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TRANSPORT PROBLEM IN THE METROPOLITAN CENTRES OF PAKISTAN: A CASE STUDY OF LAHORE*

K. U. KURESHY†

The economy of Pakistan is proverbially agrarian. There has, therefore, been an emphasis on the study of rural aspects of living, to the neglect of urban problems. One of the outstanding urban problems relates to intra-town transportation. It assumes huge dimensions in the over-grown urban complex of a metropolitan centre. The present paper seeks to galvanise attention to the problem, and to suggest remedial measures. The measures suggested here are wholistic and secular (that is, long-run) than piecemeal and ephemeral. The approach is thus essentially geographical.

Buildings are said to be synonymous with movement—of people, goods, and services; the former is the generator of the latter. The expansion of the built-over area of our metropolitan centres since independence has been phenomenal. In case of Lahore, the process, started in the early years of independence has since then been gaining momentum. The physical-spatial growth of the metropolis has been mainly through the accretion of a few planned developments, but mostly through haphazardly developed parcels of land. Planned development alone has by now consumed more than 6,000 acres of agricultural land. The over-all expansion has resulted in an unprecedented enlargement of city limits. The jurisdictional limit of the recently established Lahore Development Authority have been extended over an area of 680 sq. miles. This expansion has generated movement of an order that has become unmanageable. Result : spatial friction—traffic congestion, traffic jams, accidents, and large-scale daily commuting from place of living to workplace and back.

Published statistics relating to the volume of intra-town traffic of the metropolitan centres are quite sporadic. Unpublished data obtained from Lahore Municipal Corporation and the Bureau of Statistics, Lahore Office, indicate that there has been practically no increase in the volume of slow-moving traffic (comprising *tongas*, *rehras*, and carts) over the past several years. As to the fast-moving traffic, past statistics for the period 1950-60 show that the registration of cars increased by 313 per cent, trucks by 43 per cent and buses by 808 per cent. The latest available figures of 1974 put the number of registered motor cars at 19,331, jeeps 2,933, buses 4,796, mini buses 969, rickshaws 2,806, and trucks 4,130. These figures bring to light the pre-eminence of privately owned modes of conveyance in comparison to mass transport vehicles. Such a composition of the traffic flotilla of a city is obviously disadvantageous, as privately owned motor cars are generally under-occupied. Abundance of the last mentioned vehicles adds to the

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congestion on roads and thus interferes with the fast flow of mass transport vehicles.

Our mass transport vehicles plying in cities run at load factors mostly in excess of 100 per cent. In fact, the passenger demand on the whole remains unfulfilled. There are two alternative ways of dealing with the situation : (1) increase in the number of buses, and (2). improvement of speed. The second alternative is better on many showings, including the operational performance of buses and monetary effect. However, a prerequisite of this second alternative is an efficient road system, in the absence of which the Government transport authorities adopted the first. An increase in the strength of the fleet has further aggravated road congestion.

The road system of our old established cities, which constitute most of our metropolitan centres, has largely been modelled by historical developments. It is, in essence, an amalgam of amorphic and ill-planned streets, which are mostly unfit for modern traffic. An increasing volume of traffic, together with its heterogeneity, has given rise to a number of 'conflicts' in their worst form :

- (a) The differential speeds of various modes of transport moving in the same direction on roads without adequate number of traffic lanes, creates what is known as the 'internal stream' conflicts.
- (b) The limited width of roads, making imperfect the separation of up and down traffic, creates 'medial' conflicts in the traffic moving in opposing directions.
- (c) Non-separation of pedestrian and vehicular traffic, and parking of vehicles on the road sides, produce 'marginal' conflicts.
- (d) There is little differentiation within the city of 'through routes' and 'intersection streets', with the result that 'intersection' conflicts are produced.

These conflicts are promotive of traffic jams at rush hours, and increase in the number of accidents.

An examination of the data recorded at various points on the intra-town roads of Lahore relating to traffic flows, brings out the following characteristics :

- (a) The morning rush hours in general last from 7 am to 9 am.
- (b) The traffic peak in the afternoon is not discernible ; the traffic remains comparatively dense for long hours.
- (c) There is no directional rhythm in the morning and evening traffic in the form of in-flow and out-flow. At most of the observation stations the traffic density along any given road in opposing directions is almost equal, both in the forenoon as also in the afternoon.

Characteristics (a) and (b), above, suggest that staggering of traffic as a conventional solution to road congestion is not likely to be very effective. Characteristic (c), above, is full of meaning to us. It indicates a wild dispersal over the urban complex of the origins and destinations of traffic.

The inter-town transportation generally contributes to congestion in intra-town roads. The former circulatory system is directly related to Gross National Product, which is on an increase. The intra-town transport is sure to increase in future, and its intra-town component is likewise to augment. This component is to be shared more by the metropolitan centres than by other cities. The circulatory system of our metropolitan

centres will thus be under a greater strain with the passage of time, until effective remedial measures are undertaken.

The conventional solution to the problems of intra-town transportation is mostly of engineering nature, relating, for example, to widening of roads wherever possible, separation of up and down streams of traffic, separation of slow moving and fast moving traffic, improvement of road junctions, construction of flyovers and underground system of transportation. These conventional approaches to transportation problem are certainly useful, but they have proved unequal to the task the world over. Secondly, there is always a time-lag between the commencement of a problem and the accomplishment of an engineering solution. This time-lag perpetuates by unendingly repeating itself; the malignant spread outflanks the protective devices, in each of the repetitive cycles.

The magnitude of the problem is so big that part-solutions, inspite of their own merits, are not enough. A radical change in the urban land use policy may have to be attempted. For appreciating the need for the reorientation of the land use policy let us examine some of the salient features of the functional build of Lahore.

The city has a weak heart. Its modern core, the Mall-Anarkali zone, does not satisfactorily fulfil the requirements of a Central Business District. A convincing evidence of the weakness of the core is furnished by the existence of central area uses in the peripheral areas—principally the posh residential localities. Private as well as government offices and commercial establishments have forced their way deep into the otherwise prohibited areas for such uses.

During the last 28 years only two buildings worth mentioning *viz.* Wapda House and Alfalah have been constructed along the Shahrah-i-Quaid-i-Azam. The much needed enforcement of the city centre thus remains unaccomplished. The downtown area is not capable of affording the services expected of a well organised CBD. This has placed an unprecedented burden on the intra-town transportation system by way of promoting forced journey trips.

The inadequate provision of commercial facilities at proper places has led to the placement of this function in the midst of incompatible uses. The growing tendency of conversion of uses has recently forced the government to declare some of the major roads in planned residential localities as commercial zones. This policy decision will further encourage the linear development of commercial function. Linear development of commercial function generates movement most of which could otherwise be saved. It is contrary to the idea of concentration of vital uses, which reduces and affords consequent relief to the transportation system.

To arrest the menacing tendency of the spread of commercial function along major roads over long distances, hte L.D.A. has recently taken into its administrative control all the highways emanating from the city upto a radius of about 15 miles from the centre of the city. Parts of these highways have in the past been converted into local or city roads on account of 'ribbon development' of varied types of establishments. In fact these sections of the highways have become even worse than the ordinary city streets in profusely harbouring the unwanted functions.

The metropolis suffers from socio-economic disparities. For example, an area

with a population of 500,000 inhabitants in the northeast of Lahore, beyond Aik Moria and Do Moria bridges, is practically devoid of such functions as colleges, hospitals, business and commercial centres, and job and activity centres. This has given rise to the dependence of a large district of the metropolis on its relatively well served sectors. Such a socio-economic inequality has given rise to unnecessarily too much movement on urban roads.

Provision of various specialised functions is not only inadequate but also oddly placed. Consequently, the intra-town transportation system has been overburdened. The consumers in order to get a wide variety of choices in the shoppers goods are generally forced to travel long distances. Since independence only a fruit market, a vegetable market and a timber market have been established, which by virtue of their location in the northern part of the city have failed to serve effectively the growing population of the metropolis as a whole. A retail dealer of the localities such as Gulberg, Model Town, University Campus, has to cover, going and coming, a distance of 20-25 miles.

A similar situation exists in terms of other wholesale markets which principally concentrate around the Circular Road. With the expansion of the city the Circular Road is becoming increasingly inaccessible to the inhabitants of the fringe areas. The development policy in the past has been an ill-conceived one. An important consideration of modern urban planning is that the planned residential locality as a whole should be conveniently related, in both position and scale, to the rest of the town, allowing reasonably good access to the city centre, the main areas of employment and other residential areas. The post-independence residential localities of Lahore have sprung up haphazardly in total disregard to the above said consideration.

The functional structure of the city has, apart from inadequacy of space for vital functions and their inappropriate placement, another serious drawback from the point of view of transportation. As the commercial function has undergone a 'scatter' growth, specialisation of markets, excepting wholesaling, is very little in evidence. Specialisation of markets simultaneous'y leads to grouping of cognate or associated functions. Cognate functions are those in which there is intimate relationship. The natural give-and-take between these functions is of high frequency. Their distant disposition in the urban complex maximises movement.

From the above analysis of the functional structure of Lahore the inference is clear that the answer to the transport problem of our metropolitan centres lies, apart from engineering solutions, in economy of movement. This economy is to be worked out without adversely affecting the motivating economic and social purposes. It is to be incorporated both over the existing city as also in the future outgrowth, by implanting a rational land use pattern. It is evident that the enforcement of a rational land use policy on the existing urban mosaic is highly problematic, as it will hit the vested interests. However, some glaring irrationalities can certainly be removed or minimised. For example, the CBD can be reinforced, areal disparities, resulting from an inequitable placement of functions, can be minimised, and ribbon growth of the commercial function

can be neutralised, by breaking its continuity and spreading it in depth at intervals. From these changes the vested interests will mostly benefit and will thus not offer resistance.

In the future urban growth a well-conceived land use policy aiming at movement-minimisation will be easy to implement. The functional framework of such a policy should have a strong wing to cater for all the conceivable transportation requirements and get them incorporated in the master plan.

EVOLUTION OF CROPPING PATTERN IN THE SUB-URBAN AREAS IN PAKISTAN: A CASE STUDY OF LAHORE*

DR. MISS M.K. ELAHI†

It is my pleasant privilege to express my thanks to my colleagues for giving me this opportunity to preside over the Section of Economic Geography and Management of Resources in the Third All Pakistan Geographical Conference.

Agricultural land use had attracted the attention of geographers from the land economics point of view since the early part of the 19th century.¹ Macro and Micro studies of agricultural land use and economics of agriculture form a special feature of the early half of this century. Yet there are large areas, specially in the developing countries, where systematic preliminary studies of the kind are yet to be undertaken. The need for the assessment of resources, conservation, management and planning places an urgent demand on land use surveys which could provide a sound basis for the 'take off'.

The present study of the evolution of land use in the suburban zone of Lahore is in continuation of the macro and micro agricultural land use studies attempted by the author earlier. Such studies have provided a framework for a quantitative method of analysis. It is quite well known that the urban sprawl has multi-dimensional effects on agricultural land use in the sub-urban areas.

The objective of the present study is to examine the outward migration of the belts of agricultural land occupation and the instability of the cropping pattern in some sectors around the fast growing urban centre of Lahore.²

The area covered by the present study roughly extends up to a radius of ten miles from the city centre. Forty five village³ units falling in the area have been selected for the present study.

The selection of village units in different sectors around Lahore has been made in such a manner that sample coverage has been done with regard to distance from the centre of the city and distance from the arteries of movement. The villages across the river Ravi have been specially included to examine the effects of this significant physical feature on the cropping pattern.

**Presidential Address, Section III, Geography and Management of Resources. Third Pakistan Geographical Conference October, 1975, Islamabad.*

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1. J. H. Von Thunen, *Der isolierte Staat in Beziehung auf land Wirtschaft and Nationalokonomic*, Rostock, 1826. There have been subsequent editions, including an expurgated version edited by W. Bracuer, 1951. An English translation appeared in 1966 as *Von Thunen's Isolated State*, edited by P. Hall. A. Grote World, 'Von Thunen in Retrospect', *Economic Geography* 1959, pp. 346-55.
2. Growth rate of the population of Lahore has been 52 per cent between 1951-61 and 65.7 per cent between 1961-72. Total population of Lahore being 2.15 million according to the Census of Pakistan 1972, almost two and half times of the population of 1951.
3. Appendix I.

The main source of information is the detailed unpublished statistical data of each village available in Tehsil⁴ headquarters. Besides this data first hand information was collected in a field survey by means of a questionnaire.

Cropping pattern has been mapped on the basis of five year averages since 1940-41 to 1969-70.⁵ Village has been treated as a unit area. The various crops have been grouped under four major categories : Cereals, Fodder, Vegetables and other crops. Predominant crop belts are demarcated on the basis of ranking coefficient of ratio of area under a category to total sown area in the village and the ratio of area under the category to total area under the same in the suburban zone comprising 45 villages selected for the purpose. Fig. 1-6 showing the belts of predominant crops in the suburban zone also record the outward migration of the built area of Lahore during the period under study.

Before studying in detail the evolution of the agricultural land use in the area, the few common recurring features are pointed out below :

- (a) The presence of predominant crop belts around Lahore though not in concentric circles.
- (b) The order of the belts remains almost unchanged throughout, despite the changes in the dimensions and location of these belts. The first belt around the city is the one where vegetable farming predominates, the second belt is of the fodder crops. In the third belt cereals overshadow other crops. The fourth category includes other crops like cotton, sugarcane, fruits, oilseeds etc. These crops do not form a regular belt but appear in patches in the suburban zone.

Evolution in the Land Occupance :

Table I shows the land occupance (five years averages) and ratio of area under each category since 1940-41 to 1969-70 over a span of 30 years. The biggest change is obviously an increase of 5,593 acres in the area not available for cultivation during this period its ratio increasing from 17.8 to 28.1 per cent. This is mainly due to the expansion of the urban area. It is supported by the figures supplied by Lahore Improvement Trust of the area consumed by various housing schemes.⁶ The urban sprawl has been gradual upto 1960 but in the decade 1960-70, growth rate has been much faster (Fig. 9). About 4,432 acres of good agricultural land has so far been usurped by Lahore. Only 1,115 acres of culturable waste has been put under urban usage. This deprivation of the good agricultural land has lead to compensatory changes in the increasing intensity of land use from 127 in 1940-41 to 170 in 1962-70. The improved facilities of irrigation have made it possible to increase the intensity of cropping specially

4. Tehsil is an administrative unit of the fourth order after Province, Division and District.
5. Agricultural year includes Kharif (summer crop) of the previous year and the Rabi (winter crop) of the next.
6. About 6,230 areas have been acquired for various housing schemes by the Lahore Improvement Trust up to 1974. Since the present study of land use is only upto 1970, hence the difference in the figures.

during the Kharif season.

