Industrial Structure of Ludhiana
1947 - 1980

Dissertation submitted to the School of
Social Sciences in partial fulfilment
of the requirements for the degree of
MASTER OF PHILOSOPHY

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5 March 1981

We certify that the dissertation entitled "INDUSTRIAL STRUCTURE OF LUDHIANA (1947-1980)" submitted by Miss RAJDEEP KAUR DIALIWAL in the fulfilment of six credits out of the total requirements of twenty-four credits for the award of the Degree of Master of Philosophy (M.Phil) of the University, is to the best of our knowledge, a bonafide work and may be placed before the examiners for evaluation.

(Professor Moonis Raza)
Chairman
5-3-81

5/3/81
(Dr. Atiya Habeeb Ridwai)
Supervisor

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LIST OF TABLES

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List of Tables (Contd.)

List of Tables (contd.)

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LIST OF MAPS

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LIST OF DIAGRAMS

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List of Diagrams (contd.)

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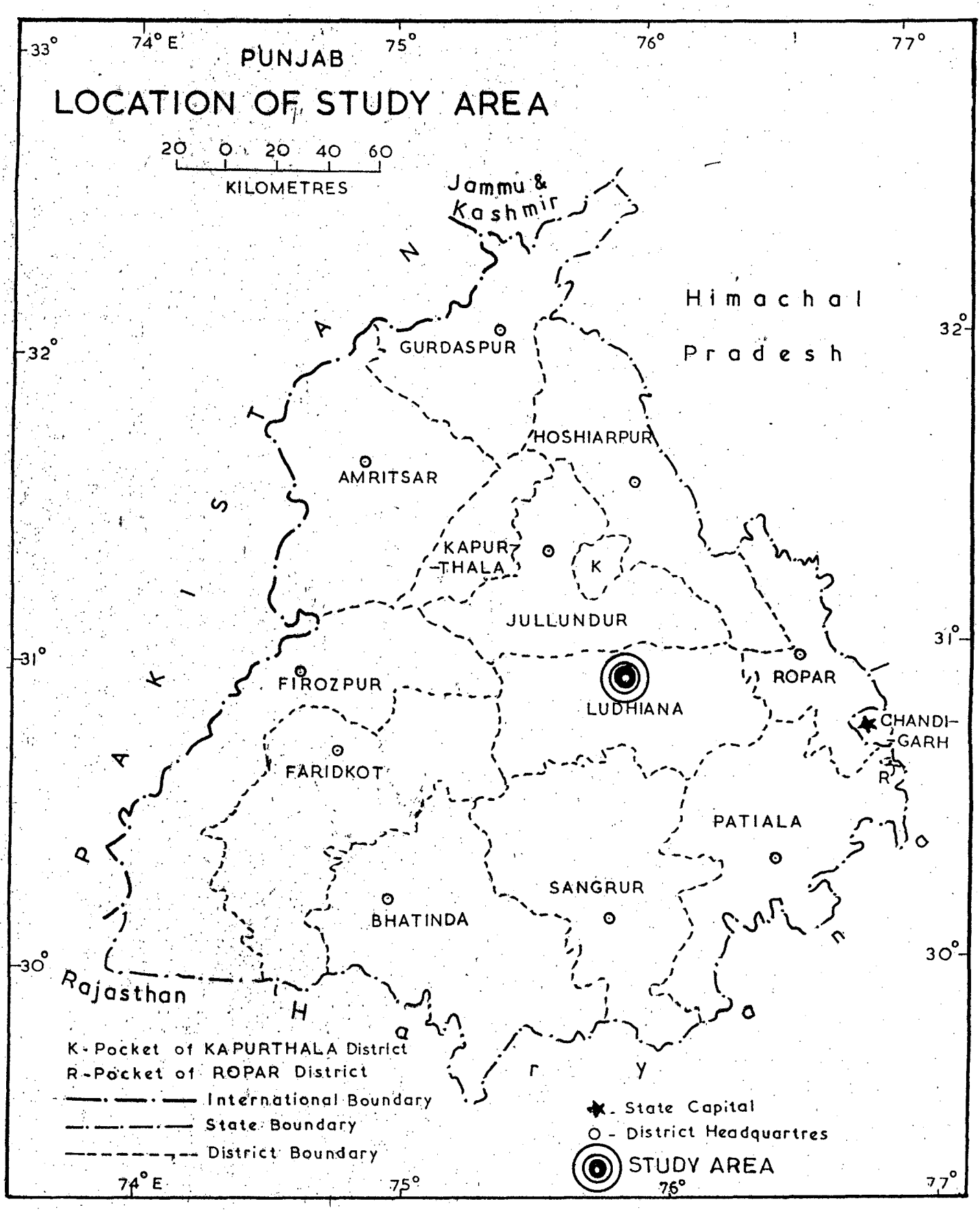
CHAPTER I


PUNJAB
LOCATION OF STUDY AREA
20 0 20 40 60
KILOMETRES
Jammu & Kashmir
Himachal Pradesh
GURDASPUR
HOSHIARPUR
AMRITSAR
KAPUR-THALA
K
JULLUNDUR
FIROZPUR
LUDHIANA
ROPAR
CHANDI-GARH
R
FARIDKOT
PATIALA
SANGRUR
BHATINDA
Rajasthan
Haryana
PAKISTAN
K - Pocket of KAPURTHALA District
R - Pocket of ROPAR District
International Boundary
State Boundary
District Boundary
State Capital
District Headquartres
STUDY AREA
74° E
75°
76°
77°
33°
32°
31°
30°

Map. 1-1

CHAPTER I

INTRODUCTION

Punjab is predominently an agricultural state but small enterprises have played a significant part in the recovery and growth of the state's economy after the partition of the country. The importance of this sector is, indeed, great both from the standpoint of the volume of employment and its contribution to the state income. The importance of small scale industries is being felt for a variety of reasons such as creation of new employment opportunities, diffusion of skills to rural areas and removal of regional imbalances.

Ludhiana, "The Small Scale Capital of Punjab",[1] has a place of pride on the industrial map of Punjab as is shown in Map 1.2. Small scale industries have made a significant contribution in the process of industrialisation of Ludhiana. Unlike West European cities, which built their industrial economy on giant enterprises, Ludhiana's prosperity has been truly built from below and is based on the contribution made by the small scale units. The industrial structure of Ludhiana today is the result of the concerted

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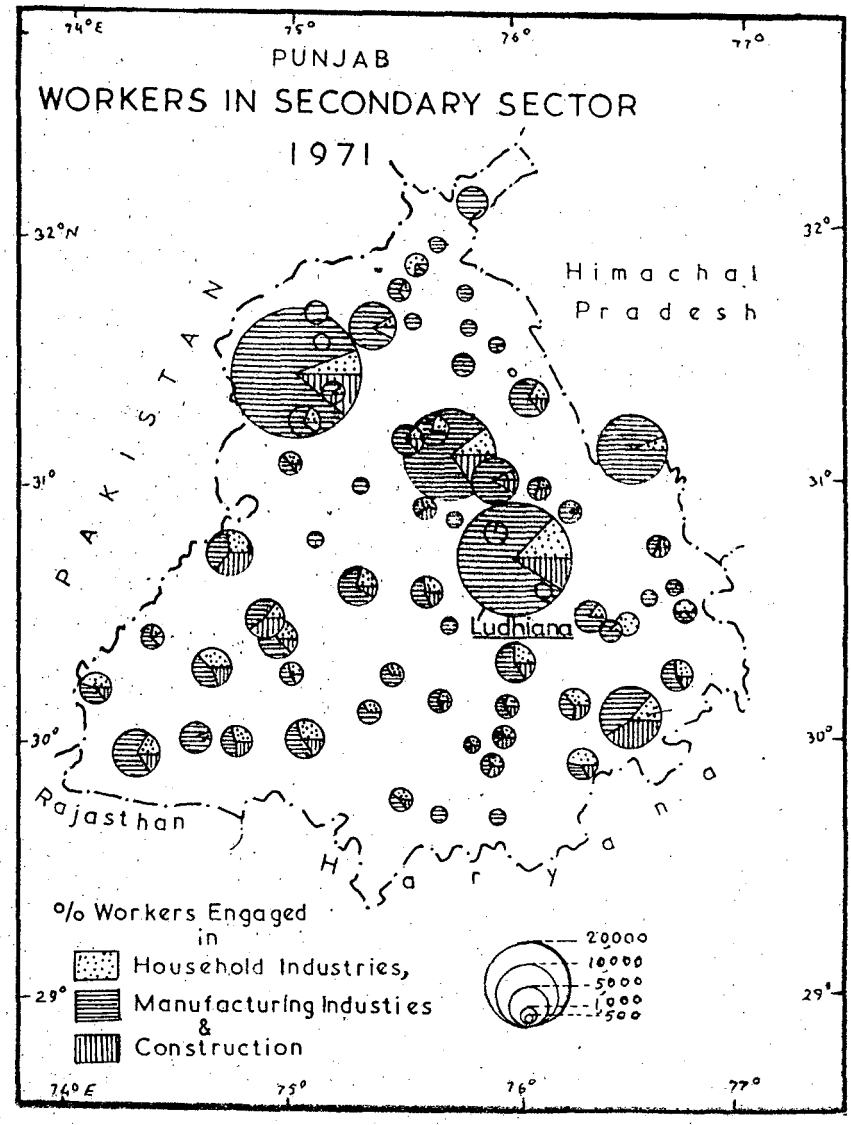
1 R.L. Anand, Punjab, District Census Book, No. 11, District Ludhiana (Government of Punjab, 1965), p. 21.


PUNJAB
WORKERS IN SECONDARY SECTOR
1971
74°E
75°
76°
77°
32°N
32°
31°
31°
30°
30°
29°
29°
PAKISTAN
Himachal Pradesh
Ludhiana
Rajasthan
Haryana
% Workers Engaged in
Household Industries,
Manufacturing Industies
&
Construction
20000
10000
5000
1000
500

Map. 1·2

efforts made in the last thirty five years. In 1947-48, the total number of industrial units in Ludhiana was only 2,000 employing 17,873 persons. But by 1978-79, the number of units had increased to 12,037 and employment in them had increased to 117,593 persons.

1.1 Objective of the Study

It would be interesting to study the process of development of industries in Ludhiana, a city which provides an excellent case for the analysis of the process of industrialisation from below. The main objectives of this study are hence two-fold:

(i) To analyse the process of industrial development in Ludhiana.

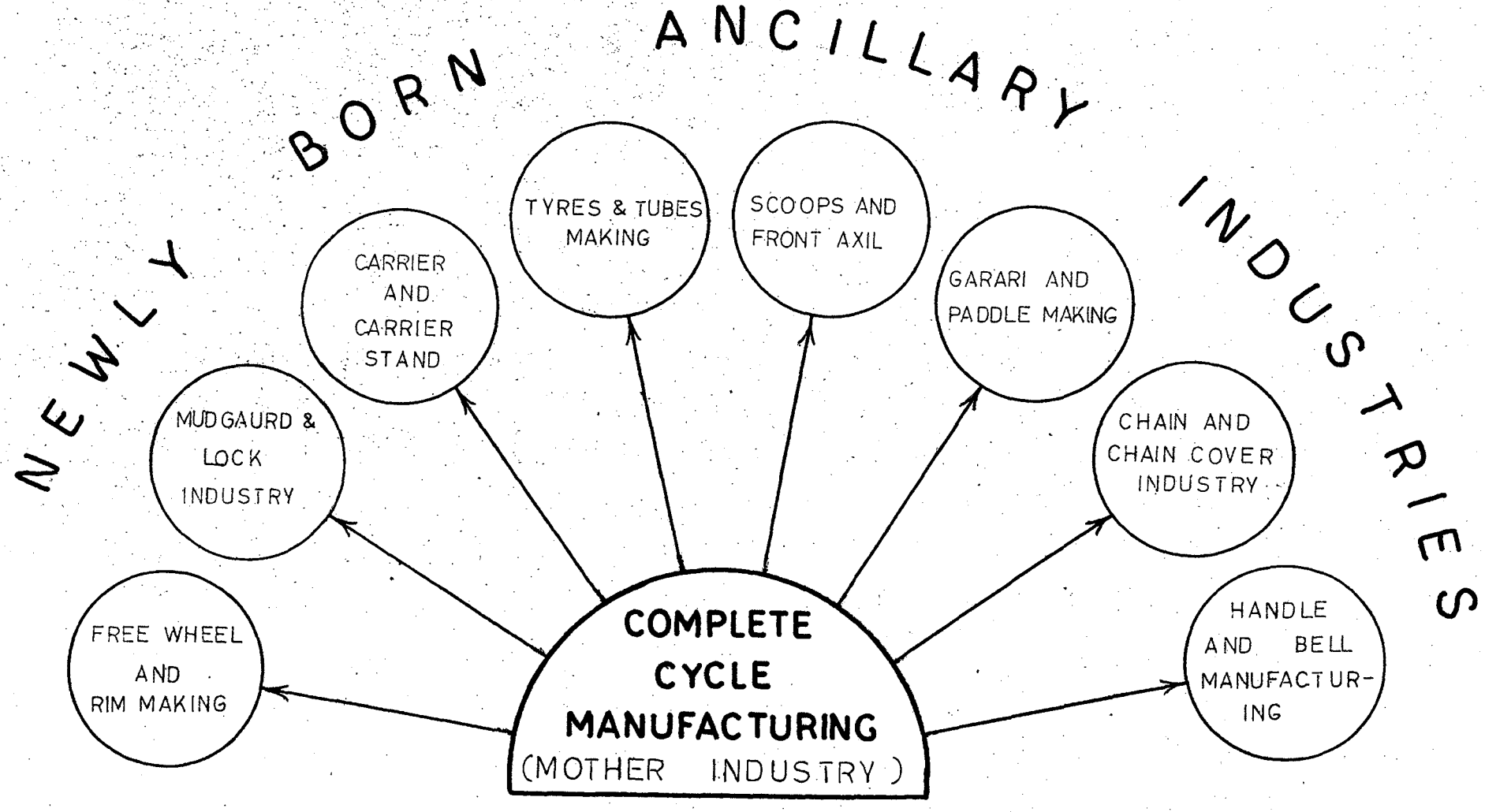
(ii) To analyse the effects of this process on the settlements and rural economy of its hinterland.

It is observed that the process of industrialisation usually follows one of the following two paths:

(i) The path of Specialisation, wherein to cater to the needs of a particular major industry many ancillary industries come into existence as illustrated in Diagram 1.1.

(ii) The Path of Diversification, wherein the existence of cottage and small scale industries encourages

PATH OF SPECIALZATION



Dig. 1.1

the establishment of big industries, where their processed goods are used and full-fledged models are produced as shown in Diagram 1.2. This is mainly applicable to those cities and towns where the small scale industries of a diversified nature are set up.

The most striking feature of Ludhiana is the predominance of small scale units. It is only the small scale industries which introduced this city to the outside world and have earned for it the title of "the Manchester of Punjab".[2] Due to the lack of mineral deposits in the state, the role of large scale industries in the industrial development of Ludhiana is only negligible. The total number of units of large scale industries are only 35 as compared to the total number of small scale units, which are 12,002.

Ludhiana is also known for its diversified industrial base. This city is the centre of a number of different types of industries. Hosiery, bicycles and bicycle parts, sewing machines and parts, agricultural implements, machine tools, electric goods, auto parts, spray pumps, diesel engines, leather goods, plastic

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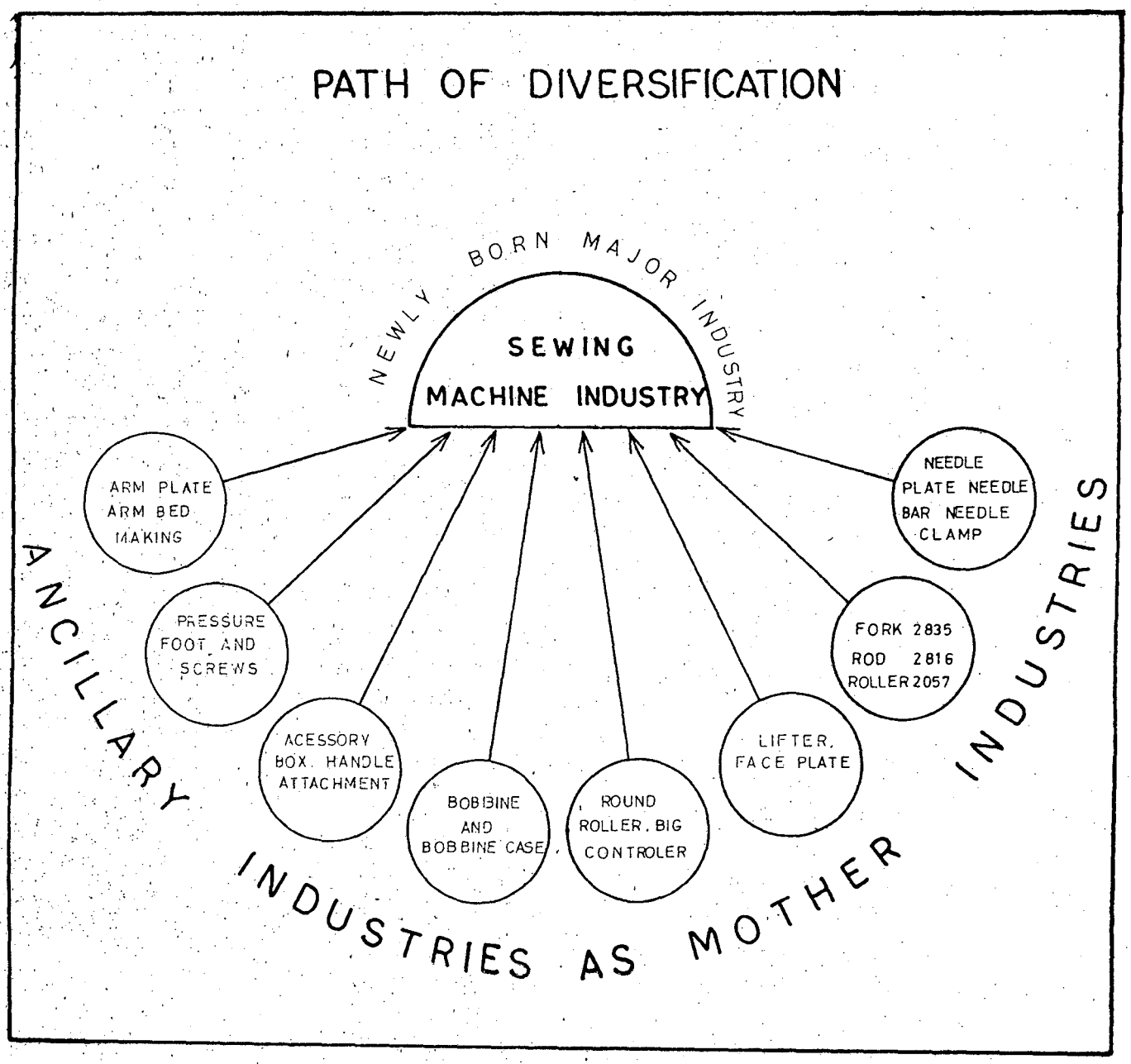
2 India Today (Delhi), March 1979, p. 31.


PATH OF DIVERSIFICATION
NEWLY BORN MAJOR INDUSTRY
SEWING MACHINE INDUSTRY
ARM PLATE ARM BED MAKING
PRESSURE FOOT AND SCREWS
ACESSORY BOX. HANDLE ATTACHMENT
BOBBINE AND BOBBINE CASE
ROUND ROLLER. BIG CONTROLER
LIFTER, FACE PLATE
FORK 2835 ROD 2816 ROLLER 2057
NEEDLE PLATE NEEDLE BAR NEEDLE CLAMP
ANCILLARY INDUSTRIES AS MOTHER INDUSTRIES

Dig. 1.2

goods, chemicals, food products, drugs and medicines etc. are all manufactured in Ludhiana. Such a big diversity in industry is hardly to be seen in any other city.

On the basis of these general observations about Ludhiana the following hypothesis are put forward to be verified in this thesis.

(1) The process of industrial development of an urban area is sometimes marked by the proliferation and diversification of the industrial base. In the later stage, diversification may lead to specialization in a few key industries.

(2) Industrial development of a city usually leads to the establishment of complete production cycles within the city because gradually ancillary products imported from other cities are manufactured in the city itself.

(3) An industrial town develops substantial inter-linkages with the primary sector in the surrounding regions which commercializes the rural economy and brings about changes in the cropping pattern.

(4) Amongst the factors which lead to industrial location sometimes enterpreneurship and state assistance provide the main impetus.

1.2 Industrial Structure of Ludhiana : An Overview

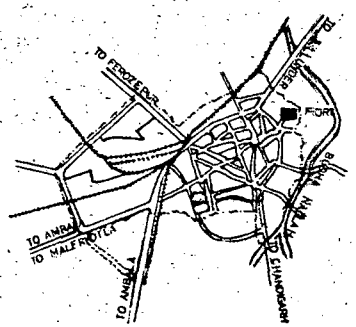
Ludhiana is one of the fastest growing industrial cities of the country. In the last thirty years, the city grew two and a half times in population and more than five times in its physical size as indicated in Map 1.3. This growth is the result of its tremendous industrial development. The most important industries of Ludhiana are Hosiery, Bicycle and Bicycle Parts Manufacturing and manufacturing of Sewing Machines. More than 25 per cent of its total industrial units are engaged in hosiery manufacturing and meet 90 per cent demand of the entire country. For the production of engineering goods industry, Ludhiana surpasses all the towns of Punjab as is shown in Map. 1.4.

