Essays on Bangalore

VOL. 1

Convenors

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KSCST

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PREFACE

Bangalore was the fastest growing city in India in the 1970's. But, before this fact became generally known, two scholars had set out to study the structure of this emerging metropolis. Prof. V. L. S. Prakasa Rao and V. K. Tewari undertook a meticulous study that yielded a veritable gold mine of data. [1] This study has been the main inspiration for the essays that follow, which are grouped into four parts.

As an earlier review pointed out, there was a great deal more that could have been gleaned from the data provided by Professor Prakasa Rao and Tewari. This is well brought out in the study of slums in Bangalore by Dr. H. Ramachandran. Also, if the data was to be of immediate use to the policy maker, there were several other aspects that needed examination. The essays that follow may not succeed in completing this task, but they have succeeded in taking a small step forward. Thus, the study of the late Dr. Ramachandra Rao has many suggestions that will help rid the city of the mosquito menace. The study of firewood and charcoal by Prof. Amulya Reddy and Mr. Sudhakar Reddy also pose sharply the choices that face policy makers. The study of Dr. Anna Mani on Bangalore's climate makes certain points about architectural styles that will need to be taken into account in any future master plan for the orderly growth of Bangalore. This is true of the points in many of the other essays.

There are also areas of non-clarity.

Dr. Ramachandra Rao would like a reduction in the number of tanks in Bangalore to control mosquitoes; Dr. D. K. Subramanian would like more tanks to harvest rain to augment the city's water supply. These are areas that require further study.

Policy makers have been concerned with the growth of Bangalore. In this context, one should be careful in drawing policy implications from these essays. While several authors suggest ways of improving quality of life in the city, and even suggest certain levels of investment, it does not follow that these investments must necessarily be made. A hundred crores spent on Bangalore has to be seen against a hundred crores spent on making life better in other cities in Karnataka. If Raichur, Mysore, Hubli, Mangalore and so on become more attractive, it may be the best way of slowing down the growth of Bangalore. An investment on cities should also be assessed against the alternative of improving the quality of life in villages. This is an exercise that these essays have not undertaken.

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1. *V. L. S. Prakasa Rao and V. K. Tewari, 'The Structure of an Indian Metropolis' : A study of Bangalore', Allied Publications, New Delhi, 1980.*

It has also to be recognized that there are other factors that would influence urban growth in Karnataka. If, for instance, the railways were to construct broad-gauge lines from Mysore to Miraj, from Mangalore, Hassan, Shimoga to Raichur and Gulbarga, it would make a very basic difference to the entire pattern of economic development of Karnataka. A great deal of the more positive aspects of development in neighbouring Andhra Pradesh can be attributed to a good rail network.

In short, these essays show how much more needs to be done to develop a coherent set of policies for urban growth in Karnataka. If they result in stimulating further work, they will have served their purpose.

Vinod Vyasulu

Amulya Kumar N. Reddy

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Vinod Vyasulu
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IMPACT OF COLONIALISM ON THE ECONOMIC STRUCTURE OF INDIAN CITIES : BANGALORE 1800–1900

NARENDAR PANI*, TARA ANAND** and VINOD VYASULU***

Introduction

In the literature on the impact of colonialism on India one aspect has tended to receive less attention than it deserves. Though the debates on the nature of the impact of colonialism on industrialisation have continued, there is not too much attention paid to the question of how colonialism changed the historical evolution of Indian cities. Were some cities more adversely affected than others? And if so, why? This paper does not purport to provide a comprehensive answer to these questions. Our purpose here is limited to analysing the impact of colonialism on the economic structure of one particular city–Bangalore.

A study of Bangalore has the advantage that this city was a major economic entity even before British rule. It was as we shall soon see, virtually the commercial capital of Tipu Sultan's Mysore. Like the rest of Mysore it fell into British hands after the fall of Tipu in 1799. Thus this paper begins with Bangalore in 1800. British control over Bangalore was first indirectly established through the Maharaja. This system failed and from 1831 to 1881 the British established direct control. It is only towards the end of the century that we find the first signs of industrialisation— in the sense of large scale factory production — emerging. The period of our study is thus the entire nineteenth century.

In what follows we begin with an exposition of the system of production which existed in 1800. We then proceed to examine the decline of this system. Then we look at the economic activities in Bangalore Cantonment as they developed after the establishment of the Cantonment in 1807; and then go on to an analysis of the limited industrialization which took place in the later half of the 19th Century.

Bangalore Around 1800

Bangalore was, at the end of the 18th century, one of the strongest military centres in South India. Within the Kingdom of Mysore it ranked as the second most important fortress town, next only to the capital city of Seringapatam. Indeed, it was the fall of Bangalore in 1791 that tilted the scales in the Mysore Wars in favour of the British.

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As Cornwallis stated in his report to the Court of Directors in Britain, "....the news of the fall of Bangalore, which seemed to have been unexpected by the garrisons of those places (Dharwar, Capool) so effectually intimidated them that although in no shape reduced to extremity, or even distress, they agreed to surrender ".[1] Extensive armament manufactories were found in the Pettah where gunpowder, musquets, cannons and even carbines copied from a French Encyclopaedia were found.[2]

The importance of Bangalore as a military centre of repute did not detract from the fact that it was the " commerical capital " of Tipu Sultan's Mysore. Bangalore in the 18th century was a major manufacturing and trading centre. To the north of the fort was the " Pete " where specific areas were devoted to the buying and selling of each dominant article of trade . , *i. e.* cotton products in Aralepet, rice in Akkipet. Since the trade in a specific commodity was generally restricted to a particular caste, the areas were sometimes named after the castes of the traders as in the case of Nagarthpet (Cloth agents – Nagarits).[3]

Bangalore's reputation as a major manufacturing and trading centre owes much to the fact that its produce commanded an extensive market both within and outside Mysore. Within Old Mysore it catered not only to the court at Seringapatam, but also to such places as Bedanuru, Bogunji, Sringagiri, Copa, Kigganyamara Calasa, Mundaycara and Muthuru, in Nagara district and also to Madhugiri, Devanhalli, Chitradurga and Gubbi.[4] On the foreign front, demand came from places such as Mangalore, Calicut, dominions of Arcot, Lower Carnatic, and even in the more distant markets of the Gulf.

"It was the factory at Musquat, established in 1785 that was most important, because it was through this that exports from the Mysore Kingdom were distributed over the Persian Gulf, and imports from the Persian Gulf were brought into Mysore ".[5] A large part of these export came from the commercial capital of Mysore—Bangalore.

The imortance of trading activities in Bangalore can be seen in Buchanan's account, where he speaks of the presence of many foreign and non–local merchants taking up residence (permanently or temporarily) in Bangalore to participate in its commerical activity. In addition to agents from Bellary, Adoni, Aggady, Darwara, Hubuli, Naragunda, Navalgunda, Gutti, Krishnagiri and Vaniyambadi, there were also of recently increasing number of the Gujarathi merchants. And within the extents of old Mysore agents were employed to function in Bangalore. The city's commercially cosmopolitan character was aided by the fact that in the Bangalore of 1800, " almost every coin of India is current ".[6]

Buchanan apart, other European chroniclers have also noted the commercial success of Bangalore.

" Here there are many streets laid out with much regularity, and of great width, few towns in Hindustan can boast of better houses, or of richer inhabitants, if credit

can be given to appearances; and although the people had removed the principal part of their wealth on the advance of the British army, still bales of cloth, with immense quantities of cotton and grain, were strewed in every direction; indeed the booty dug up by individuals, out of concealments and deserted houses, strongly indicated ease, comfort and happiness in former times".[7]

Another observes that the " gardens afforded a variety of vegetables and roots, and the markets abounded with many of the necessaries of life ".[8]

Textile Manufacturing

Much of the trading and productive activity of this flourishing town centred around textiles. A large proportion of the town's populace — the weaving castes and many from the independent trading castes of Nagarit, Banajigaru and Comatiga — were directly dependent on textiles. And several other occupations like oil and gunny manufacture were also dependent on textile in an indirect way, in as much as their products were used in textile manufacture and export.

A large part of the town 's sizeable output of oil was used in the dyeing industry. And Crotalarea juncea — Gunny — which was grown in abundance in and around Bangalore must have been utilised by textile manufacturers, in the capacity of packing bales, sacks, exports packing and so on. Benjamin Hyene, writing in 1800, estimated the number of looms at around 5,000 .[9]

Textiles also formed the major item of export both to other cities within Mysore as also to provinces outside Mysore. Most of the imports of Bangalore, apart from items of daily consumption, catered exclusively to the needs of the weaving– dyeing occupation. Cotton wool, raw silk, coarse cotton thread, gunny cloth and thread were imported to feed the weaving industry. An index of the extent of import is given by Buchanan as 1500 bullock loads of cotton wool, 50 bullock loads of cotton threads (worth about 8160 pounds) and an estimated 230 bullock loads of raw silk (weighting 47,437 1/2 1b. and worth about 27,000 pounds). All the best cattle therefore were mobilised for this trade. In addition tamarinds salt, sulphur, indigo, soda, dye, alum, china root, jaggery, sugar candy, turmeric, arsenic, lac, wax, gum, lead, zinc, steel, and sesamum oil, were consumed by the dyeing industry, and had to be imported from the neighbouring provinces.

Within the town's largest manufacture, textile, we can identify three distinctive systems of production. The first system, also the most dominant, involved the production of partly or wholly commissioned silk weaves and superior cotton weaves with intricate borders which to a large extent made up the export market of textiles. The weaving castes involved in this system of production were the Pattegaras, Cuttery, Shaynagaru and the Devangas. The technique used by the weavers of these castes was sophisticated in comparison to the other weaving castes. They had also incorporated dyeing and painting into their "technology".

This system of production functioned primarily through the merchants advancing the necessary raw materials to them and later taking over the entire finished product. What is characteristic of this system of production is that the merchants dictated the entire terms of production, with the weaving classes being largely dependant on them for work.

The dominance of merchant capital is evident as the merchants decided what goods to commission, these generally being the ones for which demand was great or price high. Most commissions had to be executed within a period of three months, failing which, a penalty of 3/4 percent interest was levied on the producer per month, until the goods were delivered. Moreover, the producer could not undertake a second contract simultaneously nor could he even sell any cloth, during the period of this contract.

The exposure of these weaving castes to the markets was minimal, because their products were either directly commissioned by private customers or by the merchants who represented exclusive markets. As is perhaps to be expected the goods produced under merchantile domination commanded a very exclusive profitable market. These markets were found both internally, *i.e.* within old Mysore, the main consumption centre being the court at Seringapatam, and externally; a sizeable proportion of these textiles went to Mangalore, Calicut, the dominions of Arcot, Lower Carnatic and even the more distant markets of the Gulf, as has already been stated earlier. [10]

Needless to say that the goods that commanded such an elite market were the best produced in Bangalore, and the producing castes who functioned within this system of production (though under merchantile domination) were among the most affluent of producers. Sections of the Cuttery, Pattegaras, Shaynagaru and to a smaller extent the Devangas have been consistently referred to by Buchanan as being the most affluent.

"The Cuttery are more affluent than the Pattegaras and these again are more wealthy than any other kind of weavers". He further adds that though among the Devangas there are "many in good circumstances, the Shaynagarus are the richest".[11]

The fact that this system of production flourished is evident from the fact that " the master weavers keep from 2 to 5 servants who are paid by the piece ".[12]

Another indication of this general affluence, was that weaving or dyeing was the sole occuption of these producers, unlike the less prosperous weaving castes who sometimes hired out their services, or even worked as agricultural labourers to supplement their income.

Much of this affluence was related to the specialisation of skills within each caste. The Pattegaras and the Cuttery were predominantly silk weavers of repute. They wove elegant fabrics frequently ornamented in gold or silver of the most finely

woven superior quality. This included all kinds of intricately woven coloured silk cloths, the colours being white, red, pale orange, yellow and green, called " Duttari Huvina ", Gulenari etc. There was also "Sada Puttanchina ", a thin fabric of cotton and silk weave. They also wove the most superior cotton fabrics in varied colours, and with patterned silk borders. The patterns were varied by the different colours employed. and the different figures woven in the cloth, for they rarely consisted of a plain work. Each pattern had an appropriate name, and for common sale, was of three different degrees of fineness. If any person chose to commission them parts of the pattern could be done in gold thread. This enchanced the value fourfold and as Buchanan has pointed out, such production was only undertaken when fully commissioned.

Other producers like the Shaynagaru and the Canara and Telinga Devangas essentially wove cotton cloth with silk borders which while being similar to those of the Pattegaras, was not as fine. The status of the workmen hired by the master weavers was dependent on the skill with which they could work. " Workmen that are employed in cotton with silk borders made daily about a fanam or nearly 8d. Those who work on cloth consisting of silk entirely, make rather less or from 10/12 (6 3/4 pence) to 6/8 (6 pence) of a fanam according to the fineness of the work ".[13]

However an extra economic dimension did exist in the relationship between master–weaver and servants, the latter being often reduced to bonded labour. The servants, who " although paid by the piece, are generally in debt to their masters, and are consequently bound in the same manner as the servants of the farmers ".[14]

The second system of production involved the caste known as the Billy Mughas, weavers of white muslins, and was made up of the Samay and Padma Salays and the less successful section of the Shaynagarus.

In this system, the producer did not get raw material advances from the merchant. He had instead to depend upon the money lender for his investment. One reason for the existence of this alongside the earlier mentioned one was the fact that the produce of these weavers did not command a significant external demand; consequently the merchant was less willing to shoulder the marketing risks. The finished goods therefore found their way to the weekly markets. The role of the merchant, here, was in marginal way, replaced by the money lender, and the merchant himself became a part of the market. Thereby in this system the producer owned his goods till they were sold, by his own efforts, either to the merchants or at the weekly markets. The dual function of producing and marketing was shouldered by the producer, and hence so was the risk of investment.

The Samay Salays were the most affluent of this category and hired a few servants on piece work basis. The Padma Salays worked as household manufacturers, all males of a family living together as one unit of manufacture. They sometimes, but rarely, supplemented their incomes by hiring their services to the richer weaver

factions. The living standards of these classes were higher than of those employed in agriculture, and there seems to be no evidence of bonded labour of any kind being used.

The lack of wide external demand was primarily because the produce of this system was of less intricate pattern woven on plain white muslin cloth. Also, these producers did not possess the art of dyeing. Silk was rarely, if ever used by them. Only many kinds of white muslins like Soda, Shilla, Asto Cumbi, Duttari and Turbans[15] were woven.

