Chapter 2

Review of Literature
CHAPTER-2

REVIEW OF LITERATURE

The review of literature not only gives an opportunity to understand and comprehend the research problems but also helps the researcher to identify new issues. This study enabled the researcher to gather sources and subject them to sound reasoning an meaningful interpretation. This chapter attempts a brief review of the relevant research literature related to the present study. The reviews are presented under the following headings.

1: Studies related to area production and productivity of coconut
2: Studies related to supply chain management of coconut
3: Studies related to value addition of coconut
4: Issues on Supply Chain Management of Coconut

2.1: STUDIES RELATED TO AREA PRODUCTION AND PRODUCTIVITY OF COCONUT

Ahanor M.J.et al. (2013) analysed that environmental factors influenced productivity of the coconut cultivation it contribute to fluctuations in nut yield. When the genotypic nut yield were subjected to stability analysis against an environmental index the regression coefficient for individual varieties. The values of the coefficient of determination suggested that the variation in nut yield of the individual varieties was two accounted for by the regression on the environmental index. The orange dwarf and yellow dwarf varieties had the lowest regression coefficient value were considered most stable for nut yield.

Bello et al.(2015) reported that coconut is major stability in entire the whole industrial activities. it was characterized by using the America society for testing and materials limits for the purpose of bio diesel and that can used alternative engines and the coconut methyl indicates 5.2 percent of productivity.

Gigi Elias (2015) opined that coconut is cultivated in more than ninety countries in the world. In India coconut is grown in seventeen union states and three union territories under good soil and climatic conditions. There are four southern states such
as Kerala, Tamil Nadu, Karnataka and Andhra Pradesh. But Tamil Nadu have been well performing in the area under coconut cultivation. In olden days Kerala showing negative development in area under cultivation.

Karunakaran.N (2015) discussed that coconut is the major commercial crop there are certain determinants that motivated the farmers shift in the cropping pattern system. In Kerala agriculture pattern has been changed in favour of commercial crops and also plantation crops has also increased recently. Average return per hectare of coconut indicated inverse relation with the size of farm. Estimating costs and returns of coconut cultivation in terms of various investment criteria revealed that this crop is profitable in Kerala. The study also revealed that profitability of coconut is inversely related to the size of farm.

Mahendra Dev.S (2012) analysed that this paper examines the main role and opportunities of small holding agriculture in Karnataka. They give more importance for cultivation of coconut and it has been covered trends in agricultural growth as well as enhancing food security generation in different policies and institutional supports for small holders.

Nagaraja G. and Basavaiah.C (2011) the study analysed that Tumkur district of during the year 2007-08 on coconut production. The production can be distribution near places as well as sold at distant places. The 300 sample size of each farmers and coconut traders as well as coconut industry was selected. Cross sectional data were collected from the sampled coconut growers and market intermediaries by personal interview and observation method with the help of pretested schedule. There are different channels of coconut marketing like, channel-I(farmers(individual)–consumer),channel-II(farmers(individuals)–poolingagent–consumer),andchannel-II(farmers (individuals)–pooling agents merchant broker–consumer).The paper would concentrate the coconut production and marketing of coconut in India.

Nagendra. N (2002) explained that coconut palm is most useful plant in the world. All parts of the trees very useful for human life for his daily activities because the palm is endearingly called kalpavriksha it means the three of heaven. The Copra has obtained by drying the kernel of coconut is the richest source of vegetable oil containing sixty five to seventy five percent oil. Cocos nucifera is a large palm, growing up to 30 m (98 ft) tall, Coconuts are generally classified into two general
types: tall and dwarf. On very fertile land, a tall coconut palm tree can yield up to 75 fruits per year, but more often yields less than 30, mainly due to poor cultural practices. In recent years, improvements in cultivation practices and breeding have produced coconut trees that can yield more. An attempt is made in this paper to analyse the production and marketing of coconut in Tumkur district.

