

M. Int. 27  
7 000

# CENSUS OF PAKISTAN, 1951

DEMOGRAPHIC MISCELLANY



CENSUS BULLETIN No. 6

August 1957  
Price: Re. 1



## CONTENTS

		PAGE.
<b>FOREWORD</b>	<i>Lowell Galt</i>	(i)
ENUMERATION METHODS USED IN THE 1951 CENSUS OF PAKISTAN	<i>N. Shamsi</i>	1—15
POPULATION PROBLEMS OF PAKISTAN	<i>N. Shamsi</i>	16—20
THE INTEGRATION OF DISPLACED PERSONS IN PAKISTAN	<i>N. Shamsi</i>	21—30
URBANIZATION IN PAKISTAN	<i>N. Shamsi</i>	31—43
PRECISION OF CENSUS DATA	<i>Census Office</i>	44—39
POPULATION GROWTH IN PAKISTAN AND FUTURE ESTIMATES	<i>Inam-ul-Haq</i>	50—74

## MAPS

PAKISTAN IN SOUTH ASIA	... ..	16
AVERAGE NUMBER OF PERSONS PER SQ. MILE		Opposite page 16
MAIN STREAMS OF DISPLACED PERSONS	... ..	22
CITIES AND TOWNS OF WEST PAKISTAN	... ..	35
CITIES AND TOWNS OF EAST PAKISTAN	... ..	36



## FOREWORD

**I**F we accept Alexander Pope's dictum that "the proper study of mankind is man", and if we further accept a definition of demography as the "quantitative study of mankind" we see that few areas of the earth offer more in scope of statistical universe than the sub-continent of India & Pakistan. Historically the valleys of the Indus and the lower Ganges—Brahmaputra have supported high density populations and since these areas are now heartlands of Pakistan it is only proper that this new nation concern itself with inventories and studies of its great human resource.

Mr. Shamsi has performed a useful service in addressing himself to several facets of population growth and its characteristics in Pakistan and in putting these papers together in the present volume. Writing from the vantage point of experience in the First Human Census of Pakistan and subsequent assignment as Census Officer in the Ministry of Interior, Mr. Shamsi deals authoritatively and forthrightly with the concepts and enquiries which obtained in the 1951 Census, the accuracy of census data, the problem of refugee absorption, urbanization trends and prospects and some aspects of the problem of population pressure. Where available data are deficient to give clear cut conclusions the author honestly points the situation up and gives suggestions for improved accuracy and coverage in future work.

LOWELL T. GALT,

*Statistical Adviser to the Government of Pakistan.*

KARACHI, *July*, 1957.

**THE PAPERS PRINTED IN THIS BULLETIN EXPRESS THE  
OPINIONS OF THE WRITERS AND DO NOT NECESSARILY  
REPRESENT THE VIEWS OF THE GOVERNMENT OF PAKISTAN.**

## ENUMERATION METHODS USED IN THE 1951 CENSUS OF PAKISTAN\*

N. SHAMSI

**I**F ONE were to have only three weeks to conduct a census, it has been suggested that two of them should be used for drawing up the schedule. While it may be feasible to correct errors in later phases of the census operations, there is no remedy if a badly worded schedule results in the collection of defective or ambiguous data. The characteristics of the population, their social prejudices, as well as the available resources and financial limitations and other practical considerations determine the form and contents of the schedule. Since the drafting of instructions, the recruitment of personnel, the drawing up and printing of cards slips and codes all depend on the schedule, its form and contents should be firmly settled long before the census date.

There are several requisites of a successful schedule. These can be grouped under five main heads ; conciseness, clarity of integration, capacity to avoid antagonistic responses, nonambiguity, scope for quick and easy extraction and compilation and finally economy both in expense and labour.

**Conciseness of the Schedule.**—Success in getting the correct answer lies in asking the respondents simple and straight questions. To achieve this object it is essential to have a thorough appreciation of the problems facing the country ; one must assess their nature and extent and decide whether they are only momentary, casual or accidental, whether they are of a seasonal nature, or whether, on the other hand, they are a permanent continuous feature of the demographic or socio-economic set-up. An analytical study of every subject is required to show whether the questions on it have been thoroughly examined to get at the heart of every matter and to see that an answer is solicited that does not merely relate to a subsidiary effect and would therefore lead only to a vague idea of the data required. This object is best achieved by a successful and simple coordination of the needs of the departments dealing with various branches of government activity. This should be followed by frank and clear discussion on all points to sieve out the minimum essentials and their amplification required from different points of view. The schedule should in no case be over-loaded. While it should cover all the information required, it must not become bulky or appear complicated. A large frightening schedule creates annoyance and increases the difficulty of response.

---

\*Revision of a paper read before a meeting of Pakistan Statistical Association.

**Clarity of Interrogation.**—The question should be as clear and direct as possible and should leave no room for doubt in the mind of the respondent. This leads us to the second requisite of clarity of interrogation. The question which leaves the respondent in any doubt about the true answer is a danger. To make sure that the question will be clear from the respondent's point of view, it must first be clear from the point of view of the enumerator. The majority of respondents and even enumerators may most likely be only moderately educated, or merely nominally educated, as is often the case in Asian countries.

**Capacity to avoid antagonising respondent.**—The question should be so politely worded as to make the respondent feel a moral obligation to respond correctly. No question however personal, should be put in such a way that the respondent feels embarrassed. In Pakistan the people are happy to cooperate and every effort is made to keep the enumeration on as pleasant a basis as possible. Thus the enumeration is an enjoyable social affair to most of the people rather than just a necessary question session. Hence the questions must be tactfully worded. All this requires a knowledge of psychology, and of the prejudices and culture as well as the prejudices, fears and apprehensions of the population under investigation. Above all it calls for knowledge of the average degree of intelligence.

These objectives are best achieved by testing a draft questionnaire in a sample of the population under investigation and by scientifically examining the results both from the point of view of the interrogator and the respondent and also from that of the utility and perfection of the data obtained. It is essential that the personnel of this test enumeration should also form a representative sample of the probable available investigators or enumerators.

**The recording of data in an unambiguous manner to facilitate quick and easy extraction and compilation.**—This brings us to the discussion of the form of the recording schedule or the enumeration slip. I need not go into the various forms of schedule that are used in different countries. But mostly forms which list several persons on one form are used. The use of such schedules saves space and consequently results in an economy of paper and printing, but they are not so easy to sort in countries where mechanical equipment is not available for sorting and tabulation and where respondents are generally illiterate and cannot fill in the schedules themselves. The design of a schedule is thus closely related to the characteristics of the population to be covered by the census and with the methods of enumeration and compilation which are to be adopted. In countries like Pakistan where percentage of illiteracy is high, an individual slip has certain practical advantages in the enumeration and is particularly valuable in hand-sorting and counting operations.

In pre-Partition India, up to 1931, large schedules were used in the census enumeration. A copy of 1931 schedule is at Appendix A. Enumerators were expected to fill in the 18 columns schedule for the information given verbally by the respondents. At the time of sorting the first stage was slip-copying, in other words, the recording of the details for every person on individual slips. This involved months of copying work, substantial expense, the possibility of error and once again large consignments of paper.

In 1941—Census of the sub-continent, Mr. Yeatts, the then Census Commissioner of the late Government of India, revolutionized the whole system of enumeration. He abolished the old schedule and introduced the use of a separate slip for each individual at the time of enumeration itself. This move was inspired by the “billet individual” used with great success in parts of the French census. All data was collected directly on slips bound in handy pads thus eliminating the labour of filling the schedule. The object behind this change was to save duplication of labour, possible mistakes in transferring the information on slips for sorting and to save paper. All provincial census superintendents reported that the slip system had achieved remarkable success.

A census is always important. But the first census of Pakistan was an event which may influence its whole future. The main object of the first census of Pakistan was to assess the strength of the nation and its liabilities towards the citizens in the field of demography and in certain broad aspects of social, economic and educational conditions. This census was the first of a series of “stock-taking reports” of the new country. It had, therefore, to establish standards for future comparability. It had also to provide data to facilitate the participation of Pakistan in international cooperation, and it therefore had to take account of the recommendations of the United Nations Organisation for the attainment of international comparability of statistics. It was also expected to survey the effect of the vast movement of population which occurred in the cities, towns and entire districts of the two newly created countries over weeks and months. The first question for consideration before us was what should be the best form of schedule so as to (a) decrease labour and save man-hours, (b) be manageable, (c) ensure accuracy, (d) eliminate copying if possible, and (e) economize paper and printing. All the advantages of the schedule and all the disadvantages of slips were thoroughly investigated. After considering the pros and cons a tentative slip was designed.

An inter-departmental Census Conference of senior officials was called in June 1950 which was presided over by the Minister for the Interior and was attended by the Census Commissioner, Provincial Superintendents of Census, and Representatives of all the Ministries concerned.

The conference decided that 1951 Census should aim at producing statistical tables showing the following information:—

- (a) The total population classified by age, sex, rural and urban areas, religion, nationality, birth place, mother tongue and civil status, also by literacy and grade of education.
- (b) The analysis of the population according to the main economic activities by which it is supported ; the economically active part of the population analysed by sex, age groups, main occupations and economic status ; employment and un-employment analysed by occupations and in industries including agriculture. (This information may possibly be omitted in some areas.)

