

ASPECTS OF AGRARIAN CHANGE IN THE CUDDAPAH DISTRICT OF ANDHRA, c. 1860-1900

A dissertation submitted in partial fulfilment
of the requirements for the award of the degree
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Y. JOHN

**CENTRE FOR DEVELOPMENT STUDIES
TRIVANDRUM**

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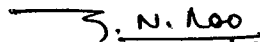
I hereby affirm that the research for this dissertation titled "Aspects of Agrarian Change in the Cuddapah District of Andhra, C.1860-1900" being submitted to the Jawaharlal Nehru University for the award of the Degree of Master of Philosophy was carried out entirely by me at the Centre for Development Studies, Trivandrum.




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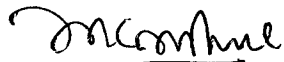


Dr. G. N. Rao,
Associate Fellow



Dr. Chandan Mukherjee,
Associate Fellow

Supervisors



Director
Centre for Development Studies.

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CHAPTER 1

I N T R O D U C T I O N

The impact of railways on the Indian economy during the colonial period is a much debated issue in the politico - economic history of the country. The early participants in this debate may be broadly divided into two categories -- Critics and Admirers of the British rule.¹ According to the Critics, as the pattern of investment tilted heavily in favour of the railways and against the more productive channels like irrigation, it created an imbalance in the economic infrastructure in the country, which left its mark on the performance of agriculture. Not only public investment in irrigation was meagre, but as the railways expanded rapidly, areas under cash crops like cotton increased often at the expense of the foodgrain -- area. This in turn reduced the food availability in the country. It was claimed that the welfare of the Indian people was adversely affected.

Although the growth of non - food (cash) crops was not new in India, the colonial policies, it was claimed,

had positively encouraged the cultivation of certain 'special' crops like cotton, poppy and indigo. To that extent, the expansion of the areas under the cash crops pre-dated the Railways in India, the construction of which began in 1853. Right from the beginning of the 19th century when the East India Company's effective rule had started, the imposition of heavy land revenue assessments and collection of the same in cash, encouraged the further expansion of area under cash crops. Wherever the soil types and climate suited, farmers raised crops like cotton, indigo and poppy to meet their cash requirements. Although direct and even physical force was used on the cultivators for the growth of crops like indigo in Eastern India, in the case of cotton, its cultivation, however, remained voluntary. The rapid expansion of railways from the mid-nineteenth century, according to the Critics, gave an enormous fillip to the cotton cultivation and trade. As the area under cash crops increased at the expense of foodgrain area, it had adversely affected the foodgrain availability. Besides, export of wheat which was greatly facilitated by the railways further accentuated the critical situation of food availability in the country.

On the other hand, the 'Admirers' felt that the rail transport worked as a major factor that heralded an "Economic Revolution" in the country. It had, according

to them, improved the resources, enhanced the foreign trade, encouraged specialisation in cropping pattern and provided relief to the people during periods of shortages, droughts and famines. In short, railways brought such an economic transformation of the country that they can be considered as the 'Dividing line in the Indian Economic history'. Admittedly, these two lines of arguments are not easily reconcilable.

Let us examine these contradictory positions a little more closely, to have a deeper insight into the debate, for they have a direct bearing on the issues analysed in the present exercise. That there still exists scope for contributing to this ongoing debate would be made clear in the course of the survey of the literature. However, in what follows, for the sake of brevity and clarity, we skip the details on the factors that contributed for the emergence of a railway network in India, the lop-sided nature of the investment pattern in the colonial period, functioning of the Guaranteed Railway systems, Railway's freight rate policies, impact of the railways on the traditional transport systems like navigation and pack bullocks, Stores Purchase Policy of the Government etc.² Thus, the ensuing review of literature is deliberately restricted only to those analytical issues and empirical evidence, which have a bearing on the factors affecting crop-choice in general and cotton cultivation in particular.

K.L.Dutta, one of the early analysts of price data in India, argued that as the growing demand for jute, cotton and other commercial products in the world market stimulated their production in India, it had adversely affected the cultivation of foodgrains. Dutta, however, analysed only a relatively recent period i.e., 1894-95 to 1911-12. He observed that jute area in Bengal and Bihar, expanded at the expense of area under foodgrains. Similarly, in the Punjab - East, Sind, Gujarat, Deccan, Berar, Central Provinces and Madras - South, cotton displaced foodgrains.³

Other critics like Padmanabha Pillai, D.R.Gadgil, Nalinaksha Sanyal and M.L.Dantwala similarly felt that during the second half of the nineteenth century, acreage under commercial crops increased at the expense of the foodgrains.⁴

According to B.M.Bhatia,⁵ the Commercial Revolution that occurred in India during the second half of the nineteenth century had destroyed the subsistence character of agriculture by making it more oriented towards the export-markets. As there was a steady increase in the export of foodgrains there was a significant fall in the stocks available within the country. In spite of the rising prices of foodgrains and other occasional shortages, farmers showed a preference for the cash crops. While in certain cases, this shift was forced, in others it was voluntary. It would

be fruitful to examine Bhatia's propositions a little more closely.

One of the important objectives of the railway construction, no doubt, was to develop the agricultural resources of the country, so that there was a continuous and sustained flow of raw materials to the manufacturing concerns in the Great Britain. And this objective appeared to have been fulfilled during the 19th century.

"Exports of raw cotton, jute, oilseeds, indigo, wheat and rice from the country increased rapidly during the second half of the 19th century. Total exports from the British India increased from Rs.77 million in 1853-54 to well over Rs.300 million by the close of the 19th century. Exports of the primary goods increased from about Rs.40 million to nearly Rs.200 million by the close of the eighties ... The share of exports of primary goods in the total exports increased from a little over 50 percent to as high as 87 percent by the middle of the sixties..."⁶

Even when the U.S. regained its dominance as the world's major exporter of raw cotton after 1870, "India remained an important exporter of cotton, supplying the new textile industries developing in continental Europe and later in Japan"⁷.

In any case, the point that Critics tried to make was that cash crops like cotton expanded at the expense of the foodgrain area. And surprisingly, this point remained empirically unverified for a long time. It was only in the early 1970s that serious efforts were made by researchers to analyse the data on the cropping pattern for the post-railway period. Amalendu Guha, Peter Harnetty and Michelle Burge McAlpin made pioneering efforts in this direction.⁸

Amalendu Guha in his pains-taking study, "Raw cotton of Western India: 1750-1850"⁹ had estimated the total acreage and output of cotton lint in Western India for the mid-19th century - a formidable task indeed. He provided interesting details on the development in transportation and marketing of raw cotton in the region for a century, pointing out the forces of change operating in the economic field in the pre-Railway period. He made an interesting analytical point that the response of cotton acreage to the available export incentives was not appreciable. He ascribed two reasons for this inadequate acreage response. "First, the price of raw cotton, like that of grain, fluctuated violently, but showed a long term falling trend ... (during the period 1810-1854)... Any relative price shift in favour of raw cotton vis-a-vis grain was highly doubtful. Hence, there was not much of

a price incentive to which cotton growers could respond. Secondly, during the same period, the import of foreign manufactures had already dislocated the Indian spinning and weaving industry to a considerable extent. It was but natural that the internal demand for raw cotton would be falling".

In yet another study Guha made estimates of cotton acreages for three select periods in the later half of the 19th century. His first period represented an average year around 1850-51. The average was for four or five years from 1848-49 to 1852-53. The second period was an average year representing the quadriennium, 1867-68 to 1870-71. The third period represented the quadriennium, 1897-98 to 1900-01.

Guha's period I represents the immediate pre-railway age when cotton acreage was mainly responding to the demand generated by the Indian handlooms. "At this time there were, in the modern sector of Indian cotton textile industry, not more than 50,000 spindles and 100 active looms. The average export of raw cotton was 216 million lbs. and that of cotton manufacturers negligible... No raw cotton was imported"¹⁰⁻⁽¹⁾.

By period II (1867-68 to 1870-71) the cotton tracts started benefiting from the cheap railway transport

and exports acted as big attraction for cotton cultivation. India's railways expanded five-fold during the last three decades of the 19th century. "Raw cotton exhibited a falling price trend, but its distribution costs were also falling. This coincided with a continuous exportation and hence depreciation of our currency"¹⁰⁻⁽ⁱⁱ⁾. By period III (1897-98 to 1900-01) a viable modern sector in cotton textile industry had emerged in the country. In this quadriennium, India exported an average of 478 million lbs. of raw cotton, 195 million lbs. of yarn and 65 million yards of cloth annually.

Guha's account on cotton cultivation in India was more comprehensive and thorough than any study made so far, for he had painstakingly reconstructed the scenario of cotton cultivation both in British India and the Native States.

For our limited purpose in the present context, the analytical point that is relevant from Guha's study is his comment on the factors which influenced the farmer's crop-choice during this period. According to him, "...the occurrence of famines or their absence was not the sole factor that determined the relative role of cotton in farmers' cropping pattern. Their decisions were largely influenced by the world market prices during our period,

particularly since period II".¹⁰⁻⁽ⁱⁱⁱ⁾ This view is in direct contrast with that of McAlpin, as we will see a little later.

Peter Harnetty analysed the issue of cropping pattern in the cotton-growing regions for the 1860's and came to the conclusion that the increase in the cotton area was a part of the general expansion of the total cultivated area which was stimulated by the high prices both for cotton and foodgrains. The cotton-famine caused by the Civil War in the U.S. in mid-1860's boosted its price in the international market. And this gave a substantial fillip to the cotton cultivation in the country. The expansion of cotton, he argued, was not at the expense of food-grain area but formed part of an overall agrarian expansion. Harnetty also analysed the prices of cotton, wheat and jowar. According to him the index of cotton prices showed a sharp rise during 1860's. He concluded that the relative price of cotton to wheat and to jowar exhibited a pattern similar to that of the cotton prices, though at a lower level. In other words, raising of cotton crop was found to be more attractive than that of the food grains.^{10-(iv)}

As one of the pioneering studies with a wealth of empirical evidence and sound economic analysis, Harnetty's exercise could successfully set a process of re-examining the positions taken by the 'Critics'. But his study could

cover only a decade, especially the one which was generally favourable to the agricultural expansion in the country. Hence, the inferences drawn up in the study have to be accepted with a certain amount of caution.

In an interesting but debatable study, M.B.McAlpin came out with a set of fresh ideas on railroads, prices and peasant rationality in India for the period 1860-1900. According to her, railways in British India did not "transform" the rural economy against its will by compelling farmers to participate in a market they did not understand. She says, "For the second half of the nineteenth century we can find evidence that prices transmitted by the railroads influenced the selling decisions of farmers. The existing statistical evidence indicates that relative prices did not influence planting decisions in any regular way"¹¹.

She formulated a model that explains the decision making process of the small farmers in regions of precarious rainfall. She constructed some estimates of the production, consumption and surpluses of foodgrains of an "average small farmer" around 1880. Her estimates of surpluses per acre varied from a low of about Rs.16 in Bombay and Madras to a high of over Rs.200 in Berar and the Punjab.

McAlpin essentially described the functioning of a peasant economy. In the absence of railways, she argued, Indian agriculture had to face high transport costs as a result of which, local prices were determined by the size of the local harvest. The size of the harvest depended very much on weather. "In the presence of large changes in prices from year to year -- changes which were determined at random by the weather's effect on the size of the harvest--farmers had no way of anticipating short term price fluctuations... As a result, farmers planted crop mixtures on the basis of long term expectations about relative prices... (However)... the short term price changes, before railroads, were caused by harvest condition and farmers did not expect any change in relative prices to persist long enough to enable them to profit by altering their crop mix"¹².

Indian agriculture faced problem of high variability of yields due to fluctuations in the quantum and distribution of rainfall. Farmers had to face this situation and survive. "In years when crops are good the farmer stores grain which he plans to use to feed his family when the harvest is below average... However, because the farmer is not insensitive to the high returns available from non-food crops in some years, he does not just plant all of his land in grain each year to reduce the chance of running

short to as small a value as possible. He has other demands upon him (marriage rites, taxes, bullock replacement etc.) which encourage him to maximise his income... In each year he then plants enough land with grain to reduce the probability that a crop failure will leave him without enough to feed his family below some acceptable level"¹³.

McAlpin, however, was careful to add that her model did not imply that no nineteenth century peasant was ever influenced by prices. Only the constraints incorporated in the model were likely to have slowed down the response to market forces. She claimed that her model was consistent with her qualitative evidence on grain stocks as well as the regression results which indicated no significant relationship between short term prices and cotton-area. Such a scenario, was consistent with the pre-rail India. Yet, according to her, it persisted almost till the close of the 19th century, indicating that India's railroads might not have provided the necessary volume of transportation. And the secondary distribution systems like roads were inadequate to move grain to and from the railroads. Referring to John Hurd's study on market integration¹⁴, McAlpin observed: "Relatively small movements of grain might be adequate to reduce price differentials between towns and be within the capabilities of the railroad system.

The larger grain movements needed to stabilise prices in the rural areas, especially in periods of scarcity could still have been beyond the capacity of the rail-road system.¹⁵

Notwithstanding the general propositions discussed above, McAlpin's own evidence for the Madras Presidency brought out results different from those of other regions. For Madras, she discovered a significant coefficient for lagged relative prices of cotton and the major foodgrains with absolute cotton acreage as the dependent variable.¹⁶

In continuation of this study McAlpin brought out another one viz., "Railroads, Cultivation Patterns, and Foodgrain Availability : India 1860-1920", which examined changes in the total cultivated area, foodgrain and cotton areas for the five regions in the country.¹⁷ She observed that in Berar, Bombay, Central Provinces, Punjab and Madras Presidency, "foodgrain cultivation increased or remained constant" during the last three decades of the 19th century. However, she had to admit that there was a decline in the share of foodgrain area in the total cropped area both in the Madras Presidency and the Central Provinces. "For Madras Presidency, the percentage of land planted with foodgrains declined from 83 to 85 percent of the total to about 80 percent; for Central provinces, the decline is from 85 to 86 percent to 81 to 82 per/cent".¹⁸

In otherwords, in both these regions the share of non-foodgrain area did register an increase of about 4 percentage points during the last three decades of the 19th century. She appeared to be aware of this fact which weakened her general proposition. Hence, she had to be very cautious in formulating her conclusions. She claimed that her "data demonstrate increase in the absolute area (!) planted with foodgrains and small declines, in some areas, in the percentage of cultivated land planted with foodgrain " (emphasis added). Where there was an increase in the foodgrain area she spoke in terms of the absolute figures, but where there was a decline in the same, she made it look small by talking in terms of percentage figures ! She appears to be playing with words. And her statement immediately after the quotation cited above, that "Railroads did not cause or permit any decrease in foodgrain cultivation before 1900" is at best amusing !!

This is however not to suggest that her conclusions are totally wrong. Even other studies not sympathetic to the Admirer school also suggest that empirical evidence establishing the Critics' position is not readily forthcoming. According to one such study, for a short period of the last one and half decades of the 19th century, a clear pattern indicating the replacement of wheat by cotton

did not emerge.¹⁹ G.N.Rao observed that in Punjab areas under both wheat and cotton fluctuated over the period, 1884-85 to 1900. In the North-Western provinces and Oudh, both the areas showed a decline. Even in the Central Provinces, Bombay-Sind and Berar though area under wheat showed a decline, a corresponding year to year or lagged increase in the area under cotton did not appear to have taken place. In the Punjab and the Gangetic belt, according to the literary evidence, areas under wheat and other cash crops increased while areas under coarse grains consumed by the poorer sections of the rural peasantry declined. Rao is also critical of the methodology adopted by researchers like McAlpin. He felt that the conclusions drawn up from a study of the cropping patterns of the Presidencies at an aggregate level might conceal certain significant features at the sub-regional levels. For instance in the Northern (Andhra) Division of the Madras Presidency, the dry zone of Rayalaseema (Ceded districts) was endowed with railroads around 1870 thus facilitating the growth of non-food crops like cotton, oilseeds and indigo. But in the Coastal Andhra where assured irrigation systems came into being in 1850's and a Coastal rail line passing through the region could come about only by 1891-92, not only the areas under cotton declined but those under food crops especially paddy registered an impressive growth. If data on the cropping pattern for these sub-regions are clubbed together,

regional specificities related to the crop-specialisation would be more concealed than revealed. McAlpin herself appears to be aware of this fact for, in the concluding section of her article (1974) she observed: "...It will be most useful in attempting to think of what the real impact of railroads may have been to take care to look at their effects on separate regions. Not only were different regions served at different dates and with different qualities of service, but the regions were themselves diverse".²⁰

Impact of railways on an economy has to be viewed not only in terms of cropping pattern but also the functioning of the product markets. As railways expand, one would expect trade to expand and markets to be integrated, the manifestation would be a tendency of the market prices to converge. Observers on Indian Economy from time to time commented that such an integration was indeed taking place in the colonial period. Right at the turn of the century Subramanya Iyer commented that railways, "tended to raise the prices to a uniform level throughout India".²¹

Similar views were expressed by the later day commentators. For instance, Tarasankar Banerjee observed: "The steam traction considerably helped in the better distribution of the country's resources. It opened up new markets for the machine economy and facilitated in various

ways the success of the economy of large scale production. There was a marked tendency towards equalisation of prices throughout the country as a result of extension of railways. Moreover, the application of steam power in the means of traffic reduced enormously the cost of inland transport".²²

John Hurd II, who has done a detailed study on the impact of railways on the commodity markets in India, came to the conclusion that railroads in India brought about price convergence by bringing the districts with rail-transport into a single market.²³ Hurd took a sample of 188 districts of which 14 had railways by 1860, 62 by 1870 and 99 by 1880. By 1921, only 6 of these districts were without railways. Hurd made two assumptions in his study: Firstly, the prices prevailing in the district headquarters prevailed throughout that district. Secondly, the year of arrival of the rail line irrespective of its location of construction within the district was taken as the dividing period.

At first Hurd calculated the coefficient of variation to find out the variations in prices between different districts. He also estimated the five yearly moving average of these coefficients of variation. The declining value of the coefficient indicated the concentration of prices

around the average price. He found that the highest values of the coefficient of variation for both rice and wheat occurred in 1864 and in 1871 and it was lower after 1871. The five year moving average of the coefficient of variation also declined steadily after 1870 to the first decade of the twentieth century. The coefficient of variation for rice according to Hurd's estimation, declined steadily and for wheat it stopped moving downward in the 1890s, rose in the early 1900, then fell again in the latter half of the decade. Hurd, pointed out that this decline in coefficient of variation suggested an expansion of markets which continued until 1905. Hurd attributed the convergence of prices to the action of traders and to the reduction in the transport cost caused by expansion of railways. Thus, he stated that, the cessation both the expansion of railways into new districts and the process of convergence of prices in the middle of the first decade of the twentieth century suggested that the two events were related.

In the second stage, Hurd compared the railway and non-railway districts and found that the convergence of prices in railway districts was stronger than that of the non-railway districts. But regarding the movement of prices in both railway districts and non-railway districts, he found that they were similar in both types of the districts. This, according to him, was because of the fact that traders

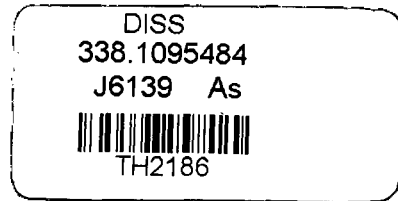
were able to utilize lines beyond the district borders where railroads and stations were closeby. Thus, he argued that the expansion of markets did take place during the second half of the nineteenth century and as railroads expanded, prices in districts across India began to converge towards a single price.

As we have briefly mentioned earlier, McAlpin was critical of Hurd's analysis in which the prices at the district head quarters and towns were made use of. She felt that only smaller movements of grain was sufficient to reduce the price differentials between towns which were within the capabilities of the railways. But in the rural areas outside the railway system larger movements of grains were required to stabilise the price. This was especially so, at the time of famines. This criticism would be valid in regions where the feeder-roads leading to railroads were either few or inadequate to the transport requirements.

Mukul Mukherjee²⁴ studied the impact of railways and the integration of markets in Bengal for the period 1870-1920. In this region, the importance of railways was heightened by three factors viz., (i) high cost of transport, (ii) the risks and uncertainties typically associated with river transport and (iii) competitive railway frietage schedule offering concessional rates for certain staples of trade including foodgrains.

SCOPE OF THE STUDY

So far we have highlighted a few important issues raised by the participants in this interesting but inconclusive debate. As stated earlier, from the early seventies onwards, vigorous efforts have been made by some of the participants, to cull out empirical data and strengthen their arguments. However, as some of these studies had taken the presidencies as their units of analysis, their relevance to regions and sub-regions had been questioned. It was suggested that within a presidency, regions and sub-regions might differ from each other due to certain demographic, agro-climatic and infrastructural differences. It is in this context that the present case study of a district assumes some importance. While its relevance to a wider context is open to question, an exercise of this nature, it is hoped, would give us a greater insight into the response of the agriculture to the stimulants and bottlenecks thrown up in its way. In the specific context of a backward agriculture, located in a colonial context, what were the factors that affected the agrarian expansion and cropping pattern? What was the role of the market and non-market forces in the farmers' crop choice? What was the impact of the railways on the expansion of the commodity markets? These are some of the questions with which the exercise has been initiated.



OBJECTIVES OF THE STUDY

The following are the objectives of the present study:

- (i) To trace the agrarian background of the Cuddapah district in the context of the Ryotwari Settlement during the first half of the 19th century,
- (ii) To analyse the slow transition in agriculture during the post-Depression and pre-Railway period i.e., during the fifties and sixties,
- (iii) To make a detailed study of the changes in the cropping pattern during the post-Railway period, i.e., during the last three decades of the 19th century,
- (iv) To analyse the factors affecting the crop-choice by the farmers in the specific context of a semi-arid zone with deficient and uncertain rainfall, crop failures and droughts, and
- (v) To highlight the quantitative dimensions of the rail-borne trade between Cuddapah and the other regions.

Chapter 2 analyses the agrarian conditions in the District from 1800 to 1870, which was the post-Ryotwari Settlement but pre-Railway period. The purpose here is not to document but to provide a historical explanation

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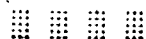
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for the economic back-wardness of the district, in the colonial context. This chapter is divided into two sections. In the first section, factors like heavy assessments on the land, Government's coercive policies in the extension of cultivation, depression in the agricultural prices etc. have been taken as explanatory variables in analysing the stagnant agricultural conditions during the first half of the 19th century. In the second section, the slow transition in the agriculture, with special reference to cotton cultivation in the pre-railway period has been analysed.

Chapter 3 deals with the agrarian changes in the district during the last three decades of the post-Railway period. The extent of agrarian expansion, crop-specialization/diversification, rainfall, relative prices, food requirements, famines etc. which affect farmers' decisions on the crop-choice have been analysed to have an overview of the peasant rationality in the context of dry land agriculture.

Chapter 4 gives quantitative dimensions of the rail-borne trade in agricultural commodities, between Cuddapah and other regions.



NOTES AND REFERENCES

1. In 'Critics' of the earlier generation we may include Romesh Chandra Dutt, Dadabhai Naoroji, Subramania Iyer, sir Arthur Cotton and William Digby. 'Admirers', who by and large highlighted only the positive impact of the British policies on the Indian economy include W.H.Buchanan, Percival Griffiths, Lilian Knowls and Vera Anstey. Of late, the debate has been reviewed by a few academicians like Peter Harnetty and M.B.McAlpin. We will discuss this, little later in the chapter.

2. There is a plethora of literature on Railways in India. See (i) Sanyal, Nalinaksha (1930): Development of Indian Railways, pp.2-5; (ii) Prasad, Amba (1960): Indian Railways: A Study in Public Utility Administration; (iii) Anstey, Vera (1936): The Economic Development of India, Rev.Ed.p.128; (iv) Saxena, K.K. (1962) : Indian Railways : Problems and Prospects : A study in the Management and Working of Indian Railways, p.5; (v) Dutta, K.L. (1914): Report on the Enquiry into the rise of Prices in India, vol.I, p.80; (vi) Banarjee, Tarasanker (1966): Internal market of India; 1834-1900, Academic Publishers, p.62-63; (vii) Rao, G.N. (1978): "Political Economy of Railways in British India : 1850-1900". Artha Vijnana, Dec. vol.xx. No.4, p.372-377; (viii) Rao, M.A. (1975): Indian Railways, p.15; (ix) Iyer, Subramania (1909): Some economic aspects of British rule in India: p.262; (x) Connell, A.K. (1885): "Indian Railways and Indian wheat", (Read before the Statistical Society 19th May 1885) published in Journal of Statistical Society, XL, VII.

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11. McAlpin, Michalle Burge (1974) : op.cit., p.683.

12. Ibid., pp.674-5.
13. Ibid., pp.675-6.
14. John Hurd II (1975) : "Railways and the Expansion of Markets in India: 1861-1921" Explorations in Economic History, Vol.12, No.13, July, pp.263-288.
15. McAlpin op.cit., p.681. As an example of the inadequacy of the transport network to move grain, she examines the effects of the Famine of 1876-78 in parts of Madras Presidency. Although the Rayalaseema districts of Cuddapah, Bellary and Kurnool were endowed with rail transport, as early as in 1871, when the Famine struck in 1876-78, the districts registered huge losses of population. The losses between 1871 and 1881 Censuses were -- Cuddapah: 2030,156(17%), Kurnool : 235, 881(20%), Bellary 185,430(20%) and Ananthapur : 141, 366 (19%).
16. McAlpin (1974) : op.cit., pp.667-9.
17. McAlpin, Michelle Burge (1975) : "Railroads, Cultivation Patterns and Foodgrain Availability: India 1860-1920", Indian Economic and Social History Review, vol.xii, No.1. Jan-March, pp.43-60.
18. M.B.McAlpin (1975) : op.cit., p.48. Actually in Foodgrain areas, McAlpin combined both the Cereals and pulses/grams. True , there are some definite problems posed by the way the data are made available in the official publications. But these are not insurmountable problems. One can, with some adjustments, separately show the areas under Cereals and pulses/grams. Such an exercise would further reduce the share of foodgrains (Cereals alone) in the total cropped area we have tried to do so for the Cuddapah district in the ensuing analysis.

19. Rao, G.N., op.cit., pp.392-95.
20. M.B.McAlpin (1974) : op.cit., p.684.
21. Iyer, Subramanya (1903) : op.cit., p.262.
22. Banerjee, Tara Sankar (1966): "Internal Market of India: 1834-1900", pp.104-5.
23. John Hurd II (1975) : op.cit., pp.265-75.
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CHAPTER 2

THE AGRARIAN CONDITIONS IN THE CUDDAPAH

DISTRICT, 1800-1870

An attempt is made in this chapter to provide a bird's-eye-view of the agrarian conditions of the Cuddapah district during the first six decades of the 19th century. For reasons which would be made clear soon, this chapter is divided into two main Sections corresponding to two sub-periods viz., 1800 -- 1850 and 1850-1870. It has been argued that agriculture in the district remained by and large stagnant, for a number of reasons, during the first sub-period i.e., 1800 to 1850. During the next two decades it has been argued that agriculture started expanding subject, of course, to the prevalent constraints of the economy. Let us analyse the first sub-period.

SECTION 12.0 STAGNATION IN AGRICULTURE, 1800 - 1850.

In this section it is proposed to describe and analyse the salient features of the stagnation that prevailed in agriculture in the Cuddapah district during the first half of the 19th century. After a brief description of the concepts of stagnation and subsistence, issues concerning tax burden, coercion on the farmers and depression in the agricultural prices have been taken up for a closer scrutiny and analysis. It has been argued that although product market was somewhat activated, credit and land markets lagged behind. At the close of the section, factors that had slowed down the cotton cultivation in the district have been analysed.

2.1 (i) STAGNATION - THE CONCEPT

The word stagnation normally denotes a set of static conditions in agriculture as reflected either in cropped acreage, production, yield or a combination of all the three factors. Over time, if the area cropped does not change or if the production is constant, agricultural stagnation sets in. This, of course, implicitly assumes constancy in yield rate. However, with an unchanging cropped area, if the yield rate declines then production

would fall and vice versa. Stagnation in agriculture could prevail either at a higher or at a lower level of production. Thus, it is not necessarily a concomitant feature of the subsistence or semi-subsistence conditions of agriculture. This leads us to a discussion on the concept of subsistence agriculture.

(ii) SUBSISTENCE AGRICULTURE - THE CONCEPT

The term subsistence agriculture usually implies a set of agrarian conditions which are devoid of dynamism and a prime mover, wherein agriculture is carried on by the cultivators primarily for their sheer survival. Under such circumstances, product, land, labour and credit markets virtually play no role in the functioning of the agrarian economy. With a low level of monetization and underdeveloped markets, it exhibits a monotonous regularity in the reproduction of stagnant or near stagnant agricultural conditions. However, in the real world cases of such 'pure' subsistence i.e., total absence of market transactions, are rather rare. Even in ancient agricultural settlements, there were some market transactions either for cloth, iron or salt under a barter system. The concept of subsistence agriculture as used in this exercise does not refer to the 'pure' category. In the specific case of agriculture in Cuddapah during the first half of the 19th

century, there were market transactions in foodgrains, cash crops like indigo, cotton, sugar, etc. To pay the land revenue farmers had to sell their produce in the market. In other words, there was some market for agricultural commodities and livestock products. But a 'market' for land and labour was relatively underdeveloped or almost non-existent. There were, of course, credit transactions. In other words, the four markets were at different levels of development. We may characterise such an agriculture as a non-pure type of subsistence or semi-subsistence. The word semi-subsistence is used for the simple reason that agricultural surpluses large enough to generate a dynamism in breaking the shackles of stagnation were absent during this period. For reasons which would be discussed shortly, agrarian conditions were self-perpetuating, enabling the peasantry to eke out their living at subsistence levels. This, of course, is not to say that the peasantry was an undifferentiated mass of cultivators. However, in Cuddapah only the small farmers constituted the predominant section of the agricultural community. Being vulnerable to the vicissitudes of an uncertain rainfall, poor harvests and a predatory colonial regime bent on squeezing any potential surpluses in the form of assessments on lands for nearly half a century, the peasantry in general did not see the light at the end of a dark tunnel for a long time. It is in this restricted sense that

the term subsistence in agriculture is used here. To characterise the Cuddapah agriculture as being stagnant and semi-subsistent we need to have data on the cropped acreage, yield rates and production. But in a historical study of this nature such data are hard to come by. Hence, we have to make do with the circumstantial evidence on agriculture.

(iii) THE AVAILABLE DATA

The Ceded Districts -- Cuddapah, Kurnool and Bellary -- came under the possession of the East India Company around 1800. The region was then supposed to have been "surveyed" under the Ryotwari Settlement. However, till almost the middle of the 19th century no systematic attempts were made to collect information on a continuous basis on the agrarian conditions of the region. As a matter of fact, reliable data on "cropped" area are not available in the Madras Presidency till as late as 1877-78. From 1850 to 1877, we do have information on areas "assessed" as wet, dry and occasionally garden lands. But these data are only indicative of the areas under these three broad categories. Occasionally, we get information on "assessed" areas under different crops, paying certain assessment or land revenue to the government. Since the primary object of the government, then being collection of assessments, the extent of

"assessed" areas became their principal concern. These "assessed" areas included not only the extent of land actually cultivated under these crops but also the waste lands. In other words, assessed areas were much larger in extent than the cropped areas. Hence, for the period under consideration i.e., 1800-50, we have to depend upon information other than cropped areas to describe and analyse the stagnant and semi-subsistent agricultural conditions of the Cuddapah district.