**Parwaiz ahmed et al .(2014)** discussed that the adoption of recent technology of intensive cropping with high yielding varieties, there is a considerable demand on soil for supply of contents and also the main problem is to our soils because very poor and cannot sustain high yields. Sustainable agricultural production incorporates the idea that natural resources should be used to generate increased more income and, without the nutrient management. It is the system, which the use of organic wastes, bio fertilizers and fertilizers in judicious combinations to sustain soil. The use of organic and inorganic sources improves soil health and helps increasing the production of coconut Coconut is a versatile tree and is the most useful crop in the world.

**PrasadaRao et al. (1986)** analysed that the study on the coconut yield under the drought conditions in 1983 at the Regional Agricultural Research Station Kerala was seen that effect of drought conditions. it has been seen in the eight month after the drought period and over continued for 12 months.

**Prashanth Kumar C.P.(2014)** analysed that coconut production in Uttar Kannada district Karnataka. Study conducted in Uttar Kannada district location, it has been prompted by India’s net importation of vegetable, to increased vegetable oil and coconut production, yet its production has declining over the years. Main objective of the study was to finding the existing coconut farming systems in the study area, identify farm level constraints facing coconut farmers, and suggest ways of easing the problems to develop production and an productivity of coconut. Farming systems analyses and gross margin analyses methodologies were used.

### 2.2: STUDIES RELATED TO SUPPLY CHAIN MANAGEMENT OF COCONUT

**Acharyulu.A.V.R and Ajoy Mathew (2006)** analysed that fisheries and forestry are three key sub-sectors of agrarian economy, which provide us with food and are linked to market economy. These includes to production distribution of coconut and food
products—both in terms of resources. Food production by farmers, fishermen, and tribal communities using land, water, and forest in order to link the value addition and consumer markets. A critical assessment of supply chains that are operational in a country like India would give an understanding of issues involved, alternatives and opportunities available to develop alternative mechanisms and improve the efficiencies of supply chains.

**Chaimongkol and Limpianchob (2014)** analysed that his work mainly addresses the problem of production and productivity of coconut from samudsakhorn province in Thailand. This planning involves the forwarding of aromatic coconuts from the harvest areas to the factory which includes classified into two groups; self-owned areas and contracted areas, the decisions of aromatic coconuts flow in the plant, and addressing a question of which warehouse will be in use. The problem is formulated as a mixed-integer linear programming model within supply chain management framework.

**Christian Leyh and Julia Thomschke (1987)** reported that within those SCM projects, technological factors gained more importance compared to those factors which influence the success of ERP projects. For Supply Chain management projects, factors like Data migration, as well as SCM system tests are even more important than top management support. Which are the important factors for transportation of goods and services.

**Janvier-James (2012)** opined that Supply Chain and Supply chain Management have played a major important role in corporate sector and have attracted the attention of numerous academicians over the last few years. Academic literature review discloses an important spurt in research in practice and theory of Supply Chain and Supply Chain Management. Connecting and informing on Supply Chain Supply Chain Management and distribution Management characteristics have contributed to the Supply Chain integration. This paper especially to introduce supply Chain and Supply Chain Management. A number of key findings have arisen the field is a comparatively new one and also several researchers have different perception of the discipline the consensus is lacking on the definition of the terms the Supply Chain and Supply Chain Management are widely defined contextual focus is mainly on the manufacturing industry.
Kumar et al. (2010) analysed that Coconut crop is an important constituent of food basket of the people of India and meets the economic needs of people dependent on its marketing. Price and market margins were computed at the different stages of the chain in order to reflect the value addition through various participants of the chain. Marketing channels were found to be well established in the state particularly in coastal regions. There is no any major value addition is done by the players at any level. The functional channels indicates that marketing system of coconut in the state has manage and increased demand. The study was observed a high ratio of vendors v/s farmers. it is suggested that coconut based industries have to be jointly promoted by state industry department and agricultural department, Coconut Development Board.