- (c) Displaced persons by locality of origin and their previous occupation and also analysed separately according to the classifications applicable to the total population.
- (d) Normal residents temporarily out of Pakistan by countries they are visiting ; visitors from outside Pakistan by country of domicile.
- (e) The agricultural population analysed according to methods of land tenure and occupational status.
- (f) The population by each main mother-tongue, analysed also in accordance with the use of other languages, if they were commonly used.
- (g) Married women, analysed if possible by the number of children and by the duration of marriage, and also if possible the births and the infant deaths occurring during the past year.

The conference also agreed that population census should not be over-burdened with enquiries like cattle census, area and arable land etc., not directly connected with the personal characteristics which are the basis of population census. The question of taking a census of persons with physical and mental defects was also discussed. The reasons which had led the United Nations Organisation not to recommend such an enquiry were considered and finally it was decided not to include it in the questionnaire.

Now the question was to devise the schedule in conformity with the above requisites. The schedule which it was agreed to use consisted of a slip for every individual and a leaflet containing the list of questions showing the method of recording the answer on the slips (Appendices B & C) The slip itself contained words which indicated the questions. Thus the possibility of the answer of one question being entered against the serial number of the others was completely eliminated. The enumerator's leaflet contained a more detailed explanation of all the questions and it was folded in a special manner to make it quite handy and convenient to refer to any question during the interrogation of an individual. Thus the provision existed for clearing any doubt in any individual case at the spot.

All these characteristics were, besides, combined with that of the 5th requisite of *financial economy and labour*. The individual slips were 4-1/2 " square pieces stapled at the top left hand corner into pads of 100s ; a few pads of 25 were provided as reserves. This size was the smallest of all so far used in the sub-continent of India but it gave ample space for recording the answers. The reply was written in most cases by symbols *i.e.*, ; a circle, a check-tick or a cross. Spaces were provided for the entry of code numbers at the sorting stage. There was space for the location code and for recording of house numbers and the relationship to the head of the household. The last two were only provided to ensure completeness and to avoid double enumeration. Perhaps this slip was the best so far used in the sub-continent both from the point of view of enumerators and of sorters. An outstanding feature was the printing of a separate

edition of the leaflet and the slip in each of four languages : Urdu, Bengali, Sindi and English, to meet the needs of this multi-lingual country and thus obviate the printing of poly-glot slip which would have meant more space, larger size, and much more expense as well as causing a complicated appearance.

Then there was the need for estimating the requirements of slips in every language for each of the provinces. This was again a very difficult task. An under-estimation would have been greatly prejudicial to a complete enumeration and over estimation would have converted a large slice of the total budget provision into wastage. The figure for 1941 on which the estimates were to be based were unreliable due to the inflatory tendencies then rampant. Besides, the large scale migration and the continued migratory tendency had changed the entire shape of the population for most areas. Provision had been made for an extra reserve. The distribution of the slip pads in hundreds and twenty-five was done through District Census officers, charge Superintendents and Circle Supervisors and provision was made for a reasonable reserve at every stage. Pads of 25 were provided to avoid wastage, as no pad was to be broken before sorting stage. The estimate luckily was remarkably accurate. There was neither shortage nor any unreasonable surplus. Moreover, to meet any emergency, a manuscript list was also designed. Any small shortage could be made up by the use of this slip but it is understood that the need for the use of manuscript slip did not arise at any place.

The enumeration instructions and the slip were fully discussed and the drafts were agreed upon. It was also decided that a test of enumeration slip would be conducted towards the end of July 1950, by Provincial Superintendents of Census before an indent for the printing of slips and questionnaire was finally placed with the press. After this test, difficulties disclosed were considered by the Census Commissioner's Statistical Committee on which the several Ministries most closely affected were represented.

The form of the questionnaire of the enumeration slip was finally checked and agreed upon in the second conference of Provincial Superintendents of Census which was held in Karachi during September 1950. These two documents were thus the final outcome of those months of collaboration between the Provincial Census terms and the Census Office at Karachi, and of tests in practical use in every district of Pakistan.

In addition to the usual questions on Age, Sex, Marriage, Mother Tongue and Birthplace enquiry was made into languages spoken, read and written. This question was so framed as to permit the compilation of tables giving new details on the extent of literacy of the people and the languages in common use both in speech and on paper. The familiar question on religion was, of course, greatly simplified : Muslims formed one class ; Hindus were merely classed as either scheduled caste or otherwise (omitting the detailed classification by caste and race used in previous censuses) and the other religions were recorded simply as Budhists, Christians, Parsees, Tribal Animists and "Others". Education was recorded in three ways so that the tables would show the current school and college population ; the number of people who had passed certain educational standards such as primary , middle school, matriculation, university first and post graduation degrees, etc. and the number of years during which school has been attended.

Much of this information on education and literacy would be related to other data on occupations and economic activities. It is in this field that the 1951 census breaks new ground. For all people over 12 years of age who were wholly or partly self-supporting or were seeking work, there was specifically designed enquiry which would link together the usual occupations in which they were skilled or experienced and their actual occupations during the previous months. This is designed to give the urgently needed data on the change in employment due to Partition and to post war conditions. However, being related to a specific period the information has special value as a starting point for national labour statistics. It was hoped that the unemployment problem also could be measured both in terms of occupation and length of unemployment. All this labour and occupational data is related to the various branches of economic activity by a special question in the census forms. Thus it is not only possible to say that how many cultivators, clerks, lorry drivers, mechanics etc., we have but also how many of each were employed or were seeking work in the different forms of activity such as agriculture, trade, commerce, transportation, Government services, etc.

Special questions, which were to be answered by or on behalf of married women, will, it is hoped, give new insight into the number of births and infant mortality. These questions were designed to throw light on the rate of increase of the population and on the infant mortality rate. It was planned thus to facilitate scientific study of demographic trends, and assist the estimation of future manpower resources and the organisation of such essential long term development as education, water, sanitation and town planning despite the absence of complete vital statistics.

There was a special slip for the tribal areas of the North West Frontier which have a peculiar socio-economic set-up. This special slip consisted of 8 direct and simple questions besides the names and location code. The questions were on age, sex, marital status, tribal affiliation means of livelihood, mother tongue, literacy and education. This procedure followed the idea used in the 1941 census, but then the slip consisted only of six simple questions and ignored education and literacy. The innovation was greatly welcomed by the Chiefs and indicates a real desire for advancement. It is worth mentioning, though the point is not directly connected with the subject under discussion, that the response to the census by the men of these tribal areas, despite their many idiosyncracies, was remarkably good, no doubt due to the change in the political set-up of the country.

The main credit of designing of 1951 census goes to Col. E. H. Slade who was the Census Commissioner of Pakistan. His experience and seasoned advice in the field of statistics and census proved very helpful to us. His recommendations in the Administrative Reports will be of great value in planning the next census of Pakistan

On the whole, as has been already noted, the slip and questionnaire were most successful, but experience has now shown that some of the questions could have been more direct and simple. For instance the question of birthplace might be better in the form "Were you born in this

district.  Yes  No. If no, where were you born"? Also we might have improved the record of the three questions on languages if we had printed the words " Mother tongue " against the line of names of languages and instructed the enumerators to ring round the appropriate one. We should have only needed two instead of three lines of check squares ; against the first of these we might have printed "other languages spoken" and against the second "read or write". The instructions to the enumerator would have needed no change but there would have been less chance of mistake and misunderstanding.

The Census Commissioner has himself pointed out that the questions on occupation and industry including unemployment need to be entirely recast with definitions more suitable to the conditions prevailing in Pakistan.

The questions on education worked fairly well as they were but would have been easier had they started " Have you ever attended school  Yes  No".

To conclude I must say that the work on the 1951 Census of Pakistan has been most interesting and fruitful. We have achieved much and obtained a great deal of badly needed information which we have published quickly. Above all, however, we have gained much valuable practical experience. With this work behind us, and thanks to the time which I spent in United States and in other countries in learning new techniques under the guidance of the office of the Co-ordinator International Statistics, Bureau of the Census, Washington, we now know how to improve the results when we come to organise the next census.

*Enumeration methods used in 1951 Census of Pakistan*

Appendix A

CENSUS SCHEDULE, 1931

Name of Thana \_\_\_\_\_ Name of mauza/town \_\_\_\_\_ Number of circle \_\_\_\_\_  
 Number of block \_\_\_\_\_ Page \_\_\_\_\_

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Serial Number of House or Tenement.	S. No. of persons (not to be filled in till after the final enumeration).	Name.	Religion and sect.	Male or female.	Married, unmarried or widowed (enter divorced persons as widowed).	Age in years to nearest birthday.	Race tribe or caste.	Earnor or dependent.	Principal occupation (for earner only).	Subsidiary occupation (enter also for dependents, if they have an occupation)	Industry in which employed for organised employees only, see instruction.)	Birth District or Country.	Mother tongue.	Other language or languages in common or domestic use.	Languages, if any, in which literate, i.e., able both to read and write.	Whether able to read and write English.	Insane, totally blind, deaf, mute or leper.

Appendix B.