2.2 A FRAMEWORK FOR ANALYSIS

Soil types coupled with the behaviour of weather impose certain agronomic constraints on the crop-choice in the semi-arid areas. They restrict the kinds of crops which can be raised, and influence the crop cycles, yields and composition of agricultural output etc. At a time when transportation is underdeveloped and irrigation potentials not fully exploited, farmers face the problem of raising food, fodder and cash crops in most parts of the region. As a result, crop specialisation in accordance with the prevailing agronomic conditions might not reach the optimal levels. For, in the absence of an efficient transportation system mobility of goods from one place to the other becomes difficult or expensive, leaving the farmers no choice but to diversify their cropping pattern to the extent made possible by agronomic conditions and prevailing cultivation

technique and thereby meet their consumption market from their own produce.

A general rise in agricultural prices, provision of cheaper, speedier and more efficient transportation, irrigation, expanding agricultural markets and relatively more activated land, labour and credit markets might inject forces of dynamism in the stagnant and/or semi-subsistent agriculture. How far such a transition to the level of a full fledged commercialisation in agriculture had taken place in Cuddapah is a broader question which is beyond the scope of the present exercise. As stated earlier, in this chapter an attempt has been made only to trace the stagnant and semi-subsistent agrarian conditions from 1800 to 1850 and the slow transition that occurred in the next two decades.

2.3 CUDDAPAH DISTRICT

In the Cuddapah district soils fall into two main categories viz., regar and red ferruginous. Regar or black cotton soils predominate in the north and western parts of the district. The areas of Jammalamadugu, Proddatur, Yevraguntla, Pulivendla and Tadapatri are endowed with black cotton soils which are retentive of moisture and when wet, exceedingly miry and tenacious. They are exceptionally suitable for cotton and jowar(cholum)

crops. Next in importance are the alluvial soils. Loams predominate a great deal especially in Cuddapah and Pulivendla taluks. Such land becomes all the more valuable if it is under well-irrigation. The red soils in the Jammalamadugu taluka are almost entirely confined to the villages on and about the Gandikota range of hills. They are mostly shallow soils and of a poor quality. In the Proddatur and Cuddapah taluks also red soils predominate.² Soils are of poor quality in the taluks of Rayachoti and Kadiri, especially in the latter. By and large, land is more suitable for cotton cultivation in the western and northern portions of the district. As one moves east and south-eastwards the regar lands taper off and these red and sandy soils predominate. Cuddapah district is located in the semi-arid zone of the Deccan where rainfall is always precarious and uncertain. Reliable data on rainfall for this period are hard to come by. But if qualitative information on famines and droughts is any indication farmers in this region faced problems of risk and uncertainty in the realisation of their crop-yield. Two major factors that left their mark on agriculture in the district during the first half of the nineteenth century were, (i) heavy taxation on the cultivators under the Ryotwari system and (ii) depression in the agricultural prices during the second quarter of the nineteenth century.

2.4 TAX BURDEN UNDER THE RYOTWARI SETTLEMENTS

The districts of Cuddapah, Bellary and Kurnool covering an area of 26,592 square miles were ceded by the Nizam of Hyderabad to the East India Company on 12th Oct. 1800. On the eve of this transfer, conditions were very disturbed in the region³. Political anarchy, heavy assessments on lands and ruthless methods used by the Amildars (Revenue Collectors) in collecting the assessments, imposition of unauthorised fines on the cultivators etc., had unsettled the agricultural conditions and the peasantry, often times, abandoned their villages leading to crop losses.

Thomas Munro, the Principal Collector of the Ceded Districts and an ardent champion of Ryotwari Settlement undertook a survey of the region in 1802, which lasted for four years. Between 1800 and 1807 the first Ryotwari or Kulwar Settlement was in operation in the region. Under this settlement the dues of each individual ryot were fixed and directly collected by the officers of the government without any intermediary agency. The revenue to be paid in cash varied from $\frac{2}{5}$ to $\frac{3}{5}$ of the gross produce. Between 1800 and 1807 the average annual collection of land revenue in the Cuddapah District worked out to Rs.21.99 lakhs, an amount which Munro himself considered to be too

high in view of the impoverished conditions of the farmers.⁴ It was all the more significant to note that this heavy assessment was imposed on the cultivators when the region was passing through a period of droughts and famines.⁵ Munro himself appeared to have realized the prevalence of subsistence conditions in agriculture of the region. For, according to his own admission, the countryside (Ceded Districts) was thinly populated, and the few towns that existed had little trade, large tracts of cultivable lands were left uncultivated and the poorer classes of cultivators were not attached to any village as they were in the habit of wandering from village to village looking for better tenures. The ryots were generally so poor that it was always doubtful whether next year they would be in the ranks of the cultivators or become labourers. "Few of them were so rich not to be liable to be forced by one or two bad seasons to throw up a considerable part of their farm land. Many of the Middling class of ryots often failed from the most trifling accidents. The loss of a bullock or of a member of the family who worked in the fields frequently disabled them from paying their usual revenue in the ensuing year. The poorer ryots who paid about one-fifths of the whole land revenue seldom paid the full assessment of the lands which they acquired"⁶. According to Munro many of the patels (village headman) could not cultivate their own farms without Tucavi (monetary advance from the government) and few had the means to help

others.

The subsistence nature of nearly four-fifths of the cultivators of the region was strikingly evident to Thomas Munro himself, the architect of the Ryotwari Settlement.⁷ However, although he was aware of these facts Munro imposed heavy taxation during the first decade of the nineteenth century to meet the revenue demands of the East India Company.

2.5. COERCION ON THE FARMERS

Another repressive measure of the Ryotwari system was the practice to compel the ryot to occupy as much land and impose a proportionately high land revenue on him. Thus, the farmer in addition to lands for which he showed preference, had to cultivate lands assigned to him by the revenue officials. This type of extension of cultivation was not voluntary but coercive. Munro confessed that "if every restraint upon their inclinations was removed, they would probably throw up one-fourth of all the lands in cultivation"⁸ (emphasis added).

2.6. A BREAK IN THE RYOTWARI SETTLEMENTS

From 1807 to 1810, in the absence of Munro, who returned to England, a Triennial Land Settlement / lease was tried in the district. Between 1811 and 1820, a Decennial lease was in operation. From 1821 onwards a

full fledged new Ryotwari Settlement came into being. This was very much facilitated by the return of Munro to the Madras Presidency. Both under the Triennial and Decennial settlements or leases the burden of land revenue was found to be much heavier than before. Table 2.1 gives the particulars of land revenue collected in the Cuddapah district during the first three decades of the nineteenth century.

Table 2.1. Modes of Settlement and Land Revenue in the Cuddapah District

Mode of Settlement	Years		Number of years	Average annual collections (Rs. in lakhs)
	From	To		
Ryotwari settlement	1800	1807	8	21.99
Triennial settlement	1808	1810	3	25.01
Decennial settlement	1811	1820	10	22.85
Ryotwari settlement	1821	1822	2	21.46
Ryotwari settlement	1823	1830	8	18.82

Source: Nilmani Mukherjee, op.cit., Appendix, p.375.

The general unprofitability of agriculture under the Ryotwari Settlement was amply testified by Munro himself when he stated in 1806 that no remission that could be granted consistently with the preservation of revenue would render all lands immediately saleable According to

him even a remission of 50% would not raise the land values all at once. "He was inclined to think that a remission of 20% upon the survey assessment would probably render all lands salable in the course of 20 years"⁹ (emphasis added).

2.7. DEPRESSION IN AGRICULTURAL PRICES

The second factor that left a major impact on the agriculture in larger portions of British India was the depression in the agricultural prices from mid 1820's to the early 1850's. Thus, for about a quarter century the cultivator in these regions had to bear the burden of heavy assessments when his produce was getting lower prices in the markets.

In the accompanying table (2.2), data on Trienniums of average prices of cholam and cotton along with the index numbers have been presented. Barring the (Guntur) famine period of 1832-34, agricultural prices were by and large in a depressed state from about 1826 to 1852. Such a depression in prices for a quarter century should have accentuated the problems of the farmers. The cultivators were forced to sell more of their produce to meet land revenue demand during this regime of low prices, which left little surplus for re-investment and agrarian expansion.

Table 2.2. Prices of Cholum and Cotton in the Cuddapah District, 1811-1867; (1808-1810: Base Cholum 112=100; cotton 67=100)

Triennium	Average Prices and Indices for three years				Remarks on Season and prices
	Cholum		Cotton		
	Price per garce of 9860 lbs. (Rs)	Index num- bers	Price per Candy of 500 lbs. (Rs)	Index num- bers	
1811-13	174	155	66	98	
1814-16	131	117	67	100	
1817-19	147	131	74	109	
1820-22	145	129	69	102	
1823-25	236	210	59	87	
1826-28	108	96	45	67	
1829-31	99	88	N.A.	N.A.	1826-1852:- period of depression in agricul- tural prices
1832-34*	176	157	N.A.	N.A.	
1835-37	109	97	72	107	
1838-40	127	113	N.A.	N.A.	
1841-43	82	73	N.A.	N.A.	
1844-46	108	96	44	65	
1847-49	104	93	44	65	
1850-52	100	89	55	82	
1853-55	167	112	60	89	
1856-58	158	141	70	104	
1859-61	178	159	72	107	Deficient rain- fall and cotton boom.
1862-64	260	232	N.A.	N.A.	
1865-67	308	275	N.A.	N.A.	

Source : E. Computed from price data given
in J.D.B. Gribble, op.cit. pp.315-16.

* Famine Period.

2.8 AGRARIAN CONDITIONS OF CUDDAPAH

(i) STAGNANT AGRICULTURE

According to the available qualitative information, there did not occur an extension of agriculture in the Cuddapah District during the first two decades of the 19th century. That the Company artificially kept up the area

under cultivation at a high level with its coercive policies was amply proved when these administrative rigidities were removed from 1820's. Both the area and output declined as farmers were permitted to retain only that much agricultural land which they could cultivate with their resources (farm hands, livestock, capital etc.). Under the new Ryotwari system a remission of 25% was granted on the land assessments. This was an encouraging feature which at least in the early 1820's created the possibility of land acquiring the character of property. But unfortunately, as stated earlier, from mid 1820's till the early 1850's, cultivators were put to hardship by a severe depression in the agricultural prices. Thus, a destabilising factor was built into the system which came in the way of extension of agriculture.

(ii) PRODUCT, CREDIT AND LAND MARKETS

The Ryotwari system with all its defects appeared to have somewhat activated the product markets -- especially the grain markets. However, creation of individual pattas of holdings and consequently elements of private property in occupancy and "ownership" of lands loosened the ties of the individual cultivator with the village communities. Earlier, when the entire village community was responsible for payment of land revenues, specific problems of individual

cultivators could have been looked after collectively by the village community. But with the advent of the Ryotwari system and the creation of national "Private property" in land holdings, the individual farmer facing specific problems, had to fend for himself.

"Under the village lease system, the village community to some extent could control the price of grain by holding its stock of foodgrain till the prices were sufficiently high. The villages could afford to tide their time with mutual help during the period of waiting. But under the Ryotwari system, the average farmer, to meet the pressing demand of the Sarkar, had to dispose of the produce of his land at any price, however unfavourable. He was not in a position to wait long enough for the grain market to develop high prices, nor could he borrow, since the interest charged for the period of time could easily more than wipe out any price advantage gained through holding stock. This sometimes caused glut in the grain market and extreme cheapness of grain which in its turn impoverished the ryots who all the same had to pay high revenue for money assessment to the government".¹⁰

As for the operations of the rural credit markets, the available evidence demonstrated that a large number of farmers were in the merchants' grip. The Collector of the

Cuddapah District brought this alarming fact to the notice of the Board of Revenue in 1830; "The Ryots are more in the hands of the merchants than you are perhaps prepared to hear... The number who are able to pay their rents without any pecuniary assistance in handling 1/3 of the whole. The practice of borrowing has rather increased than diminished under our sway"¹¹.

A few years later, Victor Jacquemont, a French traveller, who visited the area was surprised to see that in a country which was supposed to be an El Dorado, the vast majority of population had heavy liabilities rather than assets and entered life, lived and died in a state of indebtedness. Indigenous capital employed in usurious transactions in mid-nineteenth century was believed to be more than three times as much as that invested in trade.¹²

As for a land market, it was more or less absent in the district for many decades in the last century. High burden of taxation, depression in agricultural prices, slow growth of population, large tracts of culturable wastes, high land-man ratio, shortage of labour, low levels of capital formation, in a sense general unprofitability of agriculture had slowed down the emergence of an activated land market in the region.

2.9 COTTON CULTIVATION TILL MID-NINETEENTH CENTURY

At the beginning of the nineteenth century, Cuddapah, Bellary, Tinnevely and Coimbatore were the major cotton growing district in the Madras Presidency. There were also other districts where the crop was raised as a minor crop. Reliable statistics on the cotton acreage was not collected by the East India Company in the early decades. But the available qualitative information indicates that farmers in Ceded districts of Cuddapah, Kurnool and Bellary which were endowed with black cotton and red soils raised cotton as one of the major cash crops.¹³ It was stated that although an estimated 12 lakh acres were available for cotton cultivation, the crop was raised only in about 1,63,260 acres. The crop grown in the Ceded districts was considered to be fairly good, that of Cuddapah taken as the best in the country.¹⁴

In 1803, Thomas Munro sent a Commercial Resident of the Company to Cuddapah to assess the cotton cultivation there. The Commercial Resident observed that in the district about 1,29,755 maunds (25 lbs.each) of cotton was grown every year. In 1806, Munro estimated that the production was between 217,700 and 2,27,570 maunds. According to yet another estimate, the production rose to 5,93,580 maunds by 1819.¹⁵

The variety of cotton grown in the Ceded districts especially Bellary and Kurnool was known as "Westerns" which was a late variety sown from June to October and yielded a crop in about eight or nine months. This variety was usually raised as pure crop on deep, moisture-retaining black loamy soils. It was a strong and long staple of $3/4$ - $7/8$ inches. "Westerns" was sub-divided into "Western proper" and "Northernns". The former was mostly grown in the Bellary and Kurnool districts and the latter in the Cuddapah district.¹⁶ In the Cuddapah district, cotton was mostly grown in the regar (Regada) or black cotton soil found in the Western parts where the soil was very tenacious of moisture. The crop required less amount of rainfall. Cotton seeds were sown about a foot apart from each other in regular rows and frequently horsegram was also sown between the plants.¹⁷ A shower before and another after six weeks of planting was enough to bring the crop to maturity. A heavy rainfall although made the cotton plant look luxuriant diminished the outturn.¹⁸ The first ploughing was done when the plants grew to a height of 8 or 12 inches and the second one was performed after weeding. Manure was not applied to the crop except when it was cultivated with jowar (cholum), which was remunerative. Cotton in the district flowered four months after the sowing i.e., during January and

February.¹⁹ Weeding was done when the plants attained a height of 8 or 12 inches. Raw cotton was picked up four times during the months of March and April. Among the four pickings, the first and the fourth were less yielding than the second and the third.²⁰

Shortage of labour appeared to have affected the quality of raw cotton. As both the picking and packing were carelessly carried out cotton gathered dirt. "The bad cleaning of cotton was due to the smallness of the population as there was not sufficient labour available to pick and clean the pods at the harvest, before the leaves get dried into inseparable from the fibre".²¹ (emphasis added).

The average yield per acre in the Cuddapah district was about eight maunds which produced 200 lbs. or 50 lbs. of ginned cotton. According to one estimate between 1806 and 1819 the average price of cotton in the district rose from about Rs.71 to Rs.100 per candy of 500 lbs.²² However, in the early decades of the century as demand for cotton was not growing fast enough, cotton-acreage did not register a significant growth.

Attempts were made by the East India Company to encourage cotton cultivation in the region. In 1819,

the company decided to offer Rs.91 per candy (of 500 lbs.) for a certain quality of cleaned cotton from the Ceded districts. Cotton from this region was in great demand in China, though it was unfit for the European market. The Company issued gold medals and chains as rewards to those who brought the best variety of cotton. They had set up an experimental farm in the region in which the results were found to be satisfactory. However, the Company's efforts to popularise Whitney's saw gin did not bear fruit. Import duties in England for the Indian cotton were also reduced from 6 percent ad Valorem to 4 percent.²³

In addition to the above, specific measures were taken in the Ceded districts to reduce the tax burden on the cotton growers by granting a general remission of 25 per cent on the land assessment from 1820 onwards. In spite of these steps cotton area expanded only at a slow pace. Although there were more than a million acres fit for cotton cultivation in the Ceded districts, by the mid-nineteenth century cotton occupied only 2,14,000 acres or one-fifth of this area.

2.10. CAUSES FOR THE SLOW GROWTH IN THE COTTON ACREAGE

There were a number of factors contributing to the slow growth of cotton acreage in the Ceded districts in general and Cuddapah in particular. The subsistence farmer's constraints in crop choice, heavy tax burden, small

size of holdings, lack of resources, uncertain rainfall, high cost of cultivation and general unprofitability of the crop were some of the major reasons for the slow growth of cotton.

(i) CROP CHOICE

As stated earlier, during the period under consideration, conditions of subsistence agriculture prevailed in the district. As the rainfall was uncertain, farmers in general faced the problem of ensuring food for their families and fodder for their cattle. This was especially so in the case of small farmers who by and large cultivated less-fertile red ferruginous lands. Even large cultivators did not appear to be free from this problem. Munro himself testified to the inability of even the more substantial ryots to raise cotton without a succession of other crops and the constraints faced by the poorer ryots. According to Nilmani Mukherjee, "The ryots could not afford to grow cotton without first raising foodgrains for themselves and hay for their cattle. After having attended to the cultivation of foodgrains and hay, they were hardly left with means enough to cultivate anything else"²⁴.

The extension of cotton area was also limited by the necessity of mixed cropping. Not only cotton could not but be raised along with foodgrains but also it could not be repeated every year in succession for cotton

exhausted the soil. And in exceptional cases when the substantial farmers raised it as a pure crop, they could do so only once in three years for " a crop of cotton must be followed by two of the grains"²⁵. Further, as a pure crop, cotton could be raised only once in a year whereas two or three crops of dry grains and oilseeds could be grown. And they yielded higher profits than cotton.

In 1807, Col. Munro stated that in the Ceded districts where black cotton soil was conspicuous, a reduction of 25 per cent in the land assessment would result in an increase of a million or a million and quarter acres under cotton in the space of 10 or 15 years. On the eve of the new Ryotwari Settlement in 1820, the Commercial Resident in the region also expressed a similar view. However, cotton area did not make much headway in the early decades.

Although there was a general reduction of 25 per cent in the land assessment in the 1820's, cotton cultivation could not pick up a momentum for, even the reduced assessments were found to be high enough ⁱⁿ discouraging its cultivation. The real burden of the reduced assessments continued to be heavy due to the prevalence of depression in agriculture prices. As Table 2.2. indicates the general depression in prices kept the cotton prices low for three

decades from mid-1820's onwards.

Munro himself admitted that assessments in the Ceded districts were so high that only the better class of farmers could pay the full revenue in ordinary seasons. Over the years even these "better class of farmers" appeared to have been ruined by the high land assessments. According to the Collector of Cuddapah, "the principal farmers were reduced to poor and dispirited bankrupts and the ryots were driven from the high assessed fields (black cotton soils) to the inferior and low assessed ones. There was no relief when the crop was deficient and this increased the agricultural indebtedness of the ryots".²⁶

(ii) SMALL SIZE OF HOLDINGS

Another factor that came in the way of extension of cotton area was the small size of the holdings in the region. There were very few big landholders in the Cuddapah district confined to the black-cotton country. More than 70 per cent of the holdings were assessed at less than Rs.10, and those paying Rs.150 did not exceed 3 per cent. Thus, a vast majority of the ryots operated only small holdings.

The horizon of these small cultivators in a subsistence setup was understandably limited to their next harvest. As they possessed only meagre capital, they

were vulnerable during the times of shortages, droughts and famines which were not infrequent in the region.

"The occurrence of famines or series of bad harvests paralysed agriculture... In seasons when rain failed the crops also failed and they found themselves face to face with starvation. Since the yield was low even in good years due to the methods of agriculture followed, the ryots could not tide over the bad years with the surplus of good. As it was, he had no means of mitigating adverse conditions, and in a series of bad years many a small ryot got into indebtedness. Both big as well as small ryot borrowed money from the merchant at a distant town for the purposes of buying cattle and for the unproductive expenditure like marriage".²⁷

(iii) UNPROFITABILITY OF COTTON CULTIVATION

Besides the factors mentioned above the general unprofitability of cotton cultivation appeared to have slowed down its expansion. Collectors of various districts had conducted surveys on cotton during the first half of the 19th century. Barring a few exceptions, cotton culture according to these surveys was found to be unprofitable. "Only ryots who were comparatively rich and who could stand the loss of a year's crop cultivated cotton to a great

extent"²⁸. Cultivation of cotton in black soil also required more labour and more stock than other kinds of soil for this very reason. "The large plough which could seldom be drawn by a yoke of less than twelve bullocks had to be periodically employed to clean it of "Nuth" or (a kind of grass) which grew in the black soil".²⁹

(iv) CONDITIONS OF TRANSPORT

Above all, the conditions of transportation of the raw cotton to the distant markets like Madras left much to be desired during the first half of the nineteenth century. The construction of roads received hardly any attention during this period. In 1854, there were only two roads in existence viz. (i) a road connecting Cuddapah with Madras and (ii) another road connecting Arcot with Cuddapah. With the exception of these roads, the district was practically devoid of communications. Also the conditions of the existing roads were deplorable. Under these circumstances, there prevailed high transport costs. The Collector of the neighbouring district of Kurnool observed: "The great bulkiness of cotton was compared with value was the sole obstacle to its increased production. The cost of transport to Madras was high and the price which the trade could afford to pay to the

producers was low... The capacity of a bandy (bullock cart) was only one-third of a tonne. Thus, about ninety rupees or £9 per tonne of the price obtainable at Madras had to be deducted as the transport cost".³⁰

Besides the small size of holdings, unprofitability of cotton cultivation and poor transport facilities, the depression in agricultural prices was another reason that slowed down the expansion of cotton cultivation. While the depression in foodgrain prices prevailed from 1826 to 1852, cotton prices were depressed for a few more years on either end i.e., from 1823 to 1855 (Table 2.2 given in the earlier section). This had considerably slowed down the expansion of cotton cultivation.

SECTION 2

2.11. TRANSITION IN AGRICULTURE IN CUDDAPAH, 1850-1870

(i) INTRODUCTION

In this section it is proposed to discuss factors which affected the agrarian expansion in the Cuddapah district during the two decades ending 1870 - a period preceding the construction of the railways in the region. Starting with an account of the assessed area in 1850, it proceeds to analyse the agrarian expansion in the district.

Agrarian expansion has been viewed vis-a-vis prices, population, rainfall, irrigation, land assessment and road transport. A brief account of the growth of cash crops like cotton and indigo has also been added.

(ii) ASSESSED AREA IN 1850

In Table 2.3. taluk-wise data on population, land revenue, extent of lands assessed, number of pattas and average size of land holdings are furnished for the year 1850. As the three taluks of Cumbum, Coilguntla and Markapur were transferred from the Kurnool district, to make the data comparable over the years we have excluded the data of these taluks from Table 2.3. As per the Quinquennial Censuses of the Madras Presidency, Cuddapah district (excluding the three taluks) had a population of 10.65 lakhs in 1850. About 87 per cent of the total assessed land was classified as dry, the remaining accounting for the wet and garden lands. There were about 1.13 lakhs pattas with an average size of 8.72 acres. Land revenue per acre of assessed land varied from a minimum of Re.1.00 in the Pulivendla taluk to a maximum of Rs.4.05 in the Chitwail taluk. The average assessment for the district was Rs. 1.70 per acre. More alarming was the land assessment per head. In a district which was sparsely populated it was Rs.2.00 or above in the Jammalamadugu, Dovoora and Kamalapur taluks. The average land revenue per head for the district was Rs.1.57.

Table 2.3. Population, Land Revenue and Assessed Area in Cuddapah District, 1850

Taluks	Popula- tion	Land Revenue (Rs)		Extent of assessed land (Acres)				No. of pat- tas	Size of average holdings per patta (Acres)	Land Revenue per Acre	
		Total	Per Head	Wet and garden Extent	per- cent in total	Dry Land Extent	per- cent in total				Total
1. Jammalamadugu	89,275	188,274	2.11	7,751	6.37	113,950	93.63	121,701	8215	14.91	1.55
2. Doovoor	82,438	164,626	2.00	6,831	7.79	80,825	92.21	87,656	8162	10.74	1.88
3. Chitwail	112,590	172,838	1.54	17,668	41.43	24,980	58.57	42,648	13069	3.28	4.05
4. Sidhout	59,172	112,150	1.90	9,832	35.00	18,265	65.00	28,097	8121	3.46	3.99
5. Chennur	82,301	113,340	1.38	8,519	16.58	42,849	83.42	51,368	8025	6.40	2.21
6. Kamalpur	57,866	134,909	2.33	8,180	10.90	66,895	89.10	75,075	6332	11.86	1.80
7. Gurramconda	127,187	143,199	1.13	12,530	15.23	69,757	84.77	82,287	13285	6.19	1.74
8. Madanapally	101,678	151,845	1.49	17,224	16.23	88,913	83.77	106,137	8012	13.25	1.43
9. Pulivendla	172,216	241,233	1.40	18,605	7.77	220,741	92.23	239,346	15894	15.06	1.00
10. Rayachoty	110,142	141,309	1.28	12,661	10.75	105,100	89.25	117,761	15292	7.70	1.20
11. Budwail	70,072	108,029	1.54	9,136	16.30	46,917	83.70	56,053	8628	6.50	1.93
Total	10,64,937	16,71,752	1.57	1,28,937	13.08	8,56,710	86.92	9,85,647	1,12,975	8.72	1.70

Source: A Gazetteer of Southern India, Madras, 1855, p.121.

Note: Data on three taluks viz., Coilaguntla, Cumbum and Markapur are excluded from this table, as they were merged with the Kurnool district in late 1857-58.

(iii) CROPPING PATTERN

Table 2.4 gives an idea on the broad contours of cropping pattern in the district for the fifties and sixties. Between 1858/59 and 1870/71 for which comparable data are available, one can find evidence for an agrarian expansion. The apparent sudden rise in the wet area in the year 1865-66 is slightly misleading for in the official records they appeared to have merged wet and garden lands from the mid-sixties. In any case, there was a slow but a steady growth in the assessed areas in the district.

From Table 2.5, where data on actual cultivation (i.e., cropped area) are presented, the evidence for agrarian expansion is unambiguous. Total cropped area in the district increased from 9.76 lakh acres in 1859/60 to 12.62 lakh acres by 1870/71, an increase of 29.3 percent in 12 years. It is also interesting to see that areas classified as "Wastes" decreased nearly half, from 92,000 acres in 1859/60 to 47,000 acres in 1870/71. (Tables 2.5 and 2.6). How does one explain this agrarian expansion ?

As stated earlier, land assessment especially on wet and garden continued to be oppressive, although over the years, one notices a decrease in the average rates per acre (Table 2.4) . Part of this decrease is attributable

Table 2.4. Particulars of Assessed Lands in the Cuddapah District, 1852/53 -- 1870/71

Year	(Area in thousand acres)						
	Dry	Wet	Gar- den	Total	Assessments per acre (Rs.)		
					Dry	Wet	Garden
1852-53	1158	81	52	1291	1.04	9.50	8.02
1853-54	1057	65	51	1173	1.08	9.74	8.03
1854-55	1099	76	53	1228	1.07	9.63	8.01
1855-56	1117	71	54	1242	1.06	9.78	8.03
1856-57	1156	87	53	1296	1.03	9.72	8.11
*1857-58	1139	72	56	1267	1.06	9.87	8.12
1858-59	904(98)	73	43	1028(98)	1.00	9.43	8.71
1859-60	945(102)	79	44	1068(102)	0.98	9.30	8.70
1860-61	963(104)	78	45	1086(104)	0.78	7.11	6.15
1861-62	985(107)	78	45	1108(105)	0.77	7.11	6.16
1862-63	1042(113)	84	46	1172(112)	0.75	7.05	6.27
1863-64	1091(118)	79	47	1217(116)	0.74	7.13	6.26
1864-65	1106(120)	83	47	1236(118)	0.74	7.15	6.23
1865-66	1109(120)	139	--	1248(119)	0.74	6.77	--
1866-67	1122(121)	134	--	1256(120)	0.73	6.80	--
1867-68	1155(125)	117	--	1272(121)	0.72	6.97	--
1868-69	1170(127)	129	--	1299(124)	0.70	6.86	--
1869-70	1196(129)	99	--	1295(124)	0.75	6.98	--
1870-71	1202(130)	107	--	1309(125)	0.75	6.93	--

Source: J.D.B.Gribble, *op.cit.*, p.312

Note: (i) Figures in brackets indicate indices with the average of the years 1858 and 1859 as base.

(ii) Data for the years 1852-53 to 1856-57 include particulars for the three taluks of Cumbum, Coilaguntla and Markapur.

* Three taluks of Cumbum, Coilaguntla and Markapur were transferred to the Kurnool district in 1857-58. Hence, the apparent decline in the cultivated areas.

Table 2.5. Particulars of Actual Cultivation, Wastes and per acre Assessment in Cuddapah District, 1859/60 -- 1870/71

(in 000's)

Year	Actual cultivation		Waste Charged		Total land assessed	
	Extent	Per acre assessment	Extent	Per acre assessment	Extent	Per acre assessment
	(Acres)	(Rs)	(Acres)	(Rs)	(Acres)	(Rs.)
1859-60	976	1.99	92	1.12	1068	1.91
1860-61	1032	1.49	54	0.83	1086	1.46
1861-62	1052	1.46	56	0.95	1108	1.43
1862-63	1130	1.43	42	1.01	1172	1.42
1863-64	1171	1.38	46	0.88	1217	1.36
1864-65	1191	1.40	45	0.74	1236	1.38
1865-66	1171	1.46	77	0.66	1248	1.41
1866-67	1192	1.41	64	0.81	1256	1.38
1867-68	1218	1.33	54	0.69	1279	1.30
1868-69	1245	1.34	54	0.70	1299	1.31
1869-70	1243	1.24	52	0.74	1295	1.22
1870-71	1262	1.26	47	1.04	1309	1.25

Source: J.D.B. Gribble, op.cit., p.313

Table 2.6. Shares of Cultivated Land and Wastes in the Total Land Assessed in Cuddapah District.