The industries of Ludhiana can be put under the following major categories:

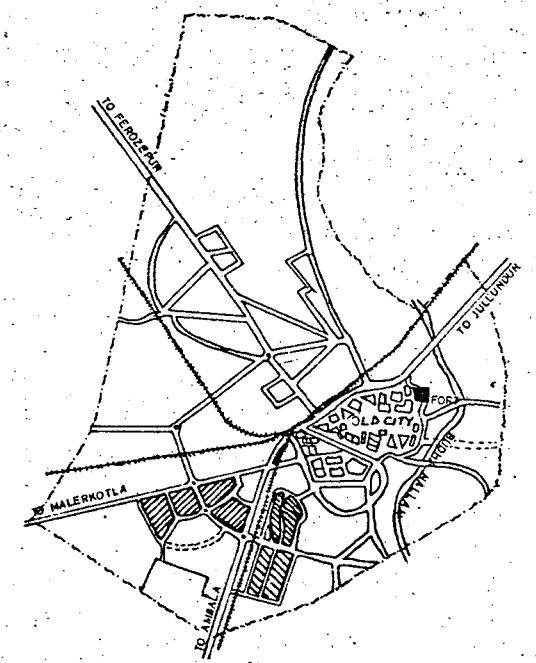
(1) Hosiery
(2) Engineering goods industries
(3) Mineral based industries
(4) Forest based industries
(5) Leather and leather products
(6) Fuel and Chemical products
(7) Food processing, and
(8) Miscellaneous.

GROWTH OF LUDHIANA

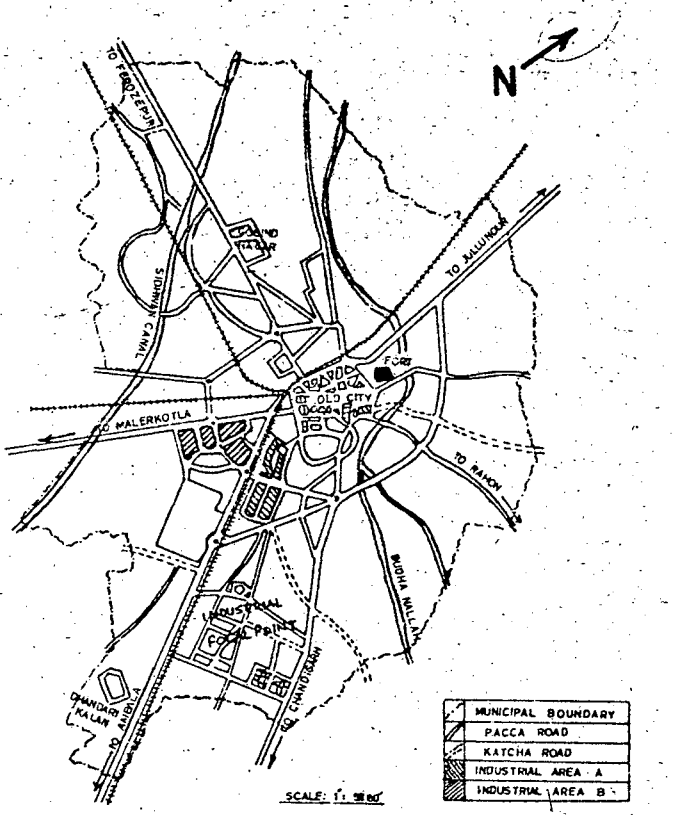
BEFORE 1947



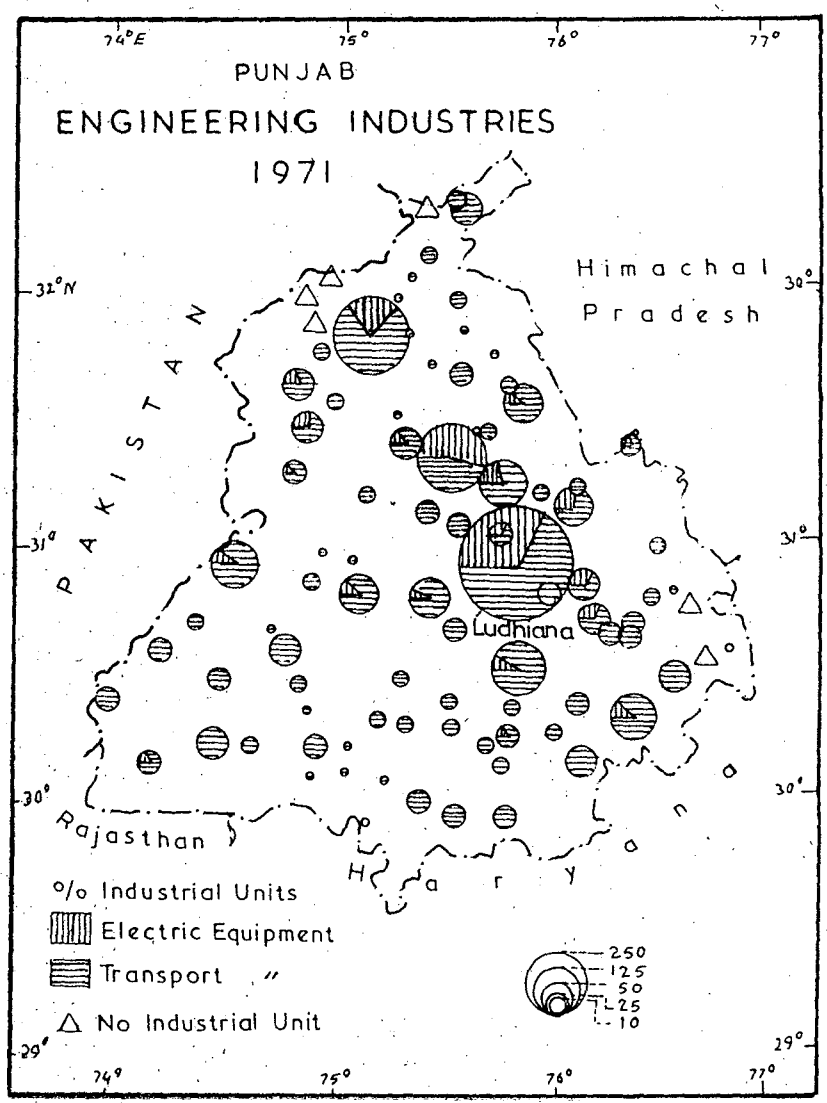
IN 1965-66



IN 1978-79



Map No. 1.3


74°E
75°
76°
77°
PUNJAB
ENGINEERING INDUSTRIES
1971
32°N
31°
30°
29°
Himachal
Pradesh
PAKISTAN
Ludhiana
Rajasthan
Haryana
% Industrial Units
Electric Equipment
Transport "
No Industrial Unit
250
125
50
25
10

Map. 1·4

The total number of units in these categories, their employment and investment, and the total production in each is given in Table 1.1.

Table 1.1

INDUSTRIAL STRUCTURE OF LUDHIANA

(1978-79)

Major Types of Industries	Total No. of units	Total Employment	Investment (Rs. in lakhs)	Production (Rs. in lakhs)
Hosiery	3,096	52,125	635.00	5,200.00
Engineering goods Industries	4,779	58,462	1,557.08	3,702.90
Mineral Based Industries	61	309	2.59	78.00
Forest Based Industries	106	403	10.90	151.80
Leather & leather products	681	1,848	3.45	28.50
Fuel & Chemical Products	41	343	15.25	90.92
Food Processing	242	1,033	92.83	365.65
Miscellaneous	3,031	3,275	609.82	5,149.88

Source: Annual Industry Report, 1978-79, D.I.C., Ludhiana.

In the development of unregistered industrial units, Ludhiana has become a leading centre in Punjab, as is evident from Table 1.2.

Table 1.2

UNREGISTERED INDUSTRIAL UNITS IN PUNJAB
(1976-77)

City	No. of Units	Total Employment	Total Investment (Rs. in lakhs)	Total Production (Rs. in lakhs)
Ludhiana	11,018	37,365	4,886.6	7,509.8
Amritsar	7,966	23,160	1,798.6	3,693.3
Jullundur	6,267	20,212	1,464.1	3,195.0
Patiala	2,428	5,415	341.6	514.1

Source: Statistical Abstract, Punjab, 1978.

1.5 Data Base

Almost the entire work is based on the secondary data obtained from various Annual Reports of the

Departments of Industry and other published sources. The basic data for different types of industries, i.e., number of units, employment, investment in plant and machinery, capacity, production and export has been collected from the office of the General Manager, District Industry Centre, Ludhiana, for the years 1960-61 to 1978-79. For 1947, Punjab, District Census Handbook, No. 11, Distt. Ludhiana, Punjab Government, 1965, was used. A sample survey was conducted to get detailed information whether all the processed goods used by the major industries such as hosiery, bicycles and sewing machines were manufactured in Ludhiana or imported from outside. Relevant information about the locational perspective of industries was obtained from the District Statistical Office, Ludhiana. The information about the different Development Institutes established in Ludhiana by the State and Centre Governments was taken from the "Small Industries Service Institute", Industrial Area B, Ludhiana. Detailed information about the Industrial Area "A" and "B" was collected from the Office of Director of Industries, Punjab. District Census Handbooks of Ludhiana, Jullundur and Sangrur were used to obtain information about the total industrial workers in the surrounding villages and towns. Information about the total area under the main crops in the hinterland, was obtained from the Statistical Abstracts.

1.4 Organisation of the Study

The entire study is organised in six chapters. The first chapter introduces the objectives of the study and outlines the hypothesis which this study purports to verify.

The second chapter analyses the industrial structure of Ludhiana in terms of hypothesis I. The main thrust of the analysis is on finding out the nature of diversification and specialization in Ludhiana's industries. It is also attempted to find out that if the city has a diversified industrial base, whether this diversification had led to specialization in the later stages or not.

The third chapter examines whether the industrial development of Ludhiana has led to the establishment of complete production cycles of major industries or not and whether all the ancillary processed goods consumed in major industries are manufactured in Ludhiana itself or are imported from other cities.

In the fourth chapter an attempt is made to verify the importance of enterpreneurship and government assistance in the location and growth of industry in Ludhiana.

The fifth chapter is concerned with the pattern of regional linkages of Ludhiana. It attempts

to assess whether the industrial development of Ludhiana has encouraged the development of small scale and household industries in the smaller town and villages of its hinterland or whether its impact has been negligible. It is also analysed whether the commercialization of agriculture in its hinterland is related to the industrial development of Ludhiana or not.

Conclusions of the study are presented in Chapter VI. Appendices, which further elucidate the hypothesis, are given after the conclusions.

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CHAPTER II

CHAPTER II

INDUSTRIAL STRUCTURE : DIVERSIFICATION AND SPECIALIZATION

It has been hypothesized in this study that the process of industrial development of an urban area is sometimes marked by the proliferation and diversification of the industrial base, and this diversification paves the way for specialization. In this chapter we shall try to verify this hypothesis for Ludhiana.

Generally there are two paths as was mentioned in Chapter I, which actually lead to the industrial growth of a particular city. These paths are firstly the path of industrial specialization and secondly the path of industrial diversification. If we analyse the growth of industries in Ludhiana in a historical framework, we find that Ludhiana started with a very diversified industrial base. Its important industries in the 1960's ranged from hosiery products, hosiery producing machines, bicycles and Bicycle parts, sewing machines and parts, machine tools, motor parts, oil engines, steel pipes, surgical instruments, steel screws, agricultural implements, electric goods, radio parts, television aerials, leather goods etc.

It gradually also developed milk-plants, a beer-factory, and five vegetable and ghee factories. Such a big diversity in industry is rarely to be seen in a town. At the time of partition, the number of these diversified industrial units in Ludhiana was only 2,000, but it increased to 12,037 by 1978-79. A list of these industrial units is given in Table 2.1.

Table 2.1

DIFFERENT TYPES OF INDUSTRIAL UNITS IN LUDHIANA

S. No.	Industry	No. of Units
1	Hosiery	2,972
2	Bicycles (complete)	18
3	Bicycle parts	2,078
4	Sewing machines (complete)	18
5	Sewing machine parts	371
6	Food Products	28
7	Dyeing	33
8	Ban making	85
9	Leather goods	588
10	Auto parts	619
11	Machine tools	468
12	Agricultural Implements	321

contd....

Table 2.1 contd...

S.No.	Industry	No. of Units
13	Nuts and Bolts	386
14	Embriodary	3
15	Leather Tanning	93
16	Rubber goods	588
17	Plastic goods	56
18	Measuring Tape	5
19	Umbrella Ribs	1
20	Wood Sawing	5
21	Wooden Boxes	10
22	Wood & Machine Screws	19
23	Card Board Boxes	72
24	Printing Work	20
25	Candles	50
26	Paints and Varnish	8
27	Dyes and Colours	2
28	Detergent washing soap	142
29	Fuel	3
31	Chemicals	21
32	Silicate	2
33	Casting & Forging	27
34	Conduit Pipes	34
35	C.I. pipe fitting	290
36	Stone manufacturing	1

contd...

Table 2.1 contd...

S.No.	Industry	No. of Units
37	Fabrication	166
38	Steel Furniture	60
39	Dies	5
40	Spray Pumps	4
41	Hardware	17
42	Electroplating	155
43	Machinery & machine parts	21
44	Textile machinery	13
45	Steel Rerolling	52
46	Electric goods	57
47	Electric motors	1
48	Electric fans	2
49	Radios & transistors	87
50	Edible oils	63
51	Poultry	139
52	Handloom	800
53	Power loom (woollen)	122
54	Power loom (art silk)	707
55	Power loom (cotton)	85
56	Cotton Ginning	34
57	Rice mills	12
58	Atta chakki	25
59	Gur making	1
60	Dal Grinding	2
61	R.C.C. Material	6
62	Miscellaneous	234
	Total	12,037

Source: Annual Industry Report, 1978-79, D.I.C., Ludhiana.

This rapid development of a diversified industrial base in Ludhiana led the industrialists to venture into specialization in some of the industries such as hosiery and the manufacturing of bicycles and sewing machines because almost all the processed goods of the ancillary industries consumed in these major industries were being manufactured in Ludhiana itself. The persistent efforts of the industrialists and government's assistance through the establishment of a 'Research and Development Centre for Bicycles', 'Sewing Machine Development Centre', 'Wool Dyeing and Finishing Centre', and 'Central Tool Room Ludhiana' paved the way to specialization in hosiery, bicycle and sewing machine industry.

The existence of ancillary industries, whose processed goods were being used in the bicycle industry (producing complete cycles) encouraged the establishment of major cycle industries such as Hero Bicycle Industry, Avon Cycle Industry, Ralson Cycle Industry etc. Similarly, the ancillary industries producing sewing machine components gave birth to the manufacturing units for sewing machines where full-fledged models were prepared. The existence of all the ancillary industries which provide inputs to the hosiery industry such as hosiery machines, chemicals, dyes, acids, lisapole, woollen

yarn, silk yarn and cotton yarn encouraged the growth and specialization in the hosiery industry.

At the time of partition, the total number of industrial units in Ludhiana was only 2,000. Out of these 600 units were engaged in hosiery, 25 in bicycle industry and 81 in sewing machine manufacturing. By the end of 1978-79 the number of units had increased to 2,972, 1,931 and 360 in hosiery, bicycle and sewing machine industry respectively as is indicated in Table 2.2.

Table 2.2

INCREASE IN TOTAL NUMBER OF UNITS IN MAJOR INDUSTRIES

Year	Hosiery	Cycle Industry	Sewing Machine Industry
1947-48	600	25	81
1960-61	920	500	175
1970-71	2,415	1,293	289
1978-79	2,972	1,931	360

Source: Annual Industry Reports, 1947-48 to 1978-79, D.I.C., Ludhiana.

This specialization is also evident when we consider the share of Ludhiana's exports in the total exports from Punjab. Out of Punjab's total direct exports of Rs.60 crores during 1975-76, hosiery accounted for 20 crores followed by the bicycle industry which accounted for 14 crores, Ludhiana being the chief centre of both these industries.

This growth of specialization in Ludhiana will be more evident if we take up each of these major industries of the city and see how they have grown through the years. This growth of specialization has been illustrated in Diagram 2.1.

2.1 Hosiery

For hosiery production, Punjab is the leading state in India. The position of Ludhiana is conspicuous only in Punjab but in the whole country and the city has become a byward in hosiery industry. About 95 per cent of the total establishments of the country engaged in hosiery production are located in this town. It meets about 90 per cent of the entire demand of the country for woollen hosiery.[1] It caters to both the civil population and the requirements of the defence and

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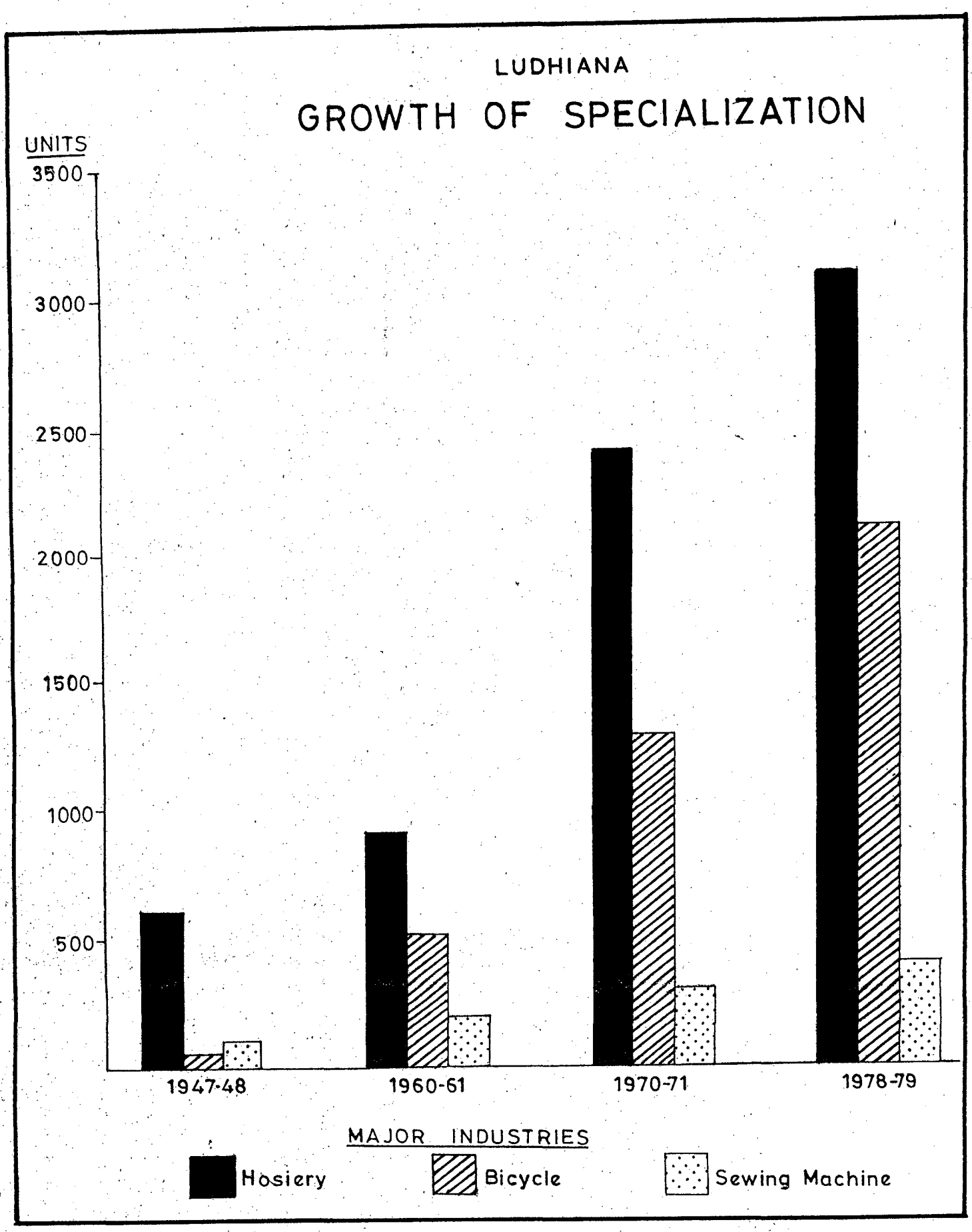
1 R.L. Anand, Punjab, District Census Handbook, No. 11 (Ludhiana: Punjab Government, 1965), p. 21.


LUDHIANA
GROWTH OF SPECIALIZATION
UNITS
3500
3000
2500
2000
1500
1000
500
1947-48
1960-61
1970-71
1978-79
MAJOR INDUSTRIES
Hosiery
Bicycle
Sewing Machine

Dig. 2.1

police departments and exports in considerable quantities to Ceylon, Burma, Africa, Siam, Middle East and Far East countries. The total capital investment in all the hosiery units of India is Rs.3 crores out of which the units at Ludhiana alone account for Rs.2.5 crores.

The hosiery industry traces its origin from the thirties of the 19th century. At that time all the work was done by hand only. In 1890, the first mechanized unit was installed at Ludhiana[2] and its success prompted a number of firms installing these machines. The tremendous demand for hosiery goods by the Defence Department during World War II gave the industry inducements for unprecedented expansion. The partition of the India and Pakistan hit the industry hard but the setback did not last long and the city continued to lead the country in hosiery production.

It is estimated that at the time of partition, there were some 600 units in the line engaging 4,900 workers (Table 2.3). The total investment in the industry was Rs.269 lakhs and the annual production was worth Rs.216 lakhs. By 1978-79, the number of units had increased to 3,096 engaging 52,125 workers. The total investment in this industry in 1978-79 was Rs.635 lakhs and the annual

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2 Ibid., p. 21.

DISS
338.954552
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production was Rs.5,200 lakhs. After Independence within forty years, the increase in the production of hosiery goods was 2270.41 per cent.