For the detailed study, the suburban zone has been divided into various sectors (Appendix I). In the northern sector A, the rural settlements worst affected by the urban sprawl are Khui Miran, Kot Khaja Saiyid and Baghbanpura. The first two are located in the immediate vicinity of the old city while Baghbanpura, though a little farther, lies on the Grand Trunk Road. Hardo Jabbo lies within the active flood plain of the river Ravi. It has lost more than 500 acres of cultivated land due to the recurring floods and the shifting of the river bed.

In the south-eastern and south-western sectors B and C the rural settlements that have almost been engulfed by Lahore are Sanda, Nawankot, Pakki Thatti, Ichhra and Charar. All these are located in the immediate vicinity of the old settled parts of Lahore city. Bhaikhewal and Niaz Beg lying on the Multan Road have also shown a fast growth of their settlements under the indirect impact of the growth of Lahore and the transport facilities available.

Across the river Ravi, the land occupation in the rural settlements show very little direct impact of Lahore. Road side settlements like Faizpur Khurd and Dhodian have shown a decline in the cultivated area on account of the faster growth of their built area. Wandala Dial Shah has increased its built area by 448 acres, mostly transferred from the available culturable waste. This settlement lies near Shahdra town within a mile from the Lahore-Gujranwala Grand Trunk Road. In the northern sector E3 across Ravi the changes in land occupation are affected by the flood situation in the river as most of these settlements lie in the active flood plain of Ravi.

There are some settlements which show an increase in the cultivated area over these 30 years. Thatta Khudayar and Sattarwala are affected positively by growing market of Lahore. There has been a conspicuous increase in the cultivated area in these villages.

Besides the overall changes in the arable land, changes in the land occupation under various categories of crops are no less important. The most conspicuous change is in the area under fodder crops which has increased by 3,439 acres (Table II). There is a simultaneous decrease in the area under the category of other crops. The ratio of area under cereal farming shows a relative decline from 49.8 per cent to 46.2 per cent over a period from 1940-41 to 1969-70, while there has been an actual increase of 1,705 acres under this category. The area under vegetables, shows a modest increase of 1,019 acres only, which measured on the basis of per capita amounts to about one-third of what it was in 1952 for the Lahore Market.

Examined more closely, the trend, of the cropping pattern in each sector, deviates very little from the general over all trend in the sub-urban zone.

Fodder has dominated the cropping pattern in Sector A, throughout the period of study. The ratio of total sown area under this category has increased from 48 to 57.2 per cent. Here cereals show an absolute decline both in area and ratio. Vegetables have shown only a slight increase in area. These trends are amply verified from the order of crops in the villages included in this sector (Appendix I).

South Eastern Sector B, shows a greater ratio of area under cereals with the fodder as the next important crop.

In the South Western Sector C, the overall pattern shows cereals, fodder and vegetables in order of importance, but there is an increasing tendency of vegetables and fodder farming. The ratio of area under vegetables is more than 12 per cent of the total sown area, highest of all the sectors.

The Sectors E1, E2 and E3 in the trans Ravi area show a dominance of cereals with an increasing ratio of area under other crops including fruit orchards, some cotton, sugarcane and oilseeds.

Changes in the Crop Belt

As stated earlier the order of the predominant crop belts around the city remains somewhat unchanged. The major changes are in the form of outward migration and the extents of the individual belts.

A study of Figs. 1-6 brings out the following noteworthy features of each of these belts.

Vegetable Belt:

1. The vegetable belt in the near vicinity of the city area has migrated outward with the urban sprawl. Much of the area given over to vegetable farming earlier now forms the built area of Lahore.

2. The migration is most conspicuous in the South West, Sector C along the Multan Road, associated with a marked growth of the city in this direction and the greater facilities of irrigation and transport. Here the vegetable belt has covered a part of the area formerly under fodder and cereals. Ravi forms quite an effective boundary in limiting the outward migration of this belt across the river.

3. In the northern Sector A, the change is slight. The vegetable belt disappears in the eastern Sector D, perhaps on account of the distance from the city market. It lies near the cantonment area where the movement of carts carrying these articles is prohibited.

4. The intensity of cropping in some of the villages falling in this belt is high (Fig. 7).

5. Construction of the protective Bund and the Bund Road has facilitated the movement of the vegetables to the market now located in Badami Bagh area in the north western corner of the city.

Fodder Belt:

1. This belt is located next to the vegetable belt. It has shown great expansion in the northern Sector A, south eastern Sector B, and south western Sector C.

2. There is no fodder belt in the trans Ravi area. The cost of transport of this bulky product from across the river restricts the area under fodder crops in the villages in the sectors E1, E2 and E3.

3. The fodder belt is associated with the growing demand for the highly perishable dairy products in the Lahore urban area. Fodder is also needed for the draft animals

including horses, bullocks and mules.⁷ The animal driven transport is still quite popular as a means of transport for vegetables and fodder from the suburban zone to the city area. Horse driven carriage locally known as *Tonga* is also an important means of transport for the people residing in the old parts of the city.

Fodder being bulky but less costly than vegetables or cereals cannot be economically transported from over a longer distance. There is a great probability that this tendency of the expansion of the fodder belt may continue at the expense of other crops.

Cereal Belt:

1. This belt is found contiguous to either vegetable belt or the fodder belt in different sectors.

2. The belt is wide and most conspicuous in the south western Sector C and across the river in Sector E. Cereal acreage has shown an increase in the outer areas with the rising prices of the food grains. The placement of this zone at some distance from the city centre is because cereals being non-perishable and costly for the bulk, can bear the cost of transport over long distances. It is interesting to note that fodder has invaded much of the land formerly occupied by cereals in Sector A for the reasons given earlier.

Other Crops:

1. There is no continuous belt around Lahore showing predominance of this category. It includes mainly cotton, sugarcane, fruit orchards and some oilseeds.

2. The Fig. 1, 2 and 3 show a few patches where these crops are important. One such area lies in the south west, Sector C, one in the south western part of Sector E across Ravi. Similarly two small areas appear under this category, one in the eastern part of Sector A and the other in the south eastern Sector B.

3. Figs. 5 and 6 show a conspicuous change with reference to area under these crops. A definite belt where these have attained importance appears across the river Ravi in the south western part of the Sector E2 along the road. The other patches under these crops have been almost eliminated particularly, on account of encroachment of the fodder belt.

Cropping Intensity:

As referred earlier there has been an overall modest increase in the intensity of cropping in the suburban zone from 127.7 to 170.9 between 1940-41 and 1969-70. The detailed study of the intensity of cropping in the various sectors over the span of 30 years shows great fluctuations, while keeping with the general upward trend.

In the south western Sector C the overall increase in intensity is greatest from 112 to 186 over the period under study. This sector shows the highest intensity of cropping resulting from a number of factors including better facilities of irrigation and transportation and the predominance of vegetables and fodder crops (Fig. 7). The south eastern Sector B shows very little increase in the intensity upto 1965, but a great increase has been recorded between 1965-66 and 1969-70 from 125 to 176. This is mainly due to the

7. There are about 50,000 milk buffaloes and cows, 12,000 horses and 10,000 bullocks in the Lahore Corporation area.

changing cropping pattern in favour of fodder crops.

Sectors A, and D in the north and east also show a modest increase in the intensity from 143 to 170 and 135 to 165 respectively. Distance from the market and lack of adequate means of transport and irrigation facilities could be the main factors affecting this modest increase in intensity in these sectors.

Across the river the change is conspicuous in the western sector E2 from 135 to 165, between 1940-41 and 1969-70. This is associated with the appearance of the other cash crops in this sector along the road. In other sectors across the river the predominant cropping pattern is that of cereal farming where the intensity of cropping has not risen above 150. The least intensity is exhibited in the northern sector E III across the river being only 122.

The intensity of cropping also varies in the different crop belts with varying distances from the city and the arteries of flow. Fig. 8 shows the isopleths of intensity in the suburban zone. The most conspicuous features are :

1. The intensity of cropping is low in the immediate vicinity of the built area. This is a zone of maximum possible instability on account of the continual growth of the urban area. The farmers no more bother about the maximum returns from the agricultural land. The land values are rising fast and it is more profitable to sell out parcels of agricultural land for urban usage.

2. The intensity of cropping rises at a little distance from the immediate vicinity of the built area, as this belt is at present the main supply area of vegetables and fodder for the city market.

3. Intensity of cropping also shows a positive association with the arteries of transport and better irrigation facilities.

Changes in Individual Crops:

While there is measurable instability in the land occupation under each category of crops, there is also some tendency of changes in the choice of individual crops under each category. Among the cereals there is a general tendency of increase in the area under rice and maize. This is specially conspicuous in the cereal belt in the trans Ravi area in Sector E1 and E2.

There is little change in the choice of vegetables. Some farmers are trying to grow more peas which yield high returns. Potato growing is still in a trial stage. The heavy demand of labour and fertilizers has limited the area under this crop.

Among the fodder crops, berseem seems to have become more popular. Some of the villages in the trans Ravi area have shown some increase in the area under sugarcane, cotton, fruits and oilseeds.

Choice of Crops

The spacial evolution in the land occupation of crops over a span of 30 years raises many queries as to the factors that have affected these changes. Theoretically speaking, cultural and physical factors are likely to play an important role in the farmer's choice of crop. In this study of location of the crop belts around Lahore, the most potent factor

which appears to govern the choice is the economic distance and the cost benefit ratio at the farm. It is to be measured in terms of ease with which a commodity could be transported economically to the market. It is the cost incurred and not the actual distance that counts. The bulk in terms of unit price, the perishability of a product and the cost benefit ratio tend to demarcate the crop belts around the city market. Cost benefit ratio at the farm is calculated on the basis of the questionnaire. The cost includes water supply charges, cost of fertilizers, labour, seed and maintenance of agricultural implements and feed for the draft animals or fuel cost of tractors.

For vegetables the maximum frequency of cost benefit is 1 : 2.5 while in many cases it rises to 1 : 5 or above. The heavy demand of labour and fertilizers is associated with the higher intensity of the vegetable farming in the immediate vicinity of the city. At the same time vegetables are costly and can bear the transport cost from over larger distances. This is the main reason why vegetable belt has not shown a proportionate expansion. The figures supplied by Association of Traders, Vegetable Market, indicate a daily supply of 16-20 thousand maunds of vegetables to the Lahore Market from outside the vegetables zone around Lahore.

The fodder crops show a much higher cost benefit ratio. In case of *Charri* it varies widely but in a majority of cases the ratio is higher than 1 : 3, the highest being 1 : 6.8.

Berseem yields higher profits. In a majority of cases the ratio remains above 1 : 4. Maize as a fodder is popular only in a few areas where intensive cultivation is not practised. Fodder needs larger quantities of water but less labour. It is bulky and cheap while the cost of transport per unit of mileage maunds is high. For the most perishable dairy products (milk) and for other animals in the city, it has to be grown in the near vicinity of the market where facilities of transport exist. The expansion of the fodder zone in the northern and the southern areas is a direct response to these factors. The southern zone, especially enjoys the maximum of these facilities. Most of the villages growing large quantities of fodder lie within 1/2 to 3 miles from the metalled road and within 6-8 miles of the main city market as also within 2 to 3 miles of the fringe of the built area. Cost of transport normally varies between 0.50 to 0.75 rupee per maund per mile for the fodder. It is also worth mentioning that fodder crops are in demand throughout the year.

Cereal farming is dominant in southern areas at greater distance from the city market even in cases where the village lies near the metalled road. The cereal belt in the trans Ravi area lacks adequate facilities of transport but cereals being costly per unit weight and non-perishable can be grown economically in this area. The general rates of transportation vary from Rs. 0.75 to 1.00 per maund/mile.

The small area across Ravi grows some sugarcane, oilseeds cotton and fruits for the Lahore Market along with other crops. The cost benefit ratio in case of these crops is usually more than 1 : 4. These commodities being high priced can travel over longer distances economically. Sugarcane is bulky but is sent to Lahore only for chewing purposes which fetches high prices (Rupee one or more for a seer).

