

CHAPTER II

EVOLUTION OF ENGINEERING INDUSTRY IN KOLHAPUR .

Prior to 1945 , we can say Kolhapur city -----
possessed all the features of underdeveloped economy.

1) It was agricultural and upto the end of 19th
century Kolhapur was industrially underdeveloped Most of the ---
working population was engaged in primary sector and few -----
industries that were not very important or thriving existed.

2) The incidence of population was not so severe as
to try for living with means other than peasantry. But later on -
with gradual rise in population decade after decade, new jobs were
needed to absorb the surplus population in rural and urban areas--
Population of Kolhapur in 1891 was 19.0% and in 1971 it was 38.34%.

3) Transport facilities were not available.

Mechanised transport was absent. The rail -----
transport was introduced at the end of 19th century and the motor
transport at the 1st decade of 20th century. But later on after -
1947, the municipal authorities provided infrastructure in the --
form of area, earmarked for opening small scale industries.

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4) Labour intensive techniques were used in agriculture and industry. Agricultural implements were simple and manufactured in household industry.

All these features of backwardness were -- gradually removed and economic development of Kolhapur through agricultural and industrial development was achieved. The role of entrepreneur is important in this transformation from --- traditional to modern " agriculture and industry. "

Transformation from traditional to modern :

The study of the composition and ----- characteristics of engineering industry is actually the study of the firms and plants in it. Details regarding the small - -- scale industrial units are based on the information i) gathered with the help of the schedules canvassed to some of the units and ii) from published and unpublished sources of information.

Industrial development (engineering) in -- Kolhapur in its true can be said to have started from 1920 to get developed in recent times and extended in eastern and --- north-eastern part of the city. Kolhapur has grown from its --

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earlier stage of " House hold industry to the present small --
scale and large scale size.

Household industry :

A ' household industry ' is defined as an industry conducted by the head of the household himself and / or mainly members of the household at home/ or within the village in rural areas and only at home in Urban areas. A household industry is - not run on the scale of a registered factory. The main criterion for a house-hold industry is the participation of one or more -- members of a household in rural areas. In the urban areas, ---- household industry is confined to the residential house."⁴

" A household industry is related to production, -- procession, servicing, repairing or making and selling of goods. Persons working in another person's household industry as paid employees are also treated as workers in household industry."⁵

In earlier period we find there were 1) Iron works
2) Mechanical workshops 3) Motor repairing workshops.

Ref : 4):Census 1971 Kolhapur District Page 68

5):Census 1971 Kolhapur District Page 68

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There are many references of the residence of some families of blacksmiths, Lohars and Ghisadis in various reports like i) " Grahams report " Kolhapur Gazetteer 2) Dr.Balkrishna's commercial survey and 3) Social survey of Kolhapur city VOI II Industry and Trade and Labour by N.V.Sovani (1951) .

" The equipment in a blacksmith's establishment usually consisted of tongs hammers, ghan, anvil, a pair of --- bellows, files poker, chisel⁶ etc.

" According to the Gazetteer these Lohars made "--- Spoons, hatchet, sickles and Sugar-pans or kahils out of the iron bars and sheets." At Kolhapur jains, Boharas and other -- muslim dealers brought bars and sheets of iron from Bombay by Chiplun and then to local Lohars and ghisads."⁷ This shows -- that Kolhapur has been tightly described as " Gateway of --- Konkan."

" According to N.V.Sovani's survey " Iron workshops" concerned with turning and moulding, iron-smithy,"Majority of

Ref : 6) : Graham report page 258

7) : Gazetteer page 208

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the concerns were located in 'C' ward. The main work done in these concerns was that of manufacturing and repairing iron - tools like knives, sickles, scythes. They repaired ----- agricultural implements like ploughs." 8

The mechanical equipment consisted of pairs of bellows, hammers, tongs, ghans. One concern used " gilling and bordering machine. "

These concerns were mostly " hereditary in that No. outside help was engaged in any of these concerns. The -- proprietors either worked alone or were assisted by their --- family members mostly their wives." 9

Mechanical workshops :

According to N.V.Sovani's report there were 16 mechanical workshops in the city out of which '8' were in 'C' ward. " One of these used oil engine while other ones used -- electrical energy." " The principle work carried out in these -----

Ref : 8 : Socio-Economic survey of Kolhapur city. VOI II
" Industry and trade and labour by N.V.Sovani.
(1951) 291.

9 : 1 bid , 291

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establishments was that of repairing various machines like oil engines, cleaning and fitting the spare parts of cycles and -- automobiles plating of the spare parts. " The mechanical --- equipment consisted of lathes, drilling machines, Oil engines, electric motor, calipers, spanners etc :-

Motor repairing Workshops :

" Dr. Bal Krishna's commercial survey in 1926 noted 9 motor repair works." " According to N.V.Sovani's survey there were 23 motor repairing workshops, out of which 19 were in 'C' Ward. " These concerns had some built-up area and a larger open area. " They did the work of repairing motor engines, as well as that of rehauling, oiling etc. One unit manufactured ' Spare Parts ' when required. The mechanical equipment in the workshop consisted of grinder mill, tools, jacks, files, air condenser machine." The busy season extended from November to May. During the rains the business was slack.¹⁰

From all this information we can say that this --- household industry was meeting the simple requirements of --- agricultural implements which were traditional.

Ref : 10 : " Social Survey of Kolhapur City "

N.V. Sovani P. 292

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Modern Period :

With the establishment of sugar mills one by one, the supply of sugarcane with traditional equipment was not -- possible, hence the farmers devised irrigation facilities and started using oil engines for lifting the water. These engines were imported at first but later on when imports were controlled and the Swadeshi movement inspired, the local 'mestris' who were experienced, started manufacturing of spare parts, and assembling of the engines.