Table 2.3

GROWTH OF HOSIERY INDUSTRY
(1947-48 to 1978-79)

Year	No. of units	Total Employment	Investment (Rs. in lakhs)	Production (Rs. in lakhs)
1947-48	600	4,900	269.00	216.00
1960-61	920	7,500	318.00	425.00
1970-71	2,415	35,280	375.00	3102.00
1974-75	2,820	49,300	381.00	3450.00
1975-76	3,000	50,020	390.00	3900.00
1976-77	2,859	45,900	572.00	3780.00
1977-78	2,972	49,105	-	4500.00
1978-79	3,096	52,125	635.00	5200.00

Source: Annual Industry Reports, 1947-48 to 1978-79, and Action Plan, D.I.C., Ludhiana.

About 1.8 million kilograms of hosiery yarn is consumed annually by these units, while the hosiery industry in other parts of India collectively consumes only 0.23 million kilograms of yarn.

This industry, as it stands today, has a complex structure, and is made up of units of various sizes ranging from single hand units to those employing hundreds of operatives. They are either self-sale units or fabricators and produce a variety of goods like pull-overs, jersies, cardigens, mufflers, socks, stockings, slipovers, hose-tops etc. The quality of these items is good and the industry has captured the domestic market in addition to a considerable export market. In 1978-79, the total export value of hosiery manufactures was worth Rs.3300.00 lakhs as is shown in Table 2.4.

Table 2.4

EXPORT OF HOSIERY GOODS FROM LUDHIANA

Year	Export (in lakhs)
1973-74	1800.00
1974-75	1927.00
1975-76	2300.00
1977-78	N.A.
1978-79	3300.00

Source: Office of the Director of Industry, Sector 17, Chandigarh.

No doubt that all the industries, such as leather goods manufacturing, plastic goods industries, agricultural implements, machine tools, auto parts, electric goods etc. have also shown a positive trend in their growth but the growth of hosiery industry is marked by the most rapid pace which indicates that Ludhiana has specialized in hosiery production in the last fifteen years.

2.2 Bicycle Industry

The bicycle parts industry in Ludhiana had its origin in about 1936 when some shops took to the manufacture of accessories like stands, carriers and axles. Reduced imports from abroad during World War II provided an opportunity for the industry to expand and diversify. As demand increased, the industry developed rapidly. The partition of the country gave a setback to this industry but within a short interval it re-established itself. The next phase of expansion came when the Union Government restricted the imports and fixed assemblage quota of full bicycles as between small scale units and large establishments.

Punjab now ranks at the top in the bicycle industry and is served both by large scale and small scale sectors. Manufacture of bicycle parts and assembling of complete bicycles is a leading engineering trade of

Ludhiana city though some units exist in other towns of the district also.

At present 'Hero Bicycles' which is the biggest bicycle unit in Ludhiana, produces a million bicycles in a year i.e. seven a minute. Between 1968-69 and 1978-79 the 'Hero Bicycle Industry' has shown 100 per cent increase in its production. (Table 2.5)

Table 2.5

PRODUCTION OF HERO BICYCLE INDUSTRY

Year	Production	Percent increase
1968-69	2,000 bicycles/day	-
1978-79	4,000 bicycles/day	100

Source: Action Plans, D.I.C. Industrial Area B, Ludhiana.

It is estimated that the district had only 25 units in the line in 1947, producing goods worth Rs. 10 lakhs. By 1978-79, the number had gone up to 2,096 with the total production to Rs.3,705.00 lakhs.

The number of workers similarly rose from 150 in 1947 to 31,088 in 1978-79, and the total investment rose from Rs.12.00 lakhs in 1947 to Rs.672.00 lakhs in 1978-79. The progress made by the bicycle manufacturing units after 1947 can be judged from Tables 2.6 and 2.7.

Table 2.6

GROWTH OF BICYCLE INDUSTRY - 1947-48 TO 1978-79

Year	No. of Units	Total Employment	Investment (in lakhs)	Annual Production (in lakhs)
1947-48	25	150	12.00	10.00
1960-61	500	5,000	50.00	2½ crores
1970-71	1,298	22,002	299.00	1,820.00
1974-75	1,701	26,875	-	2,620.00
1975-76	1,798	28,960	402.00	2,950.00
1976-77	1,802	29,100	468.00	3,040.00
1977-78	1,931	30,842	615.00	3,460.00
1978-79	2,092	31,088	672.00	3,705.00

Source: Annual Industry Reports, 1947-48 to 1978-79, D.I.C., Ludhiana.

Table 2.7

RECENT DEVELOPMENT OF BICYCLE INDUSTRY
(Producing Complete Bicycles)

Year	No. of Units	Total Employment	Investment (in lakhs)	Capacity (in lakhs)	Production (in lakhs)
1947-48	Nil	Nil	-	-	-
1973-74	11	864	16.00	-	220.00
1975-76	18	960	20.00	-	950.00
1977-78	18	1,060	22.00	1,000.00	1,250.00
4978-79	18	1,063	22.00	1,500.00	1,250.00

Source: Annual Industry Reports, 1947-48 to 1978-79, D.I.C., Ludhiana.

At the time of independence, no industry was manufacturing complete cycles but at present there are eighteen units assembling complete bicycles which are the important foreign exchange earners. 'Avon Bicycle Industry' is exporting its total output of bicycles to Italy.

2.3 Manufacture of Sewing Machines and its Accessories and Parts

Prior to World War II, India had to import most of the sewing machines for her domestic requirements. On partition, such refugees as had workshops for the manufacture of sewing machines parts in Lahore and other places in West Pakistan, resumed this activity in a small way at Ludhiana. Their enterprise received a brisk rise because of the tariff protection and import control, and assembling of complete sewing machines was soon taken in hand. Ludhiana is now the foremost centre of this industry in the State. In Ludhiana District, all the units either specialize in certain parts, or assemble machines from the parts purchased from the market.

Now almost all the parts of the sewing machines are being manufactured at Ludhiana. The industry has, however, expanded so rapidly after the 1960's that not only does it fulfil home demand but also exports to various adjoining countries. The installed capacity of the industry in 1960-61 was estimated to be about 81,000 machines per year, but actual production was considerably less on account of the difficulties faced in the collection of raw materials.

In 1961, there were as many as 175 units engaged in the line, which with a capital investment of Rs. 35 lakhs

employed 1,800 workers and produced annually goods worth Rs.165 lakhs. Some of these units are individual concerns, or joint family concerns, while others are partnerships, limited companies or co-operative societies. In 1978-79, the number of units has increased to 339 with annual production of Rs.475 lakhs as is shown in Table 2.8.

Table 2.8

GROWTH OF SEWING MACHINE INDUSTRY
(1947-48 TO 1978-79)

Year	No. of Units	Total Employment	Investment (in lakhs)	Production (in lakhs)
1947	81	-	-	-
1960-61	175	1,800	35.00	165.00
1970-71	239	4,223	70.00	451.00
1975-76	358	5,650	86.00	435.00
1976-77	357	5,640	86.00	434.00
1977-78	360	5,766	88.00	456.00
1978-79	339	5,950	88.00	475.00

Source: Annual Industry Reports, D.I.C., Ludhiana.

Recently, the industry has devoted its full attention to improve the quality of its products. Bigger units are aiming at rationalization of production by narrowing their range of manufacture instead of expanding horizontally.[3] Its manufacturers are finding an expanding market in Afghanistan, parts of Africa and some European countries. Table 2.9 indicates that from 1973-74 to 1978-79 there has been almost no change in the number of units, employment and investment but the export value is showing 231.50 per cent increase, which is the index of its good quality manufactures.

Table 2.9

RECENT RISE IN EXPORT VALUE OF SEWING MACHINE INDUSTRY

Year	No. of Units	Total Employment	Investment (Rs in lakhs)	Production (Rs. in lakhs)	Export (Rs. in lakhs)
1973-74	18	2,812	18.00	42.00	19.00
1975-76	18	2,850	18.00	60.00	-
1978-79	18	2,850	18.00	60.60	43.95

Source: Annual Industry Reports, 1973-74 to 1975-76, D.I.C., Ludhiana.

It must be noted that at present all the components of sewing machines are manufactured within the city itself. But in 1960, some of its components were imported from other states. This is a main indicator of specialization of Ludhiana in sewing machine industry.

The aforesaid industries manufacturing hosiery goods, bicycles and sewing machines have become the prominent industries of Ludhiana due to which the city has become a leading industrial centre in the state.

2.4 Conclusions

(i) Ludhiana started with a diversified industrial base but subsequently this diversification led to specialization in a few selected industries. However, Ludhiana still shows a considerable degree of diversification. There are about sixty different types of industrial units in Ludhiana today.

(ii) With the passage of time, three of Ludhiana's traditional industries emerged as the major industries of the city, these were Hosiery Industry, Bicycle Industry and Sewing Machine Industry. In these three industries Ludhiana has the foremost place in the country both in terms of employment and production. The development of ancillary industries paved the way for specialization in these industries in Ludhiana.

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CHAPTER XII

CHAPTER III

DEVELOPMENT OF PRODUCTION CYCLES

Industrial development of a town usually leads to the establishment of more or less complete production cycles. In this study it has been hypothesized that with the industrial development of a city, the ancillary industries whose processed goods are consumed in the major industries are also established in the same city. This process has been illustrated in Diagram 3.1. If all the manufactured goods used in a major industry are manufactured in the city itself it saves transport cost as well as time for the collection of desired manufactured goods. Moreover, entrepreneurs try to establish all the ancillary industries in the same city because there is a huge demand for their processed goods as they are used in the main industries of the city. Gradually as the demand for these ancillary goods increases, their production also increases.

Ludhiana, referred to as "The Manchester of Punjab"[1] has witnessed very rapid industrial development and its hosiery, bicycle and sewing machine industries

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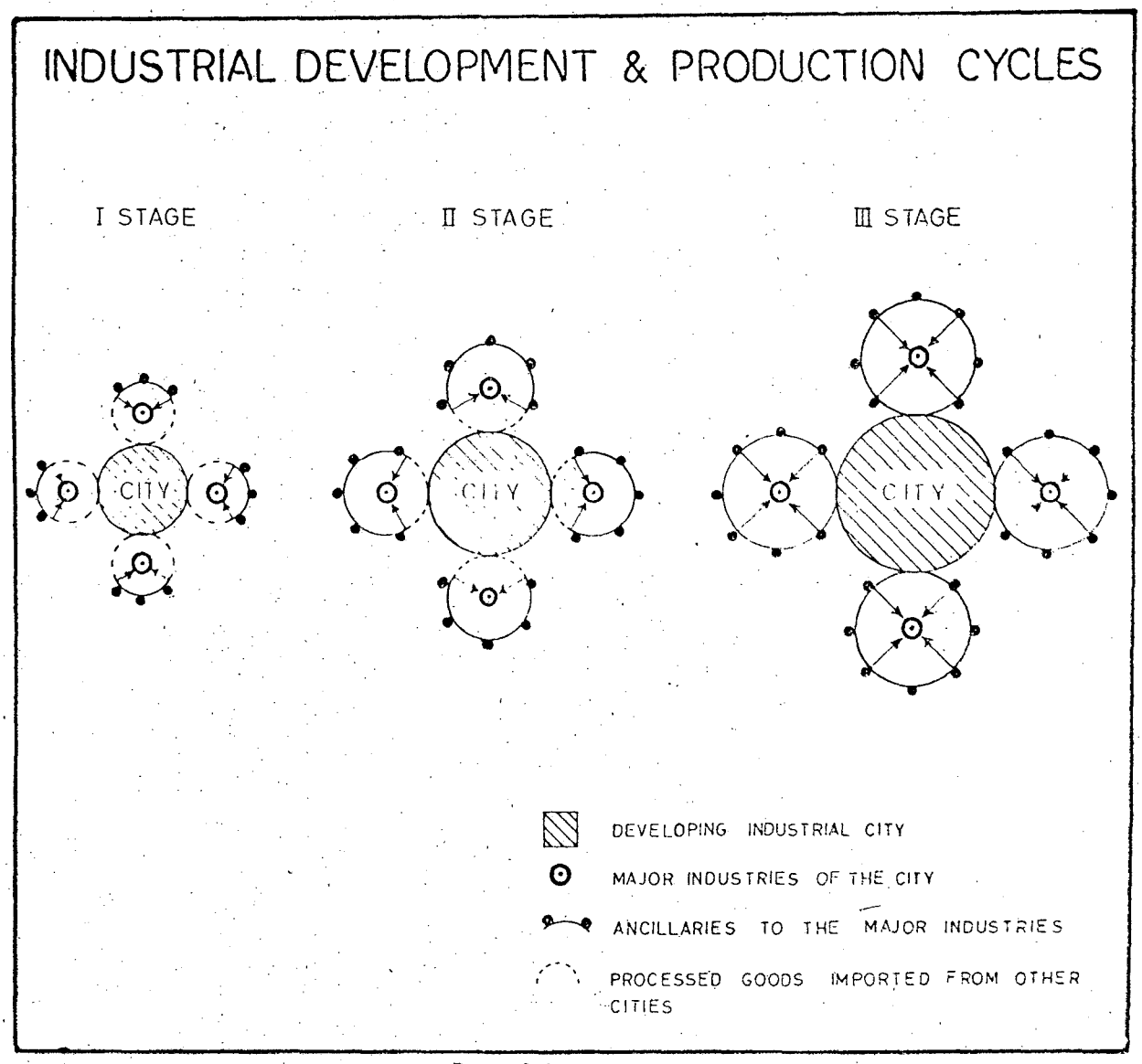
1 India Today (Delhi), May 1979, p. 13.


INDUSTRIAL DEVELOPMENT & PRODUCTION CYCLES
I STAGE
II STAGE
III STAGE
CITY
CITY
CITY
DEVELOPING INDUSTRIAL CITY
MAJOR INDUSTRIES OF THE CITY
ANCILLARIES TO THE MAJOR INDUSTRIES
PROCESSED GOODS IMPORTED FROM OTHER CITIES

Dig. 3.1

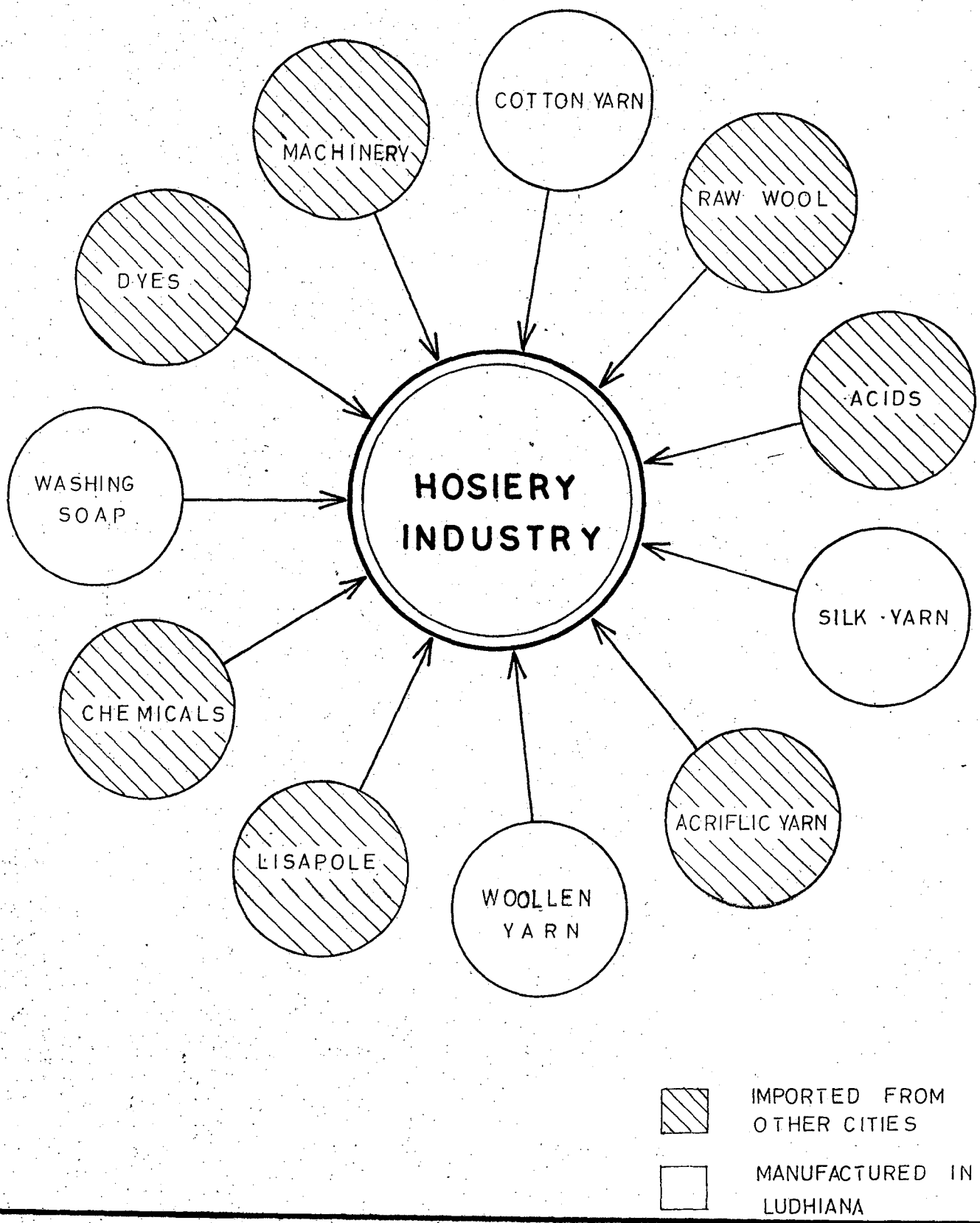
have been able to establish almost complete production cycles. Most of the processed goods used in these industries which were imported from other towns in the 1960's are now manufactured in Ludhiana itself.

The detailed analysis of the production cycles of these industries is given in the following pages.

3.1 Hosiery

In the case of hosiery, which is the most important industry of Ludhiana, it is evident from Diagram 3.2 that in 1959-60, most of the ancillary industrial products, used in hosiery industry, i.e. hosiery machines, raw wool, acriflic yarn, lisapole, chemicals, acids, all were imported from other cities involving transport and other costs. But Diagram 3.3 indicates that by 1979-80, only raw wool and acriflic yarn were imported from other places. All the other products such as lisapole, chemicals, acids, dyes had started being manufactured in Ludhiana city. It is likely that with the development of industrial activity, the manufacturing of these imported materials will also start in Ludhiana itself. With the establishment of these units there will be substantial progress in the production of hosiery goods in the city.

HOSIERY INDUSTRY
PRODUCTION CYCLE (1959-60)



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HOSIERY INDUSTRY
PRODUCTION CYCLE (1979-80)

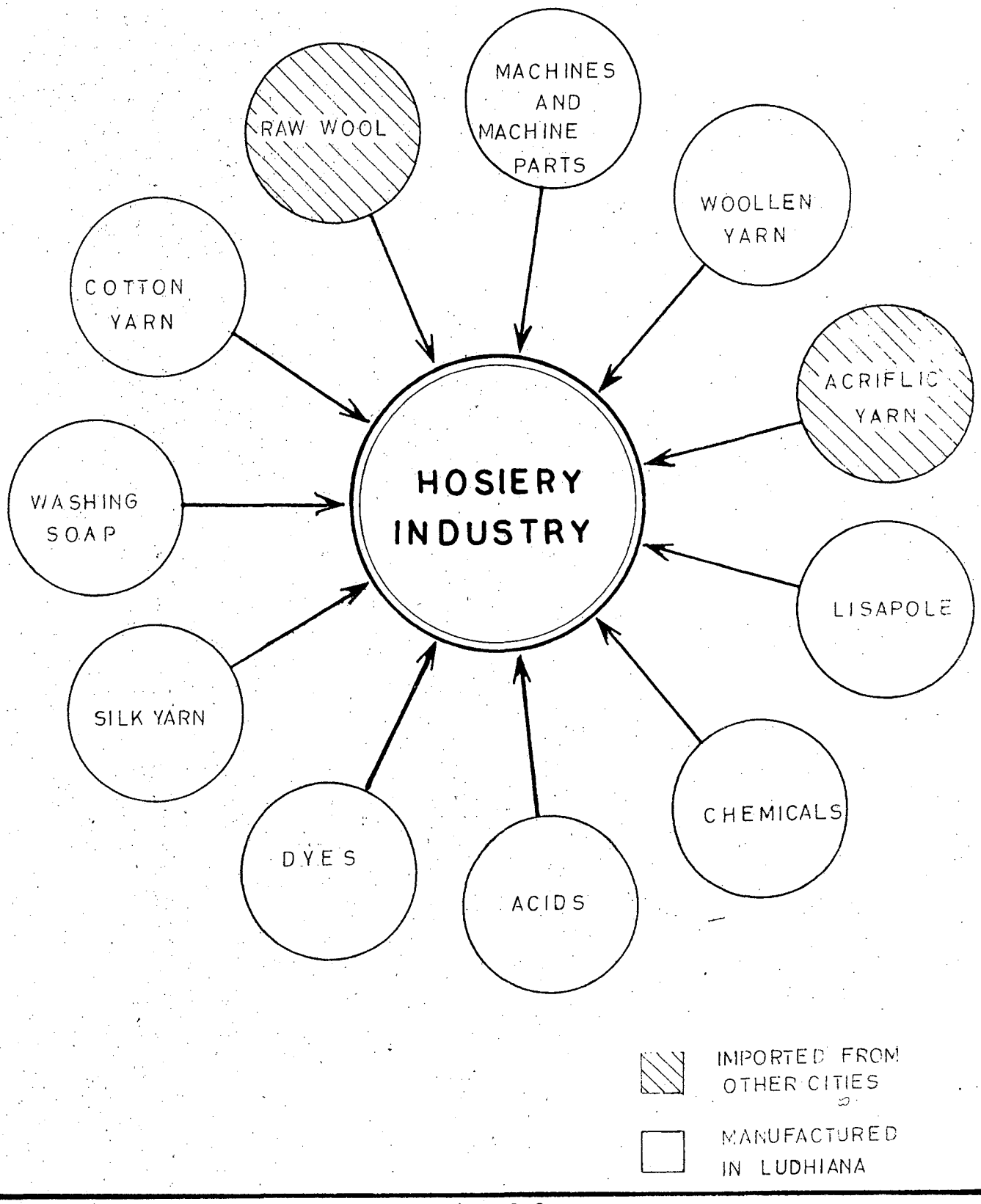

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Table 3.1

GROWTH OF ANCILLARIES TO HOSIERY INDUSTRY
(1960-61 to 1978-79)

Name of the ancillaries to hosiery industry	No. of Industrial Units		
	1960-61	1970-71	1978-79
Hosiery machines	-	8	13
Chemicals & acids	3	11	21
Hand looms	570	680	800
Dyes & colours	1	2	5
Washing soap	65	135	142
Dying	10	21	33

Source: Annual Industry Reports, D.I.C., Ludhiana.