Y e a r	Total land assessed (Acres)	Cultivated land as % in total assessed land	Wastes charged as % in total assessed land
1859-60	1068	91.4	8.6
1860-61	1086	95.0	5.0
1861-62	1108	94.9	5.2
1862-63	1172	96.4	3.6
1863-64	1217	96.2	3.8
1864-65	1236	96.3	3.7
1865-66	1248	93.8	6.2
1866-67	1256	94.9	5.1
1867-68	1277	95.8	4.2
1868-69	1299	95.8	4.2
1869-70	1295	96.0	4.0
1870-71	1309	96.4	3.6

Source: J.D.B.Gribble., op.cit., p.313

to the fact that with the availability of cultivable wastes, less fertile lands were brought under the plough. As the assessments were lighter on these soils the average rate of assessment per acre must have been brought down.

In any case, notwithstanding an inadequate rainfall, and high land assessment, some agrarian expansion had taken place in the district. Incentives for such an expansion were provided by the rising trend in agricultural prices.

As stated earlier, there was a depression in the agricultural prices till 1852/53. But in the fifties and sixties especially in the later decade, prices of foodgrains as also cash crops like cotton showed an upward trend.

Table 2.7 provides information on the behaviour of the foodgrain prices between 1853/54 and 1869/70. Compared to the average price of 10 years prior to 1853/54, foodgrain prices showed a remarkable rise in the later period. This rise was more marked in the 1860's. 1866 was a year of famine (called the Great Famine of Orissa) which affected parts of Madras Presidency as well. Hence, prices registered a sharp rise in that year. Barring the last year, prices generally showed an upward trend in the sixties.

Table 2.7. Prices of Foodgrains in Rupees per Garce and Rainfall in the Cuddapah District

Years	Paddy		Cho- lum (Rs)	Cum- boo (Rs)	Ragi (Rs)	Horse- gram (Rs)	Rainfall (inches)
	1st sort (Rs)	2nd sort (Rs)					
Average for 10 years prior to 1853	91	83	102	99	94	105	
1853-54	111	102	154	150	135	183	13.91
1854-55	132	120	168	155	143	216	26.30
1855-56	151	137	178	172	162	181	33.73
1856-57	128	117	132	128	123	147	32.90
1857-58	136	126	157	153	146	162	76.70
1858-59	175	156	186	181	175	220	20.20
1859-60	167	149	197	190	186	211	28.10
1860-61	184	166	218	210	207	226	18.70
1861-62	202	176	236	205	199	224	11.16
1862-63	220	198	225	212	199	220	10.88
1863-64	231	207	274	241	239	268	15.83
1864-65	256	232	283	265	255	313	15.88
1865-66	258	231	302	291	278	321	13.92
1866-67	314	275	355	323	329	432	24.95
1867-68	256	229	267	261	248	251	15.01
1868-69	233	202	219	207	199	227	19.15
1869-70	215	192	184	182	169	215	28.75

Source: Proceedings of Board of Revenue, 1st April, 1874, p.2339.

(iv) AREA AND PRICES

Table 2.8 furnishes data on area and price indices for the period 1858/59 to 1869/70. Indices have been formed only for the period 1858/59 onwards as there were boundary changes of the district in the preceding year affecting the extent of assessed areas. By and large, except for the last couple of years in the sixties, the lagged price indices and area indices are found to be moving together.

Table 2.8 Index Numbers of the Assessed Area, Prices of Paddy, Cholum and Cumbu in Cuddapah District (Base: Average of 1858/59 & 1859/60)

Years	Area indices		Price indices			
	Dry	Total	Paddy		Cholum	Cumbu
			1st sort	2nd sort		
1858-59	98	98	102	102	97	97
1859-60	102	102	98	97	103	102
1860-61	104	104	107	109	114	113
1861-62	107	105	118	115	123	110
1862-63	113	112	128	130	117	114
1863-64	118	116	135	136	143	130
1864-65	120	118	149	152	148	143
1865-66	120	119	150	151	158	157
1866-67	121	120	183	180	185	174
1867-68	125	121	149	150	131	141
1868-69	127	124	136	132	114	111
1869-70	129	124	125	126	96	98

Source: Table 2.3 and 2.6

Note : Index of wet area could not be formed because from 1865/66 onwards areas under wet and garden were clubbed in the official statistics. Paddy was a wet crop and Cholum and Cumbu dry.

In other words, market prices could at least partly during the late fifties and sixties of the 19th century. Thus, the agricultural economy of the district which we described as semi-subsistence till mid-19th century was slowly getting geared to the price incentives offered by the product markets. The high pitched land assessment might have injected elements strengthening the linkage between cultivation of crops and the product

markets. However, at least in the sixties when prices of cash crops -- especially that of cotton -- increased, expansion of cultivated area tended to be voluntary. In any case the point that is sought to be made here is that the calm waters of agricultural stagnation were stirred and cultivation was slowly becoming market oriented in the post-1850 period. This was especially marked in the sixties.

(v) GROWTH OF POPULATION

As per trends of population in the Cuddapah district there are problems of comparison between 1850 and the later times. Prior to 1871, there were quinquennial censuses in the Madras Presidency. One has to take the quinquennial data with a pinch of salt for they seem to be under estimates of the actual population figures. Secondly, as far as Cuddapah is concerned, the changes in the boundaries and realignment of the taluks make the comparison of talukwise population figures difficult.

In 1850, according to the quinquennial census the population of Cuddapah (taking only 11 out of the 14 taluks) was about 10.65 lakhs. Taking this figure at its face value, we find the per head ^{assessed} area to be 0.93 acres. In 1866/67 the population of the district was about 10.45 lakhs. In that year the assessed acreage was 12.56 lakh

acres and the actual area under crops was at 11.92 lakh acres. Thus, while per head assessed area in 1866/67 was 1.10 acres, per head cropped area was 1.04 acres. In 1871 (as per the first decennial census), the population of Cuddapah stood at 13.51 lakhs with an assessed area of 13.09 lakh acres and actual cropped area at 12.62 lakh acres. Per head assessed areas and cropped areas were 0.97 and 0.93 acres respectively. (See tables 2.9 and 2.10)

Table 2.9. Population in Cuddapah District

T a l u k s	Population as per		Incre- ase bet- ween 1866/67 & 1871	Per- cent- age incr- ease
	Quinquenn- ial returns of 1866/67	The Census of 1871		
1. Cuddapah	146,566	163,013	16,447	11.2
2. Voilpaudu	128,093	145,591	17,498	13.7
3. Pullampet	114,796	145,180	30,384	26.5
4. Kadiri	116,119	140,948	24,829	21.4
5. Madanapalli	113,511	135,468	21,957	19.3
6. Rayachoty	105,186	128,162	22,976	21.8
7. Jammalamadugu	97,324	109,965	12,641	13.0
8. Pulivendla	95,512	110,405	14,893	15.6
9. Proddatur	85,486	102,744	17,258	20.2
10. Budwail	75,224	93,051	17,827	23.7
11. Sidhout	66,942	76,667	9,725	14.5
District total	11,44,759	13,51,194	2,06,435	18.0

Table 2.10 Population, Assessed and Cropped Areas in the Cuddapah District

Year	Popula- tion in lakhs	Total assessed area in lakhs of acres	Total cropped area in lakhs of acres	Assessed area per head	Crop- ped area per head
1850	10.64	9.86	--	0.94	--
1866/67	11.45	12.56	11.92	1.10	1.04
1870/71	13.51	13.09	12.62	0.97	0.93

Sources for Table 2.9 and 2.10 (i) A Gazetteer of Southern India p.121.

(ii) J.D.B.Gribble op.cit., pp.30 and 312.

Between 1850 and 1866/67 population of Cuddapah was supposed to have increased only by 81,000. But between the quinquennial census of 1866/67 and the first decennial census of 1871, it was supposed to have increased by over 2 lakhs, or 18 per cent in 5 years at an annual rate of 3.6 percent -- an incredible growth rate. One tends to suspect that the quinquennial censuses had underestimated the populations of the districts. Granted that there was some under estimation, in 1860's population appeared to have registered an increase. More than population rise which has to be taken with some reservations, the important point to note here is that both assessed and cropped areas increased - the former by 53,000 acres and the latter by 70,000 acres between 1866/67 and 1870/71. That there was

a rise in the population and cropped area seems to be an inescapable fact.

2.12. RAIN FALL

About 87 per cent of the total assessed lands in the district were classified as dry. They heavily depended on rainfall. Hence, in the Cuddapah district, cropping pattern and crop cycles were invariably linked with the behaviour of the weather. Over the years farmers evolved crop systems which were in consonance with the rainfall and other components of weather.

Table 2.11 gives information on the distribution and quantum of rainfall from June to December and September to December, periods in which both the South-West and North-East monsoon tended to be active. Between June and August there was an annual average rainfall of 8.84" in the district during a period of 18 years ending 1870/71, while the averages for the period September to December and annual rainfall were 12.53" and 22.83" respectively. Thus, Cuddapah district received on average about 39 per cent of the rainfall during the period June to August and 54 per cent between September and December during the period under consideration.

Only in 7 out of 18 years, the district received rainfall above the averages of the periods, June to August

Table 2.11. Rainfall in the Cuddapah District(in inches)

Y e a r	June to August		Sept.to Dec.		Annual rainfall	
	quantum of rain fall	Differences between the average and quantum	quan- tum of rain fall	Diff- erenc- es between average and quan- tum	quan- tum of rain fall	Differ- ence between the ave- rages annual
1853-54	7.97	-0.91	4.90	-7.43	13.91	-8.92
1854-55	8.40	-0.44	15.13	+2.80	26.30	+3.47
1855-56	15.83	+6.99	12.00	-0.33	33.73	+11.90
1856-57	10.80	+1.96	14.80	+2.47	32.90	+10.07
1857-58	24.00	+15.16	44.70	+32.37	76.70	+53.87
1858-59	1.60	- 7.24	17.20	+4.87	20.20	- 2.63
1859-60	11.90	+ 3.06	13.90	+1.57	28.10	+ 5.27
1860-61	6.74	- 2.10	11.21	-1.12	18.70	- 4.13
1861-62	4.26	- 4.58	4.35	-7.98	11.16	-11.67
1862-63	4.23	- 4.61	4.43	-7.90	10.88	-11.95
1863-64	6.11	- 2.73	9.72	-2.61	15.83	- 7.00
1864-65	9.00	+ 0.16	6.41	-5.92	15.88	- 6.95
1865-66	8.60	- 0.24	4.52	-7.81	13.92	- 8.91
1866-67	8.17	- 0.67	15.45	+3.12	24.31	+ 1.48
1867-68	6.84	- 2.00	7.54	-4.79	16.77	- 6.06
1868-69	10.61	- 1.77	5.98	-6.35	17.08	- 5.75
1869-70	14.18	+ 5.34	11.63	-0.70	24.43	+ 1.60
1870-71	14.02	+ 5.18	18.09	+5.76	34.39	+11.76

Average : + 7 years 8.84" - 11 years Average: + 7 years 12.33" - 11 years Average:+8yrs. 22.23" -10yrs.

- Source: (i) For the period 1853/54 to 1858/59: PBR, 27th Sept. 1861, pp.557-66
(ii) For the period 1859/60 to 1863/64: PBR, monthly volumes
(iii) For the period 1864/65 to 1869/70: District Administration Reports (Various issues)
(iv) For the year 1870/71: C. Benson, A Statistical Atlas of the Madras Presidency, 1908, p.282.

and September to December. In 10 out of the 18 years rainfall fell short of the overall annual average during this period.

2.13. CROPS AND CROP CYCLES

(i) CROPPING PRACTICES

Wet, dry and garden formed the classifications of lands on which data were made available in the official records of the Madras Presidency till the late 1870's. The wet crops or crops grown upon lands classified as wet were paddy, indigo, betel and sugarcane. Paddy was grown on arenaceous series of soils, regar soils suited indigo and sugarcane was raised both on regar and red soils.

Crops:-

The fine sorts of paddy were sown in June and July. They were a six month's crop. Paddy of the coarser variety was sown in January and harvested in a period of 4 months.

Rainfall was absolutely essential for the first or June crop of paddy. Tanks or the reservoirs had to be well filled for this crop to be raised. To bring the crop to maturity a shower was required in September. For the second crop of paddy the October rains had to fill the tanks.

"Indigo was raised on wet lands only when there is not water sufficient for a second crop of paddy. It replaces the second crop. It remains in the ground, if the rainfall continues deficient in a year; the leaves being stripped from the plants after the first three, and after every subsequent two months. If, however, the South-east monsoon is abundant; the stems are uprooted after two leaf pickings, and a crop of fine paddy is put down. Indigo grows well in loam, but prefers regar soils".³¹

Assured irrigation was essential for betel. Hence, betel was grown mostly under well irrigation. It was generally kept on the ground for seven years. The crop required heavy manuring. Clay regar and rich red soils were suited best for the crop.

Sugarcane was also grown on clay regar and red soils, but it could also be grown on loams. Like betel, sugarcane also required assured irrigation. The crop matured in 11 months.

Cholum, cotton, gingelly, lamp oilseed as also indigo were grown on rich regar soils as dry crops. Thus indigo was grown both on wet and dry lands. Millets like ragi, variga and cumbu and grams were grown on less fertile dry lands such as mixed and sandy red soils.

"Cholum is sown in July when the soil is damp after rain, and is a four-months crop. It requires to be refreshed by showers every now and then. Cotton is sown in the same months, and is in the ground seven months. The pods are picked in the third, fifth and seven months,... Gingelly bears its seeds in ten weeks, and is sown in June. Lamp oilseeds are also sown in June. The crop requires six months. Linseed is sown in June. It is a three months crop. Gram and Dholls, Cumboo, raggy, tinny and variga, are three to four months crops, and are laid down in June and July. All the dry crops require passing showers and at least one good soaking... When the grain is formed and begins to ripen, moisture is no longer necessary".³²

As regard rotation of the crops although there was no established system, farmers took care not to strain the resources of the soil. Crops like cotton, indigo and sugar come which exhausted the soil were always followed either by cholum (Jowar), Cumbu or ragi. Another practice followed by the farmers in the semi-arid zone was to let the land fallow to replenish its resources.

"Ryots will take land, cultivate and exhaust it in two or three years, and then throw it up for five or six. The lands they retain they will sometimes allow to

lie fallow for a year after cotton ;
 and they always give it a year's rest after two
 or three crops of cholum have been harvested from it.
 They never suffer wet land to lie fallow".³³

In the Cuddapah district manuring of lands, was well understood and followed by the farmers. While farm-yard manure was applied to the dry soils, freshly cut leaves and indigo vats were used for the wet lands.

(ii) IRRIGATION

As for irrigation, both its utility and practice were linked to the soil types prevalent in different taluks of the district. For instance, in the three taluks of Jammalamadugu, Proddatur, and Pulivendla, as also in a portion of Cuddapah taluk where the black cotton soils were conspicuous, irrigation was hardly practiced. Cultivation of dry crops like cholum, cotton and the like which were mostly dependent on the moisture retained in the black cotton soils was found to be more profitable. On the other hand, in the taluks of Pullampet, Badvel, Sidhout, and a portion of Cuddapah, where the soil was a mixture of black cotton and a lighter variety, irrigation was practiced both under the tanks and wells. Tanks were to be found in strings, one below the other, the first

being small and the rest increasing in size as they were constructed down the catchment basin. There were altogether 3679 tanks in the sub-division (consisting of 4 taluks with an area of 3574 Sq.miles) of which 1981 irrigated less than 10 acres, 1451 between 10 and 70 acres and only 247 above 70 acres.

As digging of a well was an expensive proposition, the cost varying from Rs.100 to 800, only rich farmers could go in for it. In the absence of irrigation canals and an uncertain rainfall leaving tank irrigation less assured, wells acted as the main bulwarks against the shortages and famines. Understandably, the small and subsistence farmers had less protection from well-irrigation.

Wherever irrigation was more assured, paddy and indigo were found to be remunerative crops by the farmers. Reliable data on gross or net revenue on these crops are, of course, not available. But the following account by the Acting Collector of Cuddapah gives some idea on this aspect.

"In the immediate vicinity of the towns of Cuddapah two-crop paddy land of an ordinary quality is looked upon as yielding a clear profit of from 100 to 150 rupees a year, and cholam cultivation on black soil is not much

less remunerative. Indigo cultivated on red soil will give a clear 100 rupees an acre. The profits on cotton vary with the prices, but they have been magnificent and are likely to be so again if a rise in price which is now taking place is maintained."³⁵ (emphasis in the original). As we would see shortly, this account appears to be either an exaggeration or more relevant to the area around the town of Cuddapah only.

(iii) ASSESSMENTS ON LANDS

In the earlier section we had an occasion to touch upon the aspects of per acre assessment on lands assessed by the revenue authorities. If we go by the figures over the years the average assessment per acre appeared to have showed a declining trend. It is true that compared to the period of depression (1825/26-1852/53), the burden of land assessments in the post-depression period was comparatively lighter. But the 'average' assessment for the district conceals more than it reveals the oppressive nature of land assessments in areas endowed with relatively better soils or with certain irrigation sources. As more than 40 percent of the lands in Cuddapah were of the worst quality the assessments on these lands were comparatively lighter. But on lands other than this category, the tax was really heavy. Hence, 'average' land assessment is a poor

indication of the burden of taxation on the cultivators. For instance, the assessments on wet lands in the district was particularly oppressive, the maximum rate shooting up to Rs.39.38 per acre. The revenue officials themselves at times felt outraged at such high rates of assessments. For instance, A . Wedderburn, Collector of Cuddapah district expressed his astonishment in no uncertain terms. He observed:

"With reference to the above maximum Nunjah(wet) rate, Rupees 39-6-0, I confess, I know of no cultivation which can pay on such terms. There is an acre or so of land on the top of the Gundikota Hill, where yams are grown, and this assessment is charged, but when a wet assessment reaches rupees 20 per acre, there is no profit to the proprietor who lets his land; in other words, there is no rent. The proprietor letting the land on the usual terms of half the gross produce and paying the rent, is in the same position as if he bought his own produce in the bazar. Rupees 12 as a maximum and Rs.3 as the minimum of wet assessments with the rates varying by Re.1, the average being rupees 7½ is a fair wet assessment. Rupees 10 for the dry land is very high and can scarcely be paid except under exceptional circumstances",³⁶ (emphasis added).

Continuing his criticism on high assessments on dry and garden lands Wedderburn Commented:

"The highest dry crops, Jonna (Cholum or Jowar) and cotton are cultivated on land generally within Rupees 3 per acre. Garden assessment is a mistake, for it is a taxation on a well dug by the proprietor and not an assessment on the intrinsic quality of the land. To give an instance, in the village of Calasamudram in Kadiri taluk, the highest dry rate of the village is 4 annas (25 paise) and the charge on dry land irrigated by a well at the proprietor's expense was rupees 19-7-2. Of course, the land is a waste".(!)³⁷

Also, the number of assessment rates was staggeringly high. They were theoretically supposed to have been arrived at on the basis of the quality of lands. But in practice, anomalies were galore. Two adjacent fields of equal quality and raising the same crop were assessed differentially -- one assessed 100 per cent higher than the other. The following table gives an account of number and rates of land assessments in Cuddapah.

In the Coastal districts of Krishna and Godavari, assessments on lands with assured canal irrigation did not exceed Rs.4/- per acre. These lands were taxed "as if they were dry". But in the Ceded districts in general and

Table 2.12. Land Assessments in Cuddapah 1860

Description of Land	Number of Assessments	Rates of Assessments					
		Highest		Lowest		Average	
		Rs.	A	P	Rs.	A	P
Punjah (Dry)	148	10	5	0	0	7	0
Nunjah (Wet)	196	39	6	0	0	9	0
Garden	173	31	1	10	0	8	9

Source: A.Weddenburn, op.cit.,

Note : In the old denominations of Currency, 12 pies made one anna and 16 annas made one rupee.

Cuddapah in particular, (As table 2.12 indicates) the average rate of assessment was as high as Rs.10/- per acre. Similarly, assessments on garden lands in Cuddapah were much higher than in the Coastal Andhra.

G.Vans Agnew, the Collector of Cuddapah, in a letter to the Ag.Secretary to the Board of Revenue, passionately pleaded for a reduction in the assessments. The Collector stated:

"In my opinion nothing higher than the average dry rate of the village should be imposed on such (dry crops cultivated on so-called irrigable land) cultivation. I have seen an instance in the Voilpaud tallok where the highest dry rate was Rupees 6, and the people positively

refused to cultivate dry crops on the waste wet ayacut at a higher assessment than one rupee... For the best plan, in my opinion, would be to leave the imposition of an appropriate rate to the unfettered discretion of the Collector. There would then be some speedy prospect of getting under cultivation all these waste wet ayacuts that have, by our cruel system, so long has been rendered absolutely profitless".³⁸ (for the word 'all' emphasis in the original and for the word 'cruel' emphasis added)

Vans Agnew referred to another evil of the revenue system in the Cuddapah district, which he called "incredible cruelty".

"Another almost incredible cruelty in the Cuddapah revenue system is the practice of invariably charging full wet rates, however small, the quality may be of Government water, with wet cultivation may be commenced, and notwithstanding that in reality, the crop has been brought to maturity by water supplied, after the Government tank has run dry, from ryots' own private wells"³⁹ (emphasis added)

As stated earlier the highest wet rates in Cuddapah ran upto Rs.39 per acre and in some villages the lowest wet rate was Rupees 9. The latter is, the lowest wet rate was one rupee higher than the highest wet rate on the best and

most regularly irrigated land under the Cavery in Trichinapally. Vans Agnew stated, "At present our wretched ryots are liable to pay three or four times as much for an insufficiency of water as those of other districts pay for a sufficiency".⁴⁰

That inspite of such taxation, there was some agrarian expansion points out to the fact that in the post-depression period -- especially the late fifties and early sixties -- the rising prices of agricultural commodities, especially those of the cash crops like cotton and indigo, coupled with the growth of population induced some dynamism in the Cuddapah agriculture. In otherwords, agrarian expansion could have been faster and more striking, if the assessments on land were lighter in the region.

2.14 ROAD TRANSPORT IN CUDDAPAH

In the sixties efforts were made to take stock of the conditions of road transport and extend the network in the Cuddapah district. Around 1865, there were about 300 miles of road in the district which formed the main lines of communication.⁴¹

The trunk road number 11, passed through Gookhoroo, Rayachoty and Pulair. There was a 36 miles road from Cuddapah to Chagalamurry. Between Cuddapah and Reddypally

yet another road of 40 miles length facilitated great traffic in the cotton trade from Bellary. However, the road was in a bad shape between Cuddapah and Ontimitta. Between Ontimitta and Reddypally the road was serviceable only in the month of October. The road from Cuddapah to the Bellary frontier for a length of 50 miles was very inconvenient to the bullock carts (bandies) to travel as it was too much raised in the centre, too narrow and the slopes too straight. The road from Cuddapah to Sidhout, a distance of 12 miles, was only partly done by the prisoners. As they had to be mobilised for the railway construction the road remained incomplete in the early sixties.

There were instances in which, the villagers themselves came forward to share the cost of road-making. For instance, the construction of a road from Cuddapah to Vempally was started with a subscription of Rs.1000/- by the villagers, with a matching grant from the government.

A large portion of the laying of the road between Rayachoty and Sanepally was completed. The construction of a road between the Condapuram railway station and Gundla was commenced, so was the road from the Yerraguntla railway station to Proddatur, a distance of 8 miles. The road from Cuddapah to the foot of Goorlacheru ghat required

gravelling in places. The road between Cuddapah and Rayachoty was in an excellent condition. The road from Rayachoty to Kadiri was yet to be completed, although the portion in the Kadiri taluk was ready. There was a road from Peelair to Madanapalli via Voilpaud. It was a part of a road reaching Bangalore. The road from Madanapalli to Kadiri and on to the Bellary frontier was well kept.

Along with the road construction, laying of a railway line diagonally passing through the Cuddapah district from the south-east to the north-east was also underway in 1860s. Although the construction of the railway line in the district was complete by 1868, the entire line between Bombay and Madras passing through the district was finished only by about 1870-71. With this background in view, let us have a look at the performance of cotton cultivation.

2.15 COTTON IN MADRAS PRESIDENCY

The available data in the cotton in the Madras Presidency indicates that its acreage was near stagnant at 9 lakh acres till 1857/58. It was only from 1858/59 onwards, that the cotton acreage started expanding. The acreage for 1860s stood at 14.6 lakh acres.

Dividing the period of 19 years between 1852/53 to 1870/71 into 4 sub-periods, we notice that the area

expanded progressively over these sub-periods.

Table 2.13. Cotton Area and Exports in the Madras Presidency

Period	Average cotton area (Lakh acres)	Exports of cotton (in 000' Tonnes)
1852-53 to 1855/56	8.90	11.67
1856/57 to 1860/61	10.10	27.80
1861/62 to 1865/66	12.68	37.40
1866/67 to 1870/71	14.74	24.40

Source: PBR 18th July, 1876, No.1840, p.6308.

(P.S : For details see Appendix 2A)

2.16 COTTON AREA IN CUDDAPAH

Data on cotton acreage of the Cuddapah district for the fifties are not comparable as three taluks of Cumbum, Coilaguntla and Markapur were transferred from Cuddapah to the neighbouring district of Kurnool in the year 1857-58. The average cotton acreage for the three years 1858 - 59 to 1860-61 in Cuddapah was 28,000 acres. While in the first half of the sixties, the cotton area was 69,000 acres, in the second half of the decade it declined to 60,000 acres. As it happened at the Presidency,

in the district also, the first half of the sixties exhibited an increase in the cotton acreage in response to the cotton boom. With a figure of 1.10 lakh acres, the year 1863-64 witnessed the maximum expansion of cotton acreage in the district, accounting for a little over 10 per cent of the total dry land assessed or nearly 9.4 percent of the total cropped area in the district (Table 2.14).

(i) AREA AND PRODUCTION - TALUKWISE

Talukwise data on cotton cultivation in the Cuddapah district, were not furnished in the official records on a continuous basis, we get such information only occasionally. One such instance was the year 1863-64. When particulars of cotton area and outturn were made available in the Proceedings of Board of Revenue (Table 2.15).

According to the concerned Settlement or Jamabundy Report, about 1.13 lakhs acres were under cotton in the 11 taluks of the district with an outturn of 2.16 lakh maunds or 24.5 lakh tonnes of cleaned cotton. Of these, Jammalamedugu was the major cotton growing taluk, accounting for a little over 46 per cent of the area in the district. The other two important taluks were Proddatur, with 15 percent, and Pulivendla with nearly 12 percent of the total cotton area in the district. Together, these

Table 2.14 Cotton Area in the Cuddapah District

Years	Cotton area (000's of acres)	Cotton area as percentage in		
		Dry land assessed	Total land assessed	Total cro- pped land
1852-53	87	7.51	6.74	-
53-54	68	6.43	5.80	-
54-55	75	6.82	6.11	-
55-56	66	5.91	5.31	-
56-57	75	6.49	5.79	-
57-58	64	5.62	5.05	-
58-59	37	4.09	3.60	-
59-60	33	3.49	3.09	3.38
60-61	25	2.60	2.30	2.42
61-62	26	2.64	2.35	2.47
62-63	44	4.22	3.75	3.89
63-64	110	10.08	9.04	9.39
64-65	98	8.86	7.93	8.23
65-66	69	6.22	5.53	5.89
66-67	60	5.35	4.78	5.03
67-68	59	5.11	4.64	4.84
68-69	34	2.91	2.62	2.73
69-70	83	6.94	6.41	6.78
70-71	64	5.32	4.88	5.07

Source: (i) For the period 1852-53 to 1859-60, J.D.B. Gribble Op.cit.,

(ii) For the remaining period, Settlement and Administration Reports of the Madras Presidency.

Note: Three taluks of Cuddapah District, viz., Cumbum, Coilaguntla and Markapur were transferred to the Kunnool district in the year 1857-58.

Table 2.15. Cotton Cultivation in the Cuddapah District, 1863 - 64

Taluk	Area under cotton		Quantity of Production in Maunds of 25 lbs.each.	Average yield per acre (lbs.)
	Extent (acres)	% in Total		
Badwail	6567	5.82	13,134	50
Proddatur	17017	15.09	31,034	46
Siddhout	4131	3.66	2,262	14
Pullampet	196	0.17	392	50
Jammalamadugu	52326	46.42	1,04,652	50
Pulivendla	13244	11.75	26,488	50
Rayachoty	661	0.59	1,322	50
Kadiri	8720	7.74	17,440	50
Voilpaud	193	0.17	386	50
Madanapally	1643	1.46	3,286	50
District total	112733	100.00	2,16,466	48

Source: PBR 5th Dec. 1864, Settlement (Jamabandy) Report, p.7432-33.

P.S. : There is a discrepancy in the total area under cotton as reported in this source and the one given in the Administration Reports where it was mentioned as 110,000 acres. Such minor discrepancies between the Settlement and Administration Reports are too numerous.

three taluks accounted for 73 percent of the area and 75 percent of the cotton production in the district. In the estimation of outturn, an average of 48 lbs. per acre was taken as the yield. In the Proddatur and Sidhout taluks, the average yields taken were 46 and 14 lbs. per acre respectively. Cotton area was quite insignificant in the taluks of Sidhout, Pullampet, Rayachoty, Voilpau and Madanapally.

2.17. INDIGO AND SUGARCANE IN CUDDAPAH

Besides cotton, the other important cash crops grown traditionally in the district were indigo and to a lesser extent sugarcane. Between 1858-59 and 1870-71, while the area under Indigo fluctuated, that of sugarcane showed a downward trend (Table 2.16). It is significant to note that the average per acre assessments of these crops were pitched high. As noted earlier, indigo was grown on lands classified as both wet and dry. But by and large it was a crop grown mostly on wet lands when water was found to be inadequate to raise a second crop paddy.

In the Cuddapah district, traditionally indigo was a crop which was more important than cotton. Technology used was simple, the crop was profitable and there was a continuous demand for the product for quite sometime.

Table 2.16 Indigo and Sugarcane in Cuddapah District
(Area in 000's acres)

Y e a r s	Indigo		Sugarcane	
	Area	Average per acre assess- ment (Rs)	Area	Average per acre assess- ment. (Rs)
1851-52	36	4.48	5	9.64
52-53	40	4.33	6	9.64
53-54	27	5.34	6	9.74
54-55	50	2.21	8	7.71
55-56	34	4.38	6	7.21
56-57	44	4.40	3	9.65
57-58	49	4.07	4	8.18
58-59	36	3.96	4	6.90
59-60	27	4.48	3	7.90
60-61	30	4.14	3	6.58
61-62	36	3.68	2	7.20
62-63	40	3.32	2	6.78
63-64	26	4.70	3	6.29
64-65	15	4.78	3	6.23
65-66	27	2.74	3	7.35
66-67	12	4.11	2	7.66
67-68	16	5.10	2	7.77
68-69	41	2.80	2	7.77
69-70	65	2.84	2	7.59
1970-71	51	4.09	2	7.53

Source: J.D.B. Gribble Op.Cit., p.312

As stated earlier, three taluks of Cuddapah, viz., Cumbum, Coilaguntla and Markapur were transferred to the Kurnool district.

Besides, unlike cotton indigo did not exhaust the land for the leaves of indigo were found to be a good manure for the land. But constraints of water availability and

a high rate of assessment kept the indigo area at a lower level.

