

REGIONAL PLANNING ANALYSIS
FOR
RURAL AREAS IN PUNJAB, INDIA

by

Banarsi Dass Kambo

A. I. Dipl. Arch., Delhi; Associate
Indian Institute of Architects

Submitted in partial fulfillment of the requirements
for the degree of Master in City Planning

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Head, Department of City and Regional Planning

Thesis Advisor

Author

Room 224-C
Graduate House, M.I.T.
Cambridge 39, Massachusetts
May 24, 1954

Professor Frederick J. Adams, Head
Department of City and Regional Planning
School of Architecture and Planning
Massachusetts Institute of Technology
Cambridge, Massachusetts

Dear Professor Adams:

I submit, herewith, REGIONAL PLANNING ANALYSIS FOR RURAL
AREAS IN PUNJAB, INDIA as my thesis in partial fulfillment of the
requirements for the degree of Master in City Planning.

Respectfully yours,

J Banarsi Dass Kambo

ACKNOWLEDGEMENTS

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I also wish to acknowledge the helpful and constructive suggestions received from fellow students and the faculty of the Department of City and Regional Planning throughout the course of this analysis.

I especially wish to acknowledge my indebtedness and express my sincere appreciation to Professor Roland B. Greeley of the Department of City and Regional Planning at Massachusetts Institute of Technology for his valuable guidance and direction.

ABSTRACT OF THESIS

Title: REGIONAL PLANNING ANALYSIS FOR RURAL AREAS IN
PUNJAB, INDIA

Author: Banarsi Dass Kambo

Submitted to the Department of City and Regional Planning on
May 24, 1954, in partial fulfillment of the requirements for
the degree of Master in City Planning.

Objectives:

It is the purpose of this study to explore various ways and means to help achieve a more balanced distribution of rural and urban population in the regions of the Punjab State, by providing non-farm employment opportunities, well distributed within the region, to the large amount of surplus farm workers who do not have enough land to make their living, and thereby increase the national productivity -- all factors aiming at raising the standard of living of the masses in a relatively short space of time. The target date is 1971.

Procedure:

The procedure followed to achieve the objectives stated in the preceding paragraph was to project the population of the country and in the region during the 20 year period (1951 - 1971), and then analyze how much of this total population could efficiently live on land, and how much should be in non-farm employment.

The region is then divided into several blocks, each having a block center. It is proposed to develop a pattern of industrial employment in these blocks, each being an independent economic unit. While several factors of production are the criteria for location of such centers, the established importance of present commercial centers is recognized, keeping in mind the traditions, customs and living pattern of the people of the region. The new industrial center is so located that it is a part of, but separate from, the existing commercial center. The proposed commercial-industrial center would be one economic unit, catering to the needs of the block it is located in.

Each block is further divided into 3 or 4 market centers, each catering to a group of villages. A further analysis is made as to the requirements of such tehsil, block, and market center, their relation to the central district center, the type of activities to be developed, and the facilities to be provided.

A communication network is proposed to interconnect all the villages in the region with these proposed centers.

A school system for all three stages of education, primary, middle, and high, is also developed and proposed for the region, and their corresponding places in the various types of centers.

Organisation:

This thesis points out that a more efficient and well organised district government would be necessary to implement the findings of this study. It further points out the immediate importance of setting up a District Planning Agency to coordinate the entire program of development of the region as one unit, and to ensure its progress on a well planned and systematic basis.

Findings:

The study concludes with a set of principles and standards which could be applied to any such region in the State to achieve the goals set out in the first paragraph. It also suggests future lines of research to be conducted to crystallize further some of the assumptions and arrive at more positive results to be based on factual information which could not be available here during the course of this thesis.

Thesis Supervisor _____

Roland B. Greeley
Associate Professor
of Regional Planning

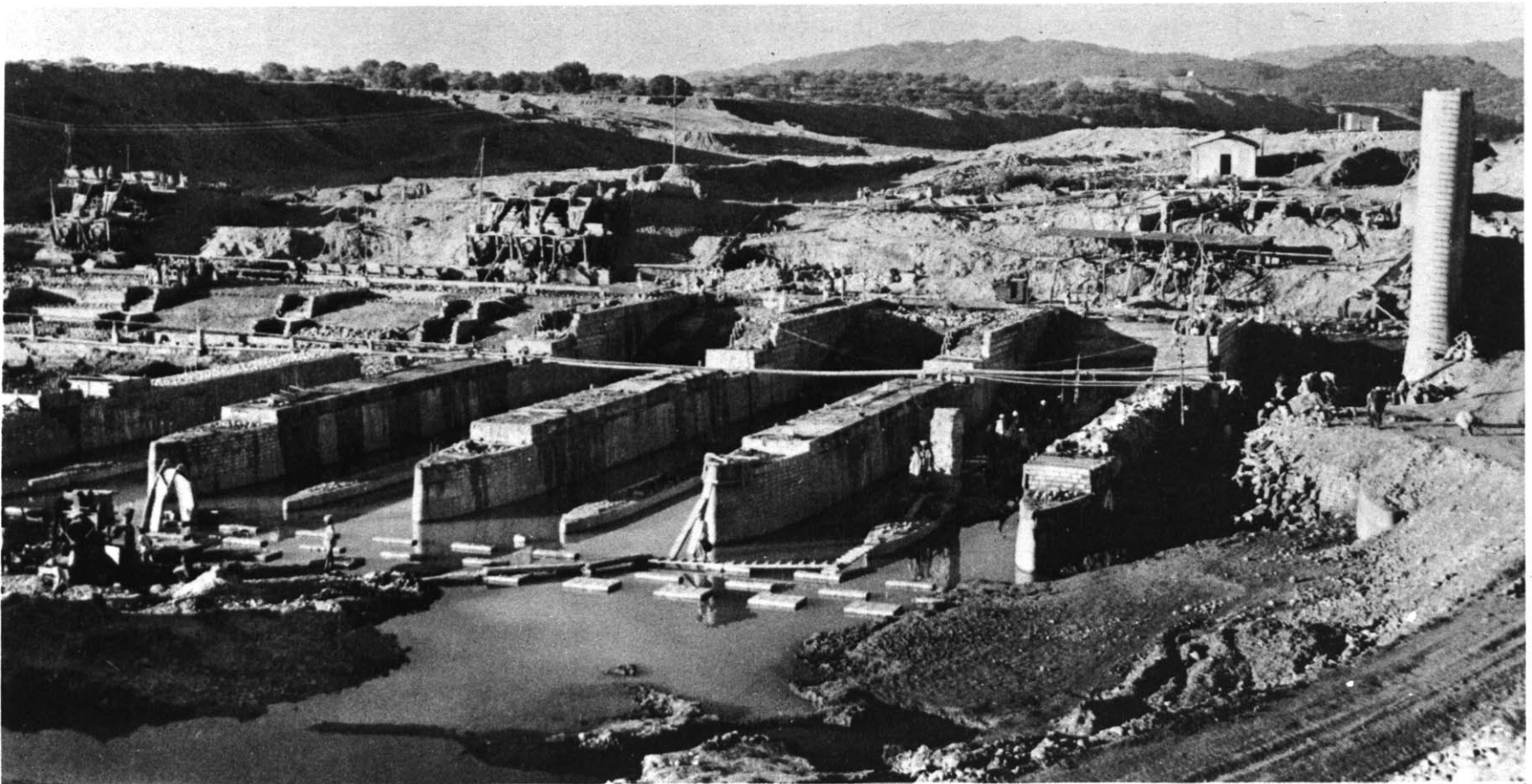
"planning in a democratic state
is a social process in which,
in some part, every citizen
should have the opportunity
to participate"

from 1951.....



through public participation

The Bhakra-Nangal Dam under construction.
On completion this project will irrigate over three and a half million acres of land.

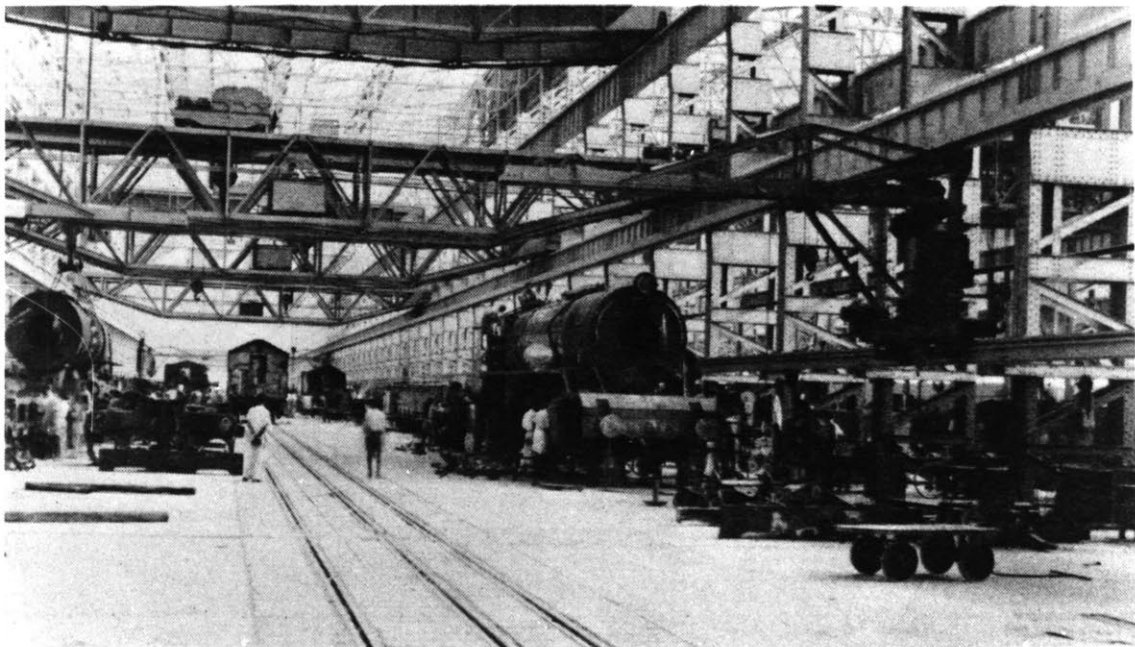


and government sponsored projects

..... to 1971



increased agricultural production



greater industrial development

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chapter one

INTRODUCTION

"History has selected India as one of Democracy's chief testing grounds." ¹ This is a contest which the country has welcomed, a challenge which must be met. With an underdeveloped economy, an outmoded social structure, and a huge population it has become a matter of urgent necessity to refashion and to transform the entire system so that the future may promote happiness and prosperity of all people in things material and spiritual. Can poverty stricken country recently emerged from colonial exploitation, like India, maintain and expand freedom while it organizes and develops its economic resources? Can this be realized in a relatively short time by pursuing peaceful democratic way and without sacrificing the fundamental concepts of democracy, equality, fraternity, and liberty?

1. Pandit Jawahar Lal Nehru, quoted by Chester Bowles in Ambassador's Report, (Harpers Brothers, New York, 1954)

History shows that sometimes spectacular progress has been achieved in a short time, but it had involved a radical departure and extreme deviation from accepted principles of freedom, peace, and progress. India is pledged to a new social order free from exploitation, poverty, and injustice --- an ideal based on her own concept of Welfare State, a democracy aiming at a classless society which would give security to the individual, and encourage creative activity motivated by cooperative effort and equal opportunity for all.¹

"The Constitution of India fully protects the liberty of the individual, and has guaranteed certain Fundamental Rights to the citizens of the State. It has enunciated certain Direct Principles of State Policy, in particular, that the STATE shall strive to promote the welfare of the people by securing and protecting as effectively as it may a social order in which Justice, social, economic, and political, shall inform all the institutions of the national life, and shall direct its policy towards securing, among other things:

That the citizens, men and women equally, have the right to an adequate means of livelihood;

That the ownership and control of the material resources of the community are so distributed as best to subserve the common good; and

That the operation of the economic system does not result in the concentration of wealth and means of production to the common detriment."²

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1. Pandit Nehru, Speech to the House of the People, December 19, 1952.
 2. National Planning Commission, Government of India, The First Five Year Plan, July, 1951.

Accepting the foregoing objectives in the proper spirit and perspective, this study is an undertaking to explore and analyse some of the major problems in the Punjab regions to help in formulating a plan for raising the living standard of the masses.

Feudal land system resulting in underproduction; Industrial backwardness manifested in huge unemployment, together with out-of-date social system giving rise to economic inequalities and injustices are the fundamental aspects of the problem. All the rest could be traced in one or more of these. The scale of the problem is great and complex. The nation faces it today. It is everywhere, from the snow clad peaks of Gulmarg in Kashmir to Adam's bridge in the Southern most tip of India, and from the rising sands of Rajasthan in the West to the tea gardens of Assam in the East.

Resources are plenty and so are men and women. The job of the planner is, therefore, to draw up a program for development of the national resources, and to enlist the active cooperation of the huge population as equal partners in the great enterprize of building a
1
new India.

This thesis is an attempt in the same direction.

1. Pandit Nehru, Broadcast to the Nation on New Year's Eve, 1952.

chapter two

SELECTION OF THE REGION

Many reasons account for the selection of Jullundur region as a case study for this thesis.

After the partition of this land of five rivers,¹ this region has the most fertile land of the Punjab. The average income of the inhabitant of Jullundur region, it is believed, is more than those living in other districts of the Punjab. Jullundur city is the second urban center above the main highway from Pakistan border,² the first one is Amritsar only forty miles North West of Jullundur. Also, Jullundur is the second largest city in the State, Amritsar being the largest one with a population of more than three hundred thousand. August 1947, with the dawn of Independence, brought a mass migration of muslim and non-muslim population across

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1. Punjab in Indian language means the land of five rivers.
 2. Pakistan was carved out of India in August '47 comprising of North West Frontier Province, Baluchistan, Sind, and 17 districts of the Punjab.

the Atari border.¹ The Punjab Government lost her capital, Lahore, the most beautiful city in the State. There was an immediate need for a temporary capital, till a decision made for a permanent one. Amritsar was ruled out being too close to the border. So Jullundur was selected to function as the seat of the Punjab until such time as a permanent capital is built. This decision brought to Jullundur thousands of office employees of the Government, who otherwise would have gone to some other place. A large number of displaced persons had already settled in the city and the surrounding bastis.² The metropolis grew to 170,000 within few months. The district has the largest percentage of displaced persons in the State. Table P. 5 shows that the muslim population was 44 per cent in 1941, which means that a large number of people left this district in 1947, and consequently a similar number moved in. Jullundur continues to be the temporary capital of the Punjab, till Chandigarh is developed enough so as to provide good accommodation for all offices. As at present the capital is split between Chandigarh, Simla, and Jullundur. Map 2 shows the 13 districts of the State and the neighboring states of Kashmir on the North, Utter Pradesh on the East, Rajasthan on the South, and Pakistan on the West. The availability of the Geographical Survey of India maps for a large part of this district is one of the main factors influencing the selection of this particular region. Being very close to the border, maps of this region are not made available for public use, although the entire State is under restricted zone, and permission from

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1. Atari is the last railroad station on the Indian side of North Western Railway.
 2. Indian name for suburbs. Bastis existed around Jullundur City even before partition of the State.

the Ministry of Defence is necessary before any maps can be made available to individuals. I happen to have my undergraduate thesis, on village development, with me which contained a photostat copy of the map of this region, and that is the only detailed map available for this study. It was not possible to secure any other map from the Government due to various obstacles.

My personal knowledge about this region could also be considered as one of the deciding factors. I was born in Shankar, one of the larger villages in this region, the largest one in Tehsil Nakodar, and have spent my earlier life among the villagers. I have had the opportunity and privilege to develop my contacts with people of the region for a continuous period of fifteen years. I have lived with them, talked to them, played with them, and have shared with them all the joys and sorrows of village life. I grew up in their mode of living, learning their customs, their traditions, their prejudices, their habits, their folklore, their religion, and all the typical aspects of life in a Punjabi village. My village was fortunate to have a middle school,¹ (now there are two high schools)² in addition to the two primary schools for boys and one for girls, (now a middle school). This brought children from the neighboring 20 odd villages for 5-8 grade education. This helped further to know the children from the surrounding villages, which are half or even much smaller in population than mine.³ For high school education I had to go to Nakodar, the seat of the tehsil and only three miles South West of my village, where I had a chance to meet the city boys. It was a good

1. At that time (in 1940) it had only 4 grades, 5 to 8.

2. This has first 4 grades, 1 to 4.

3. Grades 9 and 10. Indian school system consists of 10 grades.

composition of urban and rural life. These two years of high school prepared the ground work before the group moved to Jullundur city for college education. By the time a student completes high school, he can grasp a fairly good picture of the whole village life and the living pattern of an average rural household, and then he is ready to learn about the urban environments of the city pattern.

It is primarily due to these reasons that Jullundur region has been selected as a case study for the thesis.

chapter three

CHARACTERISTICS OF THE REGION

A. GENERAL

1. Physical

The district of Jullundur lies in the territory between Sutlej and Beas, the first two rivers of the Punjab. The region is called the apex¹ of the Bist Doab. The sub-mountain of the Bist Doab lies in Hoshiarpur district, the rest is divided between Jullundur and Kapurthala. Below the hills the whole Doab is an expanse of alluvial soil considered to be the garden of the Punjab. There are some patches of sand in the top soil, which has caused a few acres to be left uncultivated, but with this exception the whole district is one large field richly cultivated

1. United Punjab was divided into 5 Doabs. The term Doab means land between 2 rivers. Bist is the name for the first Doab, between rivers Sutlej and Beas. It is derived by taking 'B' from Beas and "ST" from Sutlej. The names of the other 4 are also derived in a similar way, for example land between Beas and Ravi, 2nd and 3rd rivers, is called Bari Doab, where 'BA' represents Beas and 'RI' represents Ravi. The other 3 (now in Pakistan) are also named in a similar way.

from end to end. Certain areas were transferred to this district in 1950 after the abolition of the princely states in the Punjab, and the district now has an area of 1331.6 square miles. It is bound on the North by Hoshiarpur district; South by Sutlej river; East by Hoshiarpur and Ludhiana districts, and West by Kapurthala district (PEPSU).¹

The district is divided into 4 sub-districts or tehsils for administrative purposes. Tehsil Jullundur covers the northern part including the city and the cantonment,³ while tehsils Nawanshahar, Phillaur, and Nakodar extend along the river Sutlej from east to west. Jullundur is the headquarters of the district. The greater part of the region belongs to Sutlej river, and only a small part in the north touches river Beas.⁴ The Jullundur Doab received the drainage of the Shwalik hills which unite into two main streams known as East or White Bein and the West or Black Bein.²

The double track main line and Northern Railway passes through the heart of the region, and several branch lines, from Kapurthala, Mukerian, Hoshiarpur, Nawanshahar, and Nakodar terminate at Jullundur city. National highway connecting Delhi and Amritsar runs along the

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1. Abbreviation for Patiala and East Punjab States Union. This State was created in '47 by forming a union of all the princely states in the Punjab. Patiala was the largest among all, so the new State was named Patiala and East Punjab States Union.
 2. Used for a section of a district. The responsible official for such a section is called Tehsildar. All districts in the Punjab and in other States are divided into several tehsils for administrative purposes.
 3. An army base or a military camp, where armed forces of the nation are stationed. Jullundur Cantonment was created in the 30's. It is primarily an army base, but a small landing strip is also there for emergency purposes. Civilian population carries on the commercial activity in the area.
 4. First range of the Himalayas along Hoshiarpur district.

main railroad. Asphalt roads only about 16 feet wide connect Jullundur with Kapurthala, Mukerian, Hoshiarpur, Nawanshahar, Nakodar, and Nurmahal.

¹
There are a few katcha roads also, but by and large villages have no good means of transportation. Drawing 7 shows the chief physical features and the administrative units of the region.

2. Archeology

No examples of early Hindu period exist at present, except a semi-ruined tank of Guphar in Jullundur, and another one, in a slightly better condition, at Mohamadpur near Adampur. Ancient mounds at Malsian and Nakodar indicate the existence of some civilization ages ago. Jullundur has some examples of muslim period dating back to 15th century. Two famous tombs at Nakodar (early 17th century) and a tomb and a mosque at ² Basti Sheikh Darvesh are other examples of muslim culture. The only ³ building belonging to Sikh history is the Gurudwara at Kartarpur. The famous fort at Phillaur was built by Maharaja Ranjit Singh, the last popular ruler of the Punjab, who died in the middle of the 19th century.

3. History

The district takes its name from its headquarters city, Jullundur, so called after the demon god Jalandhara. It was the capital of a considerable state ruled by the Katoch chiefs, the town was more than two miles in circuit. It was captured by muslim invaders in the 12th century.

-
1. Unpaved or gravel roads. The term is widely used in India for all types of unpaved roads, whether gravel or plain dirt road.
 2. One of the suburbs South of Jullundur City
 3. Place of worship for Sikhs. Sikhs are a martial race born out of Hindus.

1

Under the Mughal empire at Delhi, Jullundur was the capital of the northern part of the empire. In the middle of the 18th century muslims burnt down Kartarpur, the religious place of the sikhs, and the sikhs, in revenge, set fire to Jullundur a year later, and recaptured it, and it remained with the sikhs until annexed to British dominion after the sikh war in 1845-46. Then it became the seat of the commissionership of the Trans Sutlej States, and now it is known as Commissionership of Jullundur (Jullundur Division).