A reference to the physical factors, at this juncture may not be out of place. A

APPENDIX I
ORDER OF CROPS*

Sr. No.	Name of the Sector and the Village	1940-41 1944-45	1945-46 1949-50	1950-51 1954-55	1955-56 1959-60	1960-61 1964-65	1965-66 1969-70
I. Cis Ravi Area							
<i>A. Northern and North-eastern Sector :</i>							
1.	Baghbanpura	FOVC	FOVC	FVOC	VFOC	FVCO	FVCO
2.	Kot Khaja Saiyid	VFOC	VFCO	VFCO	VFCO	VFOC	FVOC
3.	Khui Miran	VFOC	VFOC	VFOC	FVOC	FVOC	FVOC
4.	Har Narainpura	VFOC	VFOC	VFOC	VFOC	VFOC	VFOC
5.	Mahmud Buti	OFVC	VCFO	FOVC	FOVC	Na	FVOC
6.	Salamat Pura	FOCV	OCFV	COVF	FOCV	OFV	FOCV
7.	Taj Pur	FVOC	FVOC	FOVC	FVOC	FOVC	FOCV
8.	Mumin Pura	FCOV	OCFV	OCF	FCOV	Na	FVCO
9.	Hando	FCO	FOC	FOCV	FCOV	Na	FCOV
10.	Lakhodher	OCFV	OFVC	CFO	CFVO	CFOV	FCOV
11.	Karol	COVF	CFOV	CVFO	CVFO	CFOV	FOVC
12.	Har Do Jabbo	CFOV	CFO	CFVO	CFO	COF	CFO
<i>B. South-eastern Sector :</i>							
13.	Gohawa	FOC	COF	OCF	COF	CFO	CFO
14.	Charar	OFCV	OCFV	COFV	FOCV	CFOV	CFOV
15.	Kot Lakhpat	FCVO	FOCV	COFV	FCVO	OFCV	FCVO
16.	Kir Kalan	CFOV	FVOC	FCVO	FOCV	FCOV	FCOV
<i>C. South-western Sector :</i>							
17.	Ichhra	VFCO	VFCO	VFCO	VFOC	VFOC	VFOO
18.	Nawan Kot	OVFC	VOFC	VOFC	VOFC	Na	VOFC
19.	Sanda Kalan	VFOC	VFOC	VOFC	VFOC	VFOC	VFOC
20.	Nauharain	FCOV	OFCV	FOVC	FVO	FVOC	FVCO
21.	Shera Kot	OFVC	VCOF	FOVC	OFVC	OFVC	VOFC
22.	Kot Kabo	FOVC	VOFC	VOFC	FVOC	FOVC	FVOC
23.	Dholan Wal	VFOC	VFOC	VFOC	VFOC	VFCO	VFCO
24.	Pakki Thatti	VFOC	VFCO	VOFC	VFOC	VFOC	VFOC
25.	Said Pur	VOFC	VOFC	VFCO	VFCO	VFOC	VFOC
26.	Bhaikewal	FCOV	FCOV	OFCV	FVOC	FVCO	FVOC
27.	Shadiwal	CFO	FCO	FCO	CFO	CFVO	CVOF
28.	Hanjarwal	CFVO	FCVO	FVCO	FVCO	FCVO	CFVO
29.	Niaz Beg	CVFO	FVCO	FCO	FCVO	FCVO	CFVO
30.	Jogin Pura	FVOC	FCOV	FVCO	FCO	FCVO	FCVO
<i>D. Eastern Sector :</i>							
31.	Phullarawan	CFVO	CFOV	CFOV	CFOV	CFV	CF
32.	Malakpur	CFOV	CFOV	CFOV	CFO	CFO	FCO

Sr. No.	Name of the Sector and the Village	1940-41 1944-45	1945-46 1949-50	1950-51 1954-55	1955-56 1959-60	1960-61 1964-65	1965-66 1969-70
II. Trans Ravi Area							
E-I <i>North-western Sector :</i>							
33.	Kot Begam	COVF	COFV	COFV	COFV	FVCO	OVFC
34.	Wandala Sial Shah	CFO	CFO	CFO	COF	CO	COF
35.	Khaki	CVOF	CFO	CFO	CFO	CF	CF
36.	Abul Khair	CFO	COF	CFOV	COVF	OCVF	COVF
E-II. <i>Western Sector :</i>							
37.	Thatta Khudayar	CVFO	CFO	COF	COF	CFO	CFO
38.	Faizpur Khurd	COFV	COFV	COVF	COVF	COFV	OCVF
39.	Dhudian	COFV	COF	COFV	COF	OVCV	OCVF
40.	Chahar	CO	CVFO	COF	COF	OCFV	OVCV
41.	Sattar Wala	CFVO	VCOF	CVOF	COF	OCFV	OCF
42.	Sahidpur	CO	CO	CO	CO	CO	CO
E-III. <i>Northern Sector :</i>							
43.	Chohan	COFV	Na	Na	Na	CF	CFO
44.	Ratni Wala	OCF	COF	CO	COF	COF	OCF
45.	Bharat	CFO	COF	COF	COF	CFO	COF

*Based on the ranking coefficient computed on the basis of five year averages of the following variables :

1. Percentage of area under a crop to total cropped area of the village.
2. Percentage of area under a crop to total area under the same in the region (45 villages).

Abbreviations used are as follows :

C—Cereals F—Fodder
Na—Data not available

V—Vegetables

O—Other crops.

TABLE II
LAND OCCUPANCE

Year	Cereals	Vegetables	Fodder	Other Crops	Total Sown
1940-41	19958	2639	14665	2836	40098
44-45	49.8%	6.6%	36.6%	7.0%	
1945-46	18051	2801	12637	3071	36560
49-50	49.4%	7.7%	34.6%	8.3%	
1950-51	19551	3914	16421	2972	42858
54-55	45.6%	9.1%	38.3%	7.0%	
1955-56	16568	3626	16958	2972	40214
59-60	41.2%	9.0%	42.2%	7.6%	
1960-61	18277	2942	16740	2864	44002
64-65	41.5%	6.7%	38.0%	13.8%	
1965-66	21664	3658	18104	2596	46859
69-70	46.2%	7.8%	38.6%	7.4%	

Note: Total sown area has been grouped under four major categories as listed above. Percentages relate to total sown area.

TABLE I
LAND CLASSIFICATION (ACRES)

Period	Total area (45 villages)	Not available for cultivation	Culturable waste	Cultivated	Fallow	Net sown	Kharif	Rabi	Total sown	Intensity of cropping
1940-41 44-45	54070	9618 17.8%	9177 17.0%	35275 65.2%	3868 11.0%	31407 89.0%	15876 39.6%	24222 60.4%	40098	127.7
1945-46 49-50	54070	10146 18.8%	9317 17.2%	34607 64.0%	4978 14.4%	29629 85.6%	13442 36.8%	23118 63.2%	36560	123.4
1950-51 54-55	54059	10876 20.1%	8991 16.6%	34192 63.3%	4380 12.8%	29821 87.2%	16101 37.6%	26758 62.4%	42858	143.7
1955-56 59-60	54089	10319 19. %	10171 18.8%	33527 62.0%	4026 12.0%	29501 88.0%	16991 42.3%	23223 57.7%	40214	136.3
1960-61 64-65	54089	13974 25.8%	7198 13.3%	32917 60.9%	3467 10.5%	29450 89.5%	18762 42.6%	25240 57.4%	44002	149.4
1965-66 69-70	54106	15201 28.1%	8062 14.9%	30843 57.0%	3435 11.1%	27408 88.9%	21260 45.4%	25599 54.6%	46859	170.9

Ratio of column 3, 4 and 5 relate to column 2.

Ratio of column 6 and 7 relate to column 5.

Ratio of column 8 and 9 relate to column 10.

$$\text{Intensity of cropping} = \frac{\text{Total sown}}{\text{Net sown}} \times 100$$

glance at the land capability map around Lahore shows that most of the land is either very good or moderately good agricultural land (Fig. 10). There are only a few patches of agriculturally poorer land. Therefore, the inherent fertility or relative poverty of land has very little to do with the choice of individual crops and the formation of the crop belts.

Resume:

The foregoing discussion is summarised as follows :

1. The cropping belts around Lahore show an instability in land occupancy associated with the growth of the urban centre.
2. The economic distance is the most important factor influencing the land occupancy under various crops.
3. Arable farming with livestock associations in the fodder belt seems to be more intensive.
4. Competition among crops is governed by the net income at the farm which is translated into the land-use pattern. Most of the vegetable and fodder is generally sold at the farm and is transported by animal driven carts. Only a few of the farmers with larger holdings own tractor trolleys or their own *Rehras* or *Gaddas* for the transport of their produce.
5. The loss of most valuable agricultural land due to urban sprawl is only partly compensated by the increasing intensity of land use in the suburban zone. The cropping intensity has not improved as much as could be expected on account of the proximity of the city. It is mainly because the agriculturists of the suburban zone have a growing tendency of renting out land to tenants. A greater number of villages have more than half the area cultivated by tenants without rights of occupancy.

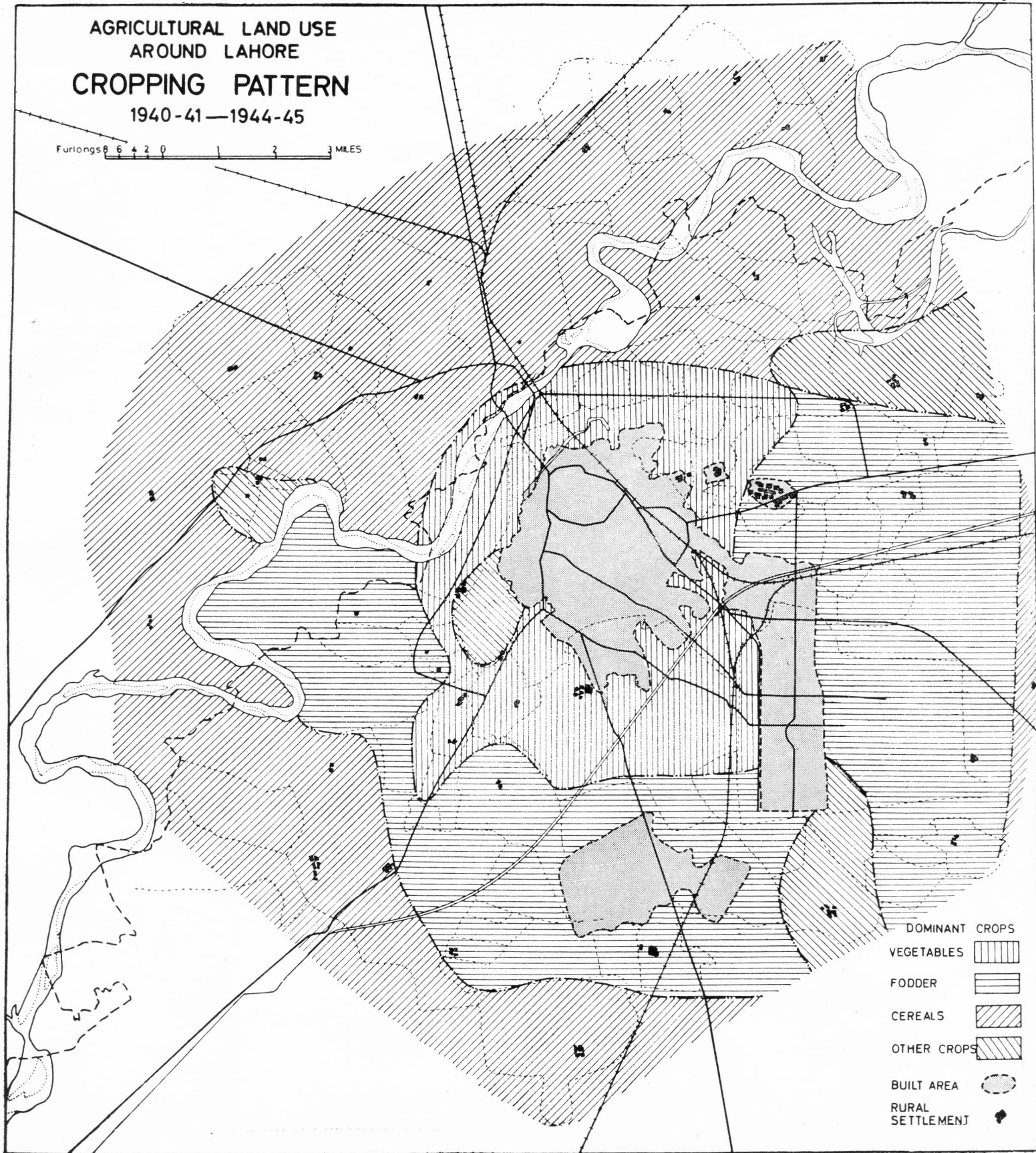
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





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AGRICULTURAL LAND USE
AROUND LAHORE
CROPPING PATTERN
1940-41—1944-45