Sugarcane involved high production costs besides on assured water supply. Only in the taluks of Madanapally and Voilpaul, it was raised by a few rich farmers.

2.18. CONCLUSIONS

We have characterised the agrarian conditions in Cuddapah during the first half of the 19th century as stagnant and devoid^{of} a dynamism. The oppressive system of land revenue under the Ryotwari Settlement coupled with coercion on the cultivators to cultivate lands beyond their means was aimed at squeezing a maximum amount of surplus from the agricultural sector. While remissions on land revenue were made around 1820, the depression in agricultural prices that lasted till early 1850's had nullified its favourable effect as the real burden of taxation continued unabated. The relief to the cultivators came only with the removal of coercion used on the cultivators to compel them to cultivate land beyond their means. Agriculture in the district being largely small farmer oriented, the fluctuations in the rainfall which were natural to any semi-arid zone accentuated their problems. With the termination of depression in agricultural prices in the early fifties and the subsequent rise in prices, coupled with the growth of population, the

district overcame the disincentives provided by the continuing tax burden, especially on more fertile lands. Yet, agrarian expansion was slow and specialisation of crops less intense. Absence of an adequate transport system came in the way of facilitating trade with distant markets. This transport bottleneck was sought to be removed with the construction of railways by the end of sixties. Performance of agriculture during the last three decades of the 19th century is the subject matter for analysis in the ensuing chapter.



Appendix 2.A. Area Under Cotton and Exports from the
Madras Presidency.

(Average of 1852-53 to 1853-54:947=100)
(Acres in 000's)

Year	Area (Acres)	Index Numbers	Exports of Cotton in 000 Tonnes
1852-53	983	103	N.A.
53-54	911	96	14
54-55	868	91	12
55-56	798	84	9
56-57	938	99	24
57-58	932	98	25
58-59	1042	110	17
59-60	1077	114	37
60-61	1061	112	36
61-62	1020	107	39
62-63	1309	138	28
63-64	1766	186	33
64-65	1748	184	33
65-66	1396	147	54
66-67	1317	139	11
67-68	1487	157	21
68-69	1341	142	40
69-70	1758	186	31
70-71	1467	155	19

Source: Proceedings of Board of Revenue,
18th July 1876, No.1840, p.6308.

For Exports of raw cotton: Report on the
Administration of the Madras Presidency,
1863-64 and 1870-71.

NOTES AND REFERENCES

1. Cuddapah District had 14 taluks till 1857/58. They were Jammalamadugu, Doovoor, Chitwail, Sidhout, Chennur, Kamalapur, Gurramconda, Madanapally, Pulivendla, Rayachoty, Budwail, Coilgoontla, Cumbum and Doopaud. In 1857/58, the last three taluks were merged with the neighbouring district of Kurnool. Between 1860 and 1900, there were only changes in the names of the taluks. During this period, the following were the taluks: Jammalamadugu, Proddatur, Budwail, Pulivendla, Cuddapah, Sidhout, Kadiri, Rayachoty, Pullampet, Madanapalli, Voilpaud. By late 1860s, a railway line was laid down which connected Bombay and Madras passing through the four taluks of the Cuddapah District viz., Pallampet, Sidhout, Cuddapah, Proddatur and Jammalamadugu. Except the last, the other taluks were in the valley of Penniar river.

In the statistical Atlas of the Madras Presidency, the Cuddapah soils have been divided into three parts viz., regoda (black) lal (red) and masab (mixed). The first two are sub-divided into clay, loamy and sandy. The following table shows the extent of these soils according to the statement of the scheme reports:

Soil type	Share in total land (%)
1. Exceptional series	1.32
2. Black clay	18.63
3. Black loam	6.37
4. Red clay	1.22
5. Red loam	22.00
6. Red sand	42.01
7. Masab or mixed	8.45
Total	100.00

Source: A Statistical Atlas of the Madras Presidency, 1908, p.263.

Black clay was considered to be an excellent soil but it constituted less than one-fifth of the total classified area of the then Cuddapah District. So, was the red clay (a little over 1 percent), found scattered in the eastern section and parts of Pulivendla. Black clay was found mainly in the northern section. Red loam was obtainable in all the taluks of the district, but mostly in the wet lands of the sub-division taluks, as also in the taluks of Cuddapah, Proddatur, Badvel and Pullampet. The worst soil was the red sand which occupied as high as 42 percent of the total classified area of the district. The net surplus on dry lands of this category was very little. As a rule, they were taken up in one year and abandoned the next. One bad season would make cultivators of these lands feel the pinch of distress.

2. The following details on soils in the different taluks of the Cuddapah district have been culled out from J.D.B. Gribble, A Manual of the District of Cuddapah of the Presidency of Madras, 1875, pp.37-55.

- Jammalamadugu:- The whole of the taluk may be included in the black cotton soil. The quality of the soil varies from excellent to ordinary.
- Sidhout:- In this taluk, the land is either sandy or black.
- Cuddapah:- This taluk is beyond the limits of the black cotton soils. The soil here is alluvial, but it is not fertile. However, availability of water for irrigation renders the soil more productive than what it would otherwise have been.
- Pulivendla:- The soils of this taluk are of three varieties, black, red and sandy. About three-fourths of the total available land comes under the first category, although the quality of the cotton soils varies greatly over different parts, from a rich loam of great depth to a mixed and stony variety.

- Pullampet:- Here black regar and red soils predominate. Black regar land in the taluk is rich and fertile. Cheyyar valley which was part of the Chitwail Kingdom is most fertile and Productive.
- Rayachoty:- Although the soils are of different kinds, red soil is most predominant here. There is no black cotton soil in this taluk.
- Kadiri:- The soil is very poor being chiefly coarse and mixed with granite or soda. Regar and black soils are found in patches here and there.

3. Assessments of lands were raised to the unbearable limits. Ill paid horsemen were set on the farmers to collect the inevitable revenue arrears. These plundering revenue collectors drove away many of the farmers from the villages. Not only there was no regular Kist bundy or payment of revenue by instalment, the Amildars (revenue collectors) were mindlessly pressing for the payment of land revenue even before the season of harvest. In 1800, Thomas Munro, the Principal Collector of the Ceded districts found the region in "a state of political and economic decomposition". The region was handed over to the Management of the Board of Revenue in April 1801. For details on this and the subsequent period, see Nilmani Mukherjee, The Ryotwari System in Madras, 1792-1827, 1962.
4. In a letter dated 5th Sept. 1802 to Cockburn, his friend, Munro regretted that for the sake of "assisting the public want of money" he had to press the ryots more than he ought to have done.
5. From 1802 the region suffered from famines.

6. Nilmani Mukherjee, op.cit., pp.25-6
7. According to Munro, the following were the proportions of different strata of cultivators and the land revenue they paid at about 1800 in Ceded Districts:

R y o t s	Proportion in	
	Population (%)	Land Revenue (%)
First, or better sort of ryots	20	35
Second, or middling sort of ryots	45	45
Third, or Poorer sort of ryots	35	20
	----- 100	----- 100

According to Munro, nearly 46 percent of the gross produce of the Middle level farmers was paid to the Government in the form of land revenue. Of the remaining 54% of the gross produce, as much as 40% was accounted for by the cultivation expenses, thus leaving only about 14% of the gross produce as surplus. Coupled with the sale of the poultry and dairy farm products and the yarn spun by farmer's wife, a middle level farmer was just able to make ends meet. He was not supposed to save anything but merely to have enough after paying his revenue to maintain his family and keep up his agricultural stock. As for the petty or poor ryots, either they did not have enough, or had barely enough for subsistence.

8. Munro's Report dated 25th August, 1805. Board's consultations 26, Sept. 1805, Vol. 416, p. 7086 cited in Nilmani Mukherjee op.cit., p. 181.

9. Ibid, In the course of the Decennial Settlement, where people were left to make their own arrangements with the renters, the survey then was, in general, abandoned. As compared to the immediately preceding period, when such facility did not exist, an universal reduction of the sums took place in the district. In a way it was an ample testimony of the excessiveness of Munro's initial assessments in the district.
10. Nilmani Mukherjee op.cit., p.312 . According to Mukherjee, the high assessments caused great suffering to the cultivators. Capital formation in agriculture was at a very low level. Indebtedness showed no signs of decreasing, and wages remained low.
11. General Reports, Vol.46-49, Cited in A.Sarada Raju, Economic Conditions in the Madras Presidency, 1800-1850, p.136.
12. Ibid,
13. Ibid, Indigo was the other major cash crop in the district which was perhaps more important than cotton. The fine variety of indigo grown in Cuddapah was greatly in demand in Europe. According to Col.Munro, in 1807, the exports of indigo from both Bellary and Cuddapah districts amounted to Rs.4,37,500 while in 1853 the value of indigo exported from Cuddapah alone was well over Rs.13,75,000. See Sarada Raju, op.cit.,p.80.
14. Sardar Raju op.cit.,p.88
15. J.D.B. Gribble, A Manual of Cuddapah District,pp.201-4.

16. Earnest Goulding (1917) Cotton and other vegetable Fibres. Their production and utilisation. Imperial Institute handbook, W. London.
17. Wheeler op.cit., pp.243-49.
18. J.D.B. Gribble op.cit. pp.201-4
19. Wheeler op.cit., pp.243-9
20. J.D.B. Gribble op.cit., pp.201-4.
21. Ibid,
22. Ibid,
23. Sardar Raju, op.cit., pp.75-101.
24. Nilmani Mukherjee, op.cit., pp.267-68.
25. J.D.B. Gribble op.cit. pp.239-41.
26. Cited in Sardar Raju op.cit., pp.49-51.

27. C.F.Brackenbury (1915) Madras District Gazetteer:
Govt.Press, Madras, pp.89-91.
28. J.D.B. Gribble op.cit., p.198
29. C.F.Brackenbury op.cit., p.125.
30. Ibid,
31. Sardar Raju, op.cit., pp.88-91. Sardar Raju also referred to Munros' statement which revealed that one of the factors which limited the increase in cultivation of cotton was that in black cotton soils it was more expensive due to the growth of a kind of grass called "Nuth", whose costs of weeding were high.
32. Nilmani Mukherjee op.cit.pp.269-73.
33. Wheeler op.cit.,p.243.
34. Letter from J.R.Cockwell, Ag.Collector of Cuddapah to R.A.Dalyell, Ag.Secretary to the Board of Revenue dated 3rd Oct.1865, No.141, Proceedings of Board of Revenue, 23rd Oct.1865, pp.5955-58.
35. Ibid,
36. Ibid,

37. East India (Report of Famine Commission) 1881
Appendix V, "Memorandum on wells in the Cuddapah district and their use as a prevention against famine" by J.D.B.Gribble.p.88.

38. J.R.Cockrell, op.cit. pp.5955-58.

39. Letter from A.Wedderburn, Collector of Cuddapah to Hudleston, PBR, 29th May 1863, No.3182 pp.3059-61.

40. Ibid.,

41. Letter from G.Vans Agnew, Collector of Cuddapah to Ag.Secretary to the Board of Revenue dated 27, Sept.1869, No.168, PBR, 20, April 1870, p.3186.

42. Ibid.,

43. Ibid.,

CHAPTER 3

AGRARIAN CHANGES IN CUDDAPAH

3.0. INTRODUCTION

In the previous chapter, an attempt was made to analyse the agrarian setting in the Cuddapah district during the pre-railway period. It was contended that the agricultural stagnation that prevailed for a long time in the district gave way to a slow transition during the fifties and sixties -- especially in the latter decade. This transition, we stated, was facilitated by the completion of the period of depression in agricultural prices, reduction in assessment, removal of governmental coercion on the farmers to cultivate a stipulated extent of land and some improvement in road transportation. In this chapter, it is proposed to analyse the performance of agriculture during the last three decades of the 19th century and see if the slow transition in agriculture that came into being on the eve of the rail transport in the late sixties, had gained a momentum in the subsequent period, culminating in a sustained growth. Towards this

end, we will first trace empirically the performance of agriculture in terms of area under cultivation -- either assessed or cropped -- and provide an explanation in terms of the relevant variables. We shall then take up the case of cotton cultivation in the district and analyse how far the relative price of cotton vis-a-vis a competing crop such as jowar and rainfall pattern could explain its performance. Before we do so, a word about famine is in order.

In the ensuing analysis of the cropping pattern, famine is taken as a crucial variable affecting the farmers' decision making process. In the Cuddapah District, the seventies and nineties witnessed famines of varying intensity. Barring the year 1884/85, the Eighties were by and large free from droughts and famines. Shortages and famines were more frequent in the nineties than in the Seventies; the years 1891/92, 1895/96 and 1899/1900 were years of deficient rainfall, poor harvests, shortages of food grains and famines. But in terms of loss of population and cattle, the famine that struck the district in the years 1876/77 and 1877/78 was much more virulent than those of the nineties. The great famine of the seventies that struck the region in the Telugu year of Dhaatu, left a lasting impact on the agrarian economy in general and cropping pattern in particular. In the following pages, the impact

Dhaatu Karuvu (famine of the Dhaatu year) has been analysed in detail, so as to explain the changes in the cropping pattern in the district during the last two decades of the Nineteenth century.

3.1. AGRICULTURE IN THE EARLY SEVENTIES:

For reasons explained in Chapter 2, we lack reliable data on the area sown till 1876/77. However, we have some information on land use pattern and cropping pattern (on assessed lands) for a few years during this period. After a brief description of this sub-period, a detailed analysis of cropping pattern for the period 1877/78 -- 1900/01 is taken up.

At the beginning of the 1870's, the total geographical area of the Cuddapah district was about 51.52 lakh acres, of which about 31 per cent (or 16.18 lakh acres) was barren or poramboke land. Of the remaining 35.34 lakh acres, only 34.60 per cent of the land was used for cultivation purposes.¹

3.2 LAND HOLDINGS AND ASSESSMENTS, c.1871

Around 1871, there were a little over 152,500 land holdings (or pattas), of which more than 80 per cent were single pattas. Joint pattas formed a little less than

one-fifth of the total in the district. A total assessment of over Rs.16.35 lakhs was collected on these lands, making on average an assessment of Rs.10.72 per patta.

Table 3.1. Landholdings in the Cuddapah District, 1871

Pattas	No.	Assessment (Rs)	Average assessment per patta(Rs)
Single pattas	123,287	12,32,593	10.00
Joint pattas	29,231	4,02,159	13.75
Grand total	152,518	16,34,752	10.72

Source: Proceedings of Board of Revenue (hereafter PBR), Jan.29,1874, p.446.

As for the cropping pattern in the district, as explained earlier, we have information only on assessed lands. The Famine Commission of 1880 provided estimates of what they called "Average acreage under crops" for four years i.e., 1872/73 to 1875/76. This term is somewhat misleading, for in the absence of data on lands actually cropped, the Commission appeared to have relied upon assessed lands. And as we have seen in Chapter 2, assessed lands always exceeded lands actually cultivated. However, the data that the Famine Commission provided are useful in ascertain-

ing the broad contours of cropping pattern in the district. As for the special crops like cotton and indigo, in which the government was interested for long, one might take them as being closer to reality. Thus,

Table 3.2. Average Acreage Under Crops During the Four Years Ending 1875/76 in Cuddapah District (Inam and Ryotwari lands)

C r o p s	Area in acres (000's)	Per-centage in total
<u>Rice</u> - one crop irrigated	127	7.3
Second crop irrigated	27	1.6
Unirrigated	4	0.2
Total rice	158	9.1
Cholum	467	26.9
Ragi	130	7.5
Varagu	38	2.2
Cumbu	370	21.2
Korralu	107	6.2
Samai	31	1.8
Pulses	185	10.7
Miscellaneous	20	1.2
Total food crops	1906	86.9
Garden crops	17	1.0
Oilseeds	44	2.5
Topes	21	1.2
Cotton	90	5.2
Indigo	56	3.2
Total non-foodcrops	228	13.1
Area under all crops	1734	100.0

Source: PBR, Dec.19, 1878, p. 1107.

according to the estimates of the Famine Commission(1880), in the early seventies nearly 87 per cent of the total (assessed) area was under food crops, the non-foodcrops accounting for 13 per cent. Cholum was the food crop

occupying nearly 27 per cent and next in order was Cumbu (Bajra) with 21 per cent. Pulses occupied as much as 10.7 per cent of the total area. Among the non-food crops, cotton occupied an important place and indigo came in the second position.

3.3 AGRARIAN EXPANSION IN CUDDAPAH DISTRICT, 1877/78 -- 1900/01

In Chapter 2, we had provided data on total cropped area for the period 1859/60 to 1870/71 (Table 2.5). At the beginning of the sixties, the cropped area in the district was around 10 lakhs acres. By late sixties, it increased to well over 12 lakh acres reaching a maximum of 12.62 lakh acres in 1870/71. In analysing the agrarian expansion during the period 1877/78-1900/01, this fact has to be kept in mind.

In Table 3.3. data on area under all crops, (food-crops and non-foodcrops) have been furnished. In the year 1877/78, the total cropped area in the district was 8.50 lakh acres. In other words, between 1870/71 and 1877/78 total cropped area declined by more than 4 lakh acres. The major reason -- perhaps the sole reason -- for this drastic decline was the devastating famine that struck many parts of India in the years 1876/77 and 1877/78. (We will take up the issue of famine and its impact on

Table 3.3. Total Area under All Crops, Food Crops and Non-foodcrops in the Cuddapah District -- 1877/78 -- 1900/01

(Area in 000's of acres)

Y e a r	TCA		TFC		TNFC	
	Extent	Indi- ces 1880/81 = 100	Extent	Indi- ces 1880/81 =100	Extent	Indi- ces 1880/81 = 100
1877-78	850	57.7	734	60.0	116	46.4
78-79	1456	98.9	1290	105.5	166	66.4
79-80	1490	101.2	1267	103.6	223	89.2
80-81	1473	100.0	1223	100.0	250	100.0
81-82	1489	101.1	1202	98.3	287	114.8
82-83	1536	104.3	1262	103.2	274	109.6
83-84	1798	122.1	1412	115.5	386	154.4
84-85	1519	103.1	1226	100.3	293	117.2
85-86	1580	107.3	1277	104.4	303	121.2
86-87	1667	113.2	1320	107.9	347	138.8
87-88	1708	116.0	1344	109.9	364	145.6
88-89	1688	114.6	1355	110.8	333	133.2
89-90	1774	120.4	1359	111.1	415	166.0
90-91	1707	115.9	1291	105.6	416	166.4
91-92	1606	109.0	1305	106.7	301	120.4
92-93	1793	121.7	1439	117.7	354	141.6
93-94	1801	122.3	1385	113.3	416	168.4
94-95	1770	120.2	1370	112.0	400	160.0
95-96	1779	122.1	1391	113.7	408	163.2
96-97	1751	118.9	1352	110.8	399	159.6
97-98	1732	117.6	1412	115.5	320	128.0
98-99	1711	116.2	1410	115.3	301	120.4
1899-1900	1634	110.9	1292	105.6	342	136.8
1900-01	1715	116.4	1371	112.1	344	137.6

TCA : Total cropped Area, TFC:Total Food Crops area,
TNFC: Total Non-Food Crops area.

- Source: (i) For the years 1877/78 and 1878/79 figures are taken from the the Administration reports of the Madras Presidency.
- (ii) For the period 1879/80 to 1895/96, figures are taken from Statistical Returns published in PBR
- (iii) For the period 1896/97 to 1900/01 data are taken from Agricultural Statistics of British India.

on the agrarian economy of the district, a little later).

An important feature of the agrarian expansion of the district was that although there was some progress in the acreage, it was neither significant nor steady. (Table 3.3). If we take the post-famine early eighties as the starting point for purposes of comparison, we notice that the total cropped area in the district although generally on a slow rise, was subjected to fluctuations over the years. Taking the total cropped area of 1880-81 as the base, we notice that only in 6 out of 25 years, the index was above 120. As we will notice in the subsequent discussion on cropping pattern, the compound growth rate of the total cropped area was only 0.75% (with an R^2 of 0.50). During a period of quarter of century, it was only in 1893/94 that the cropped area reached a peak of well over 18 lakh acres. Broadly speaking, the period from mid-eighties to mid-nineties represented a steady agrarian expansion. However, even during this period there was an occasional fall in the total cropped area. But compared to the periods prior to mid-eighties and post mid-nineties, it exhibited some steady growth. Understandably, the performance of the food and non-food crops, by and large, reflected the performance of the total cropped area. Between them, total area under non-food crops rose faster than that of the total food crop area. 1884/85, 1891/92 and 1899/1900 were years of severe monsoon and crop

failures. They affected the extent of total cropped area.

Now a question arises as to why compared to 1860s, the subsequent three decades witnessed slower agrarian expansion in the Cuddapah district. The answer to this question lies in the impact of the unprecedented famine of 1876-78 (known as Dhaatu Karuvu) on population and livestock and through them on agrarian expansion.

In the semi-arid area like the Cuddapah district, whose population was not historically dense, loss of population and/or bullocks either due to deaths or out-migration imposes a check on the agrarian expansion. Hence, the levels of population and draught animals, at different points of time need to be analysed to appreciate the pace of agrarian expansion in the district.

3.4 GROWTH OF POPULATION IN THE CUDDAPAH DISTRICT

Prior to the first general Census in 1871, in Madras Presidency there were quinquennial censuses. According to one such quinquennial census, the Cuddapah district had a population of 11.45 lakhs in the year 1866. According to the 1871 Census, the population of the district stood at 13.5 lakhs. If the 1866 quinquennial census was to be believed, in a period of 5 years, population

increased by 18 per cent i.e., at an annual average growth rate of 3.6 per cent. This appears to be an implausibly high growth rate. We do not have information on the immigration of population into the district between 1866 and 1871. Considering the fact that Cuddapah was an area of uncertain rainfall, poor soil and high burden of land assessments, it was unlikely to have attracted by the 1866 famine -- the Great Orissa Famine so called. In that year major portion of the East Coast i.e., Orissa, Ganjam, Visakhapatnam and the uplands of Guntur and Nellore districts were indeed affected by this famine. However, it was unlikely that any large scale immigration into Cuddapah from Ganjam and Visakhapatnam had taken place. For, between those famine-affected North-eastern districts of Andhra and the Southern district of Cuddapah, the delta districts of Godavari and Krishna, with their expanding irrigation systems and relative prosperity would have acted as a buffer absorbing any possible immigration in the Southern direction. Only the other famine affected district of Nellore which was the eastern and immediate neighbour to the Cuddapah District would have flushed out people into the latter. Any such immigration from Nellore to Cuddapah should have been so insignificant as not to have merited any mention in the official records of Board of Revenue for there is no

evidence to that effect. If so, the quinquennial census of 1866 should have greatly underestimated the population of the Cuddapah district. In any case, the fact cannot be denied that there was a growth in population in the late sixties. Only the magnitude of population growth is debatable. And this growth in population was in consonance with a slow but steady expansion in the cropped area.

Keeping the above reservation in mind, we notice that in all the taluks of Cuddapah district, population per square mile registered a rise at the end of the sixties (see Table 3.4). One of the striking features of the economy of Cuddapah district during the last three decades of the 19th century was the impact that the 1876/78 famine had left on the size of the population. Between 1871 and 1881 the loss of population in the district was as high as 17.6 per cent; a larger portion of whom died due to starvation, morbidity and epidemics. During the 30 years between 1871 and 1901 there was not only no net addition to population, but by 1901 population of the district fell short of the 1871 figures by well over 4.4 per cent.

However, 1880's were relatively free from crop failures, shortages and famines. It was in this decade that agriculture expanded faster, compared to the seventies and nineties. Total cropped area increased from 14.73 lakh

Table 3.4. Talukwise Population in the Cuddapah District, 1866 and 1871

T a l u k s	Area in Sq. miles	P o p u l a t i o n			
		1866		1871	
		In 000's	per Sq. miles No.	In 000's	Per Sq. miles No.
1. Jammala- madugu	616	97	158	110	178
2. Proddatur	486	85	176	102	210
3. Budwail	755	75	100	92	123
4. Sidhout	610	67	110	76	124
5. Cuddapah	761	147	192	154	201
6. Pullampet	896	115	128	146	163
7. Pulivendla	669	96	142	109	163
8. Rayachoty	1031	105	102	128	124
9. Kadiri	918	116	126	142	154
10. Voilpaud	769	128	166	146	190
11. Madanapally	856	114	132	135	152
District Total	8367	1145	136	1351	161

Source: J.D.B. Gribble, op.cit., p.330

acres in 1881 to 17.07 lakh acres in 1891. Cropped area per head had increased from 1.31 acres in 1881 to 1.34 acres in 1891 (Table 3.5). However, as larger chunk of the increase in cropped area was covered by the non-food crop areas between 1881 and 1891, per capita food crops area not only did not increase but in fact declined from 1.09 acres to 1.01 acres. Absence of adverse weather and faster rise in the prices of non-food crops compared to those

Table 3.5. Population of the Cuddapah District, 1871-1901

Census	Population	Difference between the successive censuses	Decennial growth (%)	Percentage decline in population compared to 1871 Census
1871	13,51,194	--	--	--
1881	11,21,038	- 237,156	- 17.55	17.55
1891	12,72,072	+ 151,734	+ 13.54	5.86
1901	12,91,267	+ 17,195	+ 1.35	4.43

Source: Census Reports

of food crops enabled the Cuddapah farmers to lay greater emphasis on the cultivation of cash crops. Given the favourable weather and market conditions, the choice was made more in favour of cash crops as against food crops. However, there was a rise in the total area under food crops between 1881 and 1891. But this rise as can be seen from Table 3.6, was more due to a rise in the pulses area than that of cereals. As a matter of fact, between 1881 and 1891 the cereal area showed a decline till 1886/87. Only in late eighties, the cereal area once again started picking up. The point sought to be made is that with a favourable weather and market conditions, farmers' crop-choice attained some facility as the food grain availability

Table 3.6. Population and Cropped Area in Cuddapah District, 1881 - 1901

Censuses	Popula- tion (in 000's)	Total cropp- ed area (acres in 000's)	Crop- ped area per head (acre)	Area under food crops in (acres in 000's)	Food area per head (ac- res)	Area under cere- als (acr- es in 000's)	Per head cer- eals area (ac- res)
1881	1121	1473	1.31	1223	1.09	1083	0.96
1891	1272	1707	1.34	1291	1.01	1083	0.85
1901	1291	1715	1.33	1371	1.06	1234	0.95

Source: Census Reports and sources as in Table 3.3

did not pose serious problems during this decade. No wonder, food crop area per head declined from 1.09 acres in 1881 to 1.01 acres in 1891 and the per capita cereal area showed even a sharper decline, from 0.96 acres in 1881 to 0.85 acres in 1891.

1890's were in contrast with the earlier decade. There were frequent failures of monsoons and consequently harvests. Per capita cropped area showed a slight decline from 1.34 acres in 1891 to 1.33 acres in 1901. Due to the occasional failure of monsoons in 1891/92, 1895/96 and 1899/01, there was greater insecurity for foodgrain

availability. Apparently, farmers followed the "safety first principle" and tried to meet their food and fodder requirements. The per capita food crop area increased from 1.01 to 1.06 acres. But the increasing concern of the farmers was reflected more in the per capita cereal area, which increased from 0.85 acres in 1891 to 0.95 acres in 1901. The process of commercialisation in agriculture (in the case of Cuddapah increase in the area under cash crops) was partly checked in the nineties.

3.5. DHAATU KARUVU -- THE FAMINE OF 1876-78

Fickle monsoons, droughts, crop failures and famines were not novel experiences to the people of the Ceded districts in general and Cuddapah in particular. For instance, during the first half of the 19th century, Cuddapah passed through periods of shortages and famines in 1803, 1805 and 1833. But in terms of a debilitating and long standing impact, the famine of 1876-78 or the Dhaatu Karuvu stood apart from any other famine, either before or after. It ravaged the whole of Ceded districts leaving in its trail deaths and destruction. The devastation it caused was so complete and total that it was termed as a major 'calamity' by the Government officials. It entered into the consciousness of the affected people so much that a repetition of such an occurrence was always at the back of their minds, in making crop-choice

or entering into market transactions with their produce. Farmers were guided by this caution lest, they should be subjected to the impact of a similar calamity in future. This is, however, not to suggest that in earlier times this caution against an unforeseen crop failure was absent. Even during the first half of the 19th century farmers did observe a policy of caution and insurance against possible crop failures. But their impact was much less severe.

In the Cuddapah district, traditionally farmers who could afford -- the middle and richer sections -- used to store foodgrains in pits (patarlu) right inside their houses. According to Col.Munro, substantial cultivators used to store their grains for more than a decade. They used to release the stocks into the markets only at times of high prices.

Col.Munro observed in 1805 that the farmers "from their remoteness from both monsoons are more exposed to drought than the Carnatic and the inhabitants are hence, perhaps more accustomed to guard against the effect of dearth by laying up a supply of grain in plentiful years. Jawari (cholan) their principal food may be kept good in pits from 10 to 20 years; the large quantities of it are laid up, not only by merchants but by all

the more substantial ryots and not brought out for sale unless in those years when prices are high².

Labourers, artisans and poor farmers were the worst sufferers in periods of scarcity and famine. In the absence of proper roads and other communication facilities, grains could not be shifted from areas of surpluses to the areas of deficits. In times of distress, as the assistance from the government relief works was meagre, either the affected people had to survive on the philanthropic deeds of private individuals and bodies in their vicinity, or outmigrate to other areas. Such cases of inter-regional migrations both within and outside the Madras Presidency were recurring phenomena throughout the 19th century, especially during the first half.

By 1876, when the Dhaatu Karuvu struck, in the Rayalaseema region, a railway line was already in existence for a few years. With the rise in agricultural prices from the early 1850's and a steady agrarian expansion in the 1860's, coupled with the advent of a railway line around 1871, market involvement of the farmers was slowly getting strengthened. There must have also been some let up in their guard against the possible failure of monsoon rains. Besides, a severe

failure of monsoons in two successive years and complacency on the part of the Government in protecting the people against the severity of the famine by taking up ameliorative measures during the first year, i.e., 1876/77, added to the miseries of the famine-affected population.

"The attitude of the Madras Government in the early months of 1876 was one rather of vigilance than decision. The first relief works on a small scale had been sanctioned for Bellary in the previous August. With the spring of 1876, provisional relief works also on a small scale were sanctioned for Cuddapah, Tirunelvely, Chingleput and South Arcot. By August, the real character of the distress had become apparent, together with the inadequacy of the provincial funds. An application was consequently despatched to the Government of India for assistance from the Imperial funds and also a proposal to start relief works on an extensive scale... Pending the reply, the Madras Government found itself confronted with insufficiency of the food supply. In October, arrangements were made for forming a grain reserve, and Messrs Arbuthnot were instructed to hold 30,000 tons of grain for Government... (only) in the beginning of 1877, the full gravity of situation impressed itself upon the Government of India"³. In any case, there was an unprecedented loss of population in the decade of seventies. (Table 3.7)

Table 3.7. Population of Rayalaseema Districts,
1871 & 1881

Districts	Population in		Loss of Population	
	1871 No.	1881 No.	No.	%
Cuddapah	13,51,194	11,20,118	2,31,076	17.10
Nellore	13,76,811	12,20,335	1,56,476	11.37
Kurnool	9,59,646	7,11,557	2,48,089	25.85
Bellary	16,68,006	13,39,763	3,28,243	19.68

Source: Famine Commission Report, op.cit., p.211

The loss of population in the seventies could not be recouped in the Cuddapah district during the entire (last) quarter of the 19th century. As has been shown earlier, while in 1871, the district had a population of 13.51 lakhs, in 1901 the number was only 12.91 lakhs. In other words, as compared to 1871, in 1901 the Cuddapah district was still short of 4.43 per cent of its population. Deaths and outmigrations during the famine period and low birth rates in the subsequent period due to morbidity and malnutrition greatly constrained the population growth. Table 3.8 sharply brings out the differences in the birth and death ratios in the famine affected Cuddapah district and the non-famine district of Krishna.

