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Value chain mapping of maize in Tiruppur district of Tamil Nadu

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Abstract
Demand for Maize and products with added value has expanded dramatically over the past few years, and there has been a notable growth in the global supply. One of the most important steps in Value Chain Analysis is to understand the connection and interaction between actors and processes along the chain. The research attempts to identify and map the stakeholders involved in value chain of Maize and their functions in Tiruppur district of Tamil Nadu. The results showed that, there were six different marketing channels identified as in existing Maize value chain. The main actors were input suppliers, farmers, local traders, wholesalers, processors, retailers and consumers. The core processes were input provision, production, collection, processing and retailing. Input was provided by input shops and production was taken up by farmers. Collection activity was taken up by the market intermediaries and processors were involved in value addition of Maize which in turn was sold to the consumers through retailers. Geographical mapping indicated physical flow of Maize.

Keywords: Value chain analysis, mapping, stakeholders and marketing channel

Introduction
Maize is one of the most important cereal crops in the world agricultural economy and third important cereal in the world. For the past few years, the global production of Maize has increased remarkably and there is a huge demand for Maize and its value-added products. The total Maize production in the world accounted for 1037.79 million tonnes. India ranks sixth and contributes 2.28 percent (24.30 million tonnes) to world production (FAO Stat, 2016). Maize production in Tamil Nadu was 2648 million tonnes (11%) to the total agricultural production (India Stat, 2016). In Tamil Nadu, Maize is cultivated throughout the year in most of the districts for various purposes including grain, feed, fodder, green cobs, popcorn and industrial products.

The concept of agricultural value chain included full range of activities and participants involved in moving agricultural products from input suppliers to farmer fields, and ultimately, to consumers (Miller and Jones, 2010) [8]. Value chain of Maize is expanding due to demand-pull from the poultry sector, brewery and other agro-industrial products. Hence, it is imperative to explore the possibilities of Maize market and effectively propose ideas on marketing and value chain on it. The analysis of marketing systems, particularly analyzing the value chain provides information on the range of activities required to bring a product from conception, through the primary phases of production and delivering it to final consumers (Kaplinsky and Morris, 2000) [6].

Methodology
Tamil Nadu is a leading state with production of Maize from different regions. Tiruppur is one of the major Maize cultivating districts in the state. It was purposively selected as it had the highest area and production of Maize. Primary data was collected from the sample respondents (Farmers, Local traders, Wholesalers, Processors, Retailers and Consumers) during the months of March - April, 2017. Detailed structured questionnaires were canvassed for to the sample respondents for mapping the entire value chain. Value Chain Mapping tool was used to identify the stakeholders and their activities involved along the chain on various aspects.

Value Chain Mapping
Mapping value chain results in a clear understanding of the series of activities with main actors and relationships involved. It provided tools and examples on how to capture the different dimensions of a value chain. “A picture is worth a thousand words”.

So, models, figures and diagrams were used to understand the value chain.

In this study, existing value chain in the study area was identified and mapped to indicate the product flow and information flow among the actors. Secondly, efforts were taken to identify and map the main actors involved in the value chain to confirm the presence of stakeholders along the value chain. In the third step, core process starting from production to consumption in the value chain was mapped. Specific activities undertaken by the actors were studied and mapped in step four. Finally, the value chain was geographically mapped to indicate the product flow from one location to other locations in the study area.

Results and Discussion

Mapping of existing Value Chain of Maize

Mapping helped to identify links in the chain where exchanges were made. Linkages in the chain showed the activities and roles played by the different players along the chain. Different channels adopted by the sample farmers are discussed and depicted in Figure 1. In reality the value chain is more complex where input and output chains comprised more than one channel and these channels also supplied to more than one market. In this study, six channels were mapped consisting of actors, type of value addition and final market in the chain.

Channel I
Farmers → Local Traders → Wholesalers→ Processors → Retailers→ Consumers

Channel II
Farmers → Local Traders → Processors → Retailers→ Consumers

Channel III
Farmers → Wholesaler→ Processors → Retailers→ Consumers

Channel IV
Farmers → Local Traders → Retailers→ Consumers

Channel V
Farmers → Processors → Retailers→ Consumers

Channel VI
Farmers → Retailers→ Consumers

Maize value chain was mapped to show the actors, activities involved and linkage between them. In the study area, more than 90 percent of Maize was marketed to nearby cattle and poultry feed units (processors). The processors undertook processing activities and sold their products to the poultry and cattle farms.