The period from 1942-47 was important period in the history of engineering industry. City development and town planning were important issues during the period"¹¹, but plots for Udyamnagar were distributed for the use of industries. --- Government started giving incentives for the larger production of sugarcane in the form of reduction in the cess on irrigation water, granting subsidies, Taccavi loans etc. The increased demand for oil engines caused by these factors was fulfilled by the local mestries. They supplied the oil engines to the --

Ref : 11 : ' Udyache Kolhapur - J.P.Naik.

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farmers. The oil engine industry comprises mainly of small - scale units. These small scale units possess the following -- features.

" In modern small scale industry the technique of production is modern. It is not different from the - - - technique that is used in large scale industry. The major - difference between large schale industry and small scale -- industry is i) The size in small scale industry capital in-vested and number of workers employed is small. 2) The modern small scale industries can be ancillary to large scale industry, with their help and support, they start as supplementaries to large scale industries. 3) Through small scale industry -- we can achieve decentralisation of industries and economic -- power as well as can see new class of emerging entrepreneurs. Engineering industry in Kolhapur helped agriculture in ---- ' transforming traditional agriculture by supplying to it - the oil engines which are used for life irrigation. Prospering agriculture in its turn supplied a market for ' Oil engines' and other agricultural implements. Agriculture and industry is mutually favourable.

Modern Engineering Industry in Kolhapur.

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It comprises of large scale, medium scale and small scale units. The plants now consist of sophisticated machines and equipments needed in the manufacture of engineering - - goods. There are foundries, lathes, drilling, grinding, ---- cutting machines. Forgings and castings are done. With the -- help of these, production of various types of goods is carried on. The production consists of some of the spares and ----- components needed for oil engines, automobiles, scooters, -- sewing machines, trucks, agricultural implements. Assembling - of the requisite spare parts into oil engines. The end product is done here.

Engineering industry is technologically more ----- complex and relatively more capital-intensive industry. It is becoming more important and is commanding large share in --- manufacturing output and employment. Out of the total working population in Kolhapur 44% of the persons are employed in -- engineering industry."¹² Along with industrial development - percentage depending on non-agricultural occupation is rising and that engineering industry also is rising.¹³

Ref: 12: K I R P Board.

13: 1971 census of Kolhapur.

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Out of the different types of engg.industries, - -
 Light engineering industry is significant here. This industry
 has become a training school for new entrepreneurs." It is a
 centre for technological innovation. Its contribution - - -
 towards improving technical skills of labour, upgrading ---
 indigenous technology and designs is probably ore than that
 of any other industry. As the supplier of capital equipment
 to other industries, the engineering industry plays a key --
 role in the industrial development of a country."14

In Kolhapur we find all these features of -----
 engineering industry and its contribution to capital -----
 formation in agriculture. It has supplied oil engines, -----
 electric pumps, agricultural implements like trolleys, ----
 trailers, power tillers, punding machines, rice hullers, ---
 sugar machines.

Types of engines manufactured in Kolhapur :

Diesel engines which are generally manufactured in
 Kolhapur are of 3 types. 1) Marine 2) Automative 3) Stationary
 Horizontal and vertical.

 Ref : 14 : The Indian Engineering Industry"

A.G.Majumdar ESRF New Delhi Page.3

The first two tyoes are employed as prime movers, for marine, road and rail transport. In Kolhapur very few - engineering factories are concentrating their attention on - production of these types of engines or spare parts.- - - - Stationary engines are used in agricultural and industrial spheres, in production of various machines such as chaff --- cutter, threshing machine, rice hullers etc.

The diesel engine industry in the thirties included ' Cooper engineering " Ltd.(Satara), Kirloskar Oil engines - Ltd.(Poona) Ruston and Hornshy (India)Ltd. (Poona) and Kulko engineering works, Ichalkaranji (Kolhapur).These - firms were followed by a number of units in Kolhapur."Rajcot (Gujerat) stood first with about 200 manufacturers and - - - assemblers producing about 2,500 engines per month."15

In 1969 there were 350 units engaged in light ---- engineering industry with 2.5 cr. of investment, and employed 3,500 persons. In 1974 there were 600 units with Rs. 15 cr. - investment. This industry has to pass through many ups and -

Ref : 15 : Recession in diesel oil engine in Kolhapur "

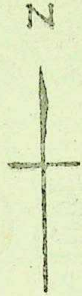
Nagaiyya SIET publication Hyderabad Ch. 1.

All this has become possible because of the ----
entrepreneurship in Kolhapur and infrastructural facilities
provided by the Government.

According to Hirschman A.O. " The ability to invest
(by which he means the capacity to identify new investment
opportunities to organize, administer and risk resources in

