Chapter II

CHAPTER - II

CROPPING PATTERN IN THE MADRAS STATE

Agriculture in Vedic Period

Agriculture in the Vedic Period was very different from what we have now[1]. Agriculture refers to crops grown by farmers, without the use of fertilisers, pesticides, or herbicides. The people's primary occupation was agriculture. Deep pioughing had been introduced as a method of tilling the field[2]. Large areas of land were brought under cultivation, and variety of crops such as rice, barley, wheat, maize, and oil seeds were raised[3]. The involvement of citizens in the agriculture sector was a major concern for Arthasharstra and hence he proposed the creation of a special official known as a "Sitadhayaksha," or Agriculture Superintendent. According to the Arthashastra the country's principal economic pursuits were agriculture, cattle breeding, and trade. Government officials, according to Kavtitya, should provide policy and administrative support to agriculture.[4]

Agriculture in Modern Period

The strength of the village community grew as a result of the British conquest, partially due to the introduction of a new land revenue system and partly due to the process of agricultural commercialization. In comparison to other developing countries, India's agricultural development has been slow in the Twentieth Century. However, India has long been and continues to be a country dependent on agriculture, which plays a critical part in our country's overall success. The agriculture sector contributes a significant portion of India's national income. Agriculture produced more than half of the country's output in the 1950s. Agriculture contributed more than 40% of GDP during the 1960s and early 1970s. Even now, the agricultural sector's output determines a substantial portion of the growth in national output[5].

Additional rural jobs could not be created due to agriculture's poor rate of expansion. Inevitably, this has resulted in widespread underemployment and unemployment in the rural

[1] . T.C.Sharma "Economic Geography of India" Jaipur Rawar Publication (1, 2013)
[2] . George.F. Carter "American Antropologist" New Series,48 (1)
[3]. Rayachaudheri, S.P. Roy, "Agriculture in Ancient India", Delhi, 1993, p.1
[4]. Gorlinski, "The History of Educational Agriculture of Newyork" Britannica, publishing, 2013
[5] . R.Dasgupta "Indian Agricultural Economy " 1994, p.19

economy. In search of work, the rural populace moved to urban regions. Despite the fact that agriculture played a vital role in the national economy, its efficiency was low. In many parts of the country, agriculture was pursued in a traditional fashion, resulting in low yields, limited income, and a lack of investment potential. However, the agricultural industry has been developing on contemporary lines in some locations, albeit on a small scale.

While agricultural expansion has led to the development of industries and diversity of employment, shortfalls in agricultural growth have had a negative impact on pricing in some years, generating overall imbalances and misery. Future agricultural output growth is nearly entirely reliant on increased production of critical inputs such as fertiliser, insecticides, and high-quality seeds. With the advent of development plans, the construction of a productive edge in agriculture became more important, particularly in areas that had been exposed to new technologies. Agriculture plays a crucial role in the current stage of India's economic development. Though its performance has set the pace for the economy as a whole, the agriculture sector's development has been far slower than expected, barely keeping up with the population increase.[6]

Land Reforms in India

There were two main land-tenure revenue systems during the British period Zamindari and Ryotwari. Moneylending also played a significant role in the eviction of small peasants from their estates. The British land reforms were influenced not by a desire to boost output or a feeling of social justice but by a desire to preserve British political power and prevent the rural market from becoming entirely impoverished. The agrarian civilization was dominated by large feudal landlords. It remained a backward mediaeval type, constrained by ancient landlord-tenant relationships, outmoded rituals, social habits, and conventional patterns of thought. There was no room for a new generation of productive forces to emerge. Agriculture output was extremely poor, due to antiquated practices, excessive labour waste, and the diversion of agricultural surplus into non-productive channels. The rural wealthy became wealthier, but the distress of small landowners and the landless grew dramatically. Explusion and tenancy insecurity were fairly widespread.[7]

[6]. Ibid, p.20
[7] . Ibid, p.21

Abolition of Intermediaries after Independence

Legislative efforts to eliminate intermediaries were enacted soon after independence. The measures, on the other hand, had two major flaws. Only a small percentage of the substantial remuneration paid was reinvested in agriculture, and the rest was spent on non-productive expenses. Second, unscrupulous middlemen took advantage of legal loopholes to get exemptions from the application of the laws – in the case of particular types of land. The elimination of statutory landlordism, which included a variety of intermediary tenures, brought roughly 20 million cultivators into direct contact with the government.

Tenancy Legislation

Certain revisions to the tenancy laws were made during the first round of post-independence land reforms, extending the extent of protection to tenants of ex-intermediaries, notably in regions of statutory landlordism. The main topics covered by these laws were security of tenure, tenancy termination, resumption for personal cultivation, surrenders, and tenant regulation. The reforms in the various states differed greatly, but they all followed the same pattern. [8]. Tenancy changes have not yet been able to control rents as the planned.

Tenancy reforms had as one of their main goals the transformation of tenants into owners of the lands they farmed. This was not achieved due to the hefty compensation rates that the renters were required to pay. Furthermore, in some states, the purchase of property has been made optional.[9]

Land Ceiling Legislation

The acute lack of land in comparison to the population dependent on it, the limited hope of agricultural population transfer to the non-agricultural sector, and the need to boost productivity and employment, all contributed to the need for a landholding ceiling. However, the requirement was not properly translated into action. The First Plan only made a fleeting allusion, the Second Plan suggested enacting ceiling legislation and the Third Plan simply restated the previous goal. [10]

[8] . Ibid, p.23
[9] . Ibid, p.24
[10] . R. Das Gupta, "Indian Agriculture Economy", 1994, p.25

Implementation of Land Reforms

Politicians and government officials assumed that once legislation was passed, the needed socioeconomic outcomes would be easy to achieve. As a result, effective implementation did not receive the attention it needed. Even now, there is a significant and almost chronic implementation lag in the subject of land reforms.[11]

Consolidation of Holdings

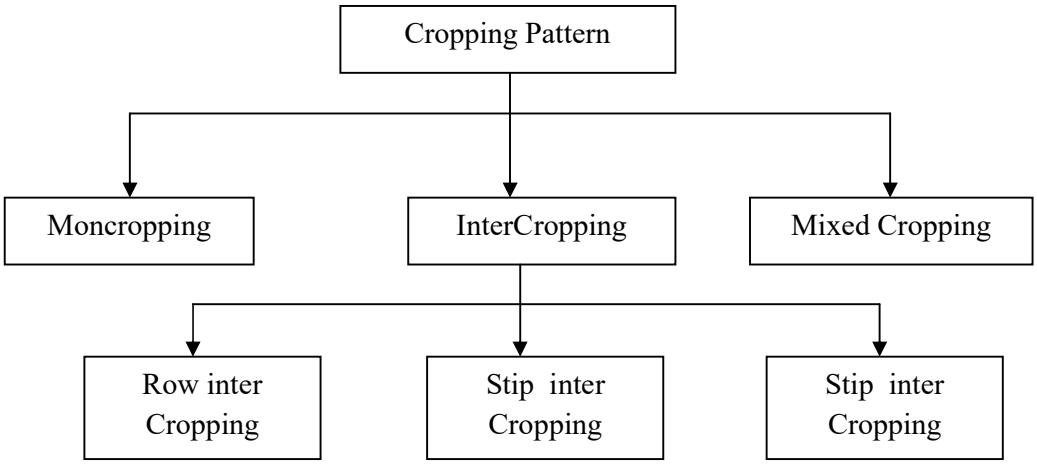
The fragmentation and subdivision of properties are a major cause of India's low agricultural production. Because of the social structure and customs, there is a high demand for limited land, which has led to excessive fragmentation and progressive subdivision. Despite the gravity of the problem, legislative action has only recently been taken. The relevance of holdings consolidation and integrated area development has been emphasised in the five-year plans. The First Plan recommended that holdings consolidation be pursued aggressively. It should be treated as a priority task in national extension blocks, according to the Second Plan. Consolidation work was prioritised in the Third Plan in areas that were irrigated or were soon to be irrigated. Recognizing the Fourth Plan's major contribution to agricultural progress in Punjab, Haryana, and Uttar Pradesh, it was strongly suggested that it be implemented in other states also. [12]

In 1905, the first steps towards consolidation of land holdings in India were taken. The All India Board of Agriculture requested that the provinces analyse and implement remedial steps to prevent fragmentation in 1917. The Royal Commission on Agriculture (1928) was adamant about the link between fragmentation prevention and consolidation. Punjab, through cooperative consolidation associations, took the lead in voluntary consolidation in 1912. The project, however, failed due to its limited application to consenting members, voluntary character, and abrogation clause.[13]

[11] . Ibid, p.26
[12] . Ibid, p.27
[13]. Datt. & Sundharam.S " Indian Economy" / S.Chand Publications, 2013

Types of Cropping Pattern

In madras presidency to obtain maximum yields different patterns are practiced. The major cropping patterns include the following below



Mono cropping decressed soil fertility and destroys the quality of the 50% chemical and fertilizers are essential to renovate the production. This system allows the spread of pests and diseases.

Mixed Croping

When two or mone crops are grown on the same land it is also called as mixed cropping.

Benefits of Mixed Cropping

The crop yielding also increased and the past infestion is minimized. The risk of cup failure also reduced. The soil is usage properly.

Inter Cropping

Inter Cropping is the practice of growing more than one crop on the same field at the same time on a definite row pattern. One crow of the main crop as well as three crows of intercrops can be gain.

a. When the component crops are awarge inalternate rows it is knwons as row inter cropping.
b. When two (or) more crops are grown in wide strips, so that the two crops can be managed separetly, it is called as strip cropping.

c. A second crop is plasted when the existed crop has flowered bat not hasvested. An benefits of inter cropping the soil is maintained and maximum utilization of nutrients present in the soil[14].

