplinsky and Morris (2001), describes value chain as full range of activities which are required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to final consumer and final disposal after use.

Visualisation of network (mapping) always gives better understanding on the relationship between actors. It provided basic overview of the value chain and helps in identifying constraints and possible solutions at different levels. An agriculture value chain starts with farmer producer and ends with consumer. The actors or stakeholders in a value chain are of two types - one who directly involved in the core activities and the other who facilitates the action of actors, who provide support services like information, credit, input, technology etc.

There are three main research streams in the value chain literature

1.    Filiere approach ( Durufle, Fabre,1988 )
2.    Porter's approach( Porter, 1985)
3.    Global approach( Kaplinsky and Gereffi,1994)

**Filiere approach**

Filiere approach was based on various school of thought and research traditions. The approach was mainly used to analyse the agriculture system developing countries under French colonial system. The Filiere approach paid special attention on studying how local production system were linked to processing industry, trade expert and final consumption. Filiere approach focused on issues of physical and quantitative technical relationships, summarized in flow charts of commodities and mapping of transformation relationship.

**Porter's approach**

Model created by Porter, identifies a number of primary and support activities that are common in value chain analysis. Value chain highlights specific activities through which

firm can create value. Porter distinguishes between primary activities which directly contribute to add value to the production of the product or services and support activities which have an indirect effort on the final value of the product.

**Fig 1.1 Porter's value chain**
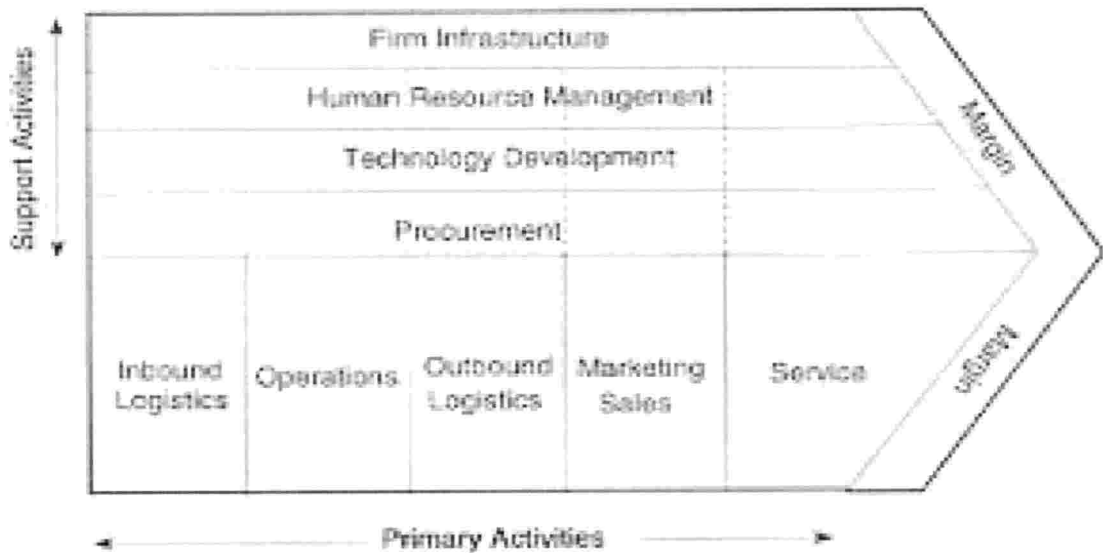


In Porter system, firm's activities are considered as a part of a larger stream of activities which author termed on the value system. A value system includes the activities implemented by all firms involved in product of a good or service, starting from basic raw materials to those engaged in the delivery of the final producers to consumer. So Porter's approach to value chain is a border approach.

The value system in Porter's approach is described in the below figure.

**Fig 1.2 Porter's value system**



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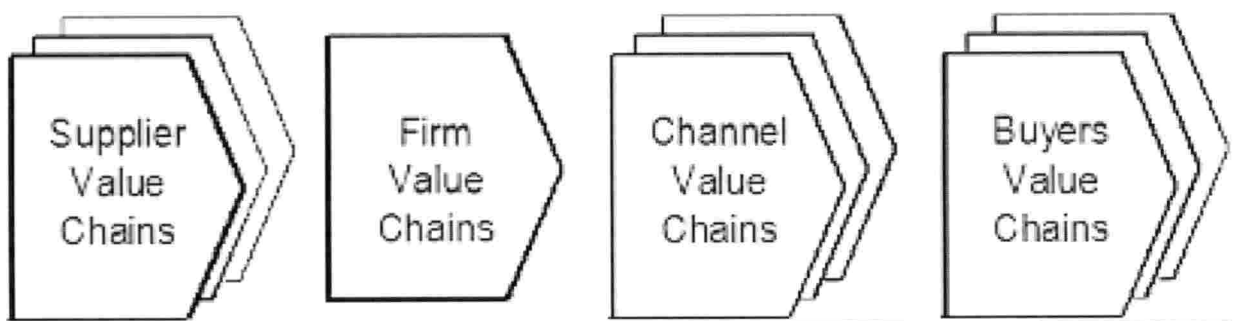
## Global approach

The global approach forwarded by Gereffi and Korzeniewicz 1994 and Kaplinsky 1999 examine the ways in which firms and countries are globally integrated and access the determinants of global income distribution. The disparity in global income distribution is widening unfavorably. So with the help of mapping the full range of activities along a chain, breaks down total value chain earnings into the rewards which are earned by different parties in the chain.

In the present study, Global approach of value chain analysis has been used for mapping of value chain which helps to understand the overview of value chain as well as constraints and possible solutions at different levels in the value chain.

Even though there is no comprehensive method in mapping value chain, there are eleven potentials which can be mapped for understanding value chain better.

The potential dimensions are as follows:

1. What are the core processes in the value chain?
2. Who are the actors involved in these processes and what they actually do?
3. What are the flows of product, information and knowledge in the value chain?
4. What is the volume of products, the number of actors and jobs?
5. Where do the products (or service) originate from and where does it go?
6. How does the value change along the chain?
7. What types of relationships and linkages exist?
8. What types of services are feeding into the chain?
9. What is the location and position of the poor in the value chain?
10. What key constraints exist at various levels in the chain and what are the potential solutions to those constraints?
11. How do products, information and knowledge flow through the value chain?

## 1.1 Significance of the study

Kerala's agricultural economy is undergoing a structural transformation from the mid-seventies by switching over a large proportion of its traditional crop area, which was devoted to subsistence crops like rice and tapioca, to more remunerative crops like banana and other plantations.

Economy is a mixture of primary, secondary, and tertiary sectors. The contribution of each sector to gross state domestic product is very essential for smooth functioning of the economy of our state. Present figures published by Envis centre (Ministry of Environment and forest) and the Govt. of India, the contribution of primary sector to GSDP are only 17 percent and that of tertiary sector is 61 percent. The decrease in the contribution of agriculture to GSDP is presented in table 1.1

**Table 1.1 Share of agriculture and allied sectors in GDP and GSDP, India and Kerala, base year 2011- 12 in per cent**

| Year | Share of agriculture and allied sector in total GVA (India) | Share of agriculture and allied sector in total GSDP (Kerala) |
|------|------|------|
| 2011-2012 | 18.5 | 14.38 |
| 2012-2013 | 18.2* | 13.76 |
| 2013-2014 | 18.3* | 12.9 |
| 2014-2015 | 17.4@ | 11.6 (P) |
| 2015-2016 | NA | 10.38 (Q) |

# Fig with 2004-05 base in brackets; (P) Provisional (Q) Quick

* Second RE (new series), @First RE

Source: Official web portal government of Kerala

Rice is the basic food grain of Kerala. It is part and parcel of Kerala's culture. Despite this, the area and production of paddy is decreasing over years. The gap in investment and return compel the farmers hesitate for paddy cultivation. Now a days the conversion of paddy fields to other remunerative cash crops are common phenomenon. The hesitance to agriculture is evident from census reports also, the number of people engaged in agriculture has decreased and there is 7.4 per cent decrease in agriculture cultivators compared to 2001 census (2001 census, 724155. 2011 Census, 670253 respectively).

Even though Govt. provides financial as well as marketing assistance to the paddy growers, there is decline in paddy cultivation. Today, rice occupies only third position behind coconut and rubber, in area under cultivation. Rice being staple food of Kerala, a wide

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market is promised for the cultivators. Even then there is a decline in production. So this hesitation of producers is a subject for the study in the way of remuneration, policy and return.

## 1.2 Statement of the problem

The process of conversion of paddy into rice involves stages of activities. It is not completed in field itself, it is to be carried to processing centers for processing and converting to cooking form. Thus it involves a number of participants in its conversion process, a set of people involved in it. If a farmer stops cultivating it, it directly affects the actors in the chain, and now days the trend of paddy production go downwards. It will affect all the chain members in the process of value addition. Not only farmers all members in the chain want the input at a lower price and to sell it at a reasonable price to get a good margin. If it doesn't happen, they will change to other crops cultivation. So the chain breaks and collapse.

Thus it is important to know whether all participants in the chain are getting reasonable price or the profit accumulates in the hands of any chain members. This will enable the policy makers to overcome the drawbacks, add necessary changes and to know whether they get reasonable profit and also to continue in the chain.

## 1.3 Objective of the study

The objectives of the study are:

i.   To map the value chain of paddy in Thrissur district
ii.  To identify the factors influencing choice of value chain of paddy
iii. To analyse the price spread efficiency and factors influencing it
iv.  To identify interventions necessary to improve the value chain of paddy

## 1.4 Scope of the study

There is a promised market for rice in our state. Varieties of rice are available at different prices in the market. Normally the price ranges from Rs. 29 to Rs.52 per kilo gram. This increase in price is not reaching the farmers. It may be because of different reasons like monopoly of millers, over dependency on agents, lack of govt. policies in paddy farming, improper implementation of existing govt. policies etc. This study will help to find out any other reasons prevailing, other than those mentioned above, and the intensity of each.

In this context, analysis of value chain helps to figure out price flows, key actors and their linkages in the chain, identifies enterprises that contribute to production, services and institutional supports to find out the way out for getting better remuneration etc. to all chain members in the value chain.

## 1.5 limitation of the study

Major limitation of this work is that the study confined only to Rice. The different actors involved in the value chain from the paddy field to the consumers were selected within the district. The information about the agents were limited since they come on seasonal basis to the field directly and settle all their activities their itself. For calculation purpose the retailers selling price is considered as consumer purchase price.

## 1.6 Organisation of the thesis

The report of the study has been presented in five chapters. The first chapter narrates the design of the study encompassing significance, statement of the problem, objectives, utility, scope and limitations of the study and organisation of the thesis. The second chapter presents the review of available literature covering various aspects of the study. The third chapter elucidates the methodology and data sources adopted in conducting the study. The fourth chapter is set aside for the results and discussion of the study. The last chapter highlights the summary of findings and the conclusion of the study followed by references and abstract of the thesis.

# REVIEW OF LITERATURE

# CHAPTER II

# REVIEW OF LITERATURE

Review of literature is an essential part of all kinds of research studies. It helps to familiarize the conceptual and methodological issues relevant for the study. Such a review could provide a frame of reference for the present study and serve as a point of literature for the future empirical investigation. Keeping in view of the study, reviews are presented as below.

## 2.1 Value chain meaning and concept

Schmitz (2005) emphasized that value chain analysis is essential to explain the connection among all the actors in a particular chain of production and distribution and it shows who adds value and where, along the chain. It helps to identify pressure points and make improvements in weaker links where returns are low.

Hellin and Majer (2006) in their work on guidelines for value chain analysis suggested that value chain analysis is a powerful tool for analyzing how existing chains are structured and operate, impact of chains on farm level decisions on utilizing crop genetic resources and leverage points in the chains that would maintain or enhance crop diversity as opposed to its reduction

A study by Trienekens (2011) presented a framework for developing country value chain analysis, which include three components first identifying major constrains for value chain upgrading, market access restrictions, weak infrastructure, lacking resources and institutional voids. Second components including value addition, horizontal and vertical chain, network structure and value chain governance mechanism, third component including upgrading options in areas of value addition, including search for markets, the value chain network structure and the governance form of the chain.

## 2.2 Value chain analysis

A study undertaken by Verma *et al.* (2004) examined the price spread, marketing efficiency and constraints in marketing of onion. A multi-stage random sampling technique was adopted for the data collection. The study was conducted in Indore block of Indore

district of Madhya Pradesh where onion is an important crop. Stratified random sample procedure was adopted for the selection of villages and onion producers. A sample of 80 farmers was selected randomly. These farmers were stratified into three group's viz., small, medium and large farmers. Ten percentage of the market functionaries in Indore vegetable mandi were interviewed for collection of information on marketing of onion. The researchers found out 3 channels of marketing viz., Channel I- producer- consumers, channel II – producers- retailers- consumers, channel III- producers- wholesalers- retailers- consumers. The costs, returns, price spread, Producers share in consumer rupee and marketing efficiency were found out. The producer's share and marketing efficiency were highest for channel I as there were no intermediaries in between producers and consumers. Un remunerative prices during the peak season and lack of storage facilities, high price of seed, fertilizers and pesticides, costly transportation and market charges, inadequate skilled labour and lack of credit facilities and information about arrivals and prices in the major consuming markets were main problems reported by onion producers.

Gilbert (2007) worked on value chain analysis and market power in commodity processing with application to the cocoa and coffee sectors. The article has aimed to resolve the apparent paradox that retail coffee and chocolate prices have declined at most modestly over the past three decades while producer prices for coffee and cocoa have fallen more dramatically, resulting in substantial falls in the producer shares of retail prices. The main conclusion of the paper is that global value chain analysis is not useful in explaining value shares, and indeed, the producer's value share of the retail product is not always a useful concept. The explanation of declining producer shares is more straightforward - processing, marketing and distribution costs, incurred in consuming countries, have tended to increase over time while production costs at origin have declined.

Nikam *et al.* (2007) studied marketing of potato in Pune and Satara districts of Maharashtra. The results revealed that at the overall level, the average per quintal cost of marketing was Rs. 88.70 of the total marketing cost, the items such as commission, transport cost and packing cost were observed to be the most important items of cost which accounted for 44.60%, 22.36% and 16.72%, respectively. These items together shared 88.68 per cent of the per quintal marketing cost. Remaining 11.32 percent of the marketing cost was shared by grading wages, hamali, weighing and market fee which accounted for 5.35, 2.63, 2.15 and 1.19, respectively.

Shelke (2009) studied the marketing of potato in Maharashtra. During the peak period of arrivals the wholesale and retail prices of potatoes were much lowered. There was much wide difference between wholesale and retail prices. The margin of the retailer was extra ordinary high in all the vegetables under study. The retailers share ranged between 12 to 41% while the producer's net share ranged between 42 to 57%. The retailers received lion's share of the consumer's rupee. Producers can be highly benefited and increased their share to 95.85% from 55.35% in consumer's price by selling their vegetables directly to consumer rather than selling to wholesalers. Hence producers should arrange to sell their vegetables directly in the consumers market wherever possible.

Basu (2010) examined the marketing efficiency of potato markets in West Bengal's Hooghly district. The analysis was made at three levels, namely wholesale markets, retail markets and the village market. The analysis using the co integration test revealed that the potato markets were integrated and efficient. The study simultaneously covered two regions - the cold storage concentration zone and the non-concentration zone and concluded that 'efficiency', as revealed by integration of wholesale and retail markets, cannot coexist with a complex and non-competitive market structure at the village level. This means that the village findings support the inefficiency of potato marketing. There is a need to intervene the private corporate sectors in the potato market to enhance the efficiency at the village level.

Gangwar et al. (2010) compared two distinct kinds of markets via organised and unorganised for broilers in national capital region, Delhi. The study was based on secondary as well as primary data collected from different market functionaries like poultry producers, commission agents, processors/dressers, suppliers, wholesalers, retailers and consumers involved in the performance of marketing of broilers. On the basis of data collected marketing cost, marketing margin, price spread and efficiency were worked out on each of the identified channels. Simple tabular and standard analytical tools were used to analyse the data. The marketing efficiency was worked out by applying methodology suggested by Acharya and Agarwal (2004). The study concludes that wholesale regulated poultry market was the key supply center for chicken and 70 per cent broilers in the market were manually dressed and it provides employment around 5000 workers.

Sharma et al (2010) examined value chain analysis and financial viability of agro-processing industries in Himachal Pradesh. Two-stage stratified sampling design was

followed to select district and processing units. Three districts each from backward and developing region was selected. These units were grouped into different categories on the basis of commodity specific agro processing, cereal based, oil seed based and vegetable based units. The breakeven analysis showed enough leverage for processing units to stay in business even at low capacity utilization. The financial viability ration computed shows high current ration and low quick ration in most of processing industries. A direct relationship has been found between size and backwards & forward linkages. The study recommended emphasis to develop raw materials producing region, thus on small scale industries for self employment in micro enterprises in rural areas, promoting of subsidiary and supporting industries to diversify the value chain.

Jadav *et al.* (2011) studied on economic analysis of supply chain of fresh potato in middle Gujarat with objective of studying different supply chain approach of fresh potato and analyse their efficiency and to study products & marketing constrains of potato cultivation. Multistage sampling technique was used for study. Absolute margin of middle men and modified measure of marketing efficiency suggested by Acharya was used for study. The major marketing channel found out in the study was Producer=>wholesaler cum commission agents=>retailer=> consumer which covered more than 60% of market surplus. The major marketing constrains faced by the vegetable grower engaged in potato was lack of marketing information and transportation facilities and higher production expenditure and price fluctuations. To overcome these problems facilities of cold storage, adequate transportation facilities, facilities of vegetable cooperate society were suggested.

In the article of value chain analysis of Apple from Jumla by Malik and Hijdra (2011) aimed to provide a sufficient contextual analysis of apple in Nepal, especially in Jumla district, in terms of present status and future potential. It provided a concise picture of value chain of Jumla apple in order to identify the constrain and opportunities that can be exploited for promoting income and employment for the rural poor of Nepal. Even though the progress has been made, it needs more weightage to be given for apple as a major sub sector in share in Nepal market. The author suggested to promote the Jumla apple as organic with or without certification to compete in the market.

Sindhu *et al.* (2011) studied on marketing efficiency of green peas under different supply chains in Punjab. The marketing of green peas was studied by three supply chains viz, 1. Producer-wholesaler (commission agents)-retailer- consumer; 2. Producer- retailer

(through commission agent) - consumer; 3. Producer- consumer. The net price received by the producer was found higher in third channel of supply chain, followed by 2 and 1 respectively. Marketing efficiency was also found higher for channel 3, 2 and 1 respectively. One percent increase in marketing margin and cost, marketing efficiency decline by 0.45 and 0.44 percent respectively. The authors suggested for building up public private partnership to bring efficiency in marketing of green peas.

Working paper on farm to fork supply chain of potato in state of Bihar submitted by Sing (2011) opined that food supply chain in India is highly fragmented. Number of intermediary is exceedingly high. These intermediaries are important because they act as a substitute for infrastructure. Layer of intermediaries has absorbed maximum margin in food supply chain, adding with value to the producer. The present study carried out in the state of Bihar has found share of the farmer in the total margin across the value chain of potato considerably low and the maximum margin is cornered by the intermediaries. The study also analysed the contribution of value addition in total price escalation along the value chain and along the share of farmer in the final retail price. The study also recommended that the government should play an important role in setting the overall strategy and ensuring its implementation, overhauling the infrastructure and creating a conducive environment to attract sizable investment in the future.

Venkatesh (2011) analysed important marketing channel and actors involved for domestic coffee, coordination between actors of the coffee chain and distribution of value added between the different actors. Semi structured questionnaire with both open and close ended questions were used to interview the farmers and other actors. Simple descriptive statistical tools, market cost and price spread were used to analyse the data. The study found out that share in profit received by small farmers was very less. In addition, to that poor quality and low quantity of supply were hurdles for small producers in gaining direct access to the international market. Innovations in mechanisation, financial support, flow of information, etc. can improve the efficiency of value chain.

A study on enhancing backward poultry enterprise performance in the Tuchman area: A value chain analysis by Charles (2012) explored the backyard poultry value chain with regard to activities and the relationship of actors which influence the performance of the industry. The back ward poultry being part time activity, it is underdeveloped and less business oriented. These factors make industry less competitive as products do not mach consumer

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demands. A collective strengthening of chain relations of backyard poultry actors and market institution are currently absent in the industry. Improvement of product quality and quantity through information sharing is also absent. Collective interaction with support institutions and joint disease control and better price through collective marketing. The study suggest that the efforts to advance the development of backward poultry sector in Ghana, will acquire a shift in development orientation based on assumption that the improved technical efficiency is in itself a sufficient outcome, sustainable improvement in the BP sector must address organisational as well as technical components with schemes that promote and improve the social integration of entire BP enterprise sector. Semi structured interview guides, qualitative data were collected through focus group discussions and key informants interviews. Four focus group discussions with 10 farmers each, were undertaken to collect data.

Efficient marketing plays an important role in increasing the producer's share in consumer rupee and maintains the tempo of increased production (Dwibedy, 2013). The cost of cultivation, profit, price spread and marketing of brinjal in Kurdha district of Odisha were examined during the period from 2011-2012. Primary data were collected from 80 farmers through personal interview method using a pre-tested schedule. Three market channels were identified in the study area. The channels identified were channel I- farmer-commission agents- wholesalers- retailer- consumers, channel II- farmer-wholesalers- retailers-consumers and channel III- farmers-organised food retail chain- consumers. The major findings revealed that the producer's share in consumer's rupee and most efficient channel for marketing Brinjal as channel III, followed by channel II and channel I.

Prakash and Paramisvam (2013) studied on marketing efficiency of tea under different supply chain in Nilagiri district of Tamil Nadu. The study was aimed to identify the different supply chain and estimate cost and margin in each channel, the most efficient channel compared to other channels in tea supply chain was producer- green tea leaf collector/ agent- processors- retailer- consumer. In this channel producer, processor and retailer were benefited mainly because of high margin. Marketing efficiency was found to be more in the channel were number of intermediaries were less.

Bwalya (2014)in his study - analysis of the value chain for indigenous chickens in zambias - found that even enormous potential that indigenous chickens have, for sustaining livelihoods, their production and marketing, has been mostly neglected resulting in the sub

sector being highly under developed with poor linkage between producer and consumer. Objective of the study was to map, analyse the value added and associated cost in the chain. High mortality of indigenous chicken in household is the reason of low productivity. This low productivity leads to unplanned sales. Limited knowledge of producers on methods of disease prevention and breeding practices also reduce production. Even though the study showed a positive gross margin for all players along the chain there is need to address various constrain affecting the value chain to improve the operation of the chain and hence improve the income of value chain actors.

Meena and Singh (2014) had studied on the price spread & efficiency of marketing of tomato in Rajasthan with special reference to Jaipur and Kota purposively with higher area and production. A sample of 50 tomato farmers and 05 intermediaries each from agents, wholesalers and recruiters were selected and surveyed. For the purpose of study producers share in consumer rupee and modified measure of marketing efficiency suggested by Acharya was used. The author found out 02 major channels:  Channel 1 =>producer=>commission agents cum wholesaler=> retailer=>consumer .channel 2=>producer=>village trader=> commission agents cum wholesaler=>retailer=>consumer. The channel 1 was found more efficient than channel 2 in the area of study. The author suggested that the value addition and exploitation of export avenue and urgent need for efficient market information in the state.

Imtiyaz and Soni (2014) carried out a study in Allahabad district, India to examine existing four supply chains. The four channels was producer- consumer; producer- retailer-consumer; 3 producer- commission agent- retailer- consumer;4 producer- commission agent-wholesaler- retailer- consumer for Brinjal. The net price of producer, net profit of product, market efficiency and producer share in consumer price were significantly higher in marketing supply chain 1 followed by supply chain 2,3 and 4. The increase in number of intermediaries in marketing supply chain increases consumer purchase price, marketing margin, marketing cost and decrease producers share in consumer rupee.

A study on supply chain management and marketing potato in Medeak ditrict of Anadra Pradesh (Shivakumar, 2014) was undertaken to study the overview of supply chain management, marketing efficiency, price spread and problem faced in marketing of Potato. The farm income measures like gross income, net income, farm investment income, farm business, marketing efficiency and producers share in consumer rupee was worked out in different channels and Acharys modified method was used to decide the marketing efficiency

of different channels. The study found out that the marketing efficiency was influenced by marketing cost and margin. Promoting the export of produce in case of glut in the market, establishment of cold storage at farmers level, processing units, modernize the APMCs and reduce the entry barriers for the organized retail were the major policy change required to improve the efficiency of potato supply chain.