4. Climate and Rainfall

The climate in the entire region is temperate. Except in June and July, if the monsoons do not arrive or are delayed, the heat is not too excessive. Hot nights are few. Towards the end of March the rise in temperature becomes perceptible and goes on till the monsoons, which usually break in the first week of July and clear off about the middle of September. After that mornings begin to get cool and by the end of October the cold weather sets in. Frosts, though light, do occur about the middle of February, after which cold starts reducing, and the high winds begin bringing the message of hot season again. The temperature varies from 40^oF in winter to 110^oF in summer.²

Rainfall is confined almost entirely to three summer months, July to September. There are some rains in winter brought by North Westerly winds, but constitute a very small percentage of the total.

-
1. Mughals were descendents of Mnggols, a Central Asian tribe. Mughal empire was established in Delhi in the 13th century, and they ruled till the arrival of the British in the 18th century.
 2. Census of India, 1951, Punjab. District Census Handbook, Volume 1, Jullundur District. Compiled and published under the authority of the Punjab Government, 1953.

The average rainfall for the decade ending 1940-49 is given below¹ for the four tehsil towns of the district:

Nawanshahar.....	30.88	inches	per	year
Jullundur.....	26.16	"	"	"
Phyllaur.....	24.44	"	"	"
Nakodar.....	22.47	"	"	"

B. ECONOMIC

1. Population and Income

The population of the district as well as of the state has been increasing rapidly. The rate of growth has been faster than the national rate. 1951 census of the district shows a population of 1,055,600 persons with a density of 800 persons per square mile.² Table P. 3 shows the comparative figures for the country, the state, and the district. Table P. 4 shows the change in population since 1901. Figure F. 1 shows the average density per square mile of the entire sub-continent district-wise. It will be noticed that this district falls under the highest range (800 persons or above).

Total number of people depending upon agriculture as their main source of income, according to 1951 census, is 519,540 and all others³ 536,060. For detailed classification under these two heads refer to tables E. 11 and E. 12.

It has not been possible to include the entire district in the region to be studied due to various reasons. The chief reason was the

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1. Census of India, 1951, Punjab. District Census Handbook, Volume 1, Jullundur District. Compiled and published under the authority of the Punjab Government, 1953.
 2. Ibid.
 3. Ibid.

absence of any base maps for a very substantial part of Nawanshahar tehsil, and about a fourth of Jullundur tehsil. On the other hand, it was felt desirable to include some of the territories of Phagwara and Kapurthala district (PEPSU) so as to form a more natural regional boundary. While base maps for such enclaves are available, no population figures for 1951 are available. A population estimate for these enclaves is made. This readjusted boundary gives an area of 691,200 acres and a population of 760,000 including the estimated figures for the Patiala and East Punjab States Union territories. Drawing 10 shows the adjusted boundaries, and all further reference to the word "region" shall mean this new revised region.

The average income of a household in this district, it is believed, is higher than that in others. Also the average income of a Punjabi household is higher than that in other states. While a Punjabi household spends Rs. 1,654/- per year, the national average is Rs. 1,144/-¹

2. Agriculture and Cooperatives

There are 6 classes of soils in the district, clay soil, ordinary loams, alluvial loams, sandy soil, miscellaneous soils, and manure land. More than one-fourth of the region is irrigated. About half is protected by wells. Total area available for cultivation is about 70 per cent of the whole district.²

There are two crops in the year, the major one or the Rabi crop³ and the secondary one or the Kharif crop⁴. Rabi crop includes wheat,

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1. Department of Economic Affairs, Ministry of Finance, Government of India, The National Sample Survey, General Report No. 1, The First Round, October 1950-March 1951, Published in December '52.
 2. Ibid.
 3. Sown in October and harvested in April
 4. Sown in July and harvested in September.

gram, barley, tobacco, masoor and alsii, and Kharif crop includes jawar,¹ bajra, maize, chari, cotton, moong, moth, mash, etc. Sugarcane is also grown in plenty but it is a one year crop. Besides this all sorts of vegetables are grown in plenty for rural and urban consumption.

Cooperative institutions exist in many villages of the district. Much buying and selling is done through such institutions. Cooperative village banks provide loans to the villagers in case of need. All such institutions are registered under the Indian Cooperative Societies Act.² There are 1740 primary cooperative societies in this district.

3. Industries

Jullundur region is an important industrial center in the State. Some of the industries are very well established and contribute a major proportion to the total industrial output of Punjab. The most important ones are engineering, sports rubber goods, textiles and leather tanning. Agricultural implements are manufactured at Jullundur, Goraya, Phillaur, and Nawanshahar, and a large percentage of it is exported to other regions in the State.

C. GOVERNMENT

1. Administration

A deputy commissioner, under the chairmanship of the commissioner, both appointed by the State, is the executive officer in charge of the entire administration of the district. The commissioner is the chief executive of Jullundur Division, which includes some other neighbouring districts, too, but each has its own deputy commissioner. The chief

1. Names of the various types of produce raised in the district.
2. District Census Handbook, Volume 1, 1953.

commissioner is in all matters representative of the governor of the Punjab. The governor is appointed by and acts in the name of the president of the Indian Union.

The deputy commissioner is assisted by a revenue officer to take care of all revenue work and matters pertaining to it within the entire district. A tehsildar assisted by a naib tehsildar is in charge of each tehsil. He also acts as a magistrate class 2 for all local disputes. The deputy commissioner and Revenue assistant (Magistrates class 1) act for the whole district. Figure F. 8 shows the various administrative branches of the deputy commissioner's office.

The other two branches are State Legislature, and the High Court of the Punjab. As the State Legislature is an elected body representative of the people of the Punjab, there is a District Board elected by the people of the district only. The Deputy commissioner is the ex-officio member and chairman of this board. District boards in the Punjab may correspond, in some respects, to the county governments in the United States.

District and session judge is the chief figure relating to all judicial work of the district. Superintendent of police is the head of the entire police force of the district, and is directly under the Senior Superintendent of Police, Punjab. Sub-inspector of police takes care of law and order in each tehsil, and inspectors and deputy-superintendents assist the superintendent of police to maintain peace and order in the entire district.

1. Indian term for assistant.

2. Local Bodies

As district board is an elected body for the entire district, Jullundur city has an elected body called Municipal Committee Jullundur. This may correspond to City Councils in the United States. In this district there are seven municipal committees, one cantonment board, and five small town committees. Most of the villages have Panchayats of their own to handle local affairs. The total number of such panchayats in the district is 645 and they cover 720 villages. Drawing 9 shows the location of such bodies in the region.

3. Medical and Public Health

The district medical officer of health looks after the public health of the district. Civil surgeon is the medical chief of the district. There are 44 hospitals and dispensaries in the whole district. Total number of beds in all kinds of medical centers is 510. The civil hospital, Jullundur, where the civil surgeon is the head, is the only institution having medical library, that too recently started, for the use of the hospital staff and the private medical practitioners.

The region is considered healthy as a whole, but malaria is common in the riverine tract along Sutlej and Beas during the monsoon season. There are only two health centers. Each has two sub-centers in rural areas under the charge of a lady health visitor. Drawing 9 shows the location of dispensaries in the region.

-
1. District Census Handbook, Volume 1, 1953. All these bodies, except Cantt. board, are elected by the people of the city, town, or the village concerned. Cantt. Board is an appointed body.
 2. District Census Handbook, Volume 1, 1953.

4. Education and Literacy.

The district inspector of schools is the head of the entire school system within the district, excluding colleges which are independent units, but are affiliated to the University of the Punjab. The university also conducts the final high school examinations.

There are eight colleges, including two for girls and one law college, (all of them in Jullundur city) 40 high schools for boys and one for girls (this too in the city) 25 middle schools for boys and 12 for girls, 417 primary schools for boys and girls. Drawing ¹ 9 shows the location of high schools in the region.

In addition there is one training school for boys, six educational centers for boys, and one for girls. 1951 census of the district shows ² the percentage of literates as 10.5 male and 5.3 female.

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1. District Census Handbook, Volume 1, 1953.
 2. Ibid.

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chapter one

PROBLEM

1. Underproduction

Experts from many countries in the West including the United States have mentioned India as an overpopulated country. Grave concerns are shown to this serious problem. Indians, however, are convinced that underproduction and not overcrowding is the crux of the problem facing the country. There is a well known saying that "India is a poor country with rich resources." The country has valuable natural resources, which, if fully developed, shall not only meet the population problem, but also raise the average standard of living considerably. She needs to gear all the energies to increase production of consumer goods, which will increase the national income and thus the standard of living. Underproduction and consequently underemployment is the root of the problem of discontent facing the nation today. Beginning has to be made from agriculture. This region is by and large a continuous green of agricultural fields. Land has been producing enough food to support the

increasing population, but evidently they were not supported efficiently, and little of the produce is sold to buy other necessities of life. There should be a surplus to the means of subsistence, but it is lacking. It is unfortunate that everywhere on this fertile land of abundance the people who grow food have less than enough to eat. It is not because the land is poor, not only because the methods and techniques used in farming are outmoded (though they are bad enough to justify) but because the number of people dependent on land is too great. The population has been long settled on the territory and been exploiting it more intensively, without caring to put any effort either to increase the area of cultivation or the size of the production. The land is filled to capacity with people, who despite the richness of the soil barely meet their subsistence. There are a few acres such as the northern section of tehsil Nakodar, where population is comparatively scattered, otherwise the region is fully occupied today. Citing an example, even Kashmir, which is considered by the Western nations like a mountain frontier, has a density that almost equals that of the United States. It would, therefore, be more logical to place overpopulation as secondary to underproduction and underemployment.

2. Overpopulation

Population of the country has been increasing with a high rate in the past few decades. 1941-51 has been an exceptional period because of the partition of the country in 1947, followed by a mass migration. Table P. 3 shows the population of the country, the Punjab, and the district for 1941 and 1951 with gross densities per square mile. In 1918 there was a fall in the national figure due to plague, but even then it has been increasing rapidly.

In spite of high death rate, which is due to high infant mortality rate, there has been a rapid increase. Table P. 14 gives the Indian and the United States birth, death, and infant mortality rate from 1901 to 1945. While the birth rate of the country has been fairly stable, death rate has been falling slowly. Taking the more or less normal period from 1921 to 1941 India as a whole had an increase of 22 per cent in her population, while the Punjab had an increase of 37.3 per cent, and surprisingly Jullundur district had almost the same increase (37.2 per cent) for the same period.¹ Fertility rates are higher in the Punjab than in other parts of the country. This is due to various factors like better economic conditions, living habits, family structure, leisure hours, etc. Figure 5 shows that fertility rates are higher in rural areas than in urban areas. Again leisure is probably one of the major reasons, while in urban areas such time is utilized in other forms of recreation and social life which do not exist in rural areas of the state. So the peasant in the village has plenty of time to multiply.

India has the maximum density per square mile when compared with other countries of her size. Table P. 1 gives the average densities of selected countries. Figure F. 1 shows the whole sub-continent and the average number of persons per square mile by the district, based on 1941 census. District of Jullundur with its distinct boundaries shown falls in the highest category of 800 or more persons per square mile, while the national average in 1941 was only 246. But such a crude density is not the best measure of crowding for an agricultural country like India. It would be more analytical to find out the number of persons

1. Kingsley Davis, The population of India and Pakistan, Princeton Univ. New Jersey, '51.

dependent upon agriculture per square mile of the cultivated land. Figure 4 gives the comparative analysis with other agricultural countries both in Europe and Asia. In the absence of latest figures from other countries 1931 census are used. India stands highest among European countries and is lowest among Asian nations. Table P. 2 shows number of persons per square mile of cultivated land in India by States.

3. Industrial Employment

It is important to mention here that the city of Jullundur did not develop any large scale industry to attract surplus labor from the surrounding areas. Here and there some industries developed over a long period of time, but literally speaking there was no development of any appreciable size which could provide employment to a large number of workers. However, the partition of the state eventually brought more industries to this city, which are providing employment to a large number of workers. Sports goods, for instance, a cottage industry of Sialkot (now in Pakistan) has developed in the bastis and it produces goods for export to other parts of the state and the country. This industry can certainly be developed to turn out a large production. Kartarpur can be developed as the major exporting center for furniture export. City of Jullundur should develop large scale industries to produce consumer goods not only to provide employment to thousands of village workers, who are at present either theoretically unemployed, or half time workers, but also to raise the national income and the buying power of the average household. Table E. 1 shows the types and number of industries in the Punjab and in India. Table E. 2 gives a list of all industrial establishments in the district.

4. Subdivision and Fragmentation of Land.

As mentioned earlier in this chapter, the land in this region is comparatively more fertile than in other districts of the state. This prevents the people from migration to urban areas for non-farm employment. Their attachment to the land is also due to the fact that practically no effort is made to develop the undeveloped land. This inevitably leads to further subdivision and fragmentation of the holdings which finally results in further decrease in production. On the other side the number of people living on agriculture goes on increasing. They have such a deep attachment to the land that no one wants to depart with his share, however small and scattered it may be. As far back as 1925 average holding in a tehsil in this region was as small as 3 to 5 acres per household, and there were 947 persons per square mile of cultivated land. In one village 12,800 acres of land were split into 63,000 fields. In another 584 owners cultivated 16,000 fields where mean size of the holding is half an acre. Druli Kalan, a village in Jullundur tehsil had 424 fields of .006 acres, i.e., one marla¹ in Indian measure.²

Comparatively the land holdings in the canal colonies of the state (now in Pakistan) were 10 acres. Lyallpur had 18 acres per household. Shahpur started with 50 acres per household. To live efficiently a peasant requires 8 to 12 acres, depending upon quality of land and the region it is located in.³

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1. Represents area equivalent to .006 acres.
 2. Malcolm, Darling The Punjab Peasant, in prosperity and debt.
 3. Ibid.

5. Rural Indebtedness

Punjab is known for peasant proprietorship in the country. Unlike Utter Pradesh where zamindari system¹ is practiced, in Punjab by and large the peasant owns the land he works on howsoever small it may be. When colonization was going on in western part of the state, the land in this region brought up to Rs. 500 per acre.² It is probably worth Rs. 2500 per acre nowadays considering the rise in price index. Table E. 8 shows the comparative figures of the district and the state, in terms of number of people and percentage free of debt, the average debt per indebted proprietor, and debt multiple of land owner. It will be seen that this district is well off in all four respects.

Land value has increased five times in the period 1885-1915; in Nawanshahr³ it increased eight times during the same period. The money interest (6 to 12 percent) lowered down because of outside flow of capital from canal colonies, Far East, and North America. The credit was cheap and the power to borrow at low interest increased. However, those loans and credits were mostly borrowed for purposes other than agricultural production; usually for weddings and the like social obligations imposed by traditions of the society. Land was mortgaged as a safety factor for the moneylender. The other main causes for borrowing money could be summarized as follows: the smallness of the holding and its grotesque fragmentation; the profound insecurity of agricultural conditions in large part of the state; the constantly recurring losses of cattle from disease and drought.

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1. Popular Indian term used for landlords. (for explanation refer p. 36)
 2. Malcolm Darling, The Punjab Peasant. A rupee is equivalent to 21¢. Before devaluation it was worth about 31¢.
 3. Ibid.

6. General Economic Conditions

National economy has been subjected to heavy pulls and pushes. The war brought a large drought on civilian resources. Controls were introduced to reduce the magnitude of the problem. But the abnormal political situation in the last two years, after the war and before independence, and the dislocation of national economy due to partition of the sub-continent has added to the existing grave problem. The suspension of controls after 1947 resulted in a substantial price rise within¹ the short period of less than a year.

In spite of this acute situation the Central and State Governments continued to go ahead with their development programs. The projects undertaken before 1947 were not started as part of any national plan. The First National Plan was drawn up in 1951 and all the running projects planned by then and under execution, were incorporated in this First Five-year Plan. The increasing pressure on the limited resources available was yet another problem. In 1951-52 wholesale price index was four and a half times the prewar prices and the working class cost of living indices for different industrial centers in the country varied from over² 3 to over 4 times the prewar level. The increase in money incomes due to inflation changed the distribution pattern of incomes. However, the level of real income per head if compared with the raised cost of living is well below the prewar 1939-40 level.

Average area under cereals for the three year period ending 1949-50 was 183 million acres, as compared with average of 167 million acres for

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1. National Planning Commission, Government of India, First Five Year Plan, 1952
 2. Supplement to "CAPITAL," 17th December, '53.

the period 1936-37 to 1938-39, while the production for corresponding periods was 44.2 million and 40.1 million respectively. These figures are not exactly comparable because of differences in coverage and certain changes in the machinery of reporting. But, broadly speaking, the fact remains that the increase in area is not reflected in the corresponding increase in production.

In spite of substantial import of food grains from abroad in recent years, per capita availability for domestic consumption of cereals at present is lower than before the war. Table E. 10 shows the economic position of an average Indian. The supply of food grains in prewar days was 318.8 lbs. per head per year, while it fell to 306 lbs. just after the war. In 1949-50 it increased, but dropped again in 1950-51 and 51-52. Though official figures for 52-53 are not yet available, the indications are that it is rising again, although far below the prewar figures.

Table E. 5 shows expenditures per household for 1949-50 in rural areas of the country. It will be seen that two-thirds of the expenditures goes to food only, while only .6 per cent is spent on housing. Clothing takes another 10 per cent. Ceremonials and other miscellaneous things take as much as 20 per cent of the total. Table E. 4 gives itemwise per capita expenditure for all India and North Western zone. The expenditure per capita in North West is higher than the national figure, and so is the case per household. In North West zone expenditure per household is Rs. 1,654.30 per year while the national figure is Rs. 1,149.70 per year. Table E. 6 shows the distribution of earning and non-earning members within the household for India, Northwest, and for the region.

1. and 2. Supplement to "CAPITAL", 17th December, 1953.
3. The National Survey, December, 1952.

7. Housing

During the war building activity for civilian purposes was practically at a standstill. After the war it has been on a restricted scale, because of shortage of building materials, and high prices of steel and cement, the two major building materials. Substandard dwelling units for rental housing has been built on a very large scale, consequently with high rents so that only high middle incomes and rich people could afford them. Even this could not keep pace with the large increase in population during the last decade. Thus there exists an acute shortage of housing. It has further worsened the already terrible overcrowding in the large metropolitan areas, like Delhi, Bombay, and Calcutta.

The rehabilitation of displaced persons from West Pakistan further demands a large pool of resources to be spent for their housing and employment.

All this plus high and rising prices, shortage of raw materials, essential consumer goods, capital for large scale investment, housing, and the relief and rehabilitation of displaced persons constitute the immediate problems for which a comprehensive program for rural and urban development must be drawn up to meet these needs. The First Five year Plan is partly an answer to this problem. Some shortcomings of the Plan shall be discussed in the later chapters of this study.

Part of the present economic discontent all over the country, including the region under reference, is also due to the fact that in the face of hardships, caused by these various factors mentioned above, some unscrupulous section of the populace were able to make illegitimate and exorbitant profits through backdoor transactions. Very strong measures need to be taken by the government to root out this evil.

chapter two

OBJECTIVES

The preceding chapter dealt with some of the major problems facing the nation at present. The exploration of reasons behind these problems, and an estimate of their magnitude gives the following conclusions.

1. Production of Consumer Goods

For an overall improvement in the present economic situation in the country, a substantial increase in the output of essential consumer goods in the immediate future must have a highest priority. It is necessary, at the same time, to undertake certain projects designed to strengthen the developing economy, and make it capable of attaining progressively higher levels of output in the succeeding years.

Since a large and early increase in consumption pattern and a higher rate of capital formation cannot go together, it will be desirable to evolve a compromise formula that will provide capital to carry out

the long range projects, and at the same time the common man is not pressed too hard on his expenditure pattern. Institution of small savings should be given wide publicity and encouraged at all levels of people to persuade them to contribute to the nation's building.

2. Employment Opportunities

Secondly, this study, when carried out, envisages full employment. Unemployed manpower, so true in rural areas, has to be supported today by the rest of the community, and it is therefore a factor depressing the standards of living of the nation as a whole. Unemployment is the most serious factor of all the reasons of mass discontent. The social cost of such unemployment is perhaps larger than its economic cost. Hence if this manpower can be mobilized and put into the productive use, it can become a source of strength and an asset rather than a liability.

The hypothesis of advanced countries where full employment is accepted as a goal is not directly applicable to conditions in an underdeveloped economy. While a phase of trade cycle exists in advanced countries, the problem of an underdeveloped economy is mainly structural. Corresponding to idle labor there are no adequate supplies of other factors of production, such as land and capital. A program of full employment can be implemented only after some progress has been made in removing the structural deficiencies in the economy which stand in the way of its expansion. Industrial development is, therefore, very essential to create conditions for full employment. The total value of employment in a community exactly depends upon its level of productive activity. Methods that promote increasing production are bound to

create new opportunities for employment. Therefore an expanding and diversified economy in the long run is the best guarantee for full employment.

3. Distribution of Wealth

The third objective is to reduce the economic inequalities and secure a more balanced distribution of national wealth. The present day wealth and income structure is nowhere close to satisfactory, and a more balanced share by each section of the community is necessary, not only from the point of view of social justice, but also for full mobilization of productive resources of the nation. For the survival of democracy in Asia, it is essential to establish an atmosphere among the nationals so that social and political justice and economic equality for every individual shall be insured and protected by the state.