Crops and Cropping Pattern

India, although being a premier agricultural country, was not particularly well-positioned in terms of agricultural productivity. There was a growth in the acreage and yield of all crops, but there was also a lot of volatility owing to weather. During this period, rice wheat, millets, maize, sugarcane, and pulses was all important food crops in India[15].

Rice thrives in high temperatures and with plenty of moisture, and hence these crops are typically planted on fields that may be flooded at various phases of development. As a result, the majority of rice-growing areas are situated in river deltas and low-lying coastal districts. West Bengal, Uttar Pradesh, Madhya Pradesh, Bihar, Madras State, and Orissa are the main rice-growing regions in India. These areas account for over 95% of India's total rice acreage. Paddy accounts for approximately 35 percent of the gross irrigated land in Madras State and 75 percent of overall food grain production.

Wheat is the staple diet of inhabitants of Punjab and Uttar Pradesh's. It requires a lot of heat but very little water. UP, Punjab, and MP, which account for over two-thirds of the country's wheat acreage, are the most important wheat-growing regions. Jowar and bajra are the two varieties of millets grown in India. They are short-season crops that are commonly farmed in Tamilnadu, Maharashtra, Andhra Pradesh, Gujarat, Madhya Pradesh, and Rajasthan. In India, AP accounts for more than half of the total acreage under jowar.

Maize, sometimes known as corn, is a versatile crop that is widely used in industry. It is grown all over the country, but the biggest producers are Uttar Pradesh, Bihar, and Punjab. The area under Mazie had increased by 90%, due to because hybrid seeds. Pulses include gramme, arhar, masur, and others. They are an essential source of food not just for humans but also for animals. They are also produced as a rotation crop to help replenish the soil's fertility. Gram is the most significant of the pulses, and it is widely farmed in Uttar Pradesh.

[14] . Tennessee, U.S.A. “Contemporary Agriculutral Marketing”, The University of Tennessee Press.
[15] . N.R.Das “Introduction to crops of India 2nd Edition” Scientific Publication, 2018

The main sugarcane areas are found in Uttar Pradesh, Bihar, West Bengal, Punjab, and Maharashtra. India's northwestern region accounts for 70% of the overall production. Sugarcane is a significant commercial crop in Tamilnadu, where it is grown over an area of around 1.39 lakh hectares, accounting for about 1.85 percent of the state's gross cropped area. Coimbatore and North Arcot, Tiruchy, and Madurai are the leading sugarcane districts.[16]

Commercial or Cash Crops

Over the last 25 years, the amount of land, planted with commercial crops had also expanded. Oilseeds, tobacco, cotton, jute, and plantation crops such as tea, coffee, and rubber are the most important commercial crops. Tea, coffee, and rubber are among the most common plantation crops. These are cash crops that are farmed and processed by businesses in India. India is the world's largest producer of tea. Assam has the greatest tea-growing area and it is the country's main producer (approximately 4% in both area and yield).

Coffee growing began in India in 1830 and it is still going strong today. The growing of coffee in India is monopolised by South India. Karnataka has the most coffee plantations, with production consistently exceeding 80% of India's total. Internal consumption accounts for over 80% of the output. Rubber plantations were initially planted in India in 1902 in Kerala, but it was not until 1942 that considerable success was realised. Rubber is primarily grown in India's southern states. Rubber is mostly produced in Tamil Nadu, Karnataka, and Kerala. Kerala has a 96 percent share of the market in terms of both area and production. The entire output is consumed domestically, and domestic production is insufficient. To meet domestic demand, rubber is be imported from other nations.

Oilseeds are in higher demand than ever before, not just for salads and food, but also for soap, medicine, fragrances, varnishes, and lubricants. Groundnut, linseed, rape, mustard, castor, and sesamum are the most common oilseeds farmed in India. India is one of the world's most important producers of oilseeds. In the case of groundnuts, India is the world's top producer, accounting for around 56% of global output. India ranks second in linseed production and has a virtual monopoly in castor seed production. Tamilnadu's important oilseed crop, groundnut, accounts for 13.91 percent of the total planted area.

[16]. R.Dasgupta " Indian Agricultural Economy" 1994, p.30

Cotton is the second most important crop in the world, after the United States. India is the world's second-largest cotton producer in terms of land area. However, India's contribution to global output is less than 10%. Cotton is the most widely grown commercial crop in India. Cotton is grown on 3.04 lakh hectares in Tamilnadu, accounting for 3.33 percent of the state's overall cultivated area. Because of colour and monetary value, jute is known as the "golden fabric." Jute agriculture is primarily limited to the Ganges and Brahmaputra deltas in Bengal, as well as Assam, Bihar, and Orissa. The area under jute in 1968-69 was the smallest, at 5, 27,000 hectares. It was 8, 88,000 hectares in 1978-79. In 1967-68, 6.3 million bales of jute were produced, followed by 2.7 million bales in 1968-69, 4.9 million bales in 1970-71, and 6.5 million bales in 1978-79. Raw jute is consumed entirely within the country and only exported on rare occasions.

The Portuguese were the first to introduce the tobacco plant to India. India is the world's second-largest tobacco-producing country. AP, Maharashtra, and Madras are the most major tobacco-producing states, accounting for more than 80% of total land and 70% of total output. Tobacco plantations have grown from 3,75, 000 hectares in 1950-51 to 5,04,000 hectares in 1977-78.[17]

Cropping Pattern

The cropping pattern is the percentage of land covered by various crops at any given moment. A shift in the cropping pattern means a shift in the proportion of land allotted to various crops. The rise in cultivated land has not been proportional to the increase in population. The gross sown area had increased by 18%, while the population had increased by around 38%.

Cropping patterns in any location are the result of trials and adjustments based on physical and cultural factors. The sort of crops to be cultivated is determined by physical elements such as soil type, climatic conditions, irrigation infrastructure, and so on. Food habits, consumption patterns, and other sociological factors also influence the sort of crops farmed. In addition, economic considerations such as production, resource availability, land, market conditions, and demand and supply dictate the sort of crops to be cultivated.

[17] . Ibid, p.31

Factors Affecting

At one time, many believed that the cropping pattern in India could not be changed due to the illiteracy and the attitude of the Indian farmers.[18]

Physical Factors

Cropping patterns in any region are determined by soil conditions, climate conditions, rainfall, and other factors. A region's cropping pattern is determined by the availability of irrigation facilities, in addition to soil and meteorological circumstances. If water is accessible, a variety of crops can be cultivated, including double and triple crops. When there is abundant of water, the entire cultivation process can be adjusted.

Economic Factors

In any country the economic factors are the most important in deciding the cropping pattern.

a. It has been observed in India that prices influence agricultural acreage in two ways. One is that changes in inter-crop pricing parities cause acreage to fluctuate. Maintaining a stable price level provides income to the producer as well as an incentive to increase output. However, the long-term fixation of rice and wheat prices by both the federal and state governments, prompted farmers to switch to cash crops like sugarcane. Further, the income maximisation pull has a significant impact on crop pattern change.
b. One of the most essential criteria, in deciding the crop pattern, is the size of the farm. Due to the modest size of their farms, small farmers are primarily engaged in producing foodgrains to meet their needs. It is true that in India, small and medium farmers' cropping patterns are dominated by subsistence farming. Small farmers try to change their farming patterns as the economy grows in order to maximise profits.
c. Frequent crop failure has an impact on cropping patterns, and crop diversification is not done to reduce risk.
d. One of the criteria, that determines the cropping pattern, is the availability of timely inputs. It has been observed that the availability of additional inputs at the appropriate time can alter the cropping pattern. [19]

[18] . Ibid, p.32
[19]. Ibid, p.33

e. In a crop-sharing arrangement, the landlord has a strong influence over the cropping pattern.

Government Action and Cropping Pattern

The Government can influence cropping pattern in the following ways: (a) Research, legislation and administrative measures, (b) Subsidised farm inputs, and (c) provision of irrigation facilities and fertilisers.

Target of Irrigated Area

The expectation of the Fifth Plan regarding the area to be brought under irrigation over the next 10 years implaced addition of irrigation area at an annual rate of about 2.1 million hectares. In other words, te casget implied that practically all the utilisable water potential should be harnessed by 1990-91. In addition, government is considered the improvement of the quality of irrigation.

Fertilizer

Improving the irrigation system's quality and fertiliser usage are the most important variables in enhancing productivity and profitability. During the Sixth plan period, the main crop production strategy was along the following lines: (a) a steady increase in food grain production to meet growing needs, as well as a substatial increase the quality of the people's diet; (b) a goal of self-sufficiency in oilseeds output to eliminate edible oil imports; and (c) to enhance export-oriented crops like tea, coffee, tobacco, cashew nut, and spices.[20]

Economic Condition of India

Agriculture has a critical role in India's economy. It provides a living for almost 70% of the country's population. Agricultural development is recognised as the bedrock of India's economic success. India is the world's second most populated country. It has a geographical size of 3.29 million square kilometres, ranking seventh in the world in terms of land area, but accounts for mere 15% of global revenue.

In industrialised countries, the situation is different. For example, while the combined population of the United States and the Soviet Union is far smaller than that of India, both countries account for almost 40% of global GDP.