# INDIVIDUAL SLIP USED IN 1951 CENSUS OF PAKISTAN

Census 51—No. 9  
(English)

1 Name										Kin	House Number	
2	Yrs.	Mths.	M S W D				Muhajir from				9	
	Born in						Education			Years		10
3							S P M E D H					
	PAK						Usual Main Occupation				11A	
4	Mus.		C. Hindu		Sch. C.		Budd.		Subsidiary Occupation			11B
	1	2	3	4								
5	Chr.		Parsi		Trib.		B.		Occupation January		12	
	5	6	7	8								
6	Arabic	Urdu	Bengali	English	Persian	Punjab	Punjabi	Sindhi	Baluchi	Economic Group January		13
										Z C A B		
7										EO E I F		14
										EO E I F		
8	Whole Life				Last Year				Occupation January		15	
	Wed		Chren		Born		Lived					
Dist		Charge				Circle		Block		M.		16

## Enumeration methods used in 1951 Census of Pakistan

### Appendix C

CENSUS OF PAKISTAN 1951.

#### INSTRUCTIONS FOR ENUMERATORS.

1. Remember what you heard at the class of instruction.
2. Read the notes on the back of this paper carefully and be ready to explain them to respondents who have any difficulty in choosing their answers.
3. Fill in the Location Code at the foot of each slip at home before you start enumeration.
6. Do not write in the shaded spaces on the slip : these are used in the Census Office.
5. Write clearly in INK. Make symbols definite and firm.

QUESTIONS	HOW TO WRITE ANSWERS
-----------	----------------------

#### PRELIMINARY QUESTIONS

- |  |  |
|--|--|
| <b>House Number.</b>   | Write in box.  |
| <b>Have you been enumerated already ?</b>                                | If not ask question 'a'.   |
| <b>a. Is this your present REGULAR residence or lodging place ?</b>      | If yes carry out enumeration in full. If not ask question 'b'.   |
| <b>b. Will you be BACK in your normal residence before 28 February ?</b> | If no, or doubtful, carry out enumeration.   |
|  | If yes, do not make out a slip but carefully warn the person that it is his/her duty to see that a slip is made out at his/her normal residence. |

- |  |  |
|--|--|
| <b>1. NAME ?</b>                       | Write it out.<br>If a tribesman, put name of tribe or tribal section in brackets after the name.                   |
| <b>RELATION to Head of Household ?</b> | Write under KIN<br>1—Head, 2—Wife<br>3—Son or Daughter<br>4—Father or Mother<br>5—Other relations<br>X—No relation |
| <b>SEX ?</b>                           | In bottom corner Ring round<br>M for Male : F for Female.  |

QUESTIONS	HOW TO WRITE ANSWERS
-----------	----------------------

- |  |  |
|--|--|
| <b>2. AGE in years ?</b>                               | Write number of years completed on 28 February 1951. Write in box, age in months. If No put Ring round age figure. |
| For infants under 1 year.                              | If Yes put V after age figure.   |
| For children under 12 years. <i>Is FATHER Living ?</i> | Ring round M   |
| <b>MARRIED ?</b>                                       | " " S  |
| <b>SINGLE ? (i.e. never married)</b>                   | " " D  |
| <b>DIVORCED ?</b>                                      | " " D  |

- |  |                 |
|--|-----------------|
| <b>3. Were you BORN in this DISTRICT ?</b> | If 'yes' put V. |
|--|-----------------|

- |                       |   |
|-----------------------|---|
| If not <b>WHERE ?</b> | Other places in Pakistan or Bharat write name of DISTRICT.<br>Elsewhere write name of COUNTRY only. |
|-----------------------|---|

- |                                 |  |
|---------------------------------|--|
| <b>4. Are you a PAKISTANI ?</b> | If 'yes' Ring PAK for Pakistanis on visits out of Pakistan, write country being visited. e.g., IN U.K. |
|---------------------------------|--|

- |  |               |
|--|---------------|
| If not : <b>What is your NATIONALITY ?</b> | Write it out. |
|--|---------------|

- |  |                    |
|--|--------------------|
| If an Afghan : <b>Are you a POWINDAH ?</b> | If yes put " PA ". |
|--|--------------------|

- |  |                                    |
|--|------------------------------------|
| If so : <b>Where is your party settled this winter ?</b> | Write place in respondent's words. |
|--|------------------------------------|

- |   |   |
|---|---|
| <b>5. RELIGION ?</b>  | Ring round the appropriate Number. (Note that number 7 applies in Chittagong Hill Tracts only). |
| For Hindus : <b>Are you a Caste Hindu or do you belong to Scheduled Caste ?</b> |   |

- |                           |  |
|---------------------------|--|
| <b>6. MOTHER TONGUE ?</b> | Put V under language spoken from the cradle. |
|---------------------------|--|

QUESTIONS HOW TO WRITE ANSWERS

7. Any other language you commonly SPEAK ? Put V under languages spoken.

8. Can you READ ? WRITE ? If 'No' put big X over all spaces on this line.

IN what languages ? If 'Yes' put under language P for Reads L for Reads and writes.

Under Arabic Q for Reads Holy Quran only.

9. Are you a MUHAJIR ? If 'No' put X

If yes : From which PROVINCE or STATE ? Write it out, but if the place is seen to be the same as the person's birth place it may be indicated by putting figure 3.

10. EDUCATION

(a) Are you regularly attending School or College ? If 'yes' ring round S.

(b) For how many years have you attended School or College ? Write figures under years. If respondent has never attended School put X under Years.

(c) How far has your education progressed ?

Completed Primary School :	Ring round P
Passed Middle School Exam :	„ „ M
Passed Matriculation (Entrance Exam):	„ „ E
Obtained University Degree:	„ „ D
Obtained Higher (Post-Graduate) Degree.	„ „ H

FOR PERSONS UNDER 12 YEARS OF AGE THIS COMPLETES THE QUESTION Draw big X through spaces 11A to 16.

QUESTIONS HOW TO WRITE ANSWERS

ELIMINATING QUESTION :—

Are you usually self-supporting or are you seeking work ? If 'No' put a big X over the whole space from 11A to 15. This then completes the questions except for women to whom 16 applies. If 'Yes' ask all the questions

11A. What is USUAL- LY your main OCCUPATION (Kind of work)? (For Muhajirs : What WAS your main occupation) ? If a 'Tiller of the Soil' Ring T. Otherwise, write it out. If no work is (or was) usually done put X.

11B. Have you any SUBSIDIARY means of livelihood, if so what ? Write it out.

SPECIAL QUESTION :

Do you receive rent in cash or kind for land you own but which is tilled by the others. If 'yes' Ring Z in space 14.

12. What was your actual main occupation in JANUARY 1951 ? If same as 11A put V. If, not, write it out.

If unemployed throughout January 1951. If unemployed, put X and ask question A.

A. Were you SEEKING employment ? If 'No' put another X : if 'Yes' ask question B and C.  
 B. In what occupation ? If same as 11A put V after the X otherwise write it out after the X.

QUESTIONS	HOW TO WRITE ANSWERS	QUESTIONS	HOW TO WRITE ANSWERS
C. <i>How many months had you been unemployed and seeking work at the end of January ?</i>	Put number of months after the above. Example: ' × V3 ' means the person was unemployed throughout January, was seeking work in his usual main occupation and had been unemployed since November 1950, i.e., for the 3 months ending January 31, 1951.	<i>How many years has she been married altogether ?</i>	Write under WED total number of years.
		<i>How many children have been born alive to her altogether ?</i>	Write under CH'RN total number of children.
		b. <i>During the last 12 months—</i>	
		<i>How many children have been born alive to her ?</i>	Write under BORN, number of children born during the year ended 28 February 1951.
		<i>Are they all living ?</i>	If ' yes ' put V under LIVED for each Child still living.
		<i>What was the age in months of any of them who died ?</i>	Write under LIVED number of month during which the child lived. If more than one child is given under BORN, show them separately under LIVED thus : V—V 6 means that out of three Children born in this year two are now living and one died at 6 months.
<b>13. ECONOMIC GROUP</b>			
<i>In what kind of industry, business or service did you work in January ?</i>	Write it out.		
<b>14. AGRICULTURAL STATUS</b>	For persons marked T in question 11A.		
<i>Do you own all or any of the land you till ?</i>	If ' yes ' Ring C.		
<i>Do you pay rent in cash or kind for any of the land you till ?</i>	If ' yes ' Ring A.		
<i>Do you work as a labourer for another person who tills land ?</i>	„ „ „ B.		
<b>15. INDUSTRIAL STATUS</b>	For persons NOT marked T in question 11A.		
<i>In your main occupation.</i>			
<i>Do you employ others?</i>	If ' yes ' Ring EO.		
<i>Or are you an employee?</i>	„ „ „ E.		
<i>Or are you an independent worker ?</i>	„ „ „ I.		
<i>Or an unpaid family help?</i>	„ „ „ F.		
<b>16. For WOMEN who are or have been MARRIED</b>			
a. <i>During her whole life.</i>			
		<b>ABSENTEES :</b>	
		<i>Are any persons who usually live in your household ABSENT?</i>	If ' yes ' ask question A and B.
		A. <i>Did the person leave before 7 February ?</i>	
		B. <i>Will the person be away until after 28 February ?</i>	If ' yes ' to both questions ask question C.
		C. <i>Is the person staying INSIDE Pakistan ?</i>	If ' yes ' no further action needed. If ' No ' to either A, B or C make out a slip for the absent person on replies given by a responsible member of the household who should sign the slip

EXPLANATIONS

1. PERSONS TO BE COUNTED :—

- a. *The Object* is to include in the Census all persons who are normal residents of Pakistan, and all visitors to Pakistan during the enumeration period. The census is to be complete and “catch every man”, but we must not count anyone more than once.
- b. *Therefore*, visit each house at least once during the enumeration period, 9 to 28 February inclusive, missing no place in your block. Write a slip for every person you find there who is a Normal Resident, and also for Visitors, Travellers and Wanderers, in accordance with these instructions.
- c. *A Normal Resident* is a person to whom the house is his or her present regular residence or lodging place. If you have any doubt as to whether a person is truly a normal resident you should fill up the slip and make a note to consult the Supervisor of your Circle regarding your doubts.
- d. *Absent Members of the household* : The object of the preliminary questions is to ensure that people away from their homes for *part* of the enumeration period are enumerated with the population in the locality in which they normally reside.