4. Time Scale

Time is an equally important element in the formulation of plans to achieve these objectives. This factor is more of an objective than an approach towards the objective. There has been in the past, long term schemes drawn up by the British government, but these remained as paper schemes in New Delhi Secretariat because of wrong calculations of the time factor. Sargent's scheme¹ for school education might be mentioned as one of them. It was planned to achieve the final goals in 40 years. It failed to create enough incentive among the people and officials to look forward to its fruits. On the other hand, ambitious and short term plans were also designed but could not be implemented due to

1. Bureau of Education, India, Pamphlet No. 27. Post War Educational Development in India, January 1944. (Sargent's Report)

various other elements including the time factor. Capital expenditure was one of the root causes for their failure.

It is proposed to achieve these goals and objectives, if a project is carried out according to the procedure outlined in the following chapter, in a period of 20 years. By 1971 it is hoped that the region would have adequate production of consumer goods to meet the demand of not only the increased population but also raise the standard of living of the masses. There would prevail enough employment opportunities for all men and women to provide adequate means of livelihood, and there would be more balanced distribution of wealth among all the sections of the community.

These goals may be further outlined, in a more specific way, as follows:

That by 1971

- a. Average size of the household in rural and urban areas will¹
not be more than 5.00 and 4.80 respectively.
- b. The average income of a household will be doubled.²

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1. It is assumed that with extensive publicity by the Government on birth control and family planning within the next 16 years, the average size of the household would be reduced. Urban areas are likely to have smaller households than rural ones because of various elements like specialized services and facilities, economic opportunities and more diversified structure of the household.
 2. The First Five Year Plan envisages that national income would be doubled by 1978. Since this State has more income per capita than the national average, it is believed that she would be in a position to double her income by 1971, when the national average would still be less than double the present income.

- c. A farmer will share an average equivalent of 8 acres of land¹ for cultivation.
 - d. Not more than one-third of the population will live on land.²
 - e. Better employment opportunities will exist within the region, and migration to the larger metropolitan areas will be very low.
 - f. All villages and towns will be connected to one another by all-weather roads.
 - g. All children will have adequate facilities for free and compulsory education up to the age of 14.³
 - h. All habitable structures will have electricity, adequate supply of hygienic drinking water, and minimum standards of drainage and sanitation.
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1. It is necessary to bring extensive land reform if the average income of a Punjabi household is to be doubled. Average size of a farm in this region is 4 acres. These 4 acres are too little to provide full time work for 2.57 earning and non-earning dependents from a household of 5.40. Mr. Darling in The Punjab Peasant explained that 8-12 acres are required for a rural household to live adequately on land. The upper range is felt too high, and would throw a large number of households out of livelihood, and it would be extremely difficult to provide both non-farm employment and housing to such a large population. The lower figure of 8 acres, it is felt would be more logical and compromising to achieve both the objectives of providing full time (but not double time) work for the farmer and double his income.
2. With assumption C and figuring the amount of land available for cultivation, the region and the increase in population by 1971, more than one-third of the population could be provided with farm work.
3. Based upon the recommendations of Committee on Secondary Education in India submitted to Ministry of Education, Government of India in 1948.

chapter three

APPROACH

The three elements of increased production, adequate employment, and more balanced distribution of national wealth directly depend upon other factors, such as systematic distribution and development of agricultural resources, and development of economic resources and industrial expansion. These along with population control and family planning, highway construction and development of transportation and communication facilities, setting up of a full 12 grade school system, adult education program, development of low cost housing techniques and research in the local materials available, shall step up production and provide adequate employment to all sections of the community.

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1. Report of the Committee on Secondary Education in India, to Ministry of Education, Government of India, 1948, Pamphlet No. 52. It is reported that Central Government would accept these recommendations in full, and ask the various State Governments for implementation of the new school program.

A. ECONOMIC DEVELOPMENT

1. Allocation of Areas

Before starting any program of agricultural or industrial development, it is essential that the regional aspects of the district, with regard to population, land, and other resources be studied carefully. The region should be divided into several blocks or precincts, each having its own block center containing all social, cultural, educational, and recreational facilities to cater for both the center and the block as a whole.

Since the district does have sub-districts or tehsils with their respective tehsil centers, which have been functioning as the nucleus of the surrounding villages for the last several decades, it is essential to recognize their established importance. In this region, Nakodar and Phillaur are the headquarters of the two tehsils which are named after them. Nakodar tehsil has a population of 162,335 and Phillaur

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1. Community Project Administration, National Planning Commission has prepared a scheme in which they have recommended the division of tehsil into 3 or 4 Development Blocks, each such block to consist of 4 or 5 Mandi Units which would be located among 4 or 5 villages. Each such project is named as a COMMUNITY PROJECT, each tehsil being a community. 52 such projects were started by the Administration in October '52, and many more have been undertaken at later dates. The idea is to cover the entire village population under such projects in 15 years. The Administration conceives a population of 175,000 in each such project with a small township of about 15,000 as the tehsil center, while each Development Block would be 50,000 with the block center having 5,000 people. While these recommendations are accepted in principle to chalk out a program of regional development, the author disagrees with the details of the recommendations specially with regard to the size and activities which would be developed in Mandi Units and Development Block. The program of C.P.A. was published in 1952 in their handbook called, "Community Projects" a draft outline.

has 209,795 including the tehsil centers. These two towns are rural-urban centers, having no industry of appreciable size. They developed primarily to handle the wholesale and retail commercial activity for their surrounding areas. Consequently literate people from these surrounding areas looking for white-collar jobs directly migrated to Jullundur city or larger metropolitan centers like Delhi and Bombay. Hence Jullundur grew larger and larger while Nakodar and Phillaur did not increase to appreciable size. It is desirable now that such local centers be given more importance. Government should take the initiative along with the local people to develop them, make them such to attract the private industrialists, so that it becomes the nearest urban center for professional employment. With this will develop all other facilities needed in an urban community.

But just these two centers and Jullundur city would not be enough to take care of the entire region. Further study of the region and the country surrounding it indicates that there should be several such blocks, so as to provide the desirable amount of non-farm employment for the entire region at the same time without any large scale dislocation of the present household structure. A very careful consideration should be given to each village before annexing it to either block center, keeping in mind its past trends of inclination, and other sociological relations with the neighboring village. Also all locational factors such as land, site, water, power, transport, communications, availability of raw materials and other resources, population distribution, and lastly but not the least important, manpower and supply of labor should

1. District Census Handbook, Volume 1. 1953.

be evaluated before arriving at the regional distribution of these blocks. Drawing 10 shows the number of blocks and the location of block centers to be developed.

The ten centers which fall within the region under study, in addition to Jullundur city, would be located near Kartarpur, Adampur, Kala, Thabalke, Sindhar, Nakodar, Nurmahal, Goraya, and Phillaur, one of these to be located near the reclaimed land from the bed of river Sutlej, south of Nakodar. Out of these ten centers, Nakodar and Phillaur would be larger than the rest because of their established importance over the past years. Kartarpur would be as big as these tehsil centers due to the existence of large scale cottage industry in furniture making. Also religious importance of Kartarpur should not be overlooked. The very fact that its present population is almost equal to Nakodar gives weight to its recognition as an important center.

Each of these centers would be the nucleus for various economic, social, cultural, educational, and recreational activities for the surrounding area it would serve. Table R. 3 shows the various types of activities which would be developed in such centers. Proportionate adjustment in industrial employment would be necessary to suit the needs of any one particular center. Kartarpur is the obvious place to develop a large scale industry in furniture making, since this town has developed to this size primarily because of this industry. It is a large export center sending furniture to other parts of the district, the state, and out of state. Sindhar, Thabalke, Nurmahal, and Goraya would be of average size, while Kala and the new center south of Nakodar would be smaller than the average because of certain factors like transportation,

railroad, etc. This new center had very low population at present, and most of it would be developed on the reclaimed land, which has been a part of the river in monsoons and just wet land for the rest of the year. It would be most fertile for cultivation. Its close proximity to Nakodar, and Kala's to Jullundur should be recognized in determining the size of these two blocks.

Each of these blocks should be further divided into several smaller units so that a larger village would form the nucleus of the surrounding smaller villages. Such a central village would have, among other things, a market center. This village would be the local center of activities for the group of villages that surround it. Table R. 4 lists the type of activities that such villages would provide. Figure R. 1 shows the diagrammatic relationship of the district center to tehsil center, block center, and the village center.

2. Abolition of Zamindari System

"Land to the tiller" has been the age-old slogan of the peasant¹ and the laborer. British Government established the zamindari system for her own comfort, since it was easy for the central government to collect land revenue through the puppet landlords, who would in turn squeeze it from the already meager wages of the landless peasant, thus leaving little for his share of the produce. This system must be abolished, the sooner the better, with or without compensation. Zamindars have earned more than enough of their share of profits from the

1. Popular Indian term used for landlords who own large acres of land, but do not cultivate themselves. They have peasants working for them, who are paid very poorly, and have no share in the produce of the land they cultivate.

land at the cost of the hard working farmer. Land must be taken away from all those who do not actually till the soil. It should be distributed among the people who have been working on it. Certain states have adopted legislative measures to abolish zamindari. Kashmir is the first state in the country to act on it, and have abolished the system without any compensation. Utter Pradesh took long time to pass it, though it was brought in the state legislature soon after independence. Bihar has also passed an Act to this effect.

Though the Punjab and more so this region does not have any such big zamindars, who own hundreds of acres and do not cultivate themselves, yet those who do exist in any form should either be asked to take up farming, or their land be taken by the regional government, and given over to those people on long term lease, who have been cultivating it for years as landless peasants.

3. Consolidation of Holdings

Next step after abolition of zamindars is the consolidation of the holdings of the farmer and have one farmer's land at one place. As explained earlier in Chapter Four, the average size of the farm per household in the Punjab is 3 to 5 acres, and that too is split up and located in different areas. Subdivision and fragmentation has affected very gravely the economic condition of the farmer. He has been living under debt of the village moneylender for ages. Consolidation of holdings is one of the very important steps towards increased agricultural production. It is assumed, for the purposes of this study, that after this consolidation process the land would be redistributed so that the

1. The Punjab Peasant

average size of a farm per household in the region as a whole would not be more than 8 acres.¹ It is necessary to make this assumption in the absence of detailed information about the size of the holding of every individual peasant, the quality of soil, the type of crop it can raise, etc. For instance, it is likely that the average size of holding of a household in Kala region might be larger than that in Goraya region. This would depend, among other things, upon the nature of the soil, fertility of land, the crop to be raised, its market value, etc.

4. Increase in Agricultural Production

Mere abolition of the landlord and giving more land to the peasant consolidated at one place would not increase the production of food grains and other items of consumption and further production. Further measures should be taken to achieve the objectives. Better quality of seeds have to be used, improved methods of sowing and harvesting the crops, increase in the water resources to irrigate the land, supply of power to each farm to operate their mechanical system, development of the types of crops most suitable for the particular kind of soil, and their encouragement for intensive cultivation are some of the main steps towards higher production. At present everybody tries to grow little of everything he would need for his consumption. This reduces the output considerably. Every type of soil is not good and suitable to grow everything. Soil types should be examined thoroughly as to what would be most suitable to a given type so as to achieve maximum turnout. There is some waste land in the region including some patches of sandy top soil east of Kala

1. See footnote 1., p. 31.

along Jullundur Nakodar road which should be treated and finally brought under cultivation. Scientific agricultural planning starting from classification of soil and its suitability to certain types of crop is a 'must' to rural planning.

Table E. 11 shows that two-thirds of the population in Nakodar and Phillaur tehsils depend upon agriculture as their main source of income. This is a very high figure compared to toehr developed countries. Table E. 6 shows that more than half the members of a household in the rural area are non-earning dependents, and one person is an earning dependent. The size of the holding is only 4 acres. Two and a half persons per household of 5.4 are too many to cultivate 4 acres of land. Outmoded implements used for farming and scarcity of other sources of employment in rural areas are some of the basic reasons for this overcrowding on the farm land. These people work very hard for few months in a year, and the rest of the time they are idle, so that the average number of working hours per day is below those of a laborer working in an urban area engaged in non-farm employment. Ancient methods of farming require more working hours than actually would be needed to cultivate the same acres of land if these methods are improved. Hence, when methods of farming are modernized with improved and better implements, etc., the farmer would have to put in less hours per day than he is putting in now. Therefore he needs more land to cultivate to provide

1. Mr. Darling recommends 8-12 acres in his book, The Punjab Peasant.

him adequate number of working hours per day. Eight acres, it is assumed, would be the minimum size of a farm to provide adequate working hours per person per day for a household of 5.0 and also to provide enough income to meet the needs of the household. The present earning dependent would be engaged in non-farm employment in market or block center. He will, thus, bring additional income to the household. More land per person, with better methods of farming would step up agricultural production, and the increase in the total income of the household would increase considerably the buying power of the farmer, and raise the standard of his living.

5. Industrial Development

Industrial development in India has been on a significant scale since the last three decades or so. With the exception of textile industry, which got stable towards the end of the 19th century, all other important industries developed during this period. However, it still lags far behind and more importance needs to be given to rapid industrialization than what is provided for in First Five Year Plan of the Nation. A judicious location of new industrial units with careful emphasis on the balanced regional development is a vital step in the direction of wider diffusion of employment opportunities. It is possible in this way to move in the direction of full employment.

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1. A larger number of acres per household would displace a vast amount of farm population, and the problem of their employment would be too great to justify such an increase in the size of the holding. On the other hand less than 8 acres of land, it is believed, would not produce enough to provide adequate income to meet the needs of a household of five persons. Double the size of land, consolidated in one place, improved methods of farming, and better quality of seed would, it is believed, double the income of the farmer of 1971 and raise his standard of living.

While great emphasis has been placed on agricultural production, it does not subdue the necessity of industrial development and production. In an underdeveloped economy there is no conflict between development of agriculture and industry. Improvements in agriculture cannot proceed beyond a certain point, unless the surplus working force from the land is progressively diverted to industries and other similar jobs. On the other hand industrial development requires a large increase in the supply of food and raw material for maintaining the industrial population and for expanding the industrial production.

It requires time to create and expand employment opportunities on such a large scale to meet the rapidly growing non-agricultural urban population. In the adoption of methods to create such employment, however, due attention must be paid to an improvement in the efficiency of cottage industries. There are advantages that favor the development and expansion of small scale cottage industries. Such industries need to be reorganized, supported and encouraged by the government. It provides immediate employment and steps up production while large scale industries are being expanded and developed. In this region industries like steel plant or a cement factory are not feasible because of difficulty of the raw materials.

In addition, villages industries like oil ghani, soap making, paddy husking, manufacture of palm gur, gur and khandsari manufacturing, etc., should be encouraged to provide employment to village non-farm population which would constitute about 25 per cent of the

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1. All these items are produced locally at small scale employing one to ten persons.

total village population. Table R. 5 lists the type of such village industries.

B. PHYSICAL PLANNING

1. Population Control and Family Planning

All these programs of land reform and agricultural and industrial development will have little bearing unless some strong measures are evolved to control the alarming increase in India's population. The increase in production shall be just enough to feed the increased population if the present rate of growth continues, and no steps are undertaken to check it. The last decade has experienced a rather higher rate of growth. Table P. 14 shows the birth and death rate of India and the United States. Though there has been a downward trend in the death rate, the birth rate is more or less stable. Increase in production, and thereby in individual's income, better education, improvement in public health and better medical facilities would help bring down the birth and death rates of the nation.

Even with as low a birth rate as 24 and death rate as 12 by 1971, the population of this region would increase by 31.5 per cent. A small number of people would migrate to larger metropolitan areas, no matter what measures are taken to prevent that. The region would have an approximate net increase of 25 per cent. A very great effort is needed both by the government and the public to achieve this low rate of increase. Convincing propaganda on the subject of family planning by the health departments of the district board, the state and the central government should be carried out. All media like lectures, village group sessions, evening adults' school, movies, documentaries, including free advice on family planning, birth control, and free distribution to encourage the

use of contraceptives should be undertaken. Village panchayats should be asked to carry the message to the individuals. The response from urban communities has been more than expected on this subject, especially because of Indian population being rather emotional and more sentimental towards religion, and these ideas are deep rooted in customs established over the centuries. Rural communities bordering the urban areas have also shown a surprisingly good response to this national program of the government. This was published in a sample survey carried out in Delhi and the surrounding areas about three years ago.

Some of the states have even gone to the extent of limiting the size of the household, and are putting all efforts to effect it by public cooperation by organizing seminars and study groups to make it popular among the rural people. Table E. 6 shows the distribution of members of a rural household for all India, North West India, and the region. By 1971 it is expected the size of the household in rural areas of this region would be 5.00 persons, and that in urban areas would be 4.80.

As of 1951 rural population constitutes some 70 per cent of total population of the region, and the average size of a rural household is 5.40. With the assumptions mentioned earlier, and the development program based upon such assumptions, if carried out in the manner outlined in this chapter, the economic pattern of this region by 1971 would be as follows:

1951	Population of the total district	¹	= 1,055,600 persons
"	Population of the region under study, Jullundur Tehsil ¹	=	383,555 (83.5% of total)

1. District Census Handbook Volume 1, 1953

1 Nakodar Tehsil	= 162,335 (100%)
2 Phyllaur Tehsil	= 209,795 (100%)
population Subtotal	755,685
Additional area from Kapurthala district (PEPSU) ³	= 4,300
TOTAL	= 759,985 Say 760,000 (approx. 72% of total population)
Total population of the region in 1951	= 760,000
rural population	= 509,670 (67%)
urban population	= 250,330 (33%)
4 With an increase of 31.5 per cent in 20 years	= 999,400
Population of the region in 1971	Say 1,000,000
5 6.5 per cent out-migration	= 65,000
Net population in 1971	= 935,000
<hr/>	
6 Total area of the entire district of Jullundur	= 853,440 acres
Total area of the region under study	= 691,200 acres
7 70 per cent of this can be available for cultivation	= 484,000 acres
Assuming an average size of the farm per household to be 8 acres in 1971 ⁸ , total number of households to be living on agriculture in 1971	= 60,500 households
Total population to be living on agriculture in 1971 ⁹ (5 persons per household)	= 302,500 people (32.3%)

1. District Census Handbook, Volume 1, 1953.
2. Ibid.
3. Estimated figure for the enclaves included from Kapurithala District, Patiala and East Punjab States Union. Detailed census are not yet published by the State Government.
4. See Table P. 14.
5. Assumed figure, see p. 42
6. District Census Handbook, Volume 1, 1953.
7. Ibid.
8. See p. 40
9. See p. 30, note.1.

Table R. 2 shows the comparative picture of the entire region regarding the distribution of population as of 1951, as it would be in 1971, additional population in each block, tehsil, and district center, and the approximate size of the block and tehsil centers.

2. Development of Communications and Transport

Villages in India have been isolated from each other, and more so from urban centers, for decades. There is theoretically no communications between the city and the village. Though it is not extreme in the Punjab, still there would be some villages in this region where people would never have seen an automobile. This region is fairly well served by railroad, though not by highways. This is mainly because the land is rich, and some means were required to transport the produce to the ¹ mandis for consumption, and take other manufactured goods back to the villagers. No extension of any railroad is recommended in this region, but a very carefully worked out network of road system is strongly advocated for the aim is that every village should be linked with each other, to the market centers, to the block centers, and finally to the district centers by all-weather water-bound roads. Considering the capital involved, several categories of road surfaces are recommended according to their importance. This work would be carried out hand in hand with other construction works progressing as the project is being executed in stages. The state would provide most of the capital and the entire technical personnel for construction and supervision of the work. Drawing 7 shows the existing features of the region

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1. Market place where the farmer brings his produce to sell, and buys other manufactured goods to take back to the village.

such as railroads, highways, water courses, present administrative boundaries and some of the important towns. Drawing 11 shows the recommended plan for transportation and communication network. Recognizing that each village cannot be connected by telephone and telegraph lines, it is, however, recommended that all market centers, block centers, and district centers should be connected to one another with these communication lines.

3. School System Planning

Development of full fledged primary, middle, and high school educational program is as important as agricultural and industrial development to ensure the proper growth of coming generation, who would be carrying on with the work started by the present generation. Public education on a mass scale should be regarded as one of the key functions of the community, so that the coming generation would not have to live under austerity to "go ahead" with the program on the foundations built by the present generation. A 12 year school system (5-3-4-) would be so developed for the entire region that every 1,000 people have a primary school, and that too within a radius of $\frac{3}{4}$ mile at the most.¹ It would be desirable to have them within $\frac{1}{4}$ mile if possible. Similarly there would be a middle school for every 2,000 people, and it would be so located that a child would not have to travel more than $1\frac{1}{2}$ mile otherwise school bus system would be introduced.² The high school would cater to every 12,000 people,³ and it might cover a radius of 5 miles. Children would bicycle to high school. There would

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1. See next page
 2. Ibid.
 3. Ibid.

1. (Footnote from preceding page)

Table P. 7 shows 17% of population in 6-11 age group, and 9% in 11-14.

Assuming that:

All children in these age groups would attend primary and middle schools;

Average size of a class would be 30;

A minimum of 1 section per grade be needed to establish a primary school;

A minimum of 2 sections per grade be desirable to establish an adequate middle school;

A minimum of 3 sections per grade be desirable to establish a well equipped high school;

Not more than 25% of middle school graduates would be fit for high school education (Sargent's report) a substantial part of the remaining 75% would go to agricultural high school, and vocational and trade school, and the remaining would finish their education at 8th grade.