Table 3.1 indicates that the development of hosiery industry has also led to the development of other related industries, i.e. hosiery machine manufacturing, handloom industry, manufacturing of chemicals, acids, dyes, colours and washing soaps etc. All these industries have also witnessed rapid growth in the last twenty years.

The Government of Punjab has also facilitated the development of hosiery industry by establishing a 'Wool Dyeing and Finishing Centre'[2] at Ludhiana. This project has proved a great success in improving the quality of the hosiery products.

3.2 Bicycle Industry

The industrial development of Ludhiana has also encouraged the Bicycle Industry and a complete production cycle of this industry has been established in the city. From Diagram 3.4 it can be seen that in 1959-60, some of the components of this industry, such as bicycle-rims, spokes, steel tubes for frames, free-wheel, brakes and saddles were not manufactured in the city. They were imported from other cities in the neighbouring states involving transport and other incidental costs. But Diagram 3.5 indicates that by 1979-80, almost all the bicycle parts were being manufactured in Ludhiana itself which raised the total industrial production of its Bicycle Industry.

The Bicycle Industry of Ludhiana has great potentialities for development. There is also great scope for the expansion of tyre manufacturing because

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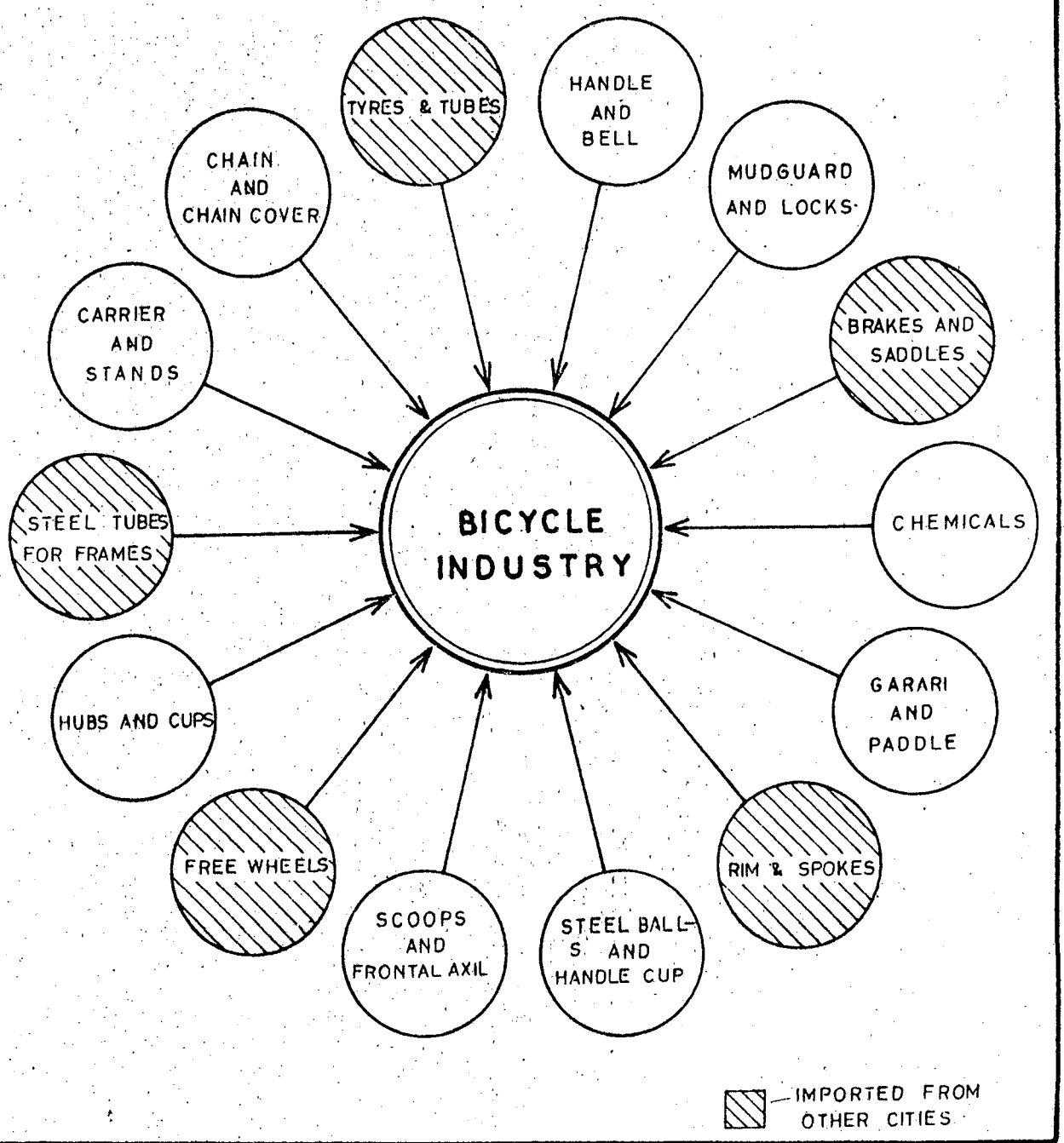
2 This project was set up with the technical assistance of United Nations Development Programme (UNDP) to demonstrate advanced methods of dyeing, moth proofing of yarn for the manufacture of hosiery knitwear products and to improve the quality of manufactured goods.

BICYCLE INDUSTRY
PRODUCTION CYCLE (1959-60)



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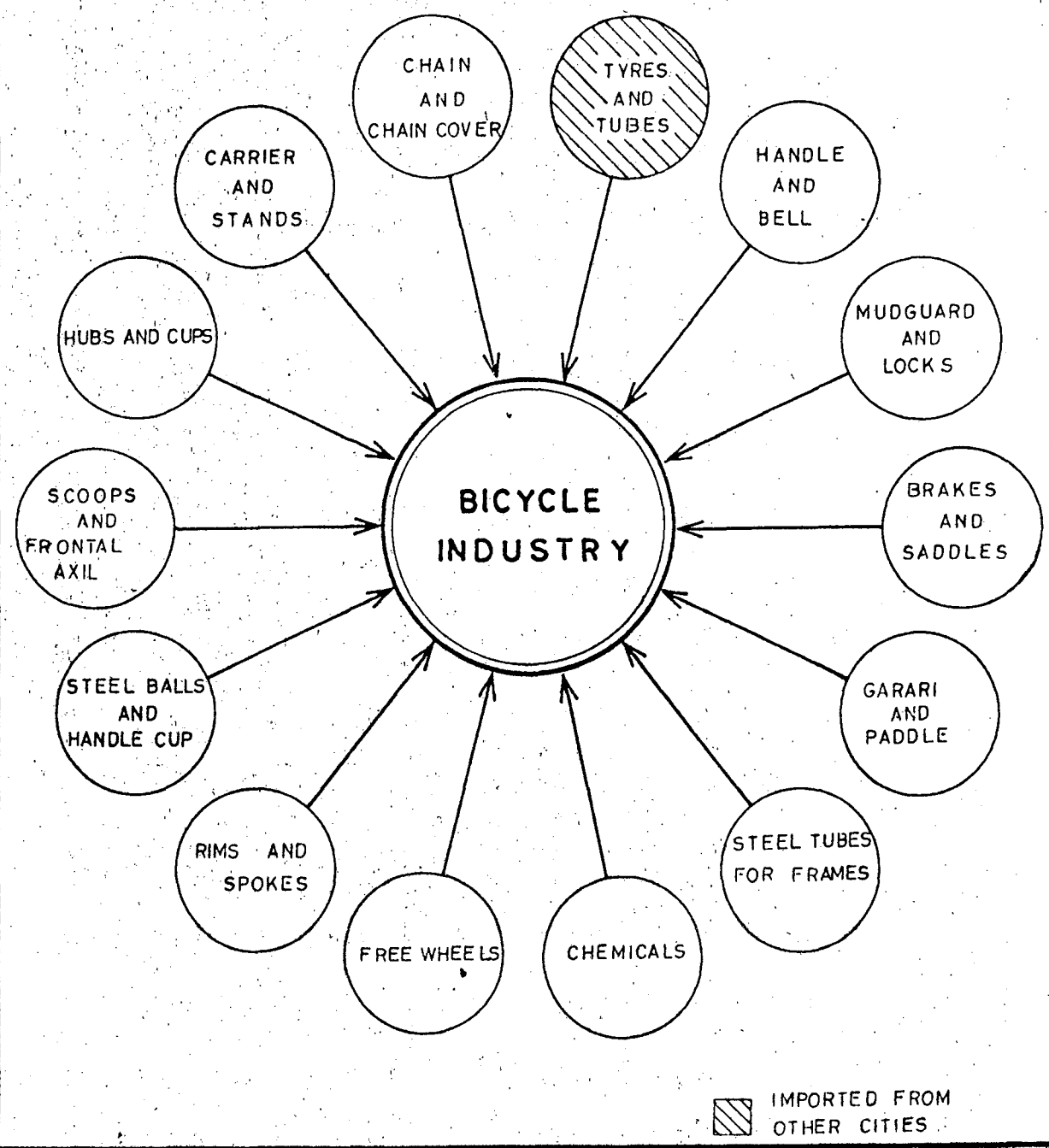
BICYCLE INDUSTRY
PRODUCTION CYCLE (1979-80)



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the local production does not meet the total local demand. An increased production of tyres will also lead to an increase in the production of ancillaries such as rubber, stearic acid, zinc oxide, zinc steorate, zinc hydrose, china clay, sulphur, whiting yarn etc. These compose the production of cycle of the bicycle industry as is illustrated in Diagram 3.6.

With the completion of the production cycle of the Bicycle Industry, the ancillary industries producing bicycle parts also developed with rapid speed. Table 3.2 shows that the establishment of a complete production cycle in Bicycle Industry in Ludhiana has been followed by a remarkable progress in the development of the manufacturing of bicycle parts.

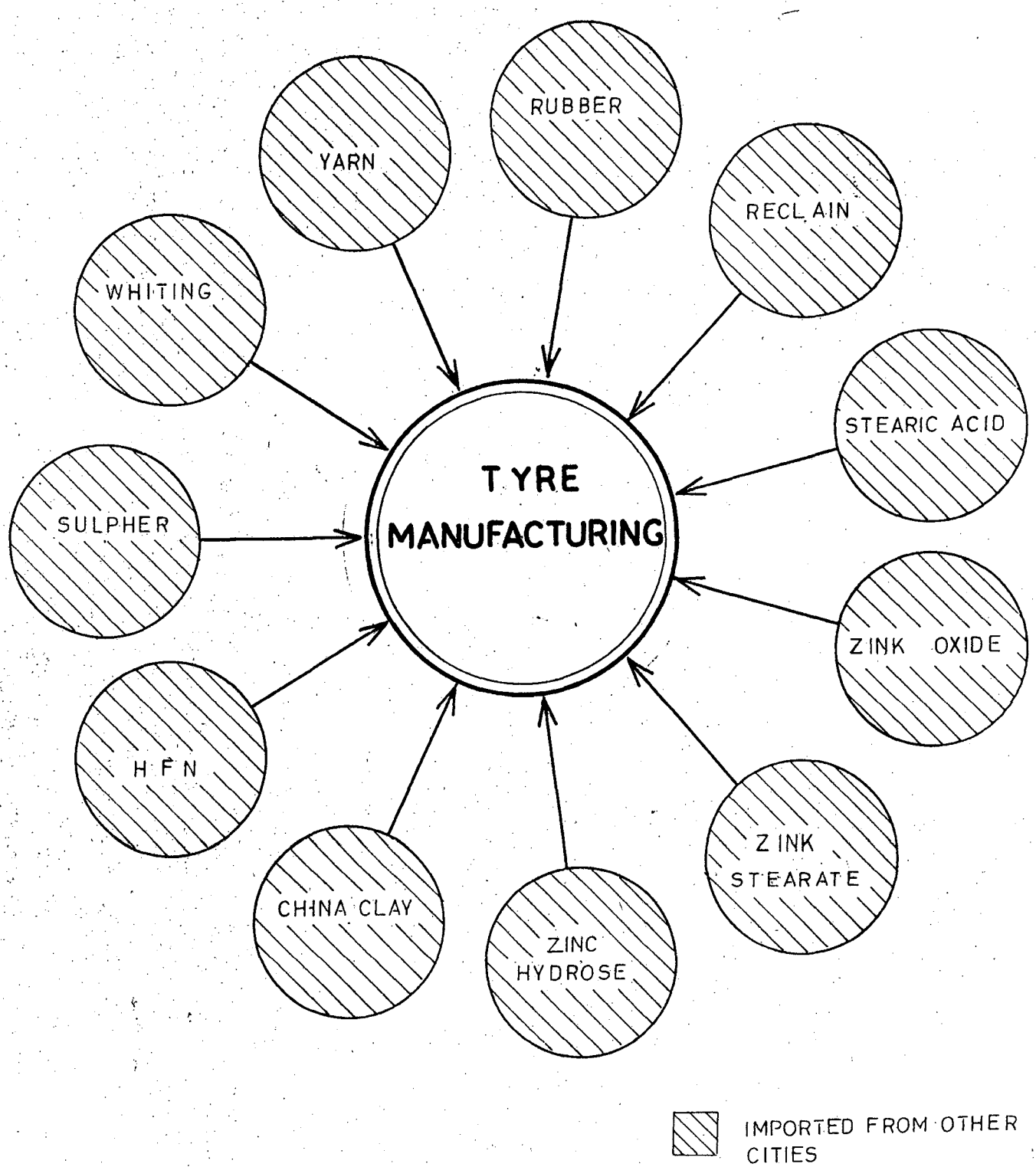
Table 3.2

GROWTH OF BICYCLE PARTS MANUFACTURING
(1960-61 to 1978-79)

Year	No. of Industrial Units Producing Bicycle Parts
1960-61	494
1970-71	1,288
1973-74	1,580
1974-75	1,690
1975-76	1,780
1976-77	1,784
1977-78	1,913
1978-79	2,078

Source: Annual Industry Reports, D.I.C., Ludhiana.

TYRE MANUFACTURING PRODUCTION CYCLE (1979-80)



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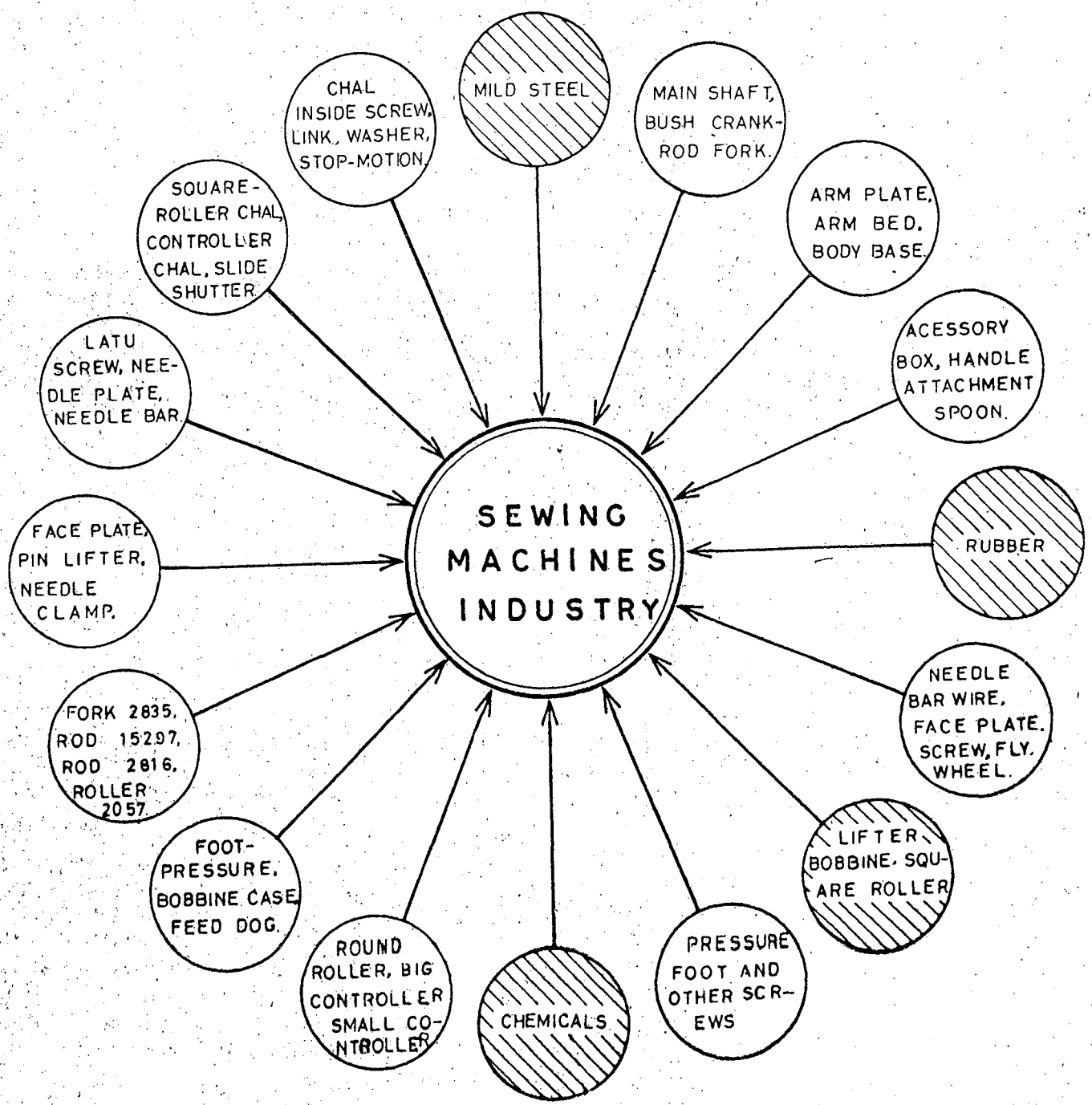
To meet the requirements of the Bicycle Industry of Ludhiana, "Research and Development Centre For Bicycles" has been set up by the State Government. This centre has proved a great success in the development of its Bicycle Industry by providing number of facilities to improve the quality of raw materials used in the Bicycle Industry. It also provides technical guidance on the new production technology and to provide technical help on quality control and standardization.

3.3 Sewing Machine Industry

Diagram 3.8 shows that in the Sewing Machine Industry, at present, all the components of sewing machines are manufactured within the city. But Diagram 3.7 indicates that in 1959-60, out of the total of 106 sewing machine components six were imported from other states. But henceforth the expansion of Sewing Machine Industry will be facilitated as all the components are produced within the city. At present there are about eighteen units producing complete sewing machines and 32 units producing sewing machine parts.

Table 3.3 indicates that as the Sewing Machine Industry has established complete production cycle, a rapid development of the ancillary industries, producing sewing machine parts is also taking place.