Persons who are away during the *whole* enumeration period will be counted at the place in Pakistan where they have gone. But persons who are known to have gone outside Pakistan, should be enumerated as absentees at their normal place of residence. The country they are visiting should be written in space 4. The persons answering on behalf of absentees should sign the slip as a guarantee of good faith.

- e. *Visitors* found in the house are dealt with in accordance with the detail in the preliminary questions. If not already enumerated they should be enumerated where they are found no matter from where they come *unless* they will be at their normal place of residence in Pakistan at some later time during the enumeration period. If you enumerate them you must warn them not to allow themselves to be enumerated again under the penalty laid down in the Act, and they should sign the slip.

2. NOTES ON THE QUESTIONS :—

- Q. 1. *Name* : Statistically names have no significance and the record of them will be destroyed. The reason for the question is to assist you, the enumerator, in obtaining reliable information and in preventing double counting. Except for visitors, women’s names may be omitted if the respondent so desires.

*Relationship to Head of Household* is also asked merely as a check on accuracy.

*Sex* : Every person will be classed either as male or female.

- Q. 2. *Age* : Use the “month” space only for infants under one year. Record all older persons, ages in complete years at last birthday. For respondents who do not know their age in years estimate in single years up to 25 and to the nearest 5 years above that age. Prepare for yourself a list of well-known local happenings in these periods of the past to help respondents fix their age group in that way.

*Marriage* “Single” means that a person has never been married at all. Otherwise, a person must either still be married (M) or the husband/wife must have died (W), or else the marriage must have been legally dissolved (D).

- Q. 4. *Nationality* : Write down exactly what the respondent says. People know quite well whether they regard themselves as Pakistanis or not and it is their opinion that has to be recorded.

For Non-Pakistanis record the name of the country of which they claim to be citizens.

*Afghan Powindahs* : should be asked questions 1, 2, 4 and 12 only. Try to get the name of the *village* in reply to the question as to where the Powindahs party is settled. If the respondent knows it, also write name of the district. If an Afghan does not know whether he is a Powindah ask him how long he is staying in Pakistan. If he is only here for the winter treat him as Powindah.

- Q. 5. *Religion* : Accept respondent’s own classification. In cases of doubt regarding classifications 2 or 3 ask the respondent to state his

caste. Note his reply on the back of the slip. Give your Supervisor a list of all such cases. Do not argue with respondent.

- Q. 6. *Mother Tongue* : The last column is intended for persons whose mother tongue is not one of those named on the slip; when that is the case write the name of the language in the blank heading.
- Q. 7. *Other Languages Spoken* : The respondent should not claim to speak any language unless he can *easily* converse in it. If you yourself can test him, do so. Otherwise take his word.
- Q. 8. *Literacy* : Ability to read means that a person can read print. Ability to write means that he can write a simple letter.
- Q. 9. *A Muhajir* : Is a person who has moved into Pakistan as the result of partition or fear of disturbances connected therewith. Persons who came for that reason are Muhajirs for census purposes no matter from where, when or for how long a stay they have come.
- Q. 10. *Education* : A person is regarded as regularly attending School or College regardless of any temporary break in attendance such as Sickness or holidays. The question on number of years during which a person has attended School applies to those who have left School and College as well as to those still attending. Write the figure in the nearest whole number of years.

“Completed primary School” means that the person reached the top Primary standard. “Passed, Middle School Examination” includes Middle English, Middle Vernacular, Junior Madrassah, etc. “Matriculation” means the last High School or Madrassah examination prior to joining College or University. “University Degree” means the first Degree such as B.A., B.Sc., M.B., B.S., B.E., etc. awarded by recognized University, the Intermediate examination does not count as a Degree. A “Higher (post-Graduate) Degree” means M.A., M.Sc., M.D., etc.

*The Eliminating Question* :—

Except question 16 the rest of the questionnaire deals with economic activities. Children under 12 are

not therefore asked any further questions. To all other the question on self-support is asked to catch all the people who support themselves from their own income, salary or wages either in money or kind, or who are seeking to do so. There is no place to record the answer because the object of the question is merely to enable you to decide whether you should ask the remaining questions or not.

- Q. 11A. *Usual Main Occupation* means the occupation in which a person is trained, skilled or experienced and which he regards as his permanent means of livelihood, such as :—  
Cultivator (“tiller of the soil” = T)  
Herdsman, Fisherman, Charcoal Burner,  
Blacksmith, Weaver, Tailor, Carpenter,  
Washerman, Barber, Car/Lorry Driver,  
Shop-keeper, Boatman, Lascar, and so on.

*Tiller of the Soil* means a person who himself works on the land or who employs other to do so under his direct personal supervision. The word *Shop-keeper* will only be used for a person who owns and manages his own business. Other shop-keeping person will be described as shopowner, shop manager, shop-salesman, book-keeper, cashier, etc. The kind of shop should be stated thus “Cloth Shop-keeper.” “Ration Shop-keeper”, “Shoe-Shop-manager”, etc.

- Q. 11B. *Subsidiary Occupation* means a secondary means of livelihood pursued, possibly seasonally, alternately or in addition to the usual main occupation.

*Special Question* : There is no space on the slip for this question but it must not be forgotten as *Rent Receiving* is often regarded as an occupation. The answer ‘yes’ to this question is recorded by ringing Z in space 14 since it must be sorted and tabulated along with the other replies to Q. 14. Most rent receivers follow some profession or business however which should be recorded as their main or subsidiary occupation. If they do *no work* 11A and B should be marked X.

- Q. 12. *Occupation in January* : The object of this question is to obtain data for a specific period of time regarding the gainfully employed population. Normally the actual main occupation in January will be the same as the usual main occupation or as the subsidiary means of livelihood.

**Unemployment:** If a person worked at all during January the kind of work he did will be recorded. If, however, he did no work at all the unemployment questions apply and are important.

Q. 13. Write the actual kind of business or service in which the person works so that he may be shown in the right one of the numerous groups into which economic activities are split.

The following are examples (but not a complete list) :—

AGRICULTURE : split up into cultivation, Stock raising, forestry, fisheries, etc.; MINING AND QUARRYING; split up according to the materials obtained; MANUFACTURE : split up into the various articles made BUILDING AND CONSTRUCTION PUBLIC UTILITIES, Electricity, Water, Gas, etc.; COMMERCE : split up into wholesale trade, retail trade, banking and finance, insurance, etc.; TRANSPORTATION AND STORAGE ; split up into Road, Rail Ocean, Inland Water and Air Transport; COMMUNICATION : *i.e.*, the Postal, Telegraph and Telephone Service. THE MAIN PUBLIC SERVICES : split up into Education, Defence, Medical, Governmental, Municipal, etc., Services; THE PROFESSIONS, *i.e.*, Recreation, Religion, Arts, etc. PERSONAL AND OTHER SERVICES; such as hotels and domestic service.

Q. 14. *Agricultural Status* : It is possible to have rings round two or more of these letters. For instance a man may hire out part of his owned land on rental and work the rest of it himself together with field which he rents from another landowner. Such a man would have rings round Z, C and A.

Q. 15. *Industrial Status* ; Note that the whole question concerns the *main occupation* given in Q. 12. People will not be classed as 'employers' merely by virtue of their employing domestic servants but only if they employ others in their profession or business. For example, a cook is classed as an employee in his occupation, but if he is cooking for, let us say, a civi servant, that gentleman will be similarly classed as an employee in his occupation which is Government Service.

An independent worker is his own master in his trade or business, but employs no paid help.

An unpaid family help is a member of the family who assists directly in the trade or business of another member but receives no separate payment in cash or kind. Such persons will not usually, however, have been classed as self-supporting or partly self-supporting.

Q. 16. If a woman has been married more than once, the first two questions should cover the whole period from the date of her first marriage. The last three questions relate only to children born since 1 March 1950.

3. *Absentees* : The object of these questions is to include in the Census two classes of people; first normal residents in your block who happen to be away on short visits elsewhere in Pakistan. These may be excluded by the preliminary questions from enumerations in the block in which they are sojourning. If they will be in your block any time during the enumeration period you should make out their slip. Secondly these questions bring into the Census any normal residents in your block who are temporarily out of Pakistan.