Table 3.8. Birth and Death Ratios during the period
1876 - 1879

Districts	Per Mile Deaths and Births Ratios							
	1876		1877		1878		1879	
	Dea- ths	Bir- ths	Dea- ths	Bir- ths	Dea- ths	Bir- ths	Dea- ths	Bir- ths
<u>Famine Dt.</u>								
Cuddapah	29.1	17.8	89.0	10.8	40.7	4.2	21.8	10.8
<u>Non-famine District</u>								
Krishna	20.1	18.9	25.2	15.3	28.7	14.5	21.0	15.6

Source: Famine Commission Report, op.cit., pp.222-3

3.7. DRAUGHT ANIMALS AND PLOUGHS

Famine affected not only the human but also the draught animal population. The reduction in the number of working hands and bullocks caused a fall in the total cropped area. During the year 1871/72 -- a pre-famine year -- about 12.62 lakh acres was actually cropped in the district. But in 1877/78 -- the second successive year of the Dhaatu famine - cropped area declined to 8.50 lakh acres. We do not have data on the draught animals like bullocks for the pre-famine period. In 1877/78, it was reported that there were hardly 28,560 bullocks in the district. (See Table 3.9),

Table 3.9 Cropped Area, Number of Bullocks and Ploughs in the Cuddapah District, 1877/78 - 1900/01

(Base: Average for the years 1880/81 and 1881/82)

Year	Total cropped area in 000's of acres. (1481=100)		Bullocks (131206=100)		Ploughs (113232=100)		Bullock/ Plough Ratio
	No.	Index	No.	Index	No.	Index	
	1877-78	850	57.39	28,553	21.76	26,446		23.36	1.0797
78-79	1456	98.31	36,810	28.06	31,140	27.50	1.1821
79-80	1490	100.60	122,907	93.67	97,136	85.78	1.2653
80-81	1473	99.46	133,586	101.81	117,535	103.80	1.1366
81-82	1489	100.54	128,825	98.19	108,929	96.20	1.1827
82-83	1536	103.71	281,707	214.71	104,926	92.66	2.6848
83-84	1798	121.40	297,850	227.01	97,725	86.31	3.0478
84-85	1519	102.57	NA	--	119,721	105.73	--
85-86	1518	102.50	NA	--	122,287	107.97	--
86-87	1667	112.56	NA	--	129,079	114.00	--
87-88	1708	115.33	200,181	152.57	126,645	111.85	1.5806
88-89	1688	113.98	247,622	188.73	152,997	135.12	1.6185
89-90	1774	119.78	237,501	181.01	140,856	124.40	1.6861
90-91	1707	115.26	247,619	188.73	127,524	112.62	1.9417
91-92	1606	108.44	228,046	173.81	112,202	99.09	2.0325
92-93	1793	121.07	240,524	183.32	119,300	105.36	2.0161
93-94	1801	121.60	273,017	208.08	132,023	116.95	2.0680
94-95	1770	119.51	271,969	207.28	131,222	115.88	2.0726
95-96	1799	121.47	259,212	197.56	131,222	115.88	1.9754
96-97	1751	118.23	249,158	189.90	124,732	110.16	1.9975
97-98	1732	116.95	242,825	185.07	123,247	108.84	1.9702
98-99	1711	115.53	242,825	185.07	123,247	108.84	1.9702
1899-1900	1634	110.33	290,190	221.17	118,669	104.80	2.4453
1900-01	1715	115.80	290,190	221.17	118,669	104.80	2.4453

Notes: As the figures for bullocks and buffaloes are given together for the years 1884/85 to 1886/87, separate data on bullocks are not available.

Sources for data on bullocks and ploughs:

- (i) Figures for the period 1878/79 to 1884/85 are taken from the annual reports on the Administration of Madras Presidency.
- (ii) For the period from 1885/86 to 1890/91 data are taken from the Statistical Returns published in the Proceedings of Board of Revenue.
- (iii) Figures for the period 1891/92 to 1895/96 are taken from the Agricultural Statistics of British India, 1891/92 to 1895/96, Calcutta, 1897, p.245.
- (iv) Figures for the years 1896/97 to 1900/01 are taken from the Agricultural Statistics of British India 1902, p.252.

Throughout the late seventies and early eighties, the farmers appeared to be busy increasing their stock of draught animals. By 1883/84 the number of bullocks went upto 2.98 lakhs. During that year the total cultivated area went upto nearly 18 lakh acres. From the late eighties till the close of the 19th century, the bullock population varied between 2.40 to 2.90 lakhs. The decade of eighties was comparatively free from monsoon failures and shortages. Only in 1884/85 rainfall was deficient. Otherwise, this was a period of agrarian expansion. This was especially so, from mid-eighties to mid-nineties. No wonder, the bullock-population had by and large stabilised around 2.40 lakhs. From the early eighties onwards there was some shift in the cropping pattern in favour of the non-food crops like cotton, oil seeds etc. the cultivation of which required much more animal power than that for the course grains like jowar, cumbu, korralu etc. However, rainfall was deficient and shortages of varying intensity occurred in the nineties viz., in 1891/92, 1895/96 and 1899/1900. The process of shift in favour of the non-food crops was slowed down.

The increase in the stock of bullocks, thus was associated with the general agrarian expansion and some slight shift in the cropping pattern in favour of non-food crops. Broadly speaking, the indices of the total cropped

area, bullocks and ploughs moved in a similar direction.

In the late seventies when the district was just passing through the worst famine and its aftermath, an average area cropped per bullock varied from 30 to 40 acres. In other words, a pair of bullocks cultivated 60 to 80 acres during the years 1877/78 and 1878/79. Ever since, when the bullock population increased over time the average cropped area per bullock had considerably declined; it had stabilised around 6.50 acres per bullock or about 13 to 14 acres per pair. The bullock-plough ratio (the number of bullocks per plough) was a little over one, till 1881/82. Barring the exceptional years of 1882 and 1883, it hovered around 1.9.

To revert back to our analysis of loss of population, if famines were not a new phenomenon in a semi-arid zone, why did such an unprecedented loss of population occur during the period of Dhaatu Karuvu ? The answer to this question should be sought in terms of the relative failure of the insurance mechanism of the people and delay in the provision of assistance by the Government during the period of famine.

We have already noted earlier that the sustained expansion of agriculture during the sixties, rise in

prices, and greater involvement of the farmers in market transactions facilitated by the improved transport system especially railways, some movements of grains to the distant markets and lessening of the guard against the possible shortages had a cumulative effect on the food availability in the region.

However, when the famine struck, both the provincial government and the railways failed to rise to the occasion. Although traders were willing to move greater quantity of foodgrains across different regions, the transportation system was found to be wanting.

"For instance, during an year from 1st Nov. 1876 to Oct.31,1877, about 900,000 tons of foodgrains was imported into all parts of the Madras Presidency. This was on average 2,500 tons per diem. But the entire transport of all the railways only once reached 2,500 tons, in August 1877. In the early months of famine, the transport barely reached 1000 tons and the average may be set down as from 1400 to 1600 tons daily. At one time (end-January 1877) it was estimated that in Madras alone there was more grain awaiting transport to the interior - much of it without shelter, exposed to robbers damaged by weather... waiting for transport to its market than the railway could remove during the next three months"⁴



Granted that there was some failure at the level of administration in transporting grain to places where it was wanted, one is still left with the fact that the loss of population was a staggering 17 per cent in Cuddapah. This cannot be fully explained in terms of a total destruction of an insurance mechanism traditionally evolved by farmers over a long period. After all, in the early seventies feeder roads to railway stations were yet to be developed on a large section. This was especially so, in the grain-surplus taluks like Jammalamudugu, Proddatur and Pulivendla, where due to the prevalence of black-cotton soil road transport was not possible all through the year as the soil became miry and tenacious. Hence, complete removal of the available surplus stocks of grains by trade was unlikely.

A relevant question in this context is the following: What was the stock holding capacity of the farmers in Cuddapah in the early seventies? We do not have a direct evidence to answer this question straightaway. We have to depend upon the circumstantial evidence in the number of landholders in the size class of assessments paid to the Government.

3.8 LAND HOLDINGS AND ASSESSMENTS, 1871

We have seen earlier (Table 3.1) that around 1871, there were a little over 1,52,500 land holdings in the

Cuddapah district, of which more than 80 per cent were single pattas. Joint pattas formed a little less than one fifth of the total landholdings or pattas in the district. A land assessment of over Rs.16.35 lakh was collected, making an average of Rs.10.72 per patta. Cuddapah, Bellary/Ananthapur and Krishna were the major cotton growing districts of Andhra during the 19th century. A distinguishing feature of Cuddapah as compared to the other districts was the predominance of small farmers paying an assessment on land revenue not exceeding Rs.10/-. In 1871, they formed more than 39 per cent of the total pattadars. As for their share in the total assessment, it was about 24% in Cuddapah, 17% in Kurnool, 18% in Bellary and about 8% in Krishna. If the next size class of assessment-payers (Rs.10-30) are clubbed with the lowest category, as high as 92 per cent of the farmers in Cuddapah paid an assessment on land, below Rs.30/-. Their share in the total assessment was nearly 60 per cent (Tables 3.10 and 3.11). Around 1870, over 70 per cent of the land holders in Cuddapah were paying nearly one-fourth of the total land assessment. Their average assessment per patta was only Rs.3.42 (Table 3.11). Even in the next size class of assessment, the average amount of land revenue per patta was only Rs.16.52.⁵ A substantial portion of these small holders' lands were dry, the 'average' assessment

Table 3.10 Land Holders and Assessment in the Cotton Growing Districts of Andhra, 1871

Size class of assessment on land (Rs)	Proportion of land revenue-payers and assessments among single pattas							
	Cuddapah District		Kurnool District		Bellary District		Krishna District	
	No.	Assessment	No.	Assessment	No.	Assessment	No.	Assessment
less than 10	70.7	24.2	61.5	17.1	59.1	17.6	38.7	7.8
10-30	21.6	35.5	26.3	31.6	28.7	33.4	36.4	27.3
30-50	5.0	17.8	6.7	16.7	7.0	17.9	12.8	20.0
50-100	2.2	14.7	3.9	17.2	4.0	18.2	9.0	25.0
100-250	0.5	6.7	1.4	13.2	1.1	10.6	2.9	16.1
250-500	0.1	1.1	0.2	3.6	0.1	1.7	0.2	3.1
Above 500	--	--	--	0.6	--	0.6	--	0.7

Source: PBR, 19th Dec.1878, pp. 1162-3

Table 3.11 Particulars of Landholdings in the Cuddapah District, 1871/72

Size class of land assessment (Rs)	No. of single pattas	Total Assessment (Rs)	Average Assessment per patta (Rs)
Under 10	87,197(70.7)	2,97,867(24.2)	3.42
10 - 30	26,496(21.6)	4,37,759(35.5)	16.52
30 - 50	6,211(2.2)	2,18,966(17.8)	35.25
50 - 100	2,724(2.2)	1,81,257(14.7)	66.54
100-250	612(0.5)	82,250(6.7)	134.40
250-500	46(-)	13,991(1.1)	304.15
500-1000	1(-)	503(-)	503.00
Above 1,000	--	--	--
All classes	123287(100.0)	1232593(100.0)	(100.0)

(Figures in brackets indicate percentages in total)

Source: PBR, 29th Jan.1874, p.446

on which would be between Rs.0.75 and Rs.0.80 per acre. Reckoning thus, the 'average' size of land holdings in the two lowest size classes were found to be 4.56 and 22.00 acres. In a semi-arid zone farmers with such levels of land holdings could not but be vulnerable in the product and credit markets. More importantly, in the present context the (grain) stock with-holding capacity of these farmers should have been severely restricted. In other words, they faced a severe risk of crop failure and consequent food deficits. And when a calamity like the Dhaatu Karuvu struck the district in mid-seventies, when the severe drought continued for two successive years, when the Government was slow in realising the gravity of the situation and providing relief, and when the road transport system could not rise to the occasion and more foodgrains into the deficit areas, mortality and outmigration became the order of the day. The huge loss of population and cattle had its severe impact on the agrarian expansion in general and cropping pattern in particular. In the next section, we will discuss the cropping pattern in the district during the post-famine period.

3.9 CROPPING PATTERN IN THE CUDDAPAH DISTRICT

1877/78 - 1900/01

After the severe shock that the famine of 1876-78 gave to the agrarian economy of the district, total cropped area started expanding from the early eighties. However, as we have noted earlier, the expansion was neither significant nor steady. It should be interesting to see the relative performances of the two broad categories of food and non-food crops during this period.

3.10. FOOD CROPS AND NON-FOOD CROPS

The share of food crops in the total cropped area in the famine and immediate post-famine years i.e., 1877/78 and the next three years, was about 85 per cent. This was understandable, for in times of food scarcities, farmers' preference would have been more for the food crops. Between 1881/82 and 1885/86, a period of readjustment, on average the share of food crops in the total cropped area dropped to a little over 80 per cent. It was between the mid-eighties and mid-nineties that the share of food crops in the total cropped area further went down to 78 per cent. But in the later half of the nineties, its share again went up to a little over 80 per cent. (Graph 1). In other words, during the last two decades of

of the 19th century, the share of non-food crops varied between 20 and 22 per cent. For a decade ending 1895/96, the share of the non-food crops was about 22 per cent (Table 3.12). Compared to the early eighties, area under food crops during the later eighties registered an increase of over one lakh acres. A significant feature of the area under food crops was its dramatic rise in the area under pulses between 1883/84 and 1890/91 (Graph 2). Concurrently, during this period, area under cereals had declined. In other words, area under pulses had increased at the expense of the cereal-area during this short period of 7 years. The pulses crop had a dual character. It was both a (subsistence) food crop grown for home consumption, as also for the market. In the absence of price data on pulses, it is difficult to be categorical about the cause for the relative rise in pulses-area vis-a-vis the cereal-area. It was likely that prices of pulses rose faster than the cereal prices giving an incentive for the farmers to expand the area under the former. However, as conclusive empirical evidence for the proposition is not available, it remains only at the level of a conjecture. Among the food crops, paddy and ragi were irrigated and the rest i.e., cholum, cumbu, korralu etc., were unirrigated crops, depending entirely on the rainfall. It is interesting to see that the indices of paddy and ragi areas often, if not always,

Table 3.12. Cropping Pattern in the Cuddapah District, 1877/78 -- 1900/01

(Area in 000's acres)

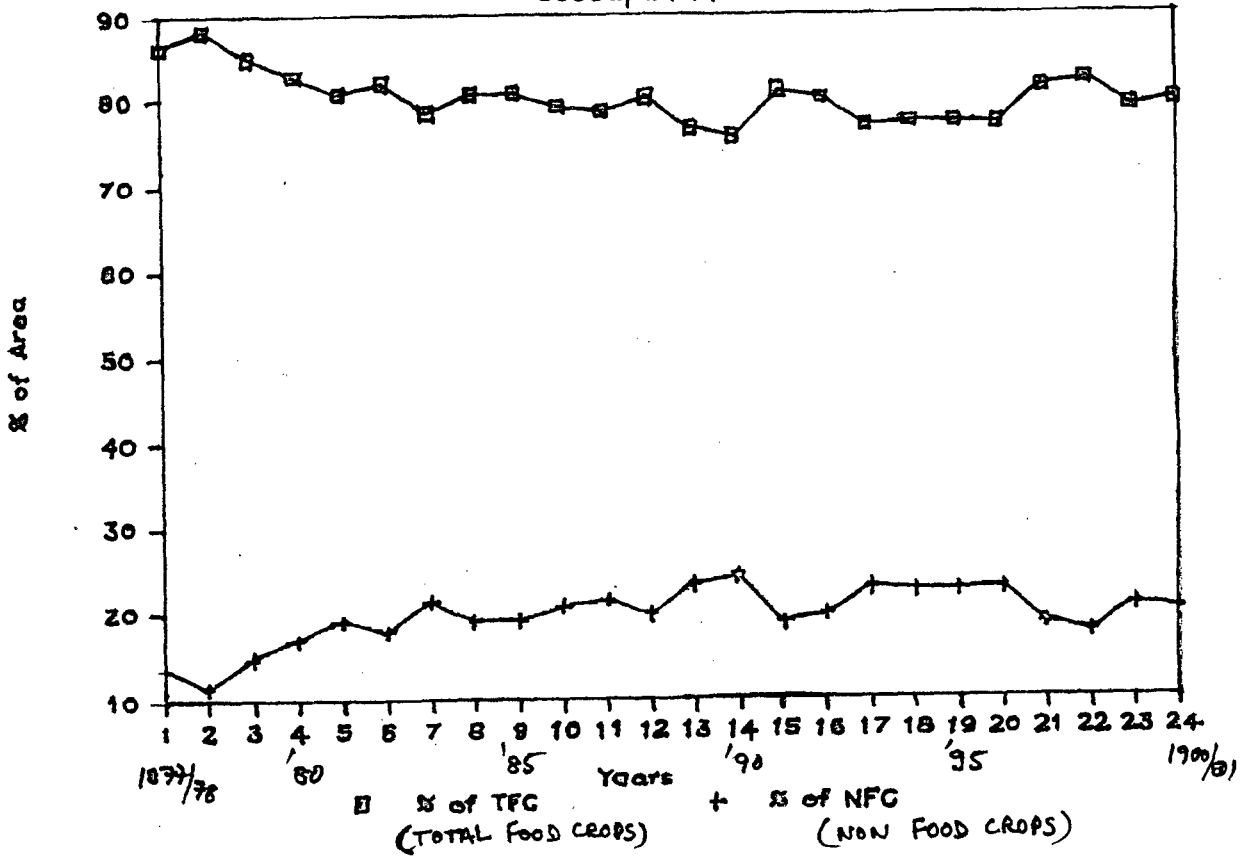
Year	Tot- tal cropped area	Tot- al food- crops	Cere- als Pul- ses includ- ing misc. foodcrops	Paddy	Cholum	Cumbu	Korralu	Ragl	Other- food- crops	Tot- tal non- food- crops	Cotton	Indigo	Oil- seeds	Sugarcane	Misc. non- food crops	Other non- food crops	
1877-78	850	734	74	660	58	198	-	-	118	286	116	34	20	25	3	82	34
1878-79	1456	1290	128	1162	108	444	314	84	127	85	166	51	40	35	1	127	39
1879-80	1490	1267	145	1122	126	377	324	92	108	95	223	60	54	66	1	181	42
1880-81	1473	1223	140	1083	113	407	316	83	106	58	250	86	92	37	2	217	33
1881-82	1489	1202	149	1053	91	324	251	67	90	230	287	97	101	40	3	241	46
1882-83	1536	1262	160	1102	130	382	317	102	121	50	274	104	90	38	3	235	39
1883-84	1798	1412	359	1053	128	263	367	123	112	60	386	157	107	70	3	337	49
1884-85	1519	1226	288	938	125	269	204	87	124	129	293	87	65	83	3	238	55
1885-86	1580	1277	379	898	107	140	33	115	135	368	303	91	79	57	4	231	72
1886-87	1667	1320	395	925	164	233	226	100	130	72	347	82	108	88	4	282	65
1887-88	1708	1344	308	1036	189	302	261	92	136	56	364	103	105	84	4	296	68
1888-89	1688	1355	271	1084	146	229	276	104	135	194	333	114	87	92	5	298	35
1889-90	1774	1359	245	1114	174	364	305	-	148	123	415	132	84	120	5	341	74
1890-91	1707	1291	208	1083	101	402	254	110	167	49	416	154	42	118	5	319	97
1891-92	1606	1305	156	1149	63	448	296	107	174	61	301	101	44	79	4	228	73
1892-93	1793	1439	144	1295	185	381	383	122	134	90	354	97	92	87	6	282	72
1893-94	1801	1385	154	1231	186	374	326	105	151	89	416	113	110	112	3	338	78
1894-95	1770	1370	153	1217	161	366	328	109	152	101	400	94	102	122	4	322	78
1895-96	1799	1391	190	1201	164	378	301	111	159	88	408	119	75	121	3	318	90
1896-97	1751	1352	135	1217	78	441	278	-	195	225	399	99	64	163	3	329	70
1897-98	1732	1412	141	1271	145	427	305	-	161	233	320	120	35	91	3	249	71
1898-99	1711	1410	141	1269	139	433	309	-	169	219	301	103	28	87	3	221	80
1899-1900	1634	1292	129	1163	85	427	243	-	163	245	342	101	53	111	3	268	74
1900-01	1715	1371	137	1234	106	405	361	-	146	216	344	107	47	112	4	270	74

Source: (i) Figures for the years 1877/78 and 1878/79 are taken from Administration reports of the Madras Presidency.

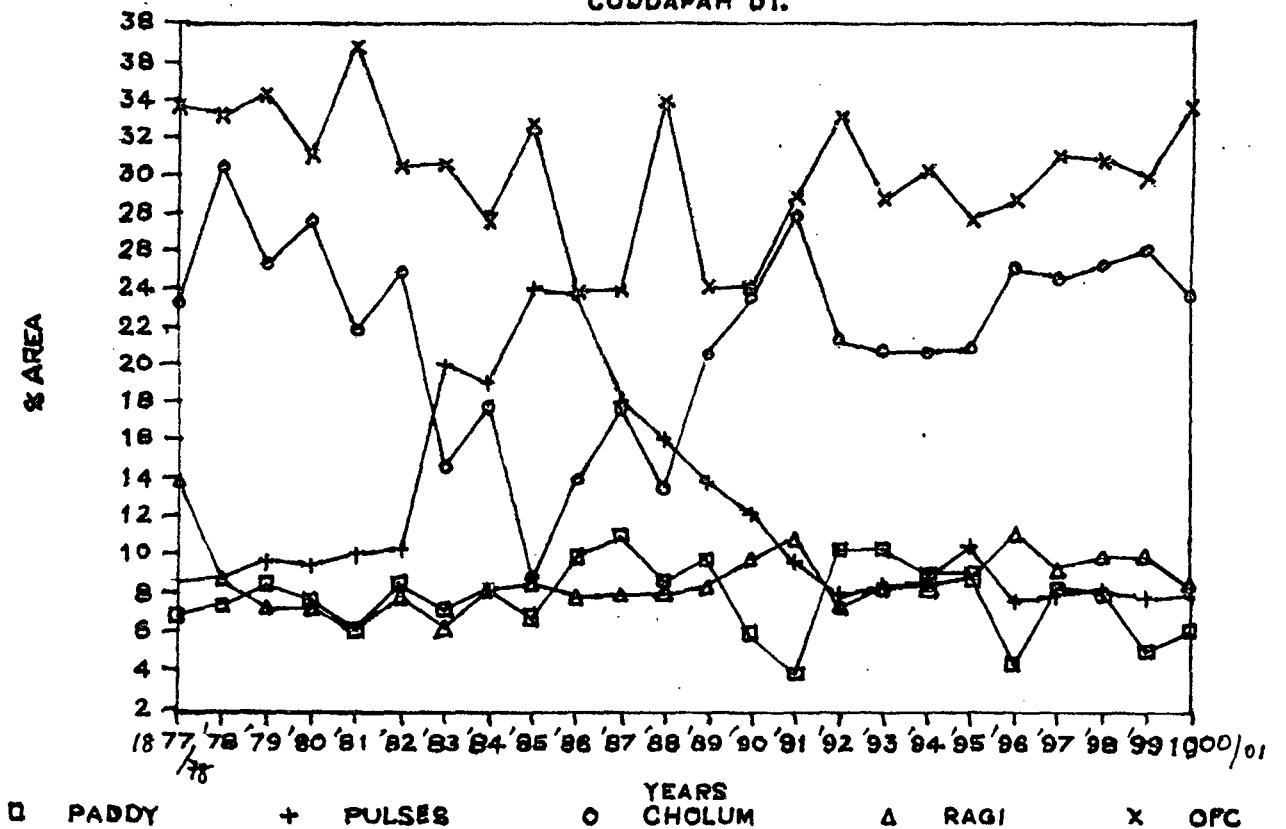
(ii) Figures for the years 1879/80 to 1895/96 are taken from Statistical returns published in the Proceedings of Board of Revenue.

(iii) Figures for the years 1896/97 to 1900/01 are taken from Agricultural Statistics of the British India.

Graph 1. % of TFC & NFC to TSA
Cuddapah Dt



Graph 2. % OF INDIVIDUAL FOOD CROPS
CUDDAPAH DT.



moved in the opposite directions (Graph.3). This is understandable for these two crops competed with each other, for land. Of the two, paddy required more water than ragi. If the available water was adequate, the farmers went in for paddy cultivation, if not, ragi was sown. In the Cuddapah district, paddy was not the staple food of the ordinary masses. Only in the rich farmers' houses rice was consumed once in a day i.e., for dinner. Small and middle farmers, if they happened to produce paddy, it was mainly for the market, for they consumed coarse foodgrains, like cholum, cumbu, korralu or ragi. In other words, for a substantial portion of paddy growers, paddy was a commercial crop produced mainly for the market. This was in contrast with the farmers (middle level and above) of Delta areas in Coastal Andhra, who switched over to the consumption of rice as a staple food, much earlier. Paddy assumed a commercial character in the Delta area only from 1880's. But in the Cuddapah and the other districts of Rayalaseema, paddy was grown for the market from about the middle of the 19th century. However, as the irrigation remained undeveloped or under developed the scope for the expansion of paddy area was limited. In fact, cultivation of no wet crop could make much headway in Cuddapah during the period under study.

In the three taluks of Jammalamadugu, Proddatur, Pulivendla and a portion of the Cuddapah taluk, where there was rich black cotton soil, cultivation by irrigation was not only injurious to the soil and crop but also unprofitable. Irrigation was practiced only when the black cotton soil was mixed with lighter soil and in places where tank irrigation was available. In Pullampet, Badvel, Sidhout and a portion of Cuddapah, irrigation under wells and tanks was practiced wherever it was available.

The tanks were formed as a string, one below the other, the first one being small and the others increasing in size, as they were constructed down the catchment basin. In the four taluks of the subdivision in Cuddapah, viz., Madanapally, Voilpaud, Rayachoti and Kadiri, in the seventies there were altogether 3679 tanks, of which 1981 irrigated less than 10 acres, 1451 between 10 and 70 acres and 247 above 70 acres.⁶

As for the well irrigation, the colonial government imposed many disincentives for its expansion in Cuddapah. In the decade preceding the Famine of 1876/78 farmers who sunk wells in their lands at high costs varying from Rs.300 to 500 were compelled to pay a land assessment between Rs.24 to 30 per acre. This had positively discouraged the farmers from sinking wells for raising wet

crops like paddy, indigo, ragi and sugarcane. In the district of Cuddapah, in the seventies well irrigation became financially so strenuous that about 8 to 10 thousand wells were left in ruins. No wonder, wet crops could not make much headway.

Cholum and cumbu were the major food crops in the Cuddapah district, between 1878/79 and 1880/81. In the period immediately following the Dhaatu Famine, these two crops together occupied nearly half of the total cropped area. In the eighties, the combined share of these crops declined. The decline was not smooth and progressive, for there were many fluctuations in the eighties. During the first half of the eighties, the combined share of cholum and cumbu in the total cropped area was about 37 per cent; in the later half of the eighties, it declined to a mere one-third of the total cropped area. But in the nineties when there were occasional failures of monsoons and harvests and consequently famines, the share again went upto nearly 42 per cent.