Safarazasghar (2015) in his study of supply chain management and marketing of apple in Kashmir region of Jammu and Kashmir: Eighty apple growers and 40 market-intermediaries were selected from 4 thehsil viz. rafiabad , sopore, kellar and shopian in Jammu and Kashmir state. Four channels identified in apple marketing are, channel 1: producer - pre – harvest contractor – commission agent cum wholesaler – retailer- consumer. Channel 2: producer - village trader – wholesaler [local] commission agent [distant] – wholesaler [distant] – retailer [distant] –consumer. Channel 3: producer – JKHPMC – wholesaler – retailer – consumer. Channel 4: producer – consumer. Producer's share in consumer rupee was highest in channel 4 which is the shortest channel. The market efficiency index of the channel was found 0.641,030, 0.79 and 2.56 respectively. The major constrains pointed out was lack of labeling, trade marketing, involvement of too many middleman, spurious pesticides and fungicides were highest in the study area. The study suggested improvement in market information, quality of fruit, provision of cold storage to increase producers' share in consumer rupee.

In the article, analysis of fruit & vegetable value chain by Ivan plazibat et al. (2016) summarised the importance of fruits and vegetables which is an important sector of agriculture production in Bosnia & Herzegovina, as they ensure food sufficiency and income for farmers. The study tried to identify and analyse the production and sale sectors of fruits and vegetables and to improve the market supply chain through the proposed application of modern management methods. He suggested that focus is needed on challenges such as reduction of inventories, appropriate response to order, short and reliable delivery within the entire chain, products delivered based on the right quantity at the right time at appropriate cost, as well as close cooperation and connection of all chain members based on the mutual understanding.

Value chain analysis of vegetables in the humid tropics of Cameroon, a conference paper (2016) by claudebidogeza *et al.* analysed value chain in selected location of Cameroon. Structured questionnaire was used for collecting data. Around 162 producers, 65 traders, 12 exporters, 30 processors and 29 transporters in the study area were surveyed. The analysis included value chain mapping and economic evaluation of value chain. Most of the vegetable farmers generally have poor access to input and output market support service, including agriculture credit. Economic analysis of the value chain show a benefit –cost ratio higher than 1 for vegetable production, processing and marketing. The study indicates that the vegetable sector is typically profitable for all actors but has disparity in the earnings.

Mohammud (2016) in his study focused on the analysis of wheat value chain in Sinana district of balekone with objective of analyzing the market- conduct- performance of wheat markets, identifying the determinants of wheat supply to the market outlet, choice of wheat producers and wheat value addition at different stages of the marketing chain. The study covered 120 farmers and 37 wheat traders for the study. Descriptive statistics and econometric models were used to analyse the collected data. The main actors in wheat value chain in the study area are input suppliers, farmers, assemblers, wholesalers, processors, retailers, commission agents and co-operatives. The study pointed out that access to market information, quantity of wheat produced, distance from market place, access to market information, access to extension and credit services significantly affect farmer's decision to be engaged in value addition. Therefore, policies aiming at increasing farmer's awareness of value added wheat production to enhance value creations are recommended to strengthen chain development.

Balachandran (2017) in his study value addition and supply forecast of Sapota fruit in India conducted in the northern Karnataka with an objective to analyse the different cost and return in the value chain  management  found that the total cost incurred by the processers in the processing of raw Sapota into one quintal of fruit was rupees 1047. The degree of value addition was found to be 58 percent of the marketing cost incurred by the retailers in marketing per quintal of sapota fruit was found to be Rs.110. Supply of sapota in India shows a compound growth rate of 6.15% annually in the study period. The study suggested that there is a great opportunity to integrate and strengthen the value chain. Higher raw material cost, commission charges, transportation hurdles are the major problem in value addition of sapota. Study also suggested that the statutory bodies have to give due attention providing approach roads to the farms processing units, cold storage marketing facilities and export

opportunity. The study covered 8 processing units, 20 wholesalers and 20 retailers for obtaining data.

Study on marketing cost, margin, price spread and efficiency of fish marketing in unregulated fish markets in Srinagar, Jammu and Kashmir was conducted by Gawa *et al.* (2017). The attempt of the study was to understand the marketing system of fish in Kashmir and suggest suitable measures to improve it. The three channels of fish marketing in Srinagar city was found out as follows Channel 1, wholsesaler- retailer- consumer channel 2, wholesaler- vendor- consumer channel 3, wholesaler- consumer. Among these channels channel 3 wholesaler – consumer was found efficient channel. The constraints analysis found that lack of marketing facility and high transportation was the most sever constrain faced by all intermediaries and the study suggested that to reduce marketing cost, marketing intermediaries need to deal in bulk quantity to achieve economies of scale and establish modern fish marketing.

## 2.3 Value chain analysis in paddy

Dooren (2005) reported rice value chain analysis in Thailand. The study included steps in the value chain of rice such as price break down of different types of rice, working the margins to the farmer, miller, trader, and exporter. It also worked the price setting mechanisms and projected causes of instability in prices. The report has analyzed that there was unequal price distribution between farmers and traders. The study concluded that increased rice price has enriched the middlemen, millers, brokers, retailers and exporters and the study has projected the constraints faced by farmers such as lack of capital and storage facilities. Further it was concluded that more than 50 per cent of rice after harvest is transported through traders and middlemen and 6% through cooperatives and the tariff barriers act as disadvantage for processing industries in developing countries.

Kabir (2008) studied the supply and value chain analysis of rice mils with an objective of identifying the present status of rice mills in Bangladesh, supply and value chain of automatic & semi-automatic rice mils, constrains of rice mills especially in supply and value chain and recommended priority area for intervention. The samples for the study was selected on random and cluster sampling technique wherever necessary. The study was based on 4 types of rice mills - traditional, husking, semi-automatic & automatic. The distinct channels of rice mills are found as imported machinery channel, rice mill equipment

production channel and rice processing channel. The major constrain found in the study area are lack of skills related to operation and maintenance of rice mills, fabrications of rice mills, machine and equipment's, marketing and financial management and accounting in rice mils, lack of market linkage of small farmers, traders and processors, lack of access to export market for aromatic rice, lack adequate storage facility, increased transport cost during peak season, lack of modern technology at rice mills.

A study by Gebremeskel (2010) tries to identify challenges, opportunities and entry points for infusing further innovation (technological, institutional and organizational) for upgrading the rice value chain; and the actors involved, their role, attitude, habit and practices and linkage in the rice value chain in Metema, North Gondar, Ethiopia. Both primary and secondary data were used for the study. Household survey, focus group discussion, key informant interview and personal observation method were employed to gather information from stakeholders. The sample respondents were selected using probability proportional to size method. The qualitative tools for data analysis employed were chain mapping, actor linkage matrix, and swot analysis. For quantitative analysis, simple descriptive statistics such as simple measures of central tendency, standard deviation, frequency, percentage and cross tabulation were used. The study concluded that public service providers play the central role in the rice value chain development; they mainly concentrate on the input supply and production stages. Significant innovation activities/ interventions were not taken so far at the other stages of the chain (post-harvest processing, marketing and consumption) by any of the supportive actors to upgrade the value chain. The linkage between value chain actors is somewhat weak and informal in type and farmers do not have trust and good attitude towards Development Agents and District Office of Agricultural and Rural Development due to their inefficiency, inability to hear about farmers demand, indifference to encourage farmers to participate and make a decision on the development interventions.

A study by Achchuthan and Kajananthan (2012) evaluated the effectiveness of paddy field's value chain in Karachi division, Kilinochi district, Sri Lanka through field interview method for collecting details from value chain actors such as input suppliers, individual farmers, processing and marketing actors. The study concluded that Killinochchi is highly suitable for paddy cultivation. But lack of infrastructure facilities, limited storage, financial and water facilities were major difficulties faced by the farmers. This implies need for

Government and Non Government Organisations to undertake necessary activities to improve the facilities for farmers.

Karuni (2013) studied the value chain of paddy in Nalgonda district of Andrapradesh, worked out the economics of paddy cultivation in Nalgonda, estimated the price spread in each channels of value chain. She also studied the problem associated with the marketing of paddy and performance of each channels. Nalgonda district was selected purposefully because the district got bright agricultural potential for paddy production and concentration on agro banned industry for processing paddy. Total sample size selected was 120 farmers in different villages in the district. Both primary and secondary data were collected for the study. Producer share in consumer rupee, market efficiency, break even analysis, garrets ranking method was found out. The study found out marketing channels through FCI, marketing channels for export, marketing channels involving wholesaler and retailer sold within AP, marketing channels of rice bran oil, totaling 14 channels of paddy marketing. Among different channels, marginal farmers perceived faulty weighing as a major constrain, while small and marginal farmers have opined high marketing cost for transporting and commission. The distant location of market also was a constrain. The study necessitated efficient handling of the existing marketing network, assured coastal irrigation, direct procurement from FCI by establishing procurement center at farmer's convenience, construction of rural godown for storage. Varieties that withstand damage during harvest, post-harvest care by providing tarpolins, input supply from PACS, promote rice processing industries by encouraging research in food processing sectors to obtain value added products.

Sharma (2016) had conducted a study on marketable and marketed surplus of rice and wheat in India: distribution and determinants. States having significant share total production and acreage were chosen for the purpose of study and multi- stage sampling techniques was used to select farmers. A total number of 918 farmers in rice and 1193 farmers in wheat were selected. The decentralized procurement policy after 1997-98 had a good impact on rice and wheat procurement by limiting private intervention. The marketed surplus was lower than marketable surplus for large farmers having more than 4 hector, and were high for marginal farmers. Regarding the determinants that influence farmer's decision to increase marketed surplus included awareness of MSP, farm size, access to regulated market, institutional credit and family size. Among these factors family size had a negative impact on marketed surplus.

For improving marketed surplus, they suggest to improve provisions of better access to timely information about prices and competitive market structure by liberalizing agricultural markets and easy access to credit and proper storage at farm household level would increase marketed surplus and reduce forced distress sale.

## 2.4 Constrains faced by farmers

Agarwal and Saini (1995) had conducted a study in Jaipur market of Rajasthan among vegetable growers to find out the problems related to marketing. The specific objective of their study was to assess the price spread in marketing of Cole crops through different marketing channels. Two villages namely Mahapura and Bhankrota were purposively selected for the study, as these villages grow cauliflower and cabbage as their main crop. 50 farmers from among small, medium and large groups were interviewed for data collection. The marketing channels were identified after studying the sales pattern of the selected farmers. The marketing costs, margins of middlemen and producer's share were calculated using the standard formula. The researchers identified two channels in the area of study such as channel I, which include producers, commission agents, retailers and consumers and channel II, which include producers, commission agents, mashakhores, retailers, consumers. Most of the farmers adopted the second channel of marketing. The marketing cost was higher and the producers share in sale of cole crops was low for this channel, due to more number of intermediaries. The study suggested for modifying the regulatory frame work to protect and promote increased vegetable production.

Sit and Gosh (2005) studied on constraints associated with arecanut cultivation in sub Himalayan Terai region of West Bengal, India. The study pointed out that poor yielding cultivars, improper planting material, inappropriate spacing, inadequate fertiliser application, inadequate irrigation, inadequate cultural operations are the major problems faced by the cultivators.

Major issues and challenges in supply chain of fruits and vegetables agri business in Uttarakhand was studied by saouravneji (2015). The objective of the study was to identify the issues and challenges related to Fruits and vegetables supply chain in Uttarakhand state of India, and to suggest mitigation for the identified challenges in the supply chain of fruits and vegetables. Descriptive research has been used for the study. The study concluded the fruit and vegetables supply chain is improper in the study area. Lacks of cold storage, food processing units are leading to maximum inefficiencies resulting in losses and wastage of

fruits and vegetables in Uttarakhand and India as a whole. The major issue post-harvest losses and wastage due to long distance to market, higher dependency on intermediaries poor road infrastructure, inefficient mandi system, inadequate cold chain infrastructure facilities, high cost of packing, poor quality of distribution, weak link in supply chain etc. are the main problem in supply chain of fruit and vegetables. The study suggested there is high potential for development in agribusiness by setting up of cold storage infrastructure and food processing units.

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# MATERIALS AND METHODS

# CHAPTER III

## MATERIALS AND METHODS

The study entitled "Value chain mapping of paddy in Thrissur district" is aimed to map the value chain of paddy in Thrissur district, to identify the factors influencing choice of value chain, price spread efficiency and interventions necessary for improving value chain of paddy. The methods used to study these objectives are explained in this chapter as follows.

1. Concepts used in the study
2. Location of the study
3. Sources of data
4. Sample design
5. Variables measured
6. Data collection
7. Data analysis

### 3.1 Concepts used in the study

### 3.1.1 Value chain

Value chain is the full range of activities which are required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and producer services), delivery to final consumer and final disposal after use.

### 3.1.2 Value chain mapping

Mapping is a tool used in value chain for pictorial representation of value chain analysis for better understanding the connections between the actors. In the present study value chain of paddy in Thrissur district is mapped.

### 3.1.3 Core process in value chain of paddy

Core process is the basic process which occurs from input of raw materials used for cultivation into output ie, rice with added value to customer.

### 3.2 Location of study

The study area confined to Thrissur district.

## 3.3 Sources of data

Primary and secondary data were used in the study.

## 3.4 Sample design

From Thrissur district two blocks namely Puzhakl and Pazhyannur were selected based on the maximum production of paddy. From the selected two blocks, one grama panchayath with highest area under paddy cultivation was selected. From the selected grama panchayath, thirty farmers each with marketed surplus were selected for the collection of primary data through snow ball sampling method. The intermediary actors were selected based on information received from field. The sample of intermediary actors consists of one miller, one agent, five wholesalers and three retailers. Thus the total sample consist of 60 farmers and 10 intermediary actors.

## 3.5 Variables measured

Major variables used for mapping value chain of paddy are

- Core process value chain
- Actors involved in value chain
- Flow of product
- Flow of knowledge and information
- Linkages in the value chain
- Geographical flow of paddy
- Value addition

The following variables were used for studying factors influencing choice of value chain

- Income of the actors
- Availability of inputs
- Holding capacity
- Time required for price realization
- Product acceptability norms

For studying price spread efficiency the variables listed below were used

- Cost
- Return at different levels

- Wholesale price
- Retail price
- Minimum support price

To identify interventions necessary to improve value chain of paddy, the following variables were analysed

- Adequacy of information
- Adequacy of support services
- Availability of appropriate technology
- Adequacy of market
- Policy environment

## 3.6 Data collection

Primary data were collected through pre-tested structured survey schedule from 60 farmers, one miller, one agent, three wholesalers and five retailers. Secondary data were collected from Krishi Bhavan, Government publications, journals and other online sources.

## 3.7 Data analysis

The collected data were analysed with the help of appropriate statistical tools for each objective. To map the value chain, value chain mapping tool suggested by Gereffi and Korzeniewicz in global approach was used. For analyzing the choice of value chain of paddy percentage analysis and chi square test were used. The analysis of price spread efficiency was done by calculating price spread and marketing efficiency (Achary's method). Interventions necessary for improving value chain of paddy was analysed with the help of indices.

The detailed descriptions of tools are given in the following sub heads.

### 3.7.1 Producer's price

It is the net price received by the farmer at the time of first sale. This is equal to the difference in wholesale price to farmers and sum of marketing cost and value loss during harvesting, grading, transit and marketing.

### 3.7.2 Producer share in consumer Rupee

It is the price received by the farmer expressed as a percentage of the retail price.

$$P_s = (P_f \div P_r)\ 100$$

Ps = producer's share in consumer rupee

$P_f$ = Price received by farmer

Pr = Retail price

### 3.7.3 Marketing margin of a middle man

It is the difference between the total payments (cost + purchase price) and receipts (sale price) of the middle man. The margin of marketing intermediaries includes profits and return, which accrued to them for storage, transportation and the interest on capital.

**Middlemen margin = Sales price – (purchase price + marketing cost + loss in value if any)**

### 3.7.4 Marketing cost

Marketing cost refer to cost incurred by producer-seller from point of production up to sale. The cost per quintal was worked out by adding different components namely production, transportation, harvesting, marketing and investment cost.

### 3.7.5 Price spread

Price spread is difference between price received by the producer and price paid by the consumer.

$$\text{Price spread } (P_s) = P_p - P_f$$

$P_p$ = price paid by the ultimate consumer

$P_f$ = price received by the producer- seller

### 3.7.6 Marketing margin

Marketing margin is the difference between marketing cost and selling price

$$MM = SP - MC$$

MM= marketing margin

SP = Selling price

MC = Marketing cost

### 3.7.7 Modified Marketing Efficiency (Acharya's method)

It is the ratio of price received by the farmer to marketing cost and marketing margin.

$$\text{Modified marketing efficiency (MME)} = \frac{P_f}{MC+MM}$$

$P_f$ = price received by the farmer

MC = marketing cost

MM = marketing margin

### 3.7.8 Chi- square test of independence

Chi square test of independence was used to test the hypothesis that there is no relation between two categorical variables and they are independent to each other.

$$X^2 = \frac{(O-E)^2}{E}$$

Chi square test was used to find out is there any significant relation in choice of value chain of paddy by farmers with respect to income, availability of inputs, promptness of payment, holding capacity.

### 3.7.9 Problem index

Index was calculated based on Likert scale of summated rating.

$$\text{Index} = \frac{\sum_{i=1} \sum_{j=1} S_{ij}}{\sum \text{Max } S_j}$$

i = respondent

j = factor

Sij = total score of the $j^{th}$ factor of $i^{th}$ respondent

Max sj= maximum score of $j^{th}$ factor

Intensity of problem was interpreted based on range of index score.

| Range of score | Interpretation |
|---|---|
| ≤ 25 | Not at all a problem |
| ≥ 25 to < 50 | Least affected |
| ≥ 50 to < 75 | Moderately affected |
| ≥ 75 | Highly affected |

Based on the methodologies stated above, the objectives of the study were analysed and the results and discussions were presented in chapter four.

# RESULTS AND DISUSSION

# CHAPTER IV

## RESULTS AND DISCUSSIONS

The present study "Value chain mapping of paddy in Thrissur district " is aiming to map the value chain of paddy in Thrissur district, identifying factors influencing choice of value chain of paddy, to analyse the price spread efficiency, factors influencing it and to identify interventions necessary to improve the value chain of paddy. For the purpose of studying the objectives, pre structured pre tested survey schedule was used for each actors involved in the value chain of paddy. Sixty farmers from two blocks of Thrissur have been purposively selected for the survey. The selection of intermediary actors between the farmer and consumer is based on availability, one agent, one miller, five wholesalers and 3 retailers were selected. The analysis of objectives is explained under four heads as follows.

1) Mapping of value chain of paddy in Thrissur district
2) Factors influencing choice of value chain
3) Price spread efficiency in value chain of paddy
4) Interventions necessary for improving value chain of paddy

### 4.1 Mapping of value chain of paddy in Thrissur district

Raphael Kaplinsky and Mike Morris (2001), describes value chain as full range of activities which are required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to final consumer and final disposal after use.

Visualisation of network (mapping) always gives better understanding on the relationship between actors and processors. It provided basic overview of the value chain and helps in identifying constraint and possible solutions at different levels. An agriculture value chain starts with farmer producer and ends with consumer. The actors or stakeholders in a value chain are of two types - one who directly involved in the core activities and second, who facilitates the action of primary stake holders, they are the support service providers like information, credit, input, technology etc.

Even though there is no comprehensive method in mapping value chain, the global approach is used to map the value chain better. It helps in understanding overview of value chain, constraints and possible solutions at different levels in the value chain.

The following dimensions are mapped for the present study.

- The mapping of core process in value chain of paddy
- Mapping of actors involved in the value chain of paddy
- Mapping of flow of product.
- Mapping of knowledge and information in value chain.
- Mapping of linkages in the value chain.
- Mapping of geographical flow of paddy.
- Mapping of value addition at different levels

**4.1.1 Core process in the value chain of paddy can be depicted as follows.**

**Fig 4.1 Core process in paddy value chain.**

```
┌─────────────────────┐
│    INPUT SUPPLY     │
└─────────────────────┘
          ⬇
┌─────────────────────┐
│  PRODUCTION         │
│  PROCESS            │
└─────────────────────┘
          ⬇
┌─────────────────────┐
│  PROCUREMENT        │
│  & PROCESSING       │
└─────────────────────┘
          ⬇
┌─────────────────────┐
│    MARKETING        │
└─────────────────────┘
          ⬇
┌─────────────────────┐
│   CONSUMPTION       │
└─────────────────────┘
```
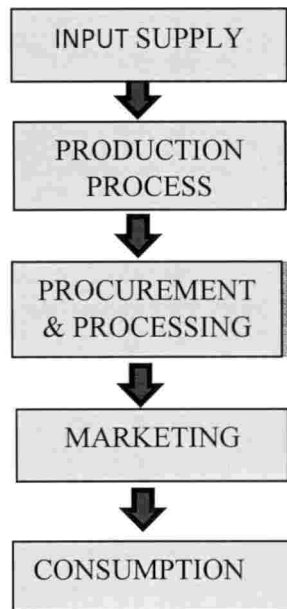
**4.1.1 (a) Input supply**

Paddy farmers highly depending on Krishi Bhavans for agricultural inputs. Farmers need Seeds, fertilizers and technology and information, pesticides, machineries and labour as basic input in paddy cultivation. It is Krishi Bhavans who supply seeds and fertilisers at low rates. In rare cases farmers depend on other farmers or self-produced seeds during cultivation. The dependency on private organizations are mainly for pesticides, tools and machineries like tractors, tillers, harvesting machines, planting machines etc. Farmers usually make use of credit facility for cultivation under zero interest rate loan schemes of cooperative banks and 4 per cent subsidised loan scheme of nationalized banks.

## 4.1.1 (b) Production

The production of paddy is undertaken in three different seasons, namely Viripu (autum), mundakan (winter), Punja/ kole (summer). The cultivation practices for these three seasons vary depending upon the geographic nature. The starting season of paddy in a year is viripu from the month April- May to September- October, followed by Mundakan during September – October to December- January and Punja being third crop from December-January to march- April. The production process involves seeding, transplanting, weeding, fertilizing and irrigation. Labour input is also an important factor affecting Paddy production, since it requires enough labors to complete the production process. Even though machineries are available from planting point to harvesting, most of the farmers are still depending upon labour force for seeding and planting. The transplanting by machinery requires water drained lands, for that purpose one whole area has to be drained fully. This requires a massive effort and the trust of farmers towards planting machines are poor whereas the harvesting process is highly depending on hiring of harvesting machineries. Padashekarasamithis collectively go for harvesting of paddy in respective areas by hiring machines. For a good yield, seeding/planting should start at the correct time and needs support from environment.

## 4.1.1 (c) Procurement and processing

Procurement and processing is also very important since paddy will get spoiled if it is not processed. High water content in paddy reduces its shelf life. So soon after harvesting the produce should be dried and stored properly. The bulky nature of the produce forces a farmer to sell the product immediately because of inadequate storage facility. Due to, this, Government of India intervenes in procurement of paddy. MSP (Minimum Support Price) is declared from time to time for supporting the farmers from distress sale. On behalf of FCI (Food Corporation of India), paddy gets procured by SUPPLYCO, through private millers on the basis of tender. On receiving order from SUPPLYCO, mill collects the product from farm gate and process the paddy to rice and hand over back to SUPPLYCO. Delay in procurement leads to sale of paddy to millers or agents at a low price, since MSP is applicable only for the SUPPLYCO procured paddy.

## 4.1.1 (d) Marketing

The Government through Public Distribution System distributes the processed paddy. The stored rice from modern rice mills would be sent to FCI godown then distributed to public on requirement basis. The paddy procured directly by mills and agents, after

processing also would be distributed through wholesaler-retailer marketing channels and rarely farmers directly sell paddy to the households.

### 4.1.1 (e)  Consumption

Rice consumption in Kerala is very significant. We have a well planned Public Distribution System through which rice reaches all over Kerala. Through private mills it also reaches all over Kerala and even to Gulf countries.

### 4.1.2 Actors involved in the value chain of paddy

Actors in a chain are the people or members from input supply to consumption. The activities undertaken by the main actors as well as supporting actors differ based on their role in the chain. .