4. *The Final Check* : The three weeks of careful enumeration work must be finalised and checked during the last three days. During the actual Census Night on the 28th February you must make a rapid and thorough examination of the whole block. All new arrivals, travellers, wanderers, homeless folk and others who are found then anywhere within your area must be questioned and, if they have not been enumerated before, a slip must be prepared for each of them.

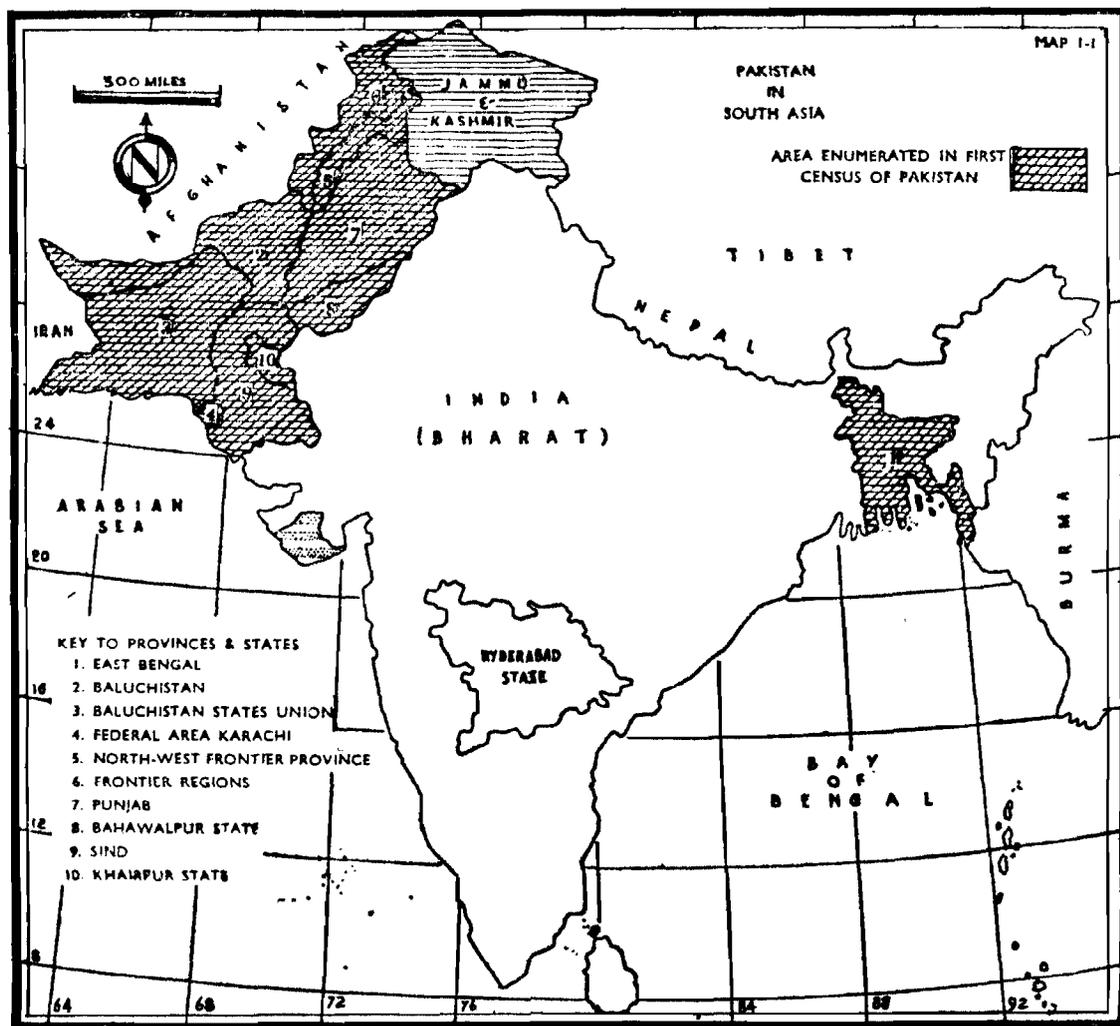
5. *The end of the work* : The moment you are sure that you have included everybody and that your last check-up is completed, you should count all your valid slips and check the count carefully. Then count separately all the males and all the females, and see that they add up to the original total. Then count the Muhajirs, and the literate persons. Check these counts and enter the results on your Report Sheet then hand the pads complete and whole, together with the Report Sheet to your Supervisor and get his receipt. This must be done before the 3rd March at the latest, but the earlier the better.

## POPULATION PROBLEMS OF PAKISTAN

N. SHAMSI

**G**EOGRAPHICALLY, Pakistan is a bifurcate country. One part of it, Western Pakistan, embraces what were provinces of Baluchistan, Sind, the North West Frontier and most of the Punjab, together with minor states that were in this area. The other part, Eastern Pakistan, embraces the greater part of Bengal with nearly all of Sylhet district of Assam. Western Pakistan is by far the larger of the two parts, having approximately 3,10,236 sq. miles. East Pakistan, with 54,501 sq. miles, is only a sixth as large as West Pakistan. The total area of Pakistan approximately is 3,65,000 miles which is twice the size of pre-war Germany.

2. The most interesting feature of Pakistan's geography is the fact that its two parts are separated by more than 1,000 miles of Indian territory. In addition, the two areas are extremely different geographically. Whereas West Pakistan is extremely arid, East Pakistan is extremely wet. As a consequence of the difference in climate and economy, the population density is quite different. West Pakistan has almost six times the territory but only about 4/5 the people that East Pakistan has. The total population for West Pakistan, is, therefore, about 3,40,00,000 and for East Pakistan about 4,20,00,000.



Office of the Census Commissioner, Karachi.

**Note** :—The map has been reproduced from 1951 Census Report, Volume 1 and therefore shows the boundaries of the provinces as they existed in 1951.



# PAKISTAN

## AVERAGE NUMBER OF PERSONS PER SQUARE MILE

### KEY TO DISTRICTS AND STATES

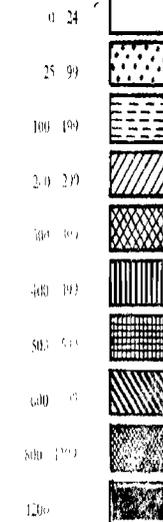
Persons per Sq. Mile		Persons per Sq. Mile	
PAKISTAN	208	PUNJAB AND BAHAWALPUR STATE	259
WEST PAKISTAN	108		
BALUCHISTAN INCLUDING STATE UNION	9	PUNJAB	302
BALUCHISTAN	11	1. Campbellpur	174
1. Chagai	13	2. Dera Ghazi Khan	67
2. Loralai	13	3. Gujranwala	455
3. Quetta-Pishin	40	4. Gujrat	513
4. Sibi	18	5. Jhang	258
5. Zhob	6	6. Jhelum	245
BALUCHISTAN STATE UNION	7	7. Lahore	780
6. Kalat	9	8. Layallpur	609
7. Kharan	11	9. Mainwali	102
8. Las Bela	11	10. Montgomery	432
9. Mekran	6	11. Multan	375
FEDERAL CAPITAL AREA KARACHI	1,387	12. Muzaffargarh	133
N.W.F.P. & Frontier REGIONS	150	13. Rawalpindi	433
N.W.F.P.	240	14. Sahapur	243
1. Bannu	181	15. Sheikhupura	398
2. Dera Ismail Khan	83	16. Sialkot	712
3. Hazara	283	BAHAWALPUR STATE	104
4. Kohat	112	SIND AND KHAIRPUR STATE	87
5. Mardan	541	SIND	91
6. Peshawar	583	1. Dadu	59
7. FRONTIER REGIONS	193	2. Hyderabad	170
		3. Larkana	178
		4. Nawabshah	171
		5. Sukkur	132
		6. Tharshakar	47
		7. Tatta	38
		8. Upper Sind Frontier	169
		9. KHAIRPUR STATE	51

### WEST PAKISTAN

JAMMU & KASHMIR

### LEGEND

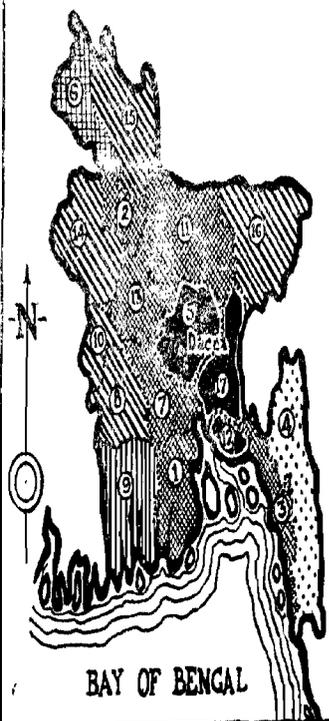
Persons per Sq. M.



### KEY TO DISTRICTS AND STATES

Persons per Sq. Mile	
EAST PAKISTAN	777
1. Bakarganj	902
2. Bogra	868
3. Chittagone	901
4. Chittagong Hill Tracts	57
5. Dacca	1,492
6. Dinajpur	544
7. Faridpur	1,052
8. Jessore	656
9. Khulna	432
10. Kushtia	647
11. Mymensingh	931
12. Noakhali	1,424
13. Pabna	869
14. Rajshahi	608
15. Rangpur	792
16. Sylhet	628
17. Tippera	1,511

### EAST PAKISTAN



BAY OF BENGAL

Air distance between Karachi & Dacca is approximately 1,500 miles.