In the third system of production which included the lowest echelons of the weaving castes the Togataru and the Holeyaru, the weavers went from house to house; collected small quantities of thread and wove it into cloth. They were paid by the piece rate.

Even within this category the Togataru were relatively better skilled producing a variety of thick, coarse cloth with red border used as dhoties or turbans by the poorer local people (Togatu in Kannada means small purple or red border on white cloth). As the Togataru found sufficient employment in catering to the poorer local needs, they did not take up subsidiary occupations like agriculture.

The Holeyaru, on the other hand could not find subsistence on weaving alone. The coarse. plain white cloth, " Parcala " that they wove was evidently not demanded in sufficient quantities to employ the entire caste. It was predictably the coarsest variety of cloth produced. The Holeyaru, therefore also hired themselves out as agricultural labourers, as well as general labourers, for any form of employment.

As a kind of sub-system to this third category of producers was the role in spinning of the poor women of the non-brahmin castes. Cotton wool was brought by them in small quantities from the public markets, and woven into thread. The surpuls thread, which Buchanan considered much finer than the imported thread of Balahari and places around the Krishna, was either collected by the Togataru who came to the doorstep, or sold at the weekly public markets by these women.

Allied Manufacturing

The existence of other allied manufacturers dependent upon textile production, was another feature proving that the prop of Bangalore 's economy was the textile manufactory. In this category of allied manufactures, are included the occupations of dyeing and printing, gunny manufacture and oil production.

By and large, in the first system of textile production, both weaving and dyeing were done by the same weaving castes. But there existed however, specialised dyers like the Niligaru,[16] who specialised in the dyeing of all shades of blue. In fact such was the nature of their monopoly over the varied shades of blue that the other weavers cum dyers were completely dependent on them for this colour. The extent of depend-

ence is illustrated by the fact that the Pattegaras and the Cuttery, in order to manufacture a very fine quality of green muslin had first to dye it yellow, and next sublet it to the Niligaru for a dip in a weak solution of blue, to get the required green.

This relationship of sub-contracting which existed between the Niligaru and the affluent producing castes of the Pattegara and Cuttery was similar to the contractual relationship that existed between the merchant and the affluent producer. The goods were contracted in much the same way – raw material advanced, and the taking over of the final product, thus preventing the Niligaru from meeting the market directly. As is perhaps to be expected in these petty modes of luxury manufacture the technology involved was highly dependent on skill.[17]

The next allied occupation, that of cloth printing was undertaken by a caste called Rungaru[18]. As in the case of all other textile and allied manufacture the the machinery, if it could be termed that was limited to a few basic tools like the looms, vats, pots, spindles, printing wooden blocks and other crude implements.

The cultivation of the Crotalaria juncea, and the subsequent manfacture of gunny clothes, can be regarded as another allied activity. This was undertaken by the caste of Telinga Banajiga[19]. These producers undertook the overall responsibility of cultivation, manufacture and sale of their produce. The gunny was cultivated on land rented out by land owners on an annual basis. This was approximately sufficient for 3 rotations of gunny cultivation, as it took 4 months for a harvest. gunny, thus cultivated was converted into gunny cloth, through a system of household manufacture. This was solely a family enterprise in which no hired labour was employed. These Telinga Banajigas or Gonigaru completed the entire process of transforming raw hemp into the final sack cloth in a single household manufacturing unit. Thus, it was only the finished sack cloth which entered the market. Neither hemp nor goni thread as raw material was sold in the market. It was a closed system of manufacture, where the ganigarus, according to Buchanan, functioned at subsistence level and showed no signs of surplus.

Another important, abundantly manufactured item of production was oil, and this too can be included in the category of allied manufacture. The success of the oil market was largely dependent on the success of weaving. A glance at the note on the technology of dyeing, tells us, that a sizeable input was oil (castor, sesamum oil etc). This occupation too, like most others was caste-specific, and the producers of this commodity were known as Jotynagarada Ganigaru, an affluent Karnataka tribe. They were affluent enough to work their mill by having the labour of two men and four oxen who worked 2 shifts every day. There is no evidence of bonded labour being employed.

The types of oil manufactured were about 6 varieties amongst which the quality of Wull Ellu was considered one of the best in the then Mysore Province.

Huts–Ellu (hutch-ellu) was used both for ordinary purposes as well as fodder for milch animals, Lamp oils, which also had medicinal uses, were Haralu, I ppay, and Hoingay. Copri was used as hair oil and also on the table. Oil was not on the export market, but was consumed locally. The techonology as in the case of dyeing did not require any complicated machinery.[20]

Other than these manufacture allied to textiles the tanning of leathers was also undertaken on a relatively small scale, by a caste called Madigaru. This manufacture was controlled and organised entirely by the government. The commercial officers of Tippu Sultan, the Mallik–Ut–Tudjurs supplied the Madigas with the deceased carcasses of goats, sheep, oxen and buffaloes. This in turn was processed by the Madigas and returned to the government for use. This transaction was not monetary in nature. The government paid the Madigas by allowing them to keep the flesh of dead animals, taking away the processed hide only. The quality of this processed leather, in the judgement of Buchanan was not very good. The Madigas had to supplement their income cultivating land or even by hiring themselves out as general labour to farmers.

The Dominance of Merchants

As can be seen from the above discussion the merchants had direct control over just one part of the production system – the textile manufacture involving the Pattegaras, Cuttery, Devangas and Shaynagaru. But these were the most affluent among the producing castes and the merchants control was complete. They controlled the financing of the producing groups, and by determining the extent of the contract, the penalty and the choice of design and raw material, virtually dictated the terms of production. As in the case of the producers, the areas of operation of each caste of merchants was also clearly defined.

The Nagarits, who were a local trading/merchant caste, acted as "cloth agents" or brokers providing the link between foreign merchants and the local producers of silk cloth.

The Pancham Banajigaru, a caste of hereditary indigenous tradesmen did not enter the contract market. They, however, undertook the wholesale responsibility of the import of cotton wool into Bangalore city, and also functioned in the capacity of "host" to the foreign and non-local merchants. The imported cotton was brought mainly from the dominions of the Mahrattas, and the Nizam of jalalu district, Hubli, Balahari Adoni etc. by other traders of the same Banajiga caste. This was then taken over by the "Pedda Chetty" the headman of the local pancham Banajigas, under whose supervision it was sold in wholesale quantities to the traders of Bangalore. It was then sold on retail in the town and neighbourhood.

Another indigenous merchant caste the Comatigas is identified to a significant extent with the cotton trade, but there is no evidence of their participation in the contractual sphere at all. They were also money lenders and traded in jewels.

The Pancham Banajigas had a near monopoly over import and this was of some consequence. Very little cotton, apart from that grown for family use, was cultivated in or around Bangalore, the textile weavers requirement of cotton wool and raw silk was dependent on import, and the Pancham Banajigas controlled entirely the import of cotton.

The most successful merchants – those that gave out contracts to the weavers of silk and superior cotton fabric (our first system of textile production) – were however not from the local castes. The silk generally came from outside Mysore, from as far as Bengal. And the merchants dealing in silk and superior cotton came from the region under the Mahrattas and the Nizam, Gujarat and even Kashmir.

They were the representatives of elite and exclusive markets. They sometimes took up permanent residence in Bangalore Petteh operating on behalf of their principals outside Mysore.

In the commercial ladder of the Bangalore Petteh then, the merchants came first, the Pattegara, Cuttery and to a lesser extent the Devangas and the Shaynagaru followed second. The allied manufacture of oil, managed by the Ganigaru came next in the commercial hierarchy to be followed by the Billy Mugga weavers, and finally the other not so successful producing sections, *i.e.* gunny, basket making, leather etc.

The Judicial System

This caste defined commercial system had its own machinery for civil and judicial matters. The overall structure of the judicial system was that each caste had its own policing authority, and as such, there was no single state mechanism to enforce laws uniformly on all these castes. Each caste had its own "headman" who settled disputes of a civil nature, the religious differences being taken care of by a suitable religious or temple head. Whenever a dispute arose between two merchants or two different producing castes, the state officers handed over each of the offenders to the headman of the respective castes concerned and as far as state involvement was concerned, it ended at this juncture. The headman of each caste would enforce punishment.

To illustrate, the headman of the Banajigas, "Pedda Chetty" of the Pancham tribe, was a hereditary judicial institution, who settled disputes of the Pancham, Jaina, Telinga and Gandhaki sub-sections of the Banajiga caste. The state was involved in this judicial transaction to the extent that it reinforced the judgement of the "Pedda Chetty" and even granted immunities from certain taxes like house rent and customs charges on his goods.

The hereditary headman of the Comatigas too enjoyed to a large extent the fruits of government immunity. The other castes, Bheri, Nagarit, Shalays, Devangas, Coramas, etc. had their own judicial heads who though recognised by the state were not formally granted any tax immunities. The only other caste which was granted tax immunity from the government were the land–owning classes of the Vokkaligas.

In all this, it can be seen that state control was indirect. However, direct state control did exist, in the sphere of goods and services either in the form of incentives or restrictions or even total prohibitions. State incentives were noticeable particularly in the textile trade as may be expected. In the words of Buchanan " there is a small duty levied here on every loom and it is judiciously diminished to those who keep many, in order to encourage men of wealth to employ their capital in that way."[21]

Even the transit duties for raw material like cotton wool were relatively light. A bullock load worth 14 to 20 " Ikery Pagodas " or 5 to 8 pounds, had to pay in all transit duties of 2 Canterai Pagodas or 13 shilling and 5 pence.[22]

It can be surmised that most articles of production were taxed lightly. They were also protected to a very large extent. Especially those production items which helped the war–based economy, as can be gathered from an imperial edict : " If there are ten iron founderies in your district, you are by encouragement, to increase them to double the number."[23]

All commercial transactions with Chennapatna was bannned on penalty for disobedience, when Tipu found that merchants were finding it far more profitable to trade with the foreign goods which made their entry from the Madras shores. The closure of Madras to trade also helped the textile manufactory in Bangalore, as competition from Salem was removed. Production of earth salt was encouraged, and trade was only with the dependencies of Calicut in the case of salt. [24]

The physical presence of direct state control was felt most strongly by the merchant classes, as the government monopolised certain items of produce. Government warhouses were set up in different towns and districts and its most important produce would be bought at a concessional rate by the commerical officers, the Mallick–ut–Tudjurs either to be exporter or sold locally from the warehouse at a profitable price. [25]

" The Mallick–ut–Tudjurs were to look after shipping and factories, and to see that elephants, and various articles such as silk and cotton cloth, sandalwood, pepper, cardamom, gold, silver and sulphur were available for export."[26]

In the banking and money lending sphere too, state interference was felt. The only banker shops that were given legal licenses were those under the control of the Mallick–ut–Tudjurs, who in turn employed Shroffs and clerks on a fixed monthly allowance, No Shetty could carry on this trade independently, a severe penalty being the restrictive factor."[27]

These laws, however, were not equally applied to all regions or even all persons. In the administrative system of Tipu Sultan personal discretion had a major role to play. For instance, when Raja Ram Chunder, officer at Bangalore wrote to Tipu Sultan asking for permission to establish State banking houses, and to open State

warehouses for the sale of cloth in Bangalore, he was not granted permission and was instead admonished " do you perform exactly what we order, neither exceeding our directions, nor suggesting anything further yourself."[28]

Similarly the Sayer system was based on caste distinctions, wherein " the rate of duty chargeable on each article not only differ in each Kuttah, and in each village, but different rates of duty are established by mamool (custom) for different individuals according to their caste and wealth."[29] This system of "personalised" collection of taxes was open to varied interpretations,[30] and functioning. Similarly, some " Ezardars " (tax-collectors) even collected less than the required tax, as inducement to traders, and for symbiotic advantage.

In the judicial system too, the same "personalised" execution of justice prevailed, with none or very little government involvement. Legal suits were decided by the Pettah Manay (chief of tribes), or in special cases by government officers as has already been mentioned.

As a source was to state later, " ....whenever a merchant fell into difficulties, the head Shetties enquired into his circumstances and under the sanction of the Sirkar, gave him a certain time, never exceeding 3 years to recover himself. [31] " ....the people used thereby to recover their shares from different persons with whom they had their dealings without ruining the other and protecting their own character."[32] Even in the judicial sphere, caste was a major deciding factor. For example the lowest castes, who were economically very backward[33] had not the facility of even a (hereditary) caste–head, in the absence of whom, the respectable old men of that caste would perform the required service of settling a judicial case. It can be seen, therefore, in the judicial system that power and influence were centralised with the heads of castes and tribes.

Bangalore in 1800 was thus a successful pre-capitalist commercial centre where extra economic coercion and the discretionary powers invested in the rulers played an important role.

II

THE COMING OF THE BRITISH 1800–1831

The turn of the 18th century, however, was significant to the economic fortunes of the Kingdom of Mysore, as with the fall of Srirangapatna in the fourth Anglo–Mysore war (1799), the rule of Tipu Sultan ended. The subsequent take over by the British and the installation of Mummadi Krishnarajendra Wodeyar III, ushered in a different set of economic parameters for Mysore and relatedly to Bangalore.

Encouragement to the Merchant Castes

In the initial years of British rule no major attempt was made to change the socio economic system of Mysore. Indeed, Richard Wellesley in the years soon after the take over chose to function within the existing personalised system. This can be seen best in the manner in which the shroffs were encouraged.

Wellesley taking advantage of the fact, that exchange rates for gold, silver and copper had broken down after the fourth Mysore War and having understood that fluctuations in the exchange rate were a source of speculative profit, for the Shroffs, introduced a policy of varying exchange rates in important centres of trade. Wellesley reasoned that "if the exchange is allowed to fluctuate from month to month in any place, provided the Shroffs can know in one month what value relatively to each other the different coins in use will bear in the next, it is immaterial to them what that value is. By means of their correspondents and connections in other places, they will be prepared for change, and will gain by it". [34]

He then proceeded to instruct the resident British officer that a reasonable exchange rate should be fixed at places like Bangalore, Sera etc. and that the Shroffs should be informed of it 15 days earlier and this system of divulging the exchange rates 15 days in advance was to continue month after month. With prior intimation of the following month's prices being conveyed to them, the shroffs did not need any great speculative skill in order to profit. Wellesley therefore was not only supporting speculation but was also making it a game which the shroff could not lose. This manoeuvre also helped to alleviate the fears of the many traders who had deserted Bangalore upon the advance of the British army, in distrust of the alien rule. Wellesley, in this way, perpectuated the personalised system by informing selected Shroffs and encouraging a particular section/faction of the trading community.