### Fig 4.2 Actors in value chain of paddy

| Input supply | Production | Procurement & processing | Marketing | Consumption |
|---|---|---|---|---|
| Krishi Bhavan, Open market,Insurance company, Nationalised banks, Producers cooperative societies | Farmers | SUPPLYCO Private millers Agents | Wholesalers Retailers PDS | Houshold consumers Hotels, Hostels, Institutions like Anganwadies and schools |
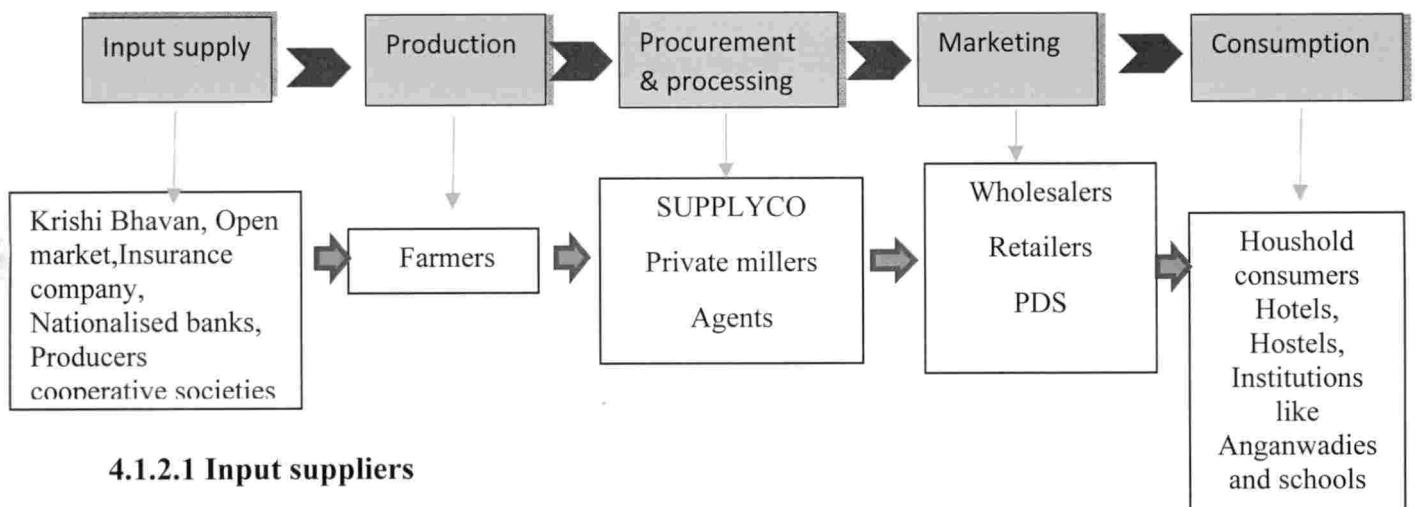
### 4.1.2.1 Input suppliers

### 4.1.2.1 (a). Krishi Bhavans

The major inputs of paddy cultivation are Seeds, fertiliser's, pesticides, machineries, labour technologies and finance. Krishibahvan provides seeds and fertilizer's to farmers at subsidized price. The main fertilizer's used for paddy cultivation are potash, urea and calcium phosphate. The farmer gets fifty per cent subsidy on urea and potash. Normal range of cost for a fifty kilogram bag is around Rs.750/- and Rs.270/- respectively. At a single time 50 kilo grams of mixed urea and potash is applied for each acres of paddy land. For each packet of 10 kilogram calcium phosphate a farmer is charged only Rs. 25/-, its original cost is Rs.100/- per packet in open market. A farmer gets 12 such packets for an acre. These supports from Krishi Bahvans are based on availability of the input with them.

## 4.1.2.1 (b) Open market

Pesticides and machineries are the inputs availed by the farmers from private traders. Private traders are suppliers of pesticides and machineries in production. Tractors, translaters, combined harvesters and tillers are the machineries required in paddy cultivation.

## 4.1.2.1 (c) Financial institutions

The farmers depend on nationalized banks as well as cooperative societies for financial inputs. They normally avail loans under Kissan Credit Card scheme which is revolving credit at subsidy rate of 4%. The major suppliers of financial inputs in the studied area are SBI and primary producer's cooperative societies.

Details of the different sources of inputs by the farmers were shown in table 4.16, which showed that Krishi Bhavan is the major source of inputs for the farmers with respect to seeds and fertilizer. For pesticides and tools and machinery the dependency is more on open market.

## 4.1.2.2 Producer - Farmers

The base of an agriculture value chain is the farmer, they are the supplier of raw materials for the next level of activities of value chain. Thus the indirect dependency of other actors to farmer is very high since their business is influenced by them. The farmers from two different blocks pazhyannur and puzhakal were selected for the study. Their socio- economic characteristics are explained in the table shown below.

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## 4.1.2.2 (a) Socio- economic characteristics of farmer respondents

The table 4.1 explains the socio- economic characteristic of farmers in the studied area.

**Table 4.1 Socio economic characteristic of farmers**

| Blocks / Particulars | Pazhyannur (n=30) | Puzhakal ( n=30) | Total (N =60 ) |
|---|---|---|---|
| **Gender** | | | |
| Male | 24  (80) | 28 (93.3) | 52 (86.66) |
| Female | 6   (20) | 2  (6.7) | 8  (13.33) |
| Total | 30   (100) | 30 (100) | 60 (100) |
| **Age** | | | |
| Below 40 | 1 (3.3) | 1  (3.3) | 2  (5) |
| Between 41 TO 60 | 17  (56.7) | 17 (56.7) | 34 (56.66) |
| Above 61 | 12 (40) | 12  (40) | 24 (40) |
| Total | 30 (100) | 30 (100) | 60 (100) |
| **Category** | | | |
| APL | 29 (96.66) | 26 (86.66) | 55 (91.66) |
| BPL | 1  (3.33) | 4  (13.33) | 5 (8.33) |
| Total | 30 (100) | 30 (100) | 60 (100) |
| **Income** | | | |
| Upto 250000 | 26  (86.66) | 25  (83.33) | 51 (85) |
| 250000- 500000 | 3  (10.00) | 4  (13.33) | 7 (11.66) |
| Above 500000 | 1  (3.33) | 1  (3.33) | 2 (3.33) |
| Total | 30 (100) | 30 (100) | 60 (100) |

Source: Compiled from primary data

*figures in parenthesis indicate percentage to total

The gender, age, category and income class shows how much the respondents are inter related among themselves or what are common in the respondents over study area. It is clear from the table that the male farmers dominate in paddy cultivation. About 86.66 percentages of farmers are male out of 60 respondents. Comparing the both blocks of survey, more contribution to paddy cultivation by female gender is from pazhyannur block rather than puzhakal.

Age is a variable indicating activity level of a person. Both blocks showed same trend in the distribution pattern of respondent farmers in the age groups. It is visible that 56.66 percentage of farmers are between the age of 41 to 60 years, followed by a group of old age (40 per cent) participating in cultivation of paddy that is above the age of 60. Only 2 among

total cultivators are below the age of 40 involved in cultivation. It shows the lack of interest among youngsters towards paddy cultivation and the worst situation of farming sector that is forthcoming.

In the respondent group APL cardholders are more than BPL. Majority (91.66 per cent) of farmers are APL card holders in the surveyed area. The family income shows how much a family can invest into farming activity and what is their income from cultivation, since occupation of majority of respondents are agriculture. The 51 families of farmers who are earning below 250000 as annual income have farming as main occupation whereas 9 families which earn more than 250000 have either business or government service as main job and farming as a secondary earning.

### 4.1.2.2 (b) Background of paddy cultivation in study area

Background of paddy cultivation was also studied to know about the reason- why the farmers are doing cultivation, how long he/she has been doing cultivation and land holding position of farmers, land usage pattern, season wise land usage pattern, respondent wise land usage position, seed varieties used in the study area.

**Table 4.2 Background of paddy cultivation of respondent farmers**

| Blocks / Particulars | Pazhyannur (n=30) | Puzhakal (n=30) | Total ( N=60) |
|---|---|---|---|
| Less than 10 years | 3    (10) | 3    (10) | 6    (10) |
| 11 to 20 years | 1    (3.33) | 7    (23.33) | 8    (13.33) |
| 21 to 30 years | 6    (20) | 10   (33.33) | 16   (26.67) |
| 31 to 40 years | 13   (43.33) | 6    (20) | 19   (31.67) |
| 41 to 50 years | 6    (20) | 4    (13.33) | 10   (16.66) |
| More than 51 years | 1    (3.33) | 0 | 1    (1.67) |
| Total | 30   (100) | 30   (100) | 60   (100) |
| Reason for cultivation of paddy | | | |
| High market value | 1   (3.33) | 0 | 1    (1.67) |
| Low cost of cultivation | 0 | 0 | 0 |
| Increasing demand | 1   (3.33) | 1   (3.33) | 2   (3.33) |
| Traditional to cultivation | 27  (90) | 22  (73.33) | 49  (81.67) |
| Interested to cultivate, self - consumption and others | 1   (3.33) | 7   (23.33) | 8   (13.33) |
| Total | 30  (100) | 30  (100) | 60   (100) |

Source: compiled from primary data          *figures in parenthesis indicate percentage to total

In the study, it is found that maximum number of farmer respondents is doing cultivation for a period of 20 to 40 years. It is true that majority of farmers are not receiving the benefit of increased price of rice, still they stick on to paddy cultivation mainly for the reason of tradition and self-consumption. Around 81.67 percentages of farmers are doing cultivation due to the reason of tradition followed by self-consumption needs.

### 4.1.2.2 (c) Land holding position of farmers

Based on NABARD guidelines, farmers are classified into marginal, small and large on the basis of land holdings. Farmers having a land holding of less than 1 hectare (2.5 acre) is called marginal farmers, farmers who are having a land holding of 1-2 hectare (2.5-5 acre) is coming under the category of small farmers and the farmers who possess a land above 2 hectare (5 acre) is coming under the class of large farmers. The same classification is followed here, total land holding of the farmer is considered for the classification.

**Table 4.3 Operational land holding of farmers in the surveyed area**

| Blocks / Category | Pazhyannur (n=30) | Puzhakal ( n=30) | Total (N=60) |
|---|---|---|---|
| Marginal | 11  (36.7) | 13  (43.3) | 24  (40) |
| Small | 8  (26.7) | 12  (40) | 20 (33.33) |
| Large | 11  (36.7) | 5  (16.7) | 16  (27) |
| Total | 30 (100) | 30 (100) | 60 (100) |

Source:  compiled from primary data

* Figures in parenthesis indicates percentage to total

Out of the 60 farmer's 40 percent of farmers belongs to marginal farmer category, followed by small (33.33) and large (27) farmers.

### 4.1.2.2 (d) Land usage pattern of farmers

As per 2011 census, total acres under wet land cultivation in Pazhyannur block are 13114.74 Ac and Puzhakal is 10861.92 Ac. The present study covered an area of 80.83, 94.49 Ac in pazhyannur and puzhakal respectively.

## Table 4.4 Area of land covered under the survey

| Block | Area under paddy cultivation (in ac) | Area under other crops (in ac) | Total (in ac) |
|---|---|---|---|
| Pazhyannur | 80.83 (54.52) | 67.43 (45.48) | 148.26 (100) |
| Puzhakal | 94.49 (92.23) | 16.65 (16.25 ) | 102.44 (100) |

Source: compiled from primary data

*Figures in parenthesis indicates the percentage to total acres

In puzhakal among the surveyed group of farmers, more than 90 percent of farmers own wet land that is suitable for paddy cultivation, whereas in pazhyannur wet land as well as other cropped land is equally distributed.

## Table 4.5 Seasonal wise land usage pattern

| Season | Pazhyannur (in ac) | Puzhakal (in ac) | Total (in ac) |
|---|---|---|---|
| **Virippu** | 59.31  (100) | 0 | 59.31  (100) |
| **Mundakan** | 79.83 (89.16) | 9.70 (10.83) | 89.53 (100) |
| **Punja** | 0 | 84.79  (100) | 84.79 (100) |
| **Total** | 139.14 | 94.49 | 233.63 |

Source: compiled from primary data
*Figures in parenthesis shows percentage to total in each season

Area of land cultivated in each season in the study area is given in Table above. The usage pattern of land for cultivation is based on the climatic conditions prevailing in each region. Both the blocks are situated in Thrissur, where farmers from pazhyannur block do farming only in two seasons namely virippu and mundakan whereas in Puzhakal the major farming season is Punja (in kole) i.e., during the month of October- January.  In rest of the period in a year the kole land is submerged. By the time of starting cultivation the soil becomes too much nutritive supporting for bumper crop.  Farmers from pazhyannur block use maximum land during second crop seasons (Mundakan, i.e. from September –October to December - January).

## 4.1.2.2 (e) Respondent wise land usage position

In this section number of farmers undertaking cultivation in each season has been explained along with category of farmers.

**Table 4.6 Respondent wise land usage position**

| Block | Pazhyannur | | Puzhakal | |
|---|---|---|---|---|
| Season / Category | Virippu (n=17) | Mundakan (n=30) | Mundakan (n=4) | Punja (n=27) |
| Marginal | 6 (35.29) | 18 (60) | 2 (50) | 14(51.85) |
| Small | 8 (47.05) | 9 (30) | 2 (50 ) | 8 (29.62) |
| Large | 3 (17.65) | 3 (10) | 0 | 5 (18.52) |
| Total | 17 (100) | 30 (100) | 4 (100) | 27 (100) |

Source: Compiled from primary data

*Figures in parenthesis indicates percentage to total farmers cultivating in each season

In pazhyannur block out of 30 farmers surveyed only 17 farmers are cultivating during virippu season. Normally in virippu season farmers hesitate to start cultivation due to low return. Whereas all farmers cultivate in mundakan season. In puzhakal area Punja is the main cultivation season since most of the farmers are holding kole lands.

### 4.1.2.2 (f) Major seed varieties used for the cultivation

**Table 4.7 Seed varieties used for cultivation in the study area**

| Block | Pazhyannur | | Puzhakal | |
|---|---|---|---|---|
| Season / Variety | Virippu | Mundakan | Mundakan | Punja |
| Uma | 2 (11.76) | 13 (43.3) | 4 (100) | 27 (100) |
| Jyothi | 10 (58.82) | 8 (26.7 ) | 0 | 0 |
| Kanjana | 5 (29.41) | 5 (16.7) | 0 | 0 |
| Mahima | 0 | 1 (3.3) | 0 | 0 |
| CR Matta | 0 | 3 (10) | 0 | 0 |
| Total | 17 (100) | 30 (100) | 4 (100) | 27 (100) |

Source: compiled from primary data

*Figures in parenthesis indicates percentage to total

The respondent farmers are using only high yielding varieties. The selection of seed is based on agro-climatic situation prevailing in the area and availability of seed based on its capacity to overcome diseases. It is evident from the seed usage pattern described in the table. Varieties like Uma, Kanjana, Mahima and CR Matta are popular in pazhyannur area and usage of the same differs based on season. In the case of Puzhakal, farmers are using only one variety. For this farmers are totally depending on krishibahvan. Farmers used to produce and keep seeds for coming seasons of cultivation. But for last few decades krishibahvan supplies seed mainly uma and jyothi varieties. The difference in seed varieties used in pazhyannur indicates that some farmers are independent in seed selection.

### 4.1.2.3 Processors

Farmers are the most important actor in an agriculture value chain. The actors next to farmers are procuring and processing members like millers and agents. In puzhakal all farmers are selling to SUPPLYCO only. Based on order from SUPPLYCO, millers collect paddy from the registered farmers from the field. Farmers in pazhyannur block sell not only to SUPPLYCO but also to agents and millers like Table 4.10.

Since the agents are seasonal visitors during harvesting season, one agent situated in Kodakara was surveyed based on availability. The agent procure paddy in his own premises rather than on farmer gate. The weighted average price (purchase) of paddy by agent is Rs.1618/quintal. The agent business runs only twice in a year. He does business only in harvesting seasons. The agent buy paddy from farmers within 30km radius. The purchased paddy is then sold to mills, after reaching 150 ton capacity, after drying if necessary.

The millers collect paddy directly from farmers as well from other millers outside the state through agents. The paddy procured within the state is processed for cooking rice only. Out of state purchase are normally in the form of rice. Millers procure paddy from farmers at weighted average price of Rs.1900/quintal.

In brief, miller sell product to wholesalers and retail shops in Thrissur rice market as well as in Pazhayannur market. They sell boiled rice to customers from the mill directly. The mill purchase different variety of rice from other states through agents, which are sold to wholesalers and companies like Elite, Pavizham etc on the basis of their needs. These interstate purchases made by the mill on unbranded items. They sell the rice in same bags as such to companies and branding will be done by the marketing companies.

SUPPLYCO plays an important role in procurement of paddy. During each harvesting seasons SUPPLYCO purchase paddy from farm gate and make payment arrangement. The MSP during survey period was 21.50 rupees per kilo grams. Moisture content of paddy is the main factor while procuring paddy from farmers. When there is above minimum level moisture they make a reduction in quantity of paddy sold by an individual farmer. It will take nearly 3 to 6 months to get the full payment credited to farmer's account which usually puts farmers under pressure.

SUPPLYCO make arrangements with modern rice mills for procurement of paddy and the quantity a mill can procure from the farmer depends on the Bank Guarantee provided by them. SUPPLYCO bear Rs.2.14 per kilogram as total cost for procurement, labour, packing material and transportation from farmers. The cost incurred by SUPPLYCO is Rs. 2.14 per kilogram. The bran and broken rice that left un-procured by the SUPPLYCO is an extra income for the mill. The dates feeding at the mills get reported through websites and reach SUPPLYCO from each and every part of Thrissur for starting the payments for the mill. The mill which was covered under the study procure paddy on behalf of SUPPLYCO and get a monthly turnover of Rs.7600000 during paddy harvesting seasons.

### 4.1.2.4 Marketers

Marketers are the point of sale of rice. Five wholesalers and three retailers, dealing in trading of rice situated in Thrissur market was selected for survey.

### 4.1.2.4 (a) Wholesaler

Wholesalers are the people involved in trading of rice. Five wholesalers from Thrissur were selected and surveyed for the study, they are the actors next to the processors. The table shows details of wholesalers.

**Table 4.8 Socio-economic character of wholesaler**

| Particulars | Respondents (n=5) | Percentage |
|---|---|---|
| **Year of establishment** | | |
| 21-30 | 3 | 60 |
| 31-40 | 1 | 20 |
| 41-50 | 1 | 20 |
| Total | 5 | 100 |
| **Type of ownership** | | |
| Individual | 3 | 60 |
| Partnership | 2 | 40 |
| Total | 5 | 100 |

| Contact with millers | | |
|---|---|---|
| Direct | 0 | 0 |
| Indirect | 5 | 100 |
| Total | 5 | 100 |
| **Form of product** | | |
| Boiled rice | 5 | 100 |
| Raw rice | 5 | 100 |
| Broken rice | 5 | 100 |

Source: compiled from primary survey

The wholesalers are well established traders in rice market, they are situated in central part of Thrissur town. All the wholesalers have above 20 years of experience in the field either with individual or partnership type of ownerships. They purchase rice from processors as well as out of states on a weekly basis. The wholesalers don't have any direct contact with mills for purchase of rice. The whole business in the rice market is through commission agents. Major rice products involved in their business are raw rice, boiled rice and broken rice.

### 4.1.2.4 (b) Retailer

Retailers are the people involved in the business of daily consumable items. it is the basic format designed to cater to the needs of end consumer. They never stock more than threshold limit which is required in the business. Three retailers were surveyed for the purpose of the study and their details are given in table 4.9

**Table 4.9 Socio-economic characteristic of selected retailers**

| Particulars | Respondents(n=3) | Percentage |
|---|---|---|
| **Year of establishment** | | |
| <10 | 1 | 33.33 |
| 11-20 | 0 | 0 |
| 21-30 | 0 | 0 |
| 31-40 | 0 | 0 |
| 41-50 | 2 | 66.66 |
| >50 | 0 | 0 |
| Total | 3 | 100 |
| **Type of ownership** | | |
| Individual | 3 | 100 |
| Total | 3 | 100 |
| **Investment in lakhs** | | |
| Up to 50 lakhs | 2 | 66.66 |

| | | |
|---|---|---|
| Above 50 lakhs | 1 | 33.33 |
| Total | 3 | 100 |
| Contact with wholesaler | | |
| Direct | 1 | 33.33 |
| Indirect | 2 | 66.66 |
| Total | 3 | 100 |

Source: compiled from primary data

The retailers selected for the survey, own their shop individually. Only one retailer was below ten years of experience. The investment was below 50 lakhs for two retail shoppers. As in the case of wholesalers, the retailers mainly contact agents for their procurement related needs. On a routine basis the agents collect orders weekly with delivery vans and previously booked items are then delivered to the retail premises. Delivery vans are playing a vital role in the transportation of product from wholesaler to retailers. The payment may be in cash or credit terms. The time given in credit purchase is one week.

### 4.1.3 Flow of product in value chain

Mapping flow of product at each stage of value chain process indicates how inputs transformed from raw material into final products. The flow of product in paddy value chain is given below-

Fig 4.3 Flow of product in the value chain
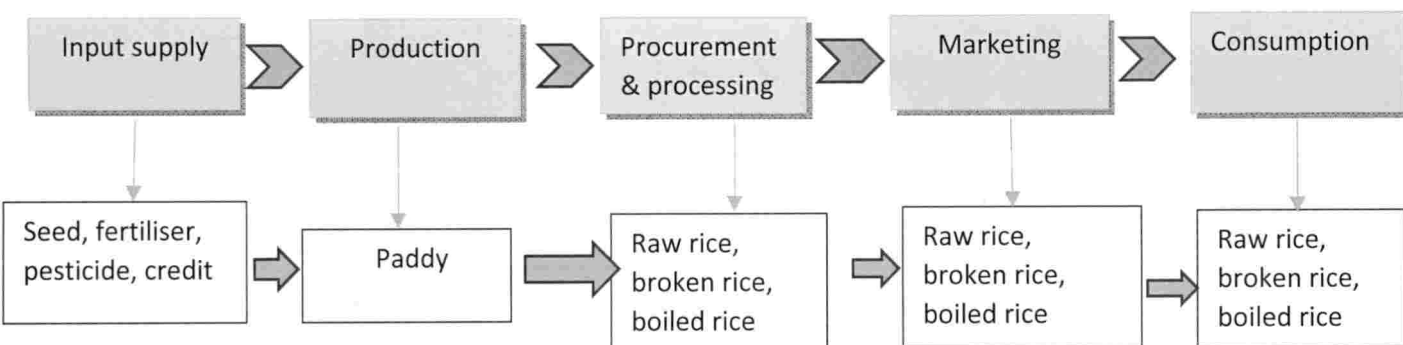


### 4.1.3.1 Input flow

The inputs like seed, fertiliser, pesticides, credit and other inputs supplied by different input suppliers are converted into paddy in the field by farmer producers with the help of farm labours. Krishi Bhavan is supplying major inputs like seed and fertiliser to the farmers, whereas other inputs like pesticides and machineries were supplied by local market (refer table 4.16 ).

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## 4.1.3.2 Flow of paddy

The raw paddy produced in the field, then flows to procurement and processing agencies. The millers, agents and SUPPLYCO are the procurement agencies in the surveyed area. The paddy is processed into raw rice, cooking rice and broken rice in the mills. The table describes the marketing channels prevailing in paddy market of Thrissur district in connection with two blocks under study.

**Table 4.10 Marketing channels of paddy**

| Channel of marketing | Pazhyannur | | Puzhakal | | Total | | |
|---|---|---|---|---|---|---|---|
| | Virippu (n=15) | Mundakan (n=30) | Mundakan (n=4) | Punja (n=27) | Virippu (n=15) | Mundakan (n=34) | Punja (n=27) |
| Direct to customer | 0 | 1 (3.33) | 0 | 0 | 0 | 1 (2.94 ) | 0 |
| Direct to SUPPLYCO | 9 (60) | 18 (60 ) | 4 (100) | 27 (100) | 9 (60 ) | 22 (64.70) | 27 (100) |
| Private millers | 5 (33.33) | 4 (13.33 ) | 0 | 0 | 5 (33.33 ) | 5 (14.70) | 0 |
| Others (agents) | 1 (6.6) | 7 (23.33) | 0 | 0 | 1 (6.6) | 6 (17.65) | 0 |
| Total | 15 (100) | 30 (100) | 4 (100) | 27 (100) | 15 (100) | 34 (100) | 27 (100) |

Source: compiled from primary data
*Figures in parenthesis is the percentage to total no of farmers with marketed surplus.

It is a survey based on the assumption that farmers are selling paddy to consumers, SUPPLYCO, open market, mills, cooperative societies, padasekarasamithies and agents. The open market sales, sales via cooperative societies, padasekarasamithies are not prevailing in the surveyed area. In pazhyannur block, farmers have different choice in marketing, like sales to mills, agents and SUPPLYCO. Only 60 percent of farmers are selling to SUPPLYCO in pazhyannur block, rest of them is selling to either private mills or agents. Even though the farmers are aware that Minimum Support Price is higher than the payment made by other channels, lack of storage facility and their delay in procurement and payment force the farmers to sell the rice to mills and agents for immediate cash. The agents procuring paddy from farmers are not involved in any other processing activities other than drying. In puzhakal block 100 percent of sale is to SUPPLYCO.