Note:—The map has been reproduced from 1951 Census Report, volume 1 and therefore shows the boundaries of the provinces as they existed in 1951.



3. The population in the area which now forms Pakistan has seen a steady rise during the last 50 years. The 1951 population census shows an increase over the census of 1901 of the same areas of approximately 66·7 per cent or an average of 1·03 per cent per annum. The rate of increase has been greater during the last 20 years and the average rate per annum since 1931 is 1·35 per cent. This rate of growth is about double the rate at which the population of the United Kingdom has been increasing during the same period. This rise is not only the result of the natural increase by excess of births over deaths, but is largely due to immigration into areas watered by the great irrigation schemes introduced in the last 50 years in Punjab and Sind.

4. The Census figures showed a phenomenal increase in the decade between the censuses of 1931 and 1941. East Bengal increased its population during that period, according to the census report by about 18 per cent. The previous decennial increases had been 9 per cent in 1901-11, 5 per cent in 1911-21, and 7 per cent in 1921-31. There was great political unrest at the time of the 1941 census and there is strong reason to believe that both the Muslim and Hindu communities did their best to add to their recorded population. There was some element of inflation of the census figures, and probably quite a large one. The figures for the Punjab showed a somewhat similar feature but there it is masked by the rapid rise of population in the irrigated area.

5. The 1941-51 decade was less favourable to population growth. It contained most of the last war, a terrible famine in East Bengal, and all the unsettlement following Partition. The population of Pakistan as a whole rose by 7·9 per cent, but this figure does not mean much—it disguises the fact that the population of East Bengal hardly differed in 1951 from the 1941 census figure, while in the Punjab there was increase of 19 per cent. There is nothing to indicate that the Census of 1951 was not reasonably complete. The low increase in the 1941-1951 decade seems mainly attributable to conditions in East Bengal—war, famine, high prices, partition, other communal movements and over enumeration in the 1941 census.

6. Among the countries of the world Pakistan stands 7th in size of the population. Based on a total land area of 3,65,000 sq. miles the average total population density works out to 208 persons per sq. mile. Pakistan has, therefore, the 5th highest density among the ten most populous countries of the world. The figure of over-all density of population can, however, be somewhat misleading and in the case of Pakistan it hides the differences in widely varying provinces. The figures need to be applied on a regional basis in order to take into account the difference in conditions and land uses. East Pakistan had a density, according to 1951 census, of 777 persons per sq. mile, seven times the average density of West Pakistan. It is, therefore, expected that population growth must be slower in East Pakistan. Its population has increased from 28·9 millions in 1901 to 42·1 millions in 1951, a rise of about 46 per cent. West Pakistan has risen from 16·6 millions in 1901 to 33·8 millions in 1951—that is about 104 per cent. Taking only the districts with a higher density than the national

average (those having more than 200 persons per sq. mile), all the districts of East Pakistan with the exception of Chittagong Hill Tracts will be included in this group, whereas in West Pakistan such a group will only include the Federal Capital Area, the 12 Central and Eastern Districts of the former province of Punjab and 3 Districts of the former province of N.W.F.P.

7. The real problem is not the density of population per sq. mile of land including deserts and mountains, but the numbers of inhabitants per sq. mile of cultivated land. In East Bengal there are 1,666 inhabitants in the rural areas per sq. mile of cultivated land. That includes net areas sown plus fallow. In N.W.F.P. the corresponding figure is 624, in the Punjab 507 and Baluchistan 277 and in Sind 234.

8. Under conditions of stable Government and rapid economic development a country like Pakistan has become densely settled for predominantly agricultural economies. Fertility is close to the biological maximum, and presence or absence of growth depends principally on the course of mortality. Economic innovations that increase the production of the region serve to reduce mortality somewhat, thereby stimulating the added product. Living levels have, therefore, risen little. Government faces the necessity of constantly expanding production more or less to support growing numbers of people at the same subsistence level.

10. A population living close to the margin of subsistence is highly vulnerable to the shocks of even minor economic dislocations. Such shocks hold a constant threat of catastrophe, flood, etc. The danger of over population in densely settled agricultural economies with high growth potentials may be illustrated by the situation in East Bengal. The record of its past growth is typically Malthusian.

11. Unless there are drastic changes, sooner or later there must come a point at which continued increase forces down living levels, so that mortality will begin to rise.

12. In Pakistan, the needs of growing population have been met by the expansion of cultivated areas into virgin soil, the increased productivity of the lands already under cultivation, the construction of improved irrigation works and the development of better varieties of commercial crops. But the time when the limits of such development will be reached is not far off.

13. The fundamental causes of rising population pressures in Pakistan are more or less the same as in all other densely settled areas. Prior to the advent of modern Government, more efficient economic production and elementary sanitation, death rates were very high and population was more or less in balance at the density possible with inadequate economic technique. The significance of rapid growth for future political and economic development in Pakistan depends on a variety of factors such as the stage of economic development, the resources on which the new industries may be based, the outlets for settlement, the sheer size of the population and the future policies of the dominant powers towards them.

14. It is frequently suggested that efforts should be made to reduce birth rates before further declines in the death rate are permitted. To this end there are some advocates of the view that a wide spread dissemination to contraceptive knowledge and materials should replace efforts now being made in the field of public health. The proposal arises from a misunderstanding of the factors controlling fertility and of the role of birth control.

15. A population whose social institutions and personal aspirations are developed in high mortality culture are little interested in contraception and will not make effective use of the methods normally at their disposal. In Pakistan at present the mental and social atmosphere is generally hostile to the spread of contraceptions. The desire for large families is deeply ingrained and widespread. Marriage is universal and is not influenced by economic considerations. Fertility is unplanned and economic considerations do not seem to influence it. The birth control movement has appeared in certain urban centres mostly among the upper classes. For a birth control movement to be successful a radical reorganisation of social values will be necessary.

16. From the above analysis it is clear that population growth can be promptly checked only by rising mortality. However, that check would afford no solution to the problem of population pressure and would react unfavourably on the immediate economic interests of the population.

17. There is no quick demographic solution of the problem of population pressure in Pakistan. Population pressure in the short run is no more a matter of too many people than it is of too little product. Pressure may, therefore, be relieved by a rapid expansion of produce. The demographic problem is not that of putting an immediate end to the growth, but of checking growth before population becomes unmanagably large. The immediate and present demographic problem, therefore, is the early reduction of the potentialities of the future growth

18. A reduction of the growth potentialities can be achieved only in terms of increased population growth in the near future. Both mortality and fertility have a long way to fall before a balance is achieved. Fertility declines will come gradually and only after the people acquire new interests and aspirations. These new interests are likely to develop only in a period of rising levels of living, urbanisation, widespread education and growing contacts with foreign cultures. All such developments would initially reduce mortality more rapidly than fertility and, therefore, temporarily enhance growth.

19. The foregoing analysis has indicated that the continuation of past policies regarding the population of Pakistan would almost certainly yield an intensification of population pressures with their resultant train of human poverty and suffering. The escape from this situation of rising population pressure, if escape there be, lies in a highly complex and integrated programme of modernisation.

20. These are some conceivable ways of reducing fertility :

(i) Economic—

(a) Development of industries to support an urban population.

(b) Rationalisation and expansion of agriculture.

(c) Promotion of international trade.

(ii) Educational. The rapid extension of national educational programme.

(iii) Birth Control propaganda.

It is important that specific and widespread propaganda be directed to develop an interest in the health and welfare of children rather than in large families for their own sake. All such education would also involve propaganda in favour of controlled fertility as an integral part of Public Health Programme.

(iv) Public Health.

(v) Political advancement and consciousness.

(vi) A better understanding of social forces.

(vii) Migration.

21. In Pakistan, as in most Eastern countries, the attempt to register births and deaths has not been so successful as the effort to enumerate the population. The trouble is not so much the failure to cover all areas as the failure to register all births and deaths in the area covered. The result is that incomplete vital statistics have made the research work on demographic problems very difficult in Pakistan. Moreover, any inquiry into the social aspects of population requires not only census and vital statistics, but also economic and social data. There has been no systematic attempt in Pakistan to register marriage and divorce. For information along this line, the census returns on marital status are practically the sole source. But we hope very soon this important link will also be strengthened and vital statistics will improve considerably.

22. We need specific and careful study of the inter-relation of population and social and economic change. The Census Department of the Ministry of the Interior, Government of Pakistan has every prospect of making important contributions in this field. It is expected that the universities of Pakistan will also be more active in the demographic field as most of them have already started post-graduate classes on population. The future of demography seems good because there is much work to be done and I hope more and more students will be willing to do it.

## THE INTEGRATION OF DISPLCED PERSONS IN PAKISTAN

N. SHAMSI

**T**ODAY more than 80 million people are living in Pakistan. Out of them about 10 million are displaced persons which means every 8th person in Pakisan is a displaced person from India.

2. Soon after Partition conditions in India drove vast number of Muslims living there and especially in the Eastern Punjab to seek refuge in Pakistan. According to the definition of Population Census of Pakistan, a displaced person is one who has moved into Pakistan as a result of Partition or fear of disturbances connected therewith.