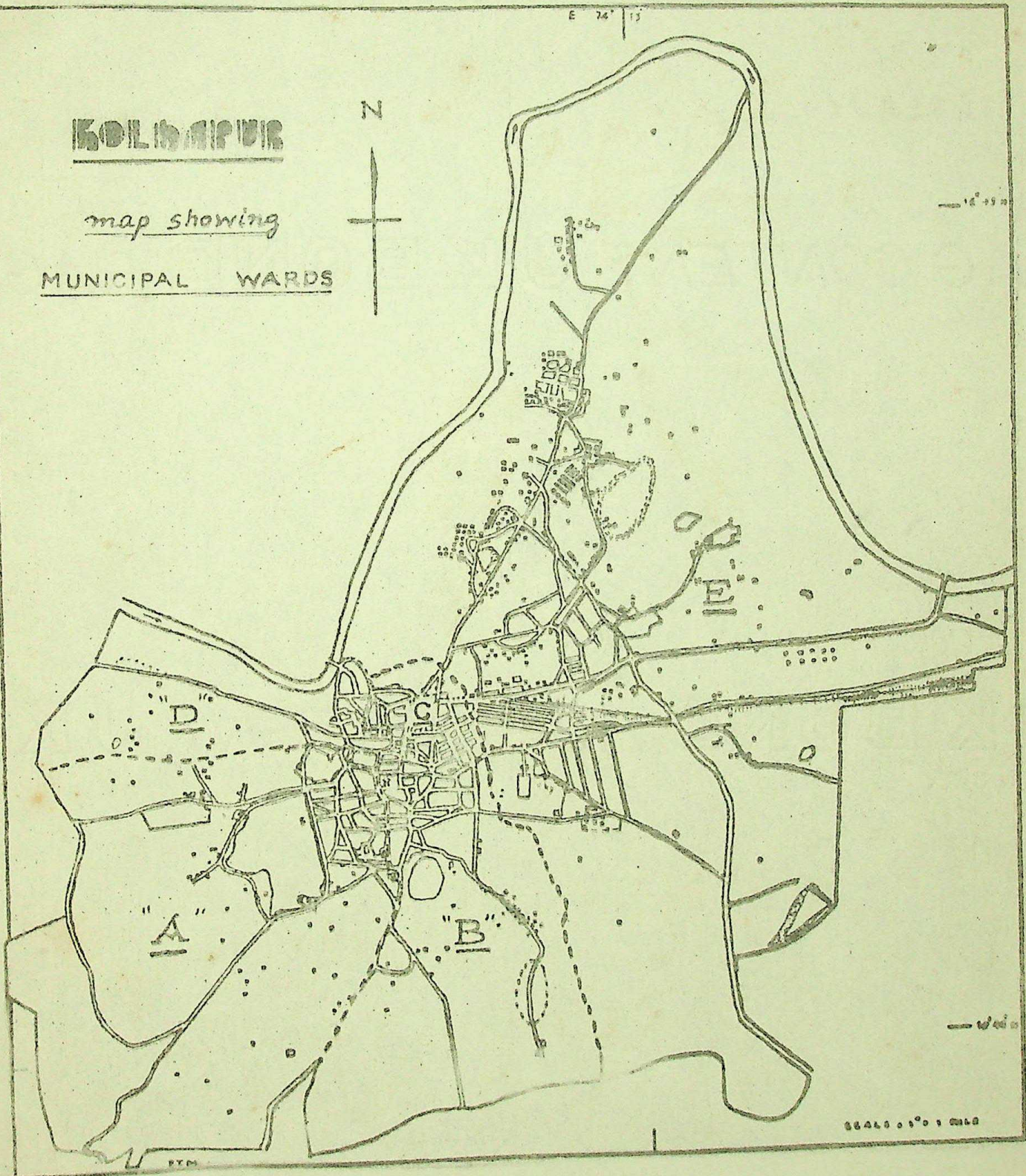
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KOLHAPUR
map showing
MUNICIPAL WARDS