**Table 4.11 Category wise marketing channels of paddy in pazhyannur block**

| Channel of marketing | Pazhyannur | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Virippu (n=15) | | | | Mundakan (n=30) | | | |
| | Marginal | Small | Large | Total | Marginal | Small | Large | Total |
| Direct to customer | 0 | 0 | 0 | 0 | 0 | 0 | 1 (9.09) | 1 (3.33) |
| Direct to SUPPLYCO | 1 (50) | 5 (100) | 3 (37.50) | 9 (60) | 6 (54.54) | 5 (62.50) | 7 (63.63) | 18 (60) |
| Private millers | 1 (50) | 0 | 4 (50) | 5 (33.33) | 2 (18.18) | 0 | 2 (18.18) | 4 (13.33) |
| Others (agents) | 0 | 0 | 1 (12.50) | 1 (6.6) | 3 (27.27) | 3 (37.50) | 1 (9.09) | 7 (23.33) |
| Total | 2 (100) | 5 (100) | 8 (100) | 15 (100) | 11 (100) | 8 (100) | 11 (100) | 30 (100) |

Source: compiled from primary data

* figures in parenthesis shows percentage to total farmers in each category

In pazhyannur block, farmers had a choice of marketing to different agents. More than 50 percentage of farmers in each category is marketing to SUPPLYCO except in virippu season where large farmers were depending on other private agencies for sale of paddy.

**Table 4.12 Marketing channel of agent**

| Channel | Location | Quantity (in quintal) | Price (Rs./ quintal) |
|---|---|---|---|
| Mill | Palakkad | 1500 | 1900 |

Source: Compiled from primary data

The agent selected for the survey is based on the availability. The selected agent was selling paddy to mills after drying and cleaning. The average quantity sold is 1500 quintal with price Rs.1900 per quintal.

### 4.1.3.3 Flow of rice

The processed paddy from mills flow to the consumers through wholesaler and retailers in the form of raw rice, cooking rice and broken rice. The details regarding flow of rice to different customers are given in the table.

**Table 4.13 Customer wise product sold by sample wholesaler**

| Customers | Raw rice quantity(in quintal) | price (Rs/ quintal) | Boiled rice quantity (in quintal) | Price (Rs./ quintal) | Broken rice quantity (in quintal) | Price (Rs./ quintal) |
|---|---|---|---|---|---|---|
| Individual | 0 | 0 | 9570 (32.50) | 3387.58 | 0 | 0 |
| Hostels | 0 | 0 | 60 (0.20) | 3800 | 0 | 0 |
| Hotels | 72(1.26) | 2600 | 0 | 0 | 0 | 0 |
| Retailers | 3792 (66.11) | 2359.49 | 19812 (67.29) | 3186.97 | 2034 (100) | 2734.65 |
| Processing companies | 1872 (32.63) | 2550 | 0 | 0 | 0 | 0 |
| Total | 5736 (100) | 2424.68 | 29442 (100) | 3253.43 | 2034 (100) | 2734.65 |

Source: compiled from primary data

*Figures in parenthesis indicates percentage to total

The main customers for wholesalers are retailers in all forms of rice marketed. These retailers purchase all forms of products like raw rice, boiled rice and broken rice. Individuals, hostels, hotels and processing companies are the other section of customers for wholesalers business. Boiled rice is the only product an individual and hostel purchase from wholesale seller. In case of hotels and processing companies, the demand is towards raw rice from wholesale market. Comparing the share of business towards each category of customers, the major portion (above 60%) is retail customers.

**Table 4.14 Customer wise product sold by sample retailers**

| Customer | Raw rice (in quintal) | Price (Rs/quintal) | Boiled rice (in quintal) | Price (Rs/quintal) | Broken rice (in quintal) | Price (Rs/quintal) |
|---|---|---|---|---|---|---|
| **Individual** | 4.8 (2.59) | 3287.50 | 192 (21.05) | 3662 | 0.06 (100) | 5400 |
| **Retailers** | 180 (97.40) | 2800 | 720 (78.94) | 3700 | 0 | 0 |
| **Total** | 184.8 (100) | 2812.66 | 912 (100) | 3692 | 0.06 (100) | 5400 |

Source: compiled from primary data      *Figures in parenthesis indicates percentage to total

The main business of retailer is in boiled rice category. The quantity and weighted average price per quintal of rice is given in the table above. The business of broken rice is very less since its business is depends on season.

### 4.1.4 Mapping knowledge and information in the value chain of paddy

Mapping of information and knowledge flow indicates the information sharing between the chain actors. The information flow is normally two way communication.

**Fig 4.4 Flow of information and knowledge in value chain**
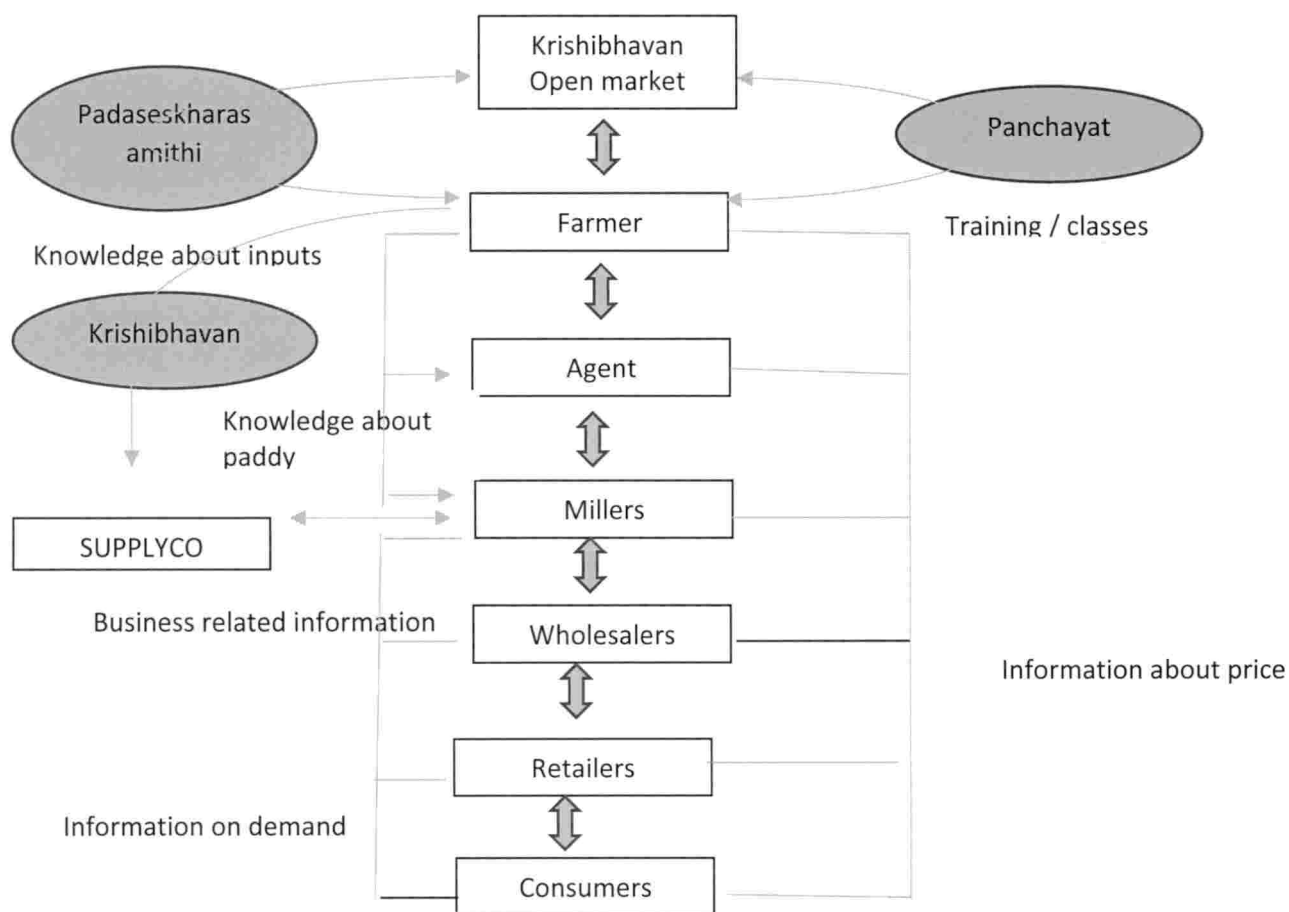
The Padasekarasamithies are the major source of information for farmers. They are the contact points of krishibhavans as well. They disseminate the information about the availability of inputs, procurement time of SUPPLYCO and minimum support price to farmers on time.

**Table 4.15 Source of information to the farmers**

| Particulars | Krishi Bhavan | Local self govt. | Padasekharasamithi |
|---|---|---|---|
| Information on inputs, registration in SUPPLYCO | 60 (100) | 57 (95) | 57 (95) |
| Classes/training | - | 2 (3.33) | - |

Source: compiled from primary data
* Figures in panrenthesis indicates percentage to total number of respondents

The Padasekarasamithis are the major information sharing centers for farmers. The leaders of the samithies get communications from Krishi Bhavan regarding time of registration for seed, fertilisers and time of distribution, these leaders share this information to farmers. There is a continuous contact between farmers with Krishi Bhavans and Panchayth. The purpose of contact between farmer with Krishi Bhavans and Panchayath are mainly for availing fertilizers and seeds at subsidized price, and the distribution of the same happens through nearest Primary Agricultural Cooperative Society depos. The classes and training are normally conducted by the Panchyaths and Krishi Bhavan jointly.

The information disseminated in between other actors retailers, wholesalers, millers and agents are about price and demand for the product.

### 4.1.5  Mapping of institutional linkage

Organisational linkage of a farmer represent their level of societal contact, the linkage of a farmer with organisations in value chain is mainly for input supply, information gathering and sharing or for training needs. These linkages with institutions relating to agriculture will help the farmer in adopting better practices in the field as well as for availing benefits and improving the cultivation.

**Fig 4.5 Institutional Linkage of Actors**

| Input supply | Production | Procurement and processing | Marketing | Consumption |
|---|---|---|---|---|

| Krishibhavan Private traders Financing Institutions | Farmers | Private millers Agents | Wholesalers Retailers | House hold consumers Hotels, Hostels |
|---|---|---|---|---|

*local self govt.
*paddy research station
*KAU
*Banks
*Societies
*insurance co.

KrishiBhavan

Padasekara Samithi

SUPPLYCO

* Millers
*Agents
* Banks

PDS

* Household consumers

* Institutions like Anganwadies/ schools

## Table 4.16 Nature and extent of institutional linkage of farmers

| Institution | Purpose of contact | Pazhyannur (n=30) | | | | Puzhakal (n=30) | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | H | M | L | NOC | H | M | L | NOC |
| Krishibhavan | Seed fertilizer at subsidized price | 28 (93.33) | 2 (6.66) | 0 | 0 | 26 (86.6) | 4(13.33) | 0 | 0 |
| Local self Govt. | Seed fertilizer- subsidy- paper work | 6 (20) | 6 (20) | 16 (53.33) | 0 | 8 (26.6) | 13 (43.3) | 8 (26.66) | 1 (3.3) |
| | Classes | 1 (3.33) | 0 | 1 (3.33) | 0 | 0 | 0 | 0 | 0 |
| Paddy Research Station | Soil water examination | 0 | 2 (6.66) | 0 | 28 (93.33) | 0 | 0 | 2 (6.6) | 28 (93.33) |
| KAU | Classes | 2 (6.66) | 3 (10) | 0 | 25 (83.33) | 0 | 8 (26.66) | 1 (3.33) | 21 (70) |
| Banks | Subsidy | 0 | 1 (3.33) | 0 | 5 (16.66) | 0 | 0 | 0 | 0 |
| | Bank loan account purpose | 4 (13.33) | 17 (56.66) | 3 (10) | 0 | 1 (3.33) | 12 (40) | 5 (16.66) | 12 (40) |
| PACS | Seed fertilizer subsidy and account purpose | 6 (20) | 21 (70) | 0 | 3 (10) | 17 (56.66) | 11 (36.66) | 1 (3.333) | 1 (3.333) |
| Insurance Company | Insurance | 0 | 1 (3.33) | 0 | 29 (96.66) | 1 (3.33) | 0 | 0 | 29 (96.66) |
| Padasekara Samithi | Membership, information Source | 18 (60) | 11 (36.66) | 0 | 1 (3.33) | 15 (50) | 13 (43.33) | 0 | 2 (6.66) |

Source: compiled from primary data

*Figures in parenthesis indicates percentage to total

H – High level of contact M- medium level of contact L-low level of contact Noc – no contact

# Table 4.17 Organisational linkage of the wholesaler

| Reasons for contact | Product | Price | Information about millers | Finance | Sale |
|---|---|---|---|---|---|
| Agents | 3 | 0 | 2 | 0 | 0 |
| Millers | 3 | 0 | 0 | 0 | 0 |
| Financial institutions | 0 | 0 | 0 | 1 | 0 |
| Retailers | 0 | 0 | 0 | 0 | 4 |

Source: compiled from primary data

An institution doesn't exist independently; it depends on other institutions directly or indirectly either for input supply information gathering or for finance, product marketing, promotion etc. Wholesaler is not an exception - they also collect information about their input for availability, price and scope of marketing it. Here in the surveyed area, i.e. Thrissur, a wholesaler depends only on agents for price awareness and product. Even though they are aware about the millers, the main contact is through agents. One another important institution in their business is financial institutions. Now a day's all transactions are routed through bank accounts only. All of the respondents where having bank accounts.

# Table 4.18 Organisational linkage of retailers

| Particulars | Agent | Finance | Kshemanidhi |
|---|---|---|---|
| Price | 1 | 0 | 0 |
| Product | 3 | 0 | 0 |
| Finance | 0 | 1 | 0 |
| Insurance | 0 | 0 | 1 |
| Transportation | 0 | 0 | 1 |

Source:  compiled from primary data

From the above it is clear that the retailer is contacting only agents for information related to product as well as price.

## 4.1.7   Mapping of geographical flow of paddy

Mapping of geographical flow of paddy helps to identify the physical location of paddy in the processing chain and to identify where the processes are located; starting from the place of origin till it reaches the consumer. The flow of product in both of the blocks under study is figured below.

**Fig 4.6 (a)    Geographical flow of product in Pazhyannur block**

| | | | | |
|---|---|---|---|---|
| Input supply | Production | Procurement & processing | Marketing | Consumption |

SUPPLYCO → PDS → Different parts of kerala

Pazhyannur Block (nearest krishibhavan& open market) → Pazhyannur → Pazhyannur block → Thrissur Triprayar Pazhyannur &Ernakulam → Thrissur Triprayar& other parts of kerala

Wadakancherry, palakad → Palakad, Thrissur & nearby districts → Thrissur Palakad

Export to gulf countries

**Fig 4.6 (b) Geographical flow of product in puzhakal block**

| | | | | |
|---|---|---|---|---|
| Input supply | Production | Procurement & Processing | Marketing | Consumption |

Puzhakal block → Puzhakal block → SUPPLYC → PDS → Different parts of kerala
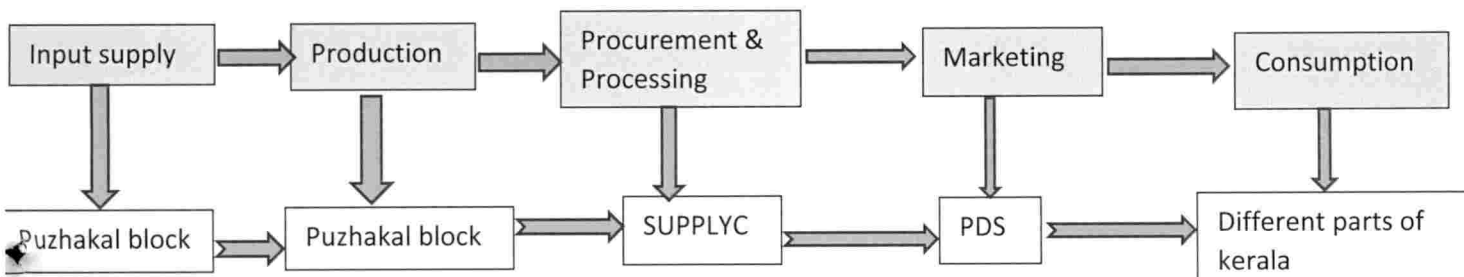
The geographical flow of product shows that the farmers are purchasing the inputs from their own blocks. After production the paddy is procured by mills and agents. In puzhakal, the respondent farmers sell paddy only to SUPPLYCO at Minimum Support Price (MSP). It

is observed that the Krishi Bhavan and padasekarasamithies are very active and jointly under take cultivation practices. This paddy after processing flow through Public distribution system to different parts of Kerala.

In pazhyannur, the farmers sell paddy to SUPPLYCO, private millers and agents. The paddy from pazhyannur blocks flows to mills situated in pazhyannur and vadakkanchery, Palakkad and from there to Thrissur, palakkad and other districts and exported to gulf countries.

### 4.1.8 Value additions at different levels of the chain

Value addition at each level of the chain helps to convert total value chain earnings into rewards that is earned by each actors. Value addition at different levels of the chain is given in the table. Farmer chooses 4 types of channels for marketing the product. The cost incurred from production point till marketing is taken for calculation of cost incurred by a farmer. It includes cost of input, cost of labour, machinery hired, interest on value of owned fixed capital, rent on leased land, rental value on owned land etc. While calculating margin earned all cost of procurement like transportation, labour, commission paid and interest on fixed asset is considered for agents, mills, wholesalers and retailers. Weighted average price is taken for price received.

### 4.1.8.1 Cost of cultivation of paddy

In this section cost of cultivation incurred by paddy farmers are explained. The cost per acre of land in each seasons of cultivation is given in tabular form. This section includes all important components in the paddy cultivation and it help to find out major component for the higher cost.

### 4.1.8.1(a) Cost of inputs in paddy cultivation

In this section, component's influencing the cost of cultivation of paddy is tabulated in quintal.

**Table 4.19 Cost involved for inputs by farmers**

| Particulars | Pazhyannur | | Puzhakal | |
|---|---|---|---|---|
| | Virippu (Rs./quintal) | Mundakan (Rs./ quintal) | Punja (Rs./ quintal) | Mundakan (Rs./quintal) |
| Seed | 34.42 (2.58) | 29.70 (2.46) | 13.20 (1.80) | 14.44 (1.95) |
| Fertiliser | 287.01 (21.54) | 194.77 (16.12) | 201.66 (27.57) | 261.72 (35.36) |
| Pesticide | 20.28 (1.52) | 21.17 (1.75) | 45.49 (6.21) | 55.07 (7.44) |
| tools & machinery | 255.93 (19.20) | 241.34 (19.97) | 95.82 (13.10) | 119.47 (16.14) |
| Irrigation | 0 | 0 | 47.69 (6.52) | 80.62 (10.89) |
| Advisory & technology | 0 | 0 | 0 | 0 |
| Insurance | 0 | 0.48 (0.04) | 0 | 3.47 (0.46) |
| If rendered rent | 0 | 4.8 (0.39) | 0 | 0 |
| credit | 157.37 (11.81) | 50.12 (4.15) | 39.25 (5.37) | 59.53 (8.04) |
| Labour | 577.24 (43.33) | 666.21 (55.12) | 288.29 (39.42) | 145.74 (19.69) |
| Total Cost | 1332.25 | 1208.59 | 731.40 | 740.06 |

Source: Compiled from primary data

*Figures in parenthesis indicates percentage to total cost

The table shows the major cost components in paddy cultivation, costs are represented in quintal, figures in parenthesis shows per cent to total cost. The higher cost of cultivation in paddy is mainly attributed by labour followed by fertiliser and tools & machinery hiring in virippu and mundakan. In first crop it requires usage of more fertilizer, credit and long duration of usage of machineries for land preparation. In puzhakal fertiliser and labour are main components in cost of inputs. Comparing both blocks under present study, total cost for cultivation is not so high in puzhakal block because cost for machinery usage in land preparation is very less. Hiring of machinery depends on time taken and dealers are charging for hours. Only few respondents in the group have incurred cost for insurance. The difference in total cost of input is attributed by economics of scale in puzhakal.

## Table 4.20 Cost involved in transportation by farmers

| Blocks | Pazhyannur | | Puzhakal | |
|---|---|---|---|---|
| Season / Particulars | Virippu (Rs./quintal) | Mundakan (Rs./quintal) | Mundakan (Rs./quintal) | Punja (Rs./quintal) |
| Seed | 8.80 (32.58) | 7.86 (44.48) | 2.48 (25) | 1.74 (6.44) |
| Fertiliser | 8.76 (32.43) | 6.25 (35.37) | 7.44 (99.20) | 5.76 (76.80) |
| Pesticides | 0 | 0 | 0 | 0 |
| Labour (loading/unloading | 9.45 (34.98) | 3.56 (20.14) | 0 | 0 |
| Machineries | 0 | 0 | 0 | 0 |
| Others | 0 | 0 | 0 | 0 |
| Total | 27.01 (100) | 17.67 (100) | 9.92 (100) | 7.50 (100) |

Source: compiled from primary data

*Figures in parenthesis indicates percentage to total cost

Transportation cost for input supply in pazhyannur is higher than puzhakal. The distance to market and Krishi Bhavan leads to higher cost for transportation in pazhyannur. The transportation cost for seed, fertilizer and labour are the main components in transportation cost in input supply. Comparing the major season of cultivation virippu, mundakan and Punja, virippu season transportation cost are higher. In puzhakal block the total cost of transportation is as low as 7.50 per quintal, which is close to main town.

## Table 4.21 Harvesting cost incurred by farmers

| Block | | | Pazhyannur (cost/quintal) | | Puzhakal (cost/quintal) | |
|---|---|---|---|---|---|---|
| season / Particulars | | | Virippu | Mundakan | Mundakan | Punja |
| Harvesting cost | Labour | | 155.16 | 103.87 | 0 | 2.85 |
| | Machinery | | 177.38 | 160.00 | 51.10 | 156.88 |
| Post harvesting cost | Labour | | 28.65 | 18.80 | 0 | 0 |
| | Machinery | | 1.69 | 0 | 0 | 0 |
| | Storage | Transportation | 14.44 | 10.41 | 19.10 | 6.95 |
| | | Loading/Unloading | 25.95 | 23.17 | 14.28 | 34.83 |
| | | Storing | 0 | 0 | 0 | 0 |
| Total | | | 403.27 | 316.25 | 84.48 | 201.51 |

Source: compiled from primary data

Figures in parenthesis indicates percentage to total cost

Table 4.21 explains the cost components in harvesting and post harvesting. Labour and machinery are considered as main component in harvesting. Even though machine based harvesting is popular, some of the farmers are still following manual method of harvesting. The post-harvest cost is higher in virippu and mundakan seasons rather than Punja (kole land). Machinery cost in harvesting is very high in mundakan land, followed by virippu and Punja seasons. It is Rs.177.38 and 160 per quintal in pazhyannur and Rs. 156.38 and Rs. 51.10 in puzhakal. The difference in land type also influence the cost of machinery in harvesting since time required differs based on land. The usage of labourers from other state is seen in the puzhakal side, on contract basis. The post-harvest cost includes transportation cost for carrying the product using tractor carriage to main road or to storing center. Loading unloading charges and packing cost to be paid to the labourer.

These are the cost incurred by farmers in paddy cultivation. Among the two blocks selected for study, economies of scale in cultivation are found in puzhakal. The cost of procurement and marketing by next level actors- millers and agents are given in the following session.

### 4.1.8.2 Cost of procurement by wholesaler

Costs components used for assessing procurement of rice were transportation, fumigation, labour, insurance charges and quality checking. But the only cost a wholesaler incurs during purchase of rice was the labour unloading and stacking charges (Rs. 28.48 per quintal). No separate accounting done in the case of transportation, it is usually added to the invoice/ bill. Nobody in the surveyed area is incurring fumigation, quality checking or separate ware housing charges with respect to purchase of product.

**Table 4.22 Cost of sale by wholesalers**

| Sl no | Particulars | Cost of sale (cost/quintal) |
|-------|-------------|------------------------------|
| 1 | Labour cost (loading) | 8.15 |
| 2 | Commission if any | 0.15 |

Source: compiled from primary data

In wholesale business the only factor influencing cost of sale are labour cost and commission to agents. The wholesalers are not incurring cost for promotion and packing. The cost for loading paid during sale is given in the table. It indicates that the labour cost for unloading is higher than loading.

### 4.1.8.3 Cost incurred in procurement by retailers

The components considered for cost of procurement is transportation, fumigation, labour, agent commission, quality checking and warehousing. The following table indicates the cost of procurement incurred by retailers in the study area.

**Table 4.23 Cost incurred in procurement by retailers**

| Particulars | Retailer (cost/quintal) |
|---|---|
| Transportation | 2.70 |
| Labour (unloading) | 23.80 |

Source: compiled from primary data

Procurement cost includes mainly three components such as transportation and labour unloading cost. Dealers who purchase directly from wholesaler is incurring transportation cost directly where as others always pay it along the invoice bill of rice for which they don't make separate accounting.