3. The displaced persons problem must be measured not only in terms of numbers but also in terms of heavy property losses, huge relief problem and human bitterness. As these displaced persons have lost everything they had including their means of livelihood during this upheaval and have no other place in the world to go, they deserve all the consideration and sympathy which the local residents and the Government of Pakistan can give to them. Moreover they played a very prominent part in the establishment and progress of Pakistan and have proved loyal and trustworthy citizens of this State.

### STATEMENT 1

*Proportion of displaced persons in Population according to their previous place of residence—1951*  
In Thousands

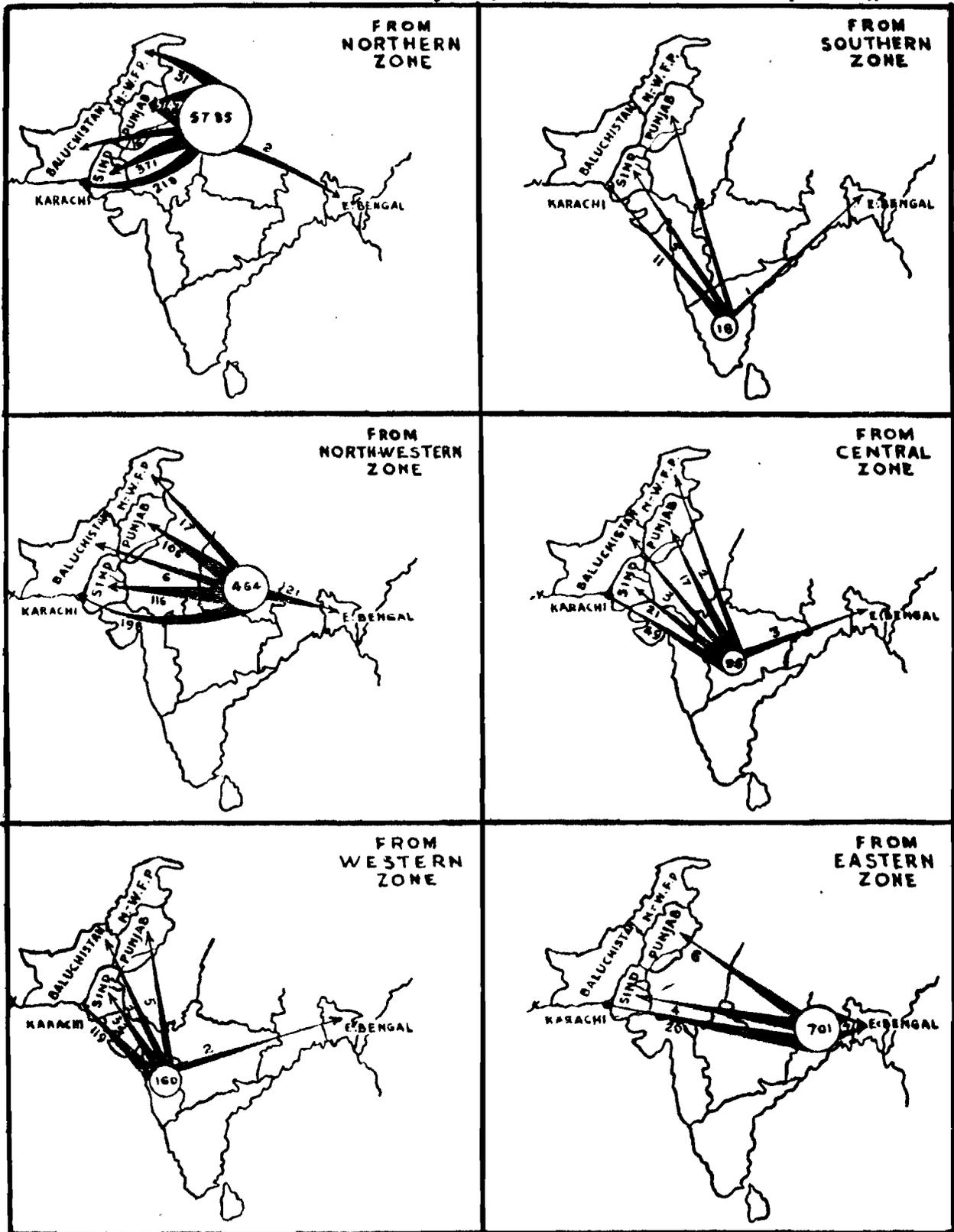
Province where enumerated	Population (b)	Total displaced persons (a)	Percentage of displaced persons	Chief zones of previous residence in India						
				North West	Central	North	West	East	South	Other places
Pakistan ...	73,880	7226.6	9.8	5785.1	95.2	464.2	160.4	107.3	18.3	2.4
East Pakistan	41,932	699.1	1.7	2.0	2.7	20.8	1.9	670.7	1.0	—
West Pakistan	31,948	6527.5	20.4	5783.1	92.5	443.4	158.5	30.6	17.0	2.4

(a) Many immigrants did not like to call themselves displaced persons particularly those who were returning to their provinces of birth or whose move was not connected with Partition.

(b) Excluding estimated population of Frontier Regions.

Source : Census of Pakistan, 1951.

MAIN STREAMS OF MUHAJIRS (FIGURES IN THOUSANDS) MAP No 2.4



Note.—The map has been reproduced from 1951 Census Report, Volume 1 and therefore shows the boundaries of the provinces as they existed in 1951.

4. In the beginning of 1951 when the first Population census of Pakistan was taken there were over 7 million displaced persons in the country. Statement 1 summarizes the figures of displaced persons from India and contiguous lands. The figures show that West Pakistan has given refuge to 6.5 million displaced persons who have come mostly from North West India and Kashmir. Influx of displaced persons in East Pakistan is comparatively less. It has received 699 thousand displaced persons mostly from East India. The statement also shows the proportion of displaced persons in the total population.

STATEMENT 2

*Displaced persons percentage in rural and urban population of Pakistan—1951*

Area	Total population		Displaced persons	
	Rural	Urban	Rural	Urban
Pakistan ... ..	89.6	10.4	60.9	39.1
East Pakistan ... ..	95.6	4.4	68.4	31.6
West Pakistan ... ..	82.2	17.8	60.1	39.9

Source : Census of Pakistan, 1951.

5. Statement 2 shows that a greater portion of the displaced persons population is concentrated in urban areas due largely to the better opportunities for their economic rehabilitation. It is natural that once people are uprooted from their ancestral homes in rural areas they prefer to reside in urban areas. The bulk of these people arrived in West Pakistan during 1947-48.

STATEMENT 3

*Displaced persons urban population by size group—1951*

Area	Urban population 1951		Percentage of urban population	
	Total	Displaced persons	Total	Displaced persons
<i>Cities—100,000 and over</i>				
Pakistan ... ..	3,895,792	1,664,021	49.5	58.9
East Pakistan ... ..	694,282	89,946	37.6	40.7
West Pakistan ... ..	3,201,510	1,574,075	53.2	60.4

*The Integration of displaced persons in Pakistan*  
STATEMENT 3—*contd.*

Area	Urban population 1951		Percentage of urban population	
	Total	Displaced persons	Total	Displaced persons
<i>Towns—25,000 and under 100,000</i>				
Pakistan	1,874,501	585,282	23·4	20·4
East Pakistan	644,237	103,987	34·9	42·6
West Pakistan	1,230,264	481,295	20·4	18·5
<i>Towns—10,000 and under 25,000</i>				
Pakistan	1,114,443	385,655	14·2	13·6
East Pakistan	325,403	25,203	17·6	11·4
West Pakistan	789,040	360,452	13·1	13·8
<i>Towns—500 and under 10,000</i>				
Pakistan	701,667	187,805	8·9	6·6
East Pakistan	130,004	10,837	7·0	4·9
West Pakistan	571,663	176,968	11·2	6·8

*Source : Census of Pakistan, 1951.*

6. Displaced persons urban population by size group, as statement 3 reveals, tends to increase according to the size of the city. The Cities of 100,000 and over stand apart as a distinct class from others. This concentration of displaced persons in bigger cities can mainly be contributed to their unsettled economic conditions. If one is compelled to start life again, one will naturally select the place which will look to him best. The "glittering life", the faster pace, the greater opportunities, the wider social horizon, all these things have influenced displaced persons in settling down in bigger cities.

7. The excess of males over females has been a feature of all population censuses of the Indo-Pakistan sub-continent. This preponderance of males which is visible all over Pakistan is accentuated in case of displaced persons. For comparison the sex ratio of displaced persons and average for Pakistan and Provinces is shown in Statement 4.

STATEMENT 4

Sex Ratio—1951

Area	Males per 100 females — 1951	
	Total	Displaced persons
Pakistan ... ..	112·8	118·6
East Pakistan ... ..	110·1	120·7
West Pakistan ... ..	116·4	118·4

Source : Census of Pakistan 1951.

8. This special excess of males in case of displaced persons is not unexpected because it is well-known that in the terrible riots which occurred soon after partition in India, women suffered more than men. Large numbers of young and middle-aged women were abducted. Although 8 years have passed, even today the work of rescuing such abducted women is in progress in India.

9. A further analysis of displaced persons data reveals that the proportion of literates for displaced persons is higher than that for the local residents. For the purpose of Pakistan Census, the term " literacy " was defined to mean a person who could read clear print intelligently. Statement 5 summarises the necessary data in percentages and compares with the similar data for displaced persons.