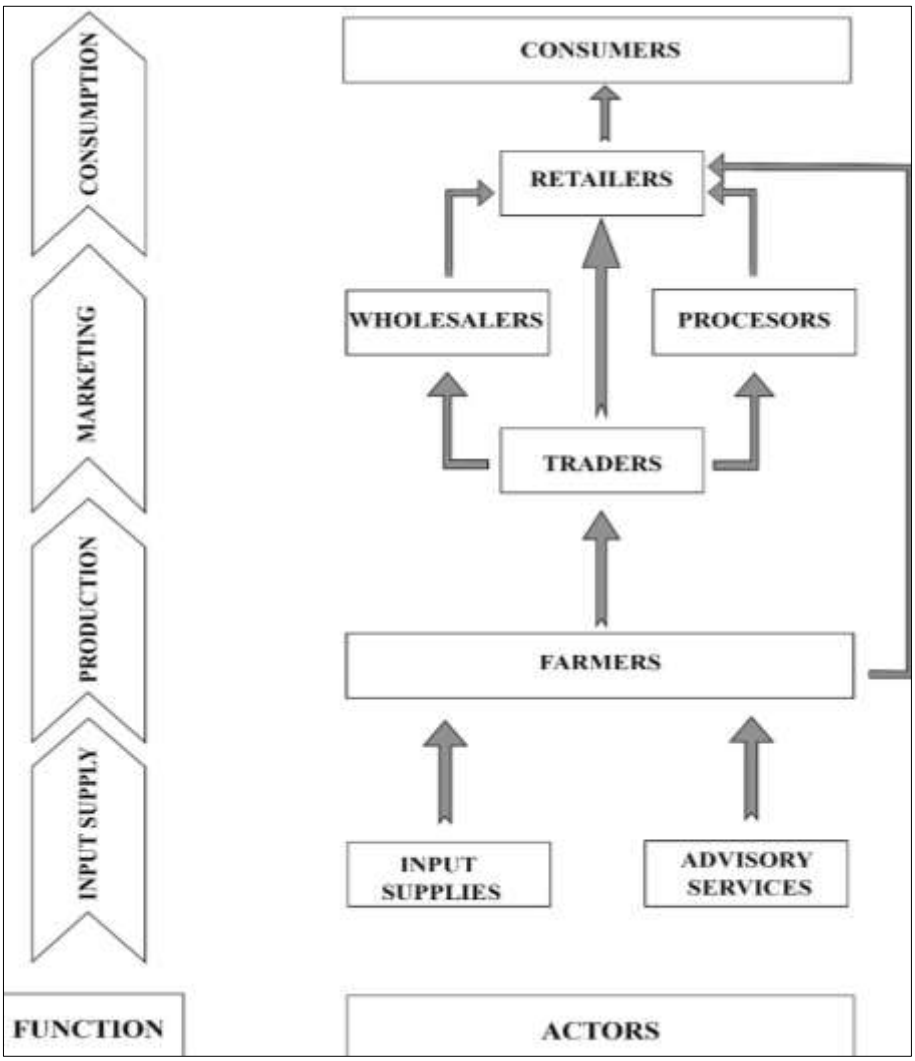

Fig 1: Existing Value Chain of Maize in Tirupur District

Mapping the main actors involved in Maize value chain
The main actors involved in the Maize value chain were input suppliers, farmers, local traders, wholesalers, processors, retailers and consumers as depicted in Figure 2.

Input suppliers: Those who are involved in supply of all inputs such as seeds, fertilizers, and plant protecting chemicals to farmers for cultivation of Maize.

Farmers: Farmers involved in the production of Maize from sowing to harvesting and selling to multiple markets/intermediaries like local traders, processor, wholesalers and retailers.

Local traders: Local traders or commission agents procured Maize from the farmers and distributed to wholesaler, processor or retailers. A local trader or commission agent is an independent individual and a marketing intermediary whose main function is to act as the primary selling arm of the producer and represent producer to the consumer. They usually make profits from commission or fee paid for the services they provided.

Wholesalers: Wholesalers are independent individuals and own the products that they sell. They purchased product in bulk and stored the products in their own warehouses and storage places until they sell them. Wholesalers generally sold the products to other intermediaries along the chain such as processors and retailers, for a higher price.

Processors: Processors play a vital role in adding value to the produce by converting raw farm produce to other forms such as Maize flour, cattle and poultry feed, and other value added products.

