Chapter II

Review of Literature
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To have a better understanding about the present study in its perspective, one must know what has already been done in the field. This would help the researcher to recognise and fill the gap to some extent. After selection of the topic all relevant materials which have a bearing on the topic have been reviewed by the researcher. A view of such studies has been presented below.

Rostow W.W., in his study “Nationalisation of the take-off development and planning”, has stated agricultural output is the basic working capital for industrialisation that is working capital in the most direct sense of agricultural raw materials for industrial processing and working capital in the large sense of either serving to generate exports or preventing the wastage of foreign exchange in imports for food and other agricultural products. Due to the absence of providing adequate allocation of resources to agricultural development, most of the developing countries were not in a position to bring themselves into take-off and were faced with quite remarkable enclaves of industrial and urban modern activity coincident with the existence of stagnation.¹

Dr. Tasikoonlin in her research regarding tropical crop geography and ecological land use explained the model of sago production system. If the first harvest of a well managed holding is set at 60 palms per acre annual production...
could be maintained at average rate of not less than 40 palms per acre which at 160.4 kg. per palm computed earlier could yield at least 6.4 tonnes per acre of water free starch by comparison estimated that 50 palms per acre could be harvested annually from the 9th year producing 5 tonnes per acre of flour, at a clump density of 193 palms per acre.²

Kahlon A.S., and George M.V., in their study “Agricultural marketing and price polices”, held that cooperative marketing constitutes important institutional facility for improving the economic conditions of cultivators / producers. The major role assigned to cooperative marketing societies is the marshalling of agricultural surplus from farmers and its sale at the best price possible thus doing away with the manipulation of intermediaries which often work to the detriment of the farmers’ interests. It is evident that the preference for co-operatives in marketing has come partly out of necessity and partly out of ideological reasons. It is necessary because the complex and fragmented nature of trading operations involved in the primary markets make the cooperative the most potent instrument for linking the small farm producers to the main stream of marketing channel. It is ideological because of its non exploitative character and egalitarian appeal. However, agricultural marketing societies should take to sales maximisation rather than profit maximisation as their business goal, to be able to compete with private trade.³
Ramesh S., in his article titled “Salem’s sago units in a spot”, stated that shortage in the supply of tapioca tuber is posing a serious threat to the survival of tapioca starch and sago manufacturing units in Salem region.

With farmers switching over to short-term cash crops such as sunflower and maize in many parts of Salem and neighbouring districts, including Namakkal and Dharmapuri, the area under tapioca cultivation is shrinking, creating difficulties to the starch and sago units in procuring the agricultural product.

Salem district alone had over 30,000 hectares under tapioca cultivation in 2006-07. But this had come down drastically to 10,564 hectares in 2007-08. It slightly increased to 15,728 hectares in 2008-09. This had created a shortage in the supply of tuber to starch mills and affected the production.4

Ashok Mehta M., in his study “Indian Society of Agricultural Economics” enunciated an important guiding principle for agro industries. Infact, a revolution in agriculture is unthinkable in terms of something happening in agriculture alone. It is to be thought of as a series of interchange between agriculture and industry with rising intensity that is industry supplying the basic needs of material inputs for agriculture, agriculture feeding back its surpluses for the development of industry and industry supplying back various consumer goods on which the agricultural surpluses can be spent. Any other kind of development can only be partial and will not be in conformity with the view of modernisation of the country’s economy.5
Manda R.C., in his article “Tapioca is an important staple food cum industrial crop of tropics”. Stated that in India, the starch production has been estimated to be 1.4 lakh tones out of which one third is contributed by tapioca. This excludes tapioca starch converted to sago, which is estimated to be between 1.5 – 2.5 lakh tones per annum. Virtually, entire starch produced in India is consumed domestically, the most important end use sector being the food and textile industries. In India, tapioca is at present grown in the area of 2.7 lakh hectares, with an annual production of 52 lakhs tones of tubers. Tamil Nadu ranks second in area with 0.9 lakh hectares and production of 30 lakh tones. In Tamil Nadu tapioca is cultivated mainly in 2 districts viz., Salem industrial crops and Kanyakumari (staple food crop) with an area of 26,000 and 11,290 hectares respectively. In Salem, tapioca is raised both as irrigated and rainfed crop. The tubers are utilized by the sago and starch industries, which are about 1000 in number. A few industries are engaged in the production of liquid glucose. The production of tubers is inadequate to the meet the needs of industries and it warrants purchase from other neighbouring state, Kerala. The average tuber yield is also comparatively low that is 15-20 tonnes, hectares. Under irrigation and 10-15 tonnes under rainfed condition. The primary reason for low yield may be attributed to incidence of mosaic virus, tuber rot and lack of adoption of improved technology including high yielding varieties.6