Other factors were also turning favourable for the merchants. Trade connections with the rest of British India, which had been severed by Tipu Sultan were now actively encouraged. More avenues for trade were created when a reversal of the eariler commercial policy of Tippu was effected. Tippu Sultan had take an aggressive stance against the sale of intoxicating commodities which he instructed his revenue officers to curtail. "There are Vitners shops in your district. Whenever you find four of these you shall suppress two of them, and double the tax upon the remaining two".[35] The British, however exhibited no such aversion to intoxicating substances and in consequence the liquor revenues almost doubled in as short a period as a year. Gross revenue for toddy and spirituous liquors had risen from 487 Canteraya pagodas in 1799–1800 to 808 Canteraya pagodas in 1800–1801.[36] Another important source of revenue opened up was the restoring of sandal wood to the open market. This article of luxury which had in Tipu's regime been withdrawn from the open market and stored in the fort, for export to gulf countries, was now freed by British commercial policy from state monopoly.

Factors on Textile Productions

But while new markets were opened those for textiles were closed. The factories that were established by Tippu Sultan in Musquat, Ormuz etc. were closed down in 1801, and the Mysoreans repatriated to thier respective towns.[37] This resulted in a cancellation of the export market for silk cloth, sandalwood etc. much of which was Bangalore's contribution. The resulting slump in the market catering to the elite consumers of cloth had in turn repurcussions on the producers catering to that market. And the producers functioning whithin the first system of textile production in Bangalore were the worst hit. It becomes increasingly clear that the British were not willing to replace these lucrative markets, and attempts to replace these markets with new foreign ones by Dewan Purneah proved futile.[38] Buchanan's personal recommendation to Marquis Wellesley that 'the attention of the Board of Trade may be directed to (these goods), with a view of forming some commercial arrangements that may assist in restoring a country which has suffered so much"[39] seems to have been ignored. This closure of elite markets was not confined to the export sphere alone. Internally, even within Old Mysore, the elite market was hit. An immediate consequence of the coming of the British was the disappearance of the Mysore Durbar in its old form. The new court could not, at least, immediately be of equal size or stature. As a result "the weavers of Bangalore... having been chiefly accustomed to work goods for the use of the court at Seringapatam"[40] were faced with the disappearance of another market. This situation was rendered hopeless by the fact that it was inconceivable that "English officers (would) ever demand the native goods, so much as the Mussalman sirdars did".[41] The British demand for clothes being very different from the demands of the Seringapatam Durbar, the market for cloth became restricted; the resultant glut in the textile market, ensured that the merchants were less willing to shoulder the risk of commissioning goods, except on very secure investments.[42] This restraint on the part of merchant capital affected the affluent textile producing groups in two ways – firstly, it forced them to make direct contacts with new markets, a novel situation for them, and secondly there arose an increasing reliance on the money lenders. In short, the first category of textile producers were pushed down to the second category.

Benjamin Heyne's estimate of 5000 looms in the Pettah of Bangalore[43] in 1800 had almost halved by 1849, as the count was only 2921 looms in the Pettah.[44] Trade had grown at the cost of productive activity.

This strategy of encouraging trade within the existing system continued as long as Poornaiah was Deewan. The average revenue collection (the annual Jummabundy) was to the tune of 24 to 26 lakhs Canteraya Pagodas annually, and with disbursements being much less, the treasury had accumulated a surplus of about 13 lakh Canteraya Pagodas (or approximately 2 million sterling), at the time of Purnea's forced resignation in 1811.[45] This was also aided by two factors. Firstly, the sandalwood and ivory accumulated by Tippu Sultan's earlier policy of state monopoly over

these items, now released to the open market, helped raise much of the revenue.[46] Secondly, a very large military garrison, maintained in the earlier years, to protect British interests and property, helped to keep the price of grain high and as a result sums of money were drawn from the Madras Government Exchequer and put into circulation.[47]

The Crisis of the Personalised system

This surplus however did not last after Poorniaah's exist. Several inherent problems in this strategy began to grow in importance. Firstly, the British, who retained the earlier system of personalised rule by giving specific concessions to the merchant class, had ensured that this class grew in importance. This new element of increasing influence of the merchant class, and decreasing prosperity of the production systems, destabilised the old system of administration. Secondly, in the years after 1812, only a small garrison was retained and agricultural prices fell as a result of extensive 'peace cultivation'. The economy of Mysore was showing signs of an inherent breakdown. Thirdly, the political and financial inexperience of the 16 year old king, in a highly personalised form of rule, took its toll on the Mysorean finances.

By the year 1814, the disbursements of the young Maharaja far exceeded his annual revenue collections, and this took its toll on the payment of salaries to the army. Both fell into arrears .[48] The British government for some time now, had been extremely unhappy about the Maharaja's administration, and there was frequent misunderstanding between the Resident and the Maharaja. And this, culminated in Sir Thomas Munro's famed visit to the Mysore province in 1825, when he issued detailed written instructions to the Maharaja on the running of the province.[49]

However, in the years following, there appeared to be no improvement in the financial position of the State, and by 1829, the Rajah had securred a debt of 70 lakh canteraya pagodas having already disbursed the surplus from Purneah's treasury, which was to the tune of 2 million sterling or 73 lakh C.Pgs. The Rajah was in debt, both personal and state debt, which amounted to about 70 lakh C.Pgs., of which 35 lakhs was in bonds to merchants and bankers .[50] Many of the merchants or their agents from Bangalore, advanced loans regularly to the Maharajah and even sued him when the loans were not returned.[51]

By 1828–29, the system was well on its way to a breakdown. Mark Cubbon's view that "Government had become venal and corrupt, all the establishments were deeply in arrears, no efficient control was exercised over the district officers, the highest were put up to sale, valuable lands were alienated, new taxes and monopolies were invented...." was undoubtedly factual .[52]

The economic breakdown of Mysore manifested itself in the insurection of 1830–31, when the ryots and the merchants rose in revolt against the Maharaja and the British acting according to the clause in the Subsidiary Treaty, reassumed direct management of the province and the Commissioner's period was installed.

III

THE SETTING UP OF BANGALORE CANTONMENT

Even as these changes were taking place in Bangalore 'Petteh', the British decided in 1807 to open a new settlement just out of Bangalore. This settlement later to be known as the Civil and Military Station of Bangalore, was envisaged by the British as an " isolated piece of British territory surrounded by foreign territory." [53] This settlement, established to safeguard British interests within the province of Mysore, was quite unlike the rest of the British Indian cantonment. While the other cantonments were under the purview of the East Indian Company at that time this was directly under the rule of the Imperial Crown .[54]

The Civil and Military Station that emerged therefore, was organised in terms of its economic and other related parameters, mainly to suit the then British interest. The land of the Civil and Military Station was given over to the British by the Maharaja, to be held and governed by them in perpetuity .[55] Indeed, the relationship between the Cantonment and the Maharaja 's government was an unusual and Military Station being situated within the boundaries of Mysore, the Maharaja retained theoretical sovereignity but renounced all civil, judicial and criminal rights over the new settlement, except over Non-European offenders who took refuge in the station against the laws of Mysore State.[56] The overall British control of the Civil and Military Station was further strengthened by ensuring that most of the occupants of the station were of non-Mysorean origin. In order to make their control effective, within territory not completely controlled by the British, it was perhaps necessary to ensure that, the Cantonment remained " an isolated piece of British territory " segregated from the rest of Mysore, in particular from the Petteh in Bangalore. To this end, the Commanding Officer of the station was even instructed to "extend the private buildings as little as possible towards the Petteh of Bangalore."[57]

This isolation would of course, have meant very little if was purely geographical. The British therefore also saw to it that the economic relations between the Cantonment and City were limited. The traders who, in the same period, were being protected within the Petteh, were judiciously kept out of gaining ascendency in the station. Indeed, traders from the petteh were not allowed to set up shops in the Cantonment but could sell their ware in wholesale only to the merchants of the General or Regimental bazaars within the station. In the words of one of the earlier Commanding Officers, Lieutenant General Beresford, the activities of certain " trades people which would have proved a nuisance to the healthiness, cleanliness, safety and appearance of this charming station,"[58] had to be effectively curtailed.

The flow of commodities between the petteh and Cantonment was restricted. For instance, the arrack that was being consumed legally, was Columbo arrack, rather than that produced in the neighbouring petteh. The high price of Columbo arrack led to some amount of smuggling of this commodity from the petteh.[59] But this very fact, that goods had to be "smuggled" into the Cantonment, reflects the isolation of this British territory in a foreign soil.

The size of this isolated British territory, was decided in terms of the British needs of that time. The core military preserve which made up the Cantonment consisted of a regiment of Cavalry and of infantry. Barracks for these regiments were built in the area of Ulsoor and around it grew the new settlement, consisting of the military buildings, bazaars, offices, houses, parade and drill grounds.[60] The Ulsoor lake was cordoned off for sole military use, with sufficient labour services being provided by the Ulsoor village. Within this settlement, now shaping itself into a city of importance, the British extended their control over the non-military aspects of life by entrusting to the Commanding Officer the right to allot all land, except those already claimed by the existing Devasthanams and other places of worship.[61] In the initial stages of the formation of the cantonment, the years immediately after 1807, these leases once granted were held under an indefinite tenure. It was only later decided to eliminate the "squatter status" of these lessees and regulate their rights. By the June Regulation of 1818[62] the leases were granted for a 21 year period, renewable after every 7 years. The land so allotted, was regarded as the individual's personal property to be disposed or sold as any other personal property.

The economic restrictions between the Station and the petteh noted earlier, were however, echoed within the Station too, as the British noticeably restricted the development of independent economically powerful classes. The few traders functioning within the confines of the Station were, in sharp contrast to their counterparts in the petteh, severely restricted. For instance, there was a penalty for most speculative purchases, especially where house property was concerned.[63] This was made even more restrictive, with the coming of British companies for setting up of their branches, dealing in consumer goods. The Civil and Military Station, initially established to serve an armed British force protecting its interests, towards the end of two decades, with peace established, and no imminent threat of internal aggression or external onslaught, was turned into a township with virtually no industrial activity. It was in Captain Gray's words, "Altogether out of the category of Military Bazaar Stations, that indeed a large body of troops was quartered there, and so far it was a militarty station; but that it was quite as much regarded as the headquarters of the adminlstration of the country, and as a fashionable sanitorium, to which the families of Governors and Councillors and wealthy lawyers and merchants proceeded for the benefit of their health, to which mothers resorted with marriageable daughters, and which was, on account of its salubrity and centrical stiuation, selected as a fitting site for their hotels, for a nunnery, for the head

quarters of a government photographer, the electric telegraph, the school of musquetry, the unemployed Major Generals, and the Wesleyan Mission Establishments, not to mention a lady's Boarding School, and a Gentleman's "Grammer School". [64]

This establishment therefore, not surprisingly flourished and abounded in the sphere of services: domestic, personal service, government and related administrative agencies and military service.

IV

CUBBON AND INTRODUCTION OF THE "BRITISH" SYSTEM 1831–1860

Given the financial chaos of Mysore State at the end of 1831, the British decided to establish a system more suited to their interests. Consequently, direct Commissioner's rule was clamped on Mysore State. What resulted was a complete change in the judicial, administrative and financial systems in Bangalore.

The Judicial System

The first step that was taken within this system was breaking the control of the existing judicial authorities. This was accomplished by the introductlon of a Panchayat system which consisted of the most respectable citizens of Bangalore, who had to spare time and effort to judge cases at the Civil Court at Bangalore. Even within the Panchayat, authority was not centralised in the "Sur Panch" but the decision of the majority of members was to be the decision of the Panchayat.[65] In this way the traditional system of the heads of castes acting as the judicial authorities of their respective castes was broken, as was the power and influence of each of these traditional heads. Instead, despite protests by the merchants and the more affluent of the castes [66], an organised Panchayat system was established throughout Mysore, and Bangalore was made the highest centre of judicial authority. This helped to establish Bangalore's supremacy as the judicial centre and therefore the inhabitants of the petteh (had to go) to various cutcheries to act as Panchayatdars there [67]. This had far reaching consequences, as the control of individual caste heads or leaders was broken, to be replaced by another set of judicial authorities multi-caste in nature, hailing from the administrative capital of Bangalore.

This measure was met by a certain degree of opposition, but most opposition seems to have been confined to petitions only. "The people of the Cusbah cutchery summon all classes of people and saying that they are to go to various Cutcheries and remain under the orders constantly as established Panchayatdars."[68] Merchants protested "we are not those who will enter in the public service, but we conduct the trade of our own profession and earn thereby our livelihood."[69]

Once the traditional structures of the judicial system were broken, judicial authority was vested in the hands of the bureaucrats.

The Administrative System

Simultaneously the administrative system was modified so as to diminish the personalised form of functioning which had become an integral part of its structure. Relatives of the Cutchery's personnel no longer filled the Cutchery vacancies automatically. In order to breake the traditional practices ingrained in the system of administration the Amildar was asked to prepare a list of candidates, for any vacancies reported, taking due care to include equal numbers of applicants from the 'castes' of Brahmins, Musalmans and Hindus. In selecting tne more important administrative posts, the Superintendent withheld the discretion of appointments to each caste in rotation. There were "murmurs of dissatisfaction"[70] as was to be expected, among the former ruling elite over the overall changes in the administrative policies being introduced into the system by the British.

The administrative system was also simultaneously being delinked from any caste monopoly, as the British adopted the policy of rotation of castes for important administrative positions in the Bangalore Cussbah.

A further step taken towards streamlining the former system of administration, was that certain expenses of administration were removed or restricted. For example a cattle establishment called " Koteegee Karkanah" was maintained by the Fouzzdar on Government expense in the petteh of Bangalore for the use of the Maharaja or his friends. Cubbon, when he found that this estblishment incurred an annual loss of Rs.600/- closed down the establishment, sold the cattle by public auction, and had the servants discharged .[71]

Another feature of the Maharaja's administration, *i. e.*, the inefficiency which had pervaded the higher echelons of administration, due to under payment, was sought to be eradicated. Cubbon " to stimulate the zeal and exertions of public servants",[72] admits of augmenting the salaries of the public servants. An Urzee (Petition) from the Amildar of Bangalore to increase the salary of the Shaikdar of the Cusbah from Rs.9 and 11 annas to Rs.20/- in lieu of the duties of collecting and keeping accounts of the revenues of a town so large and so populous in nature was sanctioned by Cubbon.[73]

A new feature introduced into the Administrative system was the appointment of lower order public servants, that of a scavanger establishment maintained by the government for purposes of the petteh, in August, 1838. Concessions were also issued to the lower order public servants, the Candachar, Peons and the runners (Postmen) who were exempt from house tax.