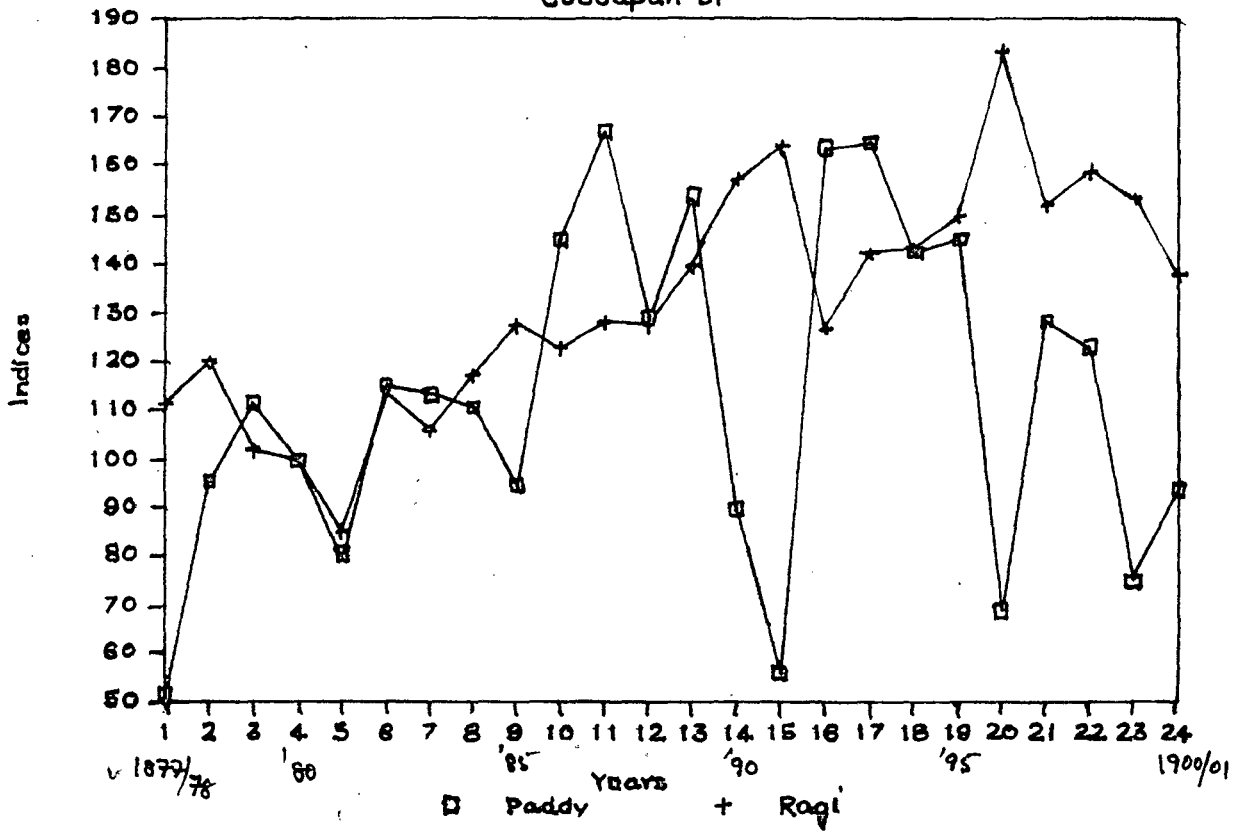
Graph 4 captures the progress of major cash crops, i.e., cotton, indigo and oilseeds. Strictly speaking, indigo was a wet crop, although at times it

Table 3.13. Share of Crops in the Total Cultivated Area, Cuddapah District, 1877/78-1900/01
(percentage)

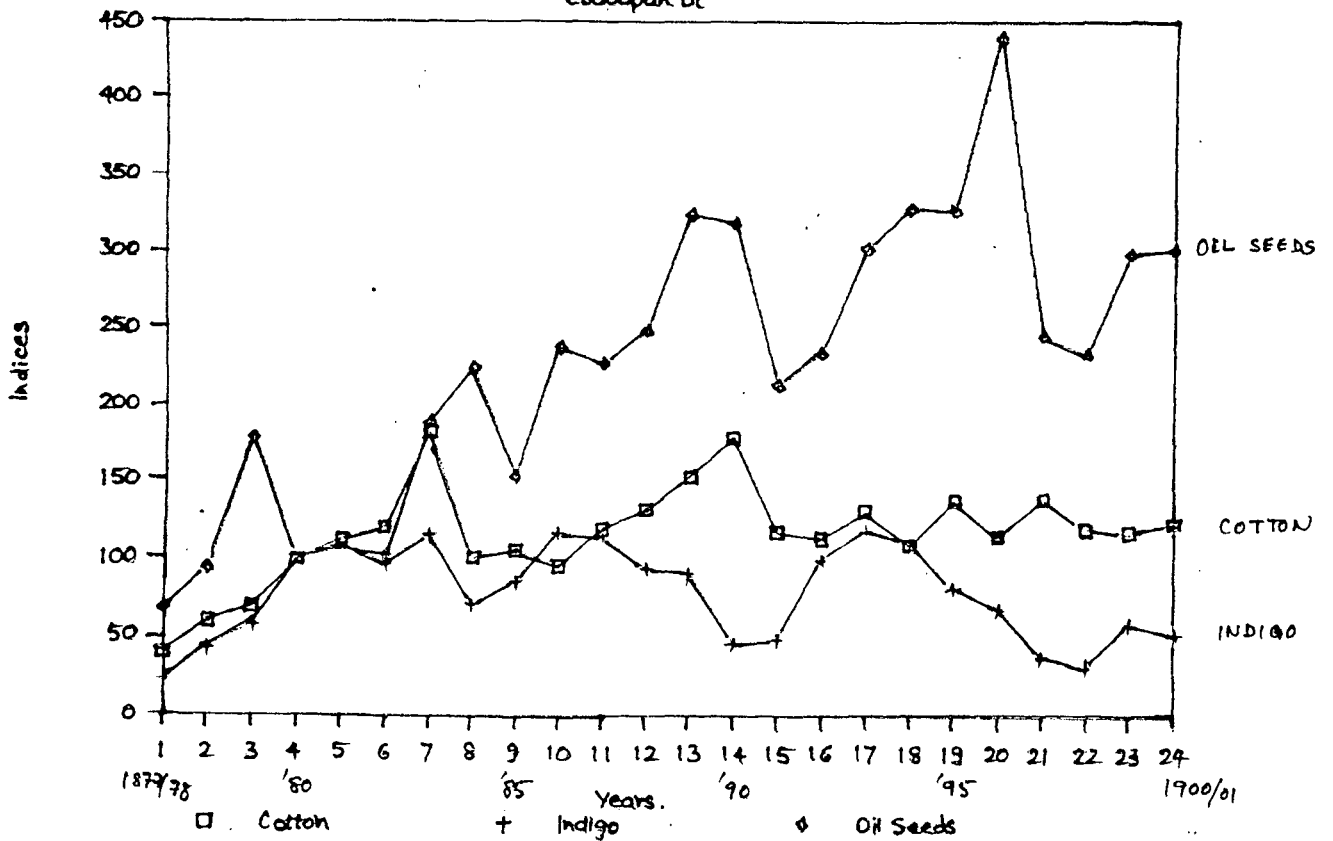
Year	Total cropped area (in 000's acres)	Total food crops	Pulses	Total cereals	Paddy	Cholum	Cumbu	Korralu	Ragi	Other food crops	Total non-food crops	Cotton	Indigo	Oil seeds	Sugar-cane	Major cash crops	Other non food crops
1877-78	850	86.35	8.70	77.65	6.82	23.29	--	--	13.86	33.65	13.65	4.00	2.35	2.95	0.35	9.65	4.00
1878-79	1456	88.60	8.79	79.81	7.42	30.49	21.57	5.77	8.72	5.84	11.40	3.50	2.75	2.40	0.07	8.72	2.68
1879-80	1490	85.03	9.73	75.30	8.46	25.30	21.74	6.17	7.25	6.38	14.97	4.03	3.62	4.43	0.07	12.15	2.82
1880-81	1473	83.03	9.51	73.52	7.67	27.63	21.45	5.63	7.20	3.94	16.97	5.83	6.25	2.51	0.14	14.73	2.24
1881-82	1489	80.73	10.01	70.72	6.11	21.76	16.86	4.50	6.04	15.45	19.27	6.51	6.78	2.69	0.20	16.18	3.09
1882-83	1536	82.16	10.42	71.74	8.46	24.87	20.64	6.64	7.88	3.26	17.84	6.77	5.86	2.47	0.20	15.30	2.54
1883-84	1798	78.53	19.96	58.57	7.12	14.63	20.41	6.84	6.23	3.34	21.47	8.73	5.95	3.89	0.17	18.74	2.73
1884-85	1519	80.71	18.96	61.75	8.23	17.71	13.43	5.73	8.16	8.49	19.29	5.73	4.28	5.46	0.20	15.67	3.62
1885-86	1580	80.82	23.98	56.84	6.77	8.86	2.09	7.28	8.54	23.30	19.18	5.76	5.00	3.61	0.25	14.62	4.56
1886-87	1667	79.18	23.69	55.49	9.84	13.98	13.55	6.00	7.80	4.32	20.82	4.92	6.48	5.28	0.24	16.92	3.90
1887-88	1708	78.69	18.03	60.66	11.07	17.68	15.28	5.39	7.96	3.28	21.31	6.03	6.15	4.92	0.23	17.33	3.98
1888-89	1688	80.27	16.05	64.22	8.65	13.57	16.35	6.16	8.00	11.49	19.73	6.75	5.15	5.45	0.30	17.65	2.08
1889-90	1774	76.61	13.81	62.80	9.81	20.52	17.19	0.00	8.35	6.93	23.39	7.44	4.74	6.76	0.28	19.22	4.17
1890-91	1707	75.63	12.19	63.44	5.92	23.55	14.88	6.44	9.78	2.87	24.37	9.02	2.46	6.91	0.29	18.68	5.69
1891-92	1606	81.26	9.72	71.54	3.92	27.90	18.43	5.66	10.84	3.80	18.74	6.29	2.74	4.92	0.25	14.20	4.54
1892-93	1793	80.26	8.03	72.23	10.32	21.25	21.36	6.80	7.47	5.03	19.74	5.41	5.13	4.85	0.33	15.73	4.02
1893-94	1801	76.90	8.55	68.35	10.33	20.77	18.10	5.83	8.38	4.94	23.10	6.27	6.11	6.22	0.17	18.77	4.33
1894-95	1770	77.40	8.64	68.76	9.10	20.68	18.53	6.16	8.59	5.70	22.60	5.31	5.76	6.89	0.23	18.19	4.41
1895-96	1799	77.32	10.56	66.76	9.12	21.01	16.73	6.17	8.84	4.89	22.68	6.61	4.17	6.73	0.17	17.68	5.00
1896-97	1751	77.21	7.71	69.50	4.45	25.19	15.88	0.00	11.14	12.84	22.79	5.65	3.66	9.31	0.17	18.79	4.00
1897-98	1732	81.52	8.14	73.38	8.37	24.65	17.61	0.00	9.30	13.45	18.48	6.93	2.02	5.26	0.17	14.38	4.10
1898-99	1711	82.41	8.24	74.17	8.12	25.31	18.06	0.00	9.88	12.80	17.59	6.02	1.64	5.08	0.18	12.92	4.67
1899-1900	1634	79.07	7.89	71.18	5.20	26.14	14.87	0.00	9.98	14.99	20.93	6.18	3.24	6.80	0.18	16.40	4.53
1900-01	1715	79.94	7.99	71.95	6.18	23.62	21.05	0.00	8.51	12.59	20.06	6.24	2.74	6.53	0.23	15.74	4.32

Source: Table 3.12

Graph 3. Indices of Paddy & Ragi
Cuddapah Dt



Graph 4. Indices of Major Cash Crops
Cuddapah Dt

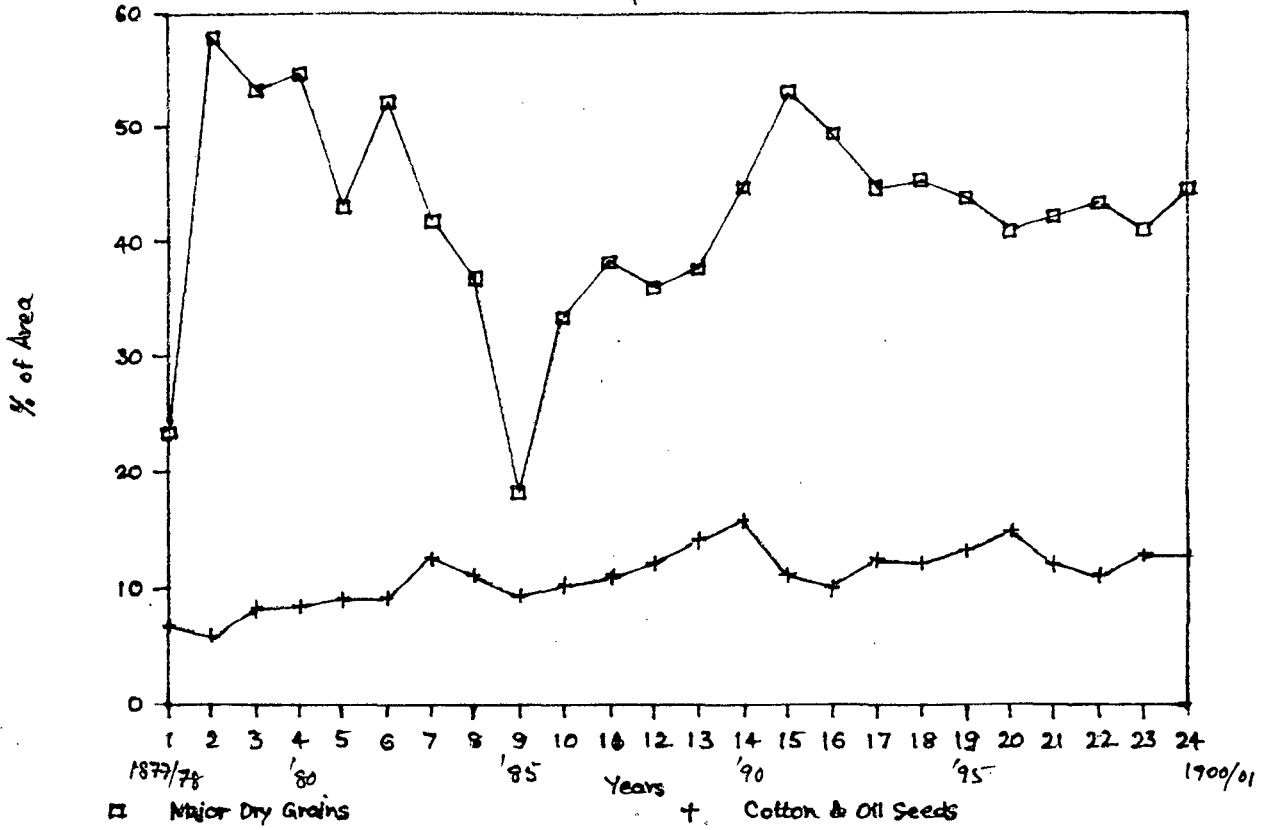


was grown as dry. When water was less assured for the second crop of paddy cultivation, farmers in the district raised either ragi or indigo. In other words, indigo did not compete with cotton and oilseeds for land. Of the three crops, while oilseeds registered a fast growth, cotton area showed an upward trend only till 1890. But in the nineties, it had stabilised. Indigo area progressed till mid-eighties, since then it showed fluctuations. It was a crop on the decline in the nineties.

Graph 5 portrays the relative progress of dry grains and cash crops like cotton and oilseeds. From 1878 to 1886 the shares of the dry grains and these two cash crops moved in the opposite directions. That is, as the share of the dry grains like cholam, cumbu, korralu etc. was declining the share of cotton and oilseeds put together was on the rise. From the late eighties the share of dry grains started increasing till 1891. During the late eighties, the share of the cash crops showed only marginal increase. 1890's witnessed frequent failures of monsoons, shortages and famines. It is not surprising to note that the share of dry grains showed an upward trend, especially from mid-eighties.

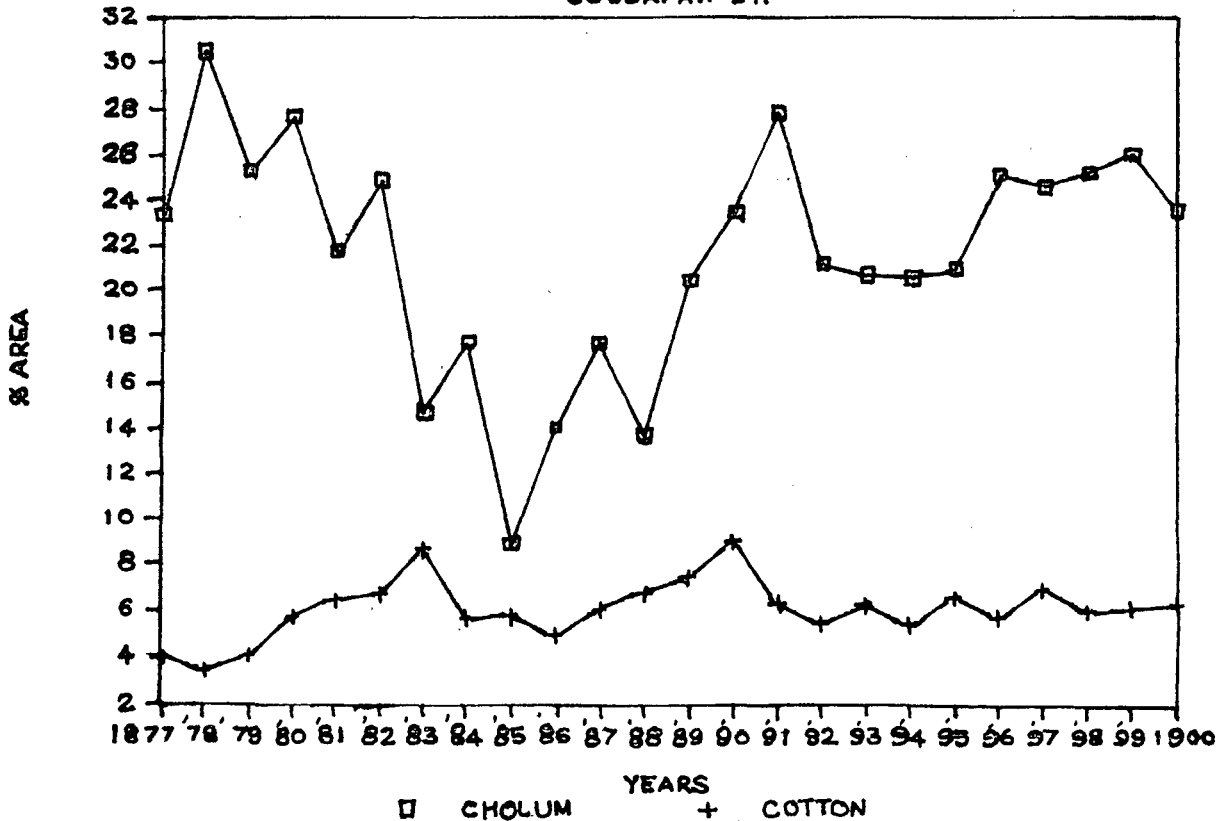
Graph 5 Dry Grains & Cotton, Oil Seeds

Cuddapah Dt



Graph 6. % OF CHOLUM & COTTON

CUDDAPAH DT.



Graph 6 shows the fluctuating shares of the two crops cholum and cotton which largely competed for land with each other. Graph 5 and 6 are largely similar but for some minor differences. We will discuss the performance of cotton crop in one of the later sections.

Table 3.14 gives in a capsule form, information on the progress of areas under different crops in the district, during the last quarter of the 19th century. Total sown area (TSA) expanded at a compound growth rate of 0.75% ($R^2 = 0.50$). Between the Total Food Crops (TFC) and Total Non-Food Crops (TNFC), it was the later which registered a faster growth; TNFC increased at a compound growth rate of 2.81% ($R^2 = 0.43$) as compared to TFC with a growth rate of 0.98% ($R^2 = 0.41$).

Table 3.14 : Growth Rates(Compound) of Areas Under Various Crops in the Cuddapah District, 1877/78 to 1900/01

C r o p s	Growth Rate	R^2
Pulses	-0.56	0.01
Paddy	0.83	0.03
Cholum	1.82	0.18
Cumbu	1.11	0.02
Korralu	1.77	0.38
Ragi	2.09	0.65
Total Food Crops (TFC)	0.98	0.41
Cotton	2.53	0.30
Indigo	-0.63	0.01
Oilseeds	5.56	0.66
Sugarcane	2.79	0.21
Total Non-food Crops (TNFC)	2.81	0.43
Total Sown Area (TSA)	0.75	0.50

Among the Non-food crops, the performance of the oilseeds was the most impressive with a growth rate of 5.56% ($R^2=0.66$) i.e., highest growth rate coupled with the least fluctuations among all crops raised in the district. While indigo showed a negative growth rate of -0.63% (with $R^2 = 0.01$), cotton and sugarcane made reasonable progress in terms of growth rates but with high fluctuations.

The growth rate of the TFC was 0.98% with an R^2 of 0.41. Among the food crops, the performance of ragi was the most impressive with a growth rate of 0.98% and 0.41 as R^2 . On the other hand, pulses showed a negative growth rate, with high fluctuations (-0.56; $R^2 = 0.01$). The performance of other food crops although reasonably high was, however, marked by high fluctuations (low R^2).

3.11. FOOD PRODUCTION AND SHORTAGES

As for the per acre yields and total food production, the available empirical evidence for the district is meagre. But we do have some information for the year 1875/76 on the estimated crop yields per acre, gross production of foodgrains, seed and consumption requirements and surplus of foodgrains. Most of these data were

obtained by the Survey and Settlement Department which carried out what they called 'experiments' to measure the yields and estimate the production.

Table 3.15 gives data on average yields per acre, crop-wise, for the Andhra districts. It is interesting to note that according to the Survey and Settlement officials, the highest yield per acre of paddy was obtained in the Cuddapah district. But compared to the coastal districts of Ganjam, Vizag, Godavari and Krishna the per acre yields of dry grains in the Ceded districts were much lower.

Data on per acre yields were used to estimate the gross output. Estimates were also made of the seed requirements and consumption requirements of population (at the rate of $1\frac{1}{4}$ lbs. of cereals per individual per day). Food surpluses were thus estimated for the year 1875/76 for the Andhra districts (Table 3.16).

The important point to note here is not so much the exactness of the figures as the broad conclusion that except Vizag, all other districts in Andhra, according to these estimates generated food surpluses. Among the Ceded districts, Cuddapah produced the smallest quantity of food surplus. Only 87,000 tons or 23 percent of the gross production was the surplus in Cuddapah,

Table 3.15. Average Yield Per Acre, Estimated by the Settlement Department for the Settled Districts and by the Collector for others c.1872 (Yields in lbs. per acre)

Districts	Paddy		Cholum	Ragi	Varagu	Cumbu	Korrалу or Thenay	Samai	Misc.	Remarks
	One crop irriga- ted	un- irri- gated								
<u>Ceded districts</u>										
Cuddapah (7 taluks)	2,197	--	551	657	--	341	428	300	300 ⁺	⁺ Ariga
Kurnool	2,100	--	551	--	--	--	381	--	--	
Bellary (rice)	900	--	320	500	--	230	--	--	165	
<u>Coastal Andhra</u>										
Ganjam	1,344	--	--	798	--	--	--	--	--	
Vizag ⁺⁺	2,400	--	--	500	--	900	--	--	600 [*]	[#] Horsegram
Godavari	1,938	1525	1421	1743	--	1,104	--	--	453 [*]	-do-
Krishna	2,015	959	992	--	960	562	--	--	--	
Nellore	1,615	--	459	--	736	429	--	--	--	

Source: PBR 19th Dec.1878, p.1114-5.

++ For Vizag the estimates were made by the Collector.

For the Cuddapah District, estimates were based on the Settlements of 7 out of the 11 taluks.

Table 3.16. Estimates of Foodgrain Surpluses in Andhra, 1875/76

Districts	Estimated food-grain production (Tons in 000's)	Seed requirements (Tons in 000's)	Consumption requirements at 1½ lbs. per individual per day (Tons in 000's)	(Tons in 000's) (5) = (3) + (4)	Food surpluses (Tons in 000's)	Surplus as a % in Gross food production (6) as in (2)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
<u>Ceded Dt.</u>						
Cuddapah	377	15	275	290	87	23.0
Kurnool	452	16	195	211	241	42.3
Bellary	796	31	340	371	425	53.4
<u>Coastal Andhra</u>						
Ganjam	369	23	283	306	63	17.1
Vizag	338	13	376	389	-51	15.0*
Godavari	601	13	324	337	264	43.9
Krishna	756	28	296	324	432	57.1
Nellore	489	18	280	298	191	39.1

* Deficit

Source: PBR, 19th Dec.1878, p.11121.

whereas in Kurnool and Bellary these surpluses formed as high as 42.3 and 53.4 per cent respectively.

But paradoxically, when the famine struck in 1876-78, the loss of population in Cuddapah, Kurnool and Bellary was 17%, 25% and 20% respectively. Food surpluses and huge loss of population in an area apparently look

incongruous. One would tend to suspect the accuracy of the data and wonder whether they were over estimates. But considering the fact that the yield figures used were arrived at after years of experiments during the Survey and Settlement operations, this was unlikely. As for the data on consumption requirements used, the following were used to arrive at an average daily consumption of cereals per individual. The data were supplied by the District Collectors. (Table 3.17). Dr. Cornish,

Table 3.17. Consumption of Cereals per Day

District	Adults		Children	
	Males (lbs.)	Females (lbs.)	Boys (lbs.)	Girls (lbs.)
Ganjam	2 to 2½	2 to 2½	1 to 1½	1 to 1½
Vizagapatnam	2	2	1	1
Godavari	2	2	1	1
Krishna	2	2	¾	¾
Nellore	2	1½	½ to 1	½ to 1
Cuddapah	1½	1½	¾	¾
Bellary	2	2	1½	1½
Kurnool	1	1	½	½

Source: PBR, 19th Dec.1878, pp.11117-22.

the Sanitary Commissioner in the Presidency, made an estimate of per diem consumption of cereals in the region.⁷

According to that estimate, 24 ounces of cereal grains represented the average consumption of an adult and he arrived at the following quantities for a daily sustenance of a population of 100 persons.

	<u>lbs.of grain</u>
66 adults(above 10 years)	99.00
17 children(from 5 to 10 years)	12.75
17 infants (from 0 to 5 years)	6.37

	118.12
	=====

Allowing a safe margin on the calculation, he reckoned that a population of 100, required from 120 to 125 lbs. of grain per diem, or $1\frac{1}{4}$ lbs.per head all round.

If the estimates of production, seed and consumption requirements are more or less acceptable, then the large scale loss of population -- a large part of which was accounted for by mortality -- needs to be explained in terms of preponderance of small/marginal farmers, the insurance mechanism they followed, to ensure food in a region of uncertain rainfall and harvests and/or the inefficiency of transport system to rise to the occasion and move food grains into the deficit areas.

As explained earlier, the Cuddapah district, small farmers paying an assessment, on land less than

Rs.30/- were overwhelmingly large in number. From 1860's the Ceded districts in general and Cuddapah in particular, got increasingly caught up in the process of commercialisation in agriculture. The cotton boom of the early sixties had widened their horizons and intensified their involvements in the commodity markets, especially of the cash crops like cotton and indigo. Coupled with this, the advent of railways around 1870, accentuated the farmers' market involvement.

Given the precarious nature of the small farmers' cultivation and livelihood, coupled with an unprecedented drought successively for two years i.e., 1876/77 and 1877/78, weakening of the tradition of food storage as a result of the intensified process of commercialisation in the pre-famine period and non-response of the government in moving foodgrains to the drought affected region during the year 1876/77 and late starting of relief operations from the second year etc., were some of the reasons for the large scale loss of population during this famine period. In the nineties, when there were occasional famines, droughts and failure of harvests, the loss of population was much less. Both the people and Government were better prepared to meet the emergencies in the Nineties as compared to the pre-1876-78 famine period.

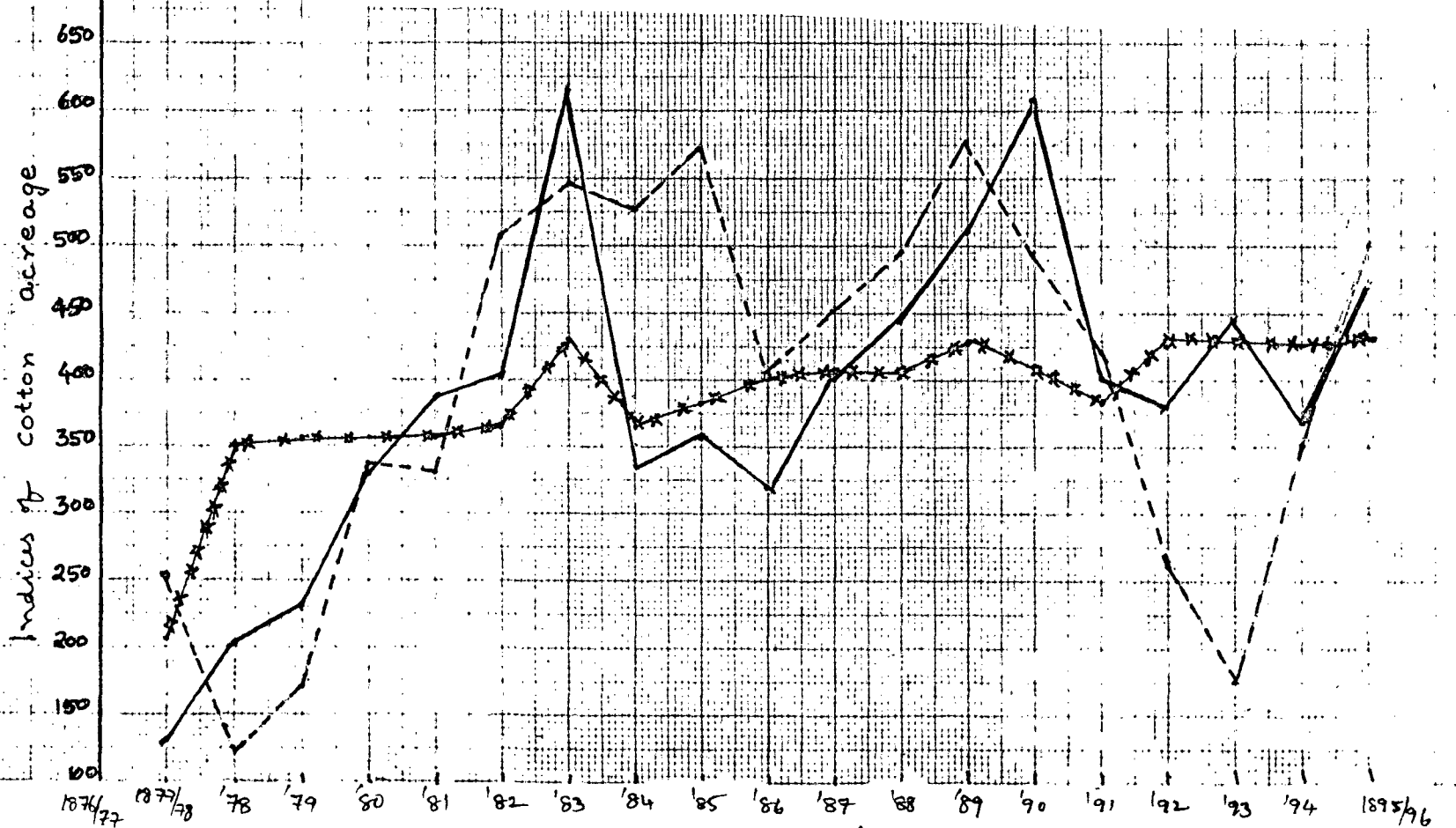
3.12. COTTON CULTIVATION IN THE CUDDAPAH DISTRICT

As stated in Chapter 2, cotton had been one of the major non-food crops grown in the Cuddapah district for quite some time. Since it was grown as an unirrigated crop on the black cotton or semi-regar soils, entirely depending on the rainfall for the soil moisture, it competed for the dry land with the coarse grains like cholum, cumbu, korralu etc. Again, among the dry crops Cholum was the major crop which competed with cotton for the dry land. In the preceding section, Graph 6 portrayed the relative performance of cholum and cotton between 1877/78 and 1900/01. In Graph 7 indices have been shown for the Total Sown Area (TSA), Cotton Acreage and Relative Prices of Cotton and cholum.

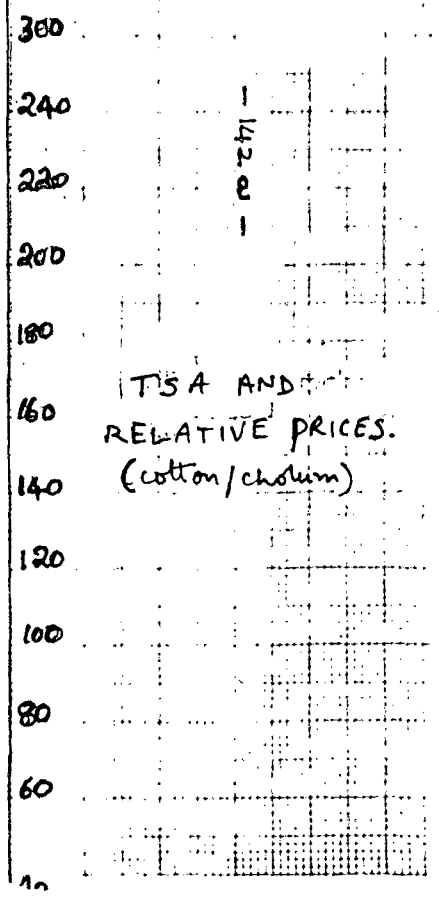
Ignoring the abnormal famine year of 1877/78, from 1878/79 onwards we see a slow but steady increase in the total sown area till 1882/83. In the year 1883/84, there was a sharp increase in the index for TSA, followed by an equally sharp fall in the succeeding year. From 1884/85 till 1889/90, there was once again a steady increase in the index for total sown area. The year 1891/92 was an year of monsoon and crop failures. It was reflected in the fall of index for the TSA. The early nineties witnessed a near stagnant index of the total sown area. Comparing the indices of TSA and cotton

— INDEX OF COTTON ACREAGE
 - - - INDEX OF RELATIVE PRICES (COTTON/CHOLU)M
 * * * * INDEX OF TOTAL SOWN AREA.