Acharya S.S., and Agarwal N.C., in their study “Agricultural marketing in India”, have evaluated the performance of existing marketing system,
institutions and policy in accelerating agricultural development of the country. They have provided an incisive analysis with special emphasis on marketing functions, institutions, efficiency, costs and margins, government efforts in the improvement of agricultural marketing and market research. Their study also provides the theoretical base for a better understanding of the problems in the marketing of farm products.

The development of an efficient and development oriented agricultural marketing system in developing countries depends to a large extent upon government policies and services.7

Krishna Bharadwaj in his study on “Analytics of Agriculture - Industry Relation” has proved that agriculture-industry relation has featured prominently since its early beginnings in classical political economy. The author has highlighted the importance of agro-industrial integration in such a way that a study on integration between agriculture and industry alone reveals the predominance and centrality of agriculture as a source of sustenance and as mainspring of economic activities.8

Srinivasamurthy A.P., and Ramaswari Varma K., in their study “Issues on a Agri–industries”, stated that the prices of agricultural commodities which set the pace for the movement and allocation of resources assume an important role in shaping the course and character of economic development. Their inference has an importance bearing on the marketing problem of agro-industries using agricultural products as raw material. An efficient marketing
system involving complex linkages between the operations of government and marketing instructions and behaviour pattern of participants in marketing process has much to do with maintenance of a rational and sound structure of agricultural price. Co-operatives have been promoted as an alternative to private marketing channel to increase competition and improve the bargaining power and the prices received by the producers.9

Balubhai B. Shah, in his article “Beginning and growth of Sago industry” has stated that sago and tapioca starch industry in Salem District and Tamil Nadu has had a phenomenal growth in the last 50 years. Though it is a recent industry of Tamil Nadu, its role particularly in Salem economy is very great indeed. It has already affected the pattern of agricultural production in district and has vastly increased the trade potential in addition to giving scope for employment opportunities for labour.10

Duraisamy, S., President, Tamil Nadu Sago and Starch Manufacturers Welfare Association in his article titled “Salem Sago units in a spot” stated the price of starch has increased many folds. The price of a 90-kg bag of starch, which stood at Rs.1,100 a month ago, is priced at Rs.1,956 in the fourth week of May. “The price will increase further as the starch units are not getting adequate supply of tapioca tuber”, Tapioca farmers in countries like Thailand, one of the major exporters of tapioca starch, are given subsidy for cultivating the crop. Farmers here are reluctant to take up tapioca cultivation owing to fluctuations in the tuber price and long duration of the crop (eight to 10 months).
Starch and sago industry in Salem region has began to shrink owing to heavy imports since 2000-01. About 300 factories have already been closed. Only about 450 are functioning. “If the remaining starch manufacturing units are closed because of shortage of tubers, the livelihood of a large number of people employed in these units will be affected”.