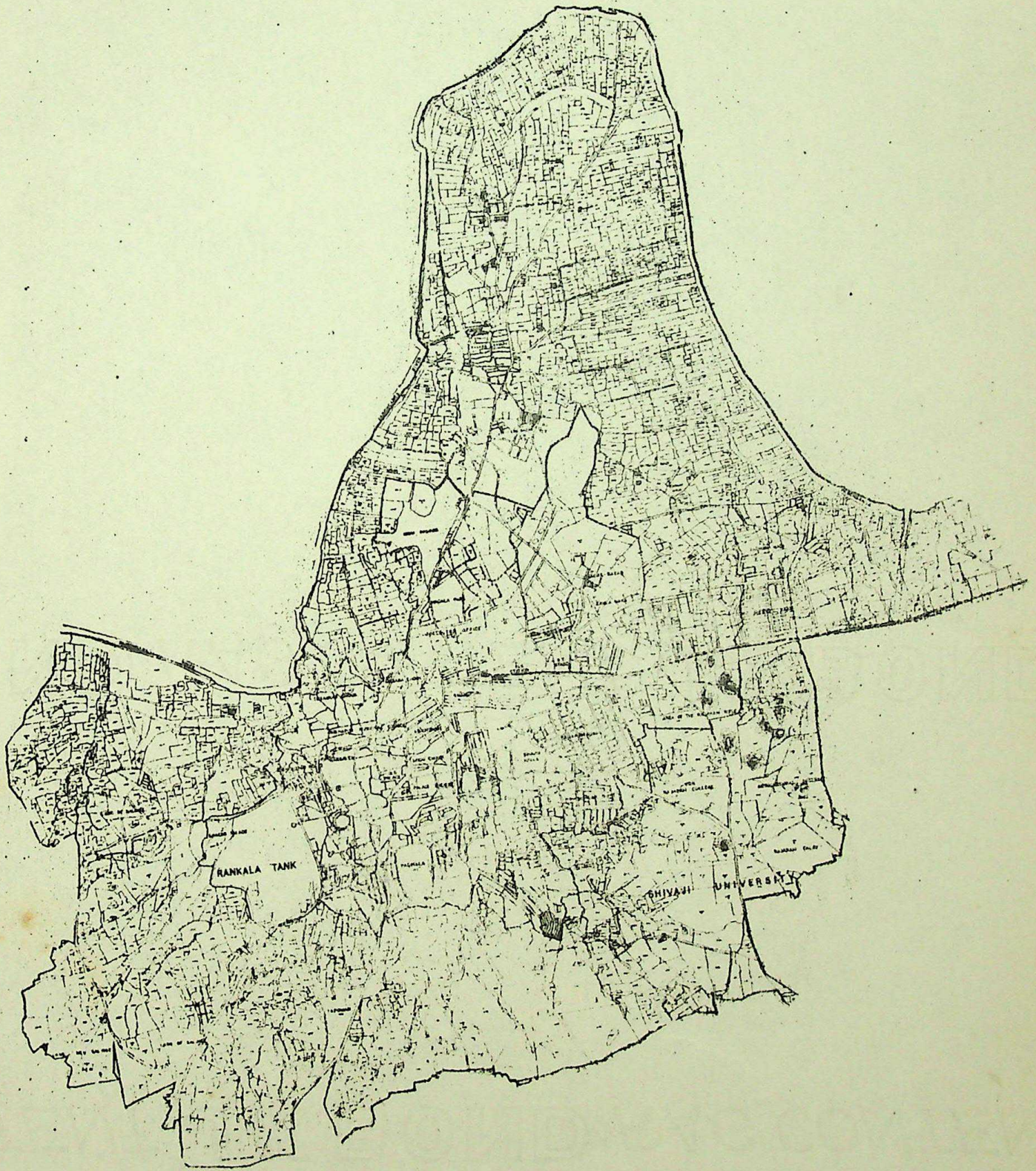


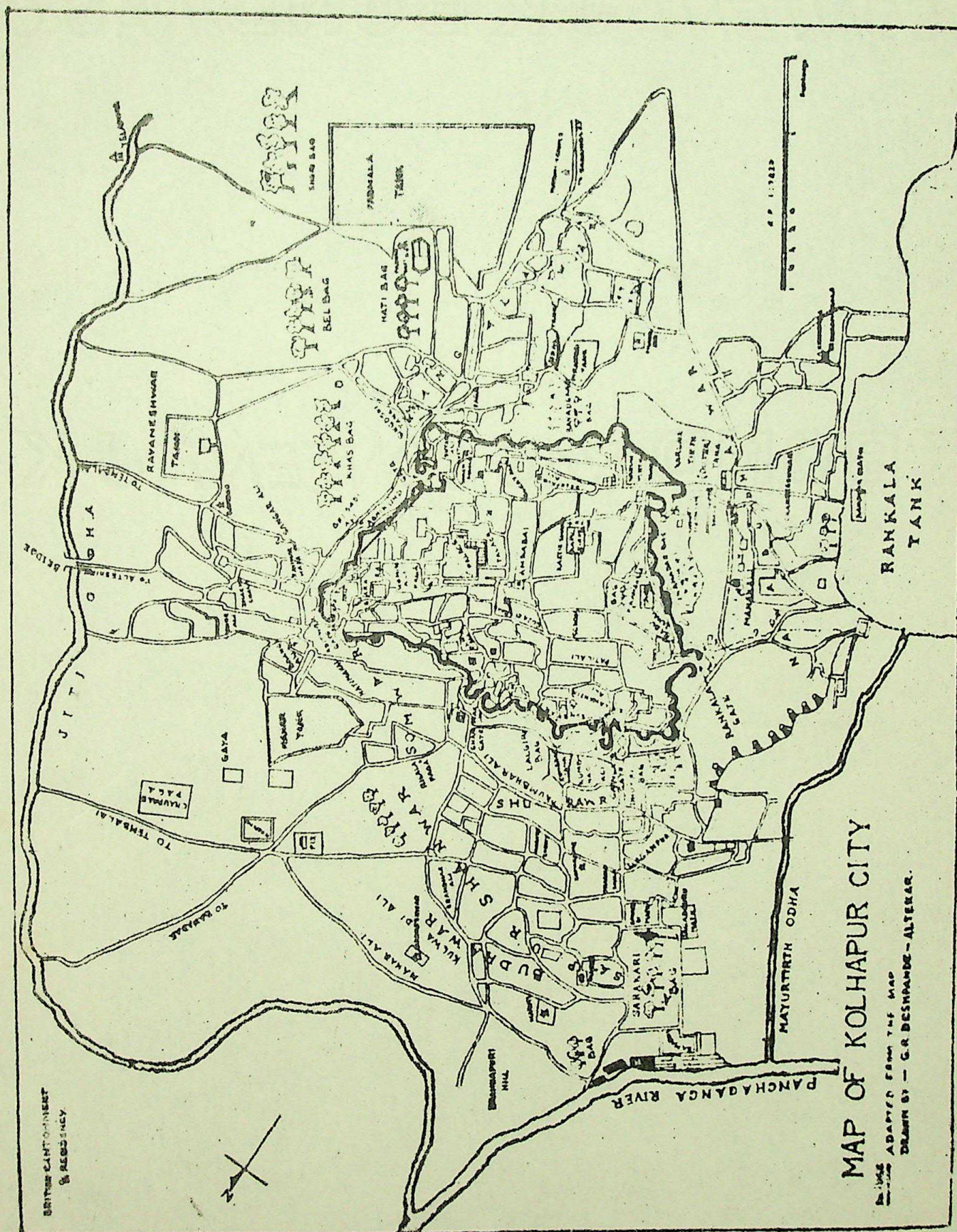
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1/4" = 1 mile



SCALE 1/4" = 1 MILE





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pursuit of them and in general to perform those functions -
 that in western thought are lumped under the heading of ---
 entrepreneurship) is likely in most underdeveloped countries
 to place a close limit on capital formation than does the -
 ability to save."¹⁶.

Thus the important input viz. Entrepreneur which
 is rarely found in backward economies was prevalent here from
 the beginning and so when infrastructural facilities were --
 made available the entrepreneurial ability, nurtured, motivated
 and encouraged by the late Chhatrapati Shahu Maharanj of --
 Kolhapur could transform the industry from traditional to -
 modern industry." Even if a country has resources labour --
 supply, technological knowledge, capital its potential -----
 productivity still can not be effectively realized unless -
 there are active entrepreneurs who have the ability to organize
 other factors of production for the creation of economic goods
 and who are economically motivated. For development does -

 Ref.: 16 : A.O. Hirschman, The Strategy of economic Development
 (Yale 1958) P P 35 ff.