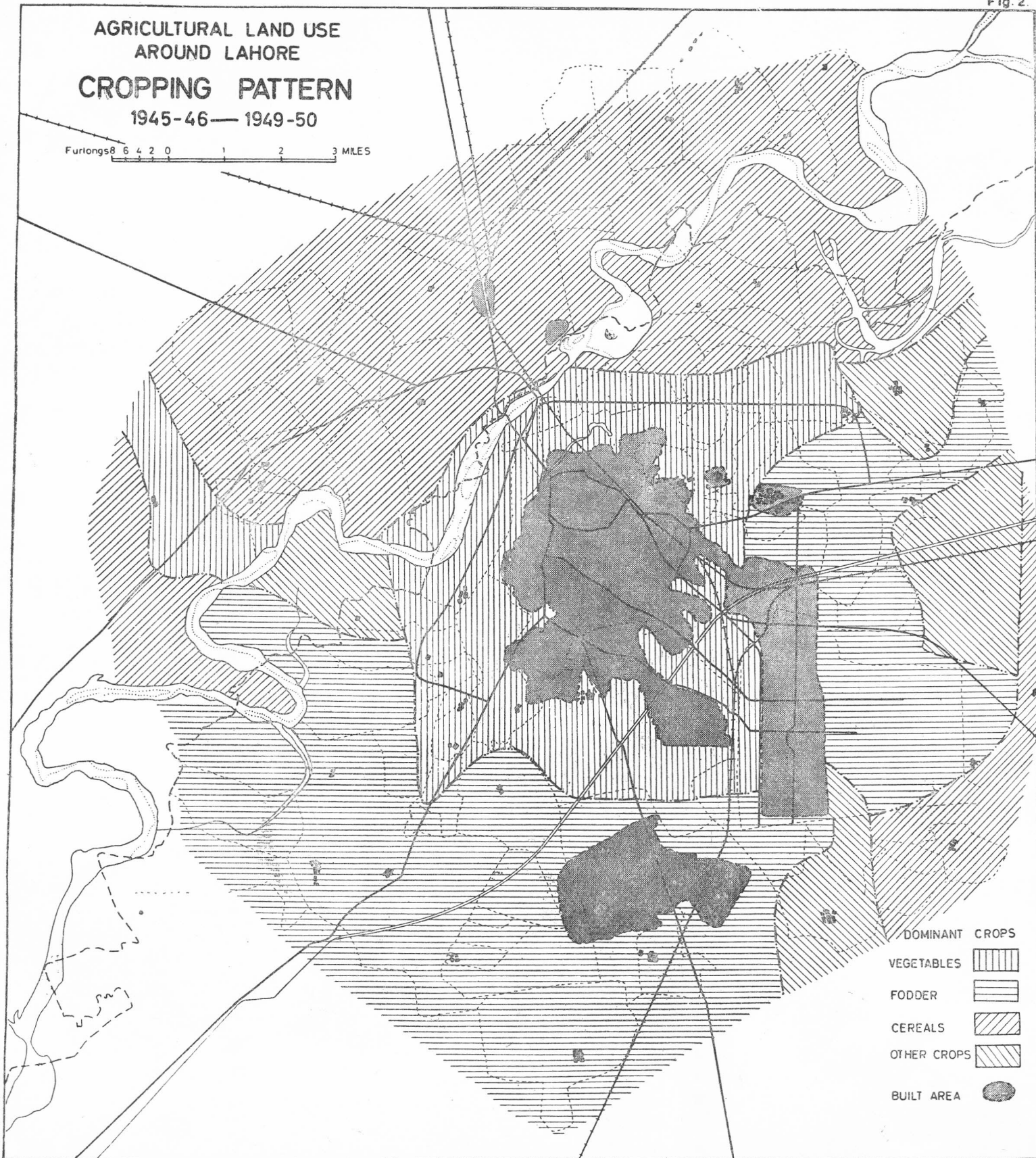
Furlongs 8 6 4 2 0 1 2 3 MILES



- DOMINANT CROPS
- VEGETABLES 
 - FODDER 
 - CEREALS 
 - OTHER CROPS 
- BUILT AREA 
- RURAL SETTLEMENT 

AGRICULTURAL LAND USE
AROUND LAHORE
CROPPING PATTERN
1945-46—1949-50

Furlongs 8 6 4 2 0 1 2 3 MILES

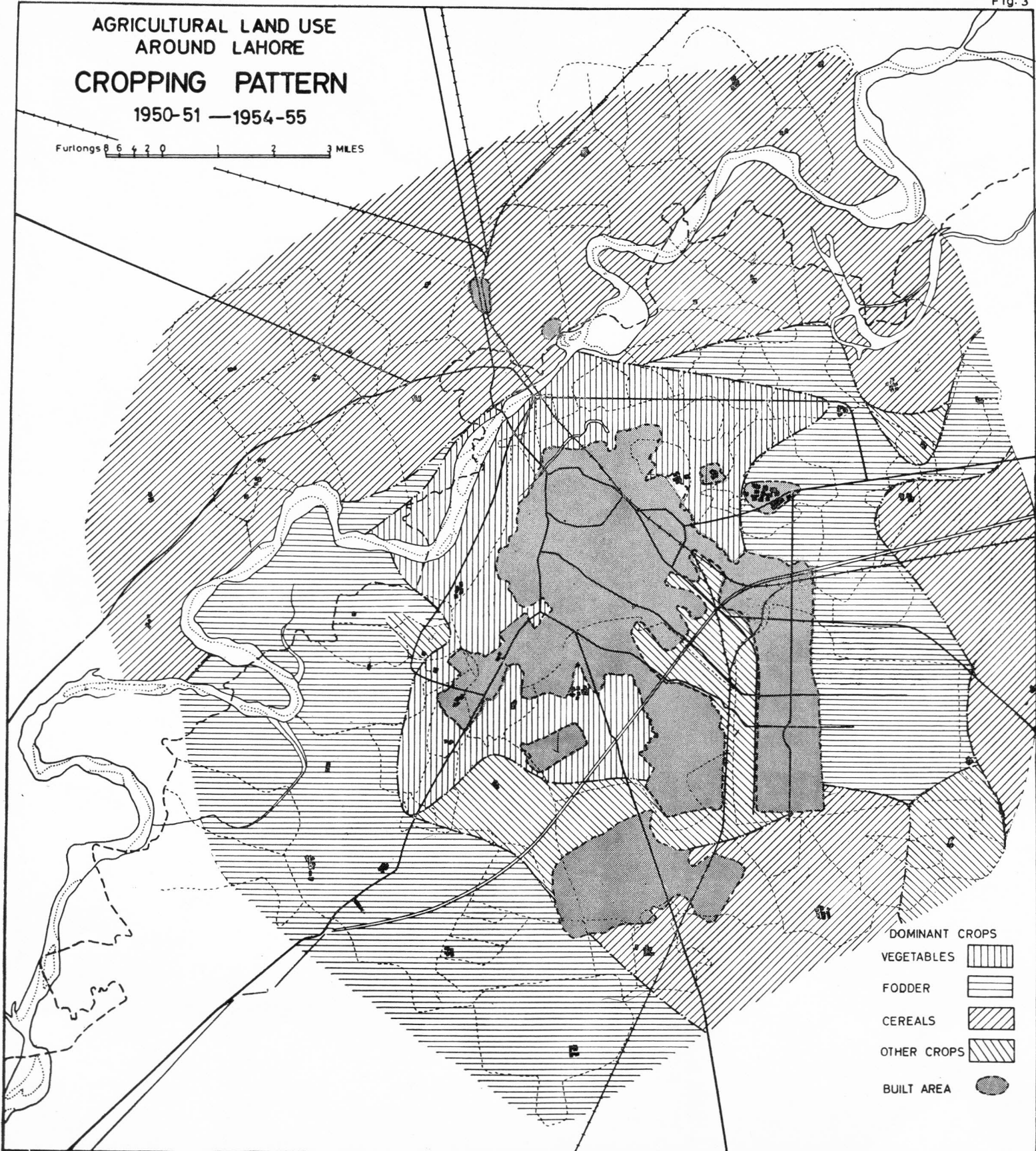


AGRICULTURAL LAND USE
AROUND LAHORE

CROPPING PATTERN

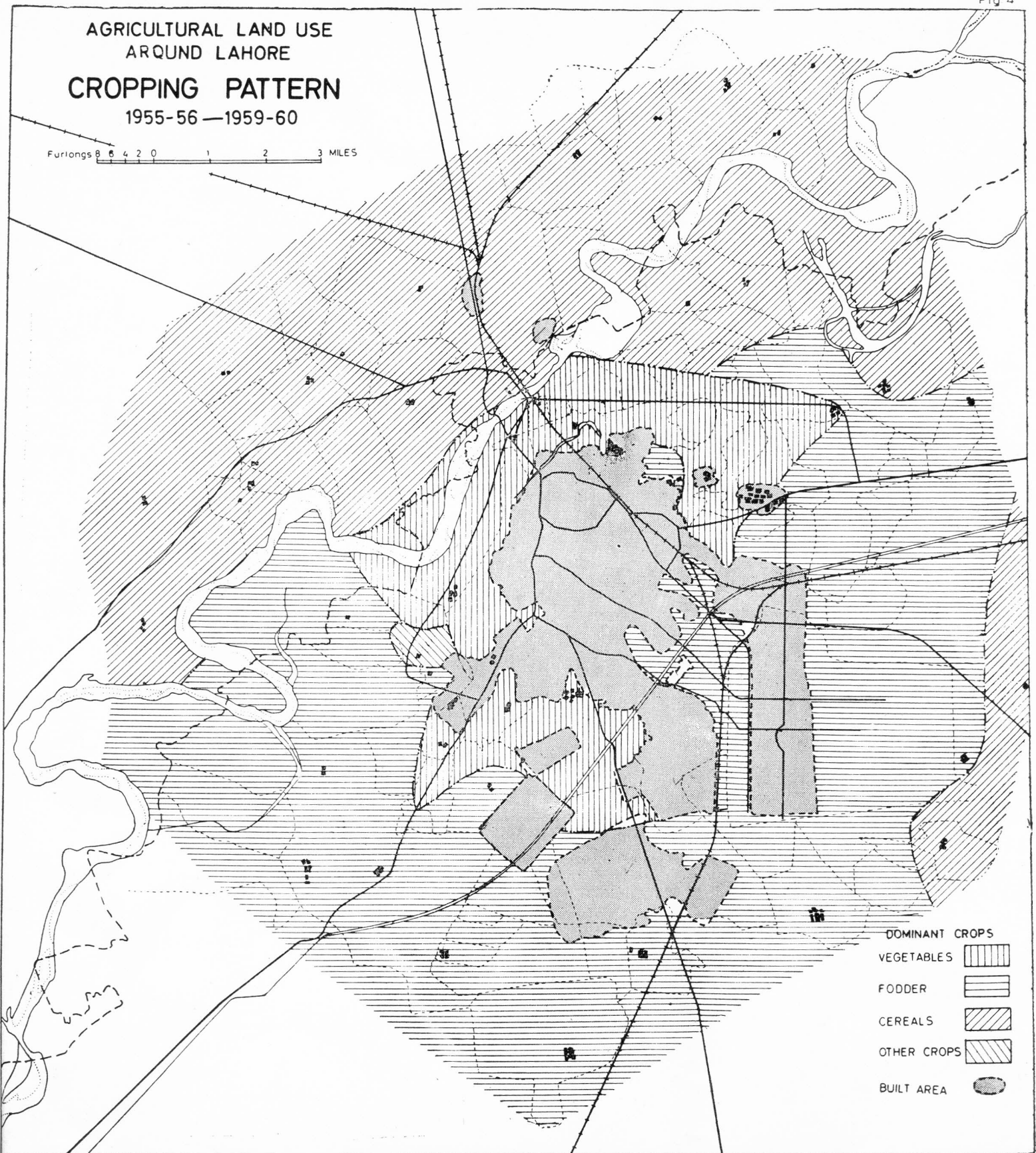
1950-51 — 1954-55

Furlongs 8 6 4 2 0 1 2 3 MILES



AGRICULTURAL LAND USE
AROUND LAHORE
CROPPING PATTERN
1955-56 — 1959-60

Furlongs 8 6 4 2 0 1 2 3 MILES



DOMINANT CROPS

VEGETABLES 

FODDER 

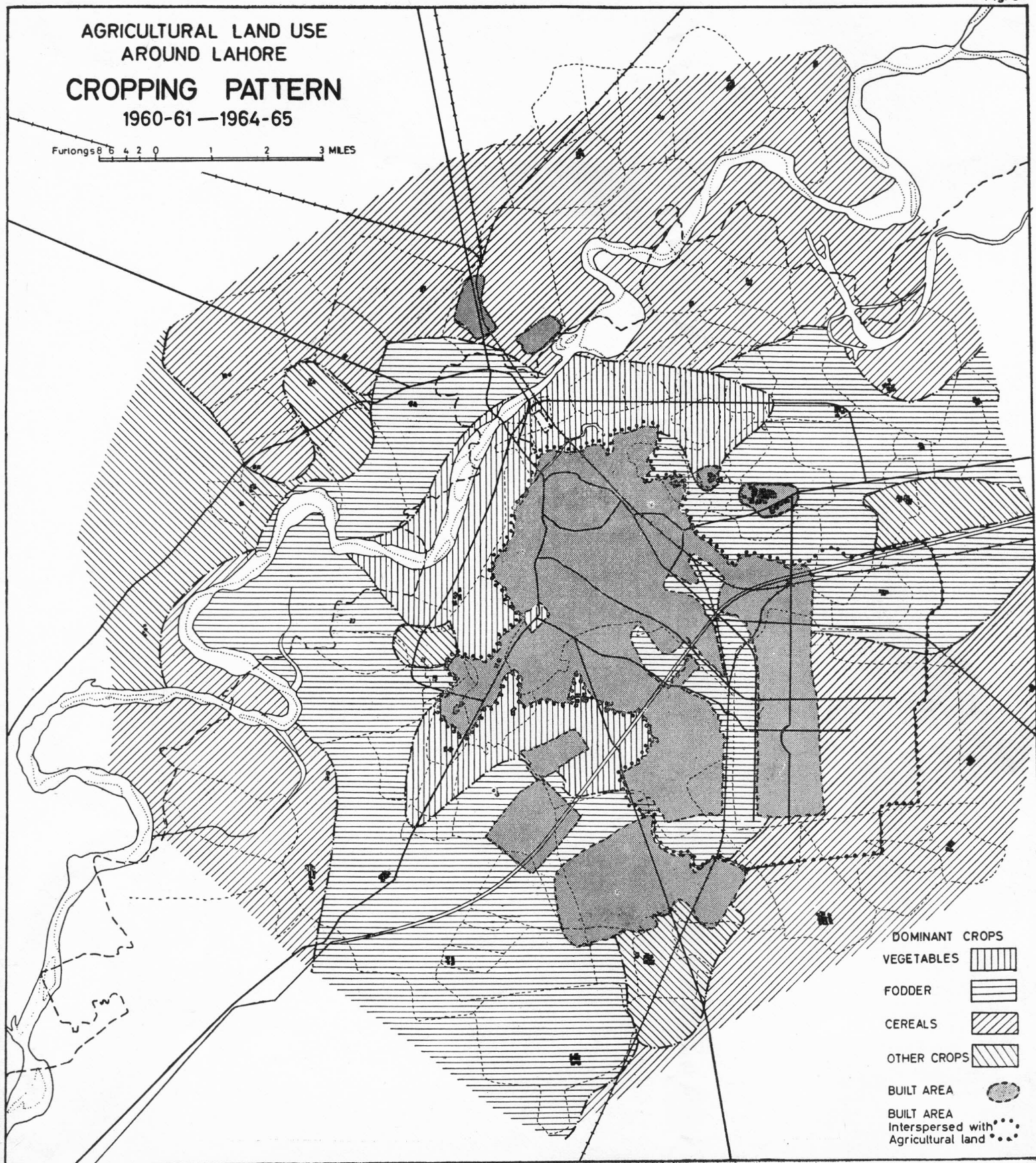
CEREALS 

OTHER CROPS 


BUILT AREA 


AGRICULTURAL LAND USE
AROUND LAHORE
CROPPING PATTERN
1960-61 — 1964-65


Furlongs 6 4 2 0 1 2 3 MILES





DOMINANT CROPS


VEGETABLES 