Tayab M.A.K., in his study “strategy for increasing income and employment estimated the total yield of protein from tapioca leaves per hectare as 90 kilograms and the value of this protein at the rate of Rs.3 per kilogram was Rs.270 which was more or less equal to 18 percent of the income from tubers. He also worked out that the stem can yield Rs.1000 worth of paper per hectare on the assumption of 50 percent recovery. This was equal to about 70 percent of saleable value of tubers, it is a common practice to feed the cattle with dried tapioca tubers cut into pieces. In the feeding trial of tapioca to swine, replacing maize at 100 percent level was compared with conventional ration containing maize in large amount on white Yorkshire pigs. The average total weight gained and daily weight gained did not differ significantly between maize and tapioca. Better feeding efficiency was observed in tapioca ration. Carcass length, back fat thickness, lion-eye area and dressing percentage between the two groups were found to be almost the same. The cost of one kilogram of concentrated feed containing maize and tapioca chips at 60 percent level in the ratio was Rs.13.60 and Rs.10.70 respectively. The cost of
production per animal upto 71.23 kg body weight in the control and 74.20 kg. in the treatment group was Rs.352.16 and Rs.299.61 respectively.

Therefore inclusion of tapioca chips instead of maize in swine ration was found to be economical. No side effects of feeding tapioca chips in pigs were observed.\textsuperscript{12}

Shanavas S, and Moorthy S.N., in their article titled “Carboxymethylation of cassava starch in Isopropanol” stated that starch is an important raw material in food, animal feed industry. Tuber crops are rich in starch and the properties are much more diverse compared to top cereal starches. Though cassava is very rich in starch and the starch has many advantages over cereal starches like bland taste, high viscosity and clarity, it has certain disadvantages like poor paste viscosity and cohesive texture. These problems can be avoided by the modification of the native starches.\textsuperscript{13}

Mathur P.N., in his study “Argo industrial interdependence between Agriculture and industry” recognised two types of interdependence between agriculture and industry that is demand based and process based. He points out that physiocrats and classical economists based their levels of economic activity and employment the former. ‘The process based interdependence came to be appreciated much more vividly by Leontiefs’ Input - Output analysis. Mathur emphasises that the more developed a country, the larger the interdependence between agricultural and industrial production process.\textsuperscript{14}
Padmaja G., Moorthy S.N., Sajeev M.S., in their article titled “Value added products from cassava and sweet potato for food and feed use,” stated that tropical root crops like cassava and sweet potato play a decisive role in the income, nutritional and food security of a vast majority of people in the developing countries. The diverse food products developed from cassava include rava, health drinks, fried chips and strips starch-based ice cream mixes, ready to eat foods like cutlets, sweet desserts and the like. Value addition technologies for the feed sector include cassava based silage as cattle feed and by product utilisation of cassava starch factory waste as broiler feed.15

Chadha K.N., in his article titled “Role of cassava in the rural and industrial development of India” has stated that the tremendous scope of cassava to enter in the agri-business has been definitely proved in the agro-processing belt of Salem and Dharmapuri Districts of Tamil Nadu. Mushroom growth of starch and sago factories with massive turnover of Rs.100 crores worth of starch and sago as per documented records of the various constraints experienced, give direct and indirect rural employment to thousands of people in Salem and Dharmapuri districts in Tamil Nadu besides promoting a crop in vast non-traditional areas where there is limited water supply. Cassava can be used as a raw material for a number of industrial products such as starch, sago, liquid, glucose, dextrin, vitamin C, gums and high fructose syrup. Most of the items mentioned are industries which will easily fall in the group “Growth Industries”. Industrial starch finds its applications in various fields. The major
consuming industries are the cotton, textiles, jute textile industry and paper and card board industry. Cassava continues as the unchallenged monopolized raw material for sago production in India. The small sago units established in early forties have paved the way for the establishment of a strong agro-industrial raw material in India. Integrated approaches for improving the sago processing under sophisticated environment will open up new markets within the country as well as abroad.\textsuperscript{16}

Nasimuddin M., in his study “The role of Sago Serve” is of the opinion that after the emergence of Sago Serve, the bargaining power of manufacturer has substantially increased in the field of marketing and the menace of middlemen in this trade has been completely eliminated. Due to sustained efforts of the society, sago and starch industry has now become the backbone of this regions rural economy providing employment to more than one lakh persons both in field as well as in factories.\textsuperscript{17}