Retailers: Retailers purchased Maize in minimal quantities and stored them to satisfy domestic needs. They purchased products from market intermediaries and sold them directly to the end user for profit.

Consumers: They are the end users for whom the value was created across the chain. Any channel is considered as good or efficient which makes the produce available to the consumer at the cheapest price also ensures the highest share to the producer.

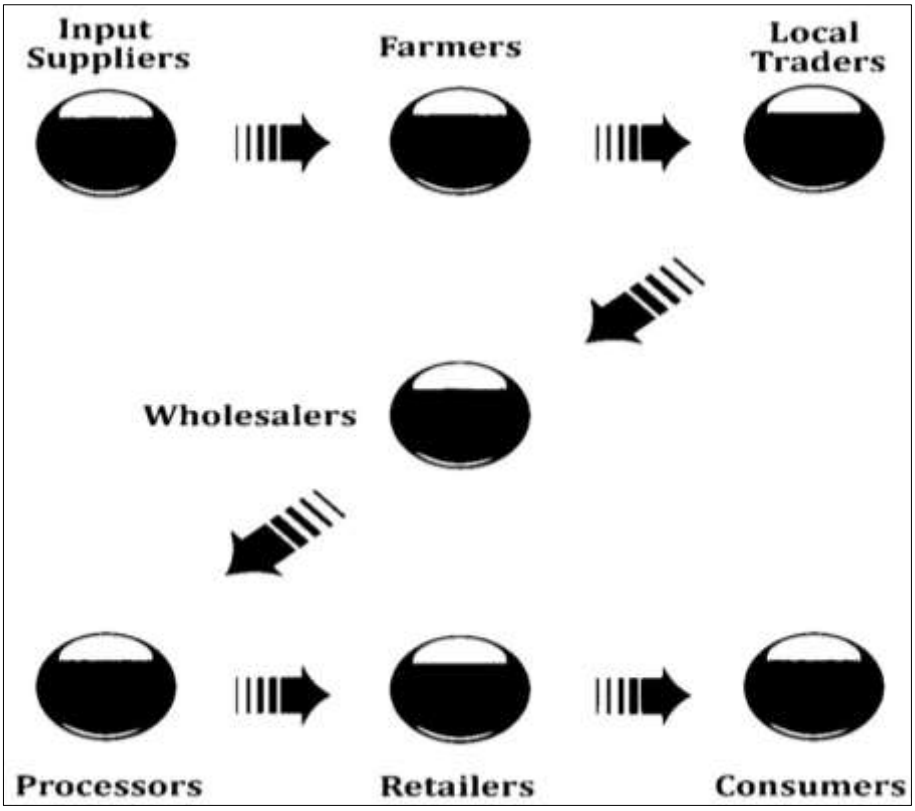

Fig 2: Main actors involved in the Value Chain of Maize

Mapping the core processes in Maize value chain
The core processes in Maize value chain were mapped and depicted in
Figure 3. The core processes that the produce went through before it reached the final consumption stage was distinguished and mapped. *Providing inputs* (seeds, fertilizers, and plant protection chemicals) to the farmers was the major process, followed by *production* (cultivation including threshing) where the inputs were converted into Maize grains. After harvest, it was either collected by the local traders or wholesalers (*collection*). *Processing* was the next core process in the chain, where the produce was being value added as Maize flour, cattle and poultry feed, etc. for domestic consumption by the retailers (retailing).

Mapping specific activities in the Maize Value Chain
Input provision was taken up by the private seed suppliers (Input shops) and the Department of Agriculture who supplied seeds, fertilizer and plant protection chemicals to Maize farmers. Production was done by the farmers who were involved in sowing, cultivating (Weeding, irrigation, manuring, fertilizing and plant protection), harvesting and threshing of Maize.