Average size of a primary school = 5 grades x 30 pupils per grade = 150

Total population required to support a primary school = $\frac{100 \times 150}{17}$ = Approx. 1,000

Average size of a middle school = 3 grades x 2 sections per grade x 30 pupils per grade = 180

Total population required to support a middle school = $\frac{100 \times 180}{9}$ = 2,000

Grade 8 would have only 60 pupils in 2 sections. Only 25% would go to high school, i.e., 15 pupils per grade per 2,000 population and 15 x 4 i.e., 60 pupils per 2,000 population.

Average size of a high school = 4 grades x 3 sections per grade x 30 pupils per grade = 360

Total population required to support a high school = $\frac{2000 \times 360}{60}$ = 12,000

be three types of high schools, academic, agricultural, and vocational. While academic high school would be provided for every 18,000 people as said earlier, one agricultural high school would be good enough for each block, and would be located in the block center. The vocational school, which would include trade and industry, would serve each tehsil, and be located in tehsil center. All schools, primary to high, would be coeducational, but some special classes for boys and girls may be conducted within the same school.

Free and compulsory education up to the age of 14 would be ensured by the District Board of Education with the help of the State. For the first 10 years an all-out effort would be made to develop the primary school system throughout the region, with partial development of middle schools and a few high schools. A start would be made in the very beginning for establishing the agricultural and vocational schools.

Adult education should form part of the mass education program. Village public has shown more than expected enthusiasm in response to government drive for adult education. Classes for the adults are held in the evenings, and father has been seen sitting by the side of his older son so anxious to learn to read the newspaper. Instead of the conventional system of learning, "a dog chased the cat," or "Gopal went to bazaar," they start with "each one teach one," "dirty water is bad for health," and "save cow dung for manure," and so on. It shows how anxious he would have been in his school days to go to school but there was neither any such opportunity nor any facility at that time. With little initiative by the government maximum cooperation from the public could be expected. They are even willing to gather in the barnyard and learn

by writing on the floor in the candlelight. This program would form part of the evening activities, after the peasants are done with the day's work on the farm.

Russia, under Communist control, taught 100 million people to read and write between 1925 and 1935. India's democratic government must help teach 250 million illiterates by 1971.

4. Housing and Services

Housing is one of the most serious problems both in urban and rural areas of the nation. Shortage of dwelling units has been increasing every year in spite of constructions undertaken by both the government and the private agencies. Until partition, government agencies had been building houses for her staff only, and that not for the entire staff. Displaced persons from Pakistan had to be provided with housing and employment. Private sector was not able to cope with the enormous need of the masses. Direct government participation in the building program is the most logical approach to this problem.

In rural areas no attention whatsoever was paid by anybody. Villages were allowed to deteriorate, and were completely neglected. This naturally resulted in even more overcrowding and concentration in villages than in cities. Houses are sub-standard even judged by minimum Indian requirements, (hardly any would qualify for A.P.H.A. standards). All facilities and services lack. There is no electricity, no regular system of drainage, and no water supply and sanitation. Since partition electrification has been taken up on a large scale. Many cases are known where electricity has reached within few months. Farmers have made

a beginning of their own by installing motor engines for irrigation. Water supply is being improved by boring new and better tube wells. Still, nothing seems to have been undertaken about drainage and sanitation. Ordinary well is the main source for drinking water. It is rarely inspected by any health official, and years pass by. There are open drains, both katcha and pucca, ¹ in the middle of the streets varying in width from 4 to 8 feet. It is built for house disposal as well as for storm water. Only monsoons clean these drains in the months of July - September. No toilets are used, though, they do exist in most of the houses for the use of the babies and the sick. It is the most crude form of privy. Waste is removed personally by the harijans. ² Children are trained, from their childhood, to go to the farms early in the morning. Life in the village starts as early as 5 in summer and about 7 in winter. Poor sanitation and other services has been the potential for all kinds of disease.

Better and deeper wells would be built for supply of drinking water. Health officials of the district board would inspect these wells so that water is pure and free from any germs. Piped water supply to each and every household would not be possible within the planned period, but that should be the final goal. Similarly, a complete water-borne system of drainage and sanitation would be too ambitious a plan to achieve within 20 years, although this should be the aim. To start with, individual or group septic tanks would be built and encouraged

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1. Katcha means unpaved, and Pucca means paved surfaces.
 2. The fourth group in the Indian Caste System.

by the District Board. The scheme would be so drawn that it could be easily converted to regular sewer system at a later date without any large scale demolition of the improvements done during the next 20 years.

While not much can be done to the present most sub-standard conditions of the rural housing, it is recommended that all new constructions should be approved by the village panchayat before they are undertaken, so as to ensure adequate light, ventilation, health, and water and sanitary conditions. The panchayat would be assisted by the health official, rural planning expert, and other technical personnel to study the details. This staff would be under the central organization working in the block center. Every builder be required to prepare plans for the structure and submit to the panchayat for approval. To demonstrate its usefulness a model village be built in each market area in each block. This would encourage the villager and create an incentive to improve his existing house.

To suit the pockets of the average villager, research in the local building materials would be necessary. Brick should be produced in mass to meet the demands of the community. This would also provide employment to a large volume of labor.

With these methods of planning as set forth in the preceding pages, the region would be on the march to achieve the broad objectives outlined in the second chapter of Part Two.

PART THREE

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chapter one

IMPLEMENTATION

Having drawn up the program of development and the method of approach the next and the last step is how to put this dream into material shape within a period of twenty years. Necessary legislative measures are required to be enacted so that all the resources of the public and private sector are mobilized in the right direction, and not much is wasted because of weak organization and bureaucratism of the officials.

A. ECONOMIC PROGRAM

1. Development of Resources

There could be three approaches to implement this program. One possibility could be through complete nationalization of the resources of production, and a very extensive control of the State and Central Governments to allocate the proportionate share of these resources, and the distribution of the national wealth. For planning program of this

magnitude it may be a good policy, but it is not in keeping with the spirit of the Constitution of the country. Such a large scale intervention by the government is neither required nor desirable at this stage.

The second approach could be leaving the entire thing for private development. In a nation like India where the average income of an individual is as low as Rs. 265/- and savings are meager,¹ it is almost impossible to realize even a part of this dream in 20 years. The capitalists have been exploiting the resources, admittedly not efficiently, for the last several decades, and they have not been able to touch the roots of the problem. The industrialist has exploited manpower to suit his needs without putting any effort to improve his life conditions. A complete private enterprise would not be able to solve this enormous discontent.

The third and most logical approach, therefore, would be to encourage the joint participation of the public and private agencies.² State ownership of certain means of production may be necessary, and only regulation and control for some others. Private agencies have to continue to play their part in this development program, and these, not only be allowed to function but also be encouraged to expand their productive resources. Under such an operation the economy should be directed and guided by the State to the best and declared objective, yet not entirely controlled by the State. It should function partly through direct State action and partly through private encouragement

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1. The National Sample Survey, December '52.
 2. Also recommended by National Planning Commission, Government of India, '52.

and effort. Both government and private enterprise should maintain a continuous interaction all along the process of production and distribution.

2. Agricultural Production

For agriculture and small scale production, it would be necessary to build up local and regional bodies as well as functional associations which would play an effective role in the formulation and implementation of this program.

In this region, the next step after abolition of zamindari in all phases and redistribution of land, would be to set up cooperative societies. Each village would have a cooperative. All cultivable land would belong to the cooperative, which would be owned and run directly by the village people. Each farmer would have a share in this cooperative. This would be essential to increase the agricultural productivity of the region, primarily because the individual farmer would not afford to mechanize his farm with his limited resources and 8 acres of land even though it would be twice the size of what he has at present. After the cooperatives are set up, then it would be the duty of the State to provide long term loans to these cooperatives, in the form of agricultural machinery and other equipment needed to step up agricultural production. The villagers would pay marginal rent over a period of years, till they amortised, and then these cooperatives would own all these mechanical gadgets for life use. This may sound like a rather long process to go through, but it would not be long before it could be seen fully in operation. Cooperative farming, it is the belief of the author, would be the possible democratic solution to India's agricultural underproduction.

3. Industrial Development.

In April 1948 Government of India adopted a resolution called "INDUSTRY POLICY RESOLUTION" to set forth the respective roles of the State and private agencies in the development of national economy.

The major policy as defined in that resolution reads as follows:

"For some time to come, the State could contribute more quickly to the increase of national wealth by expanding its present activities wherever it is already operating and by concentrating on new units of production in other fields, rather than acquiring or running existing units. Meanwhile private enterprise properly directed and regulated has a valuable role to play."¹

The resolution clearly speaks for the policy to be pursued. It considers that certain industries like arms, ammunition, railway, communication system, etc., should operate under direct government ownership. The State would also be responsible to expand and develop industries like steel, iron, coal, aircraft, but private cooperation would be necessary and should be asked for. The rest of the industrial economy would be left for development by private sector only. It includes, among other things, almost all consumer's goods. The private sector could be an individual as well as the cooperative society. The village cooperatives would receive high consideration by the government even for financial help to encourage the village to build her own economy.

4. Commerce and Trade.

By and large trade activities should continue to remain a private function, though would be subjected to some regulations and control for balanced distribution to all section of the community. This would be

1. National Planning Commission, Government of India, First Five Year Plan, 1952.

necessary so that the businessman should spend part of his profits in the further production of goods and thereby production of wealth, rather than spending the whole in the distribution. This may hinder the profits of some vested parties, but national interests must come first. Again cooperatives could help to achieve this. They would reduce the margin of profit of an individual, and profits from the cooperatives would be further invested for the development of the area. These cooperatives, as explained earlier, would be owned, managed, run, and organized entirely by local people, and would get all possible priviledges from the Government. This way people would get all possible help from the State, and at the same time, would themselves organize all the business.

B. PLANNING PROGRAM

1. Urban Centers

The State should initiate, build, and develop all the new block centers, and model villages. Land should be purchased by the State and then leased to individuals and housing and cooperative societies on long term plans. To attract industry in these blocks, where it does not exist now, certain concessions would have to be made. Tax free land for the initial period of establishment, houses and housing lots for their employees, with facilities for long term loans to encourage building activities are some of the measures the government could take. The industrialist would be particularly attracted by comparative low wage rate for labor, availability of good means of communication and transportation, power, water, and other such facilities.

The government should also acquire the agricultural belt between the existing centers of business and the new industrial centers, so as

to protect any haphazard development along transportation roots. This land should likewise be leased to a farmer who would live in the new township, and might grow things other than wheat and corn. Vegetables and fruits, and other short term crops would be more profitable in such areas than regular wheat crop. It would be a very attractive and long narrow strip of vegetable and fruit garden between the two settlements. The whole idea to build a new center, so close but still separate, should be to create a sort of feeling among the inhabitants of the existing town to improve their houses by getting inspiration from the model houses built for the new community, which would form part of the whole urban environment. All these new urban centers would be built very close to the existing towns, so that certain public facilities would not be duplicated, and at the same time be independent from them for various administrative and other reasons. They should be close enough to create an incentive among the people of the existing town to improve their conditions, and far enough to function as a separate administrative unit. This would mainly be to protect unplanned and finger growth of the land. Industry would be the main economic base of these new centers, while commercial activity of all appreciable size would continue to flourish in existing centers.¹ Local small stores might be developed in this new settlement.

While primary school activities should be kept separate in two settlements because of distance of travel, middle and high schools could be shared by the two areas. Most probably some where in this common green belt would be the best location for them. Other

1. While outsider wishing to establish large scale commercial activity in the new center would be discouraged, all efforts would be made to attract the trade groups from the existing town to develop such activities, so that no resentment of any kind is caused in their minds by outside competition, which might hinder the present business in the existing town.

recreational, social and cultural activities would be widely shared by the two settlements, to stabilize the sense of group life among the people. All these facilities would be organized by the new town administration for proper maintenance. The existence of an entirely new town so close to an old one should create a feeling of self responsibility in the minds of the people living in the old town to better their living conditions. The entire administration of all these new centers should, in the course of time, be transferred to the block administration.

Like block centers, market centers should also be owned, built, managed by government in the initial stages, but later on transferred to the village panchayats as the economy is stabilized.

2. Transportation.

The government would provide funds for materials, and technical personnel for the supervision of all construction works, but the people's participation would be extremely important to pursue this policy.

Cost of expanding and building new national highways would entirely be met by the Government. In this region the main highway connecting the Pakistan border to Delhi would entirely be financed by the State.

Class I roads, as characterized in drawing 11 would be partly financed by the Government, and partly by the people directly benefited by them. For Class II roads, Government would provide technical personnel for skilled supervision of the works, while the people would volunteer labor, and inter-village roads would be the responsibility of the village panchayats and cooperatives, but Government would make available her technical staff to help the panchayat carry out the program more

effectively. The whole program would operate as a coordinated effort rather than enforced by the government only.

3. School Plant.

School system planning would follow more or less the road building policy. Public should participate in building program, while government shall provide funds to meet all cost of equipment, staff, and maintenance. All academic, agricultural, and vocational high school would entirely be financed by the Government, while middle and primary schools would be a joint effort. People would provide labor, unskilled and semi-skilled, for construction while Government would provide staff, equipment, and all recurring expenditures. The response from the people in the schools under construction has proved their earnest desire to participate in the program.

4. Housing and Other Facilities

The Government would endeavor to secure for the public, building materials at a fair cost so that maximum number of individuals and housing societies be encouraged to build more and more standard houses both in urban and rural areas. Research work done in low cost housing should be widely published and the results made available to the public and the manufacture of building materials so more and more materials would be available at lower and lower rates which would enhance housing construction. Further research and studies be undertaken to produce several parts of a house on a mass scale, so that such manufactured parts be transported to longer distances for assembly on site instead of conventional building methods.

C. PLANNING ORGANIZATION

Lastly, but most important, is the regional coordination and physical conception of all these block centers, market centers and model village in relation to other programs. All this program of development whether sponsored, financed, and maintained by the Government or cooperatives would mean little without establishing any competent organization to direct and coordinate all the various activities, on well planned basis. Physical planning and land development and control are as important as increasing the production.

1. District Development Council

Each district in the State should set up a District Development Council to implement its development program systematically. All tehsils of a district and the district center should have representation on it. The council would be the supreme body in all matters relating to the entire district. This council would appoint a commission to advise the council and guide the physical growth of the district. The commission would be assisted by a group of technical personnel headed by a REGIONAL PLANNER to prepare plans and implement the decisions of the commission. There would be an ARCHITECT PLANNER in the office of the Regional Planner to look after the development of the district center. He would advise the city municipal committee on all architectural and planning matters relating to any development work within the jurisdiction of the municipal government. Every builder would be required to obtain an O.K. permit from the municipal government prior to starting any construction, and the municipal government would seek the advice of these experts in the respective fields from the central office.

2. Tehsil Development Council

Each tehsil should set up a Tehsil Development Council composed of all interests and representing employers, employees, and unions. This Council composed of 10 to 15 representatives would be the supreme body in all matters concerning the tehsil. The tehsildar would be ex-officio member and chairman of the council. This council would appoint a subcommittee to guide the physical development of the community. This subcommittee would hire the services of a COMMUNITY PLANNER to carry out these plans in desired stages of development. He should be from architectural background and would assist the subcommittee in all matters relating to the growth of the community along the systematic lines. He would advise on zoning, subdivision control, planning legislation, highway development and control, and allied matters. He would be assisted by a civil engineer to help him prepare and carry out the program. This region would thus have a community planner for each of the three tehsils of Nakodar, Phillaur and Jullundur.

3. Village Panchayat

Village panchayats would be formed where they do not exist now and these panchayats would be asked to approve all works to be executed within their jurisdiction. The office of Community Planner would assist the panchayats in all technical matters.

The architect planner, the community planners, must work in close coordination with the regional planner to achieve maximum results from the resources available. There should be continuous interaction among them all along the planning process. The architect planner for the district center and the community planner for Jullundur tehsil

should form part of the office of the Regional Planner. The regional planner would be the chief technical personnel responsible for all development program in the entire district, while the technical resources would be centralized for efficient working, the decisions would be made by the local representative bodies, in tehsils and villages who would be the direct beneficiaries of the improvements.

It is tragic to note that India's First Five year Plan has failed to recognize the importance and urgent necessity of such a coordinator in the development program of such nature and magnitude. The village development, school building activity, road construction, and all other works are underway without having any comprehensive plan in which these piecemeal developments would eventually tie. This would mean waste of a part of most expensive resources. India can't afford such waste. It is high time that importance of the Regional Planner and the Community Planner be realized before any further waste of national resources. He would be the only person most suitable to act as a link between the higher administration and the public, to understand and explain the viewpoint of both sides, who would be equally interested in the systematic development of the community without any waste of resources.

chapter two

CONCLUSIONS

It is desired to summarize the whole theory of this approach in a set of principles and standards which could be followed, with minor variations to suit the local conditions of the region to be developed, and applied to any region in the Punjab, PEPSU, Delhi, and Western part of U. P. States.

1. Organization

- a. Formulation of geographical and economic blocks within the region with the main urban area in the region as the district center. The population of such a block would be in the range of 50 to 70 thousand depending upon the local conditions and characteristics and importance of the block. One of these blocks would be the headquarters of the tehsil. A tehsil would have 3 or 4 blocks. Tehsildar would be the head of the community. District center might have 5 blocks because of its importance than the tehsil.

- b. Development of market centers within each block. A market center may serve 10 to 15 thousand people. Thus there might be 3 to 5 such centers in each block depending upon the existing location of larger village units.
- c. Development of village centers within each village of 1,000 people or more.

2. Programming

- a. 1 primary school for every 1,000 people.
- b. 1 middle school for every 2,000 people.
- c. 1 academic high school for every 12,000 people
- d. 1 agricultural high school in each block, located in the new center.
- e. 1 vocational (trade) school for every tehsil, located in the tehsil center.
- f. 1 agricultural college for every district, located in the district center.
- g. Other facilities as listed for each village center, market center, block center, and district center in Tables R. 3, 4, 5 to be provided accordingly.

3. Administration

- a. District Development Council composed of representatives from each tehsil and the district center. Deputy Commissioner shall be ex-officio member and chairman of this council.
- b. District Development Council would have a Regional Planner responsible for the entire program of the district.

- c. Tehsil Development Council composed of representatives from each block, tehsil center, employers, employees, and unions. Tehsildar shall be ex-officio member and chairman of this council.
- d. Tehsil Development Council would have a Community Planner to assist the council organize and execute the development program for the whole tehsil.
- e. Village Panchayat for every village, composed of the village people entirely to deal with the village problems, local disputes and construction works. They should elect their own chairman. They would get all technical assistance and advice from the Community Planner's office.

With these principles as the guiding poles, it would be possible to develop the entire State of Punjab and other neighboring states with the full participation of the Government and the public. South East regions of the Punjab are rather dry at present, but could be developed very extensively, specially for agriculture, as that area would be watered¹ by the Bhakra Nangal canal network. Water shortage had discouraged any development in these areas. Bhakra dam will provide ample water and power not only to the Punjab but also PEPSU, Western Utter Pradesh and Rajasthan. Other states of the nation would receive inspiration from the developments carried out in the Punjab, through maximum public participation in the Government's program for the people.

1. Bhakra Nangal Project is one of the three multi-purpose projects initiated and being built by the Central Government. Bhakra Dam is located North East of this district on Sutlej river, and is expected to be completed ahead of schedule.

4. Future Research

Few assumptions had to be made in the earlier part of this study to arrive at certain conclusions, and then formulate a set of principles for wider application to other parts of the Punjab and the neighboring States. Further research should be carried out to crystalize these assumptions based upon the factual information to be collected from various other agencies in the Central and State Governments. For example, the quality of land, its capacity to raise a crop, the kind of crop any specific type of soil would be most suitable for, the amount of cash money a farmer would get from certain number of acres by raising certain kind of crop; and then a decision could be made as to the most appropriate size of holding a farmer would need to live efficiently.

Studies in capital formation should be conducted to find out ways and means to finance the whole program of development.

Research in geology of the region, water table, etc., would be necessary to find out whether tube wells or canals would be most useful both from financial angle, and total output of the region.

Lastly, the factor of cost and estimates for the whole program would be equally essential to know how much capital would be needed to finance a project of such size, so that sources for capital would be traced to meet these needs.

All these factors need further research to be conducted in collaboration with the engineers, geologists, geographers, and economists of the region, the State and Central Governments. This part of the research should be done in India where all facts and figures and other such relevant data would be available at hand, and lastly but most

importantly, the consultation and advice of the local public officials who would be directly concerned with the entire development program of the nation.

India's ability through democracy to surpass, or at least equal as the minimum, China's development under a Communist regime would determine her ability to survive as a democracy, and if India fails, Asia goes too.