Another change that was effected was the orgainsed expansion of the administrative bureaucracy which now handled the judical department of the state. The

strength of the Executive establishment of the Bangalore Division grew to include one Superintendent, one Assistant Commissioner, 22 Tahsildars, 5 Naib Tahsildar, 27 Paishkars, 25 Killadars, 4 Gorkars and Tanadars. 3

This change in the strengh of the administration was of special significance to Bangalore. Bangalore had been made the administrative capital of Mysore state, and most of the functionaries had to report to the head office which was installed at one of the Cutcheries, established in the petteh of Bangalore. That this system of administering a whole state from a headquarters was a bureaueratic novelty for the inhabitants of Bangalore is clearly seen from some of the protests that were voiced, " In the present times several courts having been established at this place for the investigation of suits, all sorts of cases in the country came to this place" .[74] and that they were " quite willing to perform all the duties connected with their own town, but that they ought not to be called on to settle the affairs of the whole Kingdom " .[75]

The Economic System

These changes that the British effected in the administrative system were made possible by simultaneous changes that were introduced in the economic sphere in the state aimed at a transformation of the former economic system, which had led to a complete collapse resulting in the insurrection of 1829–30.

One of the first objectives of Cubbon 's economic strategy was to remove all remenants of extra-economic coercion. Bangalore Division was one of the first divisions where this objective was achieved. Mac Arthur, Superintendent of Bangalore, writing in his Report of 1838 states that " Unpaid labour of every description is now entirely abolished throughout the division ".[76] and in corollary, labour being paid in kind was discouraged and cash payment was enforced in its place.

Relatedly, indebtedness and the method of dealing with it underwent a sea–change. Indebtedness which had all along been qualified by its extra-economic characteristic[77] was now being systematically transformed into a purely economic phenomenon. An organised and regulated method of dealing with indebtedness was introduced into judicial and administrative system right from the stage of the preliminary application to the final judgement degree.

" The peshkar shall on application write in a book the name of the person applying to him for the recovery of debt the name of the debtor and the amount of debt, the time and cause of it being incurred, and there upon fix a day for hearing .[78] Hearing was scheduled at 8 days from the date of complaint and after the decision, stay of execution would be for thirty five days. The concept of jailing debtors who could not repay debts even on promise, was introduced for the first time, and as a further step " if the debtor fails to pay any of the instalments, his property shall then, on application of the creditor be seized and sold in execution of the court " .[79] As is to be expected there was much opposition to this officialised

treatment of debts by the more affluent Panchayatdars of the petteh of Bangalore, as this system of administering justice would very probably expose a man of status or of high caste to public embarrassment and loss of credibility. But despite protests the concept of jailing for indebtedness was introduced by the British into the system.

The sayer system which was in a state of extreme irregularity [80] was reroganised and made less personalised. The private arrangements and transactions between Sayer Cuttah Ezardars and prosperous merchants, the deviation of routes by merchants, the valuation of taxes arbitrarily by Ezardars, were all penalised and a new set of regulations brought in. Sayer kuttahs (or check posts) were established in each taluk at suitable distances. Rates of duties to be levied on each article was clarified and a copy of the statement with new tax rates for different commodities was given to the Ezardars, the master copy of which was retained by the sayer's cutchery at Bangalore.

Another change that the British affected was the standardization of weights and measures. This was a novel mode of collection as seen from the account given by a merchant of that time. Whenever dealers pass through the Cuttahs of various places with their supplies they order their bullocks, gunny bags and carts to be stopped before the Cuttahs and after being unloaded to be measured, weighed or counted as the case may require, and afterwards they grant notes.[81]

The revenue accounts were further streamlined when the decree came from the Government of India that complete remission was being granted for all outstandinng balances from 1799 to 1831, a period of 32 years. The Superintendent reporting in 1838 states that the "Revenue accounts are by this measure freed from encumbrances and their preparation much accelerated, in the several cutcherries and the annoyance to Public Servants from the innumerable orders on the subject urging speedy collection is rendered unnecessary". [82]

Along with this process of regularization of revenue, there was a suitable tax cut [83] for different commodities. However, despite these tax reductions merchants in the long run had to pay more, and their disgruntlement is reflected in the petition of two Bangalore merchants asking for the abolition of two petty taxes[84] and also in the increase in the revenue collections of the Town or Cusbah of Bangalore, as many items of concealed revenue were brought to light by the regularization process.[85]

The merchants had further reason to be dissatisfied as Cubbon placed a limit beyond which individual merchants were not allowed to grow. Thus the traditional monopolies of tobacco and betelnut held by a section of wealthy merchants were broken. The breaking of the tobacco monopoly in Bangalore and its environs was accomplished by first securing the abolition decree. and then introducing superior quality foreign tobacco, which was sold at lower rates in the open market[86] and the introduction of a Sayer duty at the rate of three and half rupees per maund from Ist July, 1839 on all tobacco sold within the Bangalore town and its environs.

The Betel monopoly too was broken on a decree issued for its abolition[87] in the vicinity of the Bangalore petteh and by the introduction of a fixed duty on it. Also the introduction of competitors in the now opened market broke the old monopoly.

The British policy of opening up the economy helped trade flourish but at the same time it remained under direct British patronage. Merchant capital could not grow beyond certain limits. And even this limited merchant capital could not be diverted into production since the local textile industry was no longer a viable proposition. Bangalore's textile production which had already been hit by the earlier British policies was disabled further. Bangalore silk had not only been hit by the neglect and careless management of the adminstration, but was now pushed into a further crisis by the importation of foreign silk, " Nool Rashom " which was more popular due to its cheapness and brilliance. A further blow that fell on the already ailing silk industry was that import duty on foreign silk entering into Mysore was not changed, but any silk produce being exported to England was charged duty according to Colonial Tariff .[88] Even when the Sayer duty on silk was later discontinued, the silk industry could not recover.

The local cotton industry too was hit by the policy of abolishing sayer on imported European cotton thread entering the Bangalore Division and by the introduction of Bourban cotton which was comparatively new to the weavers, who only rarely adopted this new technique. [89] The number of weavers gradually diminished. In 1849–50 the number of looms in the Bangalore petteh were only 2921,[90] almost half of the Heyne 's estimate of 5000 in 1800.

Thus, though merchant capital did, to some extent accumulate there was no avenue into which it could be channelised. It was a period of stagnation in the fields of production ; in spite of the fact that " there is no want of money in Mysore and could the people see with certainty that the return of the produce of their capital would be secure to themselves; or their offsprings, much of the wealth now hidden useless in the earth would be used in improving the resources of the country .[91]

V

THE STUNTED DEVELOPMENT OF INDUSTRY 1860–1900

After Cubbon 's administration, too, the importance that had been given to trade continued. Among the major measures taken in this direction were the alterations to the currency system. In this connection " a meeting of merchants and bankers was convened at Bangalore by the Deputy Accountant General to discuss a series of questions connected therewith " [92]. The decision arrived at by the local government was that " one universal note for all India convertible at the presidency towns and the principal treasuries in the country would be preferred by the public, to notes

payable within separate circles" [93]. This decision having been taken, further measures were introduced to increase currency circulation. The Governor of Mysore obtained sanction to purchase for cash from the Madras Bank, currency notes to the value of 8 lakhs and from the Bombay Bank 2 lakhs annually [94]. Notes of smaller denomination were to be circulated within the province while notes of larger values would chiefly be employed for purposes of trade. Several other measures were instituted at the same time; gold bullion imported into Mysore in 1865–66 amounted to 27.5 lakhs [95], and simultaneously Mysore copper coins were being replaced by British copper coins.

During this period (1863-64) the already flourishing arrack trade was encouraged and streamlined by the British. The "Sudder Distillery System" was introduced, with the main objective of removing "all obstructions to open competition in the manufacture of spirits". [96] Liquor sales contracts could from this time onward be obtained only through publicly notified tenders. The concept of open competition was introduced into the Arrack trade, and distilleries which had only been in the hands of private contractors were now managed by the government.

But here again development of production forms was restricted by certain regulations that were enforced upon the Arrack trade. The contracts for tenders were given according to the discretion of the government, and as a matter of policy the same person did not get the contract twice. Machinery for production was kept under government control and this branch of revenue was wholly managed as a Government monopoly by 1872. [97] It was during this administrative year that a similarity of Abkarry regulations between the Cantonment and the Petteh was first introduced.

The only support that was given to the development of industry, was predictably a Government initiated one, which was situated within the compound of the jail and supplied with forced convict labour. By the year 1869, this jail manufacture was well on its way to being called the first industrial enterprise to be undertaken by the state and the items of manufacture at which the prisoners were employed were woollen and cotton weaving, tailoring, text-making, printing, type-casting, book binding, carpentry, blacksmithy and pottery.[98] This enterprise initially started as a government run Industrial School in 1862 "within the walls of a Jail where the various processes of manufacture can be carried on by convict labour and where there is close supervision without additional cost. This activity grew in to a full-fledged manufacturing industry by 1869.

Other then the jail manufacture other industries found it difficult to survive. Half hearted attempts to set up silk manufacture, for instance did not take off. A factory for reeling of silk was established, under the Superintendence of a government Officer in the vicinity of Bangalore. Little direct encouragement had, until recently been given to this industry by the Mysore government and the attempt then made to stimulate it, ended in no marked results".[99]

Another revival measure was undcrtaken by an Italian, Signor-de-Vecchi who endeavoured to introduce a better breed species of silk worm, in 1866. After initial success, it was totally wiped out with the coming of a severe drought, which left in its wake a peculiar disease, which proved to be a scourge to the silk worm. Another attempt in 1868, "to revive an industry in which interests of a large and needy community are connected"[100] by purchasing from Japan a large supply of cocoons for a sum of Rs. 7,000/- and distributing them freely proved abortive; so drastic was the effect of the prevalent disease.

The many attempts to revive the already existing forms of production proved unsuccessful to a very large extent. The main production activity, weaving, which was already in a state of crisis, suffered further because of the famine of 1877, which served to reduce the weaving communities to below poverty levels.

"The sub-Committee, calculate that about Rs.6,000/- will have been expended on the relief of the weavers" class in the petteh, of whom the population is chiefly composed.... many of whom have been reduced to starvation, by the femine, sold their looms, their houses" [101].

The Bangalore Woolen Factory

As we have seen in the preceeding chapters Bangalore's economy in the second half of the 19th century had still to show signs of major industrialisation. Even in the petteh where 34.87% of the population was employed in manufacturing, construction activites and as miscellaneous artisans (as compared to 11.05% in Cantonment),[102] there is no evidence of there having existed a flourishing factory system of production. Indeed, until 1877 there was not even a single major factory. The first factory which was started in that year therefore would be important, for us, even if it did not assume any major proportions.

But, the Bangalore Woollen Factory had a more important role to play. It was to become, especially towards the last decade of the 19th century and the beginning of the 20th century the centre-piece of Bangalore 's industrialisation. Moreover from our point of view, the constraints that the factory faced and the way it overcame them give us an insight into the constraints on industrialisation in general,and the extra-ordinary resources that were required to industrialise such a system.

When the Bangalore Woollen Factory was started in 1877, predictably enough by a Britisher, Mr. Standish Lee,[103] few could have imagined that it would develop to the extent that it did. Run on a part time basis by Mr. Lee, who was also the Principal of the Engineering School in Bangalore, its reciepts during the first months was just Rs.10.10 annas [104]. The technology that was used would hardly have seemed deserving of its status as a factory, being based as it was, on manually operated looms Despite these humble beginnings, the factory was to prove viable, though not much more. By December 1879, the returns had increasd to Rs.4624/-[105]. A sum large

enough to justify the installation of a complete set of woollen machinery powered by 12 H. P. steam engine. Having by now been converted into a partnership, the Bangalore steam Woollen Mills, as it was now called must have expected to be on its way to stability.

Further expansion, however, meant that the company had to overcome several constraiants, the most important of them being the attitude of the British Government towards industrialisation in Bangalore. The British who were directly ruling Mysore in 1879 understood governmental resposnibility, to be inclusive of profit making. As such, jail labour was being used in the manufacture of several items ranging from tent cloths, blankets, carpets, towels, to all types of prisoners dresses. Apart from his carpentry, smithy, basket and leather work and printing and binding were also undetaken[106]. Thus the first hurdle was the competition from jails. In order to hold his own against this competition the strategy evolved by Mr.Standish Lee was entirely one of appealing to the Mysore Government for concessions. Noting that he had "not only found it impossible to obtain government patronage, but also that I have to contend against government institutions in improfitable competition"[107], he went on to cite specific instances where the jail had managed to secure orders by quoting a lower price.

" Last year (1877) I endeavoured to supply the Remount Dept. with Horse Blankets, but the jail got the contract. Being very anxious to secure some work, even at unprofitable rates, I endeavoured to supply Silladar Horse Schools at actual cost, but the jail competion was so much, that the price was reduced.... and the job secured by them " [108].

In Mr. Lee 's perception the jail enjoyed two advantages in terms of its labour. First, it was unpaid labour and second, it was more specialised. This second factor gained importance, as in Bangalore at that time, " the difficulty (was) not in getting labour, but in persuading ordinary free labour to learn special trades, and then securing their services sufficiently long to reimburse the cost of instruction".[109]

In his first respresentation to the government in October 1878, Mr. Lee sought two concessions. He requested "permission to ask for the supply of the raw material required for the manufacturing departments of the Mysore and Bangalore jails, to be given to (him) for the ensuing year at current rates. This would give (him) the advantage of purchasing largely from the producers"[110]. The second request was that a set of commodities that he manufactured could be bought by the government. He did not however, gain very much in terms of concessions[111]. It was pointed out that the commodities produced in the jail were generally speaking more expensive than the market rate, with the specfiic commodity Mr. Lee mentioned (horse blankets) being the sole exception. Since the price of this commodity had since then been raised, it was decided that on the whole "no action on the part of the govrenment was called for".[112]

In 1879, pursuing the matter, Mr. Lee again represented to the government more specific set of six demands. These demands ranged from seeking administrative assistance, such as statistics in wool production, to more substantial economic ones. He sought a complete exemption of both municipal and imperial taxes. He also sought jail labour to be placed at his disposal and reiterated his old demand that the government buy specific manufactures from him. This time however, many of his demands were either partially or fully met.[113] The Chief Commissioner of Mysore (General Department) agreed to place jail labour at Mr. Lee's disposal, wages to be paid on a piece-rate basis, at the usual market rates. Existing statistics of wool production in the province were also furnished in additton to which an order was made out to the Deputy Commissioners to undertake a systematic statistical survey of the same, the results of which were to be made available in print.