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not occur spontaneously as a natural consequence when economic conditions are 'right', a 'catalyst' or agent is needed, - this requires entrepreneurial activity."¹⁷.

The Chhatrapati Shahu Maharaj encouraged the local entre-preneurs. He removed the obstacles of customs and ---- traditions and castes, that inhibited entrepreneurship. Such - motivations gave positive inducements to entrepreneurships." "The then prevailing social structure and community relation- -ship greatly influenced in determining who obtains access - to capital and knowledge."¹⁸

The Government made an immediate contribution to - entrepreneurship. Due to subsequent attempts industrial ---- development process has become cumulative and large number of entrepreneurs emerged.

Features of earlier entrepreneurship :

The first generation of entrepreneurs were self-made and dynamic men. They were not graduates of any university, but

Ref:17 : " Economic Development".

Meir and Baldwin page 296.

:18 : Industrial entrepreneurship in Madras

State- James Barna, (Bombay 1960) P.P. 212-13.

they enjoyed the freedom to do things they liked. They took -
the risk of investing in wrong places, " risks of demand ---
changes, of technical obsolescence in plant facilities and -
guessing badly because too many others guessed the same way.¹⁹
Behind such type of liberal attitude is the justification of
" infant industry' argument or ' infant economy argument' -
which emphasizes the concept of ' learning by doing'. It --
assumes that freedom or liberal attitude by the government
entitles one to try to learn how to do everything for itself."

In recent times, discussion on the proposition ---
" Doing by learning " or ' Learning by doing" has become a -
fond topic amongst the economists who are studying the ways
of industrialization of underdeveloped economies. In earlier
period, the development started from handicrafts-small scale
industries- sub-contracting, medium and large scale industries."
In Kolhapur as we have seen the engineering industry has ---
displayed such evolution, and we can say that ' Lightengineering

Ref : 19 : Henry C. Simons, Economic policy for a
free society (Chicago, 1948), p. 196.

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industry in Kolhapur thus became a school of entrepreneurship."

Thinkers like Rosenstein Rodan think that time has --
come in which the order should be reversed. He thinks that --
" industrialization should follow from the initial Public ---
undertaking in the backward region in due course of time the -
persons will learn to handle and study the process of -----
manufacture and then easily they will do the things. " This --
opinion seems to emphasize the importance of experience rather
than mere learning. We can-not deny the significance of learning
in modern technological advance.

In Kolhapur we find that earlier generation has been
gradually being succeeded by ~~an~~ educated and qualified -----
entrepreneurs. The founder entrepreneurs, possessed some -----
important qualities. Many of them were not educationally ---
qualified but they possessed initiative, imagination, ideals ,
experimental attitude , hardworking nature. They learnt all the
manufacturing processes by doing . They started their careers
at very tender age, as turners, did apprenticeships in -----
established karkhanas like Kirloskar, Cooper. With the help of
technical knowledge acquired and experience gained, they ---

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opened repairing of engines shops, manufactured component --
 parts, learnt to assemble the parts and thus became -----
 ' manufacturers of ' Oil engines'.

Difficulties to be faced by the Entrepreneurs :

The industrial entrepreneurship is different from --
 commercial or financial entrepreneurship. An industrial ----
 entrepreneurs require the capacity to keep the laws of ----
 increasing returns continuously going in the production, and --
 achieve economies of scale whereby the per unit cost of -----
 production is reduced. For achieving this the industrial ---
 enterprise requires different abilities, he must have leadership
 to lead other must have extensive technical knowledge in his --
 branch of production.

- 2) He is faced by shortage of capital, as much larger
 portion of his assets is tied up in fixed capital.
- 3) He has to depend on imperfect market for the sake of
 his product.
- 4) Small firms have to work as subcontractor and have to
 work under monopolistic pressures due to this dependence.

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5) It is difficult to recover the capital which is locked up in fixed asset, when the prospective profitability is greatly influenced by changes in tastes and fluctuations in demand.

Inspite of all these difficulties the entrepreneurs in Kolhapur entered into the production of diesel oil engines. The reasons are their enterprising ability, motivating attitude and infrastructural facilities made available by the earlier rulers and modern Government.

Infrastructural facilities :

The factors important for location of industries and expansion are space, transport, electricity, finance and the role of Government. These may be called as ' External economies,' the right use of which enables the firms to enjoy internal economies.

Space :

In earlier period the small units were concentrated in 'C' Ward which was a shopping centre and from

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which important roads emerged, in this areas to various -----
 direction. The small factories were often housed in cramped, ---
 dark, and dirty quarters, which were not conducive to good work
 by human beings or by machines. Improved premises can stimulate
 workers and management to other improvements. "The production --
 was carried on in the homes of the artisans and the family ---
 members assisted them in the production. The density of -----
 population in 'C' Ward was 84.71% . But later on when a -----
 favourable situation for the demand of oil engines, during 1st
 war as a result of import control was available, the small space
 in these areas was a handicap. During 1945-1946 period -----
 co-operative industrial estate, known as Shivaji Udyamnagar was
 established for small scale mechanical industries. Kolhapur --
 Durbar implemented many useful schemes for the benefit of these
 production unit. The significance of ' Industrial Estates ' can-
 not be neglected in the promotion of industrial activity and --
 entrepreneurship in Kolhapur.