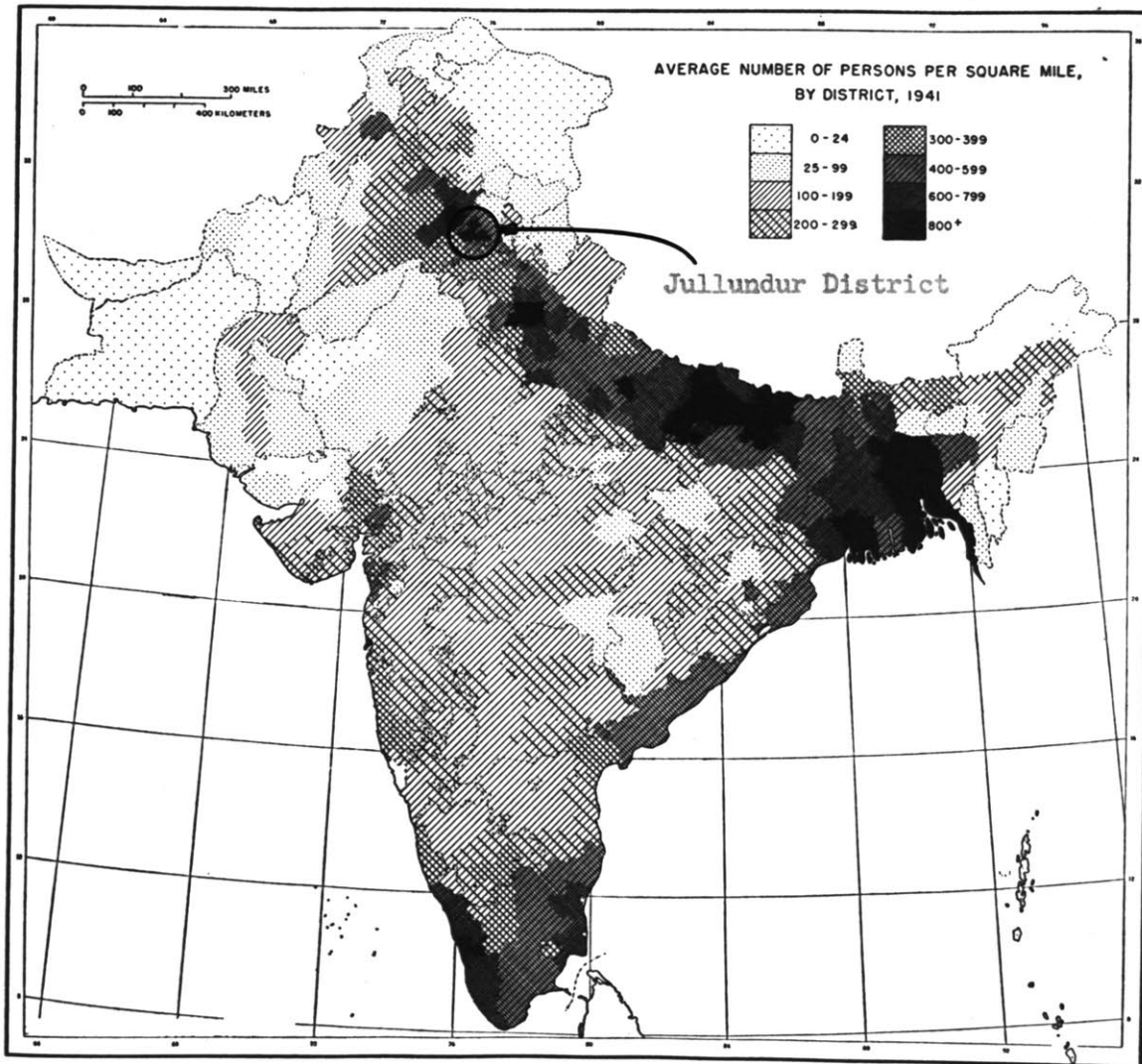
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Figure 1

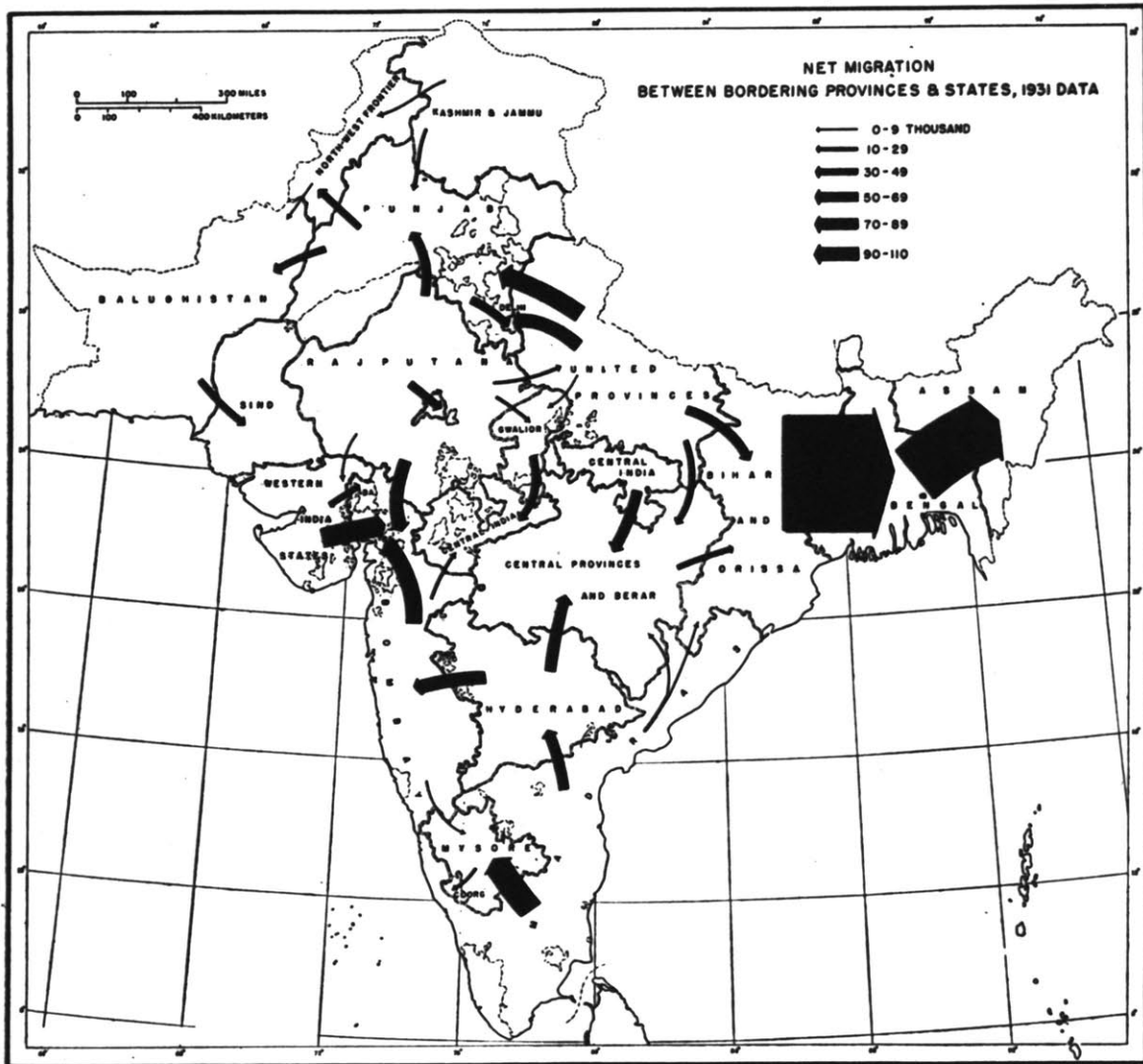
DENSITY OF POPULATION IN PRE-PARTITION INDIA, 1941



Source: Adapted from, Kingsley Davis, The Population of India and Pakistan, (Princeton University Press, New Jersey, 1951) p. 19, Map 8.

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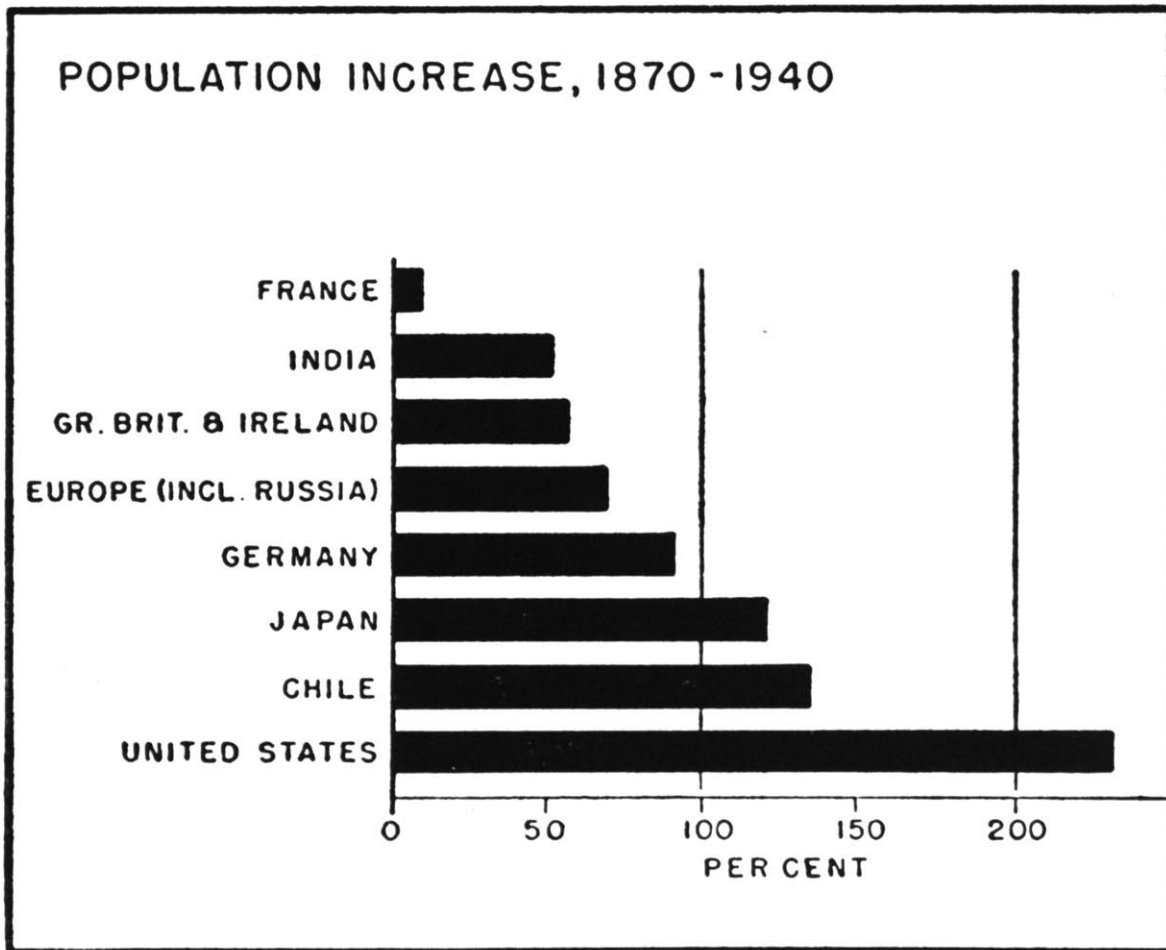
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Source: Ibid., p. 109, Map 13.

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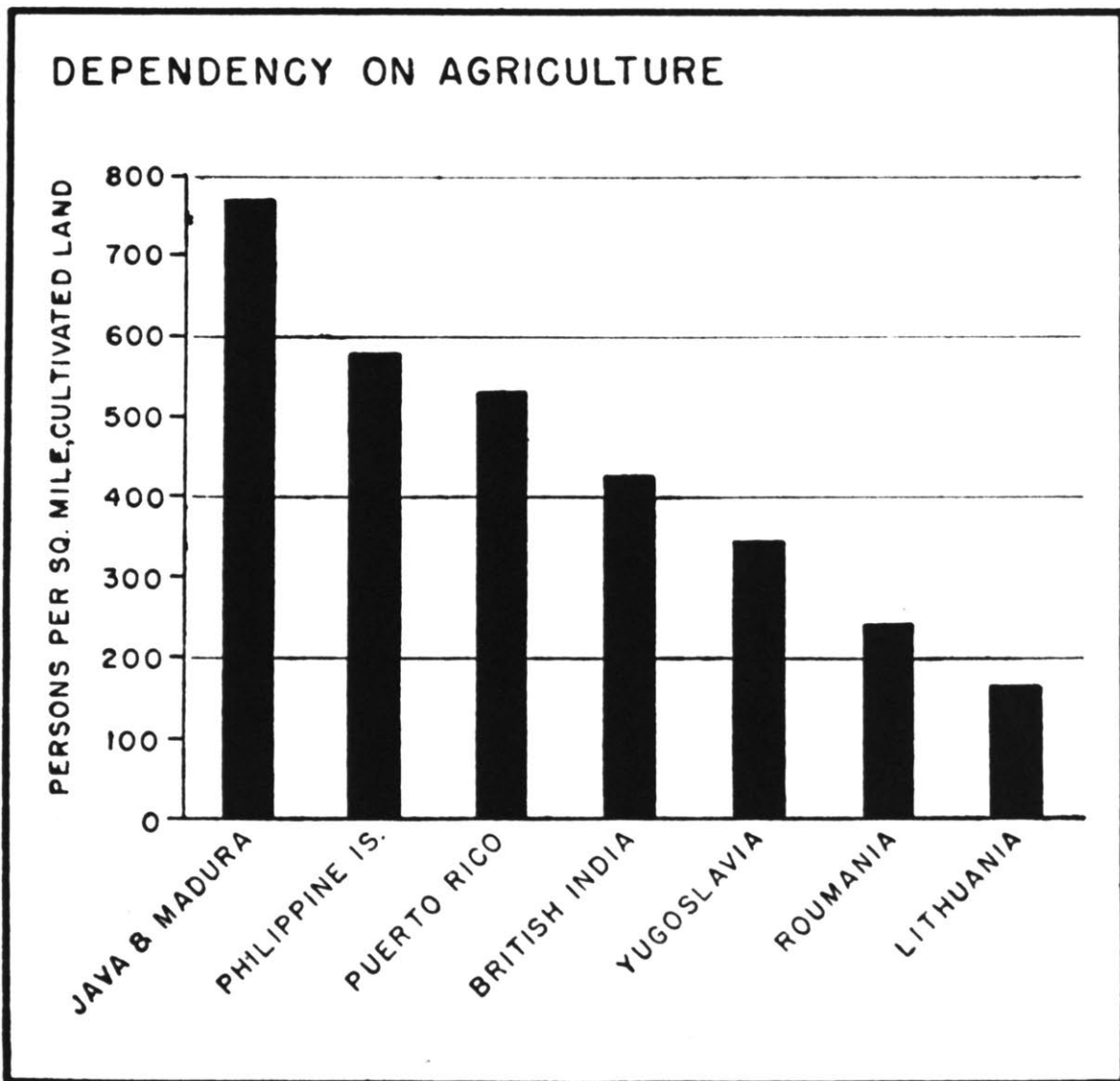
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Source: Ibid., p. 27. Fig. 5.

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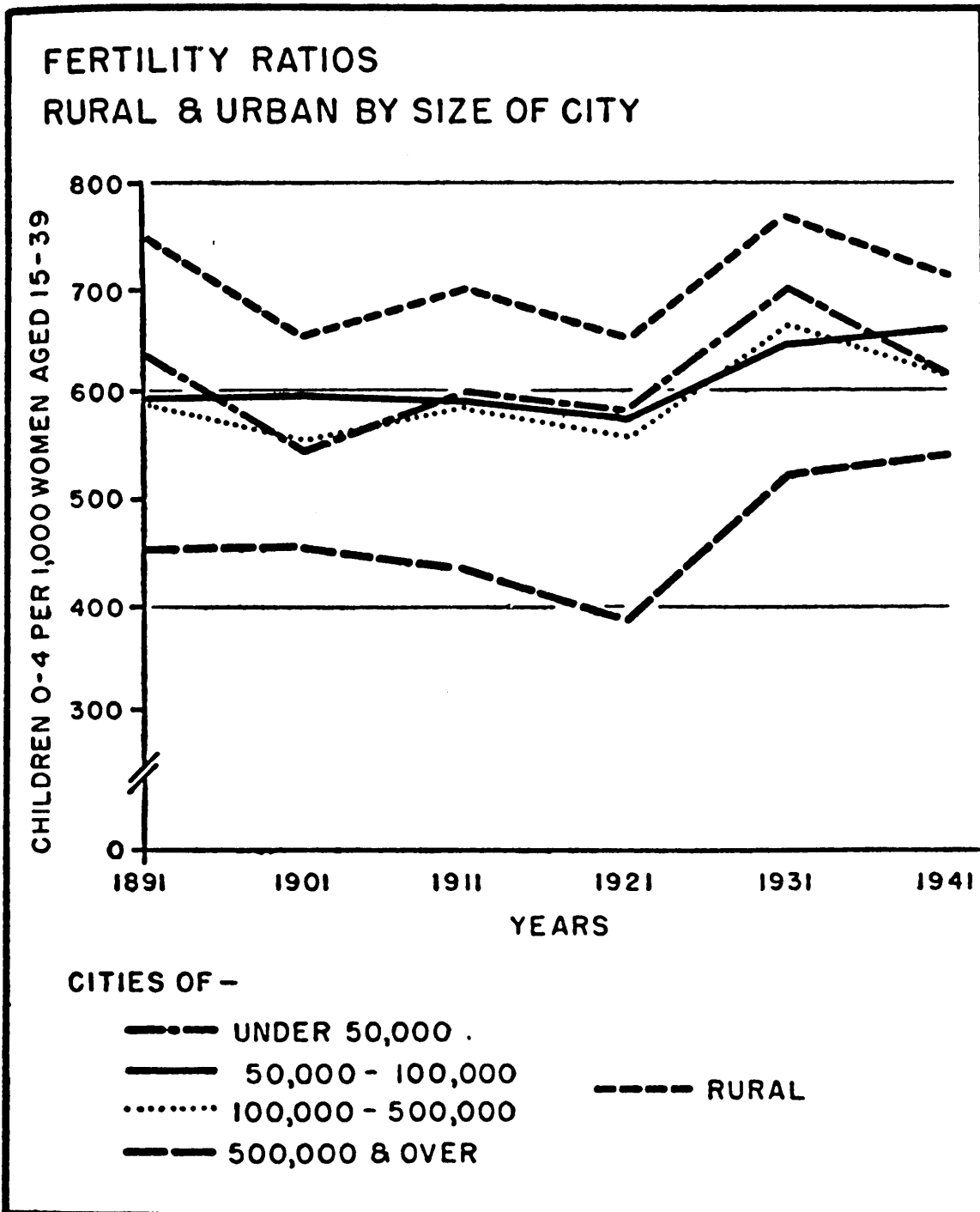
PERSONS DEPENDENT ON AGRICULTURE PER SQUARE
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Source: Ibid., p. 21 Fig. 2.