### 4.1.8.4 Value additions at different levels of the chain

The table given below indicates the value addition by the actors in different channels. Value addition is the difference between sales price and cost incurred by each actor while passing the product to next level. The cost incurred by farmers includes production, transportation, harvesting and marketing cost. The cost incurred by agent includes purchase, investment and cost involved in sale. Millers' total cost includes purchase, investment, warehousing and cost of sale in marketing. Total cost of wholesaler and retailers includes cost in purchase, investment and sale.

The major assumptions in cost calculations in the case of farmers, miller, agent, wholesaler and retailer are as follows:-

All cost and returns are calculated for quintal of paddy/rice marketed. In the case of farmers all cost are actual cost incurred by farmers. The fixed investment in land is considered as rent received on owned land if lend for lease.

For millers, agents, wholesaler and retailers cost and return are calculated as below:-

- Investment in land is calculated @ 7 percent
- Depreciation on vehicle, building, machinery, furniture and other movable assets are calculated @ 10 percent
- Interest on borrowing @ 11 percent

The four channels of marketing for the farmer are

**Channel 1**

Farmer $\longrightarrow$ agent's $\longrightarrow$ miller $\longrightarrow$ wholesaler $\longrightarrow$ retailer $\longrightarrow$ consumer

**Channel 2**

Farmer $\longrightarrow$ miller $\longrightarrow$ retailer $\longrightarrow$ consumer

**Channel 3**

Farmer $\longrightarrow$ Consumer

**Channel 4**

Farmer $\longrightarrow$ SUPPLYCO $\longrightarrow$ PDS $\longrightarrow$ consumer

## Table 4.24 Marketing cost and margin in marketing channel 1, 2, 3 and 4

| Particulars | Channel 1 Per quintal | Channel 2 Per quintal | Channel 3 Per quintal | Channel 4 Per quintal |
|---|---|---|---|---|
| **1. Farmer** | | | | |
| a) Production cost | 1443.24 | 1746.23 | 1043.75 | 941.42 |
| b) transportation cost | 18.69 | 29.51 | 20.00 | 11.98 |
| c) harvesting cost | 253.78 | 476.61 | 185.00 | 242 |
| d) transportation cost- marketing | 175.40 | 18.51 | 00 | 0.00 |
| **Total cost** | **1891.11** | **2270.86** | **1248.75** | **1195.40** |
| **Selling price for farmer** | **1618** | **1900** | **1800** | **2150** |
| **Margin per quintal** | **-273.11** | **-370.86** | **551.25** | **954.60** |
| **2. Agents** | | | | |
| e) purchase price of agents | 1618 | | | |
| f) Investment cost | 35.00 | | | |
| g) cost of sale | 120.00 | | | |
| **Total cost** | **1773** | | | |
| **Selling price of agent** | **1900** | | | |
| **Margin per quintal** | **127** | | | |
| **3. Miller** | | | | |
| h) purchase price (paddy) | 1900 | 1900 | | |
| i) purchase cost (paddy) | 1.4 | 1.4 | | |
| j) investment cost (64 Kg rice) | 467 | 467 | | |
| k) cost of warehousing/labour (64 Kg rice) | 197 | 197 | | |
| l) cost of sale | 0.00 | 0.00 | | |
| **Total cost** | **2565.40** | **2565.40** | | |
| **Selling price of bran, broken rice and husk** | **694.00** | **694.00** | | |
| **Net cost of 64 Kg of rice** | **1871.49** | **1871.49** | | |
| **Selling price 64 Kg of rice** | **1904.64** | **1904.64** | | |
| **Margin received by miller** | **33.15** | **33.15** | | |
| **4. Wholesaler** | | | | |
| m) purchase price | 1904.64 | 1904.64 | | |
| n) purchase cost | 18.25 | 18.25 | | |
| o) investment cost | 24.96 | 24.96 | | |
| p) cost of sale | 5.31 | 5.31 | | |
| **Total cost** | **1953.16** | **1953.16** | | |
| **Selling price** | **1982.29** | **1982.29** | | |
| **Margin received by wholesaler** | **29.13** | **29.13** | | |
| **5. Retailer** | | | | |
| q) purchase price | 1982.29 | 1982.29 | | |
| r) purchase cost | 16.96 | 16.96 | | |
| s) investment cost | 76.01 | 76.01 | | |
| t) cost of sale | 0.00 | 0.00 | | |
| **Total cost** | **2075.26** | **2075.26** | | |
| **Selling price** | **2268.12** | **2268.12** | | |
| **Margin received by retailer** | **192.86** | **192.86** | | |

Source: compiled from primary data

* Conversion factor is used to calculate the price cost and margin of actors on the assumption that each 1000 gm of paddy give 640 gm of rice after processing.

There is large gap in margin received by farmers while selling to SUPPLYCO and other actors. Farmer incur loss of Rs. 2.73 and 3.70 per kilograms of paddy sold to agent and mills respectively. There is a difference of Rs. 5.51/ kg of paddy which is sold to SUPPLYCO and other actors. It is clear evidence of distress sale by farmer. All the intermediate actors between farmer and customer earns profit margin. A retailer earns margin of Rs.1.92 per kilogram which is the highest margin in channel 1, and channel 2.

**Fig 4.7 Value addition at different actors**



CONSUMER

Cost : 2075.26
SP : 2268.12
M : 192.86

RETAILER

Cost : 1953.16
SP : 1982.29
M : 29.13

WHOLESALER

Cost : 1871.49
SP : 1904.64
M : 33.15

MILL

Cost : 1773
SP : 1900
M : 127

AGENT

Cost : 1891.11
SP : 1618.00
M : -273.11

CONSUMER

Cost : 2075.26
SP : 2268.12
M : 192.86

RETAILER

Cost : 1953.16
SP : 1982.9
M : 29.13

WHOLESALER

Cost : 1871.49
SP : 1904.64
M : 33.15

MILL

Cost : 2270.86
SP : 1900
M : -370.86

Cost : 1248.75
SP : 1800
M : 551.25

FARMERS

Cost : 1195.40
SP : 2150
M : 954.60

Consumer

SUPPLYCO

PDS

Consumer

Margin received by farmers in different channels indicates that the only profitable channel for a farmer is by supplying to SUPPLYCO, where he/she can get a margin of Rs.9.54 per Kg. Even though a farmer selling to consumer directly is earning a margin of Rs. 5.51 per Kg, it is very rare channel in the studied group of farmers. All other channel actors are earning good margin for their product.

<div align="center">

## SECTION II

</div>

### 4.2 Factors influencing choice of value chain of paddy

Choice of a particular value chain by the actors are analysed based on income of actors in the chain, availability of input, promptness of payment, holding capacity and product acceptability norms. Percentage, index and chi square test are the tools used for this study. The chi square test is applied only for farmer in pazhyannur block as different value chains exist in this block only.

### A) Income of the actors

In the previous chapter value addition at different levels shows how much is the cost and margin, of an actor in the business. The entry into a specific chain by an actor at a point depends on the revenue benefit receivable. Table below shows the revenue benefits of each actors in the four channels of marketing.

**Table 4.25 Margin received by each channel 1, 2, 3 and 4**

| Particulars | Channel 1 | Channel 2 | Channel 3 | Channel 4 |
|---|---|---|---|---|
| Farmer | -273.11 | -370.86 | 551.25 | 954.60 |
| Agent | 127.00 | | | |
| Miller | 33.15 | 33.15 | | |
| Wholesaler | 29.13 | 29.13 | | |
| Retailer | 192.86 | 192.86 | | |

Source: compiled from primary data

The margin earned by a farmer is higher only if he/she sells through SUPPLYCO. In the area of study more than 60 percentage of farmer sell to SUPPLYCO (refer table 4.10). The reason for high margin while selling through SUPPLYCO is mainly because the farmer is not paying for transportation and labour charges for loading and unloading. A farmer can

sell to SUPPLYCO by registering the name in prescribed form through Krishi Bhavan. The difficulty in this chain of marketing is to keep the product at minimum moisture content till the time of procurement. A farmer gets higher margin of Rs. 954.60 per quintal or Rs. 9.54 per kilogram of paddy when sold to SUPPLYCO. The MSP during the study period was Rs. 21.50 per Kilo grams. All the farmers in the study area are aware about the MSP and the benefit of MSP.

Even then during *mundakan* and *virippu* season 36 and 40 per cent of farmers choose other channels of marketing. It was mainly happened in Pazhyannur block. It is observed that no organized system of paddy cultivation and marketing exist in Pazhyannur whereas in puzhakal block it is there.

The third channel is marketing to consumer directly which is also profitable for a farmer. When he sells directly to consumer in paddy form, without undertaking any kind of further processing, earns Rs. 5.51 per Kilo grams. But this channel is very rare. Only one farmer out of 60 farmers had this choice.

The first two channels of marketing is not recommendable since both channels create only loss to the farmer. Whereas the intermediaries were benefitted out of it. An agent involved in trading of paddy earns Rs.1.27 per Kilo grams of paddy purchased. The only cost incurred by them is in transportation and labour charges. They will never reject the produce from a farmer, because it affects their existence, and they bargain maximum to get profit. Soon after receiving paddy from farmer, an agent dries paddy for removing excess moisture content and sell to mills. The transportation as well as labour cost per bag is calculated and a price margin is fixed by agent while selling paddy to the mill. So an agent makes a profit and continues to exploit the maximum to increase their profit.

A miller has three options to procure, one directly from farmers and two from agents and three from both. The margin received by miller is Rs.0.33 per kilograms. The miller has an advantage of extra benefits from sale of by-products of paddy from processing. From each 1000 gm of paddy processed a miller gets 640 grams of rice and balance 360 gm as bran, broken rice and husk. The quantity of broken rice after processing depends on the dryness of the paddy. The average selling price of bran is Rs.17 to 21 per Kilograms and Rs.14 per Kilo grams for broken rice. There is good demand for these byproducts from bran oil processing companies and feed making companies, which does not incur any kind of extra processing cost.

The existence and continuance of the mills and agents are evident from the margin received by them. They make investment at a single time in the business and continue to get revenue throughout the year. A wholesaler and retailer in the chain cannot be avoided since they are the access point for the consumers. The margin per kilograms of rice while sale is higher for retailer, whereas it is less in the case of wholesaler.

From the table 4.10 marketing channels of paddy, it is clear that majority of farmers are selling paddy to SUPPLYCO, since the margin received is higher than other channels. So we can conclude that income is important factor in choice of value chain.

## B) Availability of inputs

Farmers required different inputs like seed, fertiliser, pesticides and tools and machinery at adequate level on time. Availability of inputs is given in the below table for each seasons separately, since all farmers are not cultivating in all the three seasons.

**Table 4.26 Input availability of farmers**

| Season | | Krishi bhavan | Private | Self | Open market | More than one source |
|--------|--|---------------|---------|------|-------------|----------------------|
| Virippu N=17 | Seed | 16 (94.11) | 1(5.88) | 0 | 0 | 3 (17.65) |
| | Fertilizer | 14 (82.35) | 0 | 3 (17.04) | 0 | 6 (35.30) |
| | Pesticide | 0 | 0 | 0 | 10 (58.82) | 0 |
| | Tools & machinery | 0 | 0 | 0 | 13 (76.47) | 0 |
| Mundakan N=32 | Seed | 28 (87.5) | 2 (6.25) | 1 (3.12) | 1 (3.12) | 0 |
| | Fertiliser | 28 (87.5) | 0 | 0 | 4 (12.5) | 2 (6.25) |
| | Pesticide | 1 (3.12) | 0 | 0 | 17 (53) | 0 |
| | Tools & machinery | 0 | 0 | 0 | 32 (100) | 0 |
| Punja N= 27 | Seed | 17 (62.96) | 10 (37) | 0 | 0 | 3 (11.11) |
| | Fertiliser | 20 (74.07) | 5 (18.51) | 0 | 2 (7.40) | 6 (22.22) |
| | Pesticide | 4 (14.81) | 0 | 0 | 22 (81.48) | 0 |
| | Tools &machinery | 0 | 0 | 0 | 22 (81.48) | |

Source: compiled from primary data

* Figures in the parenthesis indicates per cent to total

Maximum numbers of farmers are contacting *Krishibhavan* for input like seed and fertilizers. The main fertilizers supplied by *Krishibhavan* are urea, potash, neem oil cake and calcium phosphate. These fertilizers are provided at subsidized price to the farmers. It is a

great relief to the farmer since for each crop a farmer has to apply fertilizers for minimum three times and its cost is very high in the open market. The main varieties of seeds provided by krishibhavan are *uma* and *jyothi*. The seed varieties released depends on the seasons of cultivation. The advantage advantage of a farmer in seed supply is that Krishi Bhavan supplies 30 Kg seed at Rs.300. If a farmer purchases seed from outside he/she has to pay minimum Rs.30 per Kg, which will double the cost incurred in cultivation. The same is applicable for fertilizers also. So farmer has benefit of purchasing inputs from *Krishi Bhavan*. The limit of quantity in seed and fertilizer is fixed based on the area under cultivation. From the table, during the *punja* season around 10 farmers had purchased seeds from outside. This is due to failure of seed provided by the *Krishi Bhavan*. A section of farmers received seed which didn't germinate on the sowing. The inputs like pesticides, tools and machineries are available from open market only. There is no subsidy for these inputs. The availability of tools like tractors and tiller before starting cultivation affects the yield and harvesting process. One more observation in choosing Krishi Bhavan for supply of seeds and fertiliser is because they are supplying high yielding variety seeds and fertiliser with subsidy. Whereas farmers are purely depending upon open market for pesticides, tools and machinery.

An agent or miller doesn't face the problem of timely availability of inputs. No much effort is required by the miller or agents for getting paddy. An agent procure paddy in his own premises, no farm gate purchases are usually done. The reasons of selling to agents are usually for immediate cash requirement and lack of storage system. The bargaining power at agent's premises will be more for the agents. After procuring required quantity it is sold to miller at a higher margin. The business of agent is only during the harvesting season (only six month time). Whereas a miller is running his business throughout the year. The inputs from farmer during harvesting season are collected from nearby farmer whereas during off seasons they are getting inputs from outside through commission agents. In this way the intake and supply of rice is happening throughout the year. The seasonality doesn't matter for the miller, but for an agent procuring paddy from farmer may face a challenge of low quality or no demand in the way of rejection from miller side.

For wholesaler and retailer, the input, rice is always available. If a shortage of particular variety is there, it means it is not available all over the market. So that the preference toward one variety is being substituted by the other. Since rice is supplied by the millers throughout the year and enough inflow of rice from outside states are there, the business of wholesaler and retailer is not affected.

## C) Holding capacity of farmer

A farmer with holding capacity has the advantage of keeping their product till the market turns favorable for them. A paddy farmer with holding capacity will be able to store paddy till SUPPLYCO starts procurement. The following table shows the holding capacity of the farmers.

**Table 4.27  Holding capacity of farmers**

| Particulars | No of farmers (Percentage ) |
|---|---|
| With storage facility | 13 (21.66%) |
| Without storage facility | 47 (78.33%) |
| Total | 60 (100 %) |

Source: Compiled from primary data

Among the major actors, the main actor farmer, in the agriculture value chain is most affected depending on the perishability and holding capacity of the produce. Paddy is not perishable like vegetables. Only need is to keep the paddy till SUPPLYCO make procurement. In the area of study 78 per cent of farmers were without storage facility. When the farmer is unable to keep the product they choose to sell it through agents and mills.

An agent never store produce in bulk, because they sell of the produce on lot basis on reaching minimum quantity. For that they construct low cost storing system. The slight variation in the colour of paddy on stocking reduces the price and sometimes cause for rejection while selling to mills. Since requirement by the mills may differ based on the demand from the next level of actors. So normally an agent does not keep paddy for long time.

For a miller they have the advantage of large storage facility. They can store tones of paddy product and supply to the market depending on demand. They are able to control the supply of product based on demand. From the survey feedback no black marketing prevails in the area of survey.

The procurement of wholesaler and retailer are based on requirements. A wholesaler usually keep the rice in 50 kilogram bags in the stacked form in the building itself. The storing of product is based on the assessment of expected demand from the retailers. For a retailer they never spend a specific storing facility for rice and their yearly procurement is around 1300 quintals only.

The ability of a farmer to store paddy also influence choosing a particular channel for marketing.

## D) Time required for price realisation

Time required for receiving payment by farmer is one of the important factor affecting choice of value chain, since farmers invest all his earning and borrowed money in the paddy production with an expectation of quick returns. The following table time required for the returns in the surveyed group of farmers.

Table 4.28 Time required for payment by farmers

| Particulars | VIRIPPU | MUNDAKAN | PUNJA |
|---|---|---|---|
| SPOT | 6 (40 ) | 12 (35.30 ) | 0 |
| 1 – 3 MONTHS | 6 (40 ) | 17 (50 ) | 15 (55.55) |
| 3 – 6 MONTHS | 3 (20 ) | 5 (14.70 ) | 12 (44.44) |
| TOTAL | 15 (100) | 34 (100) | 27 (100) |

Source: Compiled from primary data
* Figures in parenthesis indicates percentage to total

In the studied area 58 farmers from different seasons of cultivation sold paddy to SUPPLYCO and 18 farmers to agents and mills. These agents and millers make payment on the spot whereas the farmers have to wait for a period of 3-6 months for realisation of return from SUPPLYCO. So the farmers depend on mills and agents for spot payment.

The other actors, agent's millers, wholesalers and retailers run business on an adjustment with each other. The wholesaler gets average credit period of one month and retailer in turn gets one week credit. Therefore the time required for price realization is not affecting their business.

## E) Product Acceptability Norms

Product acceptability norms means the criteria's fixed by the purchasing agents in buying a product. These norms play major role in sale from farmers, agents, millers wholesalers and retailers in the chain. In the case of farmer paddy is procured by the next level actor namely SUPPLYCO, agent or miller based on the moisture and chaff content. If moisture and chaff content is very high in the sample packet it get rejected and required to be cleaned and dried once again. If the moisture and chaff content is at acceptable level SUPPLYCO will procure the same by reducing the total quantity. In case of agent or miller they reduce the price paid to the farmer.

In the case of an agent the same criteria of moisture and chaff content along with colour criteria is considered by the millers. For old stocks of paddy, the basic colour gets darker on keeping, in such case an agent also face problem of rejection at millers gate.

A wholesaler and retailer on the other hand take a number of factors while purchasing rice. These factors include colour, size, variety, margin and offers.

## F) Chi square test for choice of value chain of paddy

Chi square test is studied to find out, if there exist any significant relationship between choice of value chain and variables like availability of inputs, income of actors, promptness of payment and holding capacity. The test is undertaken for farmer's in pazhyannur block where different marketing channels exist.

**Table 4.29 Relationship between choice of value chain and availability of inputs, income, promptness of payment and holding capacity in virippu and mundakan season**

| Season / Variables | Virippu | | Mundakan | |
|---|---|---|---|---|
| | Chi squared value | Significance | Chi-squared value | Significance |
| Availability of inputs | 5.00 | 0.287 | 9.07 | 0.169 |
| Income of actor | 4.25 | 0.373 | 12.32 | 0.196 |
| Promptness of payment | 15.00* | 0.005 | 25.25 ** | 0.000 |
| Holding capacity | 0.60 | 0.287 | 3.336 | 0.343 |

Source: Compiled from primary data

* Significant at 5 % level

** significant at 1 % level

From chi square test, it can be inferred that promptness of payment and choice of value chain are related at 5 % level of significance in virippu and 1 % significance in mundakan season. During the survey it is found that farmers preferred to sell to agents and millers because of the delay in price paid by SUPPLYCO, due to this farmers are preferring to sell to agents and millers even though they are paying less for their produce.

## 4.3 Price spread efficiency in value chain of paddy

Agriculture marketing plays vital role in the development of agriculture sector of the economy. "Agriculture marketing comprises of all the operations and the agencies conducting them, involved in the movement of farm produced foods, raw materials and their derivatives, such as textiles from the farm to the consumers and the effect of such operations on farmers, middle men and consumers". Marketing is critical for better performance in agriculture as farming itself. Improvement in farming system should be aimed for the development of farmer and consumer and all other members involved in between. A better marketing system will help both the producer as well as marketing side in development. In all kind of marketing there exists multiple means for selling a product. These are described as marketing channels. A marketing channel is defined as the vehicle of marketing system, the unit within which all marketing activity takes place" (Parashwar). It includes a combination of agencies between the movements of product from producers to consumers.

The efficiency of these marketing channels can be better understood from market efficiency indicators. For this price spread and modified market efficiency index put forward by Acharya's has been used.

Price Spread (PS) represents the difference between the net price received by the producer-seller (PNP) and the price paid by the ultimate consumer (RP).

$$PS = RP - PNP$$

Acharya's methods suggest that market efficiency is the ratio of price received by the farmer to marketing cost and margin. A higher ratio signifies higher efficiency.

In this section an attempt is made to explain the marketing system, marketing margin and price spread efficiency of paddy in Thrissur district.

### 4.3.1 Production and marketed surplus of paddy

Here total production of farmers and their marketed surplus in the surveyed area is explained. Marketed surplus represents the portion of total production of the farmer, which is actually disposed off by him in the market. It is independent of his family and other requirement. The total production and marketed surplus of paddy farmers are shown in the table below.

## Table 4.30 Production and marketed surplus of paddy

| Category of farmer | Total Production (Quintal) | Marketed surplus (Quintal) |
|---|---|---|
| Marginal | 123606 | 110102 (89.07) |
| Small | 118003 | 108103 (91.61) |
| Large | 12690 | 111090 (98.58) |

Source: compiled from primary data
*Figure in parenthesis indicates percentage to total production in respective category

A paddy farmer never sell off the full produce, they always keep a part of produce for seed as well as consumption purpose, a portion of produce for rent, and wage as kind. This is common for marginal, small and large farmers. The percentage of paddy sold out of total production is high for large farmer (98.58) followed by small (91.61) and marginal farmers (89.07).

## 4.3.2 Marketing cost and margin of actors

There are four channels of marketing in the studied area as given below:-

**Channel 1**

Farmer ⟶ agent's ⟶ miller ⟶ wholesaler ⟶ retailer ⟶ consumer

**Channel 2**

Farmer ⟶ miller ⟶ retailer ⟶ consumer

**Channel 3**

Farmer ⟶ Consumer

**Channel 4**

Farmer ⟶ SUPPLYCO ⟶ PDS ⟶ consumer

**Table 4.31 Marketing cost and margin of actors at different channels**

| Particulars | Channel 1 Rs. per quintal | Channel 1 Producer share in consumer rupee | Channel 2 Rs. per quintal | Channel 2 Producer share in consumer rupee | Channel 3 Rs. per quintal | Channel 3 Producer share in consumer rupee |
|---|---|---|---|---|---|---|
| Producers net price | 1618 | 71.33 | 1900 | 83.77 | 1800 | 100 |
| Cost incurred | | | | | | |
| a. producer | 1891.11 | 83.38 | 2270.86 | 100 | 1248.75 | 69.37 |
| b. agent | 155 | 6.83 | - | - | | |
| c. miller | *-28.51 | 1.26 | *-28.51 | 1.26 | | |
| d. wholesaler | 48.52 | 2.14 | 48.52 | 2.14 | | |
| e. retailer | 92.97 | 4.09 | 92.97 | 4.09 | | |
| Total cost | 2159.09 | 95.19 | 2383.84 | 105.10 | 1248.75 | 69.37 |
| Margin earned | | | | | | |
| a. Farmer | -273.11 | -12.04 | -370.86 | - 16.35 | 551.25 | 30.62 |
| b. agent | 127 | 5.59 | - | - | | |
| c. miller | 33.15 | 1.46 | 33.15 | 1.46 | | |
| d. wholesaler | 29.13 | 1.28 | 29.13 | 1.28 | | |
| e. retailer | 192.86 | 8.50 | 192.86 | 8.50 | | |
| Total margin | 109.03 | 4.81 | -115.72 | 5.10 | 551.25 | 30.62 |
| Consumer price | 2268.12 | 100 | 2268.12 | 100 | 551.25 | 100 |

Source: Compiled from primary data

* The cost incurred by miller for processing 100 Kg of paddy is covered by revenue received from by-products

Table 4.31 shows the net price received by a farmer in three different marketing channels. Among three channels of marketing the maximum price received by a farmer is in channel 2 (Rs.1900 per quintal) followed by Rs.1800 and Rs.1618 in channel 3 and 1 respectively. The percentage of total cost to consumer price shows higher for farmer (83.38 percent in channel 1 and 100 percent in channel 2) followed by agent 6.83 percent, retailer 4.09 percent and wholesaler 2.14 percent. The percentage of marketing margin to consumer

price is 5.59 percent, 1.46 percent, 1.28 percent and 8.50 percent for agent, miller, wholesaler and retailer respectively in channel 1 and 2. Whereas for the farmer percentage of loss was higher in channel 2, 16.35 percent and 12.04 percent in channel 1 to consumer price. The total margin in channel 2 is -115.72 is due to the heavy loss incurred by the farmer those who sold their produce to miller. Since farmers from virripu season those who sold directly to millers used labour power for harvesting, their cost of harvesting was high it affected their margin and total margin of the channel. The highest profit percentage in marketing margin to consumer price was for retailer in both first and second channels since they add higher margin while selling because they deal in smaller quantity.