FODDER 

CEREALS 

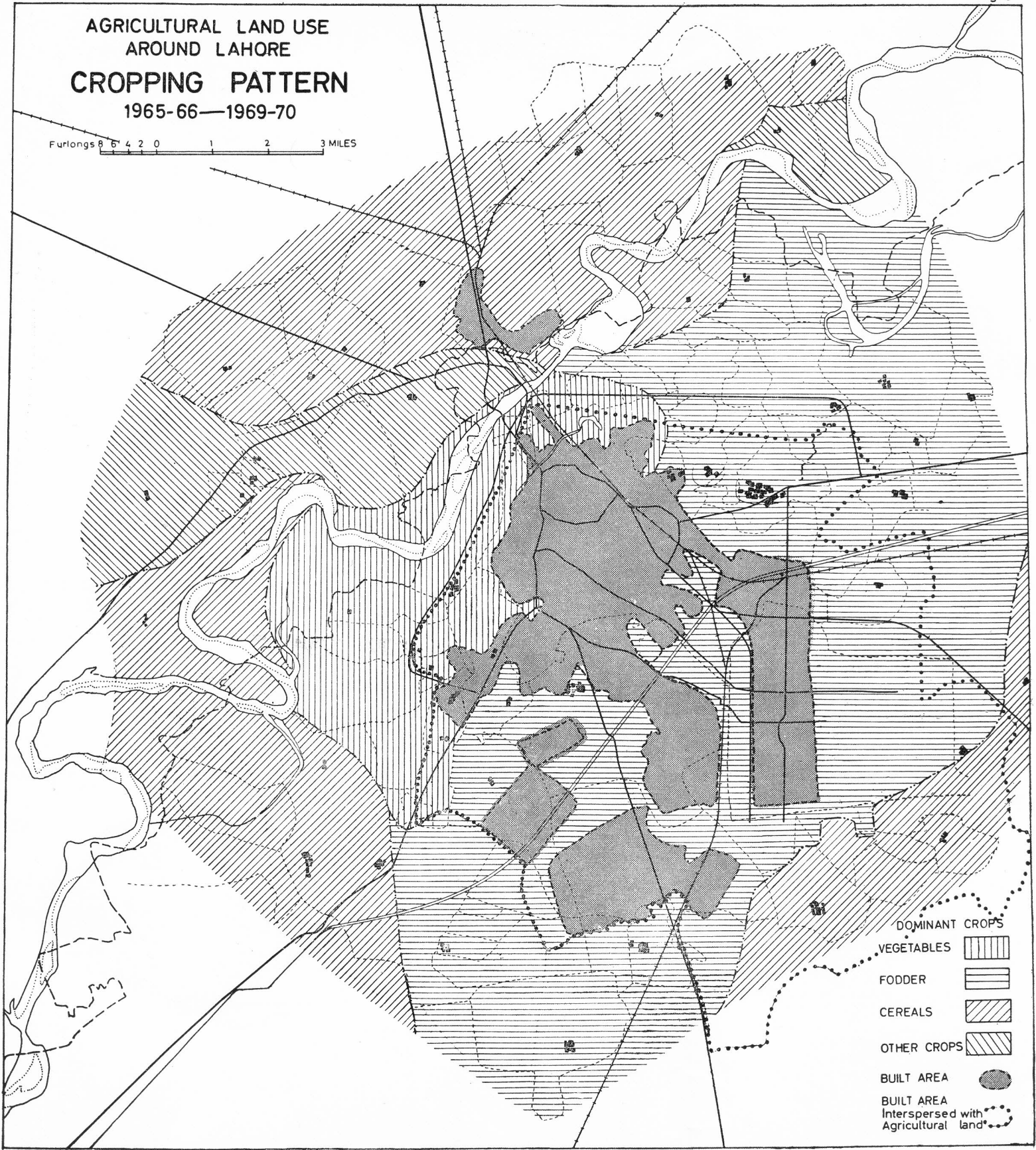
OTHER CROPS 







BUILT AREA 

BUILT AREA
Interspersed with
Agricultural land 

AGRICULTURAL LAND USE AROUND LAHORE CROPPING PATTERN 1965-66—1969-70

Furlongs 8 6 4 2 0 1 2 3 MILES

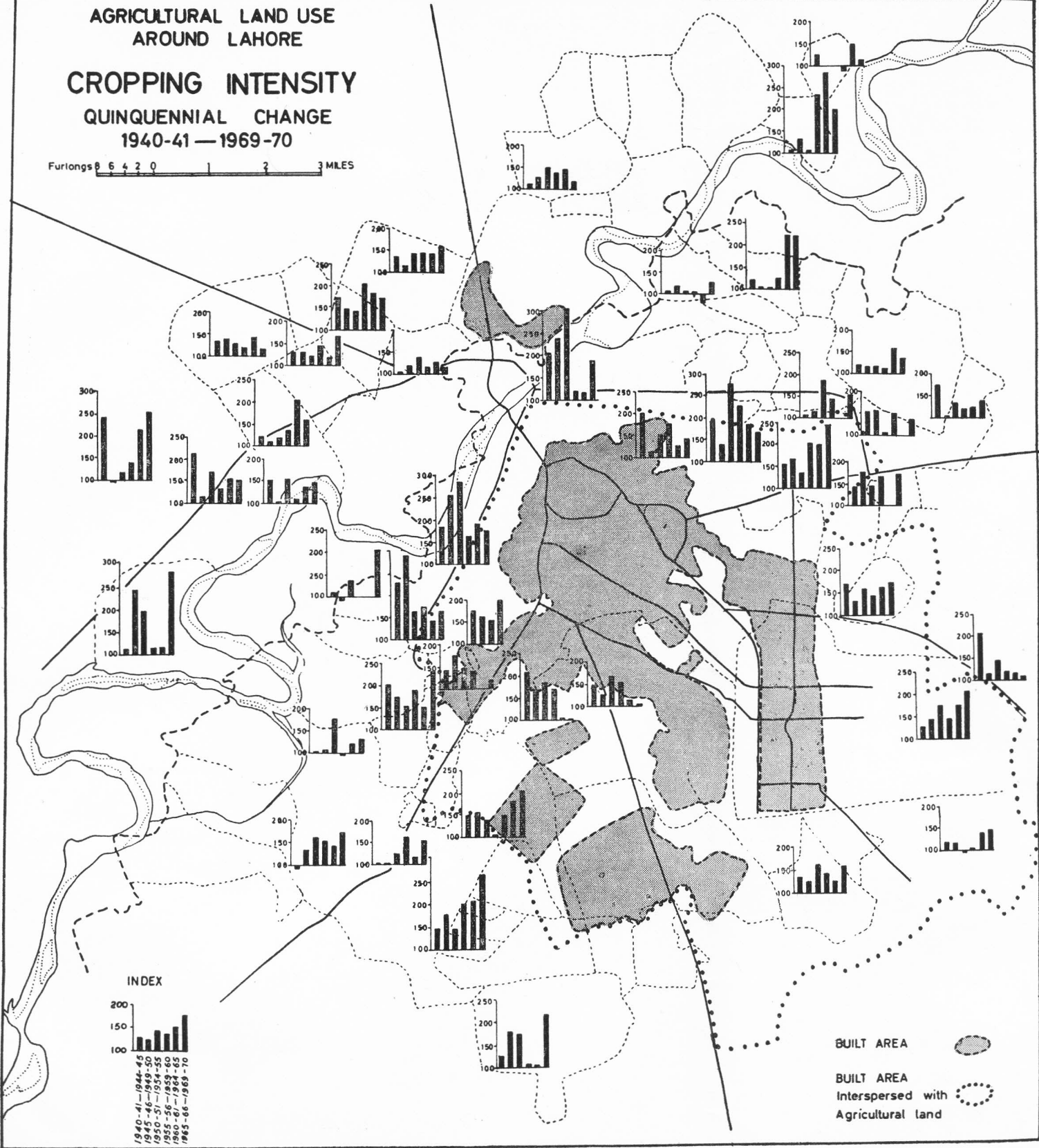


- DOMINANT CROPS**
- VEGETABLES 
 - FODDER 
 - CEREALS 
 - OTHER CROPS 
- BUILT AREA** 
- BUILT AREA Interspersed with Agricultural land** 

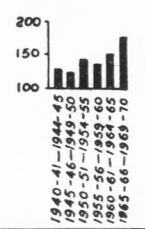
AGRICULTURAL LAND USE AROUND LAHORE


CROPPING INTENSITY QUINQUENNIAL CHANGE 1940-41 — 1969-70


Furlongs 0 6 4 2 0 1 2 3 MILES



INDEX

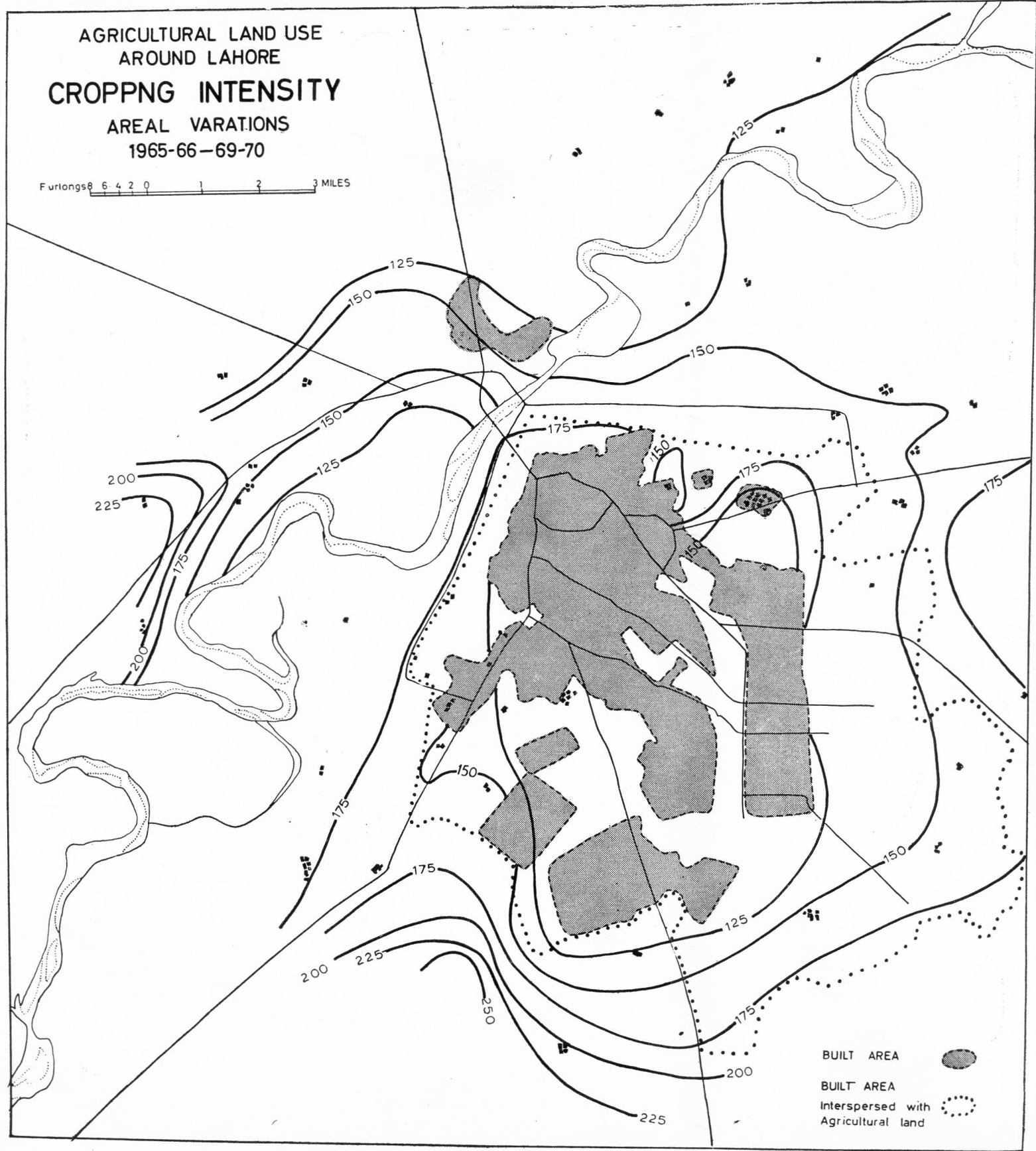


BUILT AREA 

BUILT AREA Interspersed with Agricultural land 

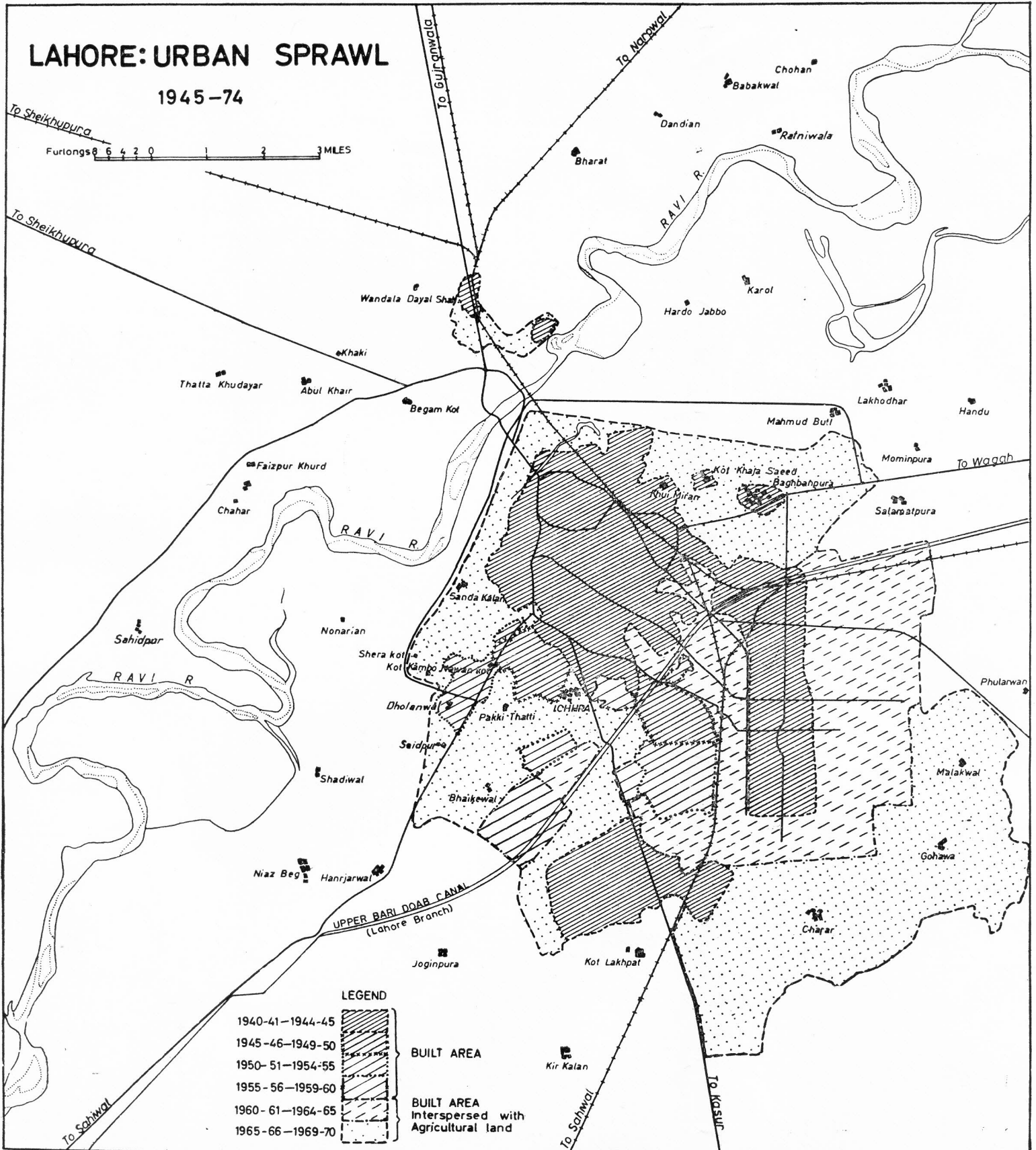
AGRICULTURAL LAND USE
 AROUND LAHORE
CROPPING INTENSITY
 AREAL VARIATIONS
 1965-66-69-70