Figure 5

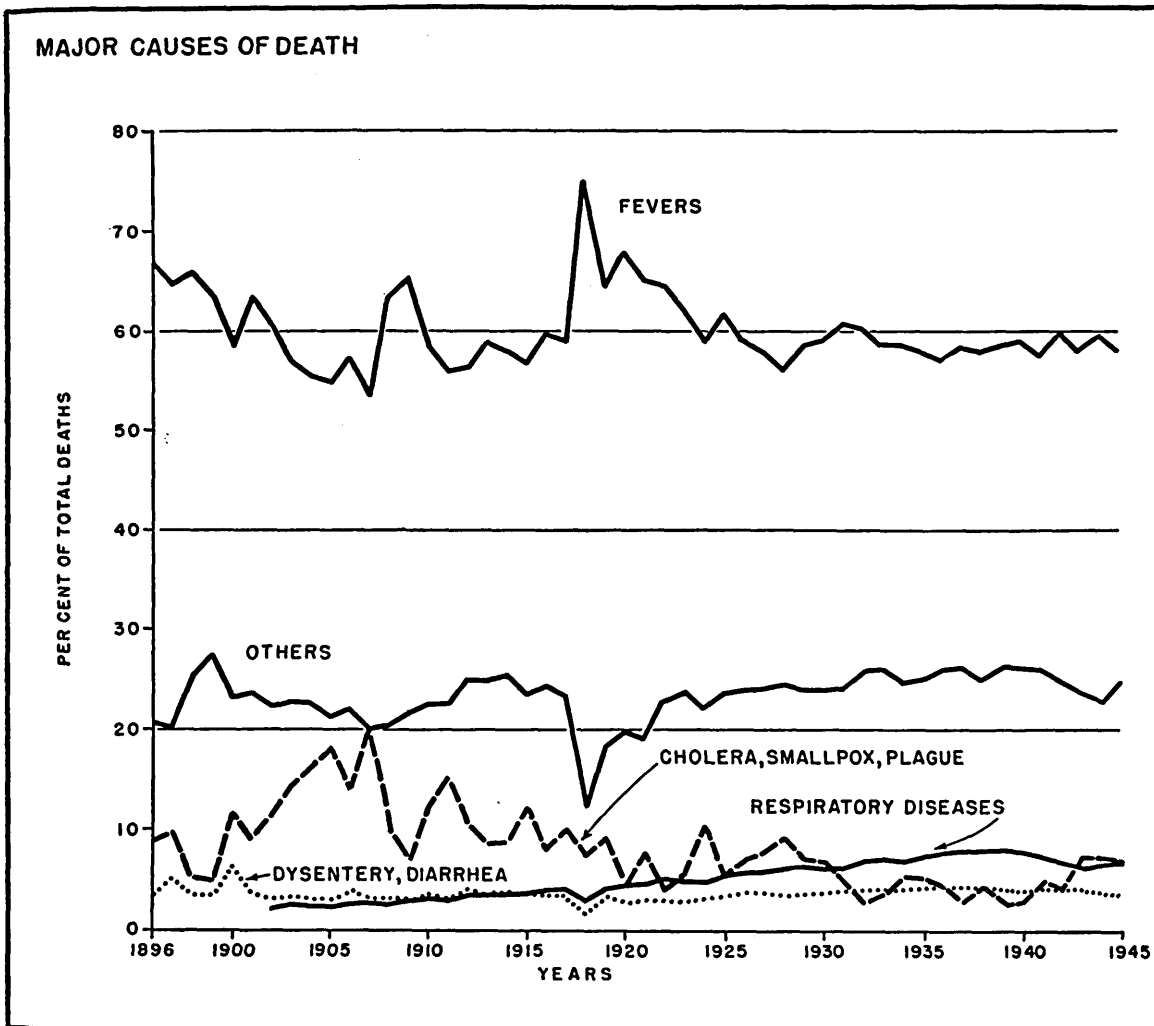
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Source: Ibid., p. 73 Figure 15

Figure 6

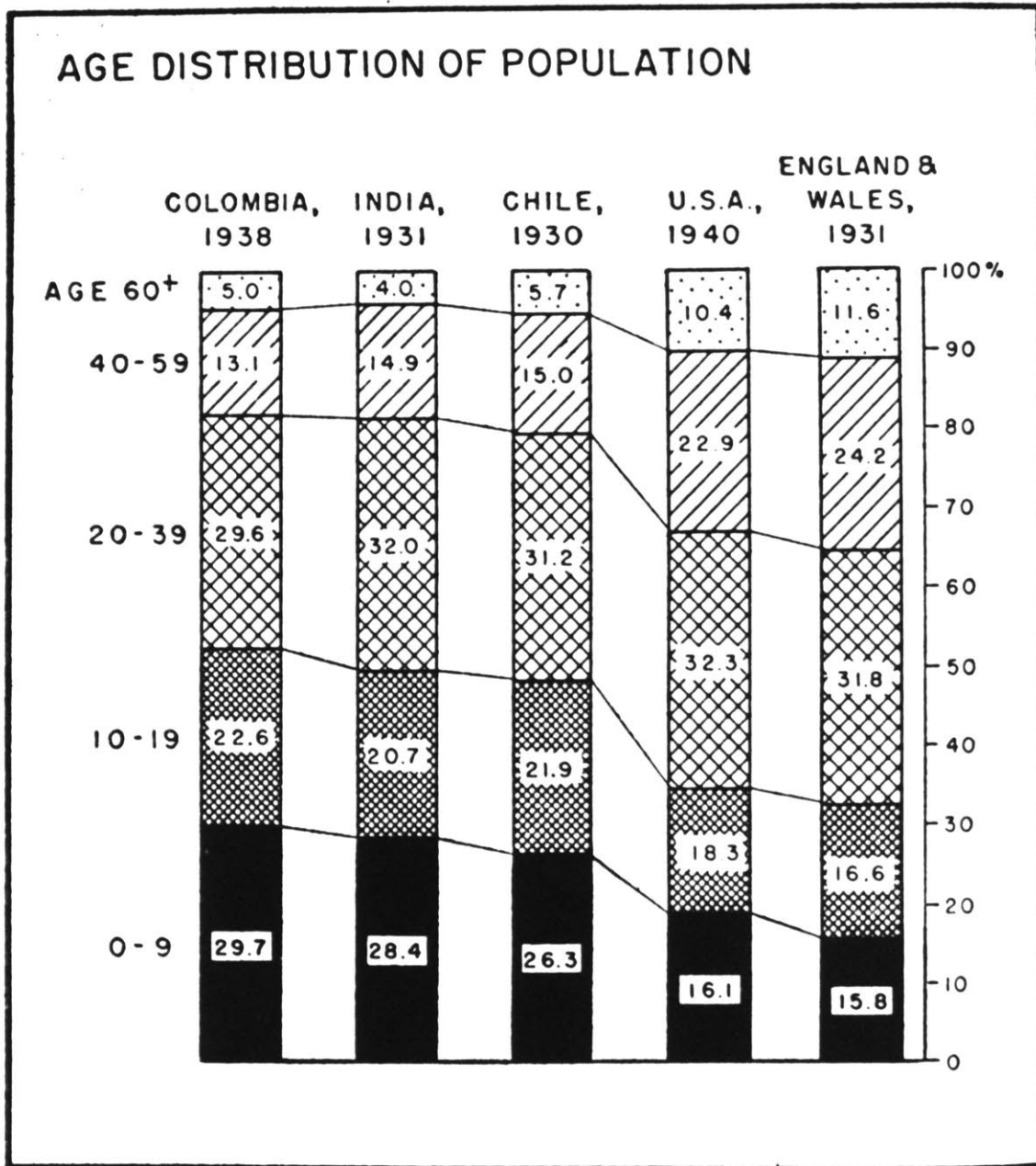
PERCENTAGE OF TOTAL REGISTERED DEATHS ATTRIBUTED TO EACH MAJOR GROUP OF CAUSES, INDIA EXCLUDING STATES, 1896-1945



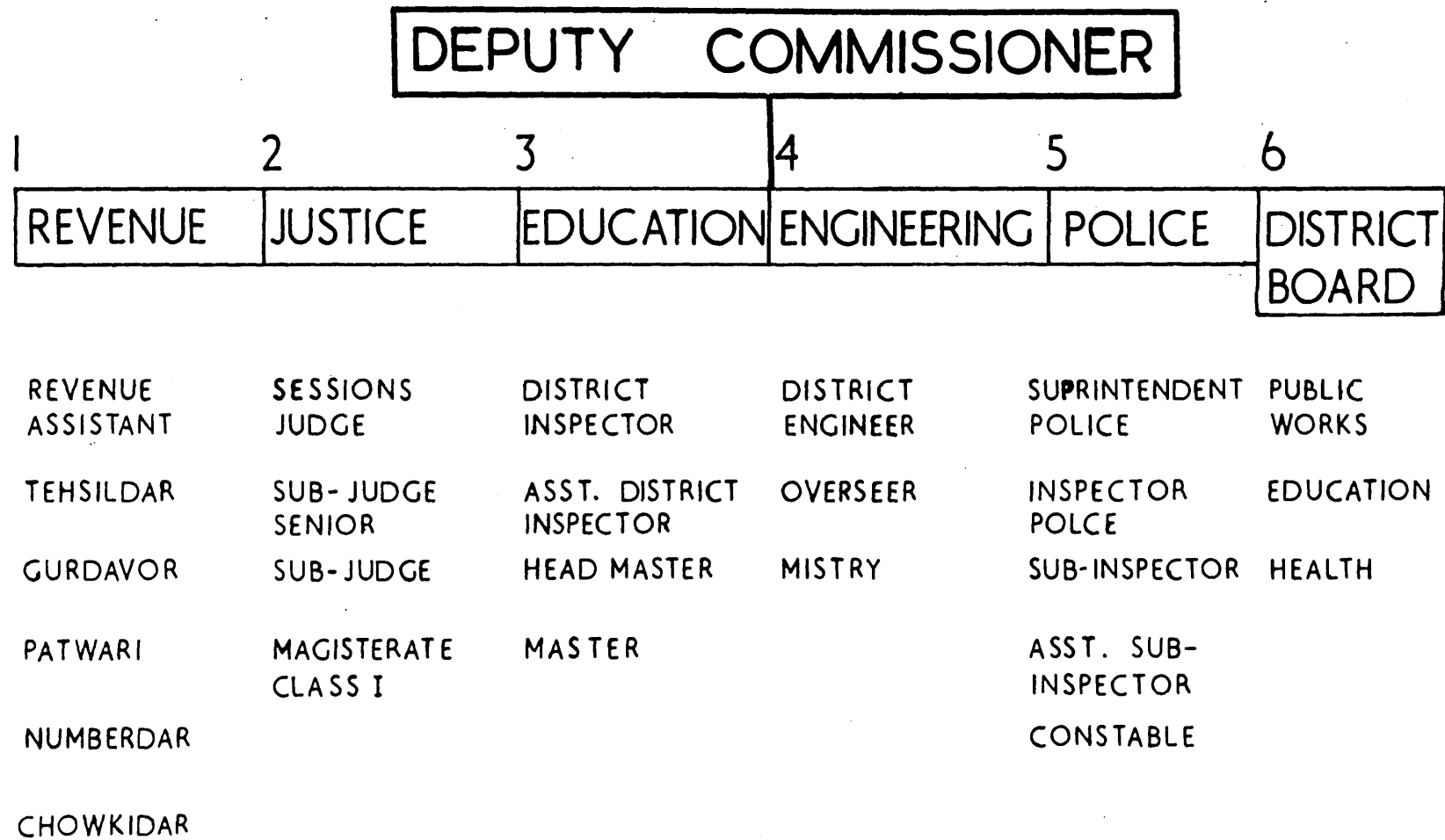
Source: Ibid., p. 43 Fig. 9

Figure 7

PERCENTAGE OF POPULATION IN MAJOR AGE GROUPS, FIVE COUNTRIES



Source: Ibid., p. 86 Fig. 25



PRESENT STRUCTURE OF THE DISTRICT GOVERNMENT

Figure 8

Source: Translated from, Hari Singh & Bros.,
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AVERAGE DENSITIES OF SELECTED COUNTRIES

Country	Date	Area (sq. miles in thousands)	Population (in thousands)	Density (Persons per sq. mile)
<u>LARGE COUNTRIES</u>				
Indian Union	1941	1,220.5	318,863	261
Pre-Partition India	1941	1,581.0	388,998	246
Greater China	1939	4,287.0	450,000	105
United Kingdom and Colonies	39-43	1,967.0	106,413	54
United States and Territories	39-40	3,685.0	150,147	41
USSR	1939	8,351.0	192,667	23
France and Empire	39-40	4,623.0	106,001	23
Brazil	1940	3,286.0	41,566	13
Canada	1941	3,466.0	11,507	3
Australia and Possessions	1943	3,065.0	7,332	2
<u>INTERMEDIATE COUNTRIES</u>				
Japan	1940	147.5	73,114	496
Germany	1939	226.3	79,503	352
Pakistan	1941	361.0	70,135	194
France	1939	212.7	41,200	194
Turkey	1940	296.1	17,620	59
Mexico	1940	760.2	19,564	26
Chile	1940	286.5	5,024	18
<u>SMALL COUNTRIES</u>				
Java and Madura	1941	51.0	49,144	964
England and Wales	1940	58.3	41,862	713
Holland	1943	12.7	9,130	717
Puerto Rico	1940	3.4	1,869	544
Korea	1940	85.3	24,326	285
Switzerland	1941	15.8	4,266	269
Ceylon	1943	25.5	5,922	232
Hungary	1941	66.3	14,683	221

Source: Kingsley Davis, The Population of India and Pakistan,
(Princeton University Press, 1951), p. 18, Table 1.

PERSONS PER SQUARE MILE OF CULTIVATED LAND IN INDIA
BY FORMER PROVINCES AND STATES

(1931 Census)

<u>Former provinces and states</u>	<u>Per cent of population dependent on agriculture</u>	<u>Cultivated area in square miles</u>	<u>Number dependent per square mile of cultivated land</u>
India excluding all princely states	68%	401,418	432
FORMER PROVINCES			
Bihar and Orissa	79%	48,164	615
Assam	84%	69,608	405
United Provinces	73%	59,591	594
Central Provinces and Berar	70%	44,864	245
Bengal	70%	45,366	769
Madras	60%	69,608	405
Bombay	58%	67,387	186
North West Frontier Province (now in Pakistan)	57%	4,506	308
<u>PUNJAB</u>	53%	47,929	260
Delhi (then a Central District, like Washington, D. C.)	15%	352	277
FORMER PRINCELY STATES			
Coorg	70%	483	236
Ajmer-Merwara	45%	780	325

Source: Ibid., p. 22, Table 5.

POPULATION, AREA, AND DENSITY: INDIA, PUNJAB, JULLUNDUR (1941-51)

	POPULATION	AREA in square miles	DENSITY persons per square mile	PER CENT increase or decrease 41-51
<u>INDIA</u>				
1941 (Before partition)	388,997,955	1,581,410	246	
1941 (After partition)	314,766,380	1,269,640	248	
1951	356,829,485	1,269,640	281	13.36%
<u>PUNJAB STATE</u>				
1941 (Before partition)	28,418,819	99,089	287	
1941 (After partition)	12,696,603	37,378	340	
1951	12,641,205	37,376	338	-0.45%
<u>JULLUNDUR DISTRICT</u>				
1941 (Before partition)	1,129,016	1,333.56	846.6	
1941 (After partition)	1,129,016	1,333.56	846.6	
1951	1,055,600	1,333.56	791.6	-6.5%

Source: Adapted from, Census of India, Paper No. 1, Final Population Totals - 1951 Census, (Delhi, The Manager of Publications, 1952).

PERCENTAGE INCREASE IN POPULATION: INDIA, PUNJAB, JULLUNDUR

(1901-1951)

	Total population 1951	Percentage increase 1951	1941	1931	1921	1911	1901
India (whole)	432,516,485	11.2%	10.2%	10.6%	1.3%	7.0%	2.4%
Indian Union	356,829,485	13.36%	-10.7%				
Punjab (whole)	31,455,205	10.6%	20.5%	14.0%	5.6%	-1.8%	7.0%
Punjab (India)	12,841,205	-0.45%	-46.1%				
Jullundur District	1,055,600	-6.5%	19.4%	14.1%	2.5%	-12.4%	1.1%
Nakodar Tehsil (Rural)	151,028	-30.4%	10.9%	8.3%	0.1%	-14.8%	
Jullundur City	168,816	52.1%	24.6%	22.2%	2.4%	2.3%	
Nakodar City	11,307	2.9%	14.5%	1.5%	6.3%	-10.9%	

Source: Adapted from, Census of India, Vol. XVII A, Punjab and North West Frontier Provinces; Vol. XIV, 1911, Punjab; Vol. XV, 1921, Punjab and Delhi; Vol. I, II, III, 1931, Punjab; and Paper No. 1, Final Population Totals - 1951 Census; (Delhi, The Manager of Publications); Punjab, 1951, District Census Handbook, Vol. 1, Jullundur District, (Simla, The Controller, Printing and Stationery, Punjab, 1953.)

PERCENTAGE OF MUSLIM POPULATION IN JULLUNDUR DISTRICT

(1901 - 1951)

<u>Census Year</u>	<u>Total Population Jullundur District</u>	<u>Percentage of Muslim Population</u>	<u>Displaced Persons (in migration)</u>
1901	917,587	(421,011) 45.9%	-
1911	801,920	(357,051) 44.5%	-
1921	822,544	(366,586) 44.5%	-
1931	943,721	(419,556) 44.4%	-
1941	1,129,016	44.0%	-
1951	1,055,600	(2,569) 0.24%	(273,625) 26.0%

Source: Adapted from, Ibid.

JULLUNDUR DISTRICTTOTAL POPULATION AND DISPLACED PERSONS

Area	Total Population	Displaced Persons		Percentage of total district in each area
		Total	Percentage	
Jullundur Tehsil (rural)	241,207	48,716	20.2%	17.7%
Nawanshahar Tehsil (rural)	194,877	27,296	14.0%	9.9%
Phyllaur Tehsil (rural)	173,890	26,509	15.2%	9.6%
Nakodar Tehsil (rural)	151,028	40,476	26.8%	14.7%
Jullundur City	168,816	96,371	51.1%	35.2%
Non-City Urban (total)	125,582	34,257	27.2%	12.5%
TOTAL DISTRICT	1,055,600	273,625	26.0%	100.0%

Source: Adapted from, Census of India, 1951. Punjab, District Census Handbook, Vol. 1, Jullundur District, (Simla, The Controller, Printing and Stationery, Punjab, 1953)

Table P. 7

DENSITY AND POPULATION CHANGES IN RURAL AND URBAN AREAS

(JULLUNDUR DISTRICT)

TEHSILS	AREA in sq. miles	POPULATION		PERCENTAGE VARIATION		DENSITY Persons per gross acre	
		1951	1941	51-41	41-31	1951	1941
JULLUNDUR							
TEHSIL							
Rural	365	241,407	297,403	-18.8	+19.0	661.4	815.0
Urban	24.3	271,662	147,433	+47.6	+49.0	8964.7	6072.2
NAWANSHAHAR							
TEHSIL							
Rural	295.5	194,877	208,576	-6.6	+15.5	659.6	706.0
Urban	4.5	29,524	27,452	+7.5	+39.5	6496.0	6040.0
PHILLAUR							
TEHSIL							
Rural	277.8	173,890	202,034	-14.0	+13.5	626.0	727.3
Urban	2.5	35,905	17,355	+17.1	+41.5	14362.0	6934.0
NAKODAR							
TEHSIL							
Rural	363.5	151,028	217,802	-30.6	+11.0	415.5	599.2
Urban	0.5	11,307	10,981	+3.0	+14.6	22614.0	21962.0
TOTAL							
Rural	1301.8	761,202	925,815	-17.8	+13.0	584.7	711.2
TOTAL							
Urban	31.8	294,398	203,201	+44.9	+44.7	9250.5	6384.9
TOTAL							
DISTRICT	1333.5	1,055,600	1,129,016	-6.5	+19.4	791.36	846.6

Source: Adapted from, Ibid., E Series, p. 11

POPULATION VARIATION BY TEHSILS 1901 - 1951

(JULLUNDUR DISTRICT)

<u>TEHSIL</u>	<u>1951</u>	<u>1941</u>	<u>1931</u>	<u>1921</u>	<u>1911</u>	<u>1901</u>
Jullundur	459,069	444,834	348,776	290,650	279,282	305,976
Nawanshahar	224,401	236,028	200,333	177,692	170,738	196,339
Phillaur	209,795	219,369	190,316	164,806	163,248	192,860
Nakodar	162,335	228,783	205,949	190,650	189,833	222,412
TOTAL DISTRICT	1,055,600	1,129,016	945,374	823,798	803,101	917,587
	-6.5%	+19.4%	+14.1%	+2.5%	-12.4%	+1.1%

Source: Adapted from, Ibid., A Series, Table II, p. vii-viii

POPULATION VARIATION BY TOWNS

(JULLUNDUR DISTRICT)

TOWN	1951	1941	1931	1921	1911	1901
Jullundur city	168,816	110,969	89,030	71,008	69,318	67,735
Jullundur cantt.	33,174	24,314	-	-	-	-
Nawanshahar	13,140	10,275	7,153	5,316	4,475	5,641
Phyllaur	9,484	9,011	5,168	4,696	5,224	6,986
Nakodar	11,307	10,981	9,584	9,434	8,869	9,958
Kartarpur	11,220	12,150	9,878	8,512	8,631	10,840
Nurmahal	6,794	8,324	7,079	6,845	7,178	8,706

Source: Adapted from, Ibid., A Series, Table IV, p. xv-xviii.

TOWNS AND VILLAGES CLASSIFIED BY POPULATION

(JULLUNDUR DISTRICT)

TEHSIL	Number of Towns and Villages									
			'1000 to -500'	'2000 to 1000'	'4000 to 2000'	'5000 to 4000'	'10,000 to 10,000'	'20,000 to 20,000'	'50,000 to 50,000'	'100,000 and over'
JULLUNDUR										
TEHSIL										
Rural	213	97	55	10	4	2	-	-	-	-
Urban	-	-	-	-	1	-	1	1	-	1
NAWANSHAHAR										
TEHSIL										
Rural	104	96	55	10	-	-	--	-	-	-
Urban	-	-	-	-	-	2	1	-	-	-
PHILLAUR										
TEHSIL										
Rural	134	71	41	10	3	1	-	-	-	-
Urban	-	-	-	-	-	5	-	-	-	-
NAKODAR										
TEHSIL										
Rural	173	76	28	7	1	-	-	-	-	-
Urban	-	-	-	-	-	-	1	-	-	-
TOTAL										
Rural	574	340	179	37	8	3	-	-	-	-
Urban	-	-	-	-	1	7	3	1	-	1
TOTAL										
<u>DISTRICT</u>	574	340	179	37	9	10	3	1	-	1

Source: Adapted from, Ibid., A Series, Table III, p. xii-xiv.

Table P. 11

AREA, POPULATION, NUMBER OF VILLAGES, AND PERSONS PER HOUSEHOLD

(JULLUNDUR DISTRICT)

TRACTS	AREA in sq. mi.	TOTAL NO. VILLAGES	HOUSEHOLDS	POPULATION			PERSONS PER HOUSEHOLD
				Total	Male	Female	
Jullundur Tehsil Rural	365.0	382	44,463	241,407	127,437	113,970	5.4
Nawanshahar Tehsil Rural	295.5	265	37,558	194,877	103,676	91,201	
Phyllaur Tehsil Rural	277.8	210	31,619	173,890	93,226	80,664	5.5
Nakodar Tehsil Rural	363.5	285	27,919	151,028	80,228	70,820	5.4
<u>TOTAL RURAL</u>	1,301.7	1,142		761,202	404,547	356,655	5.4
Jullundur city	11.0		30,536	168,816	91,127	77,689	5.5
Jullundur cantt.			4,268	33,174	22,114	11,060	7.7
Nawanshahar	1.5		2,303	13,140	7,236	5,409	
Nakodar	0.5		2,361	11,307	6,032	5,275	4.8
Phyllaur			2,602	9,484	5,054	4,430	
Nurmahal			1,585	6,794	3,581	3,273	4.3
Kartarpur			1,776	11,220	5,949	5,271	6.3
<u>TOTAL URBAN</u>	31.9			294,398	162,452	131,946	
<u>TOTAL DISTRICT</u>	1,333.6			1,055,600	566,999	404,547	

Source: Adapted from, Ibid., A Series, Table I, p. ii; Primary Census Abstracts.