### 4.3.3 Price spread and marketing efficiency of paddy

"Price spread is the difference between price paid by consumers and the net price received by the producer for an equivalent quantity of farm produce". For proper functioning of a market farmer should get a price spread of more than 50 percentages. Marketing efficiency is the ratio of price received by farmer to marketing margin and cost. The efficiency indicates overall performance of the marketing channel.

**Table 4.32 Marketing efficiency index in channel 1, 2 and 3**

| Particulars | Channel 1 (Rs/quintal) | Channel 2 (Rs/quintal) | Channel 3 (Rs/quintal) |
|---|---|---|---|
| Price received by farmer | 1618 (71.34) | 1900 (83.77) | 1800 (100) |
| Price paid by the consumer | 2268.12 (100) | 2268.12 (100) | 1800 (100) |
| **Price spread** | **650.12 (28.66)** | **368.12 (16.23)** | **0** |
| Marketing cost | 2159.09 | 2383.84 | 1248.75 |
| Marketing margin | 109.03 | -115.72 | 551.25 |
| Marketing efficiency | 0.71 | 0.83 | 1 |

Source: Compiled from primary data

Marketing margin is the total margin received by the all actors in the respective channels and marketing cost includes cost incurred for production/purchase cost, transportation, harvesting, marketing and investment cost for actors.

It can be seen from the table that channel 3 is more efficient followed by channel 2 and channel 1. Market efficiency index is 1, 0.83 and 0.71 for channel 3, 2, 1 respectively. The index shows that if lesser is the marketing cost and margin, then the channel is efficient. As

the number of actors increases the total cost and margin in marketing increases along the actors and in turn reduce market efficiency. The producers share in consumer rupee is 71.34 and 83.77 for channel 1 and channel 2 respectively. Even though channel 2 is comparatively better than channel 1 in respect of overall performance, but it was the highest loss making channel for farmer due to the higher cost of harvesting, the total marketing margin is -115.72 in this channel, if the cost of harvesting is reduced the farmer can make profit from channel 2.

The price spread efficiency indicates the overall performance of a value chain. From the study it can be concluded that increase in number of actors in a value chain decreases market efficiency by adding to marketing cost and marketing margin.

## 4.4 Interventions necessary to improve value chain of Paddy

The previous sections of analysis mapped the value chain of paddy and the factors influencing the choice of channel and the price spread efficiency. In this section the problems faced by the different actors in the value chain was examined and based on the problems and findings of the previous sections, areas where interventions required to improve the value chain was identified. The index method was used to find out the intensity of problem faced by each actor. The data related the problems like production, procurement, transportation and marketing were collected in 3 point Likert scale. The index score were interpreted in the following range of score as follows.

**Table 4.33 Indicator of interpretation of problem index**

| Range | Interpretation |
|-------|----------------|
| ≤ 25 | Not at all a problem |
| ≥25 to < 50 | Least affected |
| ≥50 to < 75 | Moderately affected |
| ≥ 75 | Highly affected |

If an actor is not responded to a problem zero is awarded, one is awarded for least affected, two for moderately affected and three for highly affected.

### 4.4.1 Problems faced by the farmers

Problems faced by the farmers in the different levels of cultivation like pre-production, production, harvesting and marketing at different seasons are discussed under this head.

### 4.4.1(a) Problems faced by farmers in pre- production

In pre-production stage the farmers have to face lot of problems related to input supply, labour shortage, scarcity of water, lack of training, inadequate credit and inadequate information etc. The extent of the different problems faced by the farmers during pre-production stage is depicted in table 4.34

**Table 4.34 Problems faced by farmers in Pre-production**

| Sl no | Particulars | Virippu (n= 17) | | Mundakan (n=34) | | Punja (n=27) | | Total (N=78) | |
|---|---|---|---|---|---|---|---|---|---|
| | | Score | Index | Score | Index | Score | Index | Score | Index |
| 1 | In adequate seed | 12 | 23 | 16 | 15.68 | 21 | 25.92 | 49 | 20.94 |
| 2 | Labour shortage | 30 | 59 | 71 | 69.90 | 3 | 3.70 | 104 | 44.44 |
| 3 | Non availability of fertiliser & pesticides | 12 | 23 | 16 | 15.68 | 00 | 0 | 28 | 11.96 |
| 4 | Lack of organic manure | 3 | 6 | 8 | 7.8 | 3 | 3.70 | 14 | 5.98 |
| 5 | Scarcity of water | 6 | 11.76 | 30 | 29.41 | 2 | 2.47 | 38 | 16.23 |
| 6 | Lack of irrigation facility | 3 | 6 | 15 | 14.70 | 0 | 0 | 18 | 7.69 |
| 7 | Lack of training | 4 | 7.8 | 9 | 8.82 | 5 | 6.17 | 18 | 7.69 |
| 8 | Inadequate credit | 0 | 0 | 5 | 4.90 | 0 | 0 | 5 | 2.13 |
| 9 | Inadequate know how on varieties | 0 | 0 | 6 | 5.88 | 00 | 0 | 6 | 2.50 |
| | Composite index | 70 | 15.52 | 176 | 19.17 | 34 | 4.66 | 280 | 13.29 |

Source: compiled from primary data

The composite index of pre-production problems shows that the pre-production problems other than labour shortage are not at all affecting the cultivation. But when we compare between the seasons, labour shortage and inadequate seed are influencing the farmer. The inadequate availability of seed in Punja season and non availability of water in mundakan season slightly affected farmers in production. The labour shortage problem was more in the case of mundakan season (i=69.9) followed by virippu season (I=59).

In punja season the main problems affecting pre-production were inadequate seed supply and water scarcity. It is observed that farmers are mainly depending on krishibhavan for the seeds, but they opined that seeds are not available in adequate quality from them. This forced to purchase the seeds from open market for which cost is high. This will affect the yield and thereby income of the farmer.

### 4.4.1 (b) Problems faced by farmers in production stage

While studying problems in production stage, variables which are directly affecting the farmer in production of paddy or standing crop were considered. The major variables were the crop loss due to pest and disease, lack of irrigation facility, drought, inadequate labour, inadequate extension service, crop loss due to animal attack like pig, flies and flood. The details regarding this aspect were shown in table.

**Table 4.35 Production problems faced by farmers**

| Sl no | Particulars | Virippu (n=17) | | Mundakan (n=34) | | Punja (n=27) | | Total (N=78) | |
|-------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | Score | Index | Score | Index | Score | Index | Score | index |
| 1 | Attack by pest & diseases | 23 | 45 | 43 | 42.15 | 7 | 8.64 | 73 | 31.19 |
| 2 | Lack of irrigation facility | 3 | 5.88 | 8 | 7.84 | 0 | 0 | 11 | 4.70 |
| 3 | Drought | 2 | 3.92 | 9 | 10.78 | 0 | 0 | 11 | 4.70 |
| 4 | Inadequate labour | 17 | 33 | 45 | 44.11 | 0 | 0 | 62 | 26.45 |
| 5 | Inadequate extension support | 2 | 3.92 | 5 | 4.90 | 0 | 0 | 7 | 2.99 |
| 6 | Crop loss due to animal attack | 18 | 35.29 | 3 | 2.94 | 0 | 0 | 21 | 8.97 |
| 7 | Flood | 0 | 0 | 0 | 0 | 3 | 3.70 | 3 | 1.28 |
| | Composite index | 65 | 18.20 | 113 | 15.82 | 10 | 1.76 | 188 | 11.47 |

Source: Compiled from primary data

The composite index revealed that the problems in production stage was not at all affected in production of paddy. However the attack by pest and disease, crop loss by animal attack and labour shortage were found influencing production in individual season. In virippu season, which is the major season of cultivation in pazhyannur block, face problem of low yields due to pest and disease (Index 45) followed by crop loss due to animal attack (I=35.29). Since pazhyannur is near forest area, pig attack is more and measures to control them are inadequate.

In mundakan season the labour shortage was the main problem with problem index of 44.11 followed by attack by pest and disease (problem index 42.15). These problems were moderately affecting the production. The labour requirement at the time of production process is mainly for fertilizer application, weeding and pesticide applications. Three times fertilizer application is required for good yield and timely harvest.

In punja season out of 7 problems listed, only 2 problems are reported affecting the farmers that too least affecting the farmers. In punja season, the number of farmers was only 2 and they didn't respond to any problems they faced during production process. All other problems are least affecting the farmers in production process.

### 4.4.1(c) Problems faced by the farmers in harvesting season

During the time of harvesting, major problems faced by the farmers are non-availability of harvesting machines, inadequate labour, natural calamity and attack by animals.

Table 4.36  Harvesting problems faced by farmers

| Sl no | Particulars | Virippu (n=17) | | Mundakan (n=34) | | Punja (n=27) | | Total (N=78) | |
|---|---|---|---|---|---|---|---|---|---|
| | | Score | Index | Score | Index | Score | Index | Score | index |
| 1 | Inadequate availability of machine | 8 | 15.68 | 10 | 9.80 | 5 | 6.17 | 23 | 9.82 |
| 2 | Inadequate labour | 14 | 27.45 | 16 | 15.68 | 0 | 0 | 30 | 12.82 |
| 3 | Natural calamity | 3 | 5.88 | 3 | 2.94 | 6 | 7.40 | 12 | 5.12 |
| 4 | Loss due animal attack | 9 | 17.64 | 24 | 23.52 | 2 | 2.46 | 35 | 14.96 |
| | Composite index | 34 | 16.66 | 53 | 12.99 | 13 | 4.01 | 100 | 10.68 |

Source: Compiled from primary data

All the problem factors except labour shortage were not at all affected the farmers in harvesting. The composite index was 10.68. Only inadequate labour was the main problem faced by the farmers in harvesting time with index 27.45.

### 4.4.1 (d) Problems faced by farmers in marketing

Income of the farmer which depends on marketing is a very important aspect with respect to any agricultural produce. This is an attempt was made to identify the marketing problems faced by the paddy farmers. For identifying this, the variables like Exploitation by intermediaries, Lack of fair price, Lack of storage, High loading / unloading charges and Inadequate support price were taken.

### Table 4. 37  Problems faced by farmers in marketing

| Sl no | Particulars | Virippu (n=17) | | Mundakan (n=34) | | Punja (n=27) | | Total (N=78) | |
|---|---|---|---|---|---|---|---|---|---|
| | | Score | Index | Score | Index | Score | index | Score | index |
| 1 | Exploitation by intermediaries | 3 | 5.88 | 18 | 17.64 | 0 | 0 | 21 | 8.97 |
| 2 | Lack of fair price | 10 | 19.60 | 25 | 24.50 | 0 | 0 | 35 | 14.95 |
| 3 | Lack of storage | 3 | 5.88 | 3 | 2.94 | 0 | 0 | 6 | 2.56 |
| 4 | High loading / unloading charges | 11 | 21.56 | 14 | 13.72 | 3 | 3.70 | 28 | 11.96 |
| 5 | Inadequate support price | 15 | 29.41 | 19 | 18.62 | 0 | 0 | 34 | 14.52 |
| | Composite index | 42 | 16.47 | 79 | 15.49 | 3 | 0.74 | 124 | 10.59 |

Source: Compiled from primary data

Farmers are of the opinion that there is no fair price and the support price for their produce are inadequate. Other problems are negligible.

After analyzing the various problems of farmers, it is observed that the labour shortage, inadequate fertilizer and pesticides, inadequate seed, scarcity of water, attack by animals, lack of fair price, inadequate support price are the different areas where interventions are required and to be implemented by the institutions involved in its support.

### 4.4.2 Problems faced by millers

Problems faced by the mills were collected on 3 points scale as highly influencing, moderately influencing and least influencing problems. The problems related to product, procurement, processing and marketing were analysed for the study and was shown in table.

**Table 4.38 Problems faced by millers**

| Sl no | Particulars | Score | Index |
|---|---|---|---|
| **A) Product related problems** | | | |
| 1 | Non availability of product | 2 | 66.66 |
| 2 | Seasonality | 3 | 100 |
| | **Composite index** | **5** | **83.33** |
| **B) Procurement problems** | | | |
| 1 | Timely procurement | 1 | 33.33 |
| 2 | High storage expenses | 3 | 100 |
| | **Composite index** | **4** | **66.66** |

Source: Compiled from primary data

To find out the problems faced by millers, one mill situated in Pazhyannur where farmers sell their produce directly was selected and surveyed. Problems related to product and procurement was pointed out by the respondent miller. Non availability of the product and seasonality in getting particular variety are the main problems cited by the miller which is highly affecting the miller. Whereas in procurement mills incur higher expenses in storing the produce. The composite index was 66.66 for procurement related problems which indicate the problem is moderately affecting the millers business.

### 4.4.3 Problems faced by agents

Agents faced problems in two main area with relation to product and by agents are collected in three major areas with relation to product, seasonality and procurement.

**Table 4.39 Problem faced by agents**

| Sl.no | Particulars | Score | Index |
|---|---|---|---|
| **A) Product related problems** | | | |
| 1 | Non availability of product | 3 | 100 |
| 2 | Low shelf life | 2 | 66.66 |
| 3 | Seasonality | 3 | 100 |
| 4 | Non availability of product due to natural calamity | 2 | 66.66 |
| | Composite index | 10 | 83.33 |
| **B) Procurement problems** | | | |
| 1 | Timely procurement | 1 | 33.33 |
| | Composite index | 1 | 33.33 |

Source: Compiled from primary data

The agent in the survey, ranked four problems related to product. Among them non availability of demanded variety and seasonality in product availability affect the agent highly than low shelf life and non availability of product due to natural calamities. The composite index shows the problems related to product are also highly affecting the agents business. With respect to procurement of paddy the listed problem is least affecting which is indicated by composite index of 33.33.

### 4.4.4. Problem faced by wholesaler

Wholesaler's faces so many problems related to product, procurement, warehousing, transportation and marketing. The problems relating to each of these variables are presented below, with composite index.

**Table 4.40 Problems faced by wholesalers**

| Sl. No | Particulars | Score | Index |
|--------|-------------|-------|-------|
| **A) Product related problems** | | | |
| 1 | Non availability of product | 3 | 20 |
| 2 | Low shelf life | 1 | 6.66 |
| 3 | Seasonality | 5 | 33.33 |
| | **Composite index** | **9** | **20** |
| **B) Procurement problems** | | | |
| 1 | Govt. intervention | 12 | 80 |
| 2 | Seasonality | 3 | 20 |
| | **Composite index** | **15** | **50** |
| **C) Problem related to warehousing and transportation** | | | |
| 1 | High transportation | 6 | 40 |
| 2 | High labour cost | 6 | 40 |
| | **Composite index** | **12** | **40** |
| **D) Problems related to marketing** | | | |
| 1 | Regulatory constrains | 2 | 13.33 |
| 2 | Price fluctuation | 3 | 20 |
| 3 | Competition | 6 | 40 |
| | **Composite index** | **11** | **24.44** |

Source: Compiled from primary data

Non availability of product, low shelf life and seasonality are the main problems pointed out by the wholesalers relating to product. The composite index 20 shows that product related problems are not at all affecting the business of a wholesaler.

Composite index 50 on procurement related problems indicate that the Govt. intervention and seasonality in product availability is moderately affecting the wholesaler's business. Government intervention problem faced by the wholesaler is in festival melas organized by panchayath offices, *kudumbasree,* and other related institutions like co-operative societies. The main problem in the business of wholesale market during festival time is that of a decrease in business. The problem index is high as 80 in case of Government interventions which is the highly affected problem in procurement compared to seasonality which is least affected.

Warehousing and transportation problems are also not affecting the wholesaler. The main problem in this category is high cost of transportation and labour cost for unloading and loading. Both these problems are equally affecting the wholesalers with an index of 40.

The composite index regarding marketing shows that problems are not at all affecting the business of the wholesaler. Among the various problems listed regulatory constraints, price fluctuations and competition, only competition is having a moderate influence.

### 4.4.5 Problems faced by retailer

As in the case of wholesalers, problems faced by retailers have collected under four variables. They are product related, procurement related, transportation, warehousing related and marketing related problems.

**Table 4.41 Problems faced by retailer**

| Sl.no | Particulars | Score | Index |
|---|---|---|---|
| **A) Product related problems** | | | |
| 1 | Non availability of product | 3 | 33.33 |
| 2 | Low shelf life | 3 | 33.33 |
| 3 | Seasonality | 3 | 33.33 |
| 4 | Lack of information on price | 2 | 22.22 |
| | **Composite index** | **11** | **30.55** |
| **B) Procurement problems** | | | |
| 1 | Govt. interventions | 3 | 33.33 |
| 2 | Non availability of variety | 3 | 33.33 |
| 3 | Seasonality | 3 | 33.33 |
| 4 | Financial shortage | 2 | 22.22 |
| | **Composite index** | **11** | **30.55** |
| **C) Problems related to transportation & warehousing** | | | |
| 1 | High transportation cost | 3 | 33.33 |
| | **Composite index** | **3** | **33.33** |
| **D) Problems related to marketing** | | | |
| 1 | Inadequate demand | 2 | 22.22 |
| 2 | Competition | 2 | 22.22 |
| | **Composite index** | **4** | **22.22** |

Source: Compiled from primary data

Problems related to product are mainly ranked for variables on non availability of product, low shelf life, seasonality and lack of information on price. The composite index in problem related to product were 30.55 which states these problems are least influencing the business of retailer. Low shelf life, non availability of product and seasonality indexes are equal indicating same level of influence on retailers.

Problems related to procurement are also affecting the business similar index of 30. Government interventions mainly in festival seasons, non-availability of particular variety, seasonality in availability of the product and financial shortage are the main problems found out regarding procurement related problems. The retailer's problem of high transportation and warehousing cost are not affecting the business of retailer. Problems related to marketing faced by retailers indicates that these problems are least influencing the business of the retailer.

In short among product, procurement, warehousing, transportation as well as marketing none of the problems were found moderate or highly influencing the retailer.

The above sections describes the value chain mapping, factors influencing choice of value chain, price spread efficiency and interventions necessary to improve value chain. Based on these summary of findings and conclusion is represented in chapter V.

# SUMMARY OF FINDINGS & CONCLUSION

# CHAPTER V

## SUMMARY OF FINDINGS AND CONCLUSION

The present study titled Value chain mapping of paddy in Thrissur district with an objective to map the value chain of paddy in Thrissur district, to identify the factors influencing the choice of value chain of paddy, to analyse the price spread efficiency and factors influencing it and to identify interventions necessary to improve value chain of paddy is important in the scenario of increasing price of rice and decreasing margin of farmers.

Sixty farmers were selected from pazhayannur and puzhakal block which recorded the highest production in Thrissur district for the purpose of study. Ten intermediaries which include one miller one agent five wholesalers and three retailers within the district were surveyed.

For mapping of value chain of paddy, global approach suggested by Gereffi and Korzeniewicz (1994) and Kaplinsky (1999) have used to map value chain of paddy. The dimension mapped was as follows.

- The mapping of core process in value chain of paddy which starts with input supply and ends with consumption
- Mapping of actors involved in the value chain of paddy which includes input suppliers like Krishibhavan, open market traders and financial institutions, producers, processors and marketers.
- Mapping of flow of product.
- Mapping of knowledge and information in value chain.
- Mapping of linkages in the value chain.
- Mapping of geographical flow of paddy.
- Mapping of value addition at different levels.

## 5.1 Major findings from value chain mapping are as follows:-

- Farmers require inputs like seeds, fertilizer, pesticides, tools and machinery for cultivation.
- Krishi Bhavan is the main source of input for farmer.

- In our state Government is supplying seeds at Rs.300 / 30 kilograms for an acre, they are HYV like Uma and Jyothi. While cost minimum of Rs.30 per kilo gram in open market.

- Similar to seed supply Krishi Bhavan also supply fertilizers at a subsidised price. These supports are highly beneficial to the farmers since it will add to the cost if it purchased from open market.

- Farmers mainly avail crop loan at low interest rate from SBI and primary cooperative societies.

- Pesticides and tools and machineries services are availed from open market

- In puzhakal farmers sell paddy only through SUPPLYCO.

- In pazhyannur informal channels of marketing is prevailing.

- Purchase by SUPPLYCO at minimum support price give higher margin of Rs.9.54 per kilo grams whereas selling to agents and millers creates a loss of Rs.2.73 and 3.70 per each kilo grams respectively.

- The cost of cultivation for paddy is mainly attributed by labour, fertiliser, tools and machinery.

## 5.2 Factors influencing choice of value chain of paddy

For identifying factors influencing choice of value chain of paddy simple arithmetical calculation like percentage and chi square test is employed. The main factors influencing the choice of value chain of paddy are income of the actors, availability of inputs, holding capacity, promptness of payments and product acceptability norms.

- An agent or a miller doesn't face problem of availability of inputs since shortage in product supplied is compensated by product from out of the state.

- Promptness of payment also influences the farmer in choosing a value chain, a farmer with immediate need for cash approaches agents or millers for marketing.

- A farmer selling to SUPPLYCO need to wait for 3-6 months for full realisation of money.

- A product is accepted by SUPPLYCO only if a farmer keeps the paddy at minimum moistures and chaff content. If the content of moisture is high they reduce the total weight of paddy supplied.

- Holding capacity of farmer influence the value chain by helping them to store the product till the market turns favourable for them.
- The chi square test between choice of value chain and availability of inputs, income, promptness of payment and holding capacity showed that promptness of payment has a significant relationship in choice of value chain.

## 5.3 Price spread efficiency

The price spread efficiency was analysed in connection to cost, return, wholesale price, retail price and minimum support price.

- The highest margin earned by the farmer is in channel where farmer sell to SUPPLYCO.
- The most efficient marketing channel is the one in which farmer sell directly to the consumer. But it is a rare case of marketing among the surveyed respondents.
- Followed by channel with only farmer and consumer. Next efficient channel of marketing was channel with farmer- miller- wholesaler – retailer- consumer.
- With an increasing number of actors in a channel, the increase cost and margin reduce market efficiency.
- The highest percentage of producers share in consumer rupee was in channel were farmer sell direct to consumer followed by channel 2 and channel 1
- Even though channel 2 is more efficient than channel 1, from farmer's point of view it is highest loss making channel.

## 5.4 Problems faced by actors in the value chain of paddy

For identifying intervention necessary to improve value chain of paddy, the problems faced by the actors in the value chain were considered. Problem index was used as a tool for identifying intervention. The major problems find out from the study were :-

- In pre-production stage the problem which moderately affects the farmers is labour shortage.
- In production, harvesting and marketing stages none of the problems were highly affecting the farmers.
- Lack of fair price and inadequate minimum support price are the main problems in marketing.

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- A miller dealing in paddy is affected by non availability and seasonality of the product as highly affecting problem.
- In case of agents non availability of products, low shelf life and seasonality are the highly affecting problems.
- Government intervention in festival season like onam market, vishu market highly affected the business of wholesalers.

## 5.5 Suggested areas of interventions to improve value chain of paddy

The study brought to light a number of aspects that needs to be solved to sustain and improve paddy cultivation.

- The labour shortage is a major issue affecting pre-production, production as well as harvesting seasons. The cultivation practices differ from one place to another. In pazhyannur block, farmers are highly depending on labour force for land preparation in pre-production stages. The machineries available in pre-production stages are limited to the field. Even after ploughing with tractor and tiller, the bund formation between the fields is done with the help of man power. The shortage in labour availability needs an intervention by spreading low cost machineries instead of farm labourers for reducing the problem faced by farmers in labour shortage. The functioning of labour bank, MGNREGP should be extended to all cultivating areas for reducing the problem of farmers.
- Supply of good quality seed and fertilizers are necessary for better production, while supplying seed and fertilizers by Krishi Bhavans they have to ensure the quality. Many of the farmers from puzhakal block faced the problem of germination. Because of the problem of non-germination, they were forced to purchase the seed from other sources and incurred a higher cost in cultivation. Since seed cost is more than normal paddy, it will add to the cultivation cost. Availability of seed at good quality should be ensured by the government institutions before supplying to farmers.
- Timely availability of fertilizers is important for the farmers, since the fertilizer application on time is necessary for better production. Fertilizer supplied at subsidized price enable farmers in reducing cost of cultivation, but timely supply is necessary. Timely supply may be ensured by the institutions involved in the supply of fertilizers.

- Paddy being basic food product of Kerala, increase in production is necessary. Passing with time, declining trend in rice cultivation is high. Non interest of new generation to cultivation is a problem for this declining trend. Along with that natural calamities also affect the production. Both Heavy rain and drought are adversely affecting the farmers in production. Rain being uncontrollable by human being, no intervention is possible but the chances of drought can be controlled by making appropriate measures by the institutions relating to agriculture protection and irrigation facility.