SEWING MACHINES INDUSTRY
PRODUCTION CYCLE (1959-60)



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SEWING MACHINES INDUSTRY
PRODUCTION CYCLE (1979-80)

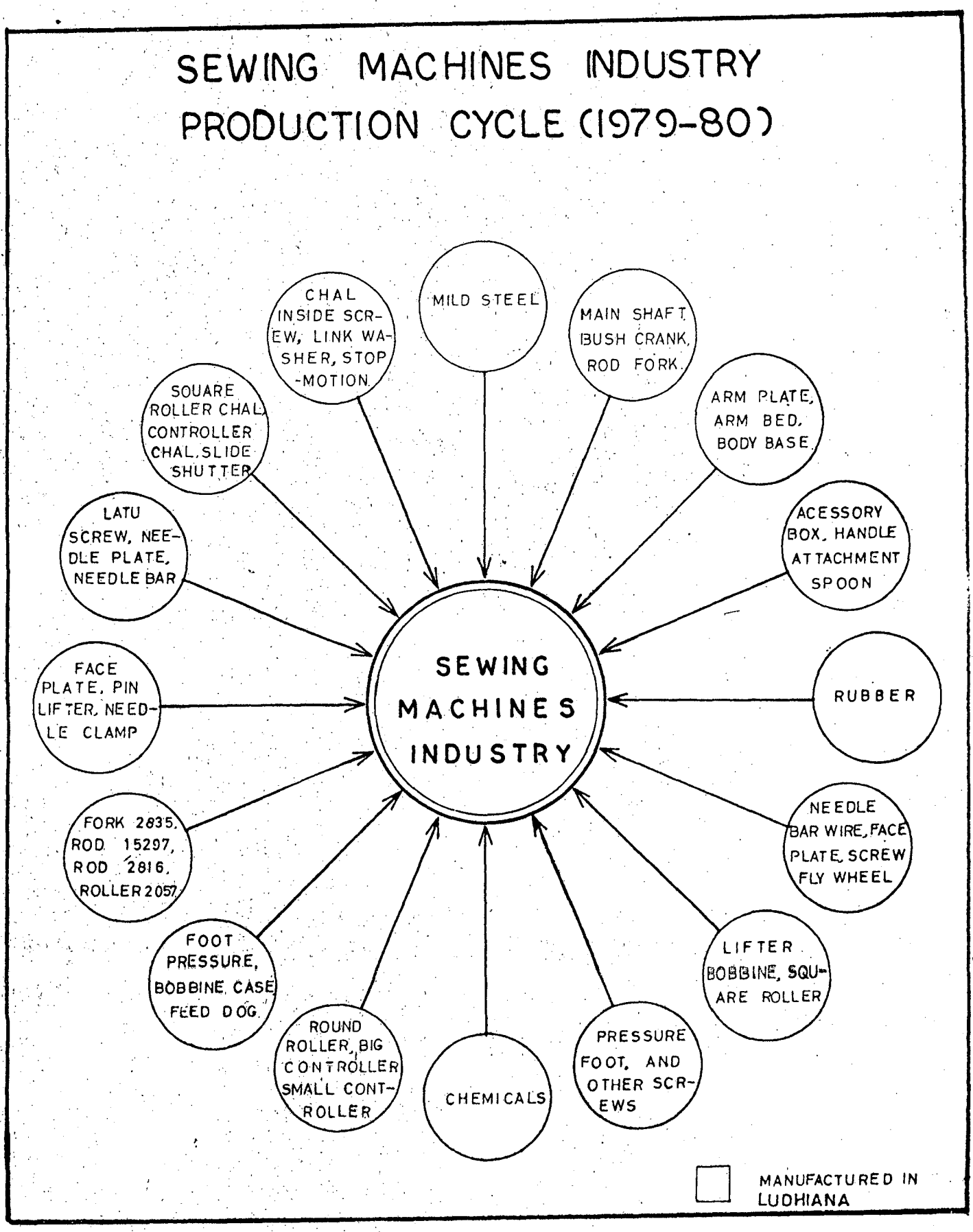

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Table 3.3

DEVELOPMENT OF ANCILLARIES TO THE SEWING MACHINE INDUSTRY

(1960-61 to 1978-79)

Year	No. of Units Producing Parts of Sewing Machines
1960-61	175
1970-71	289
1973-74	301
1974-75	320
1975-76	339
1976-77	340
1977-78	342
1978-79	371

Source: Annual Industry Reports, D.I.C., Ludhiana

The establishment of the "Sewing Machine Development Centre"[3] in Ludhiana has encouraged its

3 This Centre was established by the Punjab Government for research, design and development of sewing machines and their parts. It imports new models from the world markets, analyse them, prepare new designs and prototypes, and give them to the industry for manufacture.

sewing machine industry to complete its production cycle in a very short period. However, though Ludhiana is one of the largest producers of sewing machines in India, its share of exports in the national market is negligible due to lack of inflow of modern technology. The Sewing Machine Development Centre has been established primarily to improve the quality of its manufactured goods.

3.4 Conclusions

(i) The industrial development of Ludhiana has led to the establishment of complete production cycles in major industries i.e. Hosiery Industry, Bicycle Industry, and Sewing Machine Industry. The processed goods consumed in these industries that were earlier imported from other cities are now manufactured in Ludhiana itself.

(ii) With the completion of the production cycles of major industries, the production of ancillaries to these industries has also increased.

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CHAPTER IV

CHAPTER IV

ROLE OF ENTREPRENEURSHIP AND STATE ASSISTANCE

Geographical distribution of industries in any area is determined by a great complexity of considerations, namely, historical, economic and natural and availability of raw materials and power resources, transport facilities, access to market and services, financial facilities and climatic considerations, all play an important part in industrial location. But in case of Ludhiana, none of these factors are fully responsible for its industrial development. The major factor for the industrial development of Ludhiana is the enterprise and skill among the people. Like Japan, Ludhiana did not start with any locational advantage for industrial growth. The city is situated far off from the sources of raw materials and for coal, petrol and electricity it has to depend upon other regions.

While analysing the historical development of industries in Ludhiana, it becomes evident that among the factors which led to industrial location sometimes entrepreneurship provides the main impetus. A brief resume of the historical development of industries in Ludhiana is given in the following pages to illustrate this point.

4.1 Ludhiana which was founded in 1481 by Lodhi Emperors continued to exist as a small settlement for

centuries. However its central position in state and location on the river bank attracted many people. To meet their local demands the villagers started household industry. This very household industry was powerful enough to give birth to small scale industrial activity. With the passage of time this small household industry became the prominent activity of the villagers. With the result, the village was converted into a small industrial town. In 1901 the total number of industrial employees in Ludhiana was 19,914.[1] They constituted 62.01 per cent to the total workers of the city. Its most important industry was cotton textiles. Many weavers from Rahon and other surrounding areas migrated to Ludhiana where they got better wages.[2] The industrial activity of Ludhiana received an impetus during the two world wars. At that time, Ludhiana city had 350 workers engaged in the manufacture of Lungis and Pathas for the Indian Army but the demand for their manufactures far exceeded the supply.[3] In fact, the Ludhiana Lungis were well known for their embroidery and finish. The handloom industry in Ludhiana was in full swing by 1947.

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1 A, Latifi, The Industrial Punjab (Bombay: Longmans, Green & Co., 1911), p. 11.

2 Ibid., p. 12.

3 Ibid., p. 20.

Another important industry to have developed in Ludhiana before 1947 was the Hosiery Industry. Ludhiana in the 1940's was perhaps the largest hosiery centre in the province of Punjab, having 150 machines for socks and eight for undervests, all of which were busy throughout the winter.

Gradually industries ancillary to the cotton textile industry also developed in the city. An Akharali of Ludhiana patented a machine for rapidly weaving nevar, lamp-wicks and tape as well as good lace. It is a pity that he had not been able to find a capitalist to take up his invention which might give rise to several useful domestic industries, especially suitable for Parda-Nashin women. The quantity of lamp wicks and tapes produced in Ludhiana was quite enormous.

Before partition, Ludhiana was considered as the chief centre of Phulkaries[4] and silk-embroided chaddars. These phulkaries were made in different styles especially by the Jat and Bhabra women and were exported to the United States of America etc.

The art of knitting socks and gloves by hand from worsted and woollen yarn was also practised in Ludhiana, where 25 men and 100 women and children were

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4 Phulkari is a plain coloured cloth embroided with multi-coloured threads.

said to be engaged in this industry for eight months in the year. Sometimes machines were also used.

By the end of 1940, the chief centres of Pashmina Industry in Punjab were Ludhiana and Amritsar. Ludhiana had about 200 looms and turned out Rampur chaddars and alwans.[5] The weavers were partly Kashmiris and partly Julahas.

Ludhiana's leather industry has been well known for the quality and quantity of its production. Latifi noted that since the 18th century "leather tanned in Delhi itself is inferior and Ludhiana is more fortunate in this respect, is cutting into trade. The export is mainly westward, i.e. to North West Frontier Province, Sind, Baluchistan and Afghanistan".[6]

Oil crushing has also been an important industry in Ludhiana. In the province of Punjab, Delhi stood first with 300 kohlus and Ludhiana second with 175.[7] However, while Delhi imported oil, Ludhiana exported it not only within the province but also to the United Provinces and Bengal.

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5 Alwan is a serge-like stuff in plain colours used for making articles of clothing.

6 Indian Industrial Commission Report, 1916-18, (Bombay), p. 63.

7 A. Latifi, see footnote 1, p. 32.

Prior to World War II, Ludhiana had to import all the machine parts from other countries. But during the war period the import from abroad became difficult. The shortage of machine parts gave an impetus to the machine tools manufacturing. In 1939, Mr Karam Singh Bhogal established an industry of bicycle parts in Ludhiana.

If we analyse the development of industries in Ludhiana before the partition of the country we find that whatever industries developed were due to local entrepreneurship. However the process of industrial development in the city was still in an arrested form due to the competition of manufactured goods from England and other Western Countries.

4.2 At the time of the division of the country between India and Pakistan, the small scale industry in Ludhiana was still in its germinating stage. To rehabilitate the refugees from West Pakistan and to provide gainful employment to them a comprehensive rehabilitation scheme was formulated by the Government of India. Many facilities, i.e. loans, raw-materials, built-up sheds, and unbuilt plots were provided to the refugees in Ludhiana. It goes to the credit of the strenuous efforts of these afflicted but hardworking and tireless persons that not only did they establish themselves but perfectly changed

the destiny of their posterity. It is the direct outcome of the efforts of these enterprising people that Ludhiana was transformed into a humming industrial centre in Punjab.

A brief resume of the efforts of the Government of India towards the development of industries in Ludhiana is given below. It is also recounted how the Punjabi enterprise came and made the best of the opportunities offered by the government from time to time.

4.3 In the post partition period, the wounded economy started healing up with the government efforts. Although the First Five Year Plan laid special emphasis on agriculture, the efforts of the State Government in the field of industrial development in spite of its limited resources were too many to be lost sight of. In all, Rs.130.10 lakhs were spent for the expansion of the industry in the whole state, and about one third of this amount was for Ludhiana alone.

During this plan period, the vacuum created by the migration of skilled labour was filled up. Most of the uprooted small scale industries were rehabilitated in Ludhiana and various markets were captured. The Industrial Finance Corporation was set up, a large number of vocational training centres were started and industrial areas were established as a rehabilitation measure.

In the First Five Year Plan period the State Government set up two Common Facility Centres which provided facilities for heat-treatment, electroplating, enamelling, chemical analysis and physical testing. One of these centres was established in Ludhiana. This centre proved a great success which, besides providing common services, also assisted the industry in the adoption of new technology for test treatment and material testing.

Liberal loans were advanced to small scale and cottage industries under the State Aid to Industries Act. A vigorous drive was carried out for integrating the various small scale units into co-operative units in order to increase their efficiency. To revive the handloom industry in Ludhiana and to enable it to face mill competition, co-operatives of handloom weavers were created. Steps were also taken to subsidise the procurement of additional equipment for improving the functioning of handloom industry.

All these facilities increased the total number of units in Ludhiana from 2,000 in 1950-51 to 3,008 in 1955-56 and the total employment rose from 17,873 to 33,002 during this period, as may be seen from the following table (Table 4.1).

Table 4.1

INDUSTRIAL DEVELOPMENT DURING FIRST FIVE YEAR PLAN

Year	Total No. of Units	Percentage increase	Total Employment	Percentage Increase
1950-51	2,000	-	17,874	-
1955-56	3,008	50.40	33,002	84.50

Source: Annual Industry Reports, D.I.C., Ludhiana.

4.4 It was the Second Five Year Plan that really initiated the development process in the field of small industries. Since increase in employment opportunities was one of the central objectives of this Plan, small scale and cottage industries could provide ample scope for employment, therefore, considerable emphasis was laid on their development in Ludhiana during this period.

Industrial Extention Services began to operate under the control of the Development Commissioner Small Scale Industries, to provide information to existing and potential entrepreneurs, undertake management training

programmes, help to improve product designs and conduct market research.

In addition to the above institutional support, specific policy measures were taken to help the small scale sector. These were to draw up a common production programme for sewing machines, bicycles and storage batteries, restrict further expansion of capacity in the large scale sector in respect of agricultural implements, radio receivers, hand tools, leather etc. The Second Five Year Plan further provided for the development of small industry as an ancillary sector to provide precision parts and components to the large scale units which were prohibited from including such items in their production programme.

An important step during this plan was the setting up of an industrial estate at Ludhiana. Loans to the extent of Rs.35 crores were given for small scale and cottage industries of Ludhiana. Two quality Marking Centres, for engineering goods as well as for textiles, were also created in the Second Five Year Plan to render testing facilities and to create quality consciousness amongst the small scale industrialists. It was obvious that a new momentum had been generated in the small scale sector during the Second Plan period which carried it forward to a greater growth.

Table 4.2

INDUSTRIAL DEVELOPMENT DURING SECOND FIVE YEAR PLAN

Year	Total No. of units	Percentage increase	Total Employment	Percentage increase
1956	3008	-	33,002	-
1961	4898	62.10	36,852	11.90

Source: Annual Industry Reports, D.I.C., Ludhiana.

The First Five Year Plan set the stage for industrial development, the Second Five Year Plan laid its foundation and the Third Five Year Plan built up the industrial structure by setting large and medium scale industries as were economically possible on account of the availability of raw materials and other factors.

4.5 The Third Five Year Plan (1961-66) aimed at greater diversification of the production in the small sector and a closer integration between the large and small sectors in specified items such as agricultural implements and machines bicycles and bicycles parts.

sewing machines, automobile and diesel engine spares, radio receivers etc.[8] Under this plan, a sum of Rs.2156.27 lakhs were allotted for industrial development in Punjab. Being the most important industrial city of Punjab, Ludhiana took a large share of this amount, as is shown in Table 4.3.

Table 4.3

FINANCIAL OUTLAYS IN 1976

(Rs. in lakhs)

Industry	Amounts in lakhs
Small Scale Industry	1,159.48
Large & medium scale industries	667.90
Handloom industry	48.14
Sericulture	123.29
Handicrafts	27.40

Source: Office of the Director of Industries, Sector 17, Chandigarh.

4.6 The main programmes during the Fourth Five Year Plan were provision of credit facilities under the

8 T.N. Kapoor, Industrial Development in States of India (Delhi: Sterling Publishers, 1967), p. 221.

'State Aid to Industries Act', training, quality marking, marketing and consolidation of the Industrial Estate Programme. During this plan, Central Food Technological Research Institute, Mysore, had set up their extension centre at Ludhiana for which free accommodation was provided by the State Government. The main objective of this centre was to render technical advice and consultancy services to food processing industrial units and entrepreneurs in the region. At the end of this plan period, on account of the aforesaid facilities, rapid industrial growth was recorded in Ludhiana. In 1974, the total number of units increased to 9,369 with the total employment of 99,028 and the total production of goods worth Rs.9,952.43 lakhs. The rapid growth of the industrial activity in Ludhiana during the Five Year Plans, indicated in Diagram 4.1, was also encouraged by the establishment of Development-cum-Facility Centres in the city as is shown in Table 4.4.

No doubt the government has made every possible effort to boost the industrial production of Ludhiana but the main credit for the birth of industry goes to the enterprise and skill among the people. The whole development of the hosiery industry is the result of entrepreneurship of the people because even before

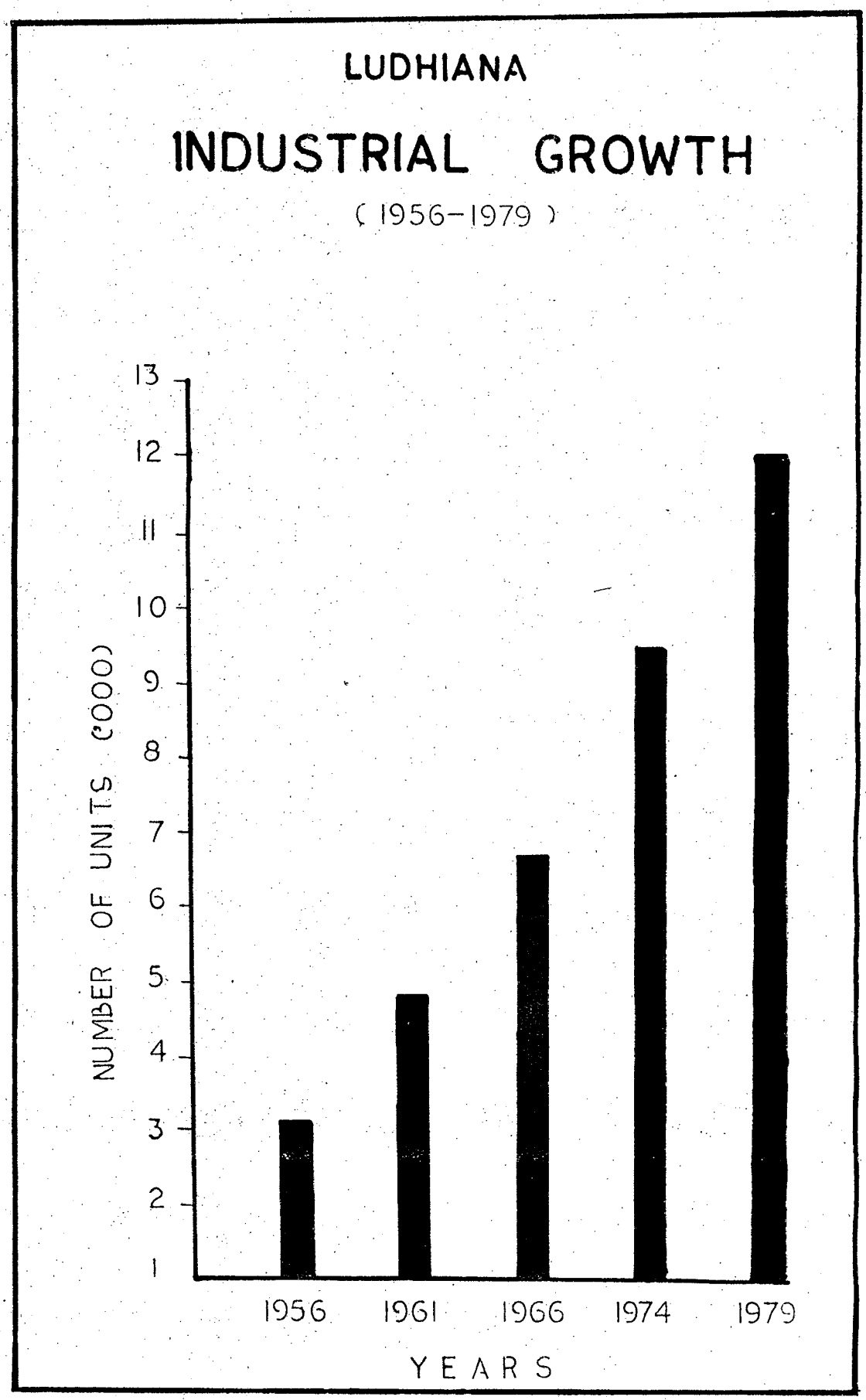
LUDHIANA
INDUSTRIAL GROWTH
(1956-1979)
NUMBER OF UNITS ('000)
13
12
11
10
9
8
7
6
5
4
3
2
1
1956
1961
1966
1974
1979
YEARS

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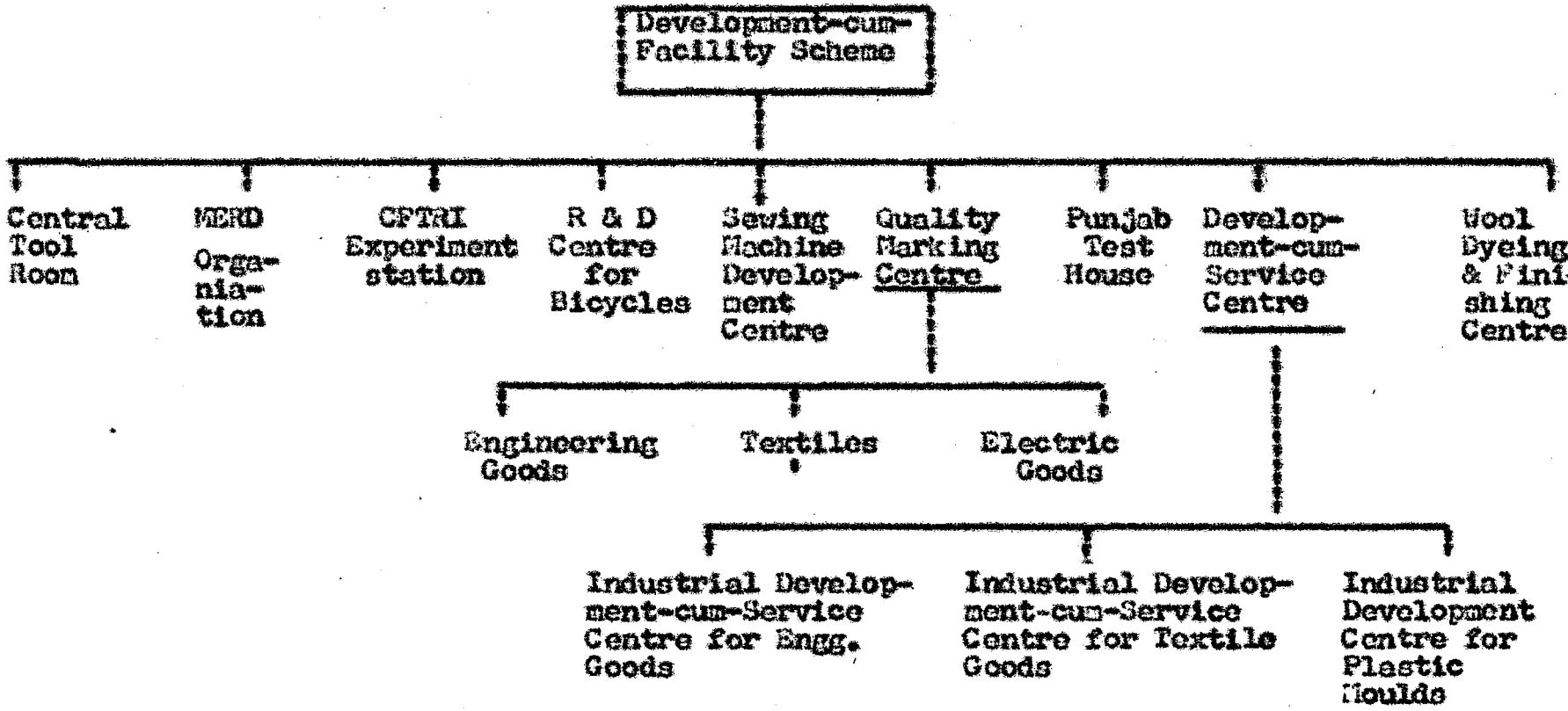
Table 4.4

INDUSTRIAL DEVELOPMENT-CUM-FACILITY SCHEMES IN LUDHIANA



Independence when no government assistance was available, Ludhiana was the most famous hosiery centre of the Punjab Province. For the establishment of cycle manufacturing most of the credit goes to Mr Karam Singh Bhogal who paved the way for the bicycle industry in Ludhiana by establishing the first bicycle parts manufacturing industry. Most of the major bicycle industries of Ludhiana i.e. Hero Bicycle Industry, Nalson Bicycle Industry, Avon Bicycle Manufacturing Unit, Super Bicycle Industry, Raghbir Bicycle Industry etc. are also the outcome of the personal efforts of their owners. Similarly, most of the industries producing sewing machines and parts, i.e. Rita Mechanical Works, Shan Sewing Machine Industry, Neelam Industries, Jassal Sewing Machine Industry, C.R. Ohlak and Sons Industry etc. were also founded by private enterprises. Almost all the large scale units belong to the private sector.