The industrial estate relieves the small industrialist
 of the oftentimes arduous task of getting title to land, having
 a building constructed, arranging for electricity connections, -

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and the like. These advantages may also be factors in -----
 attracting foreign investment. The provision of suitable --
 factory premises on a rental basis or on hirepurchase helps to
 meet the financial problems of promising small industrial --
 enterprise. It is as good as a loan, if otherwise the -----
 enterprise would have to finance its own building . The risk
 of loss is comparatively small , because the premises can be
 rented to some other firm if the first one fails. If the ---
 government deliberately wishes to subsidise industrial ----
 development in a particular place, it can do so by offering -
 rentals on an industrial estate at less than full cost for a
 period of years."²⁰

The Shivaji Udyamnagar was located at the periphery
 of the then Kolhapur city, on the open land between the textile
 mills and Jitistream. During the last 3 decades many small --
 units have sprung up here. Now as it could not expand to the
 west or north, the production units were shifted to the ---

Ref : 20: " Methods of industrial development edited by
 Albert Winsemius and John A. Pincus.

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periphery of the expanding city at the new area of MIDC at -
 Shirol. Some units have been located in Mudshingi and ----
 Uchagaon. All these units have been located in these -----
 industrial area, where they could get cheap, land, water ---
 supply, nearness of rail and road. This helps them to export
 finished goods and import raw materials. "The basic social -
 overheads in the form of roads, rail, electricity, space are
 provided by the state. But these social overheads are just
 ' conception of industrialization."²¹ These industrial ---
 estates have induced the inflow of small units, and enabled
 them to make use of external economies of agglomeration. -
 They have saved efforts and expenses in erecting a factory.
 Common technical, repair and information services in form of
 ISI marks, Industrial extension service are available. The -
 earlier mestris had acquired detailed knowledge of production
 technique, sources of raw material, supply of labour, market.
 No technical or organizational secret was foreign to him. But
 it would have been difficult for him, to erect factory building.

Ref : 21 : Paul N. Rosenstein Rodan Ch. 9

" Regional Planning O.E.C.D. Publication

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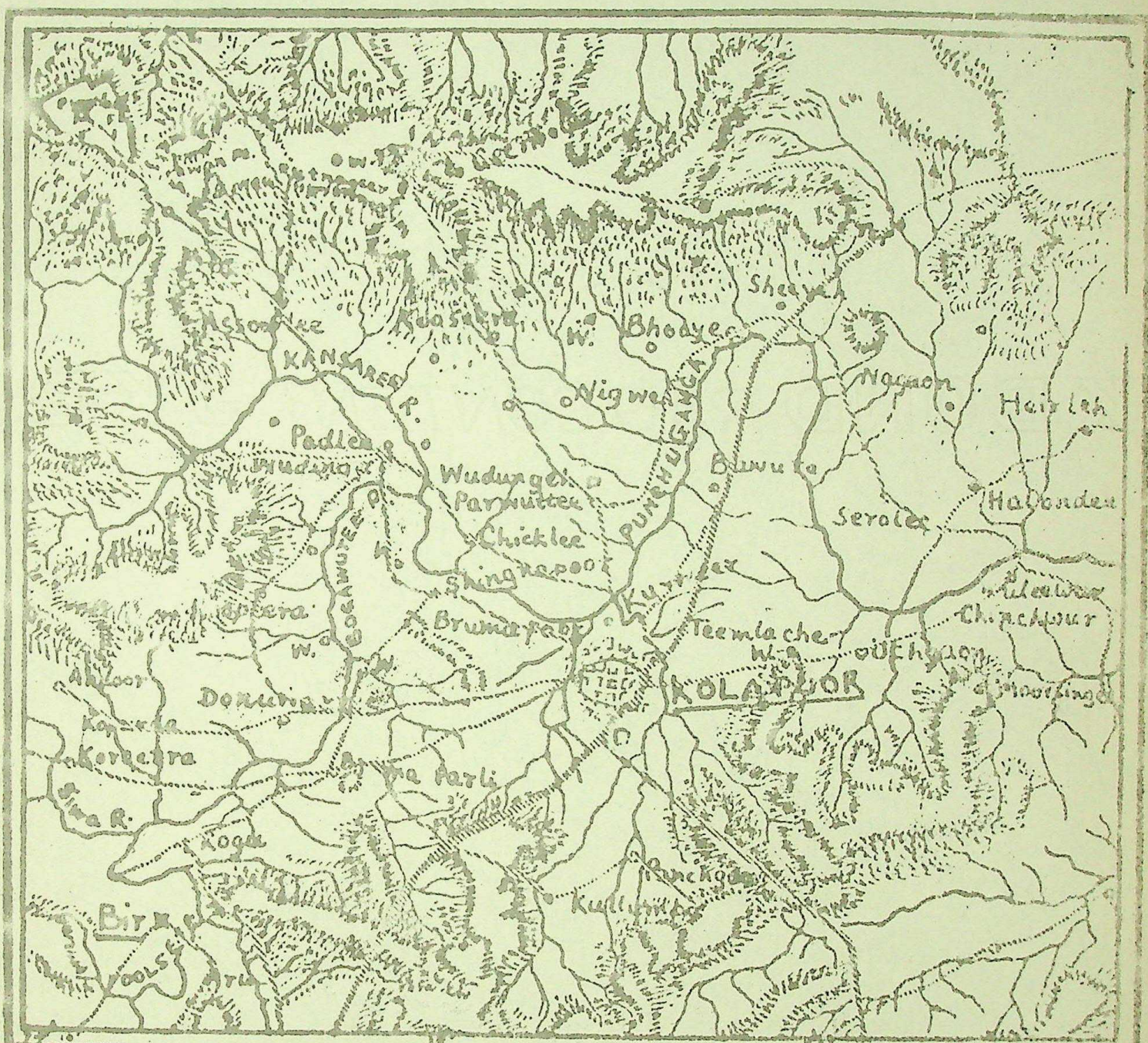
Hence the significance of space in industrial estate in the vicinity of the city.