Furlongs 8 6 4 2 0 1 2 3 MILES

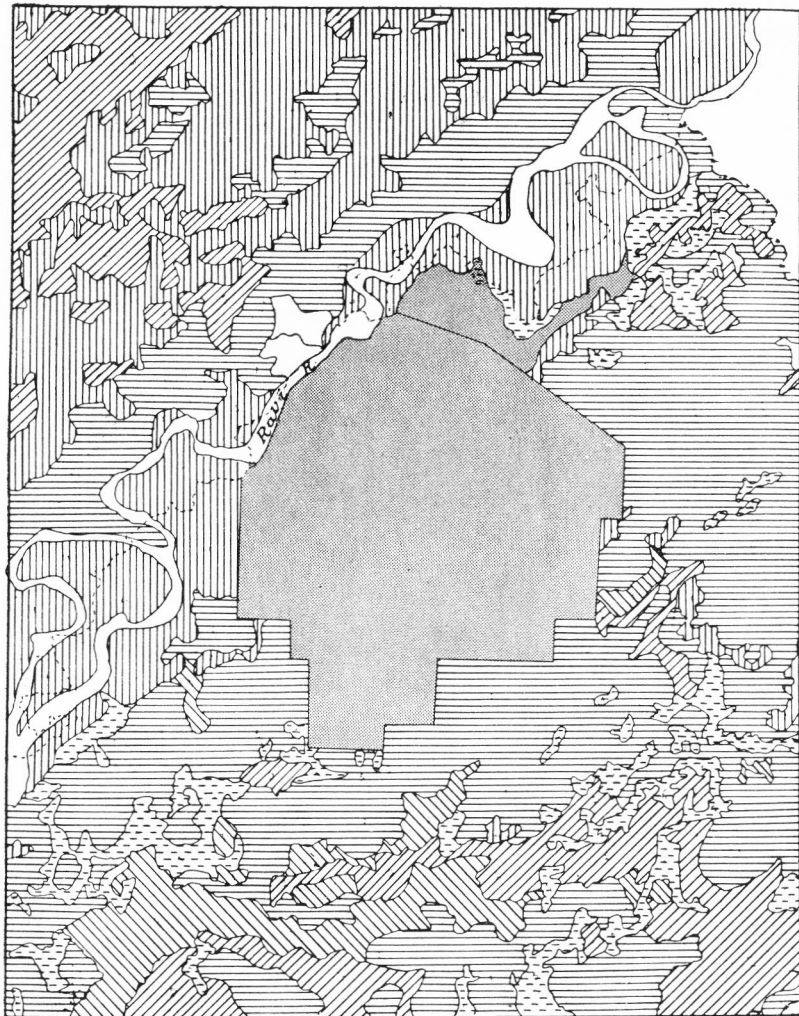


LAHORE: URBAN SPRAWL

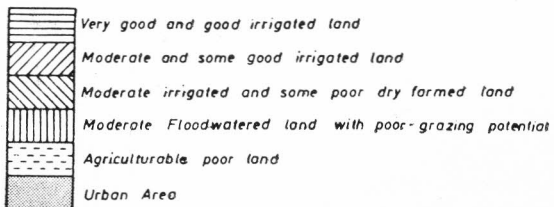
1945-74



LAND CAPABILITY AROUND LAHORE



MILES 2 1 0 2 4 6 MILES



Source:- Modified from RECONNAISSANCE SOIL SURVEY, Lahore and Sheikhpura Districts, 1968, Directorate of Soil Survey, Pakistan

REGION, REGIONAL PLANNING AND POLICY*

DR. MUHAMMAD ISMAIL SIDDIQI†

I am grateful to the organisers of the Conference for electing me as the sectional president of this section on "Regional Geography and Regional Planning". In consonance with the theme of the section, I have selected the topic "Region, Regional Planning and Policy" for my address. I do not claim any special expertise on the subject except that as a geographer and with experience of working on such focal matters as settlements and economic geography I do entertain a certain view-point towards regional planning. I propose to discourse on a subject which is a complex one and needs linking together many concepts and techniques from various disciplines.

THE GEOGRAPHIC REGION

Regional Geography is a vital and indispensable part of geographic discipline and its concept constitutes the core of Geography. Techniques and methods of regional geography have basic relevance with planning focussed on a region—a concern of both planners and geographers.

Regional idea has been associated particularly with geography since the very beginning of the introduction of disciplines. It is still widely assumed that the prime concern of geographers is to examine similarities in social structure only in so far as they are attributable to a uniformity in the character of land and its physical features. The idea has now been modified and now defined as an area in terms of the key traits of the common living, that is, in terms of social considerations not of a particular set of physical factors which condition only in part that pattern of living.

Region is traditionally defined as a continuous area possessing some kind of homogeneity and cohesion in its core with undefined limits. It often crosses over the political boundaries but for planning purposes political limits have always been defined. Region is not an object but a concept for the purpose of thought, relevant to an areal interest, based on specific criteria, whose accordant areal relationship with other subjects are measured. Selection of specific criteria and its application to earth or space creates a distinctive character or a region.

In a geographic region spatial variation of most phenomena is gradual therefore the most important part of the region is its core and not the boundary. A region in reality is rarely a homogeneous area separated by a boundary line; on the other hand it is a homogeneous area surrounded by a transitional zone in which characteristics of one core area are mixed with those of their neighbours.

For planning region must be examined as a geographic unit in terms of those phenomena which provide the key to the social and economic structure and other

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issues, involved, basing on a specific criteria such as the intensity of economic intercourse. Common cultural elements, religious ties, traditions and language. Consequently a region, whatever its forms are, involves a high degree of similarity and integration in space.

REGION AS A BASIS OF PLANNING

Planning, particularly regional, has an inescapable geographical basis. It is a fact still not properly appreciated by the planners and the policy makers of Pakistan that a serious in-depth understanding of the LANDSCAPE is essential whether it is for a town, country, metropolitan city or a region of any developing area with many criteria. A casual reference to the regional studies (in geographical sense) is not enough but the mutual relationship between planning and regional studies should be properly co-ordinated and all problems may be taken into consideration.

The focus in the concept of planning would be on the existence of a certain unity of approach in all its forms like some kind of regional homogeneity and cohesion. Planning is a way of thinking for fixing priorities of action by a group of persons for the future orientation about their social and economic problems which are directly or indirectly related to the regional content. Regional consciousness in the form of group solidarity and exploitation of resources and their exchange between groups by proper schemes and planning has been developed and it turns to be a matter of practical geopolitics since planning is essentially a political action. In the context of planning, concept and delimitation of region remain to be defined scientifically, and may be a deviant case of what is familiar to geographers as 'region'. The current term is 'Planning Region' or officially designated 'Economic Planning Regions'. It must be recognised that many of these regions contain within their boundaries sub-regions, each with its own distinct problems which require distinct measures for their solution. In the northern region of Pakistan, for example, the high lands are dominant and constitute a sub-region which is obviously different from that of the upper and lower Indus Valley. Within such sub-regions still smaller areas may be the subject of detailed physical plans which are regional as distinct from purely urban. For the economic planner physical boundaries, however, are difficult to observe and apt to be indistinct.

Regional planning, primarily, deals with the physical planning of town and countryside. It is a name given to the design for large areas, such as groups of Tehsils or river basins, soil conservation district, drainage district and watershed areas. Its scope has now been widened and includes the relations between social purposes and spatial arrangements. The purpose of planning regions has been economic progress through the development of economic resources. The ordering of human activities in supra-urban-space is carefully studied during the process of formulating and clarifying social objectives. Two basic theories have been evolved, out of many spatial theories from geography, and they are applied to the ordering of human activities in the interest of finding a good criteria or some systematic categories of regions such as *single multiple* and *total*. CENTRAL PLACE THEORY is extended to the internal structure of cities and a theoretical frame-work has been developed for spatial organisation at all scales although

in city planning human ecology is mainly considered. Walter Cristaller wrote that any inhabited area would exhibit a certain structure of settlement which may be read as a hierarchy of central places standing in a mutually dependent relationship to each other. Further Boguh attempted to bring closer the theories of regional structure as a system of central places and of metropolitan structure. Vining proposed that the human landscape is an area where inter-connected system of central places is confounded. Central places relatively gained an economic power due to increase of population in cities and in the areas peripheral to them. Cities are dominated by the system of transport and communication and the traffic flow may reveal the striking instance of "Nodality" in the flow of the economy. Economic development enhances the possibilities of further growth at central places.

The theory of location is employed for the activities to be distributed in space so as to meet the social objectives. Geographers divide space into regions and often relate it to the period of history. The historian, on the other hand, delimits time into periods of similarity and integration. The region is unique in that it differs in location from all other regions of the same category. It enfolds a three dimensional segment of earth space. A location theory is an attempt to account in a consistent logical way for the locational pattern of economic activity and for the manner in which economic areas are interrelated. It is not necessary to cover all aspects. For example Von Thunen's Theory was a great step in developing a theory of location of certain economic activities. Similarly a theory of weight loss and transport costs expressing the relationship between weight-loss and transport costs is pertinent to understanding the location of manufacturing. Alfred Weber incorporated several ideas in his famous work on "The Theory of the Location of Industries." Fetter's Theory deals with the location of the boundary between trade areas around centers. The Interaction theory deals with the strength of the economic connections between two places which varies positively according to their size and negatively according to their intervening distance. The larger the populations of the two places, the greater their economic interaction, but the greater the distance between them, the less the interaction.

Region is a geographic generalization, but for planning its construction is essential and the emphasis should be on one factor rather than the total region. The broader aspect of resources, economic patterns and other regional interests may be left aside while constructing a planning region, which would adhere mainly to the cities only. It is the basis on which the regional planning tends to become an expanded form of city planning. The city is a fact of utmost geographic importance because the region is influenced by its culture and economic vitality. The controlling influence over the development of region comes from urban centres, where men, goods and energies are brought in for concentration, dispersion and diversion to other parts of the region. Therefore the metropolitan region may be treated as a planning unit. The planning requirements, extend beyond the traditional requirements of "Geographic Unities" attitudes, wants and homogeneous desires. Therefore a region may be a basic areal unit in which pattern of economic and social interdependencies are greatly interwoven and it is a socio-economic power for a broader geographic area. It takes

account of the city and its surrounding areas, generally known as periphery or suburbs, in relation to national and world economy. It is also called city region for carrying out comprehensive development planning below the national level. In city planning in addition to a regular activity a separate focus is laid on the quality of the micro-environment. Easy accessibility and quick means of transportation made it possible to connect the various parts of the city region and weld together into a unified whole. The common framework of city region includes both the problems of resource development and land use control and circulation. The planning function should be extended across the entire area of city region with an emphasis on metropolitan resources, such as transportation, space, and community organisation for economic development. The locational advantages of the city region are properly appreciated when transportation allows for accessibility to the centre and for rapid circulation of its various parts of the region. It is a fact which helps greatly in planning and shaping the nature and arrangements of the various localities. Space and transportation resources of the region have been recognised as AREAS CENTRAL by the city planners. Space is always limited ; its value is not constant because of continued modification in its locational set up ; its physical attributes and other improvements, made on the land. Organization of the community life may be treated as third resources. Community in the city region is composed of the following basic interrelated parts:

- | | |
|---------------------------|---------------------------------------|
| (1) The urban Core | (4) Recreational centres |
| (2) Industrial Satellites | (5) Land reserve for agricultural use |
| (3) Village communities | |

The reflection of social integration in the proper planning of the transportation and space sets limits to the possible economic integration of the city region; where functional differentiation compels the component parts for greater interaction within the given social order. The basic spatial relations are, therefore, classified into two :

1. Between central city and its surrounding regions.
2. Between one city to another city region. This factor is relevant to national planning.

A different areal organization on the basis of functional regions would be brought in when spatial resource problems will be considered.

REGIONAL PLANNING

Regional planning, therefore, is an instrument for the successful arrangements of certain facts and is a means of chalking out suitable programs and policies. It determines the devices, suitable to execute the policies and programs. At the core of regional planning the relation between the spatial arrangement of activities and social values is measured. The factor can be explored at the level of national policy where it comes to focus chiefly on the formulation of regional development; strategies, the allocation of resources in space, the location of productive facilities and the arrangement of settlement pattern. Regional planning sometimes is made synonymous

with regional development policy at the national level :

Narsimhan of the United Nations on Scope of Regional Planning writes:

“Regional Planning would provide the most suitable frame of reference for a balanced integration of development project of national significance and those based on local initiative. Such comprehensive regional planning would apply to the development of metropolitan areas in which natural resources are being developed as well as to rural reconstruction programs and to the location of industries”.

However, for all planning purposes city region is a nerve centre of economic life, where most of the vital decision affecting larger areas are made, and put the decision into action and financial means are also provided. It is closely a reflection of the functions of State Government, and specially constituted public authorities like K.D.A. in Karachi and C.D.A. in Islamabad. WAPDA and PIDC are the national bodies with broader range of approach towards the whole country and their concern towards regional planning is as close as the planning of city region. For instance, the construction of super highways in Pakistan, a policy framed at national level, involves many regions, and their complexities, partially discussed in the plan presented by the chairman of highway board in Pakistan. He reported that the Indus highway would run on the western bank of the Indus, linking Karachi with Peshawar. The distance between these two cities would be reduced to over 250 miles as compared to the existing distance of national highways. Link roads of super highways will also reduce the considerable distance from Karachi to major urban areas in the Punjab, the Frontier and western Sind provide alternative routes to inter-regional traffic and thus reducing the congestion on the existing national highway. The project includes the construction of bridges on Dadu. More D. G. Khan, Muzaffargarh, D. I. Khan and Darya Khan. The traffic flow would be increased and the constant contact will change the regional pattern. To bring Kohat and Peshawar still closer and to reduce further distance of super highway a long tunnel of 800 meters would be constructed. It is also ensured that the proposed highway provides a reliable and fast road link free from threat of floods. There is no doubt that this project would open up the under-developed areas of Dadu, Jacobabad, Dera Ghazi Khan, Ismail Khan and Bannu and for the consequences of such a project the policy makers must prepare an advance plan at least for the surrounding regions of super highway, which could be included later in the over all inter-regional planning of different provinces. However, city regions would receive the full benefits of the scheme not only in trade circulation but also in increasing the city population by migration from rural to urban centres. In Pakistan many public authorities are created for specific development purpose but their integration from the point of view of over all control is missing. They are no doubt in some form or other connected with the central planning authorities but this type of loose connection does not bring over all progress to all regions. This factor must not be ignored particularly by underdeveloped and poor countries where the maximum benefit are expected through a

rational plan at the cheapest possible cost. Decision taken in the sphere of planning may have implications at the regional and even national level. Space in regional planning is structured primarily through a hierarchy of urban places and through the field of interaction which relate them. Therefore, in planning policy the co-ordination of city and region must be taken into consideration.