It can be concluded that the industrial development of Ludhiana though has been facilitated by the Government of India as well as the Government of Punjab yet the main credit for its development goes to the enterprising people who germinated the seeds of industry and changed the destiny of the city.

4.7 Conclusions

(i) The analysis of the historical development of industries in Ludhiana concludes that entrepreneurship had provided the main impetus in the location of its industries.

(ii) Most of the major industries of Ludhiana belong to the private sector. Almost all the large scale units were founded by the private enterprise.

(iii) A number of facilities provided by the State and Centre Governments during the Five Year Plans have encouraged the industrial growth of Ludhiana.

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CHAPTER V

CHAPTER V

REGIONAL IMPACT ON THE ECONOMY

Every industrial town exerts a direct or indirect, positive or negative impact on the development of its hinterland by either revitalizing or stagnating its rural economy and/or by encouraging or discouraging economic activity in the smaller towns and villages. The impact of Ludhiana on the rural economy of the hinterland and on the development of industrial activity in the surrounding settlements is discussed in the following pages.

5.1 Impact on Agricultural Development of the Surrounding Areas

Ludhiana enjoys the central location in Punjab, a well known agricultural state of the country. It has been able to develop substantial inter-linkages with its surrounding rural areas. With the development of its agro-based and other industries directly or indirectly linked with agriculture, the total agricultural production in its surrounding area is also increasing at a rapid pace as is shown in Table 5.1. For example, with the

Table 5.1

INCREASE IN AREA UNDER MAIN CROPS IN THE HINTERLAND OF LUDHIANA

(1960-61 to 1973-74)

Crop	Percentage increase in Area under Main Crops			
	1960-61	1965-66	1970-71	1973-74
Wheat	113.60	151.70	238.20	240.50
Maize	38.80	54.60	84.00	99.70
Rice	2.00	5.00	5.10	10.80
Groundnut	26.80	53.50	62.10	78.20
Cotton (Desi)	10.00	18.80	14.60	20.00
Sugarcane	9.60	16.00	8.50	N.A.
Mash	1.30	1.50	2.30	3.90
Potatoes	0.20	1.51	1.00	2.10
Rape & mustard	1.20	1.40	1.50	3.80

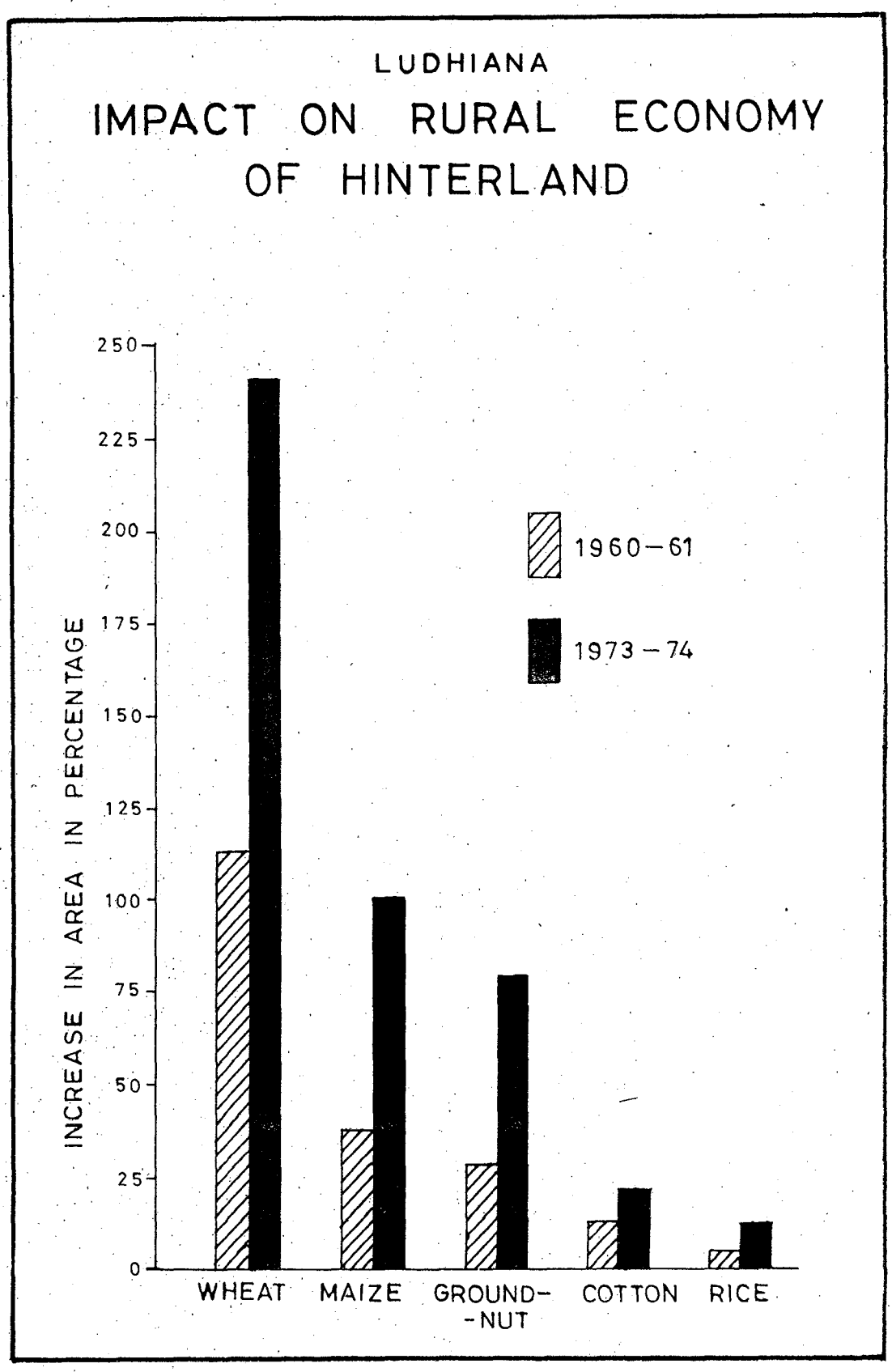
Source: Director Land Records, Punjab, Chandigarh.

growth of Vanaspati Ghee Factories and Edible Oil Factories in Ludhiana, the total area under groundnut in the hinterland has increased from 26.80 per cent in 1960-61 to 62.10 per cent in 1970-71. Similarly, the total area under cotton desi has also increased from 10.00 per cent in 1960-61 to 14.60 per cent in 1970-71. With the development of agro-based industries, the demand for their agricultural raw materials also increases. With the result, the farmers do their utmost to fulfil the market demand, which leads to higher production.

Besides these agro-based industries of Ludhiana, the other industries related with agriculture such as manufacturing of agricultural implements, spray pumps and insecticides etc. also provide important inputs for the agricultural development in its hinterland, as is indicated in Diagram 5.1. Diesel engines, pumping sets, seed-drills, ploughs, spray pumps, parts of tractors and combine harvesters etc. are manufactured in Ludhiana to cope with the increased demand. Farmers in the surrounding areas can purchase these tools at very low transport cost and other incidental costs.

5.2 Impact on the Surrounding Smaller Towns

The impact of Ludhiana on the industrial development of its surrounding smaller towns is almost negligible.


LUDHIANA
IMPACT ON RURAL ECONOMY OF HINTERLAND
INCREASE IN AREA IN PERCENTAGE
250
225
200
175
150
125
100
75
50
25
0
1960–61
1973–74
WHEAT
MAIZE
GROUND-NUT
COTTON
RICE

Dig. 5.1

It is evident from Table 5.2 that the total industrial employment in each of these towns, except Malerkotla and Nakodar has decreased between 1960-61 and 1970-71, as is shown in Fag 5.2. These towns have primarily been serving as entrepot points for the agricultural produce of their hinterlands due to the tremendous progress of agriculture in this region. The main function of these towns has continued to remain the same. Ludhiana has not been able to play a vital role in the process of industrial development of these smaller towns.

Malerkotla, however, is giving a different picture showing an increase of 10 per cent in its industrial employment between 1960-61 and 1970-71. This town is famous for the manufacture of cycle parts and machine tools. The industrial development of Malerkotla is directly linked with the development of Ludhiana because most of its industrial products are consumed by the industries in Ludhiana.

The growth of industries in Ludhiana has had a marginal impact on the growth of industrial activity in the neighbouring towns of its hinterland as is indicated in Table 5.2.

When we consider the workers engaged in the small scale and household industries in the smaller

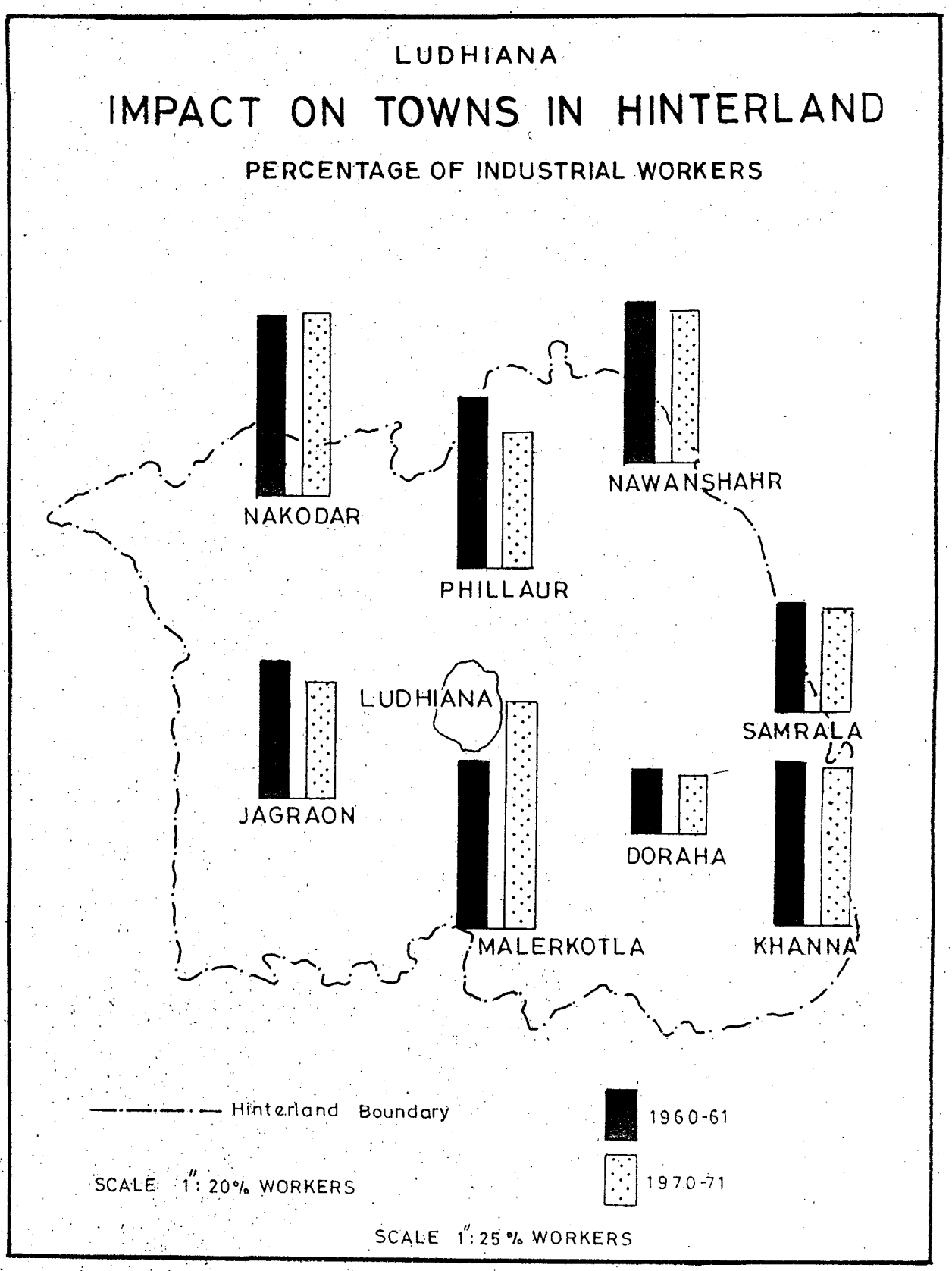
Table 5.2

INDUSTRIAL WORKERS IN TOWNS IN THE HINTERLAND OF LUDHIANA

(1960-61 to 1970-71)

Name of the Town	Percentage of Industrial Workers to Total Workers	
	1960-61	1970-71
Samrala	19.50	18.22
Khanna	28.30	27.44
Doraha	10.85	10.28
Malerkotla	29.25	39.00
Jagroan	24.13	20.09
Raikot	25.55	13.81
Phillaur	28.74	23.52
Nawashahr	27.34	26.92
Nakodar	30.02	30.45

Source: Census of Punjab, Town Directory, Punjab Government, 1975.


LUDHIANA
IMPACT ON TOWNS IN HINTERLAND
PERCENTAGE OF INDUSTRIAL WORKERS
NAKODAR
PHILLAUR
NAWANSHAHR
SAMRALA
LUDHIANA
JAGRAON
DORAHA
MALERKOTLA
KHANNA
Hinterland Boundary
1960-61
1970-71
SCALE 1" : 20% WORKERS
SCALE 1" : 25 % WORKERS

Dig. 5·2

towns in the hinterland of Ludhiana (see Table 5.3 and Diagram 5.3) we find that the small scale industries have relatively shown more progress than the household industries.

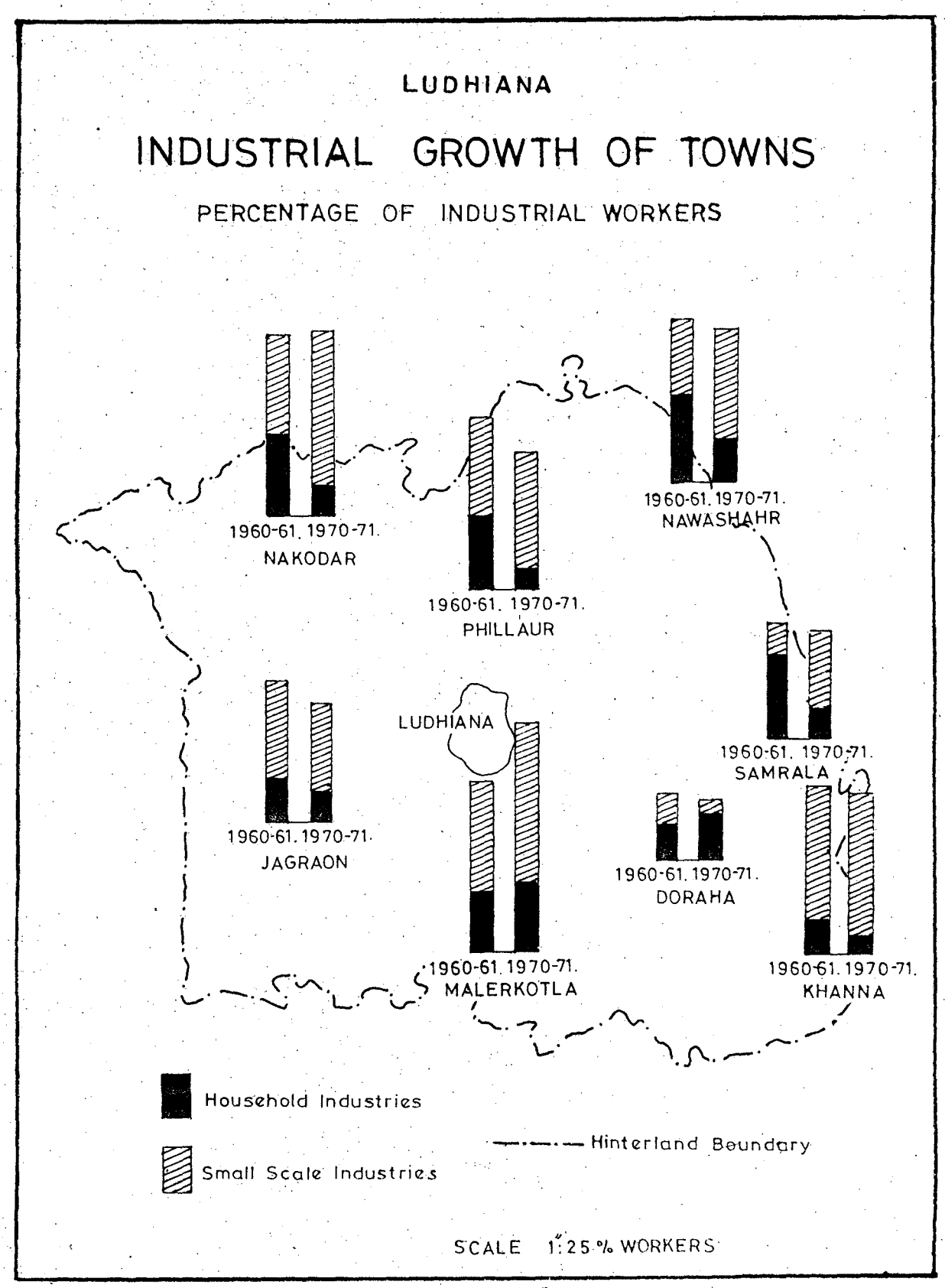
Table 5.3

INDUSTRIAL WORKERS ENGAGED IN HOUSEHOLD AND SMALL SCALE INDUSTRIES IN TOWNS IN THE HINTERLAND OF LUDHIANA

(1960-61 to 1970-71)

Name of the Town	Percentage of Workers to the Total Workers engaged in			
	Household Industries		Small Scale Industries	
	1960-61	1970-71	1960-61	1970-71
Samrala	13.80	4.20	5.70	14.02
Khanna	5.00	1.72	23.30	25.72
Doraha	5.25	8.08	5.60	2.20
Malerkotla	10.50	12.50	18.75	26.75
Jagroan	7.13	5.04	17.00	15.05
Raikot	16.05	3.10	9.50	10.71
Phillaur	13.02	3.21	15.72	20.31
Nawashahr	15.00	6.80	12.34	20.12
Nakodar	14.63	5.21	15.39	25.24

Source: R.L. Anand, Census of Punjab, General Economic Tables, 1961 and 1971.


LUDHIANA
INDUSTRIAL GROWTH OF TOWNS
PERCENTAGE OF INDUSTRIAL WORKERS
1960-61. 1970-71.
NAKODAR
1960-61. 1970-71.
PHILLAUR
1960-61. 1970-71.
NAWASHAHR
1960-61. 1970-71.
SAMRALA
LUDHIANA
1960-61. 1970-71.
JAGRAON
1960-61. 1970-71.
DORAHA
1960-61. 1970-71.
MALERKOTLA
1960-61. 1970-71.
KHANNA
Household Industries
Small Scale Industries
Hinterland Boundary
SCALE 1" 25 % WORKERS

Dig. 5·3

Out of the nine smaller towns in the hinterland of Ludhiana only two towns - Malerkotla and Khanna - have direct link with the industrial development of Ludhiana as indicated by their chief products which are cycle parts and engineering goods which are consumed in Ludhiana. All the other towns have specialized either in agricultural commodities or in machine tools as is indicated in Table 5.4. These towns apparently do not have direct linkages with the industrial activity of Ludhiana.

Table 5.4

TWO MOST IMPORTANT COMMODITIES MANUFACTURED IN THE TOWNS OF THE HINTERLAND OF LUDHIANA

Town	Two most important commodities produced in towns in the hinterland	
Samrala	Machine parts	Wheat
Khanna	Engineering goods	Ghee
Doraha	Machine tools	Wheat
Malerkotla	Bicycle parts	Machine tools
Jagroan	Machine parts	Wheat & Rice
Phillaur	Machine parts	Implements
Nawashahr	Sugar	Wheat
Nakodar	Machine parts	Wheat

Source: Statistical Abstract, Punjab, 1978.

5.3 Impact of Ludhiana on the Surrounding Villages

Though Ludhiana has played a prominent part in the socio-economic development of its hinterland, its role in the encouragement of the industrial activity in the surrounding villages is quite insignificant. As has already been stated, the impact of Ludhiana has been more pronounced in the rural economy.

It is evident from Table 5.5 that only thirteen out of 31 villages have shown a positive trend in the development of industrial activity during the period 1961-1971 and out of these only four villages have shown a relatively significant growth. These villages are Karimpur (106%), Sherpur Khurd (68%), Sherpur Kalan (24.50%), and Dad (13.40%). All these four villages are very close to Ludhiana and are located in Ludhiana Tehsil. They have enjoyed the full advantages of proximity to Ludhiana. The other nine villages have shown very marginal industrial growth. In the remaining eighteen villages, the industrial development has had a negative trend. In these villages, majority of the workers are agricultural labourers.