GRAPH 7



CUDDAPAH DISTRICT.



ITSA AND
 RELATIVE PRICES.
 (cotton/cholum)

acreage, we see that they move in consonance with each other, till 1891. Only in the early nineties, their movements were not synchronic. An interesting feature to note here is that when the index for the TSA is on the rise till 1891, the index for cotton acreage was rising faster and vice versa. In other words, in a period of agrarian expansion farmers in the Cuddapah district were motivated to expand their cotton-area faster. But when the monsoons were unfavourable over some years, as it happened in the early nineties, farmers felt hesitant to expand the cotton area. The association between the indices of cotton area and relative prices (of cotton and cholam) although broadly similar, is less consistent. Let us have a closer look at factors affecting cotton cultivation in the Cuddapah district for a longer time i.e., from 1860 to 1895.

In Chapter 2 (section 2.16 as also Table 2.12), we have noted that cotton cultivation in the Cuddapah district was mostly confined to three out of the 11 taluks. Jammalamadugu, Pulivendla and Proddatur taluks accounted for 70 per cent of the cotton area and 75 per cent of its estimated production. Strictly speaking, to understand the farmers' crop choice and factors affecting the same, our analysis should focus on these major cotton growing taluks. Unfortunately, in the official records talukwise

data on the cropping pattern are available only for a few occasional years. Hence, the analysis has to be carried out in terms of data at the district level.

Factors affecting the crop choice of the farmers are many and varied. This is especially so, in a semi-arid zone where poor soils, uncertain rainfall, occasional shortages, droughts and famines on the one side and attractions thrown up by the process of commercialisation of agriculture and expanding output markets on the other make the farmers' dilemma real and acute. In the specific case of Cuddapah district, not only a railway line opened out the horizons of the farmers setting their sights on the distant markets, an increasing population till mid-seventies set in a process of agrarian expansion which provided some elbow room for crop-choice by the Cuddapah farmers, at least till the Great Famine struck in the late seventies. Ideally, one should have made a distinction between the pre-railway and the post-railway periods. However, in the case of Cuddapah, due to certain boundary changes in the district, comparable data on the area cultivated by cotton and other crops are available only for the sixties - the pre-railway period. But the sixties -- at least the earlier half -- witnessed an extraordinary cotton-boom.

In as much as that was not a normal phenomenon, the pre-railway and the post-railway periods are, strictly speaking, not comparable. And as detailed out in the earlier sections, during the late seventies, another abnormal event viz., the Dhaatu Famine struck the region injecting fears of its recurrence in the farmers' minds. The Cuddapah farmer had a hard choice: either to lay a larger emphasis on the cultivation of non-food crops like cotton, oilseeds and indigo or prefer a safer alternative of raising food crops. In as much as markets for the non-food crops like cotton and oilseeds, if not indigo, were rising faster than those for the coarse grains like jowar and bajra, the choice of the Cuddapah farmers was really hard. In such a situation, an analysis of farmers' crop choice with special reference to cotton, only in terms of a couple of factors like prices and rainfall is bound to attract criticism. However, as the farmers' response to the price factor assumed some importance in the recent debate, a small exercise of this nature may not be irrelevant. The variables considered here are the area under cotton, relative price of cotton to jowar (cholum) and rainfall.

As data on cotton prices are not available for the five years prior to 1900/01, we restrict our analysis of comparative performance of cotton and cholum only

for the three and half decades ending 1895/96. Table 3.18 gives information on rainfall, acreage and prices of cotton and cholum for the period 1860/61 to 1895/96.

Table 3.18 Cotton and Cholum in the Cuddapah District, 1860 - 1895

Year	Cotton				Cholum				Rain fall (inches)
	Area (000's Acres)	Area in-dex	Price per candy of 500 lbs (Rs)	Price in-dex	Area (000's Acres)	Area in-dex	Price per garce (Rs)	Price in-dex	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1860-61	25	98.0	67	95.0	--	--	215	98.9	18.70
61-62	26	102.0	74	105.0	--	--	220	101.2	11.16
62-63	44	172.6	147	208.5	--	--	222	102.1	10.88
63-64	110	431.4	291	412.8	--	--	261	120.0	15.83
64-65	98	384.3	267	378.7	--	--	294	135.2	15.88
65-66	69	270.6	190	269.5	--	--	290	133.3	13.92
66-67	60	235.3	189	268.1	--	--	367	168.7	24.31
67-68	59	231.4	141	200.0	--	--	273	125.5	16.77
68-69	34	133.3	113	160.3	--	--	242	111.3	17.08
69-70	83	325.5	141	200.0	--	--	179	82.3	24.43
70-71	64	251.0	133	188.7	--	--	191	87.8	34.39
71-72	76	298.0	118	167.4	--	--	162	74.5	24.37
72-73	86	337.3	124	175.9	--	--	173	79.5	41.00
73-74	92	360.8	146	207.1	--	--	191	87.8	25.47
74-75	76	298.0	119	168.8	--	--	176	80.9	50.30
75-76	76	298.0	109	154.6	--	--	168	77.2	30.97
76-77	30	117.7	104	147.5	--	--	317	145.8	9.21
77-78	34	133.3	81	114.9	198	53.6	508	233.6	25.03
78-79	51	200.0	75	106.4	444	126.2	344	158.2	34.24
79-80	60	235.3	113	160.3	377	102.1	258	118.6	25.10
80-81	86	337.3	75	106.4	407	110.2	176	80.9	28.23
81-82	97	380.4	100	141.9	324	87.7	152	69.9	27.97
82-83	104	407.8	106	150.3	382	103.4	150	69.0	28.82

(contd....)

Table 3.18 (contd..)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
83-84	157	615.7	102	144.7	263	71.2	150	69.0	34.56
84-85	87	341.2	129	183.0	269	72.8	175	85.0	30.69
85-86	91	356.9	98	139.0	140	37.9	187	86.0	25.82
86-87	82	321.6	104	147.5	233	63.1	178	81.8	31.78
87-88	103	403.9	104	147.5	302	81.8	162	74.5	34.96
88-89	114	447.1	125	177.3	229	62.0	167	76.8	27.52
89-90	132	517.7	104	147.5	364	98.6	163	74.9	30.35
90-91	154	603.9	103	146.1	402	108.6	187	86.0	21.76
91-92	101	396.1	104	147.5	448	121.3	308	141.6	14.17
92-93	97	380.4	64	90.8	381	103.2	284	130.6	36.05
93-94	113	443.1	108	153.2	374	101.3	239	109.9	32.14
94-95	94	368.6	122	173.1	366	99.1	188	86.4	17.86
95-96	119	466.7	120	170.2	378	102.4	221	101.6	25.82

Note: Base Years: Cotton - Average of 1860/61 and 1861/62
Cholum - Average of 1880/81 and 1881/82

Source:

(1) Cotton

- (a) Acreage: (i) Annual Settlement Report of the Madras Presidency for the years 1860/61 to 1863-64
(ii) Report on the Administration of the Madras Presidency for the years 1864/65 to 1895/96.

- (b) Price: Reports on the Administration of the Madras Presidency for all the years.

(2) Cholum

- (a) Acreage: (i) For the years, 1877/78 to 1895/96, Statistical Returns published in the Proceedings of Board of Revenue (monthly volumes).
(ii) From 1895/96 onwards: Agricultural Statistics of British India.

(source ...contd..)

(b) Price: (i) For the years 1860/61 to 1873/74 :
Report on the Administration of
the Madras Presidency

(ii) For the years 1874/75 to 1895/96:
A Statistical Atlas of the Madras
Presidency, 1908.

(3) Rainfall :

(a) For the years 1860/61 to 1864/65, PBR,
monthly volumes

(b) For the years 1865/66 to 1895/96 : Report
on the Administration of the Madras
Presidency.

...

Table 3.19 provides data on rainfall and price
relatives (cotton/cholum) in the Cuddapah district for
the period 1860/61 to 1895/96.

Table 3.19 Rainfall and Price Relatives of Cotton and Cholum in Cuddapah District

(Average rainfall for the period

$$\bar{R} = 25.49'')$$

Year	(R - \bar{R})	(R - \bar{R}) ²	Price Relatives cotton/cholum
1860-61	-6.790	46.104	0.96
61-62	-14.330	205.349	1.04
62-63	-14.610	213.452	2.04
63-64	-9.660	93.316	3.44
64-65	-9.610	92.352	2.88
65-66	-11.570	133.865	2.02
66-67	-1.180	1.392	1.59
67-68	-8.720	76.038	1.59
68-69	-8.410	70.728	1.44
69-70	-1.060	1.124	2.43
70-71	8.900	79.210	2.15
71-72	-1.120	1.254	2.25
72-73	15.510	240.560	2.21
73-74	-0.020	0.000	2.36
74-75	24.810	615.536	2.09
75-76	5.480	30.030	2.00
76-77	-16.280	265.038	1.01
77-78	-0.460	0.212	0.49
78-79	8.750	76.563	0.67
79-80	-0.390	0.152	1.35
80-81	2.740	7.508	1.31
81-82	2.480	6.150	2.03
82-83	3.330	11.089	2.18
83-84	9.070	82.265	2.10
84-85	5.200	27.040	2.77
85-86	0.330	0.109	1.62
86-87	6.290	39.564	1.80
87-88	9.470	89.681	1.98
88-89	2.030	4.101	2.30
89-90	4.860	23.620	1.97
90-91	-3.730	13.913	1.70
91-92	-11.320	128.142	1.04
92-93	10.560	111.514	0.70
93-94	6.650	44.223	1.39
94-95	-7.630	58.217	2.00
95-96	0.330	0.109	1.68

Regression Analysis

$$\text{Model : } A = a + b.P + C.R. + d R^2 + e$$

where A = Area under cotton

P = Relative price of cotton to Jawar

R = Deviation of Annual Rainfall from the
average (over the period of observation)
Rainfall

No. of observations = 35.

Multiple correlation (R^2) = 0.33

F.Ratio = 5.0929 with degrees of freedom 3 and 31.

Estimated	T - Statistic
-----------	---------------

Coefficients	
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a = 960.6433	4.3122
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b = 17.8849	2.3947
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c = 1.3162	2.5246
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d = -0.1016	2.4962
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Thus, only 33 per cent of variation in the cotton area (year to year) is explained by rainfall and relative prices.

3.13. CONCLUSIONS

In this chapter we have tried to analyse the performance of agriculture during the last three decades of the 19th century, which was a post-railway period. With the

advent of a railway line passing through the district, around 1871, and the development of a network of roads, thereafter, facilities were created for the expansion of commodity markets both within and outside the district. How far agriculture had expanded, how far crop specialization or diversification had taken place, what were the impediments for the same, if there were any, what were the factors which affected the farmers' decision making process etc., formed the thrust of this chapter.

The late seventies were marked by the occurrence of a catastrophic famine which became a watershed in the history of agricultural growth and expansion in the Cuddapah district. As data on total cropped area and cropping pattern prior to 1876 are not available, on a continuous basis, a comparative study of the periods before and after the famine years (1876-78) posed some problems. However, in the year 1870/71, about 12.62 lakh area was found to be actually cropped in the district. By 1877/78 when the famine was in its severest intensity, the total cropped area declined to 8.50 lakh acres. If we take the post-famine early eighties as the starting point, we notice that the total cropped area was on the whole rising, but subject to fluctuations over the years. The cropped area registered a compound growth rate of 0.75

per cent over the last quarter of the 19th century. The decade from mid-eighties to mid-nineties broadly witnessed a steady agrarian expansion. On the whole, the agrarian expansion is found to be slow. An important reason for this slow expansion is traceable to the impact of the terrible famine on the human and draught animal population. Between 1871 and 1881 the loss of population in the district was as high as 17.6 per cent. Between 1871 and 1901 there was not only no net addition to the population but by 1901, population of the district fell short of the 1871 figures, by well over 4.4 per cent.

We are handicapped by the absence of data on draught animals prior to the famine. During the famine years, there were hardly 29,000 bullocks in the district. From the early eighties onwards, the number of bullocks increased. But from the late eighties, for which period we have data, the draught animal population had by and large stagnated with some minor fluctuations, till almost the close of the century. Thus, in a semi-arid zone like Cuddapah the slow growth of human and draught animal population is found to be an important reason for the slow agrarian expansion.

As for the cropping pattern, while the share of food crops had declined, that ^{of} the non-food crops increased during the quarter-century. As the eighties were relatively free from crop failures and shortages, farmers could

afford to experiment with crop shifts. In fact, as the area was able to produce enough quantities of food grains, farmers increased the share of the non-food crops in the total cropped area. However, the nineties unfortunately witnessed the failure of monsoons, shortages and even famines. Hence, once again the share of food grain area in the total cropped area was found to hover at a high level. Overall, while the total cropped area increased at a compound growth rate of 0.75 per cent, area under food crops registered a growth rate of 0.98 per cent and non food-crops, 2.81 per cent. Among the food crops, ragi registered the highest growth rate of 2.09 per cent and pulses showed a negative growth rate. Among the non-food crops, oilseeds registered the highest growth rate of 5.56 per cent, indigo showed a negative growth rate.

Although notionally the district was more than self sufficient in food grains in the pre-famine period, the successive failure of monsoons for two years, the small-peasant base of agriculture, their increasing involvement in the commodity markets, resulting in lowering of their guard against possible food scarcities, failure of the Provincial government to realise the gravity of the situation in the first year of the famine, delay in providing assistance to the famine affected etc., had all contributed to the huge loss of human and cattle

population in the late seventies. As the famine lingered on in the consciousness of the people for a long time, farmers were only hesitantly responding to the market situations. The 'safety-first' principle of ensuring food and fodder had always remained at the back of their mind in making their decisions on crop choice. Hence, when the nineties once again witnessed signs of crop failures, scarcities and famines, the farmers had quickly corrected their prevailing tilt in favour of cash crops, and enhanced the share of food crops area. Thus, the peasant rationality was affected both by the price and non-price factors.

As for the debate on the price response of the farmers through the impact of the railways, we noticed that variations in the acreage under the major cash crop of Cuddapah district viz., cotton could be explained only to a small extent by the relative price (cotton to jowar) and rainfall. In other words, non-price factors played a larger role in the variations of cotton acreage in the district during the three and half decades ending 1895/96.

The utility of this exercise lies in striking a note of caution on generalisations based on macro-data, which are the pooled crop acreages of all districts in a province together. While McAlpin found a positive

and significant association between the cotton - acreage and the relative price of cotton/cholum for the entire Madras Presidency, we noticed that such an association is not strong for Cuddapah. Cotton being a crop grown (at least in the earlier times) as a dry crop in semi-arid zones (certainly in the Madras Presidency) the farmers' rationale was not entirely coloured by the infra-structural development (railways) and price factors. This was especially so, as the economy of the region was heavily based on small farmers' or peasant-holdings. Admittedly, peasant rationality is a complex phenomenon which needs a deeper probe. But this little exercise indicated that specific studies on the cotton-growing districts or regions need to be taken up for ^{more} detailed probing by researchers. Obviously, there is a great deal of scope for further research in this regard.

Notes and References

1. J.D.B.Gribble, op.cit., p.330
2. Commission of Inquiry of Indian Famines appointed by the Government of India, 16th May, 1878, Gen.R. Strachey, President, Part III, p.5 (Hereafter Famine Commission Report, 1880)
3. Ibid, p.206

4. Evidence by Mr.A.Mackenzie, President of the Chamber of Commerce, Famine Commission Report, op.cit., p.204.

5. P.B.R., 29th Jan.1874, p.446.

6. J.D.B.Gribble, "Memorandum on Wells in the Cuddapah District and their uses as a prevention against Famine". Famine Commission Report, op.cit., p.88.

7. P.B.R., 15th Sept.1871, p.6794.

CHAPTER 4

RAIL-BORNE TRADE IN AGRICULTURAL COMMODITIES

4.0. INTRODUCTION

An attempt has been made so far, to trace the progress in agriculture, both before and after the advent of Railways in 1871, in the Cuddapah district. It has been contented that compared to the Sixties, cropped area had expanded in the early Seventies. An argument has been advanced that just when the agricultural sector was about to make a more rapid progress, a severe famine struck the region, slowing down the pace. The decade of Eighties which was relatively free from the failures of monsoons and crops, witnessed some agrarian expansion. The Nineties were again marked by famines and shortages, slowing down the agricultural progress. In any case, compared to the pre-Railway period, there was some progress in the post-Railway years. Now the question is whether railways had helped the expansion of the markets for agricultural commodities and if so, what were the directions and compositions of this rail-borne trade. In this chapter, an attempt has been made to analyse these questions with the help of the data available in the Proceedings of the Board of Revenue of the Madras Presidency.

4.1 LIMITATIONS OF TRADE DATA

There are certain limitations to these rail-borne trade data, which have to be spelt right at the outset. The first limitation is that the data are not available for all the years in the three decades in the post-Railway period. For the six years between 1872 and 1877, they are available only on trade between the Cuddapah district and Madras. Data on trade with the other Presidencies are not available. Secondly, data on rail-borne trade with any region are not available for the period, 1878 to 1885. Thirdly, for the rest of the period i.e., 1886-1900 data on rail-borne trade from Cuddapah to Madras and the other Presidencies are available only for one year i.e., 1886/87. This is a big handicap in evaluating the expansion of commodity markets of Cuddapah. However, two sets of data are available for the period 1886/87 to 1891/92. The first set of data refers to data between Cuddapah District/ Ceded Districts and the rest of the Madras Presidency. The other set of data relates to trade between Cuddapah/ Ceded Districts and the other provinces like Bombay and the Native States like Hyderabad and Mysore. Barring the year 1891/92, virtually no rail-borne trade data are available for the last decade of the 19th century. Hence, comparisons between the trade data for the

Sixties and Seventies involve some problems, due to differences in the extent of markets covered. In any case, inferences have to be drawn from the^{se} partial data, keeping in mind the limitations stated above.

4.2 RAIL-BORNE TRADE BETWEEN CUDDAPAH AND MADRAS, 1872-1877

As stated earlier, trade data for the seventies, between Cuddapah and Madras are available only for 6 years i.e., from 1872 to 1877. In our analysis we confine here only with the agricultural commodities like raw cotton and food grains like rice, millets and grams.

Between 1872 and 1875 agricultural commodities formed only a minor proportion of all the commodities traded between Madras and Cuddapah. However, during the Famine years 1876 and 1877, between 72 to 92 per cent of the imports into Cuddapah comprised of food grains. As far as the exports are concerned, agricultural commodities continued to form only a small proportion of the total exports from the Cuddapah district (Table 4.1).

Understandably, food imports had increased during the Famine-period. It is interesting to note that while in the pre-Famine years, millets like jowar and bajra formed a major portion of the total (agricultural) imports, during the famine years rice and grams had a

a larger share. During the pre-Famine years, exports of raw cotton formed more than four-fifths of the total agricultural exports, from Cuddapah to Madras. As the railway line was laid only around 1871, export trade in raw cotton was just picking up. But the Famine had slowed down the expansion of this trade and the volume of raw cotton exported to Madras by railways had considerably declined during the Famine period.

4.3. TRADE BETWEEN CUDDAPAH/CEDED DISTRICTS AND MADRAS PRESIDENCY, 1886/87 - 1891/92.

(i) VOLUME OF TRADE: CUDDAPAH

An interesting feature of Table 4.2 is that if the trade data for the year 1886/87 is any indication, as compared to the Seventies, volume of trade between Cuddapah and Madras had registered a significant growth. The Famine years of 1876 and 1877 were, however, exceptional as they effected a large volume of food grain imports into Cuddapah. The increase in the volume of trade between the pre-Famine period and 1886/87 is quite impressive (Compare Tables 4.1 and 4.2). Unfortunately, as such trade data are available in the eighties only for 1886/87, more meaningful inferences cannot be drawn.

(ii) VOLUME OF TRADE: CEDED DISTRICTS (REGION)

For the quinquennium ending 1891/92, we have data on trade between the Ceded districts (hereafter the Region) and the Madras Presidency (Table 4.2). Between 1887/88 and 1890/91 the volume of imports into the Ceded districts were on the decline. But during the Famine year of 1891/92, there was a sharp increase in the volume of imports which consisted ^{of} mostly foodgrains. On the other hand, during the quadrennium ending 1890/91 the volume of agricultural exports from the Ceded districts to the rest of the Madras Presidency had increased sharply, culminating with 14.78 lakh maunds in 1890/91. Understandably, during the very next year which was affected by famine, exports had become halved. Another interesting feature of Table 4.2 is that while the export trade from the Ceded districts was mostly with the Madras city, the Region's imports came from districts other than the city.

(iii) TRADE IN RAW COTTON: CUDDAPAH/REGION AND MADRAS

In the early seventies, exports of raw cotton from the Cuddapah district averaged about 17,000^a maunds (Table 4.1) But in the year 1886/87, they were well over 60,000 maunds. Almost all the raw cotton exports were sent to the Madras city (Table 4.3). Thus, in a period of 15 years from the

commencement of the rail transport in the district, exports of raw cotton by rail did show an upward rise. Imports of raw cotton into Cuddapah was not significant during this period.

As for the raw cotton exports from the Region, in the normal years, they appeared to be on the rise. As in the case of the Cuddapah District, the Region also was exporting nearly all its quantity to the Madras city. (Table 4.3).

(iv) TRADE IN FOOD GRAINS: CUDDAPAH/REGION AND MADRAS

As for the rail-borne trade in foodgrains, while in the early seventies, imports of food grains were quite small (Table 4.1), ^d During the year 1886/87, a little over 80,000 maunds of grains were imported into the Cuddapah district (Table 4.4). In the early seventies, an average of nearly 18,000 maunds of food grains were exported by rail. But during the year 1886/87, the quantity rose to well over 64,000 tons. The share of Madras city in Cuddapah's food grain export was quite insignificant. The exports were sent mostly to the Tamil districts other than Chingleput, North Arcot, Salem and Coimbatore. (Table 4.4). Of the total food grain exports of 64,000 tons from Cuddapah, well over 72 per cent was rice (Table 4.5).

As for the rail-borne trade of the Region in food grains (Table 4.4), only in the late eighties (1889/90 and 1890/91), they started picking up. During the year 1890-91, about 10.58 lakh maunds of food grains were exported by rail from the Ceded Districts. The share of the Madras city was about one-fourth during the years 1887/88 and 1888/89. But during the other years, it was quite insignificant. The famine year of 1891/92 had nearly halved the quantities exported from the Region. Of the Region's food grain exports by rail, rice did not form an important component. But from one-fourth to one half of these rice-exports were sent to Chingleput, and North Arcot districts. About 20 to 40 per cent were shipped by rail to the Madras city. (Table 4.4). Rail-borne imports of food grains (especially rice) into the Region were mostly from Chingleput, North Arcot and other districts. (Table 4.4 and 4.5).

Rail-borne imports of jowar and bajra (the major coarse cereals) into the Region were quite insignificant (Table 4.6). As a matter of fact, it appeared that the Region was poised for exporting sizeable quantities of coarse grains to Chingleput, North Arcot, Salem, Coimbatore and Malabar. During the year, 1890/91, more than 8.32 lakh maunds of jowar and bajra were sent by rail to the rest of the Madras Presidency. Again, the famine year of 1891/92 appeared to have dampened the momentum in the coarse-grain trade.

As for the Region's trade in other grains (Table 4.7) during a period of 4 years, i.e. from 1887/88 to 1890/91 quantities of grain exports were in excess of the imports. The years 1889/90 and 1890/91 were exceptionally good years for the grain exports, for more than 1 lakh maunds of grains were exported by rail to the rest of the Presidency. Chingleput, Salem, Coimbatore and Malabar cornered a large share of the Region's grain exports to the Madras Presidency.

(v) ALL COMMODITIES : CUDDAPAH/REGION

In the year 1886/87, about 5 lakh maunds of all commodities were imported into Cuddapah, while its exports were nearly 10 lakh maunds. While about 45 per cent of Cuddapah's imports came from the Madras city, the latter claimed nearly 58 per cent of Cuddapah's exports by rail (Table 4.9).

In the Region's trade, although the quantities imported were near stagnant during the late eighties, its exports had increased quite significantly. As for the direction of rail-borne trade, while 40 to 67 per cent of its imports came from the Madras city, the share of Madras in the Region's exports showed a downward trend during the late eighties.

4.4. COMPOSITION OF TRADE: CUDDAPAH/REGION AND MADRAS
PRESIDENCY

An analysis of the composition of the rail-borne trade, in the Cuddapah district in the year 1886/87 reveals that the exports of raw cotton formed nearly half of all the agricultural commodities exported to the rest of the Madras Presidency (Table 4.10). The other half of the exports were food grains. The interesting feature here is that rice exports covered a larger share in the total food grain exports from Cuddapah. Next in importance were grains.

Considering the rail-borne-trade of the Region, we notice that raw cotton hardly had any significant share in the total imports into the region. But in the normal years, between two-thirds to four-fifths of the total agricultural exports from the Region comprised of raw cotton (Table 4.10). As for the composition of trade in food grains, there was a difference between Cuddapah and the Region. While Rice was an important item in the exports of agricultural commodities from Cuddapah, it hardly played any role in the Region's rail-borne trade. But coarse grains and grams played an increasingly important role; this was especially so in the late nineties.

Of the total imports of agricultural commodities from the city into the Region, well over 90 per cent consisted of food grains, raw cotton imports into the Region from Madras formed an insignificant proportion. The reverse was true of exports. That is, of the total exports of agricultural commodities from the Region to Madras, about 93 per cent consisted of raw cotton. In other words, the distinctive features of the Region's rail-borne trade with Madras was that while its imports consisted mostly of foodgrains, its major export item was raw cotton. (Table 4.11). The rail-borne trade between the Region and the districts other than the Madras city reflected exactly the same pattern (Table 4.12).

4.5 TRADE BETWEEN CUDDAPAH AND OTHER PRESIDENCIES

We have data on the rail-borne trade in the agricultural commodities between Cuddapah and other provinces like Bombay and the Native State of Hyderabad and other regions only for the year 1886/87. (Tables 4.13 - 4.23 ; first row).

During the year 1886/87, a little over 1.27 lakh maunds of agricultural commodities were imported into the Cuddapah district by rail of which 96 per cent were food grains (Tables 4.13 and 4.15). No food grain was exported from Cuddapah. As we have seen in the earlier section, the major share of Cuddapah's exports of raw cotton went

to Madras city. In other words, while the trade in raw cotton was in the direction of ^{the} nearest markets i.e., the Madras Presidency, Cuddapah : ^{had} trade links in food grains both with the Madras Presidency as well as with the other regions outside.

An interesting feature of Cuddapah's rail-borne trade with the other Presidencies/Native states was that its major partner in the import trade was the native state of Hyderabad. Well over 88 per cent of the imports in agricultural/commodities into Cuddapah came from Hyderabad. As stated above, foodgrains formed about 96 per cent of the imports of the total agricultural commodities. About 88 per cent of these food grain imports came from the Hyderabad State. In other words, import trade with the other Presidencies/Native States was almost entirely covered by food grains and Hyderabad had the major chunk of this trade with Cuddapah. (Tables 4.13 to 4.15).

Now, a further decomposition of the grain imports into the district reveals the fact that well over 77 per cent of the food grain imports were jowar and bajra and 19 per cent grams. Thus, 96 per cent of the food grains were the coarse cereals like jowar, bajra and grams (Tables 4.15 to 4.18).

As for the export trade (7563 maunds) it was entirely in food grains (Table 4.15), of which 98 per cent was rice. Of the 7,415 maunds of rice exported,

nearly 84 per cent went to the Bombay Presidency. Tables 4.20 to 4.23 give the details about the shares of Bombay Presidency, Hyderabad and other regions in the rail-borne trade with the Cuddapah/Region. The tables are self-explanatory.

4.6. TRADE BETWEEN THE REGION AND OTHER PRESIDENCIES

The rail-borne trade between the Region and the other Presidencies/Native States has been detailed in Tables 4.20 to 4.23. While one-third of the Region's imports consisted of raw cotton, two-thirds were food grains. Except for two years, 1890/91 and 1891/92, rice was not an important item of imports. In those two years, about one-fifth of the total agricultural commodities was rice. Except the famine year of 1891/92, even jowar and bajra were not the important items of the Region's imports. Grains and other minor grains formed a sizeable chunk of the total agricultural imports (Table 4.20).

As for the export trade, in the course of a mere 4 years, i.e., from 1888/89 to 1891/92, while the share of raw cotton to total agricultural exports from the region increased sharply, concurrently the share of food grains declined. Rice, Jowar and bajra were the major items of food grain-exports from the Region (Table 4.20).

The share of the Bombay Presidency in the Region's import trade was not significant (Table 4.21). But its share in the Region's export trade was quite sizeable, ranging from 51 to 90 per cent (Compare Tables 4.20 and 4.21). The Region exported rice, jowar and bajra to the Bombay Presidency and they formed a larger proportion of its total agricultural exports.

The interesting feature of the trade between the Region and the Hyderabad State was that by and large, imports were larger, than exports. In other words, the Region was importing larger quantities of agricultural commodities from Hyderabad than it was exporting to that State. (Table 4.22). While the exports consisted almost exclusively food grains, imports comprised of raw cotton and food grains (Table 4.22).

The Region's imports of agricultural commodities from the other Provinces were quite insignificant. The little trade that the Region had was exclusively in food grains. Similarly, the export trade was also small. It comprised of both raw cotton and food grains.

4.7 CUDDAPAH/REGION AND THE REST OF THE WORLD

In Tables 4.24 to 4.26, we have consolidated the data on trade between the Cuddapah/Region and the rest of the world (Madras, Bombay, Hyderabad and other regions), to have an overview of the commodity markets.

(i) CUDDAPAH AND THE REST OF THE WORLD

In the year 1886/87 Cuddapah district imported a little over 2.17 lakh maunds of agricultural commodities. Cuddapah's exports were 1.34 lakh maunds (Table 4.24). About 41 per cent of its import came from Madras Presidency and the rest from the other regions. But the share of Madras Presidency in Cuddapah's exports were as high as 94 per cent. Food grains constituted nearly 96 per cent of Cuddapah's imports (Tables 4.24 and 4.25). Of the 2.08 lakh maunds of food grains that Cuddapah imported, 39 per cent came from the Madras Presidency and the rest from other places. As for export of food grains (71,913 maunds) nearly 90 per cent was shipped to the Madras Presidency.

As for trade in raw cotton, we have only data on imports. Of the 9184 maunds of raw cotton imported into Cuddapah, 99.7 per cent came from the Madras Presidency (Table 4.26).