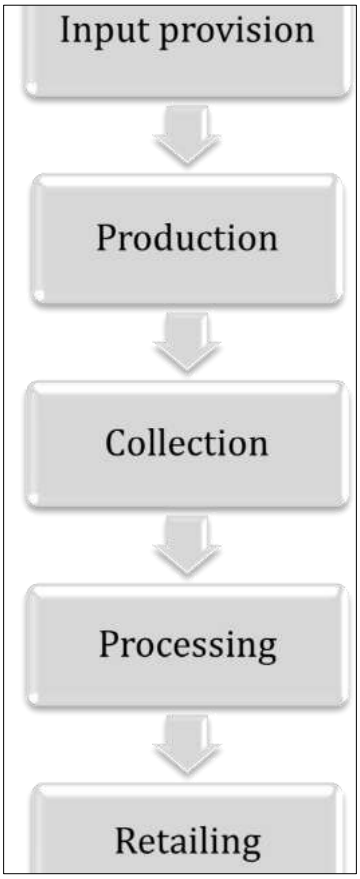

Fig 3: Core processes along Maize value chain

Collection was taken up by the local traders and wholesalers procured the produce, graded them, stored and marketed it further along the chain. Processing was taken up by the processors who were involved in conversion of raw produce into value added products. Retailers stored and sold the produce to consumers. Mapping of specific activities undertaken by the actors in Maize value chain was depicted in Figure 4.

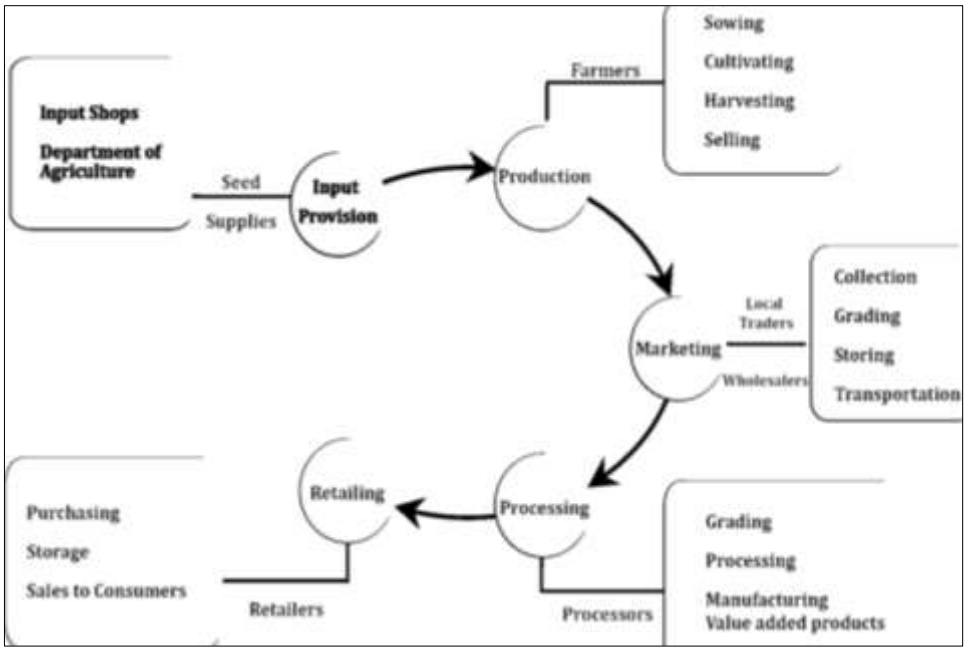

Fig 4: Mapping of Specific Value Chain Activities by the Stakeholders

Mapping the Geographical Flow of the product

Based on mapping of core processes, actors and specific activities; geographical mapping of physical flow of the produce was done. The produce which were cultivated in the study area was majorly sent to the cattle and poultry feed units within the district and neighboring districts like Coimbatore, Erode and Dindigul as well as to the nearby state Kerala. The flow of the product in the study area was depicted in Figure 5.

Fig 5: Mapping of Geographical Flow of the Product

Summary and Conclusion

Value chain of Maize was mapped to show the actors, activities involved and linkage between them. The main actors involved in the Maize value chain were input suppliers, farmers, local traders, wholesalers, processors, retailers and consumers. Majority of the produce was marketed to the nearby cattle and poultry feed processing units. The core processes in Maize value chain were input provision, production, collection, processing and retailing. Input was provided by the input shops and the production was taken up by the farmers. Collection activity was taken up by the market intermediaries and processors who were involved in value addition of Maize which in turn was sold to the consumers through retailers. Geographical mapping showed physical flow of the produce from study area to nearby cattle and poultry feed manufacturing units as well as to neighbouring state Kerala.

Awareness should be created among the farmers about the economic importance of Maize and the potential for value addition to increase the cultivation area. Farmers should be suitably trained to obtain the maximum possible yield without increasing the actual input levels. The study identified the scope to reduce the price spread in Maize marketing through vertical integration of marketing activities. Hence administrators and policy makers may draft suitable policies to encourage direct link between Maize growers and retailers in order to generate higher return.

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