- Training programmes conducted by Krishi Bhavans or Panchayath are found less in the area of study. The new diseases and problems in paddy production as well as new technology dissemination are to be properly communicated through trainings.

- Attack by pest and disease and loss due to animal attack are more in pazhayannur area, since it is near to forest area. Appropriate eradication programmes for reducing pest and animal attack can be entertained by the institutions dealing with it without exploiting their life. Similarly irrigation facilities and drought which are similar in the case of pre-production, affect farmer in production.

- At the time of harvesting non availability of harvesting machines affect the farmers since on maturity the crop will not stand in the plant as day's passes. Institutions like krishibhavan and panchyaths may take necessary to make available harvesting machines on time.

- Inadequate support price and high loading unloading charges affect farmers in the marketing stage. Exploitation of farmers by intermediaries is found in Pazhayannur area. These improper marketing channels need to be eliminated by the proper intervention of padasekarasamithies.

- The delay in procurement made by SUPPLYCO is affecting the farmers at the time of marketing. A farmer has to register with SUPPLYCO within 60 days of sowing for selling their product to SUPPLYCO. So proper communication to inform the time of registration to farmer is need to be ensured.

- The mills and agents involved in paddy value chain is facing problems in connection with product variety and seasonality in availability of product variety. The cultivation of particular variety in the farm is based on the suitability of variety in a season of cultivation. Timely procurement of paddy depends on the harvesting time, harvesting of paddy in turn depends on the availability of machines. Here the intervention

necessary to implement is in the farm, not with respect to agents or mills because agents and mills are only procuring raw material for their business. Since agents and mills are procuring paddy from farmer at lower price than MSP, it is causing the farmer in distress sale. It is evident from problems faced by farmers in marketing, which is expressed as exploitation by intermediaries. This need to be reviewed by the concerned authorities.

- Technology improvement in mills can reduce the cost of processing and increase the revenue. But the existence of agents and millers in the chain is only because of the margin they get from their business but this high margin is by way of exploiting the farmer by low return to the farmer. So improvement of technology has to benefit the farmer.

- A wholesaler and retailer in the chain are ultimate delivery channels in the value chain. Most of the consumers are depending on retail shops for purchase of rice. The non availability of a particular variety of rice, seasonality, low shelf life of product related problems cannot be intervened by any of the institutions. The government interventions at the time of festival seasons in the form of special mela's are favoring the consumers. So the problems faced by wholesaler and retailer in low business cannot be intervened since the ultimate benefit goes to the consumer. Whereas unfair competition prevailing in the market and high loading unloading cost which can be regulated. Transportation cost which is depending on distance and cost of petrol/diesel and hence cannot be controlled since it depends on all over India. These are the areas needs appropriate intervention.

## 5.6 Conclusion

Kerala has a distinct flavour in the agriculture sector which is a combination of cash and food crops. This distinct character is due to the agro-climatic conditions in Kerala, which is suitable for many varieties of seasonal and perennial crops. Paddy accounts for major part of food grain production in Kerala and the social fabric of Kerala is entwined with paddy and its harvesting. Despite the above, the area and production of paddy continue to decline over the years. The major cause was the mismatch in price received by farmer in connection with increasing price of rice. In this context, analysis of value chain helps to trace product flows; shows value addition at different stages; identifies key actors and their linkages in the chain; identifies enterprises that contribute to production, services and required institutional support; identifies inefficiencies preventing progress of the chain and potential points for improving the performance; provides a framework for sector-specific action; identifies strategy to help local enterprises to compete and to improve earning opportunities of actors.

The present study found out four main channels prevailing in the value chain of paddy in the studied area. Among these different value chains, the only chain which provide profit margin and dependable to farmer is selling through SUPPLYCO. The informal channels prevailing in paddy is profitable for the intermediaries only. Choice of value chain by a farmer is highly depending on the promptness of payment rather than income of the actors, availability of inputs, holding capacity and product acceptability norms. The involvements of intermediaries are still prevailing in the paddy farms of Kerala. It reduces the market efficiency of paddy value chain by increasing cost and margin towards intermediaries. The study therefore concludes that there is an urgent need for government intervention in paddy sector of Kerala. Supply of good quality seeds and fertilisers, availability of harvesting machines, labour for cultivation, timely procurement of the produce, and fast payment of return for farmer is to be ensured. For improving market efficiency, middleman should be eliminated.

Paddy sector of Kerala can be improved only by making farmers comfortable ie, by improving procurement and payment. SUPPLYCO should change its procurement policy by speeding up procurement and payment system. So that the hesitated farmers will come back to cultivation and the dependency on other states can be reduced.

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# REFERENCE

# REFERENCE

Acharya, S. S. and Agarwal, N. L. 1987. *Agricultural Marketing in India* (Indian Reprint, 2004). Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi, pp. 396-417.

Achchuthan, S. and Kajananthan, R. 2012. A study on value chain analysis in paddy sector: special reference to Kilinochi district, Sri Lanka. *Global J. Mgmt. and Business Res.* **12 (18)**: 12-22.

Archana, K. 2013. Value chain analysis of paddy in Nalgonda district of Andhra Pradesh. BSc (Ag) thesis, Acharya. N. G Ranga Agricultural University, Hyderabad.

Agarwal, N. L. and Saini, T.C. 1995. Vegetables marketing- a case study of Jaipur market (Rajasthan). *Indian J. Agric. Mkt.* **9(1)**: 36-43.

Basu, J. P. 2010. Efficiency in wholesale, retail and village markets: A study of potato markets in West Bengal. *J. S. Asian Dev.* **5(1)**:85-111.

Bidogeza, J.C., Afari- sefa, V., Endamana, D., Tenkouano. A., and Kane, G.Q. 2016. Value chain analysis of vegetables in the humid tropics of Cameron [abstract]. In: Abstarcts; *5th African Association of Agricultural Economists conference*; 23-26, September, 2016, Int. Union for Conservation of Nature, Cameroon. p22.

Charles, C. K. 2012. Enhancing backyard poultry enterprise performance in the Techman area: a value chain analysis. *Afr. J. Food. Agric.Nutr. and Dev.* **12 (1)**: 5759-5775.

Dooren,C.V. 2005. *Rice value chain analysis : Each life starts with a little seed.* Working Report. International Federation for Alternative Trade, Culemborg, Netherland

DFID [Department for International Development]. 2008. *Making value chain work better for the poor: A tool book for practioners of value analysis* (version 3). Department for International Development, Phnom Penh, Cambodia

Dwibedy, S. K. 2013. Estimation of price spread and marketing efficiency of brinjal in different marketing channels: a case study. *Indian J. Mkt.* **43 (2)**: 50-56.

Gangwar, L. S., Saran, S. and Kumar, S. 2010. Broilers supply value chain in the national capital region Delhi: a study of Ganzipur poultry market. *Agric. Econ. Res. Rev.*, 23: 461-468.

Gebremeskel, B. K. 2010. Rice value chain management in Metema district, North Gondar, Ethiopia: challenges and opportunities for innovation. M.A. (Regional and Local Development) thesis, Addis Ababa University. Ethiopia, 116p.

Gilbert, C. L. 2007. Value chain analysis and market power in commodity processing with application to the cocoa and coffee sectors. *FAO Commodity Market Rev.*: 5-33.

GOK [Government of Kerala]. 2012. Agricultural Statistics 2010-2011 [Online]. http://www.ecostat.kerala.gov.in/index.php/reports/139.html. [28 Oct. 2012].

Jadav, K. S., Leua, A.K., and Darji, V.B. 2011. Economic analysis of supply chain of fresh potato in middle Gujarat. *Indian J. Agric. Res.* 45 (4)

Nikam, A.V., Shendage, P.N., Jadhav, K.L and Deokate, T.B. 2007. Marketing of kharif potato in Satara district Maharastra. *Indian J. of Agric. Mkt.* 21(2):188-194.

Richard-Bwalya. 2014. An analysis of the value chain for indigenous chickens in Zambia's Lusaka and central provinces. *J. Agric. Stud.* 2(2) (in press)

Sarfaraz, A. 2015. Study of supply chain management and marketing of apple in Kashmir region of Jammu and Kashmir, India. BSc. (Ag) thesis, State Agricultural University, Hyderbad, 69p.

Saurav-Neji and Neeraj-Anand.2015. Supply chain of fruits and vegetables agribusiness in Uttrakhand, India Major issues and challenges. *J. Supply chain management. Syst.* **4 (1)**: 43-57

Schmitz. 2005. *Value Chain Analysis for Policy Makers and Practitioners*. Working paper. International Labor Organization/Institute of Development Studies, Essex,UK

Shaha- Nur- Kabir, M. D. 2008. Supply and value chain of rice mill. MSc (Farm power and machinery) thesis, Bangladesh Agricultural University, Mymensigh, 53p.

Shelke, R. D. 2009. Economics of Price Spreads in Marketing of Major Vegetables in Parbhani Market. *Econ. Affairs.***54 (3-4):**118-123.

Sit, A. K. and Ghosh, A. 2005. Problems of Arecanut cultivation in sub Himalayan Terai Region of West Bengal. *Indian J. of Arecanut, Spices and Med. Pl.* **7(3)**: 91-95

Sultan, U. M. 2016. Analysis of wheat value chain: The case of sinana district, Bale Zone, Oromia region, Ethiopia. MSc (Agric. Econ.) thesis, Harmaya University, Harmaya, 111p.

Susheela- Meena and Singh, I.P. 2014. Price spread and efficiency of marketing of tomato in Rajasthan. *Indian J. Agric. Res*. **45 (4)**: 294-300

SUPPLYCO [The Kerala State Civil Supplies Corporation of Ltd.]. 2018. SUPPLYCO Home page [Online]. Available:http://www.SUPPLYCOpaddy.com. [27 Aug. 2018].

Triekens, J. H. 2011. Agricultural value chain in developing countries a frame work for analysis. *Int. Fd. and Agribusiness Mgmt. Rev*. **14 (2)**: 51-82.

UNIDO [United Nations Industrial Development Organization]. 2011. *Pro-poor Value Chain Development: 25 guiding questions for designing and implementing agroindustry projects*. United Nations Industrial Development Organization, Vienna, Austria. 58p.

Venktesh, B. 2011. Value chain analysis for coffee in Karnataka, India. M.Sc. (Rural Development) thesis, Ghent University, Belgium, 76p.

Vijay, P. S. 2016. Marketable and marketed surplus of rice and wheat in India: distribution and determinants. *Indian J. of Agric. Econ*. **71 (2)**: 137-159.

Vishal Sharma, Sunil Giri and Siddarth Shankar Rai. 2013. Supply chain management of rice in India: A rice processing companies perspective. *Int. J. Managing value and supply chains* **4 (1)**: 25-36.

Verma, A. R., Rajput, A. M., Patidar, R. S. 2004. Price spread, marketing efficiency and constraints in marketing of onion in Indore district of Madhya Pradesh. *Indian J. Agric. Mkt*. **18 (2)**: 66-76.

# VALUE CHAIN MAPPING OF PADDY IN THRISSUR DISRICT

By

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**(2012-15-106)**

# ABSTRACT OF THE THESIS

**Submitted in partial fulfillment of the
requirement for the degree of**

*Master of Science in Co-operation & Banking*
**(Rural Marketing Management)**

**Faculty of Agriculture**

**Kerala Agricultural University, Thrissur**

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**2018**

## ABSTRACT

Value chain is a set of linked activities that work to add value to a product, which consist of actors and actions that improve a product while linking producer to processors and markets. A value chain work best when their actors cooperate to produce high quality products and generate more income for all participants along the chain. A value chain encompasses the flow of products, knowledge and information, finance, payments, services and value additions at different levels. A value chain approach in agricultural development helps in identifying weak points in the chain and actions to add more value.

The study on value chain mapping of paddy in Thrissur district has been undertaken with the objective of mapping value chain of paddy, identifying the factors influencing choice of value chain of paddy, analysing price spread efficiency and factors influencing it, identifying interventions necessary to improve value chain of paddy.

The area of study was confined to Thrissur district. The sample respondents consist of thirty farmers, one miller, one agent, five wholesaler and three retailers. Thirty farmers were selected from two blocks of Thrissur district namely Pazhyannur and Puzhakal (with more production in paddy) through snow ball sampling. The data were collected using pre- tested structured interview schedule. The collected data were analysed with the help of value chain mapping tool (global approach), modified market efficiency (Acharya's approach), percentage analysis, index method and chi square test.

The mapping of paddy value chain revealed that the core process involved in the chain is input supply, production, procurement, processing, marketing and consumption with actors like Krishi Bhavan, open market traders, technology and information, labour and financing institutions in input supply, farmers in production process, SUPPLYCO, agents and millers in procurement and processing, PDS, wholesalers and retailers in marketing and consumers in consumption stage. The farmers are mainly depending on Krishi Bhavan for farm inputs especially for seed or fertiliser at subsidised price. The padasekara samithies are the main information disseminating agency for farmers. They provide information on input availability, registration time for selling to SUPPLYCO, information on classes/ training conducted by Krishi Bhavan/ Panchyath in the group, time of insuring crop, etc. Provisions of seeds and fertilisers are the major support to farmers from Krishi Bhavan as the cost of seeds

and fertilisers are high in open market. They also provide high yielding varieties of seeds which are resistant to common diseases. The dependency on banks is mainly for financial support and maintenance of accounts since all transactions are operated through bank account only. Farmer's contact with Krishi Bhavan, private traders, financing institutions, SUPPLYCO, millers, agents and other institutions like KAU, Paddy research station and insurance companies. The paddy produced in the field is procured by agents, millers or SUPPLYCO and converted to boiled rice, raw rice and broken rice which is then distributed to local markets, others districts in Kerala and to abroad.

SUPPLYCO is the major purchaser of paddy, 60 percent of farmers in virippu and 64.70 percent of farmers in mundakan, and 100 percent of farmers in punja season are selling paddy through SUPPLYCO. The rest is marketed through channels including agents and millers.

The identified marketing channels are

1. Farmers ⟶ agents ⟶ millers ⟶ wholesalers ⟶ retailers ⟶ consumer

2. Farmer ⟶ miller ⟶ wholesaler ⟶ retailer ⟶ consumer

3. Farmer ⟶ consumer

4. Farmer ⟶ SUPPLYCO ⟶ PDS ⟶ Consumer

In channel 1 and 2 the average price received for paddy is Rs.16.18 and Rs.19.00 per kilograms respectively. It leads to Rs. 2.73 and Rs. 3.70 loss to a farmer per kilograms. In channel 3 in which a farmer directly sell to consumers is at a good margin of Rs. 5.51 per kilogram. In first two channels actors other than farmers are profit makers. The formal channel of marketing of paddy in Kerala is through SUPPLYCO. The SUPPLYCO procure paddy from farm gate at minimum support price, which is Rs. 21.50 during the study period. In this case a farmer can get a higher margin of Rs. 9.54 for each kilogram of paddy.

To identify the factors influencing the choice of value chain of paddy the variables like income of actors, availability of inputs, holding capacity, time required for realisation of payment and product acceptability norms were taken to account. The chi-square test between the choice of value chain and the selected variables showed that promptness of payment has a significant relationship in choice of value chain. Eventhough SUPPLYCO is the highest paid channel actor for farmers, delay in procurement by the SUPPLYCO and delay in payments influence the farmer to choose informal channels for marketing. It takes nearly 3 to 6 months

to get payment from SUPPLYCO. So for easy realisation of cash the farmers are depending on informal channels for marketing.

The paddy farmers always sell their produce after keeping for self-consumption, seed, keeping for wage and rent purpose. So the assessment of distress sale cannot be done based on quantity of paddy marketed compared to other agricultural produces like vegetable which are highly perishable. So price spread efficiency was calculated for studying channel efficiency. The increase in number of intermediaries in a value chain decreases the market efficiency through increasing cost and margin of intermediary. The percentage of producer share in consumer rupee is better for lesser intermediary chain. Among four channels of marketing, channel 1 is least efficient with market efficiency 0.71 followed by channel 2 were market efficiency is 0.83, where number of intermediaries are more. Channel 3 is most efficient channel in informal channels of marketing with market efficiency 1. The producer share in consumer rupee was found to be higher for channel 3 (100) followed by channel 2 (83.77) and channel 1 (71.34). Even though producer share in consumer rupee was higher in channel 2 total marketing margin was negative, it was due to higher labour cost incurred by farmer in virripu season for harvesting. If the farmer is able to reduce harvesting cost they can make profit from channel 2. The only channel which give maximum return to farmer is the formal channel of marketing through SUPPLYCO. Since the PDS is not meant for margin the marketing efficiency was not considered for the channel.

The problems faced by actors were analysed to find out interventions required in the value chain. The major problem faced by farmer are labour shortage, attack by pest and diseases and lack of fair price in marketing of produce. The agents and millers face the problem of non-availability of demanded variety in the market and higher storage expenses. The government intervention during festival season through Onam and Vishu markets negatively affect the business of wholesalers and retailers very much by reducing demand for their produce.

The study pointed out the major area of interventions necessary to improve the value chain of paddy. The development and dissemination of good quality seeds and fertilisers are to be continued by the institutions involved in it. The timely distribution is also an important factor for better production result, since the farm output is decreasing day by day. The training programs in this aspects can be imparted through Krishi Bhavans in association with Panchayathraj organisations. Timely availability of harvesting machines are also important

since on maturity, the crop won't stand on the plant as days passes. Lack of storage facility and timely procurement problem in formal channels can be reduced by setting up of rural godowns in main production centers and pooling the produce in such centers. Setting up of labour bank and spreading it to all major production centers are to be taken up by the cooperative societies.

Inadequate support price and high loading unloading charges affect farmers in the marketing stage. Exploitation of farmers by intermediaries is found in Pazhayannur area. These improper marketing channels need to be eliminated by the proper intervention of the Padasekarasamithies and the government.

Paddy sector of Kerala can be improved only by making farmers comfortable ie, by improving procurement and payment. SUPPLYCO should change its procurement policy by speeding up procurement and payment system. So that the hesitated farmers will come back to cultivation and the dependency on other states can be reduced.

# ANNEXURE

## Kerala Agricultural University
## College of Co-Operation banking & Management
## Vellanikkara, Thrissur
## Value chain analysis of paddy
### Interview Survey schedule for farmers
(Information collected through this survey is meant only for study purpose)

## Socio economic characteristics

1.Name of the respondent:

Ph No :

2. Address :

3.APL/BPL :

4.Demographic composition

| Sl No | Name | Age | Sex | Relationship with respondent | Education | Occupation | |
|---|---|---|---|---|---|---|---|
| | | | | | | Main | Subsidiary |
| 1. | Farmer | | | | | | |

5. Average monthly income of the family:

## Details of paddy cultivation

6. How long you have been in paddy cultivation:

7. Why do you continue to cultivate paddy :
     a) High market value        b) Low cost of cultivation
   c) Increasing demand        d) Others (Specify):.........................

8. Area owned by the respondent :

9. Area under cultivation         : Dry land paddy …………Wet land paddy ……

                              Kole land …………….. Other crops……………

10. Land holding position         :

| Particulars | Punja | | | | Viripu | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | Irrigated | | Un irrigated | | Irrigated | | Un irrigated | |
| | Owned | Leased | Owned | Leased | Owned | Leased | Owned | Leased |
| Area under paddy cultivation in Ac | | | | | | | | |
| Varieties used | | | | | | | | |

| Particulars | Mundakan | | | | Kole land | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | Irrigated | | Un irrigated | | Irrigated | | Un irrigated | |
| | Owned | Leased | Owned | Leased | Owned | Leased | Owned | Leased |
| Area under paddy cultivation in Ac | | | | | | | | |
| Varieties used | | | | | | | | |

11. Did you shift from traditional variety to HYV: Yes ☐ No ☐

        If yes reasons …………………………………………………………..

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HYV to Traditional variety: Yes [ ] No [ ]

If Yes, reasons………………………………………………………………

12. Method of cultivation :

Traditional [ ] Partially mechanized f[ ]mechanized [ ]

**Input Details**

13. Details of cost of inputs

| Punja | Information source | Source | Reason for choosing source | Quantity | Price | Subsidy |
|---|---|---|---|---|---|---|
| Seed HYV Traditional | | | | | | |
| Fertilizer a) organic b) inorganic | | | | | | |
| Pesticides | | | | | | |
| Credit | | | | | | |
| Tools and equipments | | | | | | |
| Irrigation | | | | | | |
| Advisory and technology services | | | | | | |
| Insurance services | | | | | | |
| If rendered land, rent | | | | | | |
| Others (Specify) | | | | | | |

| Viripu | Information source | Source | Reason for choosing source | Quantity | Price | Subsidy |
|---|---|---|---|---|---|---|
| Seed<br>    HYV<br>    Traditional | | | | | | |
| Fertilizer<br>  a) organic<br>  b) inorganic | | | | | | |
| Pesticides | | | | | | |
| Credit | | | | | | |
| Tools and equipment's | | | | | | |
| Irrigation | | | | | | |
| Advisory and technology services | | | | | | |
| Insurance services | | | | | | |
| If rendered land, rent | | | | | | |
| Others (Specify) | | | | | | |

| Mundakan | Information source | Source | Reason for choosing source | Quantity | Price | Subsidy |
|---|---|---|---|---|---|---|
| Seed<br>　　HYV<br>　　Traditional | | | | | | |
| Fertilizer<br>　a) organic<br>　b) inorganic | | | | | | |
| Pesticides | | | | | | |
| Credit | | | | | | |
| Tools and equipments | | | | | | |
| Irrigation | | | | | | |
| Advisory and technology services | | | | | | |
| Insurance services | | | | | | |
| If rendered land Rent | | | | | | |
| Others (Specify) | | | | | | |

| Kole | Information source | Source | Reason for choosing source | Quantity | Price | Subsidy |
|---|---|---|---|---|---|---|
| Seed<br>HYV<br>Traditional | | | | | | |
| Fertilizer<br>a) organic<br>b) inorganic | | | | | | |
| Pesticides | | | | | | |
| Credit | | | | | | |
| Tools and equipments | | | | | | |
| Irrigation | | | | | | |
| Advisory and technology services | | | | | | |
| Insurance services | | | | | | |
| If rendered land , rent | | | | | | |
| Others (Specify) | | | | | | |

14. Detailsof labour cost involved in cultivation

| Particulars | Punja | | | | Viripu | | | | Mundakan | | | | Kole | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | | F | | M | | F | | M | | F | | M | | F | |
| | Q | P | Q | P | Q | P | Q | P | Q | P | Q | P | Q | P | Q | P |
| Land preparation | | | | | | | | | | | | | | | | |
| Planting | | | | | | | | | | | | | | | | |
| Fertilizer application | | | | | | | | | | | | | | | | |
| Weeding | | | | | | | | | | | | | | | | |
| Irrigation | | | | | | | | | | | | | | | | |
| Pesticide application | | | | | | | | | | | | | | | | |
| Others (Specify) | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

M-Male  F- Female  Q-No of days P-Wage paid

15. Transportation cost for input supplyincluding loading unloading charges

| Particulars | Punja | | Viripu | |
|---|---|---|---|---|
| | Mode of transportation | Cost of transportation | Mode of transportation | Cost of transportation |
| Seed | | | | |
| Fertilizer | | | | |
| Pesticide | | | | |
| Labour | | | | |
| Machineries | | | | |
| Others (Specify) | | | | |
| | | | | |

| Particulars | Mundakan | | Kole | |
|---|---|---|---|---|
| | Mode of transportation | Cost of transportation | Mode of transportation | Cost of transportation |
| Seed | | | | |
| Fertilizer | | | | |
| Pesticide | | | | |
| Labour | | | | |
| Machineries | | | | |
| Others (Specify) | | | | |
| | | | | |

16. Credit support availed by respondent

| Source | Amount | Rate of interest | Information source for best credit provider | Period | |
|---|---|---|---|---|---|
| | | | | Short | Long |
| Punja | | | | | |
| Viripu | | | | | |
| Mundakan | | | | | |
| Kole | | | | | |

17. Organisational support of farmers

| Organization | Purpose of contact | Information source about organisation | Reason for choosing | Strength of contact | | | |
|---|---|---|---|---|---|---|---|
| | | | | H | M | L | No C |
| Krishi Bhavan | | | | | | | |
| Local self Govt. | | | | | | | |
| Paddy Research Station | | | | | | | |
| KAU | | | | | | | |
| Bank | | | | | | | |
| PACS | | | | | | | |
| Insurance Company | | | | | | | |
| Padsekara Samithi | | | | | | | |
| Others (Specify) | | | | | | | |
| | | | | | | | |
| | | | | | | | |

H-High    M- Medium   L- Low  No  C- No contact

## Production details

18. Details of production

| Particulars | Yearly total production in Kg | Wage in kind If any | Rent in kind if any | Used for seed purpose if any | Self-consumption if any | Marketed surplus | Productivity Kg/Ac |
|---|---|---|---|---|---|---|---|
| Punja | | | | | | | |
| Viripu | | | | | | | |
| Mundakan | | | | | | | |
| Kole | | | | | | | |

19. WhetherStorage facility isavailable:   Yes/ No

If Yes, specify ……………………………………………………………

20. Post-harvest practices followed:

drying ☐   cleaning ☐   parboiling ☐ hulling   ☐ packaging   ☐

grading ☐   Others (specify) ☐

21. Cost involved in harvesting

| Particulars | | | Punja | Viripu | Mundakan | Kole |
|---|---|---|---|---|---|---|
| Harvesting cost | Labour | | | | | |
| | Machinery | | | | | |
| Cost involved in post-harvest | Labour | | | | | |
| | Machinery | | | | | |
| | Storage | Transportation | | | | |
| | | Loading /Unloading | | | | |
| | | Storing | | | | |

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## Marketing details

22. Distribution of marketable surplus

| Punja | Quantity | Price | Transportation cost | Payment details | Time required for realization of price | Information source for best market channel |
|---|---|---|---|---|---|---|
| 1. Direct to customers<br>2. Direct to Supply co<br>3. Open market<br>4. Private millers<br>5. Co-operatives<br>6. Padasekara Samithi<br>7. Others (Specify) | | | | | | |

| Viripu | Quantity | Price | Transportation cost | Payment details | Time required for realization of price | Information source for best market channel |
|---|---|---|---|---|---|---|
| 1. Direct to customers<br>2. Direct to Supply co<br>3. Open market<br>4. Private millers<br>5. Co-operatives<br>6. Padasekara Samithi<br>7. Others (Specify) | | | | | | |

| Mundakan | Quantity | Price | Transportation cost | Payment details | Time required for realization of price | Information source for best market channel |
|---|---|---|---|---|---|---|
| 1. Direct to customers<br>2. Direct to Supply co<br>3. Open market<br>4. Private millers<br>5. Co-operatives<br>6. Padasekara Samithi<br>7. Others (Specify) | | | | | | |

| kole | Quantity | Price | Transportation cost | Payment details | Time required for realization of price | Information source for best market channel |
|---|---|---|---|---|---|---|
| 1. Direct to customers<br>2. Direct to Supply co<br>3. Open market<br>4. Private millers<br>5. Co-operatives<br>6. Padasekara Samithi<br>7. Others (Specify) | | | | | | |

23. Are you aware about the minimum support price fixed by GOK:  Yes/ No

24. Are you satisfied with the price you are getting for your produce?    yes ☐ No ☐

25. From where you can get maximum price for your produce?
    a)Private traders  b) Padasekarasamithi c) Co-operative
d) Krishibhavan   e) Private companies  f) Supplyco h) Others (Specify)

26. Net income from sale of Hay after deducting labour and transporation cost:
        Punja :………………………………………
        Viripu  :………………………………………..
      Mundakan :………………………………………
         Kole :………………………………………..