[20] . R.Das Gupta, " Indian Agriculture Economic" 1994, p.34

India is a developing country since agriculture and industry were in their infancy throughout the first half of the Twentieth Century. The lower the proportion of people who work in agriculture, the greater the national per capita income.[21]

Food and Commercialization of Agriculture

Agriculture becomes commercialised when it is governed by commercial factors, such as when specific specialised crops are grown for sale in national and even worldwide markets rather than for consumption in villages. During the British colonial period in India, agricultural commercialisation began. Revolutionary changes in rural property relations happened near the end of the 18th Century. After 1813, when the English industrial revolution accelerated, Indian agriculture became more significant around 1860 A.D. (during Amercian Civil War, which boosted the demand for Cotton from India to Britain. Indian agriculture did not exist to feed the country's industries since India was far behind Britain in terms of industrial progress. Indian agriculture was promoted under specific conditions — farm commodities that were either required by British firms or might provide the British with a financial commercial advantage in the European or American market. Various projects were attempted, for example, to boost cotton output in India in order to supply raw and high-quality cotton to Britain's cotton textile industry, which was quickly developing, alter the Industrial Revolution. Thees cotton production in the United Kingdom increased dramatically following the Industrial Revolution. As a result, India's cotton-growing region expanded, and the country's cotton production increased at an exponential rate. Plantations of indigo, tea, and coffee were supported in India because they had a commercial market outside the country. The majority of commercial crop plantations were owned by the English. The English firm was also interested in jute because jute-based products had a ready market in America and Europe. Cash transactions largely replaced the barter system as the dominant form of commerce.

Circumstances behind the Agriculture

India was becoming more and more commercialised. Agriculture was brought to India by the British through both direct and indirect policies and practices. Because of the new land tenure system established in the form of permanent settlement and Ryotwari Settlement, agricultural land had become a freely exchangeable commodity. The Permanent Settlement

[21] . Ramesh singh "Indian Economy" e.Book 6th Edition

produced a class of affluent landowners, by granting ownership rights to zamindars, who could then use this ownership right to sell or purchase businesses on the national and international market.

Cotton, jute, sugarcane, ground nuts, tobacco, and other crops, with strong market demand, were also grown in greater numbers. Tea, coffee, rubber, indigo, and other plantation crops heralded a new era in Indian agricultural system. These were primarily meant for markets, and as British control grew, agricultural commercialization soared to unparalleled heights. Agricultural commercialization was a forced and sanctioned process for the vast majority of Indian peasants. It was imposed on the peasantry by British force rather than due to popular demand. The peasantry began planting commercial crops as a result of their hardships[22].

The commercialization of Indian agriculture was facilitated and promoted by a number of factors. A important aspect was the British building of political unity, which resulted in the creation of a unified national market. As the money economy grew and substituted barter, agricultural items became marketable commodities. The most essential feature was the colonial subjugation of India under British domination. India was restricted to supplying the United Kingdom with raw materials and food grains, as well as importing British manufactured goods. Commercial crops such as cotton, jute, tea, and tobacco were introduced to meet the demand in Britain.

The replacement of custom and tradition with competition and contract further encouraged the commercialization of Indian agriculture. Trading in agricultural products became possible, especially over long distances, thanks to improved connectivity (as a result of the fast rise of railways and shipping). As a natural outcome, grain merchants formed, greatly facilitating agricultural trade. The monetization of land revenue payments was another important factor in agricultural commercialization.

The acceleration of England's Industrial Revolution aided the commercialization of agriculture in India as well. As a result, agricultural goods were commercialised in order to supply the need for raw materials by British industry.

[22] . Ibid, e.book 6th Edition

The emergence and expansion of international trade, as well as the infusion of British financial capital, aided agricultural commercialization. Increasing demand for certain commercial commodities in other nations had hastened the commercialization of agriculture. The American Civil War indirectly assisted the commercialization of agriculture in India by diverting british demand for cotton, to India. Cotton demand remained high thanks to India's booming cotton textile sector long after the civil war ended.

British textiles, jute, and other items could freely enter Indian markets, whereas manufactured goods could not freely enter European markets. This British policy of one-way free trade served as a sufficient stimulus for commercialization. To repay money lenders in a timely manner, peasants began growing commercial crops.[23]

Impact of Commercialization of Agriculture

It should have, in theory, worked as a stimulus for increased agricultural productivity. However, due to weak agricultural organisation, antiquated equipment, and a lack of cash among most peasants, this did not materialise. The affluent farmers and the majority of peasants' lack of resources were the only ones to blame. The wealthy farmers were the only ones who gained, widening the income disparities in rural society. Planters, traders, and manufacturers in the United Kingdom benefited from the commercialization of agriculture because they were able to make significant profits by purchasing commercialised agricultural products at low costs. By acting as British intermediaries, Indian enterprises and money lenders gained tremendously from the commercialization of Indian agriculture. To meet the demands of the government, the landlord, the money lender, and his family members, the poor peasant was forced to sell his produce soon after harvest at whatever prices he could receive. This placed him in the hands of the grain merchant, who was able to dictate terms and purchase his produce for a fraction of its market value. As a result, the merchant, who was sometimes also a local money lender, earned a disproportionate amount of the agricultural trade's benefits. Indian money lenders gave farmers financial loans to sow commercial crops, and if the peasants did not repay the money lenders on time, the money lenders took over the peasants' land. The majority of Indians were gravely hurt by the British policy of commercialising Indian agriculture. As a result of the substitution of commercial non-food grains for food grains, the area under cultivation of food crops was reduced.

[23] . R.Dasgupta " The Indian Economy" 1994 p.3

Commercial crop production climbed by 85% from 1893-94 to 1945-46, while food crop production decreased by 7%. As a result, famines were common, having a severe impact on the agricultural economy.

While India's population was growing every year, land fragmentation was expanding as a result of increased land demand. Because the majority of the profit went to business dealers and mediators, agriculture's commercialization did not stimulate the rise of the land market.[24]

Agriculture's commercialization ushered in a new era of commerce. There was, however, no technological advance to support this. Because the potential advantages of agriculture and associated fields were not realized, commercialization of agriculture provided a mixed bag of results. While it aided Britain's industrial revolution, it harmed India's villages' economic self-sufficiency. The British brought a new phenomenon to India: agricultural commercialisation. As the upper class and British enterprises prospered, the lives of Indian peasants grew entwined with the distant international market. The worst result of commercialization was the enslavement of Indian peasants by foreign enterprises. The terrible Indigo revealed of 1859 showed this. Further, the commercialization of Indian agriculture resulted in a series of famines, that killed a large number of people.

Positive Impacts of Commericilization of Agriculture

Despite its many bad effects, commercialization was a progressive event in one sense. The shift of Indian ecnomy into capitalism was made possible by commercialization, which encouraged social interaction. India's economy was linked to the global economy through commercialization. It paved the way for the development of a high-level social and economic structure. Commericilization made a significant contribution to economic unification. It also laid the groundwork for the country's economic development. Agriculture's commercialization resulted in the expansion of national agriculture, and the agricultural problem took on a national dimension. It also resulted in the efficient specialisation of crops by region.[25]

[24] . Ibid, p.4
[25] . Ibid, p.5

Food and Commercial Crops in Madras State:

Paddy, cumbu, chilam ragi, and varagu were key firm food crops in Madras, while cotton, sugarcane, and tobacco were important commercial crops[26].

Northern districts in Madras State

Madras, Cingleput, and North Arcot were the Madras Presidency's northern districts. The success of agricultural operations in the Chingleput District, which are primarily dependent on tank and lift irrigation, was heavily depended upon timely rains. Paddy was the appropriate crop for the chingleput district. Millets such as ragi and cholam, varagu, maize, and varagucumbukorra are also grown. However, millet cultivation was only done on a small scale throughout the districts. Cingleput District grew economic crops such as groundnut, gingelly, and sugarcane[27]. In the years 1952-53, the total area under cultivation was 839,295 acres.

Paddy was a major food crop in the North Arcot District, with millets, including ragi, cholam, cumbu, varagu, and samai being farmed on a smaller scale. This region grew groundnut, gingelly, sugarcane, and cotton, which were all successful cash crops. Between 1952 and 1953, 1384,784 acres of land were under cultivation.[28].

Western districts in Madras State

The Nilgiris and Coimbatore were included in the western district. Tea and coffee plantations covered the majority of the cultivable land. Dry fields were used to grow ragi and samai. The total area under cultivation in 1952-53 was 108,931 acres.[29].

Cotton oil seeds, sugarcane, spices, condiments, and tobacco were all major cash crops in Coimbatore.

Cholam, cumbu, ragi, samai, and thenai are the main millet crops grown in the District. Following the creation of the paddy breeding facility in Coimbatore, paddy cultivation in the District grew significantly. In the year 1952-53, the total amount spent on cultivation was 2,141,245. The entire amount spent in 1960-61 was 2,193,634 dollars.

[26] . R.Das Gupta, “Indian Economy” p.6
[27] . Malvika Singh “Agricultural Economy of India” 1991.
[28] . Ibid, 1991
[29] . Nithin Singhania “ Indian Economy” 1st Edition.

Central District in Madras State

The Central Districts of Madras were Salem and Thirucharapalli. The Salem district was a significant dry tract. The irrigated acreage is limited and dispersed. The woodlands comprised a considerable portion of the District. Millets occupied the majority of the land used for food crops. Cumbu, ragi, cholam, samai, and varagu were the most common millets grown. The main cash crops farmed in this District were mung oilseeds, gingelly, groundnut, cotton, and tapioca. In the year 1952-53, the total amount spent on agriculture was $1,987, 892. In the years 1960–61, the overall amount spent in this region was 2,334,016 dollars. [30]

Paddy, South India's major food crop, was widely farmed in the Thirucharapalli area.

Millets such as cholam, ragi, cumbu, varagu, and samai were grown. Commercial crops in the District included groundnut, gingelly, sugarcane, cotton, and coconut. In the year 1952-53, the total amount spent on agriculture was 1,708,522. In the years 1960–61, the overall amount spent in this area was 1,966,836 dollars[31].

Eastern Districts in Madras State

The eastern districts were South Arcot and Thanjavur. South Arcot District held a significant position in the field of agriculture. In the year 1952-53, the total area under cultivation in the district was 1,597,525 acres. The District's main grain crops were paddy, Varagu, Cholam, Cumbu, ragi, and others. The District's main commercial crops were groundnut, sugarcane, and gingelly, with a total expenditure of 1,597,525 in 1952-53[32].