(ii) TRADE OF THE REGION WITH THE REST OF THE WORLD

Ignoring the famine year of 1891/92, we notice that the Region's import trade was near stagnant (Table 4.24). Between 1887/88 and 1890/91, the volume of exports had more than doubled. From 6.52 lakh maunds in 1887/88, the exports went upto 15.55 lakh maunds in 1890/91. Understandably, during the famine year exports had

declined to a little over half and imports (almost exclusively food grains) had increased six-fold, as compared to the immediate preceding year. Allthrough, the quadrennium (1888/89 to 1891/92), food grains formed 98.1 to 99.9 per cent of the total agricultural imports into the Region. (Tables 4.24 and 4.25). As for exports from the Region, from half to three-fourths of the total exports were food grains (Table 4.24 and 4.25).

4.8. CONCLUSIONS

We have started our analysis of trade data with two questions : (i) Had the advent of railways resulted in an expansion of the commodity markets ? (ii) What were the directions and compositions of the rail-borne trade ?

A perusal of the partial data on trade would reveal the fact commodity markets of Cuddapah did expand both within and outside the Madras Presidency.

In the early phase of the railway transport, agricultural commodities formed only a small proportion of the total volume of trade between Cuddapah and other districts of the Madras Presidency. Food imports did increase during the famine years of 1877/78 and 1891/92. But we have already seen in the earlier chapter that

during the Dhaatu Famine (1876 & 1877) inspite of the availability of the railway transport, for a number of reasons (discussed in Chapter 3) loss of population in seventies was as high as 17%. Obviously, the stock arguments of the pro-railway lobby in British India, that railways mitigated the loss of population in times of famines were not convincing. The meagre evidence available for the mid-eighties shows that the volume of trade between Cuddapah and Madras Presidency increased significantly. Raw Cotton and food grains had almost equal shares in the volume of exports from Cuddapah to the rest of the Presidency. Rice was a prominent item in the exports of food grain from the Cuddapah district.

As for Cuddapah's trade with regions other than the Madras Presidency, both in imports and exports, food grains played a major role. While Cuddapah's trade in raw cotton was almost exclusively with the Madras city, its trade in food grains was with Madras, Bombay and Hyderabad. However, Cuddapah imported jowar and grains from Hyderabad and exported rice to Bombay.

One third of imports into the Ceded districts from the other Presidencies was raw cotton. Over the few years, we have data, we noticed that while the share of raw cotton increased, that of food grains had declined.

Table 4.1. Rail-borne Trade Between Cuddapah District and Madras, 1872 - 1877

Year	In mounds (25lbs)		In per centages											
	All agricul- tural commo- dities		Raw cotton		Total food grains		Rice		Mille- ts		Grains		% of Agricultura- ral commodities to all commodities.	
	I	E	I	E	I	E	I	E	I	E	I	E	I	E
1872	1332	11758	..	97.70	100	2.30	..	0.72	100	0.67	..	0.90	1.87	8.54
1873	7381	14612	1.00	78.76	98.99	21.24	0.16	10.70	96.83	1.65	2.00	2.04	9.67	12.22
1874	696	27746	43.10	99.34	56.90	00.66	..	0.09	54.02	..	2.87	0.58	1.43	3.56
1875	60	23194	21.67	75.36	78.33	24.64	18.33	0.13	60.00	24.13	..	0.40	0.11	19.50
1876	186067	6386	..	40.93	100	59.07	78.02	1.77	16.40	57.30	5.58	..	72.53	7.46
1877	1103782	5093	..	..	100	100	13.59	0.26	0.38	99.47	86.00	0.27	92.51	8.73

Note:1.Total agricultural commodities include raw cotton and total foodgrains.

2.Total foodgrains include rice, millets and grains

3. I - indicates imports into Cuddapah Dt.; E - indicates exports from Cuddapah District

4. For sources, see the sheets after Table 3.11.

Table 4.2. All Agricultural Commodities

Rail-borne trade between Cuddapah/Region and the Districts in Madras Presidency, 1886/87-1891/92

Year	In Maunds		In percentages			
	All Districts		Madras City		Other Districts	
	I	E	I	E	I	E
1886-87	90,052	1,26,481	17.81	50.35	82.19	49.65
1887-88	68,993	3,98,694	4.00	86.91	95.99	13.09
1888-89	84,398	3,03,408	4.85	85.39	95.15	14.61
1889-90	48,731	6,54,789	7.72	71.32	92.28	28.68
1890-91	17,224	14,78,755	12.56	32.70	87.44	67.30
1891-92	4,54,933	7,81,383	25.62	33.02	74.38	66.98

Table 4.3 Raw Cotton

1886-87	9,153	62,131	0.58	99.14	99.42	0.85
1887-88	330	3,25,188	36.06	99.94	63.94	0.86
1888-89	142	2,45,989	88.73	99.89	11.27	0.06
1889-90	146	4,27,388	95.21	99.76	4.79	0.11
1890-91	285	4,19,942	50.88	99.02	49.12	0.24
1891-92	11,807	2,46,794	0.18	98.82	99.82	1.18

Rail-borne trade between Cuddapah/Region and the districts in Madras Presidency,
1886/87 -- 1891/92

Table 4.4. Total Food grains

Year	In Maunds				P e r c e n t a g e s											
	All districts		Madras		All other districts		Chingleput & North Arcot		Salem, Coimbatore & Malabar		Nellore		Kistna		Other districts ⁺	
	I	E	I	E	I	E	I	E	I	E	I	E	I	E	I	E
1886-87	80899	64350	19.76	3.25	80.24	96.75	20.24	17.19	0.08	0.73	--	--	--	--	59.93	78.83
1887-88	58601	73506	3.83	29.27	96.17	70.72	90.53	29.43	0.03	15.00	1.73	0.71	--	--	3.88	25.59
1888-89	84256	57419	4.71	23.27	95.29	76.73	42.82	18.17	0.97	18.00	11.62	13.12	--	--	39.88	27.44
1889-90	48585	227401	7.46	17.85	92.54	82.15	9.61	42.54	0.11	19.31	9.13	4.69	20.16	1.41	52.98	15.52
1890-91	16939	1058813	11.91	6.40	88.09	93.60	7.01	7.16	1.42	22.26	10.89	5.03	43.33	0.28	26.71	58.86
1891-92	443121	540589	26.29	2.98	73.71	97.02	8.01	17.30	1.65	32.53	2.67	6.03	57.47	2.23	3.91	38.95

Table 4.5. Rice

1886-87	1996	46642	1.45	1.13	98.55	98.87	73.95	1.46	--	0.02	--	--	--	--	24.60	97.38
1887-88	53432	1340	1.25	40.75	98.75	59.25	98.09	49.55	0.03	7.46	0.59	1.79	--	--	0.04	0.45
1888-89	31825	3258	3.85	20.90	96.15	79.10	86.65	31.86	0.07	45.33	9.12	1.75	--	--	0.31	0.15
1889-90	6686	52475	7.50	18.60	92.51	81.40	64.37	48.20	0.27	4.08	1.08	1.80	26.41	0.72	0.37	26.60
1890-91	4973	72831	29.82	35.78	70.18	64.22	20.53	24.72	0.12	17.42	8.97	5.72	40.26	0.85	0.30	15.51
1891-92	292767	30687	29.77	4.33	70.23	95.67	6.62	78.76	1.10	7.52	1.90	8.67	59.48	0.67	1.13	0.05

Table 4.6. Jowar and Bajra

1886-87	6798	113	--	--	100	100	5.90	91.15	--	8.85	--	--	--	--	94.10	--
1887-88	16	12801	100	26.38	--	73.24	--	16.30	--	54.48	--	1.80	--	--	--	1.04
1888-89	402	23819	32.84	39.40	67.16	60.69	67.16	2.06	--	27.99	--	0.34	--	--	--	30.22
1889-90	30	28167	--	17.81	100	82.19	70.00	17.41	--	43.18	--	1.85	--	--	30.00	19.75
1890-91	102	832053	--	2.14	100	97.86	1.96	2.02	--	19.60	--	3.79	98.04	0.01	--	72.44
1891-92	12172	405204	--	0.12	100	99.88	17.38	9.21	--	35.38	0.60	4.08	82.02	2.46	--	48.74

+ Excluding Chingleput and North Arcot, Salem, Coimbatore, Malabar, Nellore, Krishna & Madras

Rail-borne trade between Cuddapah/Region and the districts in Madras Presidency,
1886/87 -- 1891/92

Table: 4.7 Other grains

Year	In Maunds		P e r c e n t a g e s													
	All districts		Madras		Other districts		Chingleput & North Arcot		Salem, Coimbatore & Malabar		Nellore		Kistna		Other districts	
	I	E	I	E	I	E	I	E	I	E	I	E	I	E	I	E
1886-87	25894	4996	3.35	7.43	96.65	92.57	54.53	34.44	0.02	6.75	--	--	--	--	42.10	51.38
1887-88	600	4945	3.67	17.76	96.33	82.24	94.66	42.85	--	14.18	--	5.40	--	--	1.67	19.82
1888-89	41663	13840	0.29	0.30	99.71	99.70	18.66	11.70	0.62	5.27	0.01	22.19	--	--	80.40	60.54
1889-90	26175	19135	0.16	7.77	99.84	92.23	0.14	24.73	0.05	6.62	0.21	24.73	1.53	10.57	97.91	25.58
1890-91	261	37362	36.02	9.49	63.98	90.51	5.36	24.26	--	9.69	33.33	37.33	25.29	4.28	--	14.95
1891-92	18542	38118	1.06	15.48	98.94	84.52	2.58	54.65	--	57.48	0.95	13.20	23.95	0.90	71.46	11.82

Table: 4.8 Grams

1886-87	46211	12599	32.65	9.45	67.35	90.55	0.81	67.90	0.13	0.91	--	--	--	--	66.41	21.74
1887-88	14553	54420	19.30	9.10	80.70	69.28	0.52	30.80	--	5.97	4.78	--	--	--	15.41	32.51
1888-89	10366	16502	24.02	19.71	75.98	80.29	4.42	44.15	5.12	8.87	66.41	26.21	--	--	0.03	1.07
1889-90	15422	130624	19.98	18.63	80.01	81.37	2.01	47.33	0.15	21.70	27.93	3.41	49.46	0.62	0.50	8.32
1890-91	11603	116567	3.80	17.47	96.20	82.53	1.30	27.42	0.16	48.32	11.31	3.16	44.57	0.58	38.87	3.06
1891-92	119640	66580	24.36	12.58	75.64	87.42	11.30	16.82	3.43	43.02	5.02	12.41	55.25	2.29	0.63	12.88

Table: 4.9 All Commodities

1886-87	501352	992514	45.32	57.53	54.68	42.47	9.06	20.31	0.49	2.45	--	--	--	--	45.13	19.71
1887-88	1105835	1579994	45.00	29.28	55.00	50.52	8.94	6.42	0.28	1.68	3.38	0.55	--	--	42.40	43.17
1888-89	833701	4650201	61.75	18.11	38.25	81.89	11.85	4.09	10.11	0.90	12.67	0.93	0.01	--	4.01	75.98
1889-90	843799	4650201	66.93	24.82	33.07	75.18	7.87	6.08	7.44	1.70	14.55	1.44	2.54	0.44	0.67	65.83
1890-91	1037931	2676418	60.21	26.29	39.80	73.71	11.13	8.27	3.62	9.55	18.43	1.88	3.01	4.02	3.61	50.00
1891-92	1650411	2028329	39.87	42.16	60.13	57.84	22.05	20.02	2.80	24.02	8.91	5.68	18.56	5.13	7.81	2.99

Rail-borne trade between Cuddapah/Region and other
Provinces, 1886/87 - 1891/92

Table 4.13 All Agricultural Commodities

Year	In Maunds		P e r c e n t a g e					
	All Provinces		Bombay		Hyderabad		Other Provinces	
	I	E	I	E	I	E	I	E
1886-87	1,27,174	7,563	11.51	82.49	86.16	16.99	0.33	0.52
1887-88	--	2,52,877	NA	89.56	NA	9.96	NA	0.48
1888-89	1,62,461	4,27,982	42.46	72.11	57.18	27.04	0.36	0.85
1889-90	1,91,425	1,39,148	8.39	50.95	91.32	44.94	0.30	4.11
1890-91	2,06,995	76,327	6.92	82.32	92.09	12.38	0.99	5.31
1891-92	9,43,555	43,070	26.68	84.14	65.78	6.35	7.54	9.51

Table 4.14 Raw Cotton

1886-87	31	..	3.23	--	96.77	--	--	--
1887-88	50,340	53,152	22.53	99.95	77.47	0.03	--	0.02
1888-89	62,925	22,596	32.90	85.72	67.10	0.04	--	14.24
1889-90	59,867	42,782	7.04	90.84	92.96	--	--	9.16
1890-91	71,131	25,377	5.46	95.11	94.54	0.02	--	4.86
1891-92	48,716	27,178	3.22	94.11	96.78	--	--	5.89

I = Imports into Cuddapah/Ceded districts

E = Exports from Cuddapah/Ceded districts

Rail-borne trade between Cuddapah/Region and
other Provinces, 1886/87 - 1891/92

Table 4.15 Total Food grains

Year	In Maunds				Percentage			
	All Provinces		Bombay		Hyderabad		Other Provinces	
	I	E	I	E	I	E	I	E
1886-87	1,22,463	7,563	11.96	82.49	87.70	16.99	0.34	0.52
1887-88	NA	1,99,725	NA	86.79	NA	12.60	NA	0.60
1888-89	99,536	4,05,386	48.51	71.35	50.91	28.55	0.58	0.10
1889-90	1,31,558	96,366	9.00	33.24	90.57	64.90	0.43	1.87
1890-91	1,35,864	50,950	7.69	75.94	90.81	18.53	1.50	5.53
1891-92	8,95,839	15,892	27.92	67.08	64.02	17.20	8.06	15.72

Table 4.16 Rice

1886-87	9	7,415	--	83.95	100	15.58	--	0.41
1887-88	N.A.	1,06,261	NA	92.83	NA	6.94	NA	0.23
1888-89	4,056	1,73,322	27.69	38.59	65.34	61.19	6.98	0.22
1889-90	10,201	68,144	32.45	14.28	60.69	85.09	6.86	0.63
1890-91	40,591	10,664	2.87	17.43	92.62	82.57	4.51	--
1891-92	1,98,798	11,179	8.58	75.07	64.47	19.19	26.95	5.74

I = Imports into Cuddapah/Ceded districts

E = Exports from Cuddapah/Ceded districts

Railborne trade Between Cuddapah/Region and Other Provinces,
1886/87 -- 1891/92

Table 4.17 : Jowar and Bajra

Year	In Maunds				In Percentages			
	All Provinces		Bombay		Hyderabad		Other Provinces	
	I	E	I	E	I	E	I	E
1886-87	94,575	2	4.75	..	95.25	..	..	100
1887-88	NA	63,308	NA	99.21	NA	0.21	..	0.58
1888-89	6,011	2,16,843	22.19	97.85	77.81	2.14	..	..
1889-90	5,145	18,326	0.74	98.65	99.26	0.61	..	0.74
1890-91	15,254	34,044	2.35	99.81	96.60	0.15	1.04	0.04
1891-92	5,39,276	535	36.74	45.79	61.55	24.11	1.71	30.09

Table 4.18 Other grains

1886-87	8,606	30	34.96	46.67	60.46	46.67	4.58	6.67
1887-88	NA	12,751	NA	90.17	NA	7.95	NA	1.88
1888-89	34,272	9,171	43.15	96.09	56.00	3.70	0.85	0.21
1889-90	35,026	2,850	10.52	87.09	88.34	12.91	1.15	..
1890-91	11,255	1,172	2.16	73.89	97.39	22.78	0.45	3.33
1891-92	27,858	413	4.98	55.69	90.34	44.07	4.68	0.24

Table 4. Grams

1886-87	23,953	116	29.83	..	70.09	100	0.09	..
1887-88	NA	17,405	NA	2.29	NA	95.71	NA	2.00
1888-89	55,197	6,050	56.23	22.45	43.76	77.55	0.01	..
1889-90	90,367	7,046	8.61	24.62	91.28	57.88	0.10	17.50
1890-91	68,764	5,070	12.62	39.17	87.37	6.27	..	54.50
1891-92	1,29,907	3,765	25.65	47.65	67.95	7.36	6.19	44.99

Rail borne trade between Cuddapah/Region and other Provinces, 1886/87--1891/92

Table 4.20 All Provinces

Year	In Maunds				P e r c e n t a g e									
	Agricultural commodities		Raw Cotton		Total Food grains		R i c e		Jowar and Bajra		Other grains		Grams	
	I	E	I	E	I	E	I	E	I	E	I	E	I	E
1886-87	1,27,174	7,563	0.02	--	96.27	100	--	98.04	74.37	0.03	6.77	40	18.83	1.53
1887-88	NA	2,52,877	NA	21.01	NA	78.98	NA	42.02	NA	25.04	NA	5.04	NA	6.98
1888-89	1,62,461	4,27,982	38.73	5.27	66.27	94.72	2.50	40.50	3.70	50.67	21.09	2.14	33.98	1.41
1889-90	1,91,425	1,39,148	31.27	30.75	68.73	69.25	0.53	48.97	2.69	13.17	18.30	2.05	47.21	5.06
1890-91	2,06,995	76,327	34.36	33.25	65.64	66.75	19.61	13.97	7.37	44.60	5.44	1.54	33.22	6.64
1891-92	9,43,555	43,070	5.16	63.10	94.94	36.90	21.07	25.96	57.15	1.24	2.95	0.96	12.77	8.74

Table 4.21 B o m b a y

1886-87	14,645	6,239	--	--	99.99	100	--	99.78	30.67	--	20.55	0.22	48.78	--
1887-88	NA	2,26,474	--	23.46	NA	76.54	NA	43.56	NA	27.73	NA	5.08	NA	0.18
1888-89	68,981	3,08,604	30.00	6.28	69.99	93.72	1.63	21.68	1.93	68.75	21.44	2.86	44.99	0.44
1889-90	16,051	70,891	26.26	54.82	73.74	45.18	2.06	13.73	0.24	25.50	22.95	3.50	48.50	2.45
1890-91	14,333	62,829	27.11	38.42	72.89	61.58	8.13	2.96	2.50	54.08	1.70	1.38	40.56	3.16
1891-92	2,51,705	36,238	0.62	70.58	99.38	29.42	6.77	23.16	78.70	0.68	0.55	0.63	13.34	4.95

Rail borne trade between Cuddapah/Region and other Provinces, 1886/87-1891/92

Table 4.22.

Hyderabad

Year	In Maunds				P e r c e n t a g e									
	Agricultural commodities		Raw Cotton		Total Food grains		R i c e		Jowar and Bajra		Other grains		Grams	
	I	E	I	E	I	E	I	E	I	E	I	E	I	E
1886-87	1,12,114	1,285	0.03	--	99.97	100	--	89.89	80.35	--	14.97	1.09	14.97	9.03
1887-88	NA	25,191	--	0.06	NA	99.93	NA	29.26	NA	0.52	NA	4.03	NA	66.13
1888-89	92,898	1,15,739	45.45	--	54.55	99.99	2.85	91.62	5.03	4.02	26.00	0.29	26.00	3.79
1889-90	1,74,808	62,549	31.84	--	68.16	100	0.35	92.71	2.92	0.18	47.19	0.59	47.19	6.52
1890-91	1,90,621	9,446	35.28	0.06	64.72	99.93	19.72	93.21	7.73	0.53	31.52	2.83	31.52	3.37
1891-92	6,20,679	2,734	7.60	--	92.40	99.96	20.65	78.46	53.48	4.72	14.22	6.66	14.22	10.13

Table 4.23

Other Provinces

1886-87	416	39	--	--	100	100	--	89.74	89.90	5.13	5.05	5.13	5.05	--
1887-88	NA	1,212	--	0.83	NA	99.17	NA	20.38	NA	30.28	NA	19.80	NA	28.71
1888-89	582	3,639	--	88.40	100	11.60	48.63	10.52	--	0.55	1.37	0.52	1.37	--
1889-90	566	5,717	--	68.55	100	31.45	12.37	7.52	--	2.36	16.61	--	16.61	30.43
1890-91	2,041	4,052	--	30.45	100	69.55	89.61	--	7.79	0.32	0.10	0.96	0.09	68.26
1891-92	71,171	4,098	--	39.04	100	60.96	75.28	12.99	12.99	3.93	11.31	0.02	11.31	41.34

Table 4.24. Rail-borne Trade Between Cuddapah/Region and the Rest of the World, 1886/87-1891/92

Year	All Agricultural Commodities		(In Maunds)			
	Trade with the Rest of the world		Trade within the Madras Presidency		Trade within the other Presidencies	
	I	E	I	E	I	E
1886-87*	2,17,225	1,34,044	90,052(41.5)	1,26,481(94.4)	1,27,174(58.5)	7,563(5.6)
1887-88	--	6,51,571	68,923(-)	3,98,694(61.2)	--	2,52,877(38.8)
1888-89	2,46,859	7,31,390	84,398(32.2)	3,03,408(41.5)	1,62,461(65.8)	4,27,982(58.5)
1889-90	2,40,156	7,93,937	48,731(20.3)	6,54,789(82.5)	1,91,425(79.7)	1,39,148(17.5)
1890-91	2,24,219	15,55,082	17,224(7.7)	14,78,755(95.1)	2,06,995(92.3)	76,327(4.9)
1891-92	13,98,488	8,24,453	4,54,933(32.5)	7,81,385(94.8)	9,43,555(67.5)	43,070(5.2)

* Data for this year refer only to Cuddapah.

For other years trade data refer to the Ceded districts

I = Imports into Cuddapah/Ceded districts

E = Export from Cuddapah/Ceded districts

Figures in brackets indicate percentages in total imports/exports.

Table 4.25. Rail-borne Trade Between Cuddapah/Region and the Rest of the World, 1886/87 -- 1891/92

	Food grains		(In maunds)			
	Trade with the Rest of the world		Trade within the Madras Presidency		Trade with other Presidencies	
	I	E	I	E	I	E
1886-87*	2,08,073	71,913	80,899 (38.9)	64,350 (89.5)	1,27,174 (61.1)	7,563 (10.5)
87-88	--	3,25,883	58,601 (-)	73,506 (22.4)	--	2,52,877 (77.6)
88-89	2,46,717	4,85,401	84,256 (34.2)	57,419 (11.8)	1,62,461 (65.8)	4,27,982 (88.2)
89-90	2,40,010	3,66,549	48,585 (20.2)	2,27,401 (62.0)	1,91,425 (79.8)	1,39,148 (38.0)
90-91	2,23,934	11,35,140	16,939 (7.6)	10,58,813 (93.3)	2,06,995 (92.4)	76,327 (6.7)
91-92	13,86,676	5,83,659	4,43,121 (32.0)	5,40,589 (92.6)	9,43,555 (68.0)	43,070 (7.3)

* Data for this year refer only to trade between Cuddapah and Madras Presidency, other Presidencies.

For other years trade data refer to the Ceded districts.

I = Imports into Cuddapah/Ceded Districts

E = Exports from Cuddapah/Ceded Districts

Figures in brackets indicate percentages in total imports/exports.

Table 4.26. Rail-borne Trade Between Cuddapah/Region and the Rest of the World, 1886/87-1891/92

Year	Raw Cotton (in maunds)					
	Trade with the rest of the world		Trade within the Madras Presidency		Trade with other presidencies	
	I	E	I	E	I	E
1886-87*	9,184	..	9,153(99.7)	62,131(-)	31(0.3)	..
87-88	50,670	3,78,340	330(0.7)	3,25,188(86.0)	50,340(99.3)	53,152(14.0)
88-89	63,067	2,68,585	142(0.2)	2,45,989(91.6)	62,925(99.8)	22,596(8.4)
89-90	60,013	4,70,170	146(0.2)	4,27,388(90.9)	59,867(99.8)	42,782(9.1)
90-91	71,416	4,45,319	285(0.4)	4,19,942(94.3)	71,131(99.6)	25,377(5.7)
91-92	60,523	2,73,972	11,807(19.5)	2,46,794(90.0)	48,716(80.5)	27,178(10.0)

* Data for this year refer only to Cuddapah

For the other years trade data refer to the Ceded Districts

I = Imports into Cuddapah/Ceded districts

E = Exports from Cuddapah/Ceded districts

Figures in brackets indicate percentages in total imports/exports.

Source for Table 1 : Proceedings of Board of Revenue (PBR) of Madras Presidency
(monthly volumes for the following periods)

1. PBR. 27th Feb. 1873
2. " 7th June "
3. " 12th Dec. "
4. " 10th Oct. 1874
5. " 7th Nov. "
6. " 5th May 1875
7. " 2nd March 1876
8. " 16th May "
9. " 25th Jan. 1877
10. " 9th May "
11. " 9th Jan. 1878
12. " 10th May "
13. " 1st Nov. "

Notes: (1) Agricultural Commodities include
raw cotton and food grains
(2) Total food grains include rice,
millets and grams
(3) I - denotes 'Imports' and E denotes
'Exports'.

Sources of data for Tables 2 to 11 Proceedings of Board of Revenue of the Madras Presidency (Monthly volumes for the following periods)

- | | |
|--|--|
| <p>1. PBR. 9th Jan 1886, No.64 (Quarterly data is given)</p> <p>2. " 16th Apr.1886, No.933 "</p> <p>3. " 25th Aug.1886, No.1903 "</p> <p>4. " 18th Nov.1886, No.2511 "</p> <p>5. " 22nd Dec.1886, No.2751 "</p> <p>6. " 16th June 1887, No.152 "</p> <p>7. " 27th Sept.1887, No.366 "</p> <p>8. " 15th Dec.1887, No.516 "</p> <p>9. " 14th Mar.1888, No.135 "</p> <p>10. " 19th June, 1888, No.286 "</p> <p>11. " 11th Sept.1888, No.493 "</p> <p>12. " 13th Dec.1888, No.714 "</p> <p>13. " 12th March, 1889, No.117 "</p> <p>14. " 13th June, 1889, No.285 "</p> | <p>15. PBR. 14th Sept.1889, No.437 (Quarterly data is given)</p> <p>16. " 12th Dec.1889, No.557 "</p> <p>17. " 22nd March 1890, No.89 "</p> <p>18. " 23rd June, 1890, No.173 "</p> <p>19. " 27th Sept. 1890, No.2914 "</p> <p>20. " 10th Dec.1890, No.387 "</p> <p>21. " 26th March 1891, No.154 "</p> <p>22. " 1st July 1891, No.369 "</p> <p>23. " 30th Sept.1891 No.617 "</p> <p>24. " 14th Dec.1891 No.795 "</p> <p>25. " 1st April, 1892, No.263 "</p> <p>26. " 20th June 1892, No.442 "</p> <p>27. " 22nd Sept.1892, No.647 "</p> <p>28. " 19th Dec.1892, No.795 "</p> |
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Sources of data for Tables 2 to 11 (contd.)

- 29. PBR 10th Oct.1887, No.383 (Annual data is given)
- 30. " 12th Sept.1888, No.519 "
- 31. " 30th Sept.1889, No. "
- 32. " 30th Sept.1890 , No.301 "
- 33. " 8th Oct.1891, No.642, "
- 34. " 29th Sept.1892, No.658 "

Notes:-

- (1) The data given for the year 1886-87 is for Cuddapah district and for the succeeding years, it is given for the Ceded districts and Kurnool.
- (2) Agricultural Commodities include raw cotton and Total foodgrains.
- (3) Total food grains include rice, jowar and bajra, other grains and grams.
- (4) I - denotes 'Imports' and 'E' denotes 'Exports'.

CHAPTER 5

C O N C L U S I O N S

The debate on the impact of railways on agricultural sector in British India during the later half of the 19th century continues to attract the attention of researchers in Indian economic history. While in the earlier debate, the arguments tended to be polemical with political overtones, in the later debate which was primarily renewed by a few American scholars, quantitative dimensions have been added to question some of the positions taken up earlier by the nationalist scholars. Although fresh ideas have been thrown in along with an apparently sound economic logic, some of the inferences drawn up by them on the macro data are open to question. For instance, aggregate data on cropping pattern at the level of Provinces, it has been argued, might conceal some specificities of the regions and sub-regions. It has been postulated that agrarian changes in the post-railway period have to be studied at much more disaggregated level to capture the nuances of the regional/sub-regional specificities. It is in this context that we have taken Cuddapah district for a detailed case study.

Cuddapah district being located in a semi-arid zone of Andhra, has had soils suitable for the growth of both millets and cash crops like cotton, indigo and oilseeds. It was also one of the Ceded districts which came under the possession of the East India Company as early as in 1800.

To have an overview of the agrarian conditions in the district during the Pre-Railway period, we have presented the salient features of the agrarian economy during the first seven decades of the 19th century. We have argued that agriculture in the district during the first half of the 19th century was devoid of any dynamism. A heavy burden of land revenue assessments, coercion on the cultivators by the government to forcibly extend the area under cultivation and depression in agricultural prices had injected forces of inertia and stagnation in Cuddapah's agriculture.

In the early fifties, when the period of depression got over, agriculture showed signs of change. The cotton-boom of the early sixties gave some fillip to the extension of cotton cultivation. Broadly speaking, the fifties and sixties marked the beginning of agrarian expansion and progress in the Cuddapah district.

A detailed study of the cropping pattern over the last quarter of the 19th century revealed that total cropped area was increasing, subject however, to fluctuations. The cropped area registered a compound growth rate of 0.75 per cent over the last quarter of the 19th century. The decade from mid-eighties to mid-n^a₄inties broadly witnessed a steady agrarian expansion. On the whole, the agrarian expansion is found to be slow, the reason for which is to be found in the impact of a terrible famine on human and draught animal population.

The small peasant-base of the agriculture in the district, their increasing involvement in the commodity markets resulting in the lowering of their guard against possible food scarcities, delay in providing assistance by the government, etc. had all contributed to the heavy loss of population during the Famine of 1876-78.

In the post-famine period, in matters of crop-choice, farmers were hesitantly responding to the market forces. The 'safety first' principle of ensuring food and fodder had always remained at the back of their mind. Peasant rationality appeared to have been influenced both by the price and non-price factors.

As for the specific case of cotton cultivation, the relative price of cotton to jowar and rainfall could

explain the variations in the cotton acreages only to a small extent. Non-price factors seemed to have played a larger role in indirectly influencing the cotton acreages.

The partial data that we have for the rail-borne trade between Cuddapah/Ceded districts with the rest of the Madras Presidency or other Provinces have shown that railways did enable the commodity markets to expand. These markets were not only for the cash crops like cotton but also for rice and millets. However, we could not probe into the question of the market integration through price convergences. This problem still awaits to be analysed.

To sum up, while during the first half of the 19th century, the predatory nature of the East India Company had perpetuated agricultural stagnation, agrarian expansion and growth during the later period were severely constrained by famines and droughts. The question of crop-choice in a small-peasant based agriculture was very much coloured by the anxiety to have an assured food and fodder supply. Within these constraints however, farmers did respond to changing market situations. However, overall, the non-market forces appeared to have played a more important role in matters of crop-choice.

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