Transport facility :

" Upto the end of 19th century Kolhapur was - - - industrially underdeveloped. Most of the working population was engaged in primary sector and few industries that were not very important or thriving were in existence!"²² The -- reasons are till 1945 Kolhapur had no good roads and they - were not workable in all seasons. In 1876 mechanized transport was absent. Due to absence of good roads and transport system, the artisans were doing their work in the house-hold only. -- There was no distance from work-place and residence. The -- industries do not expand in limited space."

Absence of transport facilities and good roads put limitations on import and export of raw materials, Semi- -- finished or finished goods and movements of workers and - goods to and from rural-urban or national markets. --

Ref: 22 : Report of the industrial survey of
Kolhapur published under authority at
education society press-Byculla Bombay
1895 P. 7.



Capt. G. Challan, H. Adams,
Major T. B. Jerwis, Surveyors.

John Walker,
Geographer to East India Company,

(SCALE 1" = 4 MILES.)

May 31, 1852. P.T.M.

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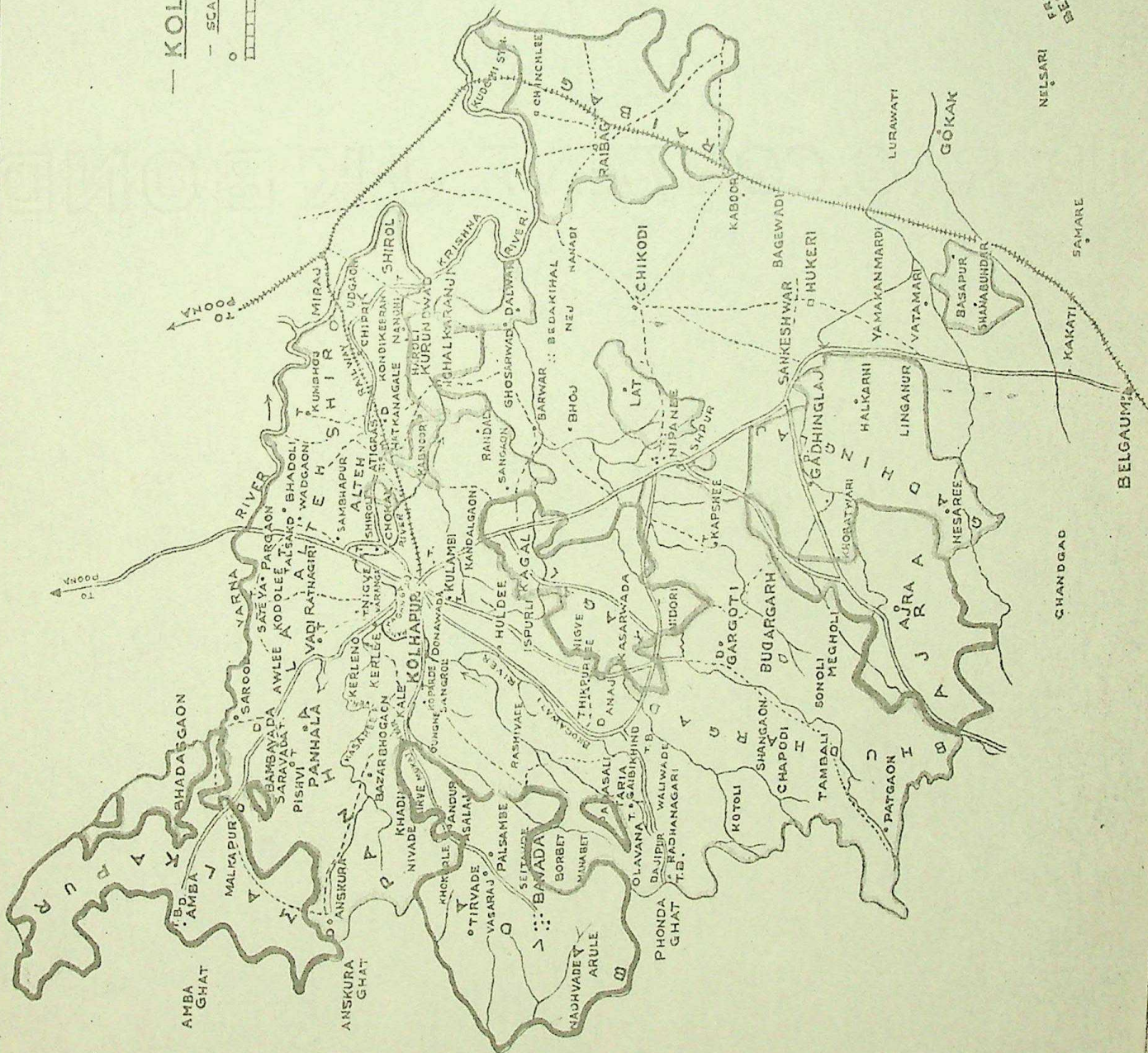
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— MAP —
— OF THE —
— KOLHAPUR STATE —

— SCALE — 8 MILES = 1 INCH —
0 8 16 24



- REFERENCES :—
KOLHAPUR STATE
FEUDATORY
BRITISH
ROAD METALLED & BRIDGED
ROAD METALLED NOT BRIDGED
TRAVELLERS BUNGALOW
TANK
DHARAMSHALA



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" The new techniques of construction of roads were - - - - introduced by the British. This facilitated the movement of - wheeled traffic even in the rainy season."²³ At the end of 1876 the total length of the road within the city was ----- 25 miles!"²⁴ "In 1888 the railway was introduced and in 1910 automobile transport caused changes in the expansion of the city."²⁵ But with gradual extension of roads, National high - ways, state highways and District road ways and mechanized - transport. We find Spatial distribution and dispersal of --- industries to places away from original centre of industrial activity, concentrated in 'C'ward.