Manaek Simamora (2015) analysed that supply chain management has emerged as a growing topic receiving increasing interest in the sustainability and supply chain management area. Few attempts have been made to take a broader look at the overarching issues, which form core topics of sustainable supply chain management. This paper presents the findings from a Delphi study where experts were asked to contribute their opinion. The Delphi study allows an aggregation of these opinions and extracts underlying topics in a structured manner. Four major topics were identified, they are pressures and incentives for sustainable supply chain management, identifying and measuring impacts on sustainable supply chain management supplier management and supply chain management dealing with issues across all companies involved in the supply chain.

Sam P.D.Anantadjaya et al. (2007) opined that Supply chain management is most important to deliver the products and goods and services to end users. It appears that nations on supply chain management may directly associate with the current issues and consumer behavior toward maintaining customer satisfaction. It is expected that the increasing roles of supply chain management and consumer behavior in small and medium enterprises are able to improve the overall organizational performance. Preliminary studies have been undertaken concerning the connection between supply chain management and customer satisfaction as well as the connection between consumer behavior and customer satisfaction.
2.3 STUDIES RELATED TO VALUE ADDITION OF COCONUT

Aduja Naik S.N et al. (2012) discussed that this study deals with utilization of coconut these by products to obtain a value added products namely, coconut protein powder and other things directly distributed to the end users. The coconut skim milk and insoluble protein were mixed and homogenized drying protein powder.

Chidambaram S et al. (2013) discussed that Tender coconut water is rich in nutrients, presenting low fat levels, and considered to be an excellent isotonic drink. The drinking water standards show that the former contained certain ions more than the permissible limit. It was understood that the process of selective absorption by plants or by certain other chemical process taking place during the formation of kernel tissues would alter the chemical composition of coastal district.

Cris Abraham Kochukalam (2014) discussed that the coconut oil and the remaining for ball copra. Though the figures give a positive picture of the coconut palm cultivation, the high cost of cultivation and the low price that the primary produce fetches leads to a decline in popularity of this sector. Coconut plantations were neglected for years while the over dependency on copra-coconut oil affected the profitability of farmers resulting in declaring this as a non-profitable enterprise. It was strongly advocated delinking copra-coconut oil dependency and focusing on more value added products, its commercialization and marketing for regaining and sustaining the lost glory of coconut palm cultivation. "Neera" is the latest addition to this array of value added products which is a sweet - white colour sap tapped from the "spathe" of coconut palm. It is a delicious health drink, a rich source of sugars, minerals and vitamins. Neera is also the raw material for many value added products like palm syrup, palm jiggery and palm sugar having high domestic and international demand for their high nutritional value.

Novelita J. et al. (2015) the study aimed to introduce the coconut shell Included Powder Crunchy Chocolate Cookies the experimental method or research using Five-Point Hedonic Scale was answered by selected respondents in terms of appearance, aroma, taste and texture. Highly Acceptable in terms of appearance while in aroma taste and texture treatment. There was no significant difference in the level of acceptability of the Coconut.
Theerkhpathy.S.S and Handrakumar Mangalam.S (2014) pined that Indian economy, the domestic coconut market economy has also been pushed towards a situation of competition, where coconut oil had to compete with other low price vegetable oil and fats in the international market. Indian food processing has the potential to be a driving force in India’s economic development and a catalyst of the inclusive growth. The coconut palm exerts a profound influence on the rural economy of the many states where it is grown extensively and it provides sustenance to more than 10 million people. The processing and related activities centered on the crop generate employment opportunities for over two million people in India.

Hebbar K.B. et al. (2015) analysed that Fresh coconut sap which maintains the temperature at 2–3°C for 10–12 and also keeps the sap fresh and unfermented. The collected is sweet non-alcoholic and also free from contaminants like ants other insects dust etc. The fresh hygienic and unfermented sap is called Kalparasa. it has been sold to serve health drink and it can be processed into value added natural products like sugar, jaggery, honey, syrup etc.