At the regional level the spatial unit is larger than the city. Diversity between regional and national levels reflects the underlying spatial structure, which consist of urban nodes, nodal regions and connecting channels of transport and communications. Problems of spatial organization emerges on the level of the metropolitan region, which is discriminated against the city on the basis of the following characteristics.

1. It has one or more cores or control centres.
2. It provides numerous facilities and accepts the influence of other culture.
3. It represents a suitable unit area with respect to which investment decision will be made.
4. It includes the surrounding lands of agriculture.

REGIONAL POLICY IN PLANNING

To maintain inter-regional balances and for comprehensive national development in which all parts of the country contribute in their own way to the attainment of national objectives, national urban policy must be approached by way of broader regional considerations. As a matter of fact the regional choices are made after considering the urban problems, such as public housing, metropolitan highways, mass transit and sanitary works. A great deal will be achieved in planning if the regional administration takes care of the increasing complexities in the light of the national needs. The guiding principles should also provided to planners on the national basis. The task of regional planner will be to state the ordering of control centres within the area, to identify the functions to be performed by each other and to study the inter-regional effects of the expansion of metropolitan economies. On broader basis in a more comprehensive spatial framework the metropolitan region forms a integrated functional pattern, which generally includes, transportation power grid, water supply channels and communication. Peripheral areas include potentially valuable resource complexes and the problems deriving out of it may be solved by perfect integration of these areas with existing metropolitan centres.

Regional policy for the nation would accompany policies for the overall development of its resources. The geographic allocation of resources within the country be treated entirely on a short term political basis. In the framework of policy planning the technical, economic and political elements are closely interlinked. There will inevitably be spatial implications of any set of resource allocations. In countries like Pakistan where an economy is slowly moving out of an agrarian into an industrial future spatial re-organization is a must, a process of concentrating people and economic activities in cities would be greater, further shift will take place at the development proceeds into the post industrial phase.

National policy for regional development, settlement policy and planning for inter-regional network are among the truly vital issues confronting Pakistan and other similar developing countries and must be seriously considered from a point that is altogether different from the traditional city planning. The system of five years planning for development in Pakistan for the years 1976 to 1981 has recently been re-introduced. Through this system a considerable success in regional developing areas was achieved in the past. The proper utilisation of local space and resources was not considered seriously in terms of regional and national levels and the progress was not based on the nation's own resources, skill and energies. A glance towards the past three years of Pakistan indicate that a considerable degree of success was achieved due to high degree of resilience and given coherent policies that favour growth, not up to expectation, consistent with stability and the containment of social tension. Therefore it is argued that the reliance on the annual budgeting of development expenditures and short term approval of special projects has not proved to be satisfactory method of guiding the economy for the balanced growth. Further directing of resources into the most productive channels of investment and opening of a scientific planning scheme of priorities into play involve the state government to invest more than the income if the period of planning is given for one year. Moreover, there is a possibility that the aid giving countries would not consider the request of annual plan. Five years planning is the minimum period and it is the only way of making satisfactory deals with and obtaining commitments in advance from the donor countries. The most important aspect of planning is the proper direction to economic decision, making at political, administrative and entrepreneurial levels and by prescribing a discipline of policies and a scheme of incentive that will hold good for number of years.

I am positive once the stage of sustaining cumulative growth and a reasonable measure of inter-regional integration has been achieved, the spectrum of problems will inevitably shift to the dense population, in other words, to the metropolis. In transitional societies, like ours, city and regional planning is easily distinguished and essentially meaningful. Therefore from the very beginning in the interest of the country it is vital that certain national decisions be taken after considering the regional circumstances and after the regional framework, in the context of overall planning, have been constructed and a broad outline facts of policy should be given to specific planning authorities to assess while preparing their local plans of urban complexities.

REGIONAL APPROACHES TO THE AREAS OF DEVELOPMENT

Regional Economic Planning provides the framework. The country should officially be sub-divided into planning regions. For example, in England there are geographic regions, political regions and ten sub-divided economic planning regions, each with its own planning council which should be an integral part of national economic planning.

Policy implies the determination of priorities and this involves more than an assessment of economic potential. The policy implication control must influence the planning from time to time.

1. The first thing one should remember is that any area, selected as a region for

development must not entirely necessarily a satisfactory unit. It may be comparatively a better unit which could be defined arbitrarily as special areas.

2. The area should not be assumed as an ideal unit because the facts of one unit are subsequently blended into the national picture.

3. It is necessary to determine the right form of approach. Materials collected for the plan should be correct, systematic and easily applicable to larger units.

4. There must be a summary of material, followed by an additional maps, showing the most important critical regional problems.

5. Production of the appropriate material, upon which a regional plan is based may be obtained from the contribution made to planning by geographers. They are best equipped by virtue of their training to co-ordinate and summarise the results of such investigations.

6. There should be an understanding between the broad conception of regional planning as seen by regional geographers and the technical detail in which so many professional planners appear to become submerged.

7. Study of regional geography is required for fixing criteria. The optimum size of the cities must be determined, new techniques need be refined and developed, more should be known about the costs of alternative policies, including the social costs. In general there is a particular need to establish criteria for assessment and evaluation of plans. Actually the study of regional geography unavoidably and frequently entails the making of value judgement of several kinds. Therefore the regional method fits in a frame of study where spatial criteria is applied for sorting and grouping of data.

8. It is necessary to inquire the additional facts, if any, from the planners in order to incorporate them in the preparation of the regional plans.

9. In all types of area planning there is in one form or another the need, whether that need be emphasised on social or economic grounds or both.

10. If the smaller units are taken in hand for planning, regional plan must be acquired in advance. If national issues are involved, a plan covering the whole area would be taken into consideration.

Policy makers have always been from the national government and their policies in terms of planning are executed through the political machinery. Application of new approach to developing countries including Pakistan suggest the need of some revision of local administrative boundaries including the set up of planning regions, and some reconsideration of the relative roles of national and provincial governments. It has been observed from the experience of last 25 years how the fortunes of regional policy have fluctuated with the fluctuating interest of national government. Unfortunately there are signs of a dangerous swing away from regional policy. Recent measures such as redefining and enlarging of the development areas has been followed by agitation from the areas still excluded and not included in the prosperous one. The government concentration on short term measures has left little time for long term economic planning. It is essential and now is the right time to get attention of the government to the problem of securing regional development which should be consistent with national growth. Economic progress is

measured by a rising standard of consumption of goods and services, which involve changes in the character and location of production. Different regions do not advance at the same rate, and serious locational problems are raised by these differences. Therefore, serious thought should be given to the dynamics of occupance and land use and the remedial actions, which become reflected in public policy with relation to the development and redevelopment of areas.

Before I close my observations, I express my deep gratitude to the Pakistan Geographical Association for affording me this opportunity for participation in this conference.

URBAN HOUSING AND RESIDENTIAL LAND USE PATTERN IN PAKISTAN*

ZAFAR AHMAD KHAN†

A major portion of the urban land in Pakistan is used for residential purposes. It covers nearly 60-75 per cent of the total developed areas of the cities. The residential landscape is, however, extremely varied. Certain sectors are mixed up with commerce, others with industry and still others with both. In contrast, there are certain areas which can be said to be purely residential. Similarly, interspersed with houses are found religious buildings and public institutions in varying degrees of concentration. The places of worship are in larger numbers wherever the population is particularly dense. But the distribution of public institutions is most uneven and shows certain concentrations which bear no such relationship.

Land use characteristics and the variation in the distribution of public institutions and religious buildings are not the only factors which differentiate one sector from the other. Contrasts are also evident as a result of differences in the layout of streets, density of housing, and house types which vary in age, size, height, number of rooms, wall material and rental values. Such variations contribute to distinctive types of residential environment. They produce patterns and zones which clearly indicate the phases of the city's growth. They also show as elsewhere "the classes of the society which are linked with each other; they reflect a long process of ideas as to what constitutes a reasonable home".¹

The present paper attempts to (i) categorise the various residential zones in Pakistani cities as identified on the basis of the above criteria (See Appendix I also), (ii) to trace the historical and sociological background for the distribution pattern, and (iii) to explain the characteristics of housing and land use in each zone.

1. The District of Pre-British Indigenous Houses :

The first clearly defined zone which strikes the eye on account of its very old houses coincides roughly with the pre-British native town and may be termed as the District of pre-British Indigenous Houses. It invariably had a surrounding wall. The fortifications as found by the British were mere heaps of earth and there were many breaches in the wall so large that the inhabitants used them as convenient places of "ingress and egress".² The settlements were very congested and excessively dirty. The streets were crooked and so narrow that two horses could barely pass each other in principal thoroughfares.³ "The narrow alleys through which nothing bulkier than a jackass could pass with ease, boasted no common sewer; drainage was arranged by evaporation. . . . while the birds and the

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dogs were the only scavengers. There prevailed a faint dead smell of drugs and spices as one might suppose to proceed from a newly made mummy. It was often increased by the aroma of a carrion in such a state that even the kites pronounced it rather too high to be pleasant.”⁴ The houses were built of sundried or baked thin bricks or of mud with a large quantity of chopped grass plastered over a frame work of wood. Expansion being difficult they were closely packed together and raised to 2 or 3 storeys so that the vertically arranged rooms were normally dark and had poor ventilation. But in Sind most of the houses did not exceed one storey and were all flat roofed and fitted with *badgirs* or wind-catchers.

Morphologically the area has continued almost unaltered. The slight development which took place during the last one hundred years, has been nothing more than the refurbishing of the old fabric. With the security of the British rule, the usefulness of the wall had absolutely disappeared. Rather it was considered as an obstruction in the free movement of goods and air was consequently demolished. The dark narrow alleys were improved in and drains were sections. Some of the houses were renovated and their ground floors converted into shops, stores and godowns. But most of the houses, although old and dilapidated, are still preserved mainly on economic considerations. Since the plots are small and the area too congested, higher rents are difficult to be obtained by rebuilding. Moreover, substantial income is already derived by letting out individual or sets of rooms on the upper floors and the converted business premises on the ground floors. Consequently, the residential functions are intermingled with business activities which have intruded on a very large scale.

With customers drawn from all sections of the city, the centre specialises both in retailing and wholesaling of the commodities which can be categorized as ‘common needs and luxuries’. The shops are, however, small and shabily built. The winding narrow streets in which they are situated, remain packed with hawker stalls and are unfit for vehicular traffic. Ironically, it is the most densely populated section of the city where there are no less than 300 persons per acre. But a density in excess of 500 persons per acre is not uncommon. The residents belong to the middle and low income groups such as shop-keepers, coolies, drivers, factory workers and clerks.

2. The Districts of Post-British Indigenous Houses :

Encircling the District of Pre-British Indigenous Houses is a housing zone built entirely during the British rule and may be called as the District of Post-British Indigenous Houses. This district is hemmed in between the Old Town and the Cantonment. It represents the extension of the earlier settlement as ‘Municipal Quarter’ which was put for administration and development under a municipality constituted in the early years of the establishment of British Government. For a long time serious limitations were imposed on expansion of the area by the Cantonment and also, in certain cases, by natural barriers such as a river. The overriding consideration was thus to accommodate in the area as many people as possible and to house them cheaply. This led to the construction of high tenements, which could accommodate groups of male immigrants or several families in a number of dwellings arranged horizontally on each floor. The rents of the

dwelling were minimized by the savings on land and construction costs. The ground floor rooms which were given over to more profitable functions such as commerce and industry, compensated for any deficiency in profit margin. Although differing to some extent in layout and architectural design, they are built in every city along the main streets. However, the most elaborate of these tenements are the *Chawls* which are found in Karachi and Hyderabad. It is a huge building with dozens of self-contained dwellings on each floor having hanging balconies on sides facing the streets.

Away from the main streets were also constructed small family dwellings (mostly single storey) by immigrants and old inhabitants who had left the cramped Old Town in order to live in a healthier condition. These houses were built near tanks or at sites where sweet water could be obtained by digging wells. The layout of the house was conditioned by two of the cultural traits of the people. The first was the joint family system which necessitated accommodation for a large number of persons. The second was the institution of segregation of women-folk which in the case of Muslims took a more strict form known as *Purdah*. The house was thus large and confined with a well. It contained a courtyard around which were built several rooms. The house opened towards the street, a system adopted from the Near East. The entrance and doors were arranged in such a manner that the largest possible part of the house could be secluded for the family, leaving only a small portion for men to receive their guests.

The area did not develop on the basis of a preconceived and detailed plan. Piecemeal developments were undertaken at times in response to new creating isolated settlements called *Mohallas* which coalesced together in later years. As a result there has emerged out an inconvenient and a wasteful ground plan. With the exception of one or two main thoroughfares which link the Old Town with the Cantonment, there is no direct provision for through traffic so that most of the vehicles must zigzag their way through the winding and narrow lanes from one section to another. To cater for the local needs there have sprang up on some inner roads small shopping centres, which on account of adjacent residential buildings and busy traffic are usually associated with intimacy and great bustle. But the atmosphere of liveliness is often prejudiced by the intrusion of workshops and factories with their attendant defects of noise, repugnant smell and visual repulsion. On the other hand, the main thoroughfares by virtue of their axial position in the city have developed into important business centres. With neon light, tastefully decorated shop fronts and display of a fascinating selection of goods, they show a degree of pleasantness which is only surpassed by the fashionable shopping centre of Saddar Bazar situated at the fringe of the district towards the Cantonment. Saddar Bazar is also a centre of Commercial Offices, modern hotels, restaurants and cinemas. It invariably has the largest concentration of minority communities, who selected this area for residence with consideration to preserve their identity in isolation from the indigenous population and to enjoy the social facilities available in the Cantonment. Saddar Bazar is neat and clean and has lower population density than the remaining sections the Post British Indigenous Housing District which has no less than 250-300 persons per acre.