Moorthy S.N, Padmaja G, and A.N. Jyothi in their article, “Valued Added Products from Tuber Crops”, explained that Cassava finds application as a raw material for starch extraction in India. Over 1000 starch and sago factories spread over the Salem, Erode. Namakkal and Dharmapuri districts of Tamil Nadu are flourishing in the manufacture of starch and sago from cassava. Most of the sago produced is used for internal consumption in the States of Bengal, Bihar and UP and Maharashtra. Cassava starch finds application principally for sizing of yarm in textile industry and in the paper industry.
Simple and specially gums and adhesives made from cassava starch are widely used in the corrugation box industry and for making paper corns etc. Modified starches like cold water miscible starch (for textile sizing), oxidized starch (in paper industry), starch esters, carboxy methyl starch etc. have been made at CTCRI, which due to their wide range of viscosity characteristics, can find specific end uses in the food and textile industry. Cold water soluble starch can be made from cassava starch through simple processing and the product ‘Texcool’ was released from CTCRI.

Cassava starch – based biodegradable plastics is a new innovation at CTCRI. The technology opens up new vistas in plastic utilization, reducing the pollution load from plastics. The process involves copolymerizing cassava starch with synthetic polymers like Low Density Polyethylene (LDPE). Potential areas of application include single use disposable packaging, in agricultural nurseries etc.¹⁸

Vishwanath Shegqonkar, in his paper presentation on the topic “Tapioca processing,” a Great Industrial potential” has stated Salem to be a land of sago and has also pointed out the important constraints of tapioca industry. Though tapioca is a neglected crop in the Indian cropping system, its production processing into starch & sago has become a major commercial activity in Tamil Nadu and a few other states of the country. In India, tapioca is grown over an area of about 2.90 lakh hectares mostly in Kerala. Tamil Nadu Andhra Pradesh Kerala and a few North-Eastern states with production of about 58 to 60 lakh
tones advance 90% of the floor price fixed for the Sago Serve and the difference is paid when the actual sale takes place. This immediate payment of advance has assured the produces of sago enough financial liquidity, to carry on their production operations. The system of sales at the sago serve is through secrete tenders and this has helped in moving the uncertainties in sago prices in the old manufacturing structure prior to Sago Serve. Due to better financial liquidity and bargaining power assured for sago produces by Sago Serve, sago produces no longer face buyer’s market. The result was a steep rise in sago prices in the post Sago Serve period. The price of sago after Sago Serve provides a sharp contrast compared to pre sago serve prices. Sago Serve purchases the produce from the members directly and sells it to the traders. This had led to the abolition of middlemen and erratic fluctuation in prices. As a result, sago serve has assured not only higher prices to the producers for their produce but also brought in a fair amount of stability in prices.¹⁹

According to the Hindu Survey report on 14th September 2007 on the topic, “Efforts on to solve issues in starch and sago industry”. ‘Increase maximum permissible level of hydrocyanic acid’, the manufacturers wanted the society to allow the sago product with HCN-level upto 5 ppm. At present, it permits sago with a maximum level of 1 ppm, a collectorate press release said. They also demanded the sagoserve to permit the manufacturers to sell the lots, which were rejected by it, to the merchants within its premises.²⁰
According to the Hindu Survey report on 15th September 2007 on the topic “Take steps to increase import duty for tapioca starch”, the United Farmers Association has urged the Union Government to initiate steps to increase the import duty for the tapioca starch and modified starch to protect the domestic industry and farmers.

Association president C. Vaiyapuri, in a press release, said that the Centre imposed a safeguard duty on starch for a period of three years from 2005 – 33 per cent for the first year, 23 per cent for the second and 13 for the third year – following the injury caused to the domestic industry due to heavy imports. However, the Government had not imposed safeguard duty on modified starch.

Mr. Vaiyapuri said that the safeguard duty imposed on starch would be withdrawn at the end of this year. As a result, the import of starch would go up, which would severely affect a large number of farmers and starch manufacturers, he claimed.