Jagadeesh Kumar Mannekote (2013) analysed that Coconut palm belongs to the family of arecaceae and is essentially found throughout the tropic area as high humidity, abundant sunlight, regular rainfall and sandy soil favours it growth. Coconut crop is less susceptible to abnormal climatic conditions in comparison to other oil crops. Philippines, Indonesia, India, Sri Lanka, Thailand, Vietnam, Papua New Guinea and Malaysia are the major coconut producing countries. In India cultivation of coconut is spread over the coastal belt and in some interior areas of the southern states.

Nair S.A. et al. (2009) opined Neera is a sweet juice or sap obtained by tapping the unopened inflorescence of the coconut palm. This paper discusses the season and technique for tapping, the collection of sap and the preservation of the collected neera. The value addition of neera (coconut honey or syrup, coconut sugar and coconut vinegar) and its nutritive value, health/medicinal properties and economic and social benefits are described.

Nath A (2015) analyzed that Jaggery is one of the sugarcane based natural sweetener made by the concentration of sugarcane juice without any use of chemicals. Because It is available in the form of solid blocks and in semi-liquid form. It contains the
natural sources of minerals and it included vitamins inherently present in sugarcane juice and it is one of the most wholesome and healthy sugars in the world. Micro nutrients and other vitamins present in the jaggery. The methods of converting sugarcane and manufacturing sugar are different but a great value is added in the manufacturing of these consumable final products. The improvement of different value added products from jaggery and their commercial availability.

Pathiraja et al. (2015) analysed that he coconut industry is important source of foreign exchange and employment generation for Sri Lanka, and an essential aspects of Sri Lankan and rural livelihood. This paper has discussed the current status of the coconut industry reviewing its behaviour over the recent past and future responsibility. Average coconut yields have been stagnant time but there is substantial one years to years variability due to some climatic factors. This generates intense competition for raw materials among the various processing industries. The government allows substitute edible oil imports and bans fresh nut Future coconut supply is uncertain due to climate change and its unknown impacts. However, effective adaptation measures may limit the coconut supply may affect domestic consumers, producers and the coconut processing industries.

Ramya.R and shilpajose (2014) explained that In Kerala, herbal food formulations are widely used in maternal care, both pre- and post- childbirth. The present study was an attempt to understand the usage and nutritive value of this food Council of Medical Research. Consumption of the indigenous, nutrient-rich food bridged the gap between the deficit in intake and the recommendations. Thus these traditional foods have nutritional value in addition to the functional benefits envisaged in Ayurvedic products.

Rao.G.R.A et al. (1970) reviewed that on the chemical composition of neera and Sugar-yielding palm trees in India are mostly date Palmyra and sago. Tables show chemical composition, and content of vitamin B12, thiamine, nicotinic acid, ascorbic acid, minerals, reducing and non-reducing sugars, and amino acids of neera, sand prepared from cane sugar, and palm. The Nutritional studies with children and rats gave good results. Neera is said to be of good nutritive value and could be used as a fresh drink to meet vitamin and mineral requirements of those on a poor cereal diet.
Sali K. S Mohanan M (2006) explained that among the major coconut growing states are India, Kerala enjoys the pride of place both in area and production of coconut. There is a trend for reduced the income due to fluctuating prices. So the coconut industry and the farmers depend up on striving to survive in the economy. In this scenario, best option appears to be diversification and value addition to measure the market awareness of value added coconut products. Examine the customers perception towards selected value added coconut products and market potential for selected value added coconut products. The value added products are coconut oil, coconut milk, coconut milk powder, coconut palm jaggery, coconut chips, coconut vinegar, and neera. The study revealed that coconut oil has high market potential. But the market potential of coconut milk and coconut milk powder were very low.