-/-

Table 5.5

INDUSTRIAL WORKERS IN VILLAGES IN THE HINTERLAND OF LUDHIANA
(1960-61 to 1970-71)

Village	Percentage of Industrial Workers to Total Workers	
	1960-61	1970-71
Mangat	18.70	9.60
Louhuwal	18.40	9.55
Bhoura	8.00	15.40
Tarf Saidan	13.75	15.14
Sherpur Khurd	8.60	30.35
Sherpur Kalan	7.80	15.25
Barewal	14.05	16.80
Karimpura	-	43.00
Dakha	4.52	3.05
Mullanpur	4.75	1.50
Dad	4.57	15.35
Juwaddi	8.35	12.25
Dugri	22.85	16.60
Dhandari Kalan	6.60	10.20
Sahneval Kalan	5.90	4.40
Sunet	7.08	5.50
Gill	10.55	2.50

contd...

Table 5.5 contd....

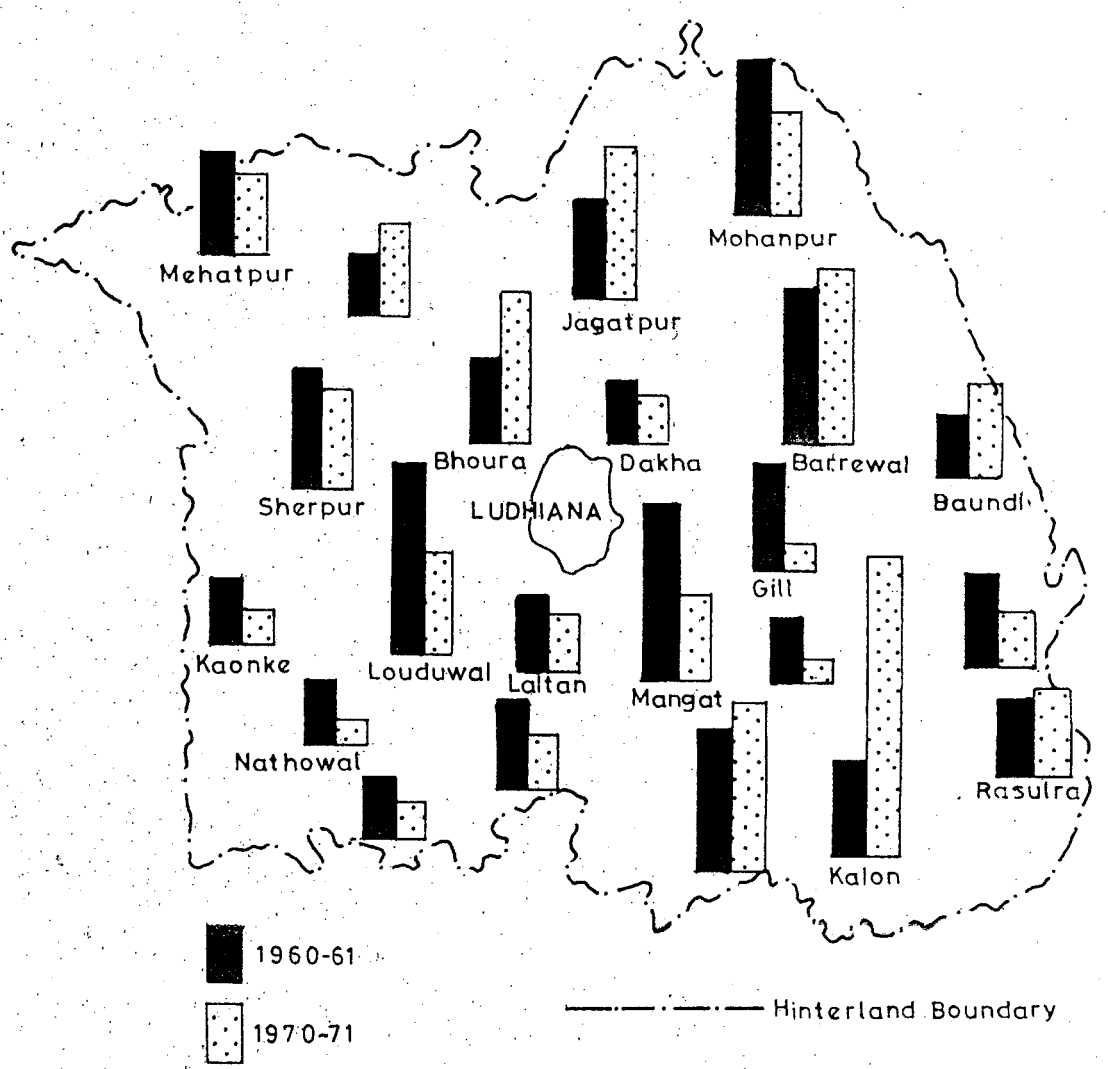
Village	1960-61	1970-71
Laltan Kalan	6.50	5.00
Ramgarh	7.47	4.10
Lathowal	5.75	2.75
Hathur	3.25	1.50
Chakkar	1.25	1.60
Bassian	3.40	2.25
Dholan	10.55	8.95
Kaonke	3.25	1.60
Lilan	5.85	11.50
Swaddi Kalan	5.40	2.80
Khanna Khurd	8.75	4.90
Rasulra	6.45	7.45
Baundli	5.45	8.30
Machiwara	5.20	3.45
Mahatpur	8.15	6.65

Source: District Census Handbook, Ludhiana and Jullundur Districts, Punjab Government, 1975.

LUDHIANA

IMPACT ON VILLAGES

PERCENTAGE OF INDUSTRIAL WORKERS



SCALE 1": 20% WORKERS

Dig. 5.4

The household industries in these villages are diminishing day by day (Table 5.6). Only in 5 villages they have shown a positive trend while in 26 villages they show a negative trend in industrial development. As compared to household industries, the small scale industries have achieved a relatively higher growth. In eleven villages they show a positive trend while in 14 villages they show a negative trend in industrial development.

Hence, the growth of consumer goods industries in Ludhiana has had a hampering effect on the development of ancillary household industries in its surrounding villages but a marginal positive effect on the growth of small scale industries in the neighbouring towns and villages.

5.4 Except agricultural and industrial development, Ludhiana has also led to the development in other fields, such as development of transport facilities, more employment opportunities and rise in the income of local self-government. As the industrial activity of Ludhiana develops, it needs more and easy means of transport to disperse its industrial products and to

Table 5.6

INDUSTRIAL WORKERS ENGAGED IN HOUSEHOLD AND SMALL SCALE INDUSTRIES IN VILLAGES IN THE HINTERLAND OF LUDHIANA (1960-61 to 1970-71)

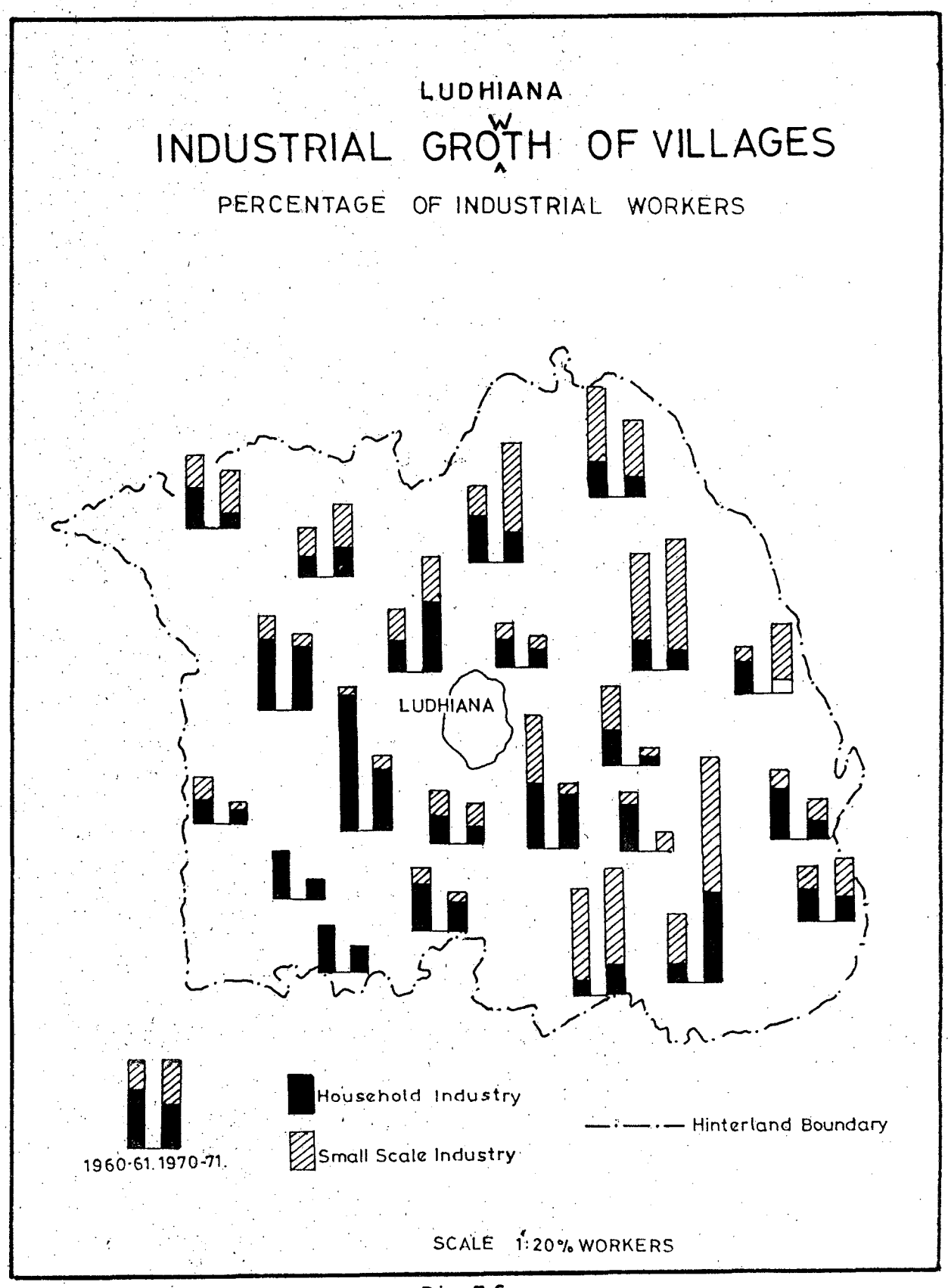
Village	Percentage of Industrial Workers to the Total Workers Engaged in			
	Household Industry		Other than Household Industry (Small Scale Industry	
	1960-61	1970-71	1960-61	1970-71
1	2	3	4	5
Mangat	9.30	8.90	9.40	1.10
Loudhuwal	18.15	8.75	.25	.80
Bhoura	3.25	9.00	4.75	6.40
Tarf Saidan	1.35	4.04	12.40	11.10
Sherpur Khurd	1.25	11.15	7.35	19.20
Sherpur Kalan	.80	-	7.00	15.25
Barewal	2.80	1.30	11.25	15.50
Karimpura	-	-	-	43.00
Dakha	2.60	1.80	1.92	1.25
Mullanpur	3.50	1.50	1.25	-
Dad	1.82	1.10	2.75	14.25
Juvaddi	2.50	1.15	5.85	11.10
Dugri	2.25	-	20.60	16.60
Dhandari Kalan	1.45	1.70	5.15	8.50
Sahnewal Kalan	2.30	2.00	3.60	2.40
Sunet	3.08	-	4.00	5.50

contd....

Table 5.6 contd...

1	2	3	4	5
Gill	3.75	0.90	6.80	1.60
Laltan Kalan	3.50	1.50	3.00	3.50
Ramgarh	6.42	3.25	1.05	0.85
Lathowal	5.75	2.75	-	-
Hathur	2.75	1.50	.50	-
Chakkar	1.25	1.20	.00	.40
Bassian	3.40	1.70	.00	.55
Dholan	8.75	8.60	1.85	.35
Kaonke	2.65	1.40	.60	.20
Lilan	5.85	11.50	-	.00
Sawaddi Kalan	5.40	2.80	.00	.00
Khanna Khurd	5.75	1.40	3.00	3.50
Rasulra	3.80	2.70	2.65	4.75
Baundli	2.60	.50	2.85	7.80
Machiwara	4.95	2.85	.25	.60
Mahatpur	5.15	1.50	3.00	5.15

Source: District Census Handbook, Ludhiana and Jullundur Districts, Punjab Government, 1976.


LUDHIANA
INDUSTRIAL GROWTH OF VILLAGES
PERCENTAGE OF INDUSTRIAL WORKERS
W
LUDHIANA
1960-61. 1970-71.
Household Industry
Small Scale Industry
Hinterland Boundary
SCALE 1:20% WORKERS

Dig. 5.6

collect raw materials from other areas. Table 5.7 indicates that the number of transport vehicles registered in Ludhiana district have shot up during the period of 1960-61 to 1974-75 which is considerably due to the industrial growth of this city.

Table 5.7

NUMBER OF DIFFERENT TYPES OF MOTOR VEHICLES REGISTERED IN LUDHIANA
(1960-61 to 1974-75)

Type of Vehicle	Years			
	1960-61	1965-66	1970-71	1974-75
Cars	78	126	338	237
Jeeps	-	-	27	25
Trucks	122	43	142	160
Taxis	-	2	-	26
Tractors	78	315	941	735
Buses	26	26	61	135
Motor Cycles	354	420	1,129	1,601
Auto Rickshaws	9	5	75	36
Miscellaneous	6	7	70	86

Source: District Transport Office, Ludhiana.

Ludhiana is also serving as the main employment centre for its hinterland. A number of unemployed people avail employment opportunities in this industrial town which raises the socio-economic standards of the surrounding towns and villages.

The income of its local self-government is also increasing through taxation and export levies which provides financial help in the socio-economic development of the city.

5.5 Regional Linkages of Ludhiana

Generally, an industrial town develops strong interrelations with other regions because it has to depend on the other areas, either for the collection of raw materials or ancillary manufactured goods or for the supply of power resources. Moreover, to disperse its manufactured goods, each city makes maximum efforts to enlarge its market. In case of Ludhiana, it is observed that the city has developed strong interrelations with other areas inside as well as outside the country.

So far as the minerals are concerned, the city has to depend on the other states as Punjab is absolutely lacking in mineral deposits. Iron-ore, aluminium, manganese etc. all the minerals used in the industries of

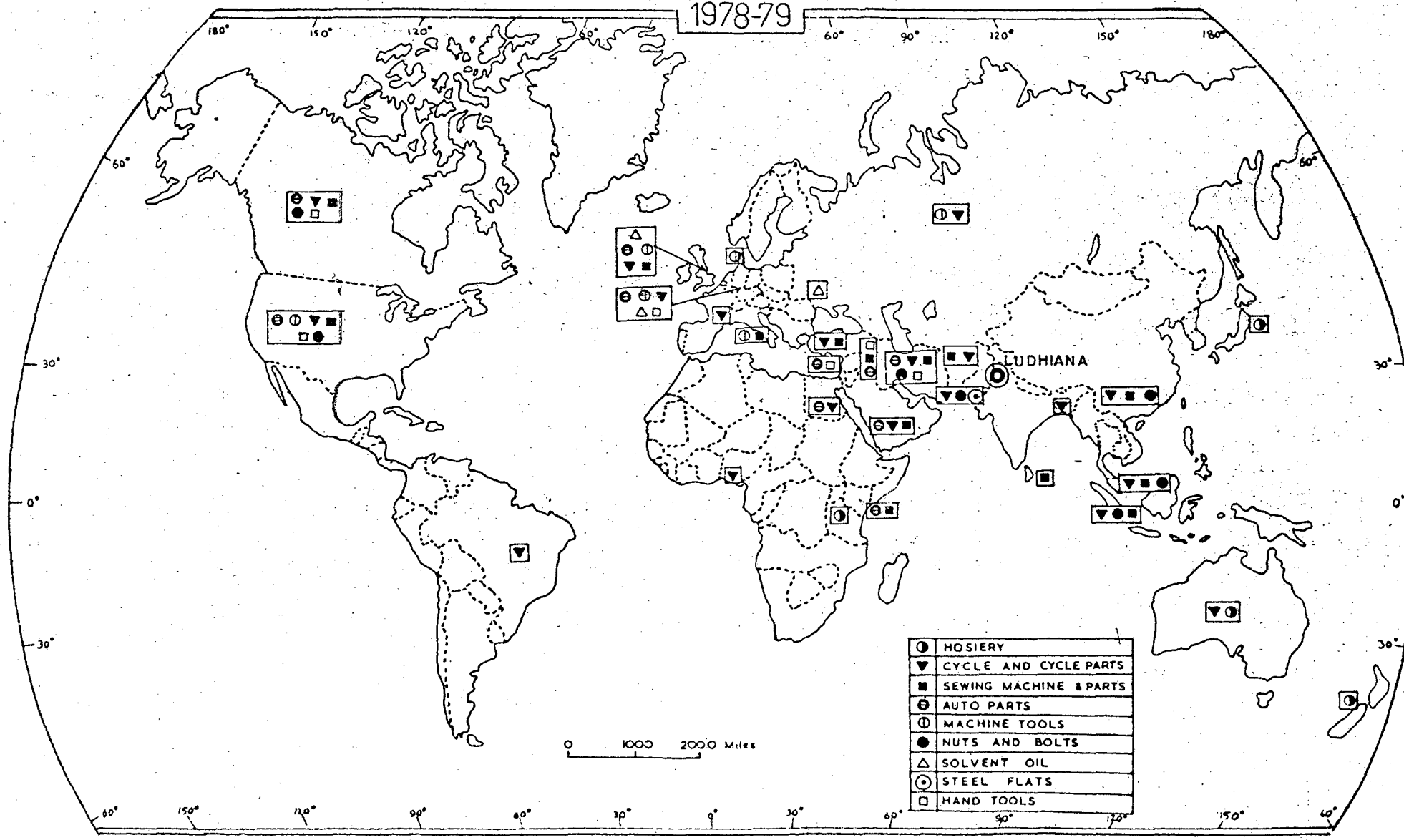
Ludhiana come from Bihar, West Bengal, Madhya Pradesh and other states. For the supply of coal and petrol, it has to depend upon West Bengal, Bihar and Assam. Electricity is supplied from two plants in Punjab viz. Bhakhara Dam and Bhatinda Thermal Plant.

Manufactured goods of Ludhiana have huge demand both inside and outside the country as is shown in Map. 5.1.

Ludhiana has become a byword in hosiery industry. It meets about 90 per cent of the entire demand of the country in woollen hosiery. It exports in considerable quantity to USA, West Germany, Italy, United Kingdom, Sri Lanka and Middle East countries. Bicycle industry has also expanded its market into Canada, USA, United Kingdom, West Germany, France, Italy, Turkey, Australia, New Zealand, China, Afghanistan, Saudi Arabia and Brazil. Hero and Avon cycles produced in Ludhiana are used throughout India. Sewing Machine Industry also exports its manufactured goods to New Zealand, China, Ceylon, Afghanistan, Iraq, Iran, Turkey, USA, Canada etc. Shan Sewing machines and Hira Sewing machines have become the most common models used in every house of India.

EXPORT DESTINATIONS OF INDUSTRIAL PRODUCT OF LUDHIANA

1978-79



Map. 5.1

The number of manufactured goods exported from Ludhiana in 1978-79 are given in Table 5.8.

Table 5.8

EXPORT DESTINATIONS OF INDUSTRIAL PRODUCTS OF LUDHIANA

Nature of Manufactured goods exported	Countries to which exported
(i) Hosiery products	USA, West Germany, Italy, UK and USSR
(ii) Bicycles and parts	Canada, USA, England, West Germany, France, Italy, Turkey, Australia, New Zealand, China, Afghanistan, Saudi Arabia, Brazil etc.
(iii) Sewing machines and parts	New Zealand, China, Sri Lanka, Afghanistan, Iraq, Iran, Saudi Arabia, Turkey, England, USA, Canada etc.
(iv) Auto parts	Canada, USA, England, West Germany, Egypt, Saudi Arabia, Iran and Iraq etc.
(v) Machine tools	New Zealand, Australia
(vi) Solvent oils	Austria and England (UK)
(vii) Hand tools	USA, Canada, West Germany, etc.

Source: Action Plan of 1978-79, D.I.C., Ludhiana.

Table 5.9

EXPORT VALUE OF MANUFACTURED GOODS OF LUDHIANA (1978-79)

Name of the Item Exported	Export value (Rs. in lakhs)
Hosiery goods	2,606.00
Bicycle & bicycle parts	966.24
Auto parts	315.59
Seving machines & parts	73.95
Nuts and bolts	45.89
Spray pumps	16.73
Machine tools	3.19
Power looms	12.60

Source: Annual Industry Report, 1978-79, D.I.C., Ludhiana.

5.6 Conclusions

(i) The industrial development of Ludhiana has considerably led to the development of cash crops in the hinterland.

(ii) The impact of Ludhiana on the development of the industrial activity in the surrounding smaller

towns is almost negligible. Except Malerkotla and Nakodar all the towns have shown a negative trend in their industrial growth.

(iii) Ludhiana has had only a marginal impact on the development of the industrial activity in the villages in its hinterland. Almost half of the villages show a positive and half of them a negative trend in their industrial growth.

(iv) The development of Ludhiana has encouraged the development of small scale industries in the settlements in the hinterland but its impact on the development of household industries, is quite insignificant at times even negative.

(v) Ludhiana has developed strong regional linkages both inside and outside the country. As Punjab is completely lacking in mineral deposits, all the raw materials and power resources come from other areas, and the manufactured goods of Ludhiana are exported to other cities, states and countries.