In the Madras State, Thanjavur was the most important agricultural region. The majority of the population was relied on agriculture. As a result, the District was appropriately dubbed the "Granary of the South.

Southern districts in Madras State

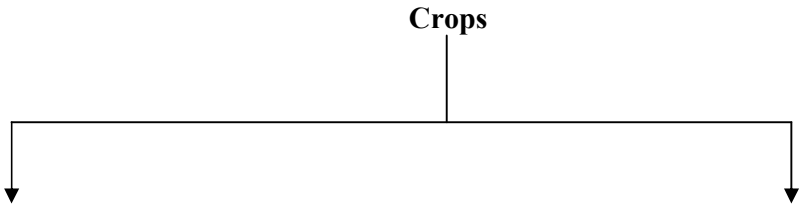
The Madras State's southern districts ranged from Ramanathapuram and Madurai to Tirunelveli and Kanyakumari. Coastal areas covered the majority of the Ramanathapuram District. As a result, food grain production in Ramanathapuram District had decreased significantly. The District's most important food crop was paddy. The total area under cultivation in 1952 was 119 2548 acres. The soil conditions in the Madurai District were

[30] . David Ludden, Early Capitalism and Local History in South India, Oxford University
[31]. Joachivon Bram "Food Policy" Volume 20 issue 3, June 1995
[32] . Ibid.,1995

ideal for millet farming. Paddy was not only the region's primary product, but also the people's main source of food. Other crops like wheat, cholam, cumbu, korra, varagu, and samai grew in the district regions. Commercial crops such as groundnut, cotton, and sugarcane were cultivated. In 1952-53, the total amount spent was 1,330,397 dollars[33].

Tirunelveli had fertile soils only in a few places, but it had a mostly agricultural economy that wanted to develop vital crops including cumbu, cholam, ragi, varagu, and samai. Cotton, gingelly, groundnut, tobacco, and sugarcane were the cash crops. The total amount spent in the following years was respectively 1,214,903 in 1952-53[34].

Kanyakumari was a small District with hills, dales, plains, and a coastal strip, and therefor, it grew a variety of crops. Paddy, coffee, rubber, coconut, pepper, and tapioca were among the other crops grown here. In the years 1960–61, a total of 201,832 dollars was spent in this District.



Food Crops

- Irrigated paddy
- Unirrigated paddy
- Cholam
- Cumbu
- Maize
- Ragi
- Korra
- Varagu
- Samai
- Other Cereals
- Horsegram
- Other pulses
- Chillies
- Other Condiments and spices
- Sugarcane
- Fruits and vegetables including root crops
- Other Food Crops

Non Food Crops

- Irrigated Cotton
- Unirrigated Cotton
- Other Fibres
- Irrigated groundnut
- Unirrigated groundnut
- Coconut
- Gingelly(Sesamum)
- Castor
- Other Oil Seeds
- Tobacco
- Other Drugs and narcotics
- Fodder Crops
- Other non –food crops

[33] . B.Natarajan "Food and Agriculturein Madras State" – The Government of Madras , 1995 p.166
[34]. P.K. Nambiar, District census hand book, 1961

Crops	Percentage of area under the crop to the total area under all crops			
	1952-53	1956-57	1961-62	1966-67
Irrigated paddy	20.7	30.2	32.3	34.0
Unirrigated paddy	5.6	3.3	2.6	3.0
Cholam	16.2	10.7	10.6	10.2
Cumbu	7.3	7.8	6.7	5.8
Maize	0.1	0.1	0.1	0.1
Ragi	4.8	5.4	4.6	4.3
Korra	4.4	0.4	0.3	0.2
Varagu	2.8	3.8	3.9	3.4
Samai	1.8	2.9	2.8	2.4
Other Cereals	2.4	1.0	0.6	0.6
Horsegram	3.8	3.7	2.8	3.1
Other pulses	3.9	2.8	3.0	2.8
Chillies	0.8	0.8	0.8	0.8
Other Condiments and spices	1.3	0.8	0.8	0.8
Sugarcane	0.5	0.7	1.0	1.2
Fruits and vegetables including root crops	2.4	2.4	2.5	2.6
Other Food Crops	0.3	0.3		0.6
Total Food Crops	**79.1**	**77.1**	**156.2**	**75.9**

Non Food Crops	Percentage of area under the crop to the total area under all crops			
	1952-53	**1956-57**	**1961-62**	**1966-67**
Irrigated Cotton	0.5	1.4	1.3	1.2
Unirrigated Cotton	3.6	4.8	4.4	3.1
Other Fibres	0.6		0.4	
Irrigated groundnut	0.4	0.7	1.4	2.0
Unirrigated groundnut	9.8	9.9	10.8	11.6
Coconut	1.8	0.7	0.8	0.9
Gingelly(Sesamum)	1.8	1.8	1.6	
Castor	0.4	0.1	0.2	0.1
Other Oil Seeds	0.1	0.1		2.0
Tobacco	1.1	0.3	0.2	0.2
Other Drugs and narcotics	0.5	0.8	0.9	0.9
Fodder Crops	1.8	1.5	1.4	1.0
Other non –food crops	0.7	1.5	1.9	1.3
Total Food Crops	**23.1**	**23.6**	**24.3**	**24.3**

Food crops are which are grown alone for consumption purposes, non food crops are grown used for profit rather than consumption. Food crops are cultivated to only supply food but non food crops only for commercial purpose[35].

Result of Commercialization of Agriculture

The term, 'commercialization of agriculture', means production of crops for market sales rather than for personal consumption. It started in India during the early years of the Nineteenth Century. But it gained momentum after the introduction of railways and development of roads in the middle of the Nineteenth Century. The causes of agricultural commercialization in India may be explained as:

1. A new revenue system was introduced by the British. Farmers were forced to pay their land taxes in cash. Money was in short supply in the communities at the time. As a result, the farmers were forced to shift their focus to the production of marketable agricultural products.
2. In society, there was the creation of a new commercial class. This class went into villages and taught them about money. They provided loans to farmers for a variety of reasons. For both their occasional and regular expenses, the peasants were beholden to this bourgeoisie. This class insisted that people plant as many cash crops as possible.
3. Farmers' attitudes started to shift gradually. The farmer came to understand the significance of cash crops. Instead of producing agricultural products for family consumption, they began to manufacture agricultural commodities for profit.
4. The Government supported the commercialization of agriculture because it was worried about meeting the raw material requirements of British industry. Though the cultivated area under cash crops was initially tiny, various considerations gradually arose to encourage peasants to switch from their traditional crops to cash crops.
5. Plantation agriculture was also introduced in the eastern half of the country, which was a significant development.

Traditional agriculture was distinct from other cash crops in that it necessitated specialised planting. It was cultivated with paid labour and it was only allowed to grow on wasteland. In reality, this nurturing helped to establish the wage labour system. Of course,

[35] . Season and Crop Report of the Madras state for the Agricultural Year. The Government of Madras,1960-61, p.54

there were significant differences in agricultural growth rates between the areas in the south. However, there was indications that overall agricultural output increased. Grain exports grew as the population grew. As a result, the value of yields per acre increased as cash crop production had increased. In 1852, the Madras Presidency's agricultural population was estimated to be 60% of the total population. Agricultural changes during British administration were far-reaching and numerous. The most important reason was that, as a result of British land and tax policies, it had become overcrowded. Agriculture suffered the most from stagnation and deterioration[36].

Commercialization of Agriculture through the Ages

East India Company's Rule

It was the age of mercantilism. The East India Company established its political dominance during this time. The Company tried to establish a monopolistic trade relationship between Britain and India. However, it was a failure due to unlawful trade by the company's own servants. India's trade was parallel to theirs. It was, however, limited to the trade of exquisite fabrics, food, and other raw goods for foreign precious metals.

The Company's monopoly was abolished in 1813, and the Company was prohibited from trade beginning in 1833. As a result, the start of Indian trade coincided with the end of Napoleon's war in Europe. It was quickly followed by a substantial increase in exports and imports. Because so many additional commodities were added to its overseas need, imports increased even greater. Fortunately, new markets had opened up as well. India was later transformed into a raw material supplier. They used to trade finished consumer items and some intermediate industrial goods in exchange.

Direct British Government Rule

During this time, these characteristics remained fashionable. In 1853, the first railway service was established. It provided India's overseas trade a new dimension. Exports and imports both increased dramatically. It was further aided by the commencement of the American Civil War and the construction of the world-famous Suez Canal. The adoption of a free trade policy by the United Kingdom, increasing industrialization in the United States, and rising demand for raw materials and foodstuffs by Japan all contributed to the maximum acceleration of economic expansion. It signaled the start of an era of unrestricted global trade.

[36] . Chawdhury, B.B. "Growth of Commercial Agriculture in Bengal", 1757 – 1900 Indian Studies, Calcutta.

However, due to the outbreak of the First World War in 1914, this progress quickly came to a halt.

The impact of the First World War was the halt of trade with enemy countries and the reorganization of markets in the United Kingdom, France, and Belgium. It resulted in an immediate drop in India's exports and imports. However, in 1916, exports began to improve, and by the end of the war, they had returned to pre-war levels. The export market was boosted by large government orders for products such as jute bags, hides and skins, army boots, and other supplies. It provided genuine support to Indian industry. Imports, on the other hand, had not only lagged behind in terms of recovery, but had also decreased in volume. This was due to the disruption in the supply system and not due to the lack of demand in India. However, there was a parallel growth in imports during the postwar years. Surprisingly, the amount of imports outpaced the peak value of exports in 1919-20. Surprisingly, the volume of Indian trade increased as the Second World War progressed. Its composition and focus shifted as well. In 1939-40, exports grew despite the loss of key markets to India and total exports increased in 1941-42[37].