AGE COMPOSITION - DISPLACED PERSONS (JULLUNDUR DISTRICT CENSUS 1951)

<u>AGE GROUP</u>	<u>Jullundur City</u>	<u>Total Urban</u>	<u>Nakodar tehsil. rural..</u>	<u>Total Rural</u>	<u>TOTAL DISTRICT</u>
1 - 4	3.1%	3.1%	3.3%	3.2%	3.2%
5 - 9	12.7%	12.2%	16.0%	15.2%	13.8%
10 - 14	16.3%	14.9%	15.7%	15.4%	15.2%
15 - 24	22.7%	20.3%	19.7%	19.7%	20.0%
25 - 34	15.0%	13.8%	15.1%	15.8%	14.8%
35 - 44	11.3%	10.3%	11.2%	11.3%	10.9%
45 - 54	8.6%	7.9%	9.3%	8.8%	8.4%
55 - 64	5.4%	4.9%	5.1%	5.6%	5.2%
65 - 74	3.4%	2.9%	3.0%	3.1%	3.0%
75 and over	1.3%	1.2%	1.5%	1.6%	1.4%
Age not stated	0.1%	0.01%	0.1%	0.1%	0.01%
Burnt slips	-	8.3%	-	0.2%	4.1%
TOTAL	57.0%	45.0%	26.7%	18.7%	25.8%

Source: Adapted from, Ibid., C Series, Table II, p. v, vii, viii, ix.

SCHOOL AGE POPULATION - DISPLACED PERSONS

(JULLUNDUR DISTRICT CENSUS 1951)

	Jullundur City	Total Urban	Nakodar Tehsil Rural	Total Rural	TOTAL DISTRICT
Primary School Age 6 - 11	16.5%	15.7%	19.0%	18.2%	17.1%
Middle School Age 11 - 14	10.0%	11.9%	9.5%	9.2%	9.1%
High School Age 14 - 18	9.0%	8.1%	7.8%	7.8%	8.0%
TOTAL SCHOOL Age 6 - 18	35.5%	35.7%	36.3%	35.2%	34.2%

Source: Derived from Table P. 12

BIRTH AND DEATH RATES FOR INDIA AND UNITED STATES

YEAR	INDIA			UNITED STATES	
	BIRTH RATE Per 1,000 Population	DEATH RATE	INFANT MORTALITY RATE	BIRTH RATE Per 1,000 Population	DEATH RATE
1911-15	39.0	30.2	204.2	25.0	13.2
1916-20	34.7	38.2	218.2	23.7	13.0
1921-25	33.0	26.2	174.3	21.3	11.7
1926-30	33.8	24.6	177.6	18.9	11.3
1931-35	34.6	23.6	174.0	16.9	10.9
1936-40	35.4	22.3	161.4	17.9	10.8
1941-45	33.5	22.5	161.0	19.5	10.6
1946-48		18.0			
1946-50				23.6	9.6
1951-55	32.0	16.0			
1956-60	30.0	15.0			
1961-65	27.0	14.0			
1966-70	24.0	12.0			

Source: Kingsley Davis, op. cit., p. 33, 34, 68, Tables 8, 9, 18

Taking the normal period of 1921-41, population of India increases by 22.0 per cent. For the same period the Punjab had an increase of 37.2 per cent, and the district of Jullundur had an increase of 37.2 per cent.

* Figures below the line are projected for Jullundur District

REPRODUCTION RATES FOR INDIA AND OTHER COUNTRIES

<u>Country</u>	<u>Date</u>	<u>Gross Rate*</u>	<u>Net Rate**</u>
India	1901	2.99	1.09
	1911	3.14	1.06
	1921	2.85	1.03
	1931	2.99	1.25
	1941	2.76	1.30
Egypt	1939	3.11	1.44
USSR	'24, 26-27	2.64	1.72
Puerto Rico	1920-30	2.50	1.50
	1930-40	2.46	1.52
Japan	1930	2.37	1.57
	1937	2.14	1.44
Chile	1930-32	2.26	1.30
Rumania	1930-31	2.16	1.40
Canada	1930-32	1.55	1.30
	1938	1.28	1.09
	1940-42	1.42	1.20
United States (White)	1930	1.22	1.08
	1942	1.27	1.19
England and Wales	1930-32	0.93	0.81
	1940	0.85	0.75
<u>FORMER PROVINCES IN INDIA</u>			
Punjab	1931	3.57	1.63
United Provinces	"	3.13	1.36
Delhi	"	3.08	1.34
Bombay	"	2.94	1.35
Bengal	"	2.89	1.26
Madras	"	2.61	1.40

Source: Ibid., p. 87, Table 3.

* Includes mortality. It gives Gross Fertility.

** Excludes mortality. It gives Net replacement.

CHILDREN BORN AND SURVIVING PER COUPLE, BY OCCUPATIONAL STATUS

(PUNJAB, 1939)

<u>Occupational Class</u>	<u>'Average number of children ever born'</u>	<u>'Average number of children surviving'</u>	<u>'Percentage surviving'</u>
AGRICULTURISTS			
Upper class ¹	5.07	3.48	68.6
Middle class ²	5.29	3.70	69.9
Lower class ³	5.04	3.48	69.0
	4.87	3.24	66.5
NON-AGRICULTURISTS			
Upper class ¹	4.99	3.30	66.1
Middle class ²	5.27	3.72	70.6
Middle class ²	5.12	3.37	66.2
Lower class ³	4.82	3.08	63.9
PROFESSIONALS	4.82	3.16	65.6
MENTIALS	5.01	3.18	63.5

Source: Ibid., p.78, Table 26.

1. With income of Rs.400/- or more per annum
(Or having land 30 acres or more)
2. With income of Rs.200 - 400/- per annum
(Or having land 10-20 acres)
3. With income less than Rs.200/- per annum
(Or having land below 10 acres)

economic tables

- Table E. 1. Industrial establishments in the Punjab and India
2. Industrial and service establishments and employment, Jullundur district
 3. Size of rural households in India, 1950
 4. Per capita expenditure per year in rural areas in India, July 1949 - June 1950
 5. Annual expenditure per household on consumption in rural areas, July 1949 - June 1950
 6. Average number of persons per household in rural areas, 1950
 7. Value of production in Agriculture and animal husbandry, all India, July 1949 - June 1950
 8. Rural debt in the Punjab and Jullundur district
 9. Number of licenced moneylenders in different states in India
 10. Economic position of an average Indian
 11. Livelihood classes in rural tehsils based on 1951 census, Jullundur district
 12. Livelihood classes in larger towns of Jullundur district based on 1951 census

INDUSTRIAL ESTABLISHMENTS IN THE PUNJAB AND INDIA

TYPE OF INDUSTRY	NUMBER OF ESTABLISHMENTS		Annual Capacity (Working Days 330)
	All India	Punjab	
A. <u>Mechanical Engineering</u>			
Machine tools, manufacture of parts and equipment	16	1	
Bicycles		1	2,500 bicycles
B. <u>Electrical Engineering</u>			
Electric Fans	18	1 (including PEPSU)	
Radio Receivers	15	3 (including PEPSU)	6,000 radios
C. <u>Chemical and Allied Goods</u>			
Sulphuric Acid	47	9 (including Delhi)	15,000 tons of acid
Paper and Paper Board	17	1 (including PEPSU)	8,500 tons
Glass	109	4 (including PEPSU)	4,150 tons
Power Alcohol	19	1 (including PEPSU)	800,000 gallons
Spirit and Industrial Alcohol	25	2 (including PEPSU)	900,000 gallons
D. <u>Textiles</u>			
Cotton Textiles			
Power looms	23,800	1,340	
Hand looms	2,851,700	46,360	
Spinning	103	1	
Composite	275	2	
E. <u>Food</u>			
Sugar	160	1	400 tons daily cane crushing
Vegetable Oils			
Cotton	2,911,000	196,000 bales	
Cottonseed	990,000	65,000	1 bale cotton produced .3 tons cottonseed
Vanaspati	49	1	3,000 tons

Source: Compiled from, National Planning Commission, Program of Industrial Development, 1951-56.

Table E. 2

INDUSTRIAL AND SERVICE ESTABLISHMENTS AND EMPLOYMENT (DISTRICT JULLUNDUR)

<u>INDUSTRY AND SERVICE ESTABLISHMENTS</u>	<u>NUMBER OF WORKERS</u>		
	<u>Male</u>	<u>Female</u>	<u>Total</u>
I. Primary Industries Not Elsewhere Classified	884	93	982
II. Processing and Manufacture Foodstuffs, Textiles, Leather and Products thereof	15,196	803	15,999
III. Processing and Manufacture Metal, Chemicals and Products thereof	2,574	136	2,710
IV. Processing and Manufacture Not Elsewhere Classified	6,953	317	7,270
V. Construction and Utilities	2,120	217	2,337
VI. Commerce	24,764	849	25,613
VII. Transport, Storage and Communications	5,583	142	5,725
VIII. Health, Education, and Public Administration	25,112	1,343	26,455
IX. Services Not Elsewhere Specified	28,195	4,081	32,276
<u>All Industries and Services</u>	<u>111,381</u>	<u>7,981</u>	<u>119,362</u>
Living on Unproduction	-	-	30
Unemployed	-	-	10
Pensioners	-	-	423
Beggars	-	-	634

Source: Compiled from, District Census Handbook, Op. cit., B Series, Table III.

SIZE OF RURAL HOUSEHOLDS IN INDIA

(1950)

ZONE	AVERAGE SIZE	DISTRIBUTION OF MEMBERS IN THE HOUSEHOLD		
		Earners	Earning Dependents	Non-earning Dependents
North India*	5.27	29.2	11.9	58.9
East India	5.36	27.3	12.7	60.0
South India	4.98	25.5	18.7	55.8
West India	5.47	27.0	21.5	51.5
Central India	4.98	30.4	21.8	47.8
North West India**	5.27	30.9	16.8	52.3
National average	5.21	28.1	16.6	55.3

Source: Dept. of Economic Affairs, Ministry of Finance, Govt. of India, The National Sample Survey, General Report No. 1 on The First Round, Oct. '50-March '51, (Delhi; The Manager of Publications, Dec. '52) Page 14.

* Includes Utter Pradesh only.

** Includes Punjab, Patiala and East Punjab States Union, Bilaspur, Ajmer, Delhi, Rajasthan, Himachal Pradesh, (Jammu and Kashmir).

Table E. 4

PER CAPITA EXPENDITURE PER YEAR IN RURAL AREAS IN INDIA

July 1949 - June 1950

<u>ITEM</u>	<u>All India in rupees</u>	<u>North West India in rupees</u>	<u>Relation to other zones</u>	<u>Lowest zone</u>
1. Food grains	85.03	115.89	Highest	West
2. Milk and products	17.06	59.71	Highest	East
3. Salt	0.93	0.87	Fourth	West
4. Other food grains	42.64	36.74	Lowest	
TOTAL FOOD	145.66	213.21	Highest	Central
5. Pan (Bittle)	1.76	0.04	Lowest	
6. Tobacco	3.93	4.35	Third	East
7. Fuel and light	7.14	11.00	Highest	East
8. Clothing	20.97	31.33	Second	East
9. Footwear	1.86	5.39	Highest	South
10. Education and educa- tional services	1.51	0.84	Fourth	North
11. Newspapers, Periodicals	0.10	0.06	Fifth	North
12. Medical expenses and services	2.80	2.39	Fourth	North
13. Ceremonials	15.84	20.28	Second	East
14. House rent and taxes	1.25	1.20	Fourth	South
15. Miscellaneous	16.90	23.79	Highest	Central
TOTAL	219.72	313.88	Highest	Central (197.73)

Source: Adapted from, Ibid., p. 17

Table E. 5

ANNUAL EXPENDITURE PER HOUSEHOLD ON CONSUMPTION IN RURAL AREAS

July 1949 - June 1950

ITEMS OF EXPENDITURE	All India		Industrial Center Ludhiana District (Punjab)
	Rupees	Percentage	
1. Food	758	66.3%	61.2%
2. Fuel and light	37	3.3%	9.2%
3. House rent	7	0.6%	3.7%
4. Clothing, bedding and tailoring charges	121	10.5%	10.8%
5. Miscellaneous, including pan, tobacco and intoxicants, etc.	221	19.3%	15.1%
TOTAL	1,144	100.0%	100.0%

Source: Adapted from, Ibid., p. 56.

Table E. 6

AVERAGE NUMBER OF PERSONS PER HOUSEHOLD IN RURAL AREAS 1950

ECONOMIC STATUS	ALL INDIA		NORTH WEST		Region* under study		
	Persons	Percentage	Persons	Percentage	Rural	Urban	
1. Earners	1.46	28.1%	1.63	30.9%	1.67	1.27	1.00
2. Earning dependents	0.87	16.6%	0.88	16.8%	0.90	0.90	1.00
3. Non-earning dependents	2.88	55.3%	2.76	52.3%	2.83	2.83	2.80
TOTAL	5.21	100.0%	5.27	100.0%	5.40	5.00	4.80

Source: Adapted from, Ibid., p. 54, 55.

* For derivation of these figures, see Table P. 11 and page 43 in the text. 11
Also found on page 44.

VALUE OF PRODUCTION IN AGRICULTURE AND ANIMAL HUSBANDRY

(All India)

July 1949 - June 1950

<u>ITEM</u>	<u>RUPEES PER HOUSEHOLD</u>
1. Agricultural crops	403.32
2. Livestock products produced and consumed at home	47.89
3. Livestock products produced and sold	14.56
TOTAL GROSS VALUE	465.77

Source: Ibid. p. 57
Ibid.* p. 75

* Consumption of food grains per person per day
1949-1950 8.9 chattaks or 18.3 ounces

RURAL DEBT IN THE PUNJAB AND JULLUNDUR DISTRICT

<u>IN 1925</u>	<u>Jullundur District</u>	<u>Punjab State</u>
Number of proprietors concerned	6,269	13,028
Percentage free of debt	27%	19%
Average debt per indebted proprietor	413 rupees	454 rupees
Debt's multiple of land revenue	14	16

Source: Adapted from, Malcolm Darling, The Punjab Peasant in Prosperity and Debt, (Bombay, Oxford University Press, India, 1925) Chapter IV, p. 44.

NUMBER OF LICENCED MONEYLENDERS IN DIFFERENT STATES IN INDIA

<u>State</u>	<u>Number of licenced or registered moneylenders</u>
Bihar	29,984
Bombay	25,226
Madhaya Pradesh	9,196
PUNJAB	276
Hyderabad	15,875
Mysore	349

Source: Adapted from, Capital, Indian Financial Review, Vol. CXXXI-3288,
13th Dec., 1953, Supplement,
(S. R. Sarna, Shortage of Capital in Agriculture, p. 101)

ECONOMIC POSITION OF AN AVERAGE INDIAN

YEAR	Availability of Food Grains for Consumption		Nutrition Analysis of Food Consumed per Capita	
	Production (estimated) in millions	Supply per head per year in pounds	Calories grams	Proteins in grams
38-39	355.7	318.8	1920	56
47-48	343.0	306.0		
48-49	347.7	304.0		
49-50	352.7	310.7	1620	42
50-51	351.1	292.5	1570	42
51-52	361.8	279.8	1600	43
52-53	No official figures are available, but sources indicate that it is on the increase again.			

Source: Capital, loc. cit.
(N. Das, Economic Position of the Average Indian, p. 43.)

Table E. 11

LIVELIHOOD CLASSES IN RURAL TEHSILS BASED ON 1951 CENSUS (JULLUNDUR DISTRICT)*

TEHSILS	1951 POPULATION	ALL AGRICULTURAL CLASSES				ALL NON-AGRICULTURAL CLASSES				TOTAL	TOTAL	Burnt Slips
		Land owners	Landless cultiva- tors	Cultivating Laborers	Non-culti- vating land owners	Production other than cultivation	Commerce	Transport	Other service and miscella- neous sources	AGRICUL- TURAL	NON- AGRCL.	
Jullundur tehsil rural tract	241,407	29.6%	15.2%	6.4%	2.8%	14.2%	5.8%	0.9%	25.1%	54.0%	46.0%	
Phyllaur tehsil rural tract	173,899	34.2%	12.1%	14.1%	5.6%	11.0%	6.1%	0.6%	16.5%	66.0%	34.0%	
Nakodar tehsil rural tract	151,028	28.7%	25.4%	10.8%	4.0%	8.0%	7.0%	0.1%	16.0%	68.9%	31.1%	
<u>Total Rural District</u>	761,202	31.8%	16.5%	11.4%	4.5%	10.7%	5.9%	0.6%	18.6%	64.2%	33.8%	
<u>Total Urban District</u>	294,398	3.7%	3.1%	2.5%	1.2%	10.7%	25.0%	3.0%	39.0%	10.5%	77.7%	11.8%
<u>TOTAL DISTRICT</u>	1,055,600	23.9%	12.7%	8.9%	3.6%	10.7%	11.2%	1.4%	24.3%	49.1%	47.6%	3.3%

LIVELIHOOD CLASSES IN LARGER TOWNS OF JULLUNDUR DISTRICT BASED ON 1951 CENSUS**

Table E. 12

TOWN		Land Owners, Landless Cultiva- tors and Cultivating Laborers								
Jullundur City	168,816	5.0%	0.3%	11.5%	28.3%	4.2%	50.7%	5.3%	94.7%	
Jullundur cantt.	33,714	1.2%	0.3%	5.3%	13.0%	5.2%	75.0%	1.5%	98.5%	
Nawanshahar	13,140	9.1%	1.5%	10.0%	33.0%	1.0%	45.4%	10.6%	89.4%	
Phyllaur	9,484	10.8%	0.8%	12.8%	28.7%	1.8%	45.1%	11.6%	88.4%	
Nakodar	11,307	12.0%	1.0%	8.6%	37.2%	1.2%	40.0%	13.0%	87.0%	
Kartarpur	11,220	8.1%		31.4%	27.3%	3.8%	28.5%	9.0%	91.0%	
Nurmahal	6,794	9.0%		16.2%	36.4%	1.6%	34.3%	11.5%	88.5%	

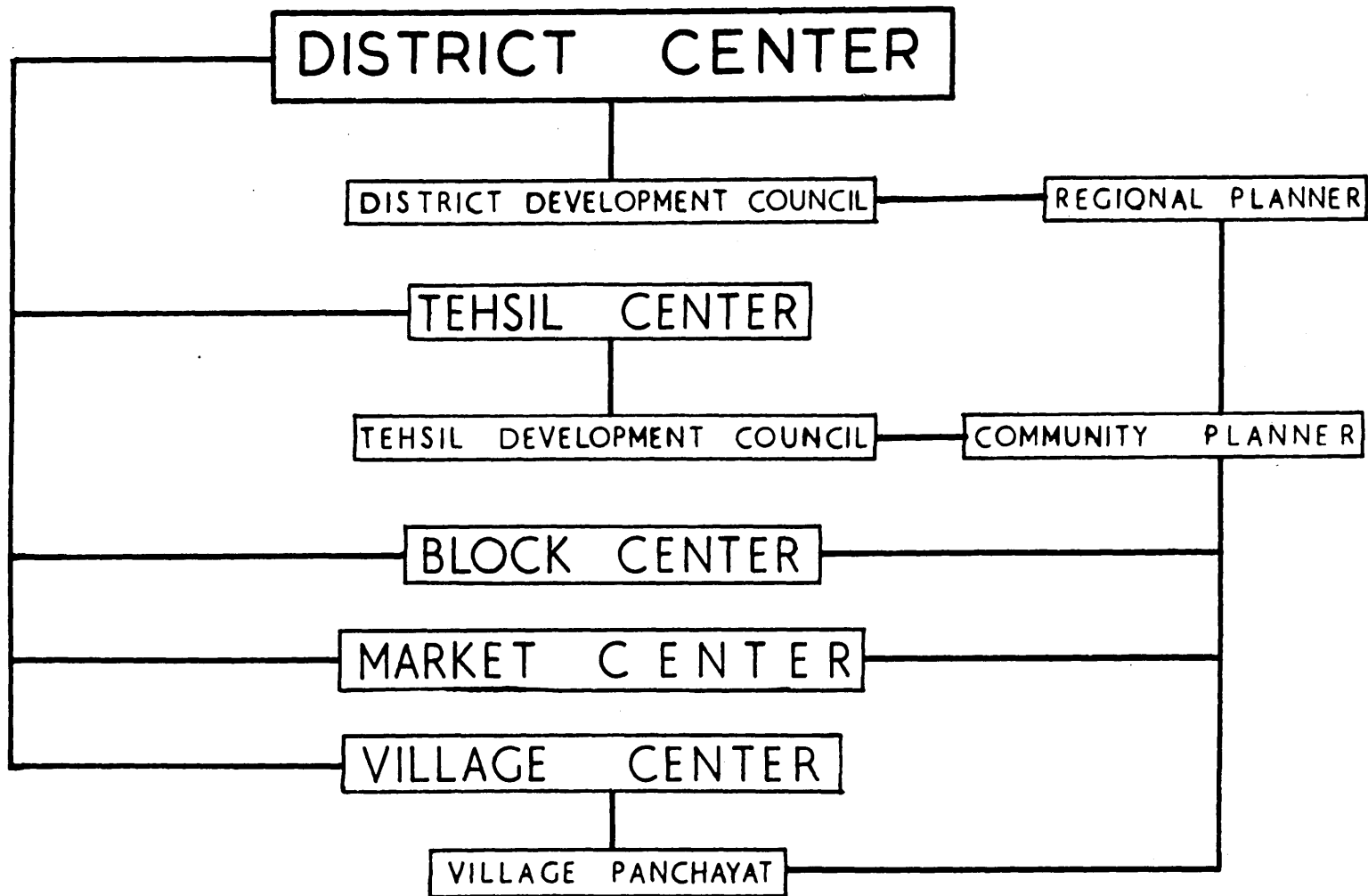
* Source: Adapted from, Census of India, 1951, Punjab, District Census Handbook, Vol. 1, Primary Census Abstracts.