27. Whether you are making any value added product from paddy for sale:  Yes  / No

| Items | | Ready to eat items | |
|---|---|---|---|
| Rice | | | |
| Rice floor | | | |
| Ready to make items | | | |

Tick on appropriate columns

28. What are the major problems you faced in pre-production, production, and harvesting and marketing stages:

    A) pre-production

| Particulars | Yes/No | | | | High | | | | Moderate | | | | Low | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | V | M | K | P | V | M | K | P | V | M | K | P | V | M | K |
| Inadequate seed / planting material | | | | | | | | | | | | | | | | |
| Lack of quality fertilizer and pesticide | | | | | | | | | | | | | | | | |
| Lack of organic manure | | | | | | | | | | | | | | | | |
| Labour shortage | | | | | | | | | | | | | | | | |
| Machinery shortage | | | | | | | | | | | | | | | | |
| Inadequate credit | | | | | | | | | | | | | | | | |
| Scarcity of water | | | | | | | | | | | | | | | | |
| Lack of irrigation facility | | | | | | | | | | | | | | | | |
| Inadequate knowledge about new varieties | | | | | | | | | | | | | | | | |
| Lack of training | | | | | | | | | | | | | | | | |
| Others (Specify) | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

## B) Production

| Particulars | Yes/No | | | | High | | | | Moderate | | | | Low | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | V | M | K | P | V | M | K | P | V | M | K | P | V | M | K |
| Attack of pest& diseases | | | | | | | | | | | | | | | | |
| Lack of irrigation facility | | | | | | | | | | | | | | | | |
| Flood | | | | | | | | | | | | | | | | |
| Drought | | | | | | | | | | | | | | | | |
| Climate condition other than flood | | | | | | | | | | | | | | | | |
| Inadequacy of labours | | | | | | | | | | | | | | | | |
| Inadequate extension support | | | | | | | | | | | | | | | | |
| Inadequate credit | | | | | | | | | | | | | | | | |
| Others (Specify) | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

## C) Harvesting

| Particulars | Yes/No | | | | High | | | | Moderate | | | | Low | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | V | M | K | P | V | M | K | P | V | M | K | P | V | M | K |
| Inadequate availability of machines | | | | | | | | | | | | | | | | |
| Inadequacy labours | | | | | | | | | | | | | | | | |
| Natural calamity | | | | | | | | | | | | | | | | |
| Crop loss by animal attack | | | | | | | | | | | | | | | | |

D) Marketing

| Particulars | Yes/No | | | | High | | | | Moderate | | | | Low | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | V | M | K | P | V | M | K | P | V | M | K | P | V | M | K |
| Exploitation by intermediaries | | | | | | | | | | | | | | | | |
| Price fluctuations | | | | | | | | | | | | | | | | |
| Lack of fair price | | | | | | | | | | | | | | | | |
| Lack of demand | | | | | | | | | | | | | | | | |
| Lack of value addition | | | | | | | | | | | | | | | | |
| Lack of storage | | | | | | | | | | | | | | | | |
| Lack of holding capacity | | | | | | | | | | | | | | | | |
| High transportation cost | | | | | | | | | | | | | | | | |
| High loading /unloading charges | | | | | | | | | | | | | | | | |
| Inadequate support price | | | | | | | | | | | | | | | | |
| Government regulations | | | | | | | | | | | | | | | | |
| Others (Specify ) | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

29. Suggestions for improving paddy production and marketing

| Particulars | Suggestions | |
|---|---|---|
| Input supply (Fertilizers/pesticides) | P | |
| | V | |
| | M | |
| | K | |

| Labour availability | P | |
| | V | |
| | M | |
| | K | |
| Machinery availability | P | |
| | V | |
| | M | |
| | K | |
| Warehousing | P | |
| | V | |
| | M | |
| | K | |
| Financing | P | |
| | V | |
| | M | |
| | K | |
| Government regulations | P | |
| | V | |
| | M | |
| | K | |
| Transportation facility | P | |
| | V | |
| | M | |
| | K | |
| | | |

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**Vellanikkara, Thrissur**

Value chain analysis of paddy

**Interview/ Survey schedule for Agent/Millers**

(Information collected through this survey is meant only for study purpose)

## 1. <u>Socio economic characteristics</u>

| | |
|---|---|
| Name of the Respondent | |
| Phone number | |
| Address | |
| Age ( Individual ) / Years (Others ) | |
| Gender (only for individuals) | Male / Female |
| Education | Below SSLC / SSLC / Pre degree / Degree / Post graduation |
| Primary Occupation | Agriculture / Business / Others , specify............................................ |
| Nature of business | Wholesaler / Retailer / Processor |
| Type of ownership | Individual / Partnership / Company / Cooperatives |
| Mode of investment | Own fund: <br> Borrowed Fund: |
| Average monthly income from business | |

Fixed cost and Recurring cost involved in business

| PARTICULARS | AMOUNT | Av. LIFE SPAN |
|---|---|---|
| Land & building<br>　　　　　　　Owned :<br>If rented /leased initial deposit made :<br>　　　　Monthly rent paid : | | |
| Investment Furniture | | |
| Investment in Vehicle<br>　　　　　　Owned　:<br>　　Monthly rent　paid : | | |
| Investment in warehouse<br>　　　　　　Owned :<br>If rented, initial deposits made any :<br>　　　Monthly rent　paid : | | |

## DETAILS OF PADDY BUSINESS

1. How long you have been doing paddy business　:
2. Why do you continue to do paddy business　　　:　a ) Family business　b ) High market
   c) Others, specify……………………………………

3. Did you under gone any contract with suppliers　: Yes　/　No
   If Yes,

| Type of contract | Oral　　　/ Written |
|---|---|
| Period of contract | |
| Commission paid | Rs. |
| Mode of payment | Spot　/　Account payment　/　Others, ·<br>specify ………………… |

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## INPUT DETAILS

4. In which form you procure the produce : Raw / Half processed / Processed / All type

5. Source of purchase and cost involved in purchase

| Sl No | Actor | Information about the seller | Qty purchased (Kindle ) | Price/kindle | Mode of payment | Frequency of purchase |
|---|---|---|---|---|---|---|
| 1 | Farmers | | | | | |
| 2 | Other villages traders/ agents | | | | | |
| 3 | Private millers | | | | | |
| 4 | Padasekara samithi | | | | | |
| 5 | Others, specify | | | | | |
| | | | | | | |

6. Price variation with source of procurement

| Sl No | Actors | Reason for variation over price |
|---|---|---|
| 1 | Farmers | |
| 2 | Other village traders | |
| 3 | Private millers | |
| 4 | Padasekara samithi | |
| 5 | Others, specify….. | |
| | | |

7. Transportation cost for input supply

| Particulars | Mode of transportation | Cost of transportation |
|---|---|---|
| Paddy | | |
| Insecticides | | |
| Machineries | | |
| Labour | | |
| Driver charges | | |
| Fuel and maintenance charges | | |
| Others, specify….. | | |

8. Cost of Warehousing/Safe keeping

| Particulars | Cost/ Kindle |
|---|---|
| Ware house rent | |
| Insurance charges | |
| Insecticide Cost | |
| Labour charges | |
| Transportation charges | |
| Others, specify | |

9. Credit support availed by the respondent

| Source | Information about the source | Amount | Rate of interest | Period | |
|---|---|---|---|---|---|
| | | | | Short | Long |
| Nationalised Bank -1 | | | | | |
| Nationalised bank -2 | | | | | |
| Cooperative Society | | | | | |
| Private finance companies | | | | | |
| Money lenders | | | | | |
| Others | | | | | |

10. Organizational support for the Respondents

| Organisation | Purpose of contact | Information source about the organisation | Strength of contact | | | |
|---|---|---|---|---|---|---|
| | | | H | M | L | NOC |
| Govt. Institutions 1) 2) 3) | | | | | | |
| KAU | | | | | | |
| Private Institutions 1) 2) 3) | | | | | | |
| Agri- business organization | | | | | | |
| Others, specify | | | | | | |

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## PROCESSING DETAILS

11. Types of products of your institution

| Item | | Item | |
|---|---|---|---|
| Paddy | | Broken rice | |
| Parboiled Rice | | Hull and husk products | |
| Brown Rice and germinated brown rice | | Bran oils and application | |
| Others, specify | | Un processed rice (Pachari) | |
| | | | |

12. Cost of processing

| Product | Cost involved |
|---|---|
| **1) Parboiled Rice** | |
| Labour Cost | |
| Machineries maintenance cost including electricity | |
| Storage Cost | |
| | |
| | |
| 2) Brown Rice and germinated brown rice | |
| Labour cost | |
| Machineries maintenance cost including electricity | |
| Storage cost | |
| | |
| | |
| 3) Broken Rice | |
| Labour Cost | |
| Machineries maintenance cost including electricity | |
| Storage cost | |
| | |
| | |
| 4 ) Hull and husk products | |
| Labour cost | |

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| | |
|---|---|
| Machineries maintenance cost including electricity | |
| Storage cost | |
| | |
| | |
| 5) Bran oil and other products | |
| Labour Cost | |
| Machineries maintenance cost including electricity | |
| Storage Cost | |
| | |
| | |
| 6) Unprocessed rice Pachari | |
| Labour cost | |
| Machineries maintenance cost including electricity | |
| Storage cost | |
| 7) Product 7 | |
| | |
| | |
| | |
| | |

13. Cost of sales

| Particulars | | Who bears cost | |
|---|---|---|---|
| | | Own | Customer |
| Transportation cost | Loading/ unloading | | |
| | Driver cost | | |
| Packing | Packing materials | | |
| | Labour cost for packing | | |
| | Machinery cost for packing | | |
| Promotion cost | Display board | | |
| | Agents | | |
| | Others | | |
| | | | |

14. What are the factors affecting demand for your product

| Reason | Yes/ No | Reason | Yes/ No |
|---|---|---|---|
| Income of customer | | Market demand | |
| Substitute products / new products | | Taste and preference of customers | |
| Speculative stock at retailers | | | |
| | | | |
| | | | |
| | | | |

15. Whether you are able to meet the demand of your customer

| | |
|---|---|
| Fully | |
| More than half percentage | |
| Only half percentage | |
| More than 25 % | |
| Below 25 % | |

16. If not able to meet full demand, how you meet the gap

| Particulars | Always | Occasionally | Never |
|---|---|---|---|
| Open market | | | |
| Other whole salers | | | |
| Agents | | | |
| Others, specify... | | | |
| | | | |
| | | | |
| | | | |

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17. Who are the customers of your products

| Sl No | Actors | Location | Qty sold | Price/Kindle |
|---|---|---|---|---|
| 1 | Retailer | | | |
| 2 | Other whole salers | | | |
| 3 | Processing companies | | | |
| 4 | Marketing companies | | | |
| 5 | Supplyco | | | |
| 6 | Customers outside india | | | |
| 7 | Customers outside kerala | | | |
| 8 | Others, specify | | | |

18. If exported cost involved in export

| Item | Amount | Exporter / Importer |
|---|---|---|
| Import export code | | |
| Export licence | | |
| Insurance cost | | |
| Export quality evaluation charges | | |
| Rent paid at port if any | | |
| | | |
| | | |

19. If exported , quantity exported and Price

| Item | Quantity | Price/Kindle | Item | Quantity | Price/kindle |
|---|---|---|---|---|---|
| Paddy | | | Broken rice | | |
| Parboiled Rice | | | Hull and husk products | | |
| Brown Rice and germinated brown rice | | | Bran oils and application | | |
| Others, specify | | | | | |
| | | | | | |

20. What are the major problems faced in Product, Procurement, Processing and marketing stages

Procurement

| Particulars | YES/ NO | Very Important | Important | No importance |
|---|---|---|---|---|
| No timely procurement | | | | |
| No timely procurement in quantity | | | | |
| High transportation cost for procurement | | | | |
| High storage expenses | | | | |
| Lack of storage facility | | | | |

| High labour cost | | | | |
|---|---|---|---|---|

Product

| Particulars | YES/ NO | High | Medium | Low |
|---|---|---|---|---|
| Unavailability of good quality product | | | | |
| Low shelf life of the product (moisture content) | | | | |
| Timely availability of product | | | | |
| Requirement of more space | | | | |
| | | | | |

Processing

| Particulars | YES/ NO | High | Medium | Low |
|---|---|---|---|---|
| Unavailability of good machineries | | | | |
| Wastage on Processing | | | | |
| Inadequate technology | | | | |
| High Labour cost | | | | |
| Government policies on processing | | | | |
| Lack of proper market information | | | | |
| | | | | |

Marketing

| Particulars | YES/ NO | High | Medium | Low |
|---|---|---|---|---|
| Inadequate demand | | | | |
| Wastage on transportation due to packing | | | | |
| High transportation cost | | | | |
| Regulatory constrains | | | | |
| Import and Export policies of government | | | | |
| Lack of proper storage | | | | |
| | | | | |

21. What are the major areas where government intervene in your business
1. During procurement
    a) Price
    b)
    c)
2. During processing
    a) Quality of produce
    b)
    c)
3. During marketing
    a) Price fixing, Packaging

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b) transportation
c)
d)

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Value chain analysis of paddy
**Interview/ Survey schedule for Wholesaler / Retailors**
(Information collected through this survey is meant only for study purpose)

## 1. Socio economic characteristics

| | |
|---|---|
| Name of the shop / institution/ society | |
| Phone number | |
| Years of establishment | |
| Primary Occupation | Agriculture / Business  / Others , specify................................................ |
| Type of ownership | Individual / Partnership / Company / Cooperatives |
| Mode of investment | Own fund: <br> Borrowed Fund: <br> Ivestment through shares : |
| Average annual business turnover | |

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## II   Fixed investment and recurring cost involved in the business

| PARTICULARS | AMOUNT | Av. LIFE SPAN |
|---|---|---|
| Land & building  (if any) <br> Owned : <br> If rented /leased initial deposit made : <br> Monthly rent paid : | | |
| Investment in Furniture | | |
| Investment in Vehicle <br> Owned : <br> Monthly rent  paid : | | |
| Investment in warehouse <br> Owned : <br> If rented, initial deposits made any : <br> Monthly rent  paid : | | |
| Other infrastructure <br> Office <br> Owned : <br> If rented, initial deposits made any  : <br> Monthly rent paid : <br> Computer and other accessories  : <br> Office staff  : <br> Electricity : <br> Insurance charges  : | | |

### 3. DETAILS OF RICE BUSINESS

1. How long you have been doing  business  of rice and rice products   :

2. Do you make any contract with Wholesaler/ Millers    : Yes   /     No
   If Yes,

| Type of contract | Oral        / Written |
|---|---|
| Period of contract | |
| Mode of payment | Spot   : Cash / Cheque / direct credit to account <br><br> If credit :  Period of credit ,……………………………. |

If No, how you procure the products for sale :  through agents / Directly from factory outlet / others specify
……………………………………………………………………………………………………………………………………………………………………

## 4.  INPUT DETAILS

3.  In which form you procure the produce  : Raw Rice / Boiled rice/ Broken rice/Bran / All types

4.  Source of purchase and cost involved in purchase by retailer

| Sl No | Particulars | Source | Information about the seller | Qty purchased (Quintal) | | Av. Price/ Quintal | Mode of payment | Frequency of purchase |
|---|---|---|---|---|---|---|---|---|
| | | | | Monthly | Yearly | | | |
| 1 | Raw Rice | | | | | | | |
| 2 | Boiled rice | | | | | | | |
| 3 | Broken rice | | | | | | | |
| 4 | Bran | | | | | | | |

5.  Cost of procurement

| Particulars | |
|---|---|
| Transportation cost, if rented or owned (Quintal / km) <br> I) Driver cost <br> ii) Fuel cost | |
| Fumigation / protection cost ( per KG ) | |
| Labour – loading/ unloading  ( per KG ) | |
| Insurance charges            ( per KG ) | |
| Agent commission            (per KG) | |
| Quality checking charges  if any     (per KG) | |
| Ware housing charges          (per KG) | |
| Others, specify..... | |

6. Organizational Linkage for the Retailer

| Organisation | Govt. Institutions / facilities like browsing (Supplyco, PDS) | Agri -business Organisations | Agents | Millers | Financial organisation / cooperative societies | Other retailers | |
|---|---|---|---|---|---|---|---|
| For getting information about price | | | | | | | |
| Information about whole saler | | | | | | | |
| Information about quality aspects | | | | | | | |
| Finance | | | | | | | |
| Government Regulation on sale | | | | | | | |
| Others , specify | | | | | | | |

7. Credit support availed by the Retailer

| Source | Information about the source | Amount | Rate of interest | Period | | | |
|---|---|---|---|---|---|---|---|
| | | | | Short Term | Total interest paid last year | Long Term (Investment) | Total interest paid last year |
| Nationalised Banks | | | | | | | |
| Private banks | | | | | | | |
| Cooperative Society | | | | | | | |
| NBFC'S | | | | | | | |
| Money lenders | | | | | | | |
| Others | | | | | | | |

9. What are the product acceptability norms :

Size / Variety / colour / Minimum Quantity / price margin / attractive offers/ Credit facility/ Terms and condtions of delivery/ Quality of the product/ others specify ………………….

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10. Factors determining price fixation by Retailer

| Sl No | Factors | Tick on the appropriate cell | Sl no | Factors | Tick on the appropriate cell |
|---|---|---|---|---|---|
| 1 | Quantity purchased | | 6 | Seasonality | |
| 2 | Shelf life of the product | | 7 | Cash/ credit | |
| 3 | Demand of the product | | 8 | Location of the shop | |
| 4 | Quality of the product | | 9 | Cultural events/ festivels | |
| 5 | Place of delivery | | 10 | PDS variation in price | |
| 11 | Government policies | | 12 | GST | |
| | | | | | |
| | | | | | |

11. cost involved in sale

| Cost of sales  per Kilograms | Rice | Boiled rice | Bran | Broken rice |
|---|---|---|---|---|
| Cost of promotion | | | | |
| Packing material cost if any | | | | |
| Labour cost for packing if any | | | | |
| Transportation cost if any | | | | |
| Administration cost | | | | |
| Commission if any paid | | | | |
| Cost on home delivery | | | | |
| Print/ media advertisement cost | | | | |
| | | | | |
| | | | | |

12. Are you able to meet the demand of your customers:

| | |
|---|---|
| Fully | |
| More than 50 % | |
| Only 50 % | |
| More than 25 % | |
| Below 25 % | |

13. Who are the customers of your Products

| Sl No | Actors | Rice | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Qty sold | Price/ Quintal | Qty sold | Price/ Quintal | Qty sold | Price /Quintal | Qty sold | Price /Quintal |
| 1 | Individual customer | | | | | | | | |
| 2 | Hostels | | | | | | | | |
| 3 | College /school Canteen | | | | | | | | |
| 4 | Hotels | | | | | | | | |
| 5 | Hospitals | | | | | | | | |
| 6 | Orphanages | | | | | | | | |
| 7 | Others specify | | | | | | | | |
| | | | | | | | | | |

| Sl No | Actors | Boiled rice | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Qty sold | Price/ Quintal | Qty sold | Price/ Quintal | Qty sold | Price /Quintal | Qty sold | Price /Quintal |
| 1 | Individual consumers | | | | | | | | |
| 2 | Hostels | | | | | | | | |
| 3 | College /school Canteen | | | | | | | | |
| | Hotels | | | | | | | | |
| | Hospitals | | | | | | | | |
| | Orphanges | | | | | | | | |
| | Others specify | | | | | | | | |
| | | | | | | | | | |

| Sl No | Actors | Broken rice | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Qty sold | Price/ Quintal | Qty sold | Price/ Quintal | Qty sold | Price /Quintal | Qty sold | Price /Quintal |
| 1 | Individual consumers | | | | | | | | |
| 2 | Hostels | | | | | | | | |
| 3 | College /school Canteen | | | | | | | | |
| | Hotels | | | | | | | | |
| | Hospitals | | | | | | | | |
| | Orphanges | | | | | | | | |
| | Others specify | | | | | | | | |
| | | | | | | | | | |

| Sl No | Actors | Bran | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Qty sold | Price/ Quintal | Qty sold | Price/ Quintal | Qty sold | Price /Quintal | Qty sold | Price /Quintal |
| 1 | Housholds | | | | | | | | |
| 2 | Cattle farms | | | | | | | | |
| 3 | Oil making companies | | | | | | | | |
| | Other retailors | | | | | | | | |
| | Others specify | | | | | | | | |
| | | | | | | | | | |

19. What are the major problems associated with Product, product Procurement, storage and transportation and marketing stages

Product

| Particulars | YES/ NO | High | Medium | Low |
|---|---|---|---|---|
| Unavailability of good quality product | | | | |
| Low shelf life of the product | | | | |
| Timely availability of product | | | | |
| High Price of the product | | | | |
| Seasonality on product availability | | | | |
| Lack of source of information | | | | |
| Lackof information on price | | | | |

Procurement

| Particulars | YES/ NO | Very Important | Important | No importance |
|---|---|---|---|---|
| Intervention of government in price fixing/ hoarding | | | | |
| Non availability of required variety | | | | |
| Seasonality | | | | |
| GST / tax policies | | | | |
| Financial shortage | | | | |
| | | | | |
| | | | | |

Warehousing and transportation

| Particulars | YES/ NO | Very Important | Important | No importance |
|---|---|---|---|---|
| High transportation cost | | | | |
| High warehousing cost | | | | |
| High loss due to pest attack | | | | |
| Speculation- control policies | | | | |
| Locality of the area | | | | |
| High fumigation cost | | | | |
| Long distance from mill/whole saler | | | | |
| Labour shortage | | | | |
| Financial shortage | | | | |

Marketing

| Particulars | YES/ NO | High | Medium | Low |
|---|---|---|---|---|
| Inadequate demand | | | | |
| Regulatory constrains | | | | |
| Price fluctuation in the market | | | | |
| Competition from other retailers | | | | |
| Hoarding of product | | | | |
| Lack of information about market | | | | |
| Education level of the customer | | | | |
| High cost of promotion | | | | |
| Timely availability of the product | | | | |
| | | | | |

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