Merits of Commercializationof Agriculture:

The arrival of railways allowed for the commercialization of agriculture during British administration. Peasants were allowed to produce for both local and international markets. Major developments, included both qualitative and quantitative dimensions, occurred during this time period. Qualitative adjustments include (a) removing limitations such as market flaws in the form of multiple weights and measures; (b) enhancing dangerous transportation infrastructure; and (c) reducing the widespread use of barter as a means of exchange. These methods allowed global, regional, and local markets to become more integrated. As a result, India began to specialise in agricultural exports. As a result, agricultural commercialization increased not only the scale of land transfers and land values, but also the number of credit transactions[38].

The benefits of agricultural commercialization were once again limited to a few important elements of society. It also widened the gap between the destitute peasants and the

[37] . Chawdhury, K.N. "The Economic Development of India under the East Indian company 1814-58, a selection of contemporary writings", Cambridge University, press 1971.
[38]. S.N.Panday "Economic History of Modern India", 1757 – 1947, New Delhi 2008, pp.36, 37

wealthy landowners. For example, agricultural commercial expansion in the late Twentieth Century resulted in new crops, new transportation networks, and more market activity. As a result, economic success became a luxury reserved for those who could leverage their social position to gain preferential access to loans, markets, and infrastructure.

Improvement of Agriculture Sector And Irrigations Projects in The Madars State

Irrigation has been practised in India using canals as a source of irrigation. Wells, tanks, canals, and dams are all mentioned in the Vedas. The installation of irrigation facilities was a priority for India's ancient kings. The most impressive feat of irrigation work was executed in the Second Century AD, over the Cauvery River in Thriches. In the nineteenth century, the British developed the irrigation system. Dams were built in Periyar and Mettur. In 1854, the British established a formal irrigation policy with the establishment of the Public Works Department. In 1943, the private irrigation works were a crucial component of the Grow More Fixed Campaign.

The First Irrigation Commission, established in 1928, placed a strong emphasis on fostering private developments. In India, mentions of irrigation kingdoms can be found in the Rigveda, according to the Vedas well planned irrigation is mentioned in the Rigveda, with "Kupa" and "avata" wells being said to be always full of water. "Varatra" (rope strap) and "Cakra" (wheel) "draw kos" (water pails) have been mentioned. Panini of the 4th Century BC dams across recounts various rivers for irrigation. Firoz Shah Tughalq, built India's most widespread irrigation system during the mediaeval period. In the 14th Century, he constructed the most extensive canal system across the Indo-Gangetic Doal and the region west of the Yamuna. "George Nathanial Curzon, the British Vicency of India" appointed the "Scott – Moncrieff Commission". Before the advent of British control, India had some sort of irrigation system. In ancient times, the irrigation system was maintained by the central political power. In the mediaeval period, the tradition continued on to some extent. During the Eighteenth Century, the Company did not initially take on the job of irrigation. The East India Company was soon confronted with evidence of its forefathers' involvement in the construction of irrigation works[39].

[39] . R.C.Dutt, “The Economic History of India in the Victorian age, London”, 1903

Irrigation and the British Government

The changes of 1919 made irrigation a provincial subject. Only works projected to cost more than Rs.50 lakhs required the approval of the British Government of India and the Secretary of State. Further, the utilisation of loan funds was no longer limited to productive enterprises, and money from the provincial famine insurance grant became available.

The Royal Commission on Agriculture (1926) advised that the Irrigation and Agriculture Departments work together more closely, that local Advisory Committees be formed to deal with complaints concerning irrigation, and that a Central Bureau of Information be established in Delhi. The state-built works, on the other hand, did not cover the entire field. Only 42.2 percent of the entire irrigated area was watered by state works in 1903, with the balance being watered by private works.

Irrigation was always essential to agriculture, but it was detrimental in the absence of an adequate drainage system. Water logging was common due to lack of drainage systems, and diseases such as Malaria were frequently disseminated. The drainage system was neglected during the early stages of canal building. Water logging was common in the United Provinces and Punjab, and it was sometimes followed by the rise to the surface of a saline efflorescence known as'reh,' which rendered the ground unproductive. The only way to avoid these calamities was to have a good drainage system in place and to take care before and during the construction of a canal. A close examination of irrigational projects during the British period exposed the government's inept attitude. Irrigation progressed slowly in permanently occupied areas, where an increase in revenue was not expected from these irrigation projects[40].

Irrigation Development in the Madras State

According to 1951 figures, the Composite State of Madras had a total land area of 8.14 crore acres and a population of 5.7 cores. Following the language-based partition of the Madras Presidency in 1953, Madras State had a population of 35.7 million, while Andhra Pradesh had a population of 25.7 million. [41] After the split, both states had nearly the same land size but due to the more people in Madras, the land size per person ratio had decreased, and the food shortage had grown worse than it had been previously. Home Minister

[40] . R. Palme Dutt Journalist, "The Economic History of India under early British Rule, India Today Calcutta, 1947

[41] . Navasakthi (Tamil Daily) Oct 2, 1961, p.3

Bakthavatsalam stated that Madras State had just 20.4 million acres of cultivable agricultural land, and that each resident in the State had only roughly 61 cents for food production. [42]

The irrigation resources of Madras State were severely impacted since the bifurcation of Andhra Pradesh from the Madras Presidency. Andhra Pradesh got the Krishna and Godavari rivers, leaving Madras State with the Cauvery. As a result, the government preferred to improve the acute food crisis by increasing food production. Kamaraj recognised that food self-sufficiency could only be realised by making effective use of available resources and developing processing industries[43].

Following the 1942-43 famine, the 'Grow More Food' initiative was launched throughout the State to enhance food production and cultivable land. In fact, under the First Five Year Plan (FFYP), even more intensive agricultural techniques were implemented starting in 1951-52.[44]

Total Food and Grains Production of Madras State (1949-1956) after the independence

Year	Total Food Production of Grains (Rice and Millets) in Tons
1949-50	3,047,000
1950-51	3,084,330
1951-52	3,463,970
1952-53	3,101,560
1953-54	4,107,280
1954-55	4,530240
1955-56	4,421,980

It should be noted that, due to the difficult seasonal conditions, total food production in 1952-53 decreased. Further, from 1951 onwards, the Indian government took advantage of a ban on food grain imports. Hence the Kamaraj government, which came to office in 1954, was under pressure to feed the people and gain irrigation plans that would address the long-term food scarcity.

[42] . M.S.Swaminathan, "The Crisis of Indian Agriculture" "The Hindu – 12th August 2010
[43] . A. Gopanna, ―Kamaraj One Sagapatham‖, Chennai Nava India Publishers, 2003, p.172
[44] . Famine Inquiry Commission 1945, pp. 198-199

Irrigation Projects under First Five Year Plan (1951-56)

In 1951, the First Five Year Plan was launched, which aided the creation of a nationwide research on the availability of water resources as well as the demands of various regions the proposed irrigation projects had to be considered and the state. The state of Madras had the following important construction projects.

Name of the Project	Cost in Lakhs
Lower Bhavani Project	1,000
Manimuthar Project	505
Malampuzha Project	528
Vaigai Project	330
Amaravathi Project	297
Sathanur Project	289
Walayar Project	100
Mettur Canals Scheme	245
Mangulam Project	89
Araniar Project	104
Krishnagiri Project	202

Among the listed projects, the last four projects were originally intended for the Second Five Year Plan but they were taken up for First Five Year Plan in 1954 to accelerate the development of irrigation.[45]

Lower Bhavani Project

The largest of all the projects undertaken by the State under the FFYP was the five-and-a-half-mile-long dam, was built across the Bhavani, a tributary of the Cauvery River. When the reservoir was full, the water spilled out over 30 square miles. This was also India's first earthen dam with a height of over 100 feet. The major canal on the right side was 124 miles long and watered 207,000 acres of land in Coimbatore and Trichirappalli Districts, half growing cotton and millets.[46]

[45] . Inspiring Record of Achievement in Irrigation and Electricity" Vol. XI No.5, May 1957, pp 33-35
[46] . Report of the Committee on Agricultural production, TNA, Madras 1959, p.5

Malampuzha Project

This project took place on the other side of the Malampuzha River. Though the Malabar district received an average of 80 inches of rain per year, it was irregularly distributed, and most of the time it helped just one crop.. The project was intended to improve food grain production by 10,000 tonnes, by irrigating 40,000 acres. This project was moved to Kerala after the 1956 State Reorganisation.[47]

Manimuthar Project

The project was a storage reservoir across the Manimuthar River, three and half miles upstream of its confluence with the Tambraparni River. The capacity up to its crest was 5511 million cubic feet. About 20,000 acres in Tirunelveli District was to be fed for an additional projected production of 22,000 tons of paddy.[48]

Mettur Canals Scheme

The scheme was to irrigate 17,000 acres in Coimbatore District and another 1,000 acres in Salem District. At about the fourth mile of the West bank canal, a branch of 40 miles took off to irrigate 27,000 acres more in Salem District. Thus a total of 45,000 acres were set to be irrigated. Four lakh (0.4 million) tons of food grains were to be produced, per annum, through the project.[49]

Araniar Project

The project that was proposed across Araniar, in Thiruvallur District, though comparatively a small project, was set to irrigated 17,000 acres, to produce 50,000 tons of food grains.[50]

Amaravathi Reservoir Project

Across Amaravathi the reservoir project was built that could hold 3600 million cubic feet of water. The dam was partly masonry and partly of earth. In Coimbatore District, about 21,000 acres were irrigated and about 8,000 tons of food grains produced in addition.[51]