The Commissioner also declared that in case of government bulk purchases, preference would be given to Mr. Lee's samples, on approval of which, supplies would be obatined from him. He, however, denied any knowledge of imperial taxes being paid to the Mysore Government, but promised, that Mr. Lee's industry, if found to be to the enrichment of Bangalore, would be exempted from municipal taxation.

These concessions, however, do not seem to have been enough. Just three years later in 1882, Mr. Lee appealed to the Maharaja for aid. The first major break through was the royal assistance to Mr. Lee in 1884, when concessions to float a company for the expansion of the steam woollen mills were granted.[114] These included the buying of Rs. 10,000 worth of shares by the government, in addition to buying their woollen requirements from the company. Taxes were exempted for an initial period of 12 years, and subsidised land on government property was promised at the Agraharam Road in the petteh for the setting up of a bigger establishment.

This company took over the existing mill at a valuation of Rs. 30,800 in shares and imported machinery, consisting of 1500 spindles and 50 looms with an overall capacity of 1000 lbs yarn and 750 yards of cloths per day.[115] This in itself, it will be seen, was not a sufficient boost because even at the end of 1885, only 910 shares out of the 2000 offered for subscription had been bought.[116] Indeed, due to the dearth of capital, many orders were turned away. The total effective capital employed was Rs. 75,000/-.[117]

The second and more effective breakthrough came in August 1886, when the company (agency) was taken over by Binny & Co., of Madras. The terms of the takeover were that, Binny & Co., would act in the capacity of Managing Agency, retaining the Secretaryship and Treasurership of the company "in perpetuity". The basis of remuneration was 3 pies per lb. [118]

Within four months of this arrangement, a technological and capital break through was ushered in. In December 1886, 2357 additional shares had been bought and

8000 cotton spindles were imported from London. A distinctive advantage was that Binny & Co. were the agents for the best quality of long-stapled cotton produced in India, and handled the trade of Bourdon and Egyptain cotton.[119] In Bangalore, after the Binny take over, while the old Mill at Dickinson Road was kept running, the New mill at Agraharam Road, was coming up, and in the year 1888 declared a profit of Rs. 15,000/-.[120] 1889 saw the installation of another 6000 cotton spindles.

About this time, when the Bangalore Woollen, Cotton and Silk Mills Co. Ltd. as it was now called, had overcome most of the internal restraints and production difficulties. There arose another hurdle. This time, the hurdle was external in nature. The market for cotton was very weak, the factory 's cotton-spinning section had to restrict working to 3-4 days a week to avoid over production. [121] Loss was inevitable. Further hurdles came up in 1893, when due to the trouble in the wool markets, machinery in the mill had to be kept idle for almost half the year.

This picture changed quite dramatically in the years 1896-1898. With the re-opening of the China market [122] the mill industry in general was to do well. In the Bangalore Mills, with the introduction of partial electric lighting and overtime, production increased. A reference is also made in its Annual Report of the use of Mysore Silk, for the first time, in hosiery [123]. The capital, at this juncture was increased from Rs.4 lakhs to Rs.6 lakhs. "The position, had improved to the extent of their being able to pay 4 quarterly dividends on the old capital at the rate of 10% per annum."[124]

But the end of the century was to see another setback for the mill. The plague attacked Bangalore, resulting in an estimated 5000 deaths in the Petteh alone [125]. This had its impact on labour. A mass exodus followed, (estimated at 35,000) and it is stated that the workers in Binny's dropped from 950 to 230 at one stage. [126] This setback, however, was necessarily temporary. The economic viability of the company had by now been established. Thus, when the plague receded in the early 20th century, Binny's as we now know it, was on the threshold of a period of growth.

In some senses though, the externally restricted size of the Bangalore Woollen, Cotton & Silk Mills co. Ltd., in 1900, was reflective of the general economic climate in Bangalore. This mill was, until very much later, the exception in an otherwise dull industrial climate. Two spinning mills, one oil mill, one iron foundry, one tile factory, a government press and a few other odd job presses were the sum total of Bangalore's industrialisation in 1901 [127]. Mr. Ananda Row, who later, was to be Dewan of Mysore, summed up the industrialisation of Mysore in clear terms :

The number of hands employed in these factories which are small ones, is an insignificant fraction of the population of the province, and forms but 3% of the industrial population. Almost all industries in Mysore are carried on indoors; on the primitive style, by individual families who have no capital, machinery or staff of servants to boast of" .[128]

Bangalore in 1900, was not yet an exception to this general pattern. With the entry of foreign capital and technology, Bangalore subsequently saw isolated growth spots, i.e., Brewery factories and aerated water factories, etc. These isolated growth spots combined with the necessity of increased administrative activity required a growth infrastructure. 1892, saw the construction of two railway stations, one the Cantonment Station and the other, City Railway Station.

Major employment opportunities were therefore created. And further enhanced by the administrative machinery's interest in the development of the transport sector, additional roads, highways and bridges were constructed on a massive scale.

But despite all these measures, it was clear that Bangalore still had a long way to go for industrialisation. The example of the Bangalore Mills had already proved one thing, that Bangalore lacked, internally, both the capital and the technology to set off on a patch of independent industrialisation. If it was to develop industrially it had to be through massive investment either by government or by non local capital. when Bangalore did finally develop into a massive industrial complex well after independence it was no accident that these two components of investment played a a crucial role.

CONCLUSION

The first century of British rule – both direct and indirect – significantly changed tht economic structure of Bangalore. Some of these changes may have been representative of the effect that colonialism had on most cities in India. For instance, British policy in Bangalore effeetively curbed the local textile production system. Though trade was simultaneously encouraged the development of merchant capital was not without its constraints. Cubbon for instance, curbed the development of trade monopolies in items like tobacco. In addition, the possibility of merchant capital being diverted to industry was restrained not only by the lack of markets but also by competition from jail labour.

Some aspects of British policy was however, have been specfic to Bangalore. For instance, the complete division, even in terms of economic relationships, between the cantonment and the 'Petteh' was influenced by the British desire to keep Bangalore Cantonment as a foreign territory on Indian soil, a policy that was not followed for other British Indian Cantonments.

It may however be a mistake to look upon the development of Bangalore in the nineteenth century merely in terms of the implementation of British policy. Some of the changes were prompted by the fact that some traditional systems could not survive under British domination even if the British did not directly interfere with them. The clearest example of this is the collapse of the financial system even before

Cubbon set about changing this system. The development of Bangalore in the nineteeth century must thus not be seen merely as the result of British policy but as the effect of colonialism as a whole. And it was colonialism that converted Bangalore from a commercially successful, if pre capitalist, textile producing centre to a city of petty traders and later, administrators.

NOTES

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3. The regular services of the washermen, the scavenger, potter and menial etc. being a part of the administrative set up of a township, we have excluded them for the purpose of our study, which restricts itself to the main economic services
4. Buchanan, Francis, A Journey from Madras through the countries of Mysore, Canara and Malabar, Vol,I (London : Buluver &Co . , 1807) pp. 200,219
5. " Selections from state papers, Bombay No. CCLVII " as quoted in Hassan, Mohibbul, History of Tipu Sultan (Calcuta: World Press Pvt. Ltd . , 1971)
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8. Dirom, Major Alexander, A Narrative of the campaign in India which terminated the war with Tippoo Sultan in 1792 (London : Farden, Nocol & Sewell, 1793) pg.28
9. Heyne,, Benjamin, Statistical fragments of Mysore, 1800. in Selections from the records of the Mysore Commissioner 's Office (Bangalore : govt. press, 1864) pg.54
10. Buchanan. Vol. 1, p.194
11. Buchanan. Vol. 1, pp 212–213, pg.216
12. Buchanan, Vol.1, pg.212
13. Ibid, pg. 212
14. Ibid, pg. 217
15. Ibid. pg. 216–217
16. Literally " the blue ones "
17. Details of the dyeing technique of the Niligaru, are given in the Appendix–1
18. Details of the printing techniques of the Rungaru are given in the Appendix–2
19. Popularly known as " Gonigaru " (the gunny people)

20. The technique of oil manufacture is given in the Appendix–3
21. Buchanan, Vol. 1, pp.222
22. Buchanan. Vol. 1, pg.203 (roughly about 8 to 13% duty)
23. Burmish, Crisp, (trans), The Mysoarean Revenue Regulations (Calcutta: Company press, 1792) ra 78th
24. Ibid, para 99th
25. Kirkpatrick. William, (arranged and translated), Select letters of Tipu Sultan to various public functionaries (London :1811, Letter XCVIII)
26. Ibid, Appendix E, Commercial Regulations, Corresponding with 25th March 1793 and 2nd April 1794
27. Burmish, Crisp, Revenue Regulations para 104
28. Kirkpatrik, Select letters, opict letter XC VIII
29. 1838 Bangalore Division Records-Report by Superintendent Mac Arthur
30. 1836 Bangalore Division Records-Report by Superintendent Mac Arthur, and Shashtri, K.N.V., "*Memorandum of the Sayer System in Mysore*"
31. 1836 B.D.R. by Superintendent Mac Arthur
32. 1836, B.D.R. Urzee by Merchants of Bangalore Pettah
33. Buchanan, Francis, "*A Journey*" Vol. I
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35. Kirkpatrick, William, *Select letters*. (London : 1811), letter to Gulam Hyder Aumil of Bangalore : 1787
36. Wilks Mark, "Report on the Interior Administration" in *Selections from the Records of the Mysore Commissioner's Office*, (Bangalore : 1864)
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42. Ibid, Vol. I, pg. 222
43. Heyne, Benjamin, *Statistical Fragments of Mysore*, 1800
44. Memorandum of Mysore Province, pg. 112
45. Mysore State Papers, Vol. IV Sir Thomas Monor's minute, Enclosurc Number 2
46. *Bentick's Commissioner's Report*
47. Selections from Parliamentary Blue Books, pp. 16-17
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49. M.S.P. Vol. II, Sir Thomas Munro's Minute No. 115, dated 8th November 1825
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52. Parliamentary Blue Book, Pol. No. 48, Pg. 28
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55. Papers relating to tee surplus revenue 1180-1884 Pg. 6
56. Confidential Papers–Pg. 7
57. Select papers relating to the origin and administration of Civil and Military station-1807-1858 - pg. 19
58. Papers related to the Civil and Military Station, 1857-67, Pg. 60–61
59. Select papers relating to origin and administration, pg. 20
60. Ibid- pg. 28–29
61. Papers relating to Civil and Military Station 1855-67, pg. 107–108
62. Select Papers–June Regulations of 1818
63. Ibid – Enclosures 3-1819
64. Papers related to the Civil and Military Station, 1857-67, Pg. 18
65. 22nd January, 1838, Proposed Rules for Amildar's Courts for the recovery of debts from Superintendent, Mac Arthur, Bangalore Division, Bangalore Division Records
66. 29th September, 1836—Translation of an Urzee to the Superintendent of Bangalore Division from Tuzmans merchants, and C&C of the Pettah of Bangalore
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68. Ibid
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70. 12th October, 1838 – para 119. Report from Superintendent, Mac Arthur, Bangalore Division Records, 1838
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80. 12th October 1833 from Bangalore Division Superintendent Cutchery to the Officiating Secretary to the Commissioner - B.D.R. - 1838
81. 29th September 1836 - Urzee of the merchants of Bangalore - B.D.R. - 1836
82. Report of 12th October, 1838 - B.D.R. - 1838
83. "Abolition of duty on grain, vegetables, firewood, milk and curds, rice, pulses." Report of 12th October 1838. - B.D.R. 1838
84. 27th June, 1845 - from the Mysore Commissioner's office to the Superintendent of Bangalore Division, B.D.R. - 1845
85. 26th July, 1839, from the Superintendent's Cutchery to the Officiating Secretary (signed Richard Budd) B.D.R. 1839
86. 21st September 1838 - from A Clarke, Officiating Secretary to Superintendent of Bangalore Division, B.D.R. – 1838
87. 25th May 1837 from A Clarke, Officiating Secretary to the Commissioner to the Superintendent of the Bangalore Division, B.D.R. - 1837
88. February 1843 - from the Superintendent of Bangalore Division, R. Budd to the Secretary to the Chief Commissioner of Mysore. - B.D.R. - 1843
89. 12th October 1838 - para 102 - Report by Superintendent Mac Arthur - B.D.R. - 1838.
90. Memorandum of Mysore Province - pg. 121
91. 12th October 1838 - para 65, Report by Superintendent Mac Arthur
92. Administration Report of Mysore, 1865_66
93. Administration Report of Mysore, 1865-66
94. Ibid
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96. Ibid
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102. Break down of 1872 census (manufacturing + construction etc.)
103. Industries and Commerce Catalogue I of 1878
104. House of Binny, Page 96
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106. Industries and Commerce Catalogue I of 1878 (I & C)
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108. House of Binny, Page 96
109. Ibid
110. Ibid
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112. Ibid
113. Ibid
114. House of Binny, Page 97
115. Ibid, Page 97
116. House of Binny Page 98
117. Ibid, Page 98
118. Ibid, Page 102
119. Ibid, Page 80
120. Ibid, Page 116
121. Ibid, Page 116
122. Ibid, Page 120
123. Ibid, Page 120
124. Ibid, Page 120
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127. Mysore State Census, 1901 Report, Part I
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APPENDIX-1

THE DYEING TECHNIQUE OF THE NILIGARU

The Niligaru in order to make a vat of the blue dye take ten seers (6066/1000) of indigo, ground with a little water to a fine powder; put it into a pot capable of containing 50 seers measure (Or a little more than 12 alc gallons) and add a decoction of Tagashay Bija or seed of the cassia tora, which is made as follows ; Take four seers measure (113/1000 winchester gallon) of the seed, and boil it for 6 hours in four or five seers of water (about an ale gallon). The boiled seed, as well as the decoction, must be put into the vat and then these must be added to 10 seers (6 067 lb/–1000) of powdered soulu, or impure soda, 12 seers (7 28/100 lb) of quicklime, and two seers of the ley of pot ash (137 cubical inches). The whole is then stirred with a stick, and the mouth of the pot is covered up. Every evening and morning, for four days, three seers (296 cubical inches) more of the ley must be added; and in the last portion must be put about the size of an apple of quicklime. The vat now rests for 3 days; when four or five seers of boiling water must be added to it, and the vat is then ready for dyeing. The ley of pot ash is prepared as follows ; Burn to ashes the branches of the calli (*Euphorbium Tirucalli*), or of the Utrayena (*Achyranthes muricata*); of these, ashes put 2 seers (1 213/1000 lb) into a pot, in the bottom of which there is a small hole. The hole is covered with a small inverted cup, and that by some rice husks or chaff. Above these are put the ashes, and on them are poured by degrees 25 seers or about 6 alc gallons of water which filters through the hole in the bottom of the pot, and forms the ley.