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CHAPTER VI

CHAPTER VI

CONCLUSIONS

The following conclusions emerge from this study:

(i) Ludhiana started with a diversified industrial base but subsequently this diversification led to specialization in a few selected industries. However, Ludhiana still shows a considerable degree of diversification. There are about sixty different types of industrial units in Ludhiana today.

(ii) With the passage of time three of Ludhiana's traditional industries emerged as the major industries of the city. These are Hosiery, Bicycle Industry and Sewing Machine Industry. In these three industries, Ludhiana has the foremost place in the country both in terms of employment and production. The development of ancillary industries paved the way for specialization in these industries in Ludhiana.

(iii) The industrial development of Ludhiana has led to the establishment of complete production cycles

in major industries, i.e. Hosiery Industry, Bicycle Industry and Sewing Machine Industry. The processed goods consumed in these industries that were earlier imported from other cities are now manufactured in Ludhiana itself.

(iv) With the completion of the production cycles of major industries, the production of the ancillaries of these industries has also increased.

(v) The analysis of the historical development of industries in Ludhiana concludes that entrepreneurship and state assistance have provided the main impetus in the location and growth of its industries.

Most of the major industries of Ludhiana belong to the private sector. Almost all the large scale units have been founded by private enterprise. Moreover, a number of facilities provided by the state and Central Government during the Five Year Plans have encouraged the industrial growth of Ludhiana.

(vi) The industrial development of Ludhiana has considerably led to the development of cash crops in the hinterland.

(vii) The impact of Ludhiana on the development of the industrial activity in the surrounding smaller towns is almost negligible. Except Malerkotla and Nakodar all the towns have shown a negative trend in their industrial growth.

(viii) Ludhiana has had only a marginal impact on the development of the industrial activity in the villages in its hinterland. Almost fifty per cent of the villages have shown a positive and fifty per cent a negative trend in their industrial growth.

(ix) The development of Ludhiana has encouraged the development of small scale industries in the settlements in the hinterland but its impact on the development of household industries is quite insignificant, at times even negatives.

(x) Ludhiana has developed strong regional linkages both inside and outside the country. As Punjab is completely lacking in mineral deposits, all the raw materials and power resources come from other areas, and the manufactured goods of Ludhiana are exported to other cities, states and countries.

On the basis of the above conclusions two major observations can be made about the future course

of industrial development in Ludhiana. Firstly, planners should emphasize the importance of agro-based industries as well as of those industries which provide inter-industrial requirements. Secondly, industries should be set up which will utilize the industrial raw material and semi-manufactures which are presently being exported out of the state.[1] Moreover, within the city, industrial location should be planned so that mutually dependent industries are located together to enable a more efficient interaction.

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1 1,456, 000 quintals of cotton, cotton yarn, cotton piece goods and steel bars were exported out of the state in 1976-77.

*****

APPENDICES

&

SUBSIDIARY TABLES

ANNUAL REPORTS OF INDUSTRIES
(1977-78 & 1978-79)

APPENDIX-I.

Industry	No.of Units. 1977-78	No.of Units. 1978-79	Employment 1977-78	Employment 1978-79	Investment* as on 31.3.79	Capacity* as on 31.3.79	Production* 1977-78	Production* 1978-79	Export* 1978-79
Hosiery	2,972	3,096	49,105	52,125	635.00	5,500.00	4,500.00	5,200.00	2,606.00
Cycle complete	18	18	1,060	1,063	22.00	1,500.00	1,250.00	1,252.00)	966.24
Cycle parts	1,913	2,078	29,782	30,025	650.00	2,700.00	2,210.00	2,455.00)	
Sewing machine (complete)	18	18	2,850	2,845	18.00	69.00	60.00	60.60)	73.9
Sewing machine Parts.	342	371	2,916	3,105	70.50	421.00	396.00	415.00)	
Food Products.	28	40	64	125	3.50	38.00	18.00	24.00	-
Dying.	-	33	-	171	7.12	78.89	-	26.00	-
Ban making.	85	85	180	189	0.80	3.50	2.60	2.60	-
Embriodery.	2	3	4	7	0.25	1.20	0.50	0.60	-
Umbrella ribs.	1	1	80	82	1.75	27.00	22.00	22.00	-
Wood sawing.	2	5	8	20	0.45	1.50	0.50	1.50	-
Wooden boxes.	-	10	-	57	0.44	26.60	-	3.00	-
Wood & Machine Screws.	19	19	157	156	7.80	50.75	45.30	45.30	-
Card Board Boxes.	58	72	126	170	2.30	136.00	97.00	102.00	-
Printing Work .	11	20	56	99	2.20	12.50	6.00	9.50	-
Leather Tenning.	93	93	917	898	0.58	3.85	3.00	3.00	-

Contd.

Leather goods	583	588	912	950	2.87	26.75	24.40	25.50	-
Rubber goods	67	74	267	305	1.40	42.50	32.00	34.00	-
Plastic goods	48	56	267	323	4.50	47.00	55.00	58.00	-
Candles	40	50	116	129	2.85	16.75	11.00	13.50	-
Paints & Varnish	7	8	55	60	2.15	28.00	17.00	17.80	-
Dyes & Colours	2	2	35	37	0.50	20.00	15.00	15.00	-
Drugs & Medicines	3	8	8	29	4.07	11.65	1.60	4.43	-
Washing soap	132	142	401	446	14.00	96.00	79.00	83.50	-
Fuel	3	3	12	14	0.50	4.00	3.00	3.00	-
Chemicals	19	21	118	133	9.00	28.73	25.00	26.50	-
R.C.C.Material	-	6	-	36	3.04	53.58	-	6.00	-
Silicate	2	2	86	87	2.50	45.00	28.00	28.00	-
Casting &Forging	-	27	-	183	5.47	78.89	-	25.00	-
Conduit Pipe	30	34	160	189	6.35	43.00	35.00	36.00	-
C.I.Pipe fitting	288	290	2,140	2,157	33.35	137.00	119.00	123.50	-
Stone manufacturing.	-	1	-	10	0.14	5.40	-	1.00	-
Fabrication	156	166	413	460	2.40	33.00	20.00	23.50	-
Steel furniture	56	60	270	299	2.45	53.50	72.00	77.00	-
Dies.	4	5	9	14	0.60	1.25	0.42	0.62	-
Nuts & Bolts	327	386	2,710	3,0,08	68.10	317.25	280.42	310.00	45.89
Spray Pumps	2	4	120	230	3.50	32.00	55.00	72.00	16.73

Hard ware	7	17	45	95	1.82	12.00	5.00	10.50	-
Electro plating	149	155	1,462	1,499	43.85	188.00	170.00	179.00	-
Agricultural Implements	303	321	1,303	1,393	18.40	265.00	224.00	234.00	
Machine parts	-	21	-	144	7.82	99.38	-	32.00	45.20
Textile Machine	-	13	-	98	3.45	22.38	-	10.00	
Steel Re-rolling	50	52	950	1,025	158.59	870.00	620.00	642.00	116.41
Machine tools	443	468	4,590	4,788	480.00	492.57	340.00	362.50	3.19
Electric goods	52	57	466	507	8.15	77.00	58.00	65.00	-
Electric motors	-	1	-	7	0.92	3.50	-	1.00	-
Electric fans	-	2	-	9	0.32	1.20	-	0.80	-
Radio & Transister.	87	87	241	243	1.65	23.00	18.00	18.00	-
Auto parts	552	619	3,610	3,923	3.95	669.00	610.00	683.00	315.59
Poultry	136	139	385	395	8.89	103.50	76.00	78.50	-
Edible oils	46	63	251	301	46.14	159.00	143.00	148.00	-
Handloom.	373	800	1,640	1,725	5.96	150.00	82.00	98.00	-
Powerloom (Woolen)	116	122	270	290	104.06	401.00	206.00	221.00	
Powerloom (Art Silk)	681	707	1,285	1,390	123.08	801.50	715.00	735.00	12.60
Powerloom (Cotton)	82	85	176	190	8.96	43.50	32.40	33.75	

Contd.

Cotton ginning	33	34	796	800	29.12	392.80	327.00	329.00	-
Rice mills	11	12	53	65	26.25	160.00	85.00	86.00	-
Atta-Chakki	20	25	32	39	2.88	39.58	28.00	29.00	-
Gur making Unit.	-	1	-	103	4.62	60.00	-	0.15	-
Miscellaneous	247	234	1,416	1,641	235.00	145.00	82.00	106.50	13.64

*Source:(District Industry Centre,Ludhiana).

* (Rupees in lakhs).

ANNUAL REPORTS OF INDUSTRIES
(1975-76 & 1976-77)

APPENDIX-II.

Industry	No.of Units. 1975-76	No.of Units. 1976-77	Employment 1975-76	Employment 1976-77	Investment* as on 31.3.77	Capacity* as on 31.3.77	Production 1975-76	Production 1976-77	Export* 1976-77
Hosiery	3,000	2,859	50,000	45,900	572.00	3,900.00	3,900.00	3,780.00	3,300.00
Cycle complete	18	18	960	1,060	22.00	1,000.00	950.00	950.00	679.00
Cycle parts	1,780	1,784	28,000	28,040	446.00	2,200.00	2,000.00	2,090.00	
Sewing machine (complete)	18	18	2,850	2,850	18.00	69.00	60.00	60.50	-
Sewing machine Parts.	340	339	2,800	2,790	68.00	399.90	375.00	374.00	-
Food products.	25	26	52	60	2.50	26.00	15.00	16.00	-
Ban making	85	85	180	180	0.80	3.50	2.60	2.60	-
Embriodery.	-	2	-	4	0.20	1.00	-	0.50	-
Measuring tape	4	4	135	135	10.00	60.00	53.00	55.00	-
Umbrella ribs.	1	1	80	80	1.75	27.00	22.00	23.00	-
Wood sawing.	-	2	-	8	0.20	1.00	-	0.50	-
Wood & machine Screws.	15	18	130	150	7.50	50.50	42.00	45.00	-
Card Board Boxes.	38	44	95	108	1.32	110.00	78.00	92.00	-
Leather Tenning.	95	95	940	940	0.50	3.90	3.00	3.00	-
Leather goods.	580	574	970	900	2.50	25.00	25.00	23.25	-
Rubber goods.	56	56	180	180	0.80	35.00	28.00	28.00	-

Contd.

Plastic goods	30	35	210	245	3.55	40.00	20.00	32.00	-
Candles	33	37	85	101	2.00	13.00	8.00	10.00	-
Paints & Varnish	6	7	32	35	2.00	23.00	16.00	17.00	-
Dyes & Colours	2	2	55	55	0.50	20.00	15.00	15.00	-
Medicines	-	2	-	6	0.40	1.50	-	1.00	-
Washing soap	140	158	450	401	13.20	90.00	83.00	79.00	-
Fuel	-	3	-	12	0.50	4.00	-	3.00	-
Chemicals	14	14	100	100	4.50	25.00	20.00	20.00	-
Silicate	2	2	86	86	2.50	45.00	38.00	38.00	-
Conduit pipe	30	30	160	160	6.00	39.60	35.00	35.00	-
C.I.Pipe fitting	278	262	2,035	1,914	3.10	125.00	111.50	109.20)	10.00
Fabrication	163	140	215	199	1.70	25.00	18.00	16.70)	
Steel furniture	30	34	185	204	1.70	65.00	52.00	57.00	-
Dies.	-	1	-	2	0.10	0.50	-	0.20	-
Nuts & Bolts	295	293	2,045	2,000	58.60	222.30	215.00	210.00	30.00
Spray pumps	2	2	120	120	2.00	65.00	55.00	55.00	-
Hard ware	-	4	-	16	0.60	5.00	-	4.10	-
Electro Plating	155	143	1,620	1,424	42.62	160.90	155.00	140.40	-
Steel rolling	57	50	110	950	150.00	700.00	750.00	620.00	-

Contd.

Agricultural implements	290	292	1,100	968	154.22	231.00	230.00	255.00	-
Machine tools	400	436	4,000	4,360	460.00	350.00	300.00	336.00	-
Printing	-	5	-	10	0.50	2.10	-	1.80	-
Electric goods	57	49	450	400	60.35	48.10	53.00	44.00	-
Radio & Transister.	90	87	250	241	1.60	23.00	18.00	17.00	-
Auto parts	510	515	3,100	3,133	257.50	620.00	565.00	590.00	12.87
Surgical Instruments	14	8	205	115	3.50	29.00	45.00	26.00	-
Pen Pencils	20	22	85	88	3.30	19.00	14.00	15.60	-
Poultry	120	113	270	280	1.20	85.00	65.00	70.00	-
Edible Oils	40	30	200	190	37.50	150.00	140.00	139.00	-
Handlooms	910	751	1,470	1,530	3.50	75.00	45.00	60.00	-
Powerlooms (Woolen)	95	91	210	211	18.20	210.00	200.00	190.00	-
Powerloom (Art Silk)	675	674	1,010	1,248	101.00	710.00	610.00	680.00	-
Power looms (Cotton)	95	29	210	160	60.90	35.00	38.00	31.00	-
Cotton Ginning	18	19	760	780	21.00	350.00	300.00	301.00	-
Rice Mills	-	4	-	24	8.00	60.00	-	40.40	-
Atta Chakki	-	7	-	14	1.00	26.00	-	21.00	-

* Source:(District Industry Centre,Ludhiana.)

* (Rupees in lakhs).

ANNUAL REPORTS OF INDUSTRIES
(1973-74 & 1974-75)

APPENDIX-III.

Industry	No.of the Units. 1973-74	1974-75	Production* 1973-74	1974-75	Employment* 1973-74	1974-75	Exports * 1973-74	1974-75
Hosiery	2,721	2,820	3,351.00	3,450.00	44,210	49,300	1,800.00	1,927.00
Cycle complete	11	11	220.00	770.00	864	875	475.00	505.50
Cycle parts	1,580	1,690	1,700.00	1,850.00	25,000	26,000	400.00	500.00
Sewing machine (complete)	18	18	42.00	48.00	2,812	2,840.	19.00	21.00
Sewing machine parts	301	320	280.80	295.00	2,660	2,720	-	-
Machine tools	376	416	398.00	450.00	4,600	4,900	-	4.00
Agricultural implements	230	279	198.00	216.00	940	1,000	-	-
Steel Rolling	45	55	315.00	320.00	820	930	-	-
Water pipe fitting	5	5	8.40	9.00	73	80	-	-
Wood & machinery Screws.	10	12	29.00	35.00	102	120	-	-
Nuts & Bolts	260	280	170.00	210.00	1,890	2,000	-	1,000.00
Electric goods	54	55	42.00	50.00	428	440	-	-
Surgical instruments	14	14	32.00	38.00	172	190	-	-
Powerlooms(Wool)	83	90	-	185.00	1,114	2,000	-	-
Weaving(Art Silk)	632	640	632.00	580.00	900	1,010	-	-
Cotton Textile.	73	80	21.00	36.00	200	210	-	-

Contd.

Cotton ginning & Pressing	15	17	235.00	298.00	690	710	-	-
Rubber goods	48	52	23.00	26.00	163	170	-	-
Conduit pipe	21	25	24.06	30.00	113	150	-	-
Automobile parts	459	480	530.00	530.00	2,780	3,000	-	1000.00
Plastic goods	25	27	15.40	17.00	188	198	-	-
Enameling/Electro-plating.	140	150	124.00	130.00	1,540	1,600	-	-
Paint & Varnish	6	6	12.00	14.00	28	30	-	-
Umbrella ribs.	1	1	28.00	20.00	74	79	-	-
Radio & Transister	80	85	13.00	16.00	228	240	-	-
Pen,Pencil,Station-ery.	16	18	10.00	11.00	70	80	-	-
Measuring tape	5	4	47.00	50.00	117	130	-	-
Steel & Wood Furniture.	26	28	44.00	48.00	162	175	-	-
Spray Pump.	1	2	6.00	13.00	98	52	-	-
C.I.fitting & forging.	247	240	82.00	98.00	1,780	1,940	-	-
Dyes&Colours	2	2	12.00	13.00	48	52	-	-
Card Board Box.	32	36	73.00	76.00	76	90	-	-
Food Products.	15	20	8.00	12.00	28	45	-	-
Chemicals.	11	12	14.00	16.00	92	95	-	-
Washing soap	135	137	73.00	79.00	426	440	-	-

Contd.

Sheet fabrication	135	145	11.50	14.00	193	205	-	-
Silicate.	21	20	32.00	33.00	67	75	-	-
Poultry	108	112	29.00	32.00	237	250	-	-
Edible Oils.	31	36	128.00	130.00	135	170	-	-
Handloom weaving	680	690	35.50	40.80	1,300	1,400	-	-
Leather Tenning	85	90	2.40	2.80	880	910	-	-
Leather goods(Shoes)	540	560	19.60	20.00	900	960	-	-
Ban Making	71	80	2.07	2.30	131	165	-	-

* Source: (District Industry Centre,Ludhiana.)

* (Rupees in Lakhs).

TABLE- I

TOTAL NUMBER OF INDUSTRIAL UNITS WITH EMPLOYMENT.

(1947-48 to 1988-79) *

Year	Number of Industrial Units.	Employment.
1947-48	2,000	17,873
1960-61	4,898	36,852
1970-71	7,991	97,716
1973-74	9,369	99,028
1974-75	9,860	1,09,016
1975-76	10,308	1,98,171
1976-77	10,426	1,95,167
1977-78	11,123	1,14,510
1978-79	12,037	1,17,598

*Source: (District Industry Centre, Ludhiana.)

TABLE-II

NUMBER OF UNITS OF MAJOR INDUSTRIES IN LUDHIANA.

(1947-48 to 1978-79) *

Year	Number of Units of Major Industries.		
	Hosiery	Bicycle	Sewing Machine
1947-48	600	25 (Cycle parts)	81
1960-61	920	500 "	175
1970-71	2,415	1,298 "	289
1973-74	2,721	11 (Complete Cycle)	18 (Complete sewing machines.)
		1,580 (Cycle parts)	301 (Sewing machine parts.)
1974-75	2,820	11 (Complete Cycle)	18 (Complete sewing machines.)
		1,690 (Cycle parts)	320 (Sewing machine parts.)
1975-76	3,000	18 (Complete cycle)	18 (Complete sewing machines.)
		1,780 (Cycle parts)	340 (Sewing machine parts.)
1976-77	2,859	18 (Complete Cycle)	18 (Complete sewing machines.)
		1,784 (Cycle parts)	339 (Sewing machine parts.)
1977-78	2,972	18 (Complete Cycle)	18 (Complete sewing machines.)
		1,913 (Cycle parts)	342 (Sewing machine parts.)
1978-79	3,096	18 (Complete Cycle)	18 (Complete sewing machines.)
		2,078 (Cycle parts)	371 (Sewing machine parts.)

* Source: (District Industry Centre, Ludhiana).

TABLE-III

TOTAL EMPLOYMENT IN MAJOR INDUSTRIES.

(1947-48 to 1978-79) *

Year	Total Employment in:		
	Hosiery Industry	Bicycle Industry	Sewing Machine Industry
1947-48	4,900	650	-
1960-61	7,500	5,000	1,800
1970-71	35,280	22,000	4,223
1973-74	44,210	25,864	5,472
1974-75	49,300	26,875	5,560
1975-76	50,000	28,960	5,650
1976-77	45,900	29,100	5,640
1977-78	49,105	30,842	5,766
1978-79	52,125	31,088	5,950

* Source: (District Industry Centre, Ludhiana.)

TABLE IV

PRODUCTION OF MAJOR INDUSTRIES.

(1947-48 to 1978-79)*

Year	Production (Rupees in lakhs.)		
	Hosiery Industry	Bicycle Industry	Sewing machine Industry
1947-48	216.00	200.00	10.00
1960-61	425.00	750.00	165.00
1970-71	3,102.00	1,820.00	351.00
1973-74	3,351.00	1,920.00	322.50
1974-75	3,450.00	2,620.00	343.00
1975-76	3,900.00	2,950.00	435.00
1976-77	3,780.00	3,040.00	434.00
1977-78	4,500.00	3,460.00	456.00
1978-79	5,200.00	3,705.00	475.60

* Source:(District Industry Centre,Ludhiana.)

TABLE- V

INVESTMENT IN MAJOR INDUSTRIES.

(1947-48 to 1978-79) *

Year	Investment (Rupees in lakhs.)		
	Hosiery Industry	Bicycle Industry	Sewing mechine Industry
1947-48	269.00	75.00	12.00
1960-61	318.00	151.00	35.00
1970-71	375.00	299.00	70.00
1974-75	-	-	-
1976-77	572.00	468.00	76.00
1978-79	635.00	672.00	88.55

* Source:(District Industry Centre,Ludhiana.)

TABLE- VI

INDUSTRIAL GROWTH IN THE POST-INDEPENDENCE PERIOD.*

Industry	No.of Units.	Employment	Investment (Rs.in lakhs.)	Production (Rs.in lakhs
		1947-48		
Hosiery	600	4,900	269.00	216.00
Power looms	50	600	-	-
Hand looms	1,000	3,000	-	-
Bicycle parts	25	650	75.00	200.00
Sewing machine parts.	81	-	12.00	10.00
Machine tools	34	525	15.00	16.50
Others.	210	-	-	-
		1960-61		
Hosiery	920	7,500	318.00	425.00
Bicycles	500	5,000	151.00	750.00
Sewing machines	175	1,800	35.00	165.00
Machine tools	200	2,550	-	-
Others.	3,103	20,002	541.00	-
		1970-71		
Hosiery	2,415	35,280	375.00	3,102.00
Bicycles	1,298	22,000	299.00	1,820.00
Sewing machines	289	4,223.	70.00	451.00
Machine tools	525	2,125	35.50	85.50
Others	3,464	36,213	823.00	3,601.00

* Source:(District Industry Centre,Ludhiana.)

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