After the establishment of Pakistan, a number of scattered settlements similar to

the above district in layout and housing sprang up in various sections at the periphery of the 1947-city. They mainly contain new-comers whose habits and traditions are deeply rooted in villages. Hence in spite of recent development, they have developed the same old indigenous housing character and are also called as *Mohallas*.

3. The Bungalows and Barracks District:

Along the margin of the Municipal Quarter in the direction of Saddar Bazar stretches a belt containing bungalows and barracks. It represents the Cantonment and the Civil Lines of the British period and stands in sharp contrast to the congested confusion of the indigenous residential zone. Planned on a checker board pattern, it is of an open character. The block of spaces formed by roads are used as 'building lots'. All the roads are flanked with pavements and are lined with trees. They are wide and have been provided with parking spaces. Community facilities such as schools, hospitals, parks, playgrounds are found in all sections.

The bungalows were built for British army and civil officers and the barracks for soldiers. The bungalows as they stood in the middle of the last century were described as 'parallelograms of unlovely regularity', with walls of sundried bricks, doubly white washed to promote cleanliness and glare, sometimes flat above, more often sloping with red and blue tiles, with eaves pulled out and prevented from falling by clumsy columns of bricks.⁵ They were separated from each other by tall milk-bush hedges or stone wall or mud enclosures called compounds which served as courtyard and garden. Some of the bungalows were renovated or reconstructed. But many still exist in their original shape. Even the reconstruction did not bring any substantial change in their layout, for the simple reason that they were designed to meet the requirements of Europeans who being unaccustomed to the tropical heat needed cool houses with sufficient spaces for sleeping out of doors at nights. Thus they were built with thick brick or stone walls, large windows and high ceilings. Each bungalow contained a number of rooms and a wide varandah with pillars running all around. The design of the barracks were also imposed by the necessity of keeping them as cool as possible.⁶ As a result they too were built with thick and high brick or stone walls, each containing normally two rooms, a backyard, toilet, bathroom, kitchen and a front varandah pierced with apertures for the admission of air. Following the departure of the British in 1947, the bungalows were given to officials of the Government drawing high salaries and barracks to persons receiving low salaries. Some of these are also being used now as Government Offices and schools. The district is considered as a high quality residential area in which both the housing and population densities are very low.

4. The Villa District :

Beyond and sometimes along a side of the Bungalows and Barracks area stretches a housing district containing villas. This district represents mainly the interwar suburban expansion of the city. When opened for development, the area was connected in most cases with the existing city by a single road. There did not exist any efficient system of public transport. As a result, the residential plots were brought only by those who were rich and could afford to keep private carriages. These persons had lived for quite a long

time in cramped apartments. Now they had a chance to build a house where they could enjoy rest and sleep without being disturbed by the outside world. The existing example of such a house was the bungalow. Bungalow ownership could be advantageous from another point of view. It could bestow upon the owner a special prestige in the eyes of the native population on account of its long association with the ruling class. Its layout and form could, however, be modified according to the economic and social needs of the owner. Consideration such as these led to the construction of *villas* and encouraged a kind of urban spread which has so fillingly been called "villadom".

The villas are slightly different from the bungalows. They are of smaller size and are comparatively compact. They do not possess spacious compounds and large back and front yards. A narrow open space surrounds them and the plots are enclosed by high brick or stone walls. They are of varied style. However, an average villa is built of stone or brick and is two storeys high. It has a cemented flat roof with a *barasati* on it. Its main doors open on to a *varandah* supported by pillars, in front of which stands a portico.

Like the Cantonment and Civil Lines, the villa area was also designed on chequer-board pattern with straight and wide roads cutting each other at right angles. The district was planned to serve as a dormitory suburb, depending for all its services on the city proper. It still retains this character. The residents belong to high-income groups. The housing and population densities are quite low.

5. The Kothi Districts :

Beyond the district of Bungalows and Barracks and that of villas are found in various directions a number of housing estates containing modern houses locally called Kothis. Built entirely after 1947, the Kothi Districts are situated beyond the villa district. They consist of a number of colonies developed by private housing societies and government agencies. Each colony is planned with maximum economy. This has led to the creation of compact housing blocks with straight roads. The most striking feature is the central position of a mosque towards which converge the main streets of the surrounding blocks. All associated services, *i.e.* shopping centres, schools, hospitals etc. are placed in bands of open spaces enclosing the housing blocks. But their development is slow so that the inhabitants depend for most of their needs on the old 'Municipal Quarter' which is separated from the district by the broad belt of pre-1947 bungalows and barracks and villas. The result is, as elsewhere in the cities of South East Asia, an enormous transverse flow of traffic and a huge waste of money, time and temper.⁷

The townscape is associated with self-contained single family dwellings. They are mostly detached and one to two storeys high. The plots on which they are constructed range in size from 120 sq. yards to over 1000 yards. The houses are normally built on 2/3rd of the plot area. The remaining 1/3rd is left vacant as a front yard or a back-yard or both.

Whether large or small, every Kothi is similar in layout and represents the modern trend of house-building in Pakistan. It combines the characteristics of a bungalow and a typical indigenous house whose layout was rooted in the institutions of joint family system and *Purdah*. After 1947, these considerations underwent a great change.

Nuclear families arrived in large numbers. Some were separated from the joint families in India as a result of Partition. Others came from different parts of Pakistan in search of employment. Even the institution of *Purdah* did not remain so rigid because of a higher educational status among women and their recruitment in labour force. These changes brought a far-reaching effect on the layout of the house. It was now possible to open it to the street. The enclosing wall removed and a low hedge, fence or brick wall was substituted to encircle the plot. The courtyard was moved from its central position in the house to the rear. The rooms were built so as to incorporate improved lighting and cross ventilation. The front portion of the house consisted of a varandah and a room for receiving visitors. A passage connected it with the remaining portion of the house which was secluded and reserved for the family.

6. Districts ofhovels and Huts :

At the fringe of the 1947-city are scattered a number of districts containing hovels and huts. Such districts are also found within the city itself where they occupy the previous open spaces. Inhabited by refugees from India and immigrants from the country side, these areas have grown haphazardly and contain agglomerations of irregular villages and unplanned settlements. The twisting and narrow streets are excessive filthy and become regular drains during the rainy season. The land is normally lowlying so that water remains stagnant at places. This breeds mosquitoes and flies and promotes Epidemic diseases. A survey of such an area in Karachi showed that 63 per cent of all deaths in a particular year were caused by Gastro Enterists.⁸ Such unhygienic condition is further aggravated by the intrusion of obnoxious industries, intermingling of functions and the absence of social services and open spaces.

Most of the houses are semi-pucca. They are built of a combination of materials such as cement blocks, bricks, mud mat and tin sheets. Most of them have one room, a kitchen and a laterine. Practically have no electric light and water-supply within the premises and the inhabitants rely on the community taps.

Besides such squatters there are in the city hundreds of *jhuggi* clusters. Their location and size has been determined by the available vacant space. In 1959, Karachi had 214 *jhuggi* clusters which contained 1,19,400 families. Some of them have been removed but many new ones have come up so that of the 4,90,000 house-units in Karachi nearly 1,72,000 (35%) are shacks and 98,000 (20%) semi-pucca. Similar situation is found in other cities. The following words explain the extent of the inhuman condition in which people are living in these shanty dwellings:⁹

“A farmer provides his yoke of oxen with properly sheltered space covering more than 4×5 yards. They comfortably stand there by their manger to munch the fodder and sit down sprawling themselves to chew the cud and sleep the restful night away. Those who live in *jhuggis* or similar improvised tenements in Karachi do not enjoy even that much of space or comfort.”

“The four walls of these *jhuggis* are made of rickety reeds of gunny bags or rusty, perforated sheets of tin or iron or here and there of kutcha and pucca mouldering bricks. They are roofed with the same material.”

“The tiny make believe of a home is littered with all the meanest artifacts that make up the possessions of its dwellers. There is a charpoy in one corner laden with rags for beddings stored for the day. Under it are stuffed one or two little broken trunks, some ugly utensils and a host of other oddities all of which go to form a topsy-turvy pell mell. Adjacent to it is an oven. And almost touching it hang a few littered clothes on a string tied to the so-called wall. . . . On the other side of this improvised thick curtain is the laterine of the family. On the left side there is a little pool of water amidst which is stuck up an ancient mos covered pitcher.”

Such conditions stamp the areas of hovels and huts as ugly slums. This has some bearing on the slum clearance plans of the Government which involves the demolishing of houses and *jhuggis* and removal of their residents to resettlement town-ships at the urban fringe. The author of this paper observed that the residents of the squatters disapprove the Government plans for removing them from the areas and want to stay in their humble dwellings. This propensity is fostered partly by the lack of sufficient money to meet the cost of travel and partly by the existing transport difficulties. Furthermore, the people have already lost their original ties and codes of villages from which they have come to the area. Now they do not want to lose new ties that have developed in the course of living in the area for decades. It is thus imperative that (i) if these people are to be given alternative accommodation, this should be done in the same areas or in regions near their places of work, and (ii) if removed, they should be resettled according to their previous groupings and settlement pattern. However, it is gratifying that Karach Development Authority has at least realized this human problem and has initiated a scheme of block of flats for the residents at the sites of slum clearance.

7. The Quarter District:

The urban fringe is characterized by poor quality terrace houses commonly called as ‘Quarters’. Such housing districts have been developed by the Government as refugees colonies, resettlement townships and low-cost housing estates for displaced persons and other families belonging to the lower income group.

The quarters are small shabily built, identical and monotonous houses. They are set close to each other in parallel rows. All are one storey high and have flat roofs and low ceilings. They are built on plots measuring 80 to 120 sq. yards and contain 1 or 2 rooms. When first given to the families they contained only one room. Some of the occupants added another room, a kitchen and a toilet later on. In order to secure privacy they enclosed their plots by a wall which obstructs light and air. The houses normally lack all kinds of conveniences. There is neither electricity nor inside water-taps and flush arrangements. Carosine oil lamps are normally used. Water is obtained from public water-taps installed in the streets.

Such an unhygienic atmosphere is further aggravated by the dirt and dinginess of the front and the back lanes where rubbish is deposited in huge heaps. Water is also let out on them from the houses. There is either seeps underground or stagnates to breed mosquitoes and flies,

There are neither employment opportunities nor ample provision of civic facilities in any of the colonies. Residents undertake long journeys to get to their work to the central part of the city. Furthermore, there is no planned allocation of land for different functions. As a result there has emerged out an uncontrolled and haphazard land use pattern.

However, an attempt has been made to avoid such drawbacks in developing some new developing resettlement townships; particularly in Karachi. These townships have been planned not only as residential suburbs but as fully integrated communities, equipped with all the needs and functions of daily life. There will be employment opportunities within the townships. Zoning will provide residential, commercial, administrative and civic areas as well as parks, playgrounds and schools. Special zones will be reserved for factories and workshops. The planning is based on the 'neighbourhood' principles. The elementary unit is a small community called Community Class I. It consists of 10-25 houses with a common connecting factor, normally a street. Several such communities with a higher order connecting factor, a playground or a major open space, are grouped together to constitute a community of Class II. An even higher order common element, an elementary school for example, links several communities of Class II together into a community Class III. Higher order community buildings and services such as Secondary Schools, recreation buildings, shopping centres serve several Class III Communities, and group them into communities of Class IV. The existence of all these additional elements (in Community Class IV) creates the first complete community which possesses practically all basic functions within its limits. The townships, when developed fully, will contain several such self-sufficient communities.

A still more novel programme for developing fully integrated, viable and self-sufficient communities.

A still more novel programme for developing fully integrated, viable and self-sustaining urban communities called 'Metrovilles' has been recently launched by the Karachi Development Authority. The programme is based, as claimed by KDA, on 'Several innovated concepts, new designs and special building techniques'.¹⁰ It is focussed on the concept of Utility Wall Development on smaller plots measuring 80 to 120 sq. yards and includes the development of the plot, construction of the utility wall and the installation of water, sewerage, electricity and gas connections on a wall and cemented floor in kitchen, bath and toilet. The owners of plots are given choice to use construction material and to build their houses in accordance with their family needs and resources. A flexible land use policy has been adopted in planning to allow development of cottage industries, service industries and small shops on residential plots in order to promote economic activity for raising house-hold income. A model Metroville called Metroville I has already been developed. It encompasses an area of 200 acres which in addition to other community facilities and social institutions contains 4,132 residential plots when developed fully nearly 35,000 persons will be squeezed in these 4,132 homes, which will produce an occupancy rate of about 3 persons per room and a net residential density of about 350 persons per acre.

Thus every where the population density is high and the housing is of a substandard quality. It is pity that the planners have not considered its consequence. The humblest person needs a house of good design, well ventilated and well lighted. In view of the family size of 4-5 members, the space allocation for each house should not have been kept as low as 80-120 sq. yards. Each house should have been built on a plot which could have provided at least three rooms and ample space for a small garden. Experience shows that poor construction as a short term expedient is hard to get rid of while the city is growing, even after the economic conditions of its people have considerably improved. The terrible consequences of this can be found in many cities of the world.

TABLE

HOUSE TYPES AND CHARACTERISTICS IN URBAN AREAS OF PAKISTAN

House Types	Period of construction.	Wall Material	No. of Storeys	Plot Area	No. of Rooms	Rent per Room	Monthly income of the House
1	2	3	4	5	6	7	8
						Rs.	Rs.
Indigenous Houses, Pre-British, Post-British.	British Period	Bricks	1-2	200 400	3-4	50	150 300
Tenements	Pre-World War	„	3-5	1000 1500	10-30	100	1000 3000
Bungalows	„	„	2	600 1000	6-10	125	750 1250
Barracks	„	„	1-2	160 1000	2	50	100
Villas	Inter War	„	1-2	400 600	6-8	125	750 1000
Quarters	Post-1947	Concrete Blocks, Bricks	1	80 120	2	40	80
Kothis	„	„ „	1-2	120 1000	3-6	125	400 800
Haveli and Huts	„	Mud, Mat Blocks		40 80	1-2	25	50

Note—The table is based on a sample survey conducted in June/July 1975.

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