It must be observed, that the water used by the Niligaru is always either that called here salt or that which is found in places abounding with calcarious tuffa.

The indigo vat having been prepared, an estimate is formed of the number of seers weight of cotton that it will dye. For every seer weight of cotton thread pass a seer measure of water through the pot containing the ashes, and in this weak ley dip the seer of cotton wash it well and then wring out the water.

The solution of indigo is then divided into five equal parts. The thread is dipped, by seers weight at a time, into these pots, till the colour in each is exhausted and what does not obtain a proper colour in the first, after being dried; receives repeated dips, until the colour arrives at the required intensity. The solution of indigo is kept for a month, and every night a little lime water is added, this enables it to give some more colour, which next day is again exhausted by dyeing some more cotton. The colour given by one dip is called mavi and is a sky blue; that which is given by five dips in a strong pot, is of an intense colour nearly approaching black.

APPENDIX-2

PRINTING TECHNIQUE OF THE RUNGARU

The cloth that is to be printed is kept all night in a mixture of sheep's dung and water. Next morning it is washed, and then bleached the whole day in the sun, adding water occasionally. At night it is again put into a mixture of sheep's dung and water, to which is added a little quicklime. Next morning it is washed again and then put into a cold infusion of *Arulay Myrobalans* (Terminalia) mixed with some gum of the Dinduga tree (*Aersonia Panchmoun*). The quantity of Myrobalans for 12 cubits of cloth is 6 dudus weight (2.426 ounces), and of gum 2 dudus weight (12.943 drams). The cloth, after being throughly wet in this, is taken out, and dried in the sun. It is then folded placed on a smooth plank, and well beaten with a stick, which serves instead of mangling.

The mordant for the red dye is made as follows : Dissolve in one seer (68 cubical inches) of hot water, 6 dudus weight (2.426 ounces) of alum, and 14 dudus weight (4.852 ounces) of dinduga gum. This mordant is poured into a cavity that is made in a block of timber, and covered with four folds of country blanket well moistened with the dinduga mucilage. The wooden blocks for printing are moistened with the mordant, by applying their surfaces to the blankets. The cloth to be printed is laid on a table covered with four folds of old cloth, and the blocks are applied and pressed down by the hand. It is then kept for eight or ten days. After this the cloth requires only four days to dry.

APPENDIX-3

THE TECHNIQUE OF OIL MANUFACTURE

The mill receives at one time about 7 seers measures (2.42 winchester bushels) of sesamum seed, and in the course of grinding, ten cucha seers measure of water (2.78 alequarts) are gradually added. The grinding continues for six hours, when the farinaceous parts of the seed, and the water, form a cake ; and this having been removed the oil is found clean and puts in the bottom of the mortar, from whence it is taken by a cup. Seventy pukka seers of surugana (sesamum seed) give 2 cucha mounds (rather more than 5 1/2 gallons) of oil.

Appendices are from Buchanan, "A Journey...."

THE INDUSTRIAL SUB-SYSTEM OF BANGALORE

Vinod Vyasulu *

I

This paper is part of the research programme on "Bangalore as an Urban Ecosystem"[1]. An ecosystem, as seen by these researchers, is a complex set of interacting components. In an urban ecosystem, industry, understood as factory based production, constitutes an important component or sub-system. Industrial activity contributes to the economic base of the city or urban conglomeration in that its produce goods which can, in part, be exported to pay for essential imports such as food. Industrial health, therefore is of crucial importance in the efficient functioning of an urban ecosystem. In other words, it can be said that industrial health is one of the important factors related to the " carrying capacity " of an urban ecosystem[2] just as a vibrant agriculture is essential to a rural ecosystem. In more general terms, economic activity is a major component of a human ecosystem. In Bangalore, a large portion of economic activity is industrial.

The key elemements in industrial activity are factories, where production in the modern sense takes place. It is in factories that material inputs are processed and converted to marketable or useable outputs. For convenience, the conversion process may be analytically separated into various categories such as chemical, engineering or some other. A study of industrial activity therefore involves the inputs to the production process – material and human, the outputs of the process, the factories governing the two, and the efficiency of the conversion process. In this there is considerable interaction with other subsystems of the ecosystem. For example, the industrial subsystem interacts with the energy subsystem since industry uses power, the housing subsystem since the large number of people in the work process need accommodation, the climatic subsystem since industrial activity may lead to changes in climate, and so on. Further, industrial activity is controlled by the legal and administrative systems. These interactions are many and complex.

A key factor in the functioning of the industrial subsystem is its efficiency. Efficiency in production is difficult to measure; economists have used ratios such as that of capital–output and capital–labour to reflect some aspects of efficiency.

This paper has a limited objective. An effort has beeen made to analyse the data on urban Bangalore available in the Industrial Directory of Karnataka, to see what light it can shed on the industrial subsystem of Bangalore. Since only this one source of data has been used, great caution needs to be exercised in interpreting these preliminary results, or in generalizing from them.

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II

The *Industrial Directory* of Karnataka has put together different items of information about industrial units in the state for the year 1975. The effort is enormous and inevitably, there are problems in the data for the empirical worker.

For example, data on employment are given in three categories - skilled, unskilled, and other. A total figure is also provided. Yet, there are cases where the sum of the three differs from the total as published.

Several items of data are missing, especially for capacity and product. There are other cases where numbers are listed in the wrong columns. Much of this is due to insufficient standardization. In such cases we have exercised our judgement.

The product level data cannot be used becuase of both insufficient standardization and inadequacy for comparison due to the nature of classification. For example "product" and " industrial activity " are overlapping categories.

In spite of the weaknesses in the data, it may be useful to examine them in detail. Since this is the " data–base " that is referred to in discussions. It is in this spirit that the following exercise has been conducted.

The mojor conclusion that can be drawn is that a better data base is essential for any further empirical work, or for policy formulation.

III

Bangalore has a long history of industrialization.[3] Even before 1926, there were, according to the *Disitrict Gazetteer*, 46 industries in Bangalore. According to the Industrial Directory there were 42, as shown in Table 1. [4]

Of the 42 units that are more than 50 years old, (as of 1975), 8 were chemical units (probably agarbathi units) and two companies were in textiles.

The spurt in growth observed from 1959, and particularly from 1965 onwards may be attributed to the liberal policy of the government of inviting industries to the state when power from Sharavathi became available. Industry appears to have responded to the invitation because of (a) turmoil elsewhere in the country, eg. Calcutta, (b) the peaceful industrial relations climate then prevailing in Karnataka, and (c) the clean image of the bureaucracy in the State.

Table 2 presents information on the ownership pattern of the factories. It may be noted that the individual proprietorship and partnership (including both joint family partnerships and partnerships with others in one category) account for almost 94% of all the units. Companies constitute only slightly more than 5%.

Table 3 presents some general details about Bangalore 's industry.

Table 4 gives details about the number of units, persons employed and fixed capital invested in Bangalore upto 1975.

Bangalore is the most important industrial centre in Karnataka. Table 5 gives the share of Bangalore district in the State. This table has been computed from data in " Capacity utilization in Manufacturing Sector, Karnataka ", July 1977, Prospective Planning Unit, Planning Department, Government of Karnataka. Although this document uses the same data source as this paper *(The Industrial Directory)* there are some differences with the data in Table 4. These numbers may therefore be taken only as indicating rough orders of magnitude.

The industrial units are not evenly spread in the city. The most industrialized part of the city is Magadi Road (pin 560 023) which ranks first for both the number of industrial workers and the power sanctioned and second from the amount of investment in fixed assets. Dooravani Nagar (pin 560 016) ranks second for number of industrial workers and power sanctioned, and first from the number of industrial workers. Government Electric Factory (pin 560 026) ranks third on the first two criteria and fourth on the number of workers. Other industrialized parts of the city are given in Table 6.

If one examines this with a pin code map, one finds that Magadi Road, Rajajinagar, Malleswaram, Yeshwantpur, Jalahalli are all in the North with Dooravaninagar in the North East. Very clearly, Bangalore's industrial area is the North - Northeast portion of the city. Interestingly enough, it is this part of the city that is serviced by railway lines.

It is also possible to further examine the industrial structure of Bangalore by form of ownership within each industrial category. Table 7 presents the picture that emerges from the data.

It may be noted that almost 70% of the units are under individual proprietorships. The largest percentages of individual proprietorships (over 70%) are in the automobile, food-beverage - tobacco, job work, printing and textile categories. The largest percentage of partnerships, both joint family and other, (over 40%) are in electrical, ferrous and non-ferrous, plastic-based, and rubber based industries. The largest percentage of companies (over 10%) are in electrical, electronic and pulp and paper industries.

Table 8 presents information on employment in each of these forms of organization in each industrial category.

In sum each type of concern employs over 20,000 people. However, individual proprietorships which constitute nearly 70% of the units, provide only 4% of the employment. Companies, which constitute 5% of the units, provide over 90%of the employment. There are three industries in which companies employ over 1 lakh workers. These are the electronic, machanical engineering and textile industries.

Interestingly, the "average" company in Bangalore is huge : employing about 29,289 people. (This reflects the bias of a few large units such as HAL, ITI, Binny and so on). Similarly, both fixed investment (Rs. 66,49,000) and average annual output (Rs. 61,33,088) are also the highest in factories organised as companies.

Table 9 presents the picture, by industrial category, of the fixed investment per worker (or a crude capital–labour ratio) and the annual output per worker (gross product per worker) and return on fixed investments.

The average fixed investment per worker is over Rs. 20,000/- – Rs. 20,236. 7 industries require an investment of over Rs. 25,000/– per worker. They are the chemical, electrical, electronic, food–brverage, tobacco, glass and ceramic, leather and mechanical engineering industries. Of these, glass and ceramic tops the list with a fixed investment of Rs. 65,003/– per worker.

Gross annual output per worker is low, at an average over all industries of Rs. 3,917. The lowest is in mechanical engineering : Rs. 1,834. In 9 industries, the annual gross output per worker is over Rs.7,000/-. These are the chemical, ferrous and non-ferrous, food beverage, glass and ceramic, leather based, paper and pulp, plastic based, rubber based, and wood based industries. The 'miscellaneous' category which has a figure of Rs.20,574 has the highest figure.

The annual gross return on fixed capital averages 19.36% with 'miscellaneous' industry recording the highest return – 104.71%. The lowest return is in mechanical engineering 5.78%. In 5 industries, the annual gross return on fixed capital is over 50%. These are the paper and pulp, plastic based, rubber based, textile and wood based industries. Apart from mechanical engineering, 4 industries had returns of less than 20% – chemical, electrical, electronic and glass and ceramic.

Another way of looking at the return on fixed capital is to examine the average annual output per year to get an idea of the value of output. Table 10 gives details of this along with value of the annual output per worker. The trends, of course, are the same in the two cases. It would be useful to remember that factors like capacity utilization, industrial peace, nature of power cuts and the like have an influence that has not been taken into account here.

Table 11 presents the ratio of fixed investment in an industrial category to gross annual output in that category. This may be considered a crude capital-output ratio.

The highest capital/output ratio is in mechanical engineering. The lowest is in the misceallaneous category. Industries with low capital–output ratios are ferrous and non-ferrous, job work, paper and pulp, plastic based, rubber based, textile and wood based industries. The chemical, electrical, electronic and glass and ceramic industries have capital-output ratios above 5. When it comes to the use of electricity as an input, data are available on the amount of energy (KHW) used in the various categories. Table 12 presents the picture that emerges.

The largest consumers of energy are the electrical, electronic and textiles industries. On a per worker basis, the largest users of electricity (over 1000 KWH per worker) are the food and beverage, glass and ceramic, leather, paper and pulp, plastic based, rubber based and textile industries.

The study by the Karnataka Planning Department gives a figure of 78% for the weighted capacity utilization in the early 1970's and an average capacity utilization of 73% compared to the state average of 62% and 70%. The All India weighted capacity utilization figure is 82%. Thus, while Bangalore is above the state average, it falls below the national one. Table 13, from the Planning Department study, gives capacity utilization figures by major industrial groups-using the 2 digit NIC code-in Bangalore.

These results may be useful in provoking questions and perhaps in formulating hypotheses for further testing. What can be stated with confidence at the end of the exercise is that the system of data collection in Bangalore is inadequate and there is an urgent need to set up a standardized data base that permits of easy information retrival. Only then can such data to be an input to policy making.

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Responsibility for errors and opinions is mine.

NOTES

1. Other related studies not necessarily part of the KSCST project, are those by N. Pani *et al* on the History of Industrialization in Bangalore, by R. Nagaraj on "Subcontracting", some case studies in Bangalore's Industries; and P. Vyasulu on Supervisory Performance in Manufacturing Units in Bangalore. The major earlier study is V.L.S. Prakasa Rao and V.K. Tewari: *Structure of an Indian Metropolis* – A Study of Bangalore, Allied, New Delhi, 1974. See the review in EPW by V. Shanbhag and V. Vyasulu, Dec. 1981.

2. This is true of Bangalore. It is not the intention to imply that this true of all urban ecosystems. It is not difficult to visualise non–industrial cities, or cities in which industry is of marginal importance. The "carrying capacity" may also be seen as the economic base of the city.

3. See the paper by Narendar Pani, Tara Srinivas and Vinod Vyasulu, which is another part of the studies sponsored by KSCST.

4. The discrepancy may be due to the fact that this exercise considers only urban Bagalore and not Bangalore district.

TABLE–1

Age Structure of Bangalore Factories

Age Class	No.	Percentage	Reference Year
50 – years	42	1.1600	Upto 1926
46 – 49 years	14	0.3875	1927 - 30
41 – 45 years	25	0.6920	1931 - 35
35 – 40 years	40	1.1070	1936 - 40
26 – 34 years	116	3.2115	1941 - 48
21 – 25 years	113	3.1280	1949 - 53
16 – 20 years	183	5.0660	1954 - 58
11 – 15 years	534	14.7840	1959 - 64
6 – 10 years	1350	37.3750	1965 - 70
Less than 5	1181	32.6960	1971 - 75
Not known	14	0.3875	not known
	3612	99.9900	All Classes

Note : The data do not go beyond 1975. Thus the category "less than 5 years" refers to 1975, not 1984.