The member nations of World Trade Organisation are permitted to increase the import duty to the maximum of 100 per cent for starch and 150 per cent for modified starch. Hence, the Government should increase the import duty on starch to 100 per cent and on modified starch to 150 per cent to protect the domestic industry. The association also urged the Government to lift the ban on the export of milk products for the benefit of milk producers in the country.
The association also wanted the State Government direct the sugar mills to enhance the capacity and to producing more ethanol blending it with petrol.21

According to the Hindu Survey report on 19th September 2007 on the topic “Tapioca farmers in distress as sago units stop procurement”, stated that they sell commodity at lower price to chips manufacturers. On behalf of the tapioca farmers, Tamilaga Vivasayeeagal Sangam Secretary T. Subbu said that owing to some demands, the sago industries had stopped the procurement for the last 15 days.

Tapioca had been raised on over 15,000 acres of land in Erode district, of which 5,000 acres are in LBP ayacut.

Tapioca in the LBP ayacut was ready for harvest and in some places, the farmers had harvested the product expecting sale. But no buyer had visited the area.

As a result, they were selling the commodity at a lower price to chips manufacturers. Some farmers were reluctant to harvest the crop and the crop had started perishing.

The tapioca farmers had appealed to the Government to settle the issues with sago industries and arrange for the immediate purchase of the produce from them.

They suggested that the Government could also purchase the commodity and send the same to sago industries or to industries in other states.22
Subramanian S.R., in his article “Marketing of cassava” stated that the farmers who sell through regulated markets have really benefited in the form of higher prices and lesser marketing costs but the amenities made available in the regulated markets were not sufficient enough to help the farmers and traders.23

According to the Hindu Survey report dated 9th January 2010 it was stated that tapioca, which had been planted on about 7 lakh hectares, could not be harvested until the factories started functioning. Over 400 sago and starch manufacturing units in Salem had struck work protesting the unique procurement standards demanded by Government – run Sago Serve.

The Chief Minister must intervene to resolve the crisis amicably by revising the requirements of Sago Serve.24

According to the report of the Indian Express dated 9th January 2010 on the topic “Co-operative societies to procure tapioca from farmers”, it was stated that the co-operative societies will pay Rs.8,000 per tonne if the tapioca is from a rainfed farmland and Rs.16,000 per tonne if the farm was irrigated. Cooperatives will act as middlemen taking tapioca from farmers to the sago manufacturers.

The collector pointed out that such a system will eliminate middlemen and the commission paid to them will henceforth go to the farmers in form of better price. Even bills can be issued for the tapioca procured from them.
RePLYING TO THE SAGO UNIT OWNERS’ DEMAND FOR 50 PER CENT SUBSIDY FOR INSTALLING NON-CONVENTIONAL ENERGY TAPPING FROM SAGO FACTORY EFFLUENTS, HE PROMISED TO TAKE UP THE MATTER WITH THE GOVERNMENT.

THE DEMAND FOR ESTABLISHING A SEPARATE TAPIOCA BOARD HAS BEEN STUDIED AND THE FILE HAS BEEN SENT TO THE DEPARTMENT OF AGRICULTURE, HE SAID. PESTICIDES WILL BE SPRAYED OVER AN AREA OF 500 HECTARES IN ONE WEEK TO ADDRESS PEST PROBLEM IN TAPIOCA FARMS, THE COLLECTOR SAID. STATING THAT TAPIOCA FARMERS HAVE GOT A BETTER PRICE THIS YEAR, HE EXPRESSED HOPE THAT THE ELIMINATION OF MIDDLEMEN WILL FURTHER BOOST THEIR INCOME. IN 2009, RS.35.25 CRORE LOAN WAS DISBURSED TO TAPIOCA FARMERS, HE ADDED.
REFERENCE


2. Dr. Tasikoonlin is a Graduate of the University of Malaya, Kuala Lumpur. 1979, p.40.