Thomas and P. Chowdappa (2005) opined that in our country the major part of the coconut produced for the purpose of utilized making copra and oil. Only less quantity of coconut used for producing value added products. The coconut is major important product and has multiple uses. Almost all the parts of the coconut are used by products and other things. India holds third place in coconut cultivation in the world followed by Philippines and Thailand. In India plays a major important role in the coconut cultivation. In Tamil Nadu, Coimbatore district is known for agricultural products especially produce coconut. This study attempts to know the awareness about coconut cultivators on value added products.

Vengaiah PC et al. (2013) discussed that jiggery is sugar rich product and medicine obtained by evaporation of sugar juice or coconut palm. All jiggery palm it is good rich contents of minerals like calcium, phosphorous and iron. Jaggery industry is one of the most important cottage industries in India since olden ancient times and it is prepared by small and marginal farmers.

2.4 ISSUES ON SUPPLY CHAIN MANAGEMENT OF COCONUT

Sivanesan. R. (2003) analysed that paper is attempted to study the constraints and prospects of coconut industry in Kanyakumari district of Tamil Nadu. Coconut is major important sources of food and vegetable oil and by-product. Coconut plantations and processing industries provide more income to the farmers and rural population. Coconut is the most popular palm grown in about 90 countries of the world occupying about 10 million hectares of land and producing nearly 42 billion of
nuta per year. In India there is 1.514 million hectares of land under coconut from where 9.7 billion nuts are produced annually. Coconut is one of the important oil seed crops in the tropics. The coconut trees generally grow in coastal areas. Coconuts are used for direct consumption. Major part is converted into copra from which oil is extracted. With the advancement of science and technology it has been possible for mankind to produce coconut powder also. Coconut powder is used for making excellent dishes for domestic purpose. The present study covers the objectives of socio economic back-ground of the coconut cultivators faced problems by the coconut cultivators in Kanyakumari District

Santhosh Narayanan and Latha Bastine.C (2004) opined that understand the nature of the marketing channels, marketing costs, margins, and price spread and producer’s share in the consumers’ price of coconut cultivation. The study was conducted in central Kerala. Results indicate that about 51 percent of the respondent’s sales coconut in the non-husked form. The most important marketing channel identified was the producer-copra maker-oil miller wholesaler-consumer-The concept of concurrent margin, employed to find out the marketing margin showed that the producer’s share in consumer’s price was only 60.58 percent implying a high price spread. Value addition at the farm-level it may help the producers and processor to secure a higher proportion.

Ernestogoyap (2015) analysed that nowadays competitive market suppliers and buyers behave with the aim of obtaining the most concession from the other. There are situations wherein one party benefits more than the other, resulting in unfavorable outcomes for the latter. The study explored the socio-cultural factors that affect the market behaviour of coconut farmers in an attempt to rationalize. This study was conducted using qualitative research techniques that included key informant interview participant observation, and focus group discussion. The findings show that the productive capacity of coconut farmers are limited. The farmers are price takers of the coconut meat they produce and sold. Productivity and income of small coconut farmers are expected to deteriorate together with vast agricultural lands becoming idle and barren, unless government interventions are enhanced, and young professionals are encouraged to return to the farms.

Mwachiro (2011) opined that study has focus on the coconut industry and problems of coconut processors and the factors hindering the indigenous of Kilifi district from
benefiting from the crop. The coconut palm tree cocos nucifera was introduced by the Portuguese in the region in the seventh century. The crop has been considered as the tree of life. The purpose of this study was investigate the factors hindering the local community from benefiting from this cash crop. Sampling methods were used by trained interviewers and the results were analyzed using prices of the coconut products.

Mohanasundaram.P (2015) analysed that India being a land of villages more than two third s population and they living in rural region. The industrialization play a major role in entire the country. Because among the rural small - scale industries, coir industry is the oldest agro-based rural industry which is grabbed the attention of both the enterprising both at the state and the national level. During the harvesting time the agricultural crops absence of an effective marketing system. The industry in Thanjavur district, Tamil Nadu, also witnesses the major problems seen at the macro-level. This study has included attempt to study major Production problems faced by coir units in Thanjavur District.