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[47] . Ibid.p.6
[48] . U. AnandaRao, Chief Engineer " (Irrigation Projects) Madras Information, Vol. X. No.1 January 1956, p.41
[49] . G.Balan, "Life and Administration of Kamaraj" Vanathi Publishers, 2010, p.148
[50] . "The Farmer, who took Advice" Madras information Vol.Xl. No.12, 1954, pp.2425
[51]. G.O.No.553, public works Department, 23rd February 1955

Vaigai Project

The project in Madurai District, across the Vaigai River to irrigate about 20,000 acres, was built with a capacity of 6,800 million cubic feet of water and produced 7,500 tons in addition.[52]

Sathanur Project

Across the river Ponniar in North Arcot District with a capacity of 4,600 million cubic feet, with a provision of increasing it to 8,100 million cubic feet, the construction of the reservoir had been completed. The project irrigate about 40,000 acres.[53]

Krishnagiri Reservoir Project

This project was also proposed across Ponniar River in Salem District and completed in 1958. 10,000 acres were benefitted and the capacity of the reservoir was 1,666 million cubic feet.[54]

Irrigation Projects Under Second Five Year Plan (1957-62)

a) Pullambadi Canal Project

Pullambadi canal project in Trichy District, was built at an expense of Rs. 16 million to irrigate about 15,000 acres of land and thus to produce 100,000 tons of food grains.[55]

b) Puthiya Kattalai Project

The project did cost Rs. 18 million and 13,000 acres of land in Trichy district were irrigated to produce 40,000 tons of food grains. [56]

c) Vidur Reservoir Project

The project was proposed across Varahanadhi, near Vidur in South Arcot District, to irrigate 3,200 acres, including 1,000 acres in Pondicherry State. The building costs were split evenly between the two states. The project was formally launched in 1959. [57] Because food production was the state's top goal during the First Five Year Plan, the Kamaraj government prioritised irrigation by building dams and reservoirs of various capacities around the State.

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[52] . G. Balan, opcit, p.149
[53] . "Amaravathi and Manimuthuropended for Irrigation Madras information VOL, XII, No.2, 1958 p.20
[54] . U. AnandaRao, Chief Engineer " (Irrigation Projects) Madras Information, Vol. X. No.1 January 1956, p.41
[55] . V.P. Appadurai Chief Engineer for Electricity " Periyar Hydro Electricity Scheme" – Madras information Vol. IX. No.8, 1955.p.18
[56] . C. Swamiboss, 'Santhanur, "An Ideal – Tourist spot", Madras information, Vol. XIV,No.6, January 1960, p.27
[57] . G.Balan, op.cit, p.149

With an annual draw-off of roughly 200,000 tonnes of rice Kerala District, Madras State, had attained self-sufficiency in food production by the end of the Second Five Year Plan[58]

As a result, the government's focus, during the Second Five-Year Plan shifted to expanding agricultural production, productivity, and small-business growth as an alternative or supplement to agricultural production[59.]

a) Parambikulam – Aliyar Project

Though this project was started late in 1958, it was completed in 1963. This was an inter-State project for mutual benefit. The concerns of Madras State and Kerala, Governments were successfully negotiated, with mediation from the then Home Minister of India, Govind Vallabh Pant, and an amicable settlement was arrived. The project provided irrigation for 2,400,000 acres in Coimbatore District and produced about 70,000KW electricity.[60]

b) Minor Irrigation Programs

Since all the major irrigation works of the River projects in the State had either been completed or in the verge of completion, minor irrigation programs were started. The programs consisted of

1. Special minor irrigation program
2. De-silting cum reclamation of irrigation tanks
3. Scheme for sinking tube wells
4. River Pumping scheme
5. Filter Point Well Scheme[61]

Development of Agriculture in the Madras State

a) Land Reforms

When Kamaraj assumed power as Chief Minister in 1954, Madras State's 43% revenue came from agriculture and 75% of people were engaged in agricultural activities.The first act of the Government was the abolition of the Zamindari System.But the abolition did not remedy the situation and Government confronted the following problems;

1. The system of lease tenure of cultivation land
2. The terms on which lands were held and cultivated

[58] . Ibid, p.151
[59] . Kamarajar : 'Achievements of Kamaraj Rule" Archived from Original 10 May 2011
[60] . U. AnandaRao, Special Chief Engineer for Irrigation"ParambikulamAazhiyar Projects" Vol. X. No.7July 1961, p.8
[61] . Ibid.,

3. The size and distribution of the holdings
4. Whether the existed land system provided the opportunity for agricultural productivity[62]

Several Committees had been commissioned in the past to address these issues, right from the freedom of India in 1947, and in essence they had suggested the following;

1. There should be no intermediaries
2. Land should belong to the tiller and conferment of rights of ownership on tenants by their paying the price for them
3. The farmer should develop his personality
4. There should be no scope for exploitation of one class by another
5. Maximum efficiency of production should be aimed at
6. Any scheme for reform should be within the realm of practical ability[63]

b) Madras Land Reforms Act

Prime Minister Nehru stated that land reform was at the core of the Congress Party's values. Kamaraj stated that societal equality is mostly determined by individual wealth, and that land reforms were necessary to achieve such equality. On May 2, 1962, the Madras Land Reforms Act, 1961, was initially published as Madras Act 58 of 1961. [64]

The ceiling was determined by using 'Standard Acres.' One Standard Acre was equal to one acre of wet land assessed at Rs.10 and above but not exceeding Rs.15. The limit was 30 Standard Acres per person and for a family of not more than five members. In the case of a larger family with more than five members, an additional five Standard Acres were added to each additional person, up to a maximum of 60 Standard Acres. The Act's scope was narrowed to exclude lands held by religious trusts, charitable organisations, and public educational institutions. [65]

The compensation for surplus land was specified in terms of net annual income from the land, as well as the Fair Rent, minus the revenue payable in relation to it[66].

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[62] . Address of BishnuramMahali, "Governor of Madras, Joint session of Madras Legislature, 5th December 1959, G.O.No.34, (Public Department), 11th January 1960

[63] . BishnuramMahali, "Governor of Madras, "Irrigation Aids Development" Vol.XVL, No.7, July 1962, p.8

[64]. Legislative Measures and popular Ministers, Schemes, project. Historical events and visits from (1921-1974) Government of Tamilnadu, 1981, p.128 – Second Five Year Plan (1956-61) Madras p.67

[65] . "Land Reforms in Madras State" Vol. XVII, No.4 April,1963, p.26

[66] . Ibid,Vol, XVII, No.4 April 1963, p.26

68 The following was the compensation received for extra lands:

1. For the first sum of Rs.5000 of net income, 12 times
2. For the next sum of Rs. 5000 of net income, 11 times
3. For the next sum of Rs. 5000 of net income, 10 times
4. For the balance of the next annual income, 9 times of such balance [67]

c) Madras Cultivating Tenants Act

The Act from 1955 provided that no cultivating tenant shall be evicted from his holding during the continuance of the Act, except for the non - payment of rent, doing any act which is injurious to the land for any purpose other than agriculture or horticulture or denial of the title of land lord to the land.[68]

d) Madras Cultivating Tenants Act

The Act of 1956, prescribed the rate of Fair Rent payable by tenants as 40%, 35% and 33% in respect of the various classes of the lands.[69]

e) Agricultural Income Tax Act

Kamaraj Government realized that taxation was not fair without considering the nature of cultivated product and the quality of the land. It was obvious that there was huge disparity in income between farmers of different crops. The Act, from March 30,1955, taxed for plantation of cash crops like tea, coffee, rubber, etc under a group and grouping was gradually extended to other crops with similarity[70]

f) Fertilizer Control

From First September 1957, the fertilizer control order of 1957 was implemented in the State and the order provided licensing of dealers, registration of mixed fertilizers inspection testing and analysis of manure samples for the control of quality Adulteration of fertilizers was prevented.[71]

g) Thanjavur package program

In April 1960, Thanjavur launched an intensive agricultural district programme. Over a five-year period, the programme offered farmers package solutions to meet their demands

[67]. Ibid,p.27
[68]. Ibid, No.4, April 1963, p.27
[69] . Cultivating Tenants Protection Act, TNA Chennai, 1956 pp.7-8
[70] . "Land Reforms in Madras State" Vol. XVII, No.4, April, 1963 p.28
[71]. Ibid, p.186

for manures, pesticides, equipment, loans, and marketing facilities through cooperatives. The plan planned to increase agricultural productivity by 30 to 40 percent while simultaneously expanding cultivated regions. The following were some of the scheme's unique features:

- Demonstrations to bring home the benefits of improved agricultural techniques
- Assisting individual growers in the development of farm plants for individual holdings
- Provision of go-downs and marketing facilities
- Provision of credit and manufacturing requisitions within a bullock cart distance

For the first time in India, Kamaraj Government allowed grants for fertilizers like urea and other supplements to encourage farmers to increase efficiency. Government also set up improved seed farms to better the quality of seeds. Madras Farmers Credit Compensation Act 1955 came into effect by March 1, 1955 and enabled farmers it to pay their credits in four simple installments. It also protected the farmers by making them immune to civil suits for not paying their credits.[72]

Power Production Projects:

By 1962, after almost a decade of Kamaraj's rule, Madras held an impressive record in the power production and utilization. It ranked third in India after Maharashtra and Bengal. In the utilization of power for irrigation. Madras State was in the first position among the States of India.[73]

Agro – Related Industries and Sugar Industries

Sugar Industries had a signifacant share of agro – related industries in 1953, the State had only three sugar industries in Pugalur, Nellikuppam and Pandiyarajapuram. A total of 3500 tons of sugar was produced from these plants. By the end of Kamaraj's rule in 1963, a total of 14 sugar plants had been operating in the State[74]

Agricultural Development in fewer than Five Year Plans in The Madras State

Agricultural development is the sine qua non of land revenue systems in a predominantly agrarian country like India, or particularly. Madras State. The quantity of food and non-food or commercial crops produced over time is the ultimate test of agricultural progress. In 1858, the Public Works Department was founded during the foreign rule. It

[72] . Souvenir of the Madras pavilion, "Director of Agricultural Sub Committee Madras, 1962, p.20
[73] Ibid. p.20
[74] V.P. Appadurai, Chief Engineer for Electricity –K.Kamaraj 60th Birthday, 1962 (Speech) p.5

placed a premium on developments such as traffic, roads, and construction projects. In 1867, the erstwhile Madras Presidency established an Irrigation Branch to oversee civil works such as road bridges, culvert restoration, and irrigation work monitoring in addition to promotring irrigation.