The gradual rise in the roads from 3.56 Kilometres in 1951 to 51.76 Kilometres in 1975 has enabled the ----- Government of Maharashtra to decentralize small scale ----- industries by opening industrial estates in some of the -- nearest villages and thus to diffuse the ownership of wealth in large number of small units, open employment opportunities.

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- Ref : 23) Passenger-goods Transport in Kolhapur
)
 24) Dr. Shitole V.S. and Map of the Kolhapur
)
 25) State.

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MIDC's move to open Industrial estates in the vicinity of -
 Kolhapur has been possible because of extension of roads. The
 villages are Shiye (6 miles from Kolhapur), Nagaon Shirol,
 Top (6 miles), Shirol (4 miles). The road length rose -
 from 85-63 Kilometres in 1950-1951 to 203-66 Kilometres in -
 1975. The total road length of national highway in the - --
 district is 46.6 K.Mtres, and that of state highway is - --
 69.60 Kmtres.

Thus it is only after the advent of rail transport
 during 1891-92 and motor transport at the 1st decade of 20th
 century, that shift and expansion of small scale industries
 away from the original centres started." The existing railway
 line in the district is 0.47 Kilometres per 100 Sq. Kmtr. of
 the area as against 1.90 Kmt. per 100 Sq.Kmtres. in the State
 and 1.70 Kmt.in India. The length of railways works out to be
 0.02 Kmt. per 1000 people in the district. This is poor when
 compared with 0.10 Kmt.and 0.11 Kms.per 1000 people in - -
 Maharashtra and in the country respectively."²⁶

 Ref : 26 : Dr. R. B. Moktali - " Industrial Development
 of Kolhapur."

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The transport system i.e. rail and roads, have --- separated the workers from his residential area from - - - industrial area. The earlier difficulties of concentration - of industrial units in 'C' ward due to absence of transport facilities have been overcome by introduction of these roads and buses. These facilities enable speedy movement of men and material from production units to market, and the law of --- increasing returns are continued.

Electricity :

The best source of energy or power for industries - is the availability of electricity. Its use minimizes the cost of production, it can be generated in any amount from the - plentiful water supply, it does not create the problems of - air pollution or water pollution. Its use is multipurpose and can be made in any sector i.e. agriculture, industry, railways, domestic sector, it can be used in cold or heat treatment. -- Electric pumps have extended irrigated lands and raised ---- production possibilities. Electricity to the teeming million should be made available if under developed economy is to be transformed into a developed one.

In Kolhapur, electricity is available through Koyana,

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Radhanagari and Sharavati. The total electricity used in the district in the year 1974-1975 was 3,44,780 thousand Kwh. The use of electricity (in lakh kwh) for industrial purposes rose from 7.52 in 1950-51 to 1346-38 in 1974-1975,²⁷ and per capital consumption of electricity in Kolhapur rose from -- 12.37 kwh to 344.78 kwh in 1960-61. During 1973-74 nearly -- 26-07% electricity was used for agricultural development. By 1982 all the villages in the district are expected to be -- electrified. At present all villages in Shirol, Hatkanangle, Kagal, Gadhingalaj, Karveer and Panhala have been electrified. In Chandgad and Gaganbawada the percentage is low.

Thus an increase in the production of electric -- power is co-ordinated with the expansion of irrigated areas and is linked with the development of modern industry. In -- Kolhapur demand for electricity is rising, the production is adversely affected due to power cuts.²⁸ Plentiful supply of electricity reduces the cost of production in agriculture and industry by 22%.²⁹ Cost of production in respect of diesel oil,

Ref: 27: Socio-economic review and DSA of Kolhapur

1961-62, ' 62-'63, '70-'71, '73-'74, and '74-'75.

: 28: See Tables - 4 in Part II

: 29: " Industrialization of developing countries
edited by U-L Tyangunenkenko, page 42.

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crude oil, mobile oil or coal is considerably high.

Finance:

The industrial units require fixed capital and -- working capital. The Governments at both the levels central and state have taken lead in supplying capital to the small scale industries. They have created a ' demand for capital'. There are financial corporations viz. IFC, ICIC, IDBI, LIC, - MSFC, SICOM, MSSIDC, WMDC Ltd. etc. besides commercial banks (public and private). The number of banking offices rose - from 51 in 1951 to 195 in 1976. The very offices of these - financial institutions in Kolhapur have encouraged many units to come up, they have avoided the costs of going to and from Head Offices in Bombay, Poona or Delhi. A detailed discussion of financing of engineering units in Kolhapur is presented in an independent chapter.

Role of Government :

Government policies influence the industrial ---- structure in a developing country. The measures adopted to - influence the structure are direct and indirect. The ----- objectives behind these measures are economic and social.

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Direct measures include i) supply of finance to small -
 industries through various financial institutions -----
 2) construction of industrial estates, 3) Provisions ----
 industrial extension services, quality control, market --
 information 4) supply of machinery on hire purchase basis -
 5) Purchase of final goods.

Indirect measures include control on imports of -
 goods needed " About 50% of the growth of industry in ---
 developing countries appears to be due to import substitution.
 While the rest is probably explained by the net substitution
 of factory out put for handicrafts out-put and household -
 services."³⁰

These methods enable the small firms to improve -
 their productivity and reduce costs of production, make them
 competent to work as complementary units to large scale units.

Small scale units are better tools of decentralization,

Ref: 30 : "Methods of industrial development" (edited)

by A. Winsemyns and John Pincus, OECD, page 59.

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diffusion of ownership in large number of small men, who also can disseminate new ideas, new practices, and use of modern goods to the rural or suburban areas. Many workers employed in these units come from rural areas.

All these facilities enable the industrial sector to achieve economies of scale and reduce cost of production of the goods they manufacture. The competence to exploit all these facilities depends on the type of entrepreneurial class that is available.