TABLE–2

Bangalore Factories by Type of Ownership

Type	Nos.	%	
Individual proprietorship	2499	69.07	3.9191
Partnerships	899	24.84	
Companies	182	5.03	
Others	38	1.05	
Total	3618	100	

Note : "Companies" includes both public sector units and private and public limited companies. Others includes charitable institutions, cooperatives etc.

TABLE–3

Aggregate Industrial Statistics, Bangalore 1975

Sl. No	Item	Measure
1.	Workers (00'0s)	483.64 Persons
2.	Fixed investment (mills)	9989.39 Rupees
3.	Working Capital (mills)	
4.	Power sanctioned (000's)	155.50 H. P.
5.	Energy Consumed (mills)	411.20 KWH
6.	Average Output (mills)	1933.71 Rs.

TABLE - 4

General Details of Bangalore Industry

Sl. No.	Category	No. of Units	(000's) No. of Workers	(000,000 Rs.) Fixed capital
1.	Auto	27	0.89	16.86
2.	Chemical	373	12.95	518.47
3.	Electrical	125	65.74	1958.85
4.	Electronic	44	106.69	2712.90
5.	Ferrous and Non–Ferrous	186	4.67	100.77
6.	Food-Bev-Tobacco	251	8.74	317.64
7.	Glass-Ceramic	62	3.63	235·96
8.	Job work	398	1.94	18.57
9.	Leather based	24	0.49	12,28
10.	Mech. Engg.	993	89.17	2827.99
11.	Paper and Pulp	27	0.38	8.83
12.	Plastic based	124	2.75	46.93
13.	Printing	428	4.09	63.09
14.	Rubber based	26	0.60	10.70
15.	Textiles	416	187.51	1099.25
16.	Wood based	99	2.96	30.70
17.	Miscellaneous	15	0.54	10.61
	Total	3618	493.64	9989.39

TABLE - 5

Industrial Share of Bangalore District, Karnataka

(Percentage share in brackets)

Sl. No.	Category	No. of Units	No. of Employees	Gross Fixed Capital
1.	Auto	20 (74.07)	1245 (29.83)	12805 (26.27)
2.	Chemical	380 (45.73)	8341 (49.15)	75087 (7.24)
3.	Electrical	106 (76.81)	12047 (96.12)	332172 (96.86)
4.	Electronic	41 (83.67)	20779 (99.73)	254974 (99.77)
5.	Ferrous and Non–Ferrous	144 (38.30)	4321 (46.43)	125399 (22.75)
6.	Food -Bev-Tobacco	204 (7.60)	6631 (10.90)	153512 (15.14)
7.	Glass-Ceramic	65 (18.73)	3378 (18.71)	56765 (14.87)
8.	Job work	23 (24.21)	425 (45.02)	3540 (74.49)
9.	Leather based	698 (29.84)	32978 (50.88)	949801 (51.85)
10.	Mech. Engg.	32 (52.46)	463 (9.08)	23214 (11.93)
11.	Paper and Pulp	136 (67.00)	27603 (75.67)	39306 (74.20)
12.	Plastic based	407 (30.53)	3333 (31.60)	42437 (25.72)
13.	Printing	26 (15.12)	681 (38.02)	31667 (54.14)
14.	Rubber based	496 (38.90)	19351 (33.95)	122068 (21.97)
15.	Textiles	107 (6.60)	3747 (21.06)	23961 (24.29)
16.	Wood based	7 (12.50)	275 (33.58)	4039 (48.96)

Note : Job work as a category has been ommitted.

TABLE-6

Ranking of Pin Code on Three Categories

Bangalore Pin Code	Name	Workers	Fixed investment	Power sanctioned
560 002	City	9	15	9
560 003	Malleswaram	7	12	5
560 005	Frazer Town	10	11	38
560 010	Rajajinagar	5	3	29
560 012	Science Institute	19	10	6
560 013	Jalahally	12	6	36
560 016	Dooravani Nagar	2	1	2
560 022	Yeshwantpur	6	8	4
560 023	Magadi Road	1	2	3
560 026	Govt. Electric Factory	3	4	3
560 031	H. M. T.	8	7	11
560 038	Indira Nagar	4	5	4
560 049	Virgo Nagar	22	9	32
560 053	Chickpet	11	19	8

TABLE–7

Industries by Category and Form of Ownership

Sl. No.	Category	No. of Units	Prop.	%	Partner-ship	%	Compa-nies	%
1.	Auto	27	20	74	5	18.5	1	3.7
2.	Chemical	373	222	59.52	129	34.58	18	4.82
3.	Electrical	125	43	34.4	50	40	28	22.4
4.	Electronic	44	17	38.62	17	38.64	8	18.19
5.	Ferrous and Non-Ferrous	186	104	55.91	76	40.86	5	2.69
6.	Food–Bev–Tobacco	251	189	75.30	41	16.33	20	7.97
7.	Glass-Ceramic	62	30	48.39	21	33.87	10	16.13
8.	Job work	398	343	86.18	52	13.06	1	0.025
9.	Leather based	24	15	62.5	5	20.83	2	8.33
10.	Mech. Engg.	993	688	69.28	254	25.58	43	4.33
11.	Paper & Pulp	27	16	59.26	9	33.33	3	11.11
12.	Plastic base	124	58	46.77	52	41.19	13	10.48
13.	Printing	428	339	79.2	82	19.16	4	0.9346
14.	Rubber base	26	9	34.6	14	53.85	3	11.54
15.	Textiles	416	336	80.77	58	13.94	16	3.95
16.	Woodbase	99	63	63.64	32	32.32	2	2.02
17.	Miscellaneous	15	7	46.67	2	13.33	5	33.03
TOTAL		3618	2499		889		182	135.70
Percentage		100	69.07	24.85			5.03	

TABLE – 8

Employment in Industries by Category and Ownership Form

Sl. No.	Category	No. of Proprietorship	Nos. Partnership	Nos. Companies
1.	Auto	276	279	147
2.	Chemical	2540	3149	20793
3.	Electrical	477	1603	68569
4.	Electronic	198	483	103532
5.	Ferrous and Non-Ferrous	1546	2565	610
6.	Food-Bev-Tobacco	1653	1042	7129
7.	Glass-Ceramic	301	427	4557
8.	Job Work	2018	530	124
9.	Leather based	171	129	214
10.	Mechanical Engineering	7544	6367	146986
11.	Paper and Pulp	182	159	14
12.	Plastic based	668	1496	665
13.	Printing	2197	1056	176
14.	Rubber based	57	119	249
15.	Textiles	2270	1150	142355
16.	Wood based	468	379	1260
17.	Miscellaneous	44	16	484
Total		22,610	22,949	4,97,955
Percentage (of 5,41,484)		4.17%	3.87%	91.96

TABLE-9

Capital/Worker and Gross Output/Worker

Sl. No.	Category	C/W (Rs.)	GO/W (Rs.)	Fixed investment (%)
1.	Auto	18944	4944	26.10
2.	Chemical	40036	7697	18.84
3.	Electrical	29797	3698	12.41
4.	Electronic	25419	3786	14.89
5.	Ferrous and Non–Ferrous	22050	7915	35.89
6.	Food–Bev–Tobacco	36343	8611	23.69
7.	Glass–Ceramic	65003	8862	13.63
8.	Job work	9572	2959	30.19
9.	Leather based	25061	11878	47.39
10.	Mechanical Engg.	31713	1834	5.78
11.	Paper & Pulp	23237	11684	50.28
12.	Plastic based	17065	9131	53.50
13.	Printing	15425	3090	20.03
14.	Rubber–based	17833	10017	56.17
15.	Textiles	5862	2944	50.21
16.	Wood based	10372	7189	69.32
17.	Miscellaneous	19648	20574	104.71
Average		20236	3917	19.36

TABLE–10

Total Output (Value) and Output (Value) Per Worker Per Year in Bangalore

Sl. No.	Category	Annual income of output	Value of Output/ Worker
		Rs. 000,000	Rs.
1.	Auto	4.40	4,944
2.	Chemical	97.68	7,697
3.	Electrical	243.08	3,698
4.	Electronic	403.90	3,786
5.	Ferrous and Non–Ferrous	36.17	7,915
6.	Food–Bev–Tobacco	75.26	8,611
7.	Glass–Ceramic	32.17	8,862
8.	Job work	5.74	2,959
9.	Leather based	5.82	11,878
10.	Mechanical Engg.	163.51	1,834
11.	Paper & Pulp	4.44	11,684
12.	Plastic based	25.11	9,131
13.	Printing	12.64	3,090
14.	Rubber–based	6.01	10,017
15.	Textiles	551.97	2,944
16.	Wood based	21.28	7,189
17.	Miscellaneous	11.11	20,574
		1700.29	7,460

TABLE–11

Crude Capital – Output Ratios

Sl. No.	Category	Capital/output ratio
1.	Auto	3.83
2.	Chemical	5.31
3.	Electrical	8.06
4.	Electronic	6.71
5.	Ferrous and Non-Ferrous	2.78
6.	Food-Bev-Tobacco	4.22
7.	Glass-Ceramic	7.33
8.	Job Work	3.23
9.	Leather based	2.11
10.	Mechanical Engineering	17.29
11.	Paper and Pulp	1.99
12.	Plastic based	1.78
13.	Printing	4.99
14.	Rubber based	1.78
15.	Textiles	1.99
16.	Wood based	1.44
17.	Miscellaneous	0.95
		5.17

TABLE–12

Energy Consumption in Bangalore Factories

Sl. No.	Category	Total energy used	Energy per worker
		(000,000 KWH)	(KWH/worker)
1.	Auto	0.76	853.93
2.	Chemical	4.74	366.02
3.	Electrical	63.88	971.71
4.	Electronic	61.89	941.44
5.	Ferrous and Non–Ferrous	3.81	833.70
6.	Food-Bev-Tobacco	10.37	1186.50
7.	Glass-Ceramic	22.39	6168.04
8.	Job work	1.54	793.81
9.	Leather based	0.52	1061.22
10.	Mech. Engg.	13.17	147.70
11.	Paper and Pulp	0.39	1026.32
12.	Plastic based	3.93	1429.09
13.	Printing	2.09	511.00
14.	Rubber based	1.31	2183.33
15.	Textiles	217.49	1159.88
16.	Wood based	2.65	895.27
17.	Miscellaneous	0.27	500.00
		411.2	833.00

Table–13

Capacity Utilization in NIC Groups
Bangalore (Percent)

Code description	Bangalore	Karnataka	India
20 - 21	64	72	85
22	77	80	89
23	65	69	78
24	84	81	–
26	77	73	–
27	67	63	72
28	60	74	84
29	74	70	73
30	95	77	88
31	71	30	81
32	80	95	82
33	45	422	74
34	70	71	71
35	80	71	65
36	64	64	822
37	76	76	63
38	86	84	72

WASTE RECYCLE INDUSTRY IN BANGALORE
A STUDY IN URBAN INFORMAL SECTOR

Abdul Aziz *

Introduction

Studies so far made in India and elsewhere on the economics of urban informal sector focussed their attention on this sector as a whole bringing out its features, problems and prospects with a view to generating a policy frame for its development. What is, however, overlooked by almost all these studies is the fact that there are two subsectors – organised and unorganised-within the informal sector itself one of which exhibits features of the formal sector. If this point is conceeded, then there is trichotomy rather than dichotomy in the urban economic structure. Being a part of this trichotomous structure, the urban informal sector with its organised and unorganised segments may present different sets of problems requiring unique policy measure. It is in response to a need for an intensive study of the urban informal sector and identifying its organised and unorganised segments that the present author recently completed a study of waste recycle industry in Bangalore City. [1] In the specific context of understanding the eco-system of Bangalore city it is proposed in this paper to first present an estimate of informal sector employment and its distribution across different activities and then sketch the structure and organisation of the waste recycle industry bringing in a short sweep its own profile in terms of number of enterprises, employment and output levels.

Informal Sector Employment

Following the method suggested by an I.L.O. study [2] attempts have been made to estimate employment in the informal sector in various countries. In India, however, informal sector employment was estimated by some studies using census data.[3] But since these studies looked at the urban economic structure in the dichotomous framework overlooking the possibility of the informal sector having organised and unorganised segments we considered it worth estimating informal sector employment in a different perspective. While estimating the quantum of informal sector employment we have not only kept the trichotomous frame of urban employment sturcture but also presented employment figures in the same framework.

The data used here are drawn from the 1971 census records (the relevant information for 1981 is not yet made available by the census authorities). The dividing line between the formal sector and the informal sector that is employed is the size of establishments. Thus establishments employing less then 10 workers

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irrespective of the use or otherwise of power are regarded to be those coming under the informal sector and those establishments which employ 10 and more workers are taken to be in the formal sector. In order to highlight the formal relationship that even these informal sector enterprises may have with the state we have made a distinction between two segments of the informal sector : One is the organised segment of the informal sector wherein though the establishments are small in size they do have formal relationship with the State in the sense of having taken out licences and been subject to state regulation. The enterprises employing less than 10 workers in such industrial categories as (1) electricity, gas and water supply, (2) hotels and restaurants, (3) transport and storage, (4) financing, insurance, real estate and business service institutions and (5) establishments relating to health, sanitation. medical and educational services come under the formal segment of the informal sector. The other segment of the informal sector is the unorganised component of informal sector which includes enterprises that are not only small but also do not have any sort of formal relationship with the State. These are the enterprises employing less than 10 workers in such economic activities as (1) agricultural and related activites, (2) manufacturing and repair, (3) construction, (4) wholesale and retail trade except hotels and restaurants, and (5) personal and other services.

In Table I we have distributed workers not only between the formal and informal sectors but within the informal sector we have also presented the number of workers who are working in what we have called the organised and the unorganised segments. It is evident that 40.34 per cent of the work force of Bangalore City is working in the informal sector. This figure is somewhat lower than the estimated figures of informal sector employment in the other third world country cities (between 50 and 70 percent[4]) and even in Ahmedabad, Bombay and Calcutta (around 45 percent[5]). The differenee in the concept of informal sector employed for operational purpose may partly account for such variation in the size of informal sector employment between Bangalore and other cities.[6] One more point to which attention needs to be drawn here is that the number of workers reported to be engaged in agriculture and allied activities, where it is reasonable to expect a large proportion of informal enterprises to be present, is woefully low in Bangalore city when compared with the other Indian cities referred to above. This fact may also explain why Bangalore has a less than normal proportion of the informal sector employment.