Natural calamities such as floods, droughts, and famine, along with their pandemic effects, had repeatedly wrecked and warped the agrarian economy. The failure of the monsoon hampered the production of regular, sufficient food. During the British administration, agricultural production was insufficient to fulfil the demands of an expanding population, and the demand for food grains had skyrocketed. As a result, after 1947, the Madras Government launched new initiatives such as the 'Grow More Food Campaign' and the 'Japanese Method of Cultivation'. [75]

Crop production before 1947 in the Madras State

The Government of India Act was passed by the British Parliament in 1935. Elections were held in 1937 in accordance with the Act, and the Indian National Congress swept the polls in all provinces. The Congress secured a majority of seats in the Madras Legislative Assembly, and the Provincial Government was constituted under Chief Minister C. Rajgopalachari. His government remained in power until 1939, when all the Congress ministries in the country resigned to register their protest of the British government's actions in making India a partner in WWII. The Madras Government, on the other hand, took some successful actions for the benefit of farmers and agricultural growth in the State during the short period of two years[76].

Prior to 1939, the Madras peasants had become debtors to usurious money lenders. Their debt had skyrocketed, and their position in the Madras Presidency, which lasted until the early Twentieth Century, was absurdly degrading. The Madras Agriculturists' Act, 1938, was enacted to relieve peasants of their indebtedness and to free them from the clutches of greedy money lenders and land owners.

Some Land Mortgage Banks and Co-operative Societies responded positively, offering financial support to the poor peasants so that they might think and act bravely about agriculture, animal husbandry, and other topics. The total area sown with crops and the net

[75] . Kamaraj – " Achievements of Kamaraj Ministry" op,cit. p.58
[76] . Ratnam, R., Agricultural Development in Madras State prier to 1900, (Crop Report of the Madras Presidency), 1940-41, Madras,p.13

area cropped in the Presidency were 35,961,076 acres and 31,389,337 acres, respectively, at the end of 1939. [77]

By 1940, 36,280,212 acres were under crop cultivation, accounting for 75.4 percent of all food crops produced. In the Madras Province, irrigation was undertaken on 8,565,660 acres in 1939-40. During the remainder of the quinquennial period concluding in 1943-44, 36,500,000 acres were seeded with crops, on an annual average of 36,500,000 acres. The percentage of irrigated land was 28.6 percent in 1940-41. Food crop output accounted for 77 percent of the total sown area of 36,419,595 acres in 1941-42. Rice was in short supply in 1941-42 and therefore, it had to be imported. Following that, steps were taken to cultivate the fallow, barren, and foggy fields in order to boost food production. [78]

At the same time, the Madras Irrigation Works Act of 1943 restored irrigation works and the Government of Madras began construction of new projects in order to increase the production of cereal and commercial crops to a sufficient level. During the pre-independence period, British India had reported food supply shortages, particularly rice output in the Madras Presidency. [79]

Grow More Food Campaign

The "Grow More Food Campaign" was launched in all the India's provinces in 1942. The Campaign was originally implemented in the Andhra parts of the Madras State, and then at the Districts of Madurai, North Arcot, Chingleput, Salem, Tirunelveli, and Ramanathapuram. The Campaign's goal was to establish a system for importing foodgrains from other countries and achieving food self-sufficiency. During this campaign, all irrigation works were constructed and renovated. In addition, cultivable waste lands, fallow lands, and uncultivated lands were all brought under cultivation. The State's water potentials were measured in order to offer water to freshly brought areas as well as irrigated lands. [80]

A total of Rs.2.1 crores was allocated to the Grow More Food Campaign for the building and maintenance of minor irrigation facilities. The government approved 140 irrigation plans and suggested another 160 for irrigation and agriculture growth in the future. The culturable command area for each of these development initiatives, was estimated to be 10,000 acres or more. For the benefit of agriculture, the Indian government increased

[77] . The famine Enquiry Commission – Final Report, 1945 p.5
[78] . Madras information – 1948, The Government Press, Madras, 1948 No.16, p.11
[79] . Madras in 1947, (The Government Press, Madra, 1948 , Part1, p.50)
[80] . Narayanasamy,B., and P.S. Narasimhan, "The Economics of Indian Agriculture, 1944, p.231

financial support, technical guidance, and targeted and carried out research on irrigation works. There was a lot of land reclamation and use of modern farming machinery. In 1946, the Central and Provincial Governments invested Rs. 35 lakhs on better strains and varieties of paddy, millets, pulses, groundnut, and manures. The rice cultivation areas expanded from 64,000 acres in 1944 to 1,10,000 acres in 1947, exceeding the targe. [81]

The Government of Madras invested Rs. 874 lakhs on irrigation projects in 1949-50, to be benefit an irrigated area of around 8,50,000 acres. The irrigation works generated roughly R.342 lakhs in revenue. Further, in 1948, a new pest management system was implemented, and the total area covered by pest and disease control was around 100,180 acres, resulting in the production of 44,874 tonnes of food grains. Apart from these measures, a total of Rs.5,03,16,187 was spent on other schemes such as "Permanent Improvement Schemes" and "Intensive Schemes" by the end of 1949, with a total of 7,00,000 tonnes of food grains produced. Between 1943 and 1948, the Intensive Schemes produced 5,18,997 tonnes of food grains for a total cost of Rs.36,88,000. A total of Rs.11,04,885 was spent in 1948-49 to produce 192,648 tonnes of cereal grains. Despite these advances, total food grain production fell from 7,984,000 tonnes in 1940-41 to 5,875,000 tonnes in 1949-5084 owing to monsoon failure.

Crop Production After 1950

The new Republican Constitution of India, which went into effect on January 26, 1950, predicted the establishment of a socialist society based on Gandhian ideas. As a result, several Directive Principles relating to agricultural development, animal husbandry, and so on have been established.

In this approach, the National Planning Commission, established in 1951 in response to a Cabinet resolution, set out to strengthen the country's economy and achieve food self-sufficiency. The Madras Presidency suffered from a lack of food and non-food grains. In 1950, the average adult's daily food consumption was only 13.67 ounces. Through five-year programmes, it was hoped to contribute fundamental essentials of life and combat poverty, starvation, drought, and other natural disasters. [82]

[81] . Ibid., p.232
[82] . Natarajan B, “Food and Agriculture in Madras State”(The Government Press, Madra, 1953, p.55)

Agricultural Development under the First Five Year Plans (1951-56)

The agriculture sector was given a high priority in the First Five-Year Plan. The Madras State received aid of Rs.86.4 crores, of which Rs.9.67 crores were allocated for agricultural development, 30.28 crores for power, and 20.15 crores for irrigation. In 1951-52, a total of Rs.2,360 lakhs was spent on agricultural and irrigation development. The irrigation works for the Grow More Food Campaign set a target of 7.4 lakh acres for food grain production, but only roughly 2.04 lakh acres were brought under cultivation in December 1951, yielding 6,606,100 tonnes of food grains, including 4,055,200 tonnes of rice and 2,550,900 tonnes of millets.[83]

Agriculture, including irrigation, is a state subject according to the Seventh schedule of the Indian. As a result, irrigation projects are planned, built, and maintained by the respective state governments. The financial assistance to the states is provided by the federal government. After the Lower Bhavani, Cauvery Delta Drainage, and the reservoirs of Amaravati, Vaigai, Sathanur, and Krishnagiri were completed, the irrigation projects' overall potential was estimated to be at 3,69,000 acres.

Irrigation projects and hydropower generating drew expenditures of Rs.63.8 lakhs and Rs.58.6 lakhs in 1951-52, respectively. The entire net area sown in 1953 was around 31 million acres, with 10 million acres irrigated from all sources. A total of 890,000 tonnes of food grains, 100,000 tonnes of oil seeds, 180,000 bales of cotton, and 80,000 tonnes of native sugar were produced in the state.[84] The amount of water available and the area irrigated totaled roughly 6 lakh acres. A net area of 31,968,000 acres was under cultivation during the agricultural year 1952-53. In the first and second crops, the total irrigated area was 3,502,799 acres and 624,235 acres, respectively. They brought in Rs.41.49 crores in revenue for the government. However, food grain output remained insufficient in comparison to the State's increasing population of 3.7 million people. With the adequate maintenance of water supplies, agriculture's expansion remained stationary.[85]

During the First Plan Period, contemporary mechanical farming, rather than the traditional way of cultivation, was becoming increasingly popular, as it was considered that the cost of animal husbandry could be reduced by using less manual labour. The paddy had

[83] . The MCC Debates, 1951 and the Madras Information,1954, Vol. 1.IX, No.1p.30
[84] . The Madras Agricultural Journal (Coimbatore), 1953, Vol. XL p.1
[85] . Zacharias, C.W.B., Agricultural planning for Madras, (University of Madras 1953) pp.64-182

been cultivated as a natural hybridization, and improved seed and fertiliser variations made regular cultivation easier in the State's river-fed and rain-fed lands. Further, power-driven tractors supplanted the traditional method of ploughing the ground with the help of oxen and bullocks. In 1953, the Japanese method of cultivation was implemented in order to boost the land's production. Ploughing with oxen was phased out in favour of sophisticated equipment such as the iron plough for deep-ploughing of the ground. During the nursing stage, the Japanese technique of cultivation targeted at nursing and raising the seed beds, selecting healthy and hybrid seeds, applying organic manure, and sufficient weeding and manuring.