Venugopal.P and Sangeetha.P (2016) discussed that Coconut is one of the major important role and it play in human life. It develops the verity of eatables medical valuable and usable products. Coconut trees and its all parts are used for manufacturing products. It increases employment, of cottage tiny and Taine sectors small scale industries and national and International. Due to poor rain fall and real estate business increases its productivity and coconut products productions are gradually decreasing day by day. Because these products are having sizable demand in home and export markets. Even though, farmers and coconut producers manufacturers and exporters are facing many problems.

vanamadevi. R (2016) reviewed that agriculture has playing a predominant role in entire the whole economic activities and developing countries. The green revolution of the 1960s increases in food crop production such as wheat, rice and other cereals. In recent years a large number of national programs for coconut development have been launched in many Asian and Pacific countries. Because coconut occupies a unique position in commercial agriculture. Apart from the importance of copra and coconut oil which is widely used in the manufacture of soaps, hair oil cosmetics and other industrial products. Coconut has grown in more than 18.95 lakh ha in the country with an estimated 16943 million nuts during 2014 -2015 with an average
productivity of 8937 nuts per hectares. But traditional areas of coconut in India are the states of Kerala, Tamil Nadu, Karnataka Andhra Pradesh, Orissa Goa West Bengal, Pondicherry, Maharashtra and Islands of Lakshadweep and Andaman and Nicobar etc.

Nagaraja.G (2015) analysed that Agro-Processing industry in India plays a vital role in the national economic activities and it has potential to meet the local needs and export requirements. It helps in processing agricultural products such as field crops, tree crops, livestock and fisheries and converting them to edible and other usable forms. Thus, transformation of agriculture through creating forward and backward linkages with industry has been emerging as an important option to overcome the increasing challenges of creating employment opportunities for increasing labour force and sustaining the livelihood of households in rural areas. Agro-industries confined in both organized as well as un-organized segments were facing variety of problems. The present study attempted to examine the problems of agro processing units.

Uwubanmwen et al. (2015) discussed that the coconut palm increasing coconut production and productivity in Nigeria. It has been very less productivity of few coconut holdings in Nigeria is as a result of very poor management practices, being high density plantings in the groves, poor soil fertility management, lack of fertilizer use, poor pest and diseases control. In development of the coconut product trade to result in tangible improvement in the Nigerian economy partnership between producers, national policy makers, the private sector and the international industry is inevitable. Policies that are made should be private sector driven thereby increasing productivity in all chains of the coconut palm production.

Pathiraja et al. (2015) reviewed that the coconut industry is an major source of foreign exchange and employment activities in India and an essential component of Sri Lankan cuisine, nutrition and rural livelihood. This paper analysed that the current status of the industry reviewing its behavior over the recent past and future possibilities. Coconut occupies 20 percent of Sri Lankan arable land and the majority (Eighty percent) is operated at small scale. Nearly 63 percent of production is domestically consumed and this proportion is linked with the increasing population. Average coconut yields have been stagnant over time but there is substantial variability due to climatic factors. This volatility generates more income for various
processing industries. The government allows substitute edible oil imports and bans fresh nut exports when fresh nut prices are increasing. Future coconut supply is uncertain due to climate change and its unknown impacts. However, effective adaptation measures may limit the expected vulnerability depending on the severity of change. Coconut industry value chain is considered to be an important research issue.

Paramanandham. J and Ronald Ross. P (2012) coir pith is a by-product of coir industry. It is five percent of India’s total coir pith available. The storage of coir pith, around coir processing unit has creating many problems. India is an agricultural country and one third population depends on the agricultural sector directly agriculture remains as the main stray of the Indian economy. About 18 percent of the country’s income is generated from agriculture sector which provides employment opportunities with food being the crowning need of mankind.