The largest proportion of informal sector employment is found in the personal services category (94%) followed by household industry (93%) and wholesale and retail trade other than hotels and restaurants (85%). In the case of services not elsewhere classified, this figure is a little over one-half and it is around one-third in hotels and restaurants, financing, real estate and business service, manufacturing other than household iudustries and a quarter in construction and in transport, storage and communications. In social services, the informal employment is around 14% but it is negligible in electricity, gas and water supply.

Coming to the informal sector, 19.34 percent of workers are in the organised segment and 80.66 percent are in the unorganised segment. This actually means that out of 40.34 percent of the workers who are in informal sector 8 percent are in the organised segment and 32 percent are in the unorganised segment.

Table II which presents the percentage distribution of informal sector workers across different economic activities indicates in which category of economic activity these workers are concentrated. It will be seen that a majority of them are concentrated in wholesale and retail trade (40.45%), in manufacturing other than household industry (30.14%) and in social and personal services (13.1%). This ties up well with the findings of the ILO studies that the informal sector employment in third world countries is concentrated mostly in manufacturing, commerce and services.[7]

Waste Recycle Industry

For a full understanding of the nature and working of informal sector in Bangalore one would be then expected to study the entire structure of this sector covering manufacturing, commerce and services. But considering the time and resources constraint it was decided to select one line of economic activity of the urban informal sector which would exhibit at least a large number of typical informal sector activities. Keeping this consideration in view, we chose waste recycle industry for an intensive study. It will be noted that this industry has in it some of the typical informal sector activities such as buying, selling, and manufacturing. A case study of this industry, it was thought, would hold a key to the understanding of working, structure and organisation of informal sector.

Waste and its Sources

The growth of modern industrial sector and its concomitant viz., growth of urban settlements, in a sense have been responsible for the emergence of waste recycle industry. It may be noted that the development of industry, trade, transport and commerce has brought in its wake packing industry–the industry which produces packing materials. These materials wear out their original use and are likely to end up as scrap. It is at the various stages of loss of its usefulness that the packing material passes on as waste. In the present paper we are using the term ' waste ' to indicate to that material which having performed its original function needs further processing either to reperform the same function or to acquire a new function. In this sense ' waste ' here refers to used paper, gunny bags, bottles, tins, clothes, plastic and metal pieces, utensils and so on.

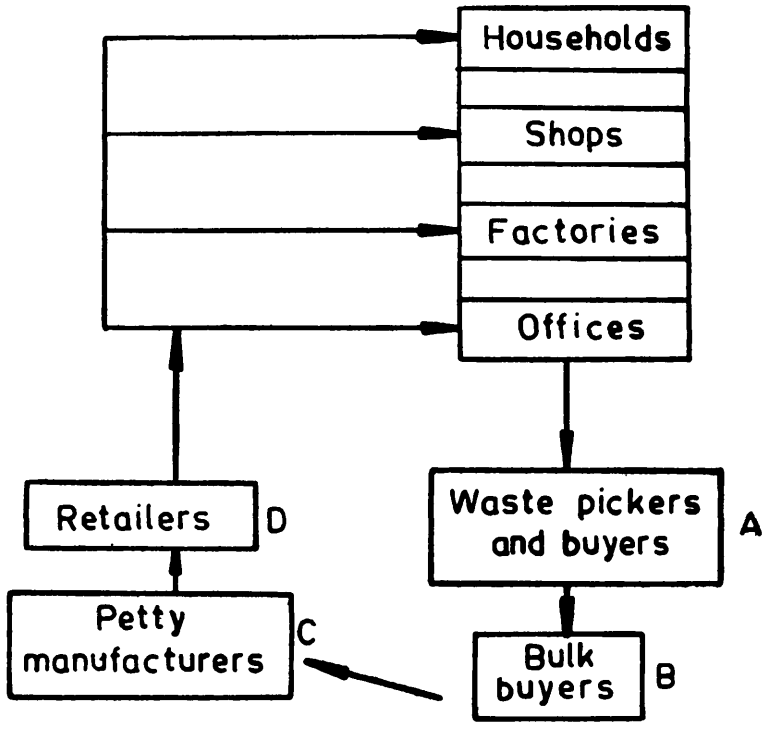
Waste being used materials originates from the users themselves. Among others, three broad categories of such users may be identified. These are : (1) enterprises including factories and shops ; (2) offices–public and private and (3) households and individuals. Factories throw broken metals, glass, used packing materials and so on. Shops throw used paper and such paper products as is normally used in packing. Offices discard used and unused paper, wood and such other material. Households

dispose off a variety of material ranging fron rags to used utensils. However, a point to be remembered here is that all the waste originators use discretion to divide their waste material into (1) the one which can be straight away consigned to street bins and (2) the one which can be stacked and accumulated over a period of time to be disposed off to waste buyers for a price. While the first category waste does not bring any returns, the second one does. In the latter case normally households sell waste material to the so called waste collectors who come to their doors or to agents who have regular shops of their own. Factories and offices normally notify their intention to sell waste material and dispose them off by auction.

Structure and Organisation

Waste recycle industry is entirely in private sector and has its own structure. As a help to a better understanding, we have drawn below a chart which illustrates this structure as also the process of waste recycling.

CHART SHOWING THE WASTE RECYCLE PROCESS



The process of waste recycling begins with the act of waste disposal by households, shops, factories, and offices. In the process of waste disposal, the first point of contact with the waste originators is represented by waste collectors who are either waste pickers or waste buyers. Waste pickers move along streets and pick up waste paper, rags, discarded and broken containers etc., from streets and bins.

Waste buyers, on the contrary, approach households and factories and make payments either in cash or kind for the waste material collected. Both waste pickers and waste buyer sell the material to a class of agents who run regular shops. The latter sell the material on the one hand to factories like paper mills and foundries and on the other to the petty manufacturers. The latter make such articles as paper bags, lamps, stoves and other household articles besides being sold directly to households and shops, are delivered to the retailers who retail them among the consumers. That completes the circle of waste recycling.

There are thus four points in the process of waste recycling – at each point a specific function is performed by a distinct class of workers. These workers are : (1) waste pickers/buyers, (2) bulk buyers, (3) petty manufacturers and (4) retailers. In the chart we have denoted these four classes of persons respectively by the letters A, B, C and D. In the analysis of the structure of waste recycle industry and the estimate of employment output of waste recycle industry these four categories are treated as distinct class of workers engaged in various sub-sectors of the industry.

Estimates of number of Enterprises, Workers and Output

Looking at the structure of waste recycle industry one could surmise that the number of enterprises and workers would not have been classified under any single census division. The bulk buyers and retailers would been have shown under "wholesale and retail trade" and the petty manufacturers under "household industry". It is not possible to guess where the "waste collectors" have been enumerated. Moreover, the census reports have not explicitly shown these enterprises/workers separately under any of the above divisions and we also do not know where exactly workers of the various subsectors of the industry are enumerated. As a result, it would not be possible to estimate the waste recycle employment using the census information. There are no studies either which would have provided some guidelines to an estimate of employment in this industry.

In the absence of any help to such estimate we have followed our own estimation procedure. As our estimation procedure is derived from our field impressions rather than from hard statistical data we do not pretend to claim cent percent authenticity for this estimate. Nevertheless, we consider our attempt to be a starting point on the basis of which further attempts may be made by researchers to build a more scientific estimation procedure.

The first step in this exercise involves an estimate of the number of enterprises and, as part of this exercise, we are going from the sample to the universe in the following manner : Having identified our respondents in the four sub-sectors of the industry using the chain sample technique we are left with a feeling that we had picked up one in every four waste collectors, one in two bulk buyers and retailers and one in every four petty manufacturers. Using these impressionistic weights, we have built the other steps of our estimate on the results of our analysis of the sample.

In order to arrive at the estimates of total number of enterprises in city limits and also the estimated number of workers working in these enterprises and their output we have used the following formulae:

(i) Estimation of number of enterprises (EE)

$$EE = 2 \sum_{i=i}^{m} (Si*Wi)$$

Where

EE = estimated number of enterprises

Si = sample size in sub-sector, i

Wi= weights attached to ith sub-sector

i = 1 to m (i.e. sub-sectors A, B, C and D)

m = number of sub-sectors (4 in our case)

The product sum (SiWi) is doubled since we have covered only half of the area falling in city limits.

(ii) Estimation of number of workers (EWi)

$$EWi = EEi * Li$$

Where

EWi = Estimated number of workers in ith sub-sector

EEi = Estimated number of enterprises in ith sub-sector

Li = Average number of labourers working in the enterprises of ith sub-sector.

iii) Output Estimation (EOi)

$$EOi = EWi * (O/L)i$$

Where

EOi = Estimated output in ith sub-sector

EWi = Estimated number of labourers working in the ith sub-sector

(O/L)i = output-labour ratio arrived from our sample data for ith sub-sector.

Applying the impressionistic weights to the sample of 206 which are distributed across the four sub-sectors we arrive at a figure of 700 enterprises in the city regions that were covered for the study (Table III). Since the city area covered by us is approximately 50 percent of the total area, escalating the figure of 700 enterprises by a factor of 2, we may infer that there might be something like 1400 enterprises in

the waste recycle industry. Using the figures of average employment per enterprise (column 6 of Table III) we may deduce that there are about 2500 workers engaged in the industry. Considering the fact that the total number of workers in the informal sector of Bangalore is 93731 (Table I) the number of workers who are engaged in waste recycle industry works out to 2.7 percent of the total informal sector employment. With the help of the estimated number of workers and output-labour ratios we have estimated that the total value of output is Rs. 1.03 crores in this industry.

NOTES

1. *Urban Poor and Urban Informal Sector :* Ashish Publishing House, New Delhi,1984

2. This has come to be known as the 'residual' method which suggests that out of the total employment in the economy if the easily recognisable formal sector employment is deducted what remains is employment in formal sector. See *Employment Income and Eqnality : A Strategy for Increasing Productive Employment in Kenya,* ILO, Geneva, 1972

3. The cases in point are Heather Joshi and Vijay Joshi, *Surplus Labour and The City : A Study of Bombay,* Oxford University Press, Delhi 1976; T. S. Papola, *Urban Informal Sector in a Developing Economy,* Vikas Publishing House, New Delhi, 1981

4. For a good documentation of this, see K. Sreeramamurthy, Appendix Table 3.1. *Urban Labour in Informal Sector : A Case Study of Visakapatnam City* (unpublished), Doctoral Thesis, Andhra University, Waltair, 1983

5. T. S. Papola, *Urban Informal Sector in a Developing Economy, Op. Cit.,* Heather and Vijay Joshi, *Surplus Labour and the City : A study of Bombay op. cit.,* and Harold Lubell, *Urban Development and Employment : The Prospects for Calcutta,* Geneva; ILO 1974

6. The Joshis for instance included in their estimate of informal sector employment units employing upto 25 workers some of which would certainly be in the formal sector by virtue of their size, formal registration requirement under the relevant Act and so on

7. In this connection one may refer to the studies carried out by ILOs Regional Employment Programme for Latin America and the Caribean (PREALC). The results of these studies are quoted by Paulo R. Souza and Victor E Tokman, "The Informal Urban sector in Latin America", *International Labour Review,* Nov. – Dec. 1976

Table-I Employment Structure In Formal Sector, Organised and Unorganised Segments of Informal Sector : 1971

Census Code	Description of Economic Activity	Total workers	Formal sector workers	Informal sector workers			% of 7 to 3
				organised	Unorganised	Total	
1	2	3	4	5	6	7	9
0	Agriculture, Hunting, Forestry and Fishing	474	384	—	90	90	18.98
2&3	**Manufacturing and Repair :**						
	(a) Household Industry establishments	3798	255	—	3543	3543	93.28
	(b) Other than Household Industry Establishments	91760	63543	—	28247	28247	30.78
4	Electricity, Gas and Water Supply	1982	1951	31	—	31	1.56
5	Construction	672	491	—	181	181	26.93
6	**Wholesale and Retail Trade :**						
	(a) Hotels & Restaurants	14685	8934	5751	—	5751	39.16
	(b) Other than Hotels and Restaurants	43887	5968	—	37919	37919	86.40
7	Transport, Storage and Communications	7598	5821	1777	—	1777	23.39
8	Financing, Insurance, Real Estate and Business Service	11930	8040	3890	—	3890	32.61
9	**Community, Social and Personal Services :**						
	(a) Public Admn., Education, Health Recreation etc.	48679	42004	6675	—	6675	13.71
	(b) Personal Services	4821	287	—	4534	4534	94.05
	(c) Services not elsewhere classified.	2047	—	—	1093	1093	53.40
	TOTAL	2,32,333	1,38,632	18,124	75,607	93,731	40.34

Table–II Percentage distribution of informal sector workers among various economic activities

Census Code	Description of Economic Activity	Informal sector workers (in %)
0	Agriculture, Hunting, Forestery and Fishing	0.10
2 & 3	**Manufacturing and Repair :**	
	(a) Household industry establishments	3.78
	(b) Other than Household Industry Establishments	30.14
4	Electricity, Gas and Water Supply	0.03
5	Construction	0.19
6	**Wholesale and Retail Trade :**	
	(a) Hotels and Restaurants	6.13
	(b) Other than Hotels and Restaurants	40.45
7	Transport, Storage and Communications	1.90
8	Financing, Insurance, Real Estate and Business Service	4.15
9	**Community, Social and Personal Services :**	
	(a) Public Administration, Education, Health, Recreation, etc.	7.12
	(b) Personal services	4.84
	(c) Services not elsewhere classified	1.17
	TOTAL	100.00

Table – III Estimated Number of Enterprises, Workers and output in Waste Recycle Industry

i	Si	Wi	SiWi	2 (SiWi)	Li	EWi	(O/Li)*	EOi (Ps.)
1	2	3	4	5	6	7	8	9
A	101	4	404	808	1.05	840	2329	19,56,360
B	34	2	68	136	3.53	480	3281	15,74,880
C	43	4	172	344	2.70	929	3439	31,94,831
D	28	2	56	112	2.36	264	13561	35,80,104
				1400		2513		1,03,06,175

* = Value added in Rs.

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