** Source: Adapted from: Ibid., Primary Census Abstracts.

recommendations

Table R. 1. Proposed planning setup in the district government

2. Goals and objectives, summary
3. Facilities to be provided in a block/tehsil center
4. Facilities to be provided in a market center
5. Facilities to be provided in a village center



PROPOSED PLANNING SETUP IN THE DISTRICT GOVERNMENT

Table R. 1.

GOALS AND OBJECTIVES (Summary)

<u>Name of the center</u>	<u>1951 Population*</u>	<u>1971 Population**</u>	<u>Additional Population</u>	<u>Approximate size of the urban center</u>
<u>Jullundur City</u>	282,000	357,000	75,000	322,000
Kartarpur	35,200	65,000	29,800	25,000
Adampur	47,300	60,000	12,700	22,000
Thabalke	60,800	56,000	-4,800	20,000
Kala	36,500	50,000	13,500	15,000
<u>Nakodar</u>	57,800	65,000	7,200	25,000
Sindhar	43,500	58,000	14,500	21,000
Adarman	25,400	50,000	24,100	15,000
<u>Phillaur</u>	61,200	63,000	1,800	23,000
Nurmahal	52,700	56,000	3,700	18,000
Goraya	57,600	55,000	-2,600	16,000
<u>TOTALS</u>	<u>760,000</u>	<u>935,000</u>	<u>175,000</u>	<u>522,000 (56%)</u>

* Source: Adapted from, Census of India, 1951, Punjab, District Census Handbook, Vol. I, Primary Census Abstracts

** For derivation of these figures, see pages 44, 45 in the text.

FACILITIES TO BE PROVIDED IN A BLOCK/TEHSIL CENTER

I. Industry	<u>Manufacturing</u> Food processing, cotton ginning, flour mill, saw mill, brick kiln, machine tools, cycle parts, etc.
	<u>Secondary Type</u> Pottery, sports goods, furniture goods, printing, agricultural implements, building, tanneries, etc.
	<u>Cottage and Service Industry</u> Hand spinning, khadi, handloom and power loom, hosiery, cotton carpets, coin, brass metal ware, boot and shoemaking, glass and glass bangles, toys and dolls, hand paper making, buttons, soapmaking, etc.
II. Commerce and Trade	A Mandi for wholesale business in grain and other Foodstuffs, Cloth, Household Articles, etc. Retail Shopping Center for Cloth, Food, Provision Store.
III. Communications	Post and Telegraph Office, Telephone Exchange, Transportation Center.
IV. Education	Agricultural High School (Tehsil Center only) Vocational, Trade School (Tehsil Center only) Academic High, Middle, and Primary Schools Library A Basic Teachers Training School (Tehsil Center)
V. Health	Hospital with beds, minimum X-ray Facilities, equipped for mobile work in the villages.
VI. Recreation	Recreation Facilities for Adults. One Cinema. One Theater (Tehsil only)
VII. Housing and Facilities	Electricity, Water Supply, Drainage, and Sanitation Facilities for all Households. Water Works and Water Distribution Tube Wells.
VIII. Administration	Town Hall and Police Station. Arbitration and Law Courts (Tehsil Center).
IX. Miscellaneous	Dairy and Poultry Breeding Center, Nursery, Veterinary Hospital. Social, Education and Community Center. Soil Research Laboratory (Tehsil Center).

Source: Partly adapted from, National Planning Commission, Community Projects, July '52.

FACILITIES TO BE PROVIDED IN A MARKET CENTER

I. Industry and Commerce	<u>Cottage and Service</u> Khadi, Boot and Shoemaking, Dry cleaning, Bakery, Food Market, Confectionary, Repair Shops, Ice cream and Candy, etc.
II. Communications	Post and Telegraph Office, Telephone Office. Small Transportation Center.
III. Education	Middle School Primary School A Model Farm including an Horticulture Garden Small Library
IV. Health	A Primary Health Unit for mobile work in villages
V. Recreation	Recreation Facilities for Adults Open Air Cinema Space
VI. Housing and Facilities	Electricity, Water Supply, Drainage and Sanitation Facilities to all households
VII. Administration	A Branch Police Station (Police Chowki) Panchayat Hall (Community Hall)
VIII. Miscellaneous	A Small Dispensary for Veterinary Services

Source: Partly Adapted from, Ibid.

FACILITIES TO BE PROVIDED IN A VILLAGE CENTER

I. Industry and Commerce	<u>Small Cottage and Service</u> Handloom Khadi, Laundry, Oil Ghani, Khardhari, Guv, Shakkar, Small Repair Shop, Toy making, Soap making, Tailoring, Dairy Products and Retail Stores, etc.
II. Communications	Post Office
III. Education	One Primary School Small Village Library
IV. Housing and Facilities	Electricity, Wells for Drinking Water, and Sanitation Facilities for all households.
V. Health, Recreation, and Administration	A Small Dispensary Adult Recreation Center, also the Panchayat Hall.

Source: Partly Adapted from, Ibid.

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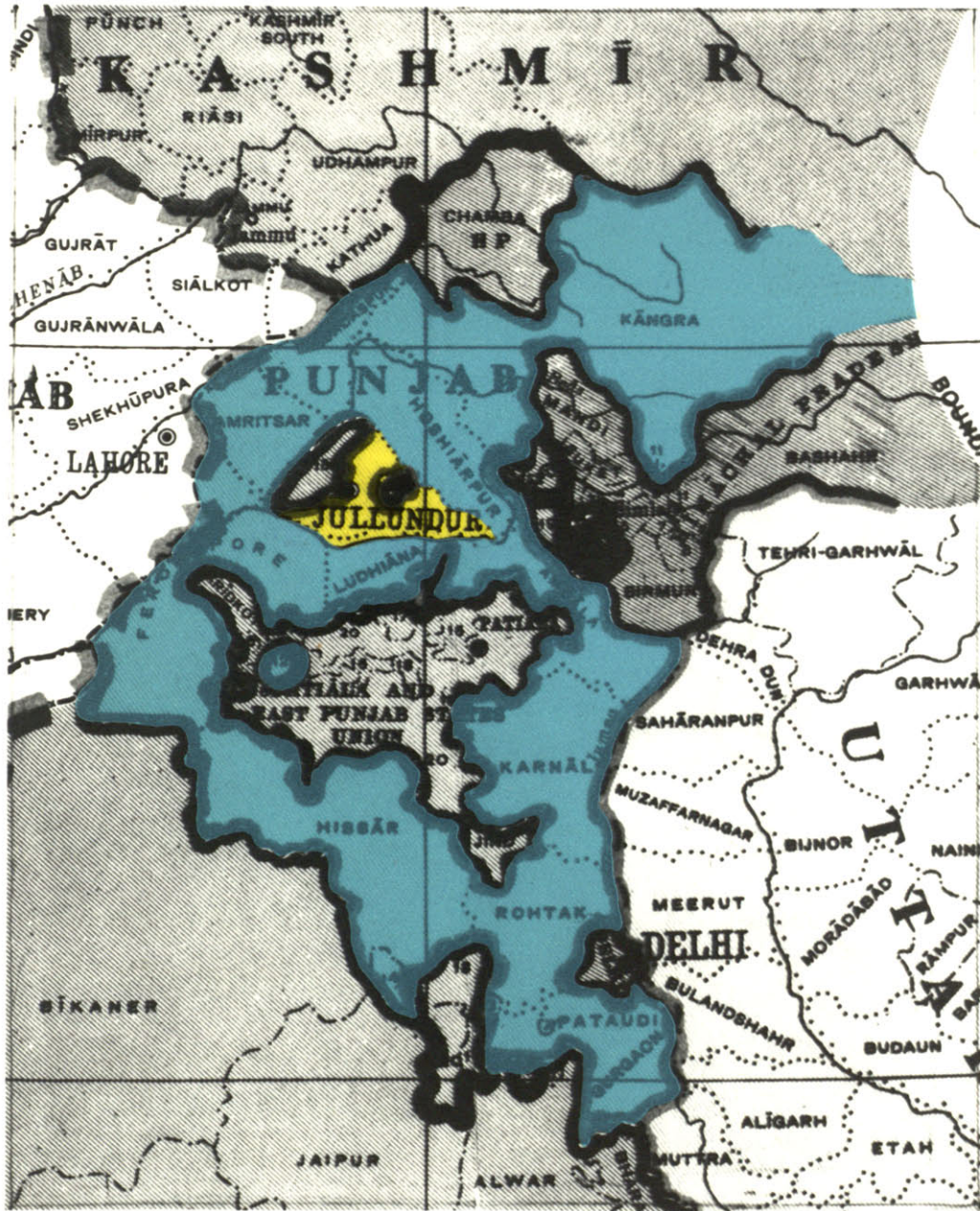
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MAPS & DRAWINGS

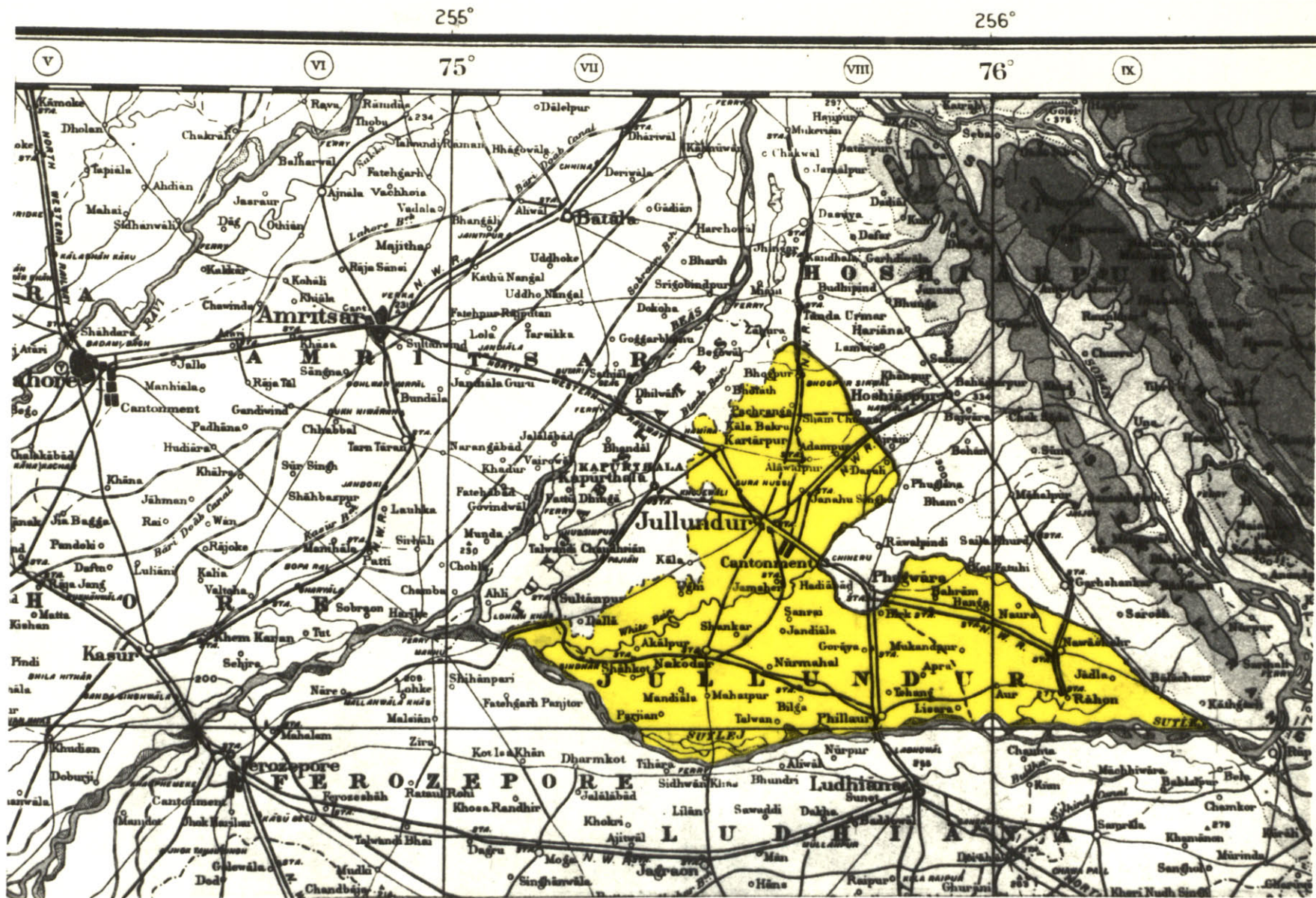
- Map
1. Punjab and other states of the Union
 2. Districts of the Punjab and neighboring states
 3. Jullundur district and the region
 4. Location of villages in the region
 5. Existing regional highway and transportation map

- Drawing
6. Proposed regional highway and transportation plan
 7. General physical features
 8. Population spot map
 9. Location of high schools, hospitals and dispensaries, police stations, and existence of municipal committees
 10. Proposed boundary of the region showing new tehsil and block boundaries, and new tehsil and block centers
 11. Proposed highway and transportation plan
 12. Proposed boundary of market centers within a block
 13. Existing location of villages within a block

DISTRICTS OF THE PUNJAB, AND NEIGHBORING STATES
Scale 1 Inch = 70 miles



Source: India Showing Political Divisions in the New Republic,
(Geographical Survey of India, First Edition, 1950)

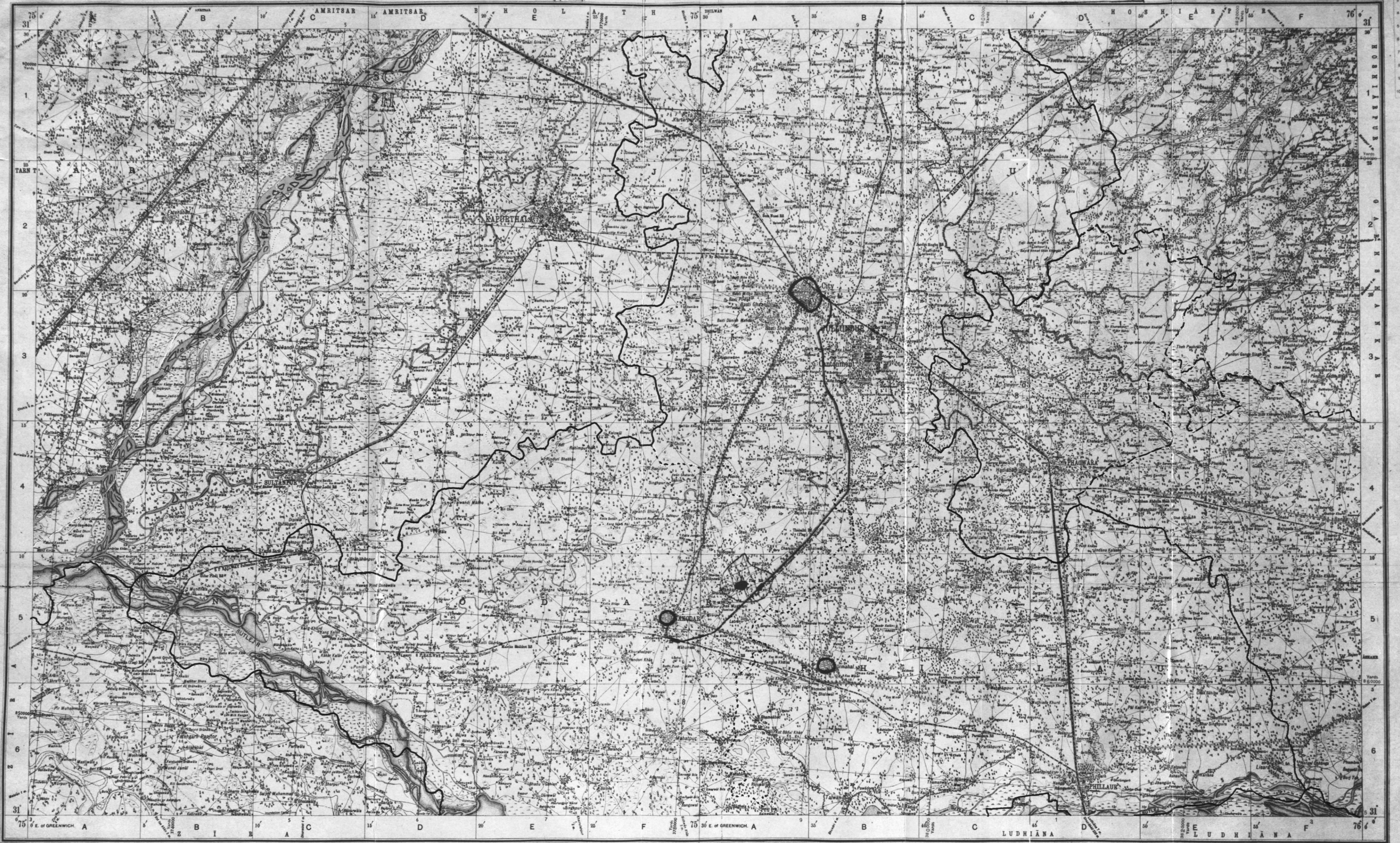


Map III

JULLUNDUR DISTRICT AND THE REGION

Scale 1 Inch = 16 miles

Source: Survey of India Office, Calcutta, International Map of the World 1:1,000,000, Delhi - N.H. 43, 1-1927



Scale 1 inch to 2 Miles
HALF INCH
1:126,720

Published under the direction of Colonel C.H.D. Ryder, C.I.E., D.S.O., R.E., Surveyor General of India.

Administrative Index:
1 AMRITSAR
2 HOSHIARPUR
3 JULLUNDUR
4 LUDHIANA

Boundary, international: demarcated, undermarked.
- province or state: do do
- district, sub-division, taluk, tehsil, etc.: do do
- state, reserved or protected forest (S.P.F. or P.F.): do do
Boundary pillar - surveyed: unmarked.
Height in feet above mean sea level:
- bench mark - permanent: do do
- trigonometrical station: intersected point: do do
Approximate height: do do
Circuit house: Disk & inspection bungalows: Post house: 28 28 18 28

1st Edition 1908
Revised 1914 (by actual surveying)

Scale 1 inch to 2 Miles
HALF INCH
1:126,720

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Boundary, international: demarcated, undermarked.
- province or state: do do
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- state, reserved or protected forest (S.P.F. or P.F.): do do
Boundary pillar - surveyed: unmarked.
Height in feet above mean sea level:
- bench mark - permanent: do do
- trigonometrical station: intersected point: do do
Approximate height: do do
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3 JULLUNDUR
4 LUDHIANA

Boundary, international: demarcated, undermarked.
- province or state: do do
- district, sub-division, taluk, tehsil, etc.: do do
- state, reserved or protected forest (S.P.F. or P.F.): do do
Boundary pillar - surveyed: unmarked.
Height in feet above mean sea level:
- bench mark - permanent: do do
- trigonometrical station: intersected point: do do
Approximate height: do do
Circuit house: Disk & inspection bungalows: Post house: 28 28 18 28

1st Edition 1908
Revised 1914 (by actual surveying)

Scale 1 inch to 2 Miles
HALF INCH
1:126,720

Published under the direction of Colonel C.H.D. Ryder, C.I.E., D.S.O., R.E., Surveyor General of India.

Administrative Index:
1 AMRITSAR
2 HOSHIARPUR
3 JULLUNDUR
4 LUDHIANA

Boundary, international: demarcated, undermarked.
- province or state: do do
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Circuit house: Disk & inspection bungalows: Post house: 28 28 18 28

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LOCATION OF VILLAGES IN THE REGION

BOUNDARY OF THE REGION

Grid references are given in thousands of yards East and North of the south-west corner of the lettered squares; thus the grid reference of LOHAN KHAS JUNCTION R.S. is 19 SH 4964 (for grid letters see body of map).

Grid references are given in thousands of yards East and North of the south-west corner of the lettered squares; thus the grid reference of JANDHU SINGHA R.S. is 34 9691 (for grid letters see diagram of incidence of grid letters).