After carefully removing the seedlings from the seed beds, they were planted in straight lines with adequate inter-space. This technique is still popular. However, the Japanese approach was discovered to be unsuitable for Indian conditions. Actually, the method was not completely abandoned and adjustments were made to suit local conditions, and the government distributed insecticides, herbicides, and fungicides to ryots at discounted rates, in order to protect standing crops from plant killers such as pests and insects. As a result, from 1954 to 1956, the net irrigated area expanded from 2156 ha to 2233 ha. Irrigated lands totaled roughly 1535 acres under the irrigation projects. By 1954, over 70% of villagers had adopted better agricultural methods. During the year 1955-56, 221,000 acres of lands were brought under irrigation. The area sown with paddy was estimated at 42,30,000 acres, while it was 41,39,000 acres in the previous year, an increase of 2.2 percent. Cotton was raised in 6,35,000 acres in 1955 and it increased to 655,100 acres in 1956. Sugarcane was cultivated in 109,800 acres. [86]

Development during The Second Five Year Plan (1956-61)

The Second Five-Year Plan's objectives were to (a) "achieve the level of production to meet the State's demand with the growth of the population; (b) to achieve food self-sufficiency; and to gear up the agricultural population not only to meet the needs of internal consumption but also to have a surplus stock to meet any eventuality and emergencies." [87]. The Government of Madras is responsible for the development of agriculture and community development initiatives, as well as irrigation and electricity generation. The estimated increase in food production was from 44 lakh tonnes to 53 lakh tonnes. In a normal year, there should be a surplus of 2 to 3 lakh tonnes of food grains. During the Second Plan Period,

[86] . Dhavan, B.D., Irrigation : A case study of Tamilnadu State, Delhi, 1953, p.16
[87] . Second Five Year Plan, Madras State (The Government Press,1962, p.62)

significant attention was paid to large irrigation projects, with an actual expenditure of Rs.1445.31 lakhs[88]

During the 1956-57 seasons, seasonal circumstances were regular, and the State was free of floods and famine. A total of 16,528,800 acres were brought under cultivation. During the First Five-Year Plan, increased food production was estimated to be around 5.82 lakh tonnes and during the Second Plan, it was estimated to be over 8.65 lakh tonnes. Food crops were raised on 13,177,280 acres in 1956-57 while non-food crops were planted on 3,967,909 acres. In total, there were 17,145,189 acres in the State. Food grain output climbed from 2.96 million tonnes of rice in 1955-56 to 3.10 million tonnes of rice in 1956-57, while millet production increased from 1.47 million to 1.52 million tonnes. Cotton production climbed from 335,000 bales in 1955-56 to 358,000 bales in 1956-57, while sugarcane production increased from 341,000 tonnes to 373,600 tonnes. The net area seeded grew from 14,171,363 acres the previous year to 14,413,692 acres in 1956-57. Food crops accounted for 76.9% of total sown area, up from 76.1 percent in 1955-56. Rice was valued at Rs.336.76 crores, cereals were worth Rs.194-95 crores, pulses were worth Rs.4.21 crores, commercial crops, including sugarcane and cotton, were worth Rs.77.58 crores, and other crops were worth Rs.60.04 crores[89]. During this plan era, an additional 2.52 lakh acres were to be brought under cultivation, bringing the total number of acres under cultivation to be around 2.92 lakh acres in 1960-6116. From 1957-58 to 1961-62, the areas irrigated for food and non-food crops are shown below[90].

Areas of Crops Irrigated In Madras State, 1957-58 TO 1961-62

Food crops (Rice, Cholam etc.)	**Non-Food Crops (Tobacw, Cotton etc.)**
Year 1957-58 – 6,779,364	Year 1957-58 – 7,894,439
Year 1958-59 – 6,696,199	Year 1958-59 – 7,311,485
Year 1959-60 – 6,701,714	Year 1960-61 – 7,360,429
Year 1960-61 – 7,339,209	Year 1961-62 – 7,995,055
Year 1961-62 – 7,293,563	Year 1962-63 – 7,925,516

[88] . Madras State Administration Report – 1955-56, Madras p.138
[89] . Review of the Second Five Year Plan, Madras State 1961, p.1
[90] . Season and Crop Report, Madras State, 1956-57, pp.4-23

Development during the Third Five Year Plan (1961-66)

Agriculture and industry were given equal weight in the Third Five-Year Plan. This Plan also prioritised achieving food self-sufficiency, so that the people's requirements could be met from the State and the surplus could be sold to other parts of the country. The Plan's overall spending was Rs.290 crores, with allotments of Rs. 36.98 crores for agricultural development, community development, and cooperation and Rs. 25.18 crores for irrigation works and power; and the rest for other sectors[91].

The gross area sown in Madras in 1961-62 was 17,964,062 acres, whereas the net area seeded was 14,868,351 acres, of which 6,184,524 acres were irrigated. A total of 7,925,516 acres of crops were irrigated. Rice and millet production increased from 19.50 and 11.44 lakh tonnes in 1951 to 35.50 and 16.17 lakh tonnes in 1961, respectively. Rice production averaged 16 lakh tonnes per decade from 1951 to 1961, with a target of 67.17 lakh tonnes set during the Third Plan. In the districts of Thanjavur, South Arcot, North Arcot, and Chingleput, paddy cultivation was in full swing. Maize, cambu, and ragi grew significantly in the Coimbatore and Tiruchirappalli Districts. Groundnut and sugarcane, two oil-seed crops, were grown in the South Arcot and North Arcot areas. Cotton was raised in the southern districts of Madurai, Ramanathapuram, and Tirunelveli, as well as the District of Coimbatore[92].

During the 1963-64 agricultural year, 60,14,703 acres of land were irrigated, yielding a total of 53,49,910 tonnes of food by raising 38,15,110 tonnes of rice and 15,34,800 tonnes of millets. Following that, food grain output grew to 56,92,530 tonnes, a net increase of 254,420 tonnes over the previous year's production of 53,49,910 tonnes, while the total irrigated area in the State increased to 80,62,229 acres[93]. The net area seeded at the end of the Third Five Year Plan (1965-66) was 5,933 ha, or 45.6 percent. Cropland and irrigated cropland accounted for 7.3 million and 3.2 million acres, respectively[94]. The Table shows the area of irrigated crops from 1963-64 to 1967-68.

[91] . The Member of Legistative Council Debates, 1960, Vol. 36, pp.91-95
[92] . Season and Crop Report, Madras State, 1963, pp.58
[93] . MLC, Debates,1961, Vol.XLI pp.91-95
[94] . G.O.No. 146, Food and Agriculture dated, July 17, 1965

Area of Crops Irrigated in Madras, 1963-64 to 1967-68

Food crops	Non-Food Crops
Year 1963-64 – 2,976,204	Year 1963-64 – 3,268,055
Year 1964-65 – 3,000,961	Year 1964-65 – 3,262,673
Year 1965-66 – 2,920,118	Year 1965-66 – 3,117,953
Year 1966-67 – 3,086,265	Year 1966-67 – 3,372,285
Year 1967-68 – 3,146,863	Year 1967-68 – 3,475,675[95]

Rice, Cholam, Ragi, Wheat, Cumbu, Barley, Bengal gram, and Red gram are all food crops. Tobacco, Cotton, Gingelly, Rape, Mustard, and Fodder Crops are examples of non-food crops. [96]

In Madras, the average net area irrigated annually was 2,270 thousand hectares for a 15-year period from 1951 to 1966. Over the three plan periods, the percentage of net area irrigated to net area seeded grew from 37.1 to 40.7. At the end of 1967-68, the net area watered by all irrigational sources was 2,629 hectares. The canals irrigated roughly 8,93,000 hectares in the State, while the tanks irrigated about 9,90,000 hectares. The wells accounted for 6,98,000 hectares, while other sources accounted for 48,000 hectares. In 1967-68, 3,476 thousand hectares of land were irrigated. All forms of irrigation works were given equal priority by the Madras presidency's government. The State's food grain production relied heavily on the minor irrigation system. Over the three plan periods, a total expenditure of Rs.2,433.42 lakhs was incurred. As a result, in the Annual Plan Period ending in 1969, the net area seeded increased from 58.91 lakh hectares in 1968 to 60.69 lakh hectares. Food grain production increased to 57.31 lakh tonnes in 1969, up from 50.62 lakh tonnes the previous year. The total amount invested in agricultural programmes, from 1951 to 1966, was Rs. 77.52 crores, while the amount invested in the three consecutive year plans from 1966 to 1969, was Rs. 57.20 crores. The Green Revolution, with H.Y.V.P was adopted in the State during 1968-69, to achieve food self-sufficiency. In the next year, 1970-71, a total of 18.84 lakh hectares were brought under the High Yielding Varieties Program, with food grains

[95] . Report of the Indian Irrigation Commission,1972, (New Delhi) Vol.11, p.372
[96] . Season and Crop Report of Tamilnadu,1969-70, The Government Press, Madras 1973, pp.33-35

otaling 70.34 lakh tonnes in the State. The state's total cultivated area, including both food and non-food crops, was 7,384,006 hectares[97].

This Chapter discussed the Madras Presidency's cropping plan as well as the commercialization of Indian agriculture. Despite rapid population increase and low per capita income, the Government had undertaken numerous irrigation projects. Following the adoption of HYV seeds in 1968–1969, the complete population became self-sufficient in food. Five year plans also cleared the many programmes, to achieve the targeted food production. But at the end of Third Five Year Plan, target was achieved only due to adoption of the H.Y.V. Programme.

[97] . Viraraghavan, C States of Our Union Tamilnadu, Publications, Divisions, New Delhi, 1973, pp. 38-40