STATEMENT 5

Percentage of Educational levels—1951

Total Population 100	Total displaced persons 100	Province	Total literate—100			Literate Displaced persons—100		
			No formal attainment	Primary	More educated	No formal attainment	Primary	More educated
18·9	24·3	Pakistan ...	52·8	30·5	16·7	53·7	25·8	20·5
21·1	25·5	East Pakistan ...	49·4	33·9	16·7	41·8	31·3	26·9
16·0	24·2	West Pakistan ... (a)	58·8	24·6	16·6	55·0	25·2	19·8

(a) Excluding Baluchistan States Union and Frontier Regions.

Source : Census of Pakistan, 1951.

10. In spite of their merits summarised above, the position of displaced persons in general is still unquestionably much worse than that of the local population. In losing their homes they have lost not only their private property and physical means of making their living, but often they have also lost their social position, influence and ability to make a contribution to the progress and well being of community.

11. Mentally, the reaction is much worse. For the mature, the outlook seems hopeless. They received repeated blows to their self-confidence and pride which, understandably enough are hard to take lightly. Children growing up in such surroundings are subject to many shocks which endanger their normal adjustment to society.

12. An appalling lack of housing in many areas weighs heavily on the population. Several hundred thousand displaced persons are still crowded in huts and live under extremely impoverished conditions. To this must be added the fact that the homes of the displaced persons frequently are far removed from their working places. This means additional expense and discomfort. A housing programme for displaced persons has special urgency, not only because of the strain imposed by present over-crowding, but also because the speed with which progress in industrial and agricultural employment and re-settlement of displaced persons can be put into effect will depend to a large extent on the availability of suitable living quarters.

13. Few Governments have ever been confronted with a rehabilitation problem of such magnitude and complexity as Pakistan has been from its very inception. It requires a tremendous effort on the part of the Government and the people to absorb about 10 million displaced persons in the economy of a new State. Keeping in view the magnitude of the problem, it is very encouraging to note that a majority of the displaced persons have been rehabilitated and big schemes are in hand to rehabilitate the remaining ones in the next few years. A disturbing feature of the problem however is that the influx of displaced persons from India still continues and goes on swelling the ranks of the displaced persons in the country adding further complexity to the problem.

14. The problem of displaced persons is basically the problem of Pakistan herself. In considering the major aspect of Pakistan's displaced persons problem, it is recognised that the difficulties confronting the economy of Pakistan is the relative shortage of capital, technicians and foreign exchange.

16. The right to work cannot be separated from the right of asylum. One of the requisites of the satisfactory integration of the displaced persons is that they may be assured an opportunity to earn a livelihood. While it is true that a persons may be employed without being integrated into Pakistan's life, but there can be no integration without the employment of those who are normally the bread-earners. In the economy of Pakistan, the chief opportunities for employment are in agriculture, industry, handicrafts, trade and professions.

17. The labour force of Pakistan is small in relation to population. According to 1951 Census, 23 million out of the 74 million enumerated inhabitants were in the labour force. This

is very low as compared to other progressive nations. In spite of this it is encouraging to note that the proportion of labour force among the displaced persons is larger than the total. This is clear from the Statements 6 and 7.

STATEMENT 6

*Proportions of Economic categories in total population (Total Population—100)*

Economic Categories	West Pakistan			East Pakistan		
	Total	Male	Female	Total	Male	Female
POPULATION ... ..	100	53.9	46.1	100	52.3	47.7
Civil Labour Force ... ..	30.7	29.7	1.0	30.7	28.3	2.4
Agriculture ... ..	20.1	19.4	0.7	25.6	23.6	2.0
Non-Agriculture ... ..	10.6	10.3	0.3	5.1	4.7	0.4
Self-supporting persons not in Civilian Labour Force ... ..	0.9	0.9	...	0.3	0.2	0.1
Dependents ... ..	68.4	23.3	45.1	69.0	23.8	45.2
Children under 12 years ... ..	35.8	18.6	17.2	36.3	18.7	17.6
Persons aged 12 years and over ... ..	32.6	4.7	27.9	32.7	5.1	27.6

Source : Census of Pakistan, 1951.

STATEMENT 7

*Proportions of Economic Categories among Displaced persons (Total Displaced persons—10)*

Economic Categories	West Pakistan			East Pakistan		
	Total	Male	Female	Total	Male	Female
POPULATION ... ..	100	54.2	45.2	100	54.6	45.4
Civilian Labour Force ... ..	33.7	33.0	0.7	30.1	29.2	0.9
Agricultural ... ..	18.3	17.8	0.5	15.7	15.2	0.5
Non-Agricultural ... ..	15.4	15.2	0.2	14.4	14.0	0.4
Self-Supporting persons not in Civilian Labour Force ... ..	0.9	0.9	...	0.5	0.4	0.1
Dependents ... ..	65.4	20.3	45.1	69.4	25.0	44.4
Children under 12 years of age ... ..	29.0	15.2	13.8	32.2	16.7	15.5
Persons Aged 12 years and over ... ..	36.4	5.1	31.3	37.2	8.3	28.9

Source : Census of Pakistan, 1951.

18. Out of 23 million persons who are in labour force, 2-1/2 million are displaced persons. These displaced persons consist of people with varied experience. Most of them were farmers who are now without land. Some were independent workers, or Government officials; others were wage and salary earners. The critical figures in Statements 6 and 7 are the males in non-agricultural jobs. The statements show that in the total population 10·3 and 4·7 per cent males are in non-agricultural jobs as against 15·2 and 14·0 percent displaced persons males. Statement 8 shows self-supporting displaced persons aged 12 and over according to the main economic conditions and the main types of occupations in which they were engaged in January 1951.

19. Handicrafts form an important part of economic activity of Pakistan and must play a major role in the economic integration of the displaced persons. It includes not only individual work, but also the activities of all manual trades which are organised on apprentice system. Economic integration of displaced persons in handicrafts, while encouraging, is still far short of possibilities. It is particularly desirable that as many displaced persons as possible be occupied in handi-crafts. There are several reasons for this conclusion : (1) Handicrafts can be established more readily than any other kind of industry in those areas where displaced persons are already living ; (2) A great many craftsmen live close to the soil. They often have some small plot of land where they keep a few animals and cultivate the soil ; (3) Such occupation is less seriously affected than industrial employment in periods of business depression ; (4) Handicrafts constitute a wholesome way of life with many values and compensations. These values can be obtained in large measure by displaced persons still living in the camps.

20. It is very difficult to estimate with a satisfactory degree of accuracy the number of refugees who were previously engaged in trade or the proportion who have been able to resume their former occupation but a rough idea can be obtained from Statement 8. The main difficulty is that many of them have been unable to resume their chosen profession. Therefore, the training and experience that they might have contributed to the development of trade are now being wasted. Every effort should be made to help more displaced persons to re-establish themselves in the professions.

STATEMENT 8

ECONOMIC GROUPS AND OCCUPATIONS OF DISPLACED PERSONS—1951

Self-supporting Displaced persons aged 12 years and over according to the main Economic Division and the main types of Occupation in which engaged in January 1951

(Figures in brackets denote the number of Females included in the figures total above them)

Number of persons.

Main Economic Division	Total workers	Types of Occupations								
		Technical and Professional	Administrative and Managerial	Clerical and Office Workers	Sales Workers	Agricultural and Fishery Workers	Skilled Operative	Unskilled Labourers	Service Workers	Other
Total All Division ...	23,63,185 (49,010)	28,264 (971)	24,016 (28)	1,06,604 (356)	2,25,291 (991)	13,04,074 (34,950)	2,95,085 (2,283)	2,25,123 (3,460)	1,54,495 (5,958)	233 (13)
Cultivation ...	12,50,271 (33,756)	...	...	...	...	12,50,271 (33,756)	...	...	...	...
Animal Husbandry	41,501 (1,082)	...	...	...	...	41,501 (1,082)	...	...	...	...
Other Agriculture ...	9,552 (76)	...	...	...	...	9,552 (76)	...	...	...	...
Forestry ...	1,156 (11)	1	...	25	...	1,130 (11)	...	...	...	...
Fishery <sup>3</sup> ...	2,277 (28)	6	3	25	650 (2)	1,581 (25)	3 (1)	1	...	...
Mining ...	800 (1)	19	9 (1)	37	27	...	562	119	26	1
Manufacturing ...	2,61,454 (2,898)	1,612 (2)	2,516 (3)	3,297 (5)	2,864 (8)	...	2,35,617 (2,051)	13,174 (818)	2,365 (10)	9 (1)
Building, Construction & Utilities.	26,871 (93)	414	1,407 (5)	472	81	...	11,383 (66)	6,932 (21)	179 (1)	3
Trade and Commerce	2,55,633 (1,108)	578 (3)	15,201 (8)	7,866 (18)	2,15,804 (939)	...	6,177 (58)	5,823 (72)	4,152 (10)	32
Transport, Shipping & Port Services.	52,827 (77)	356 (1)	448 (1)	6,180 (12)	203 (6)	...	31,390 (15)	9,536 (32)	4,634 (10)	20
Post and Tele-communications.	3,325 (7)	36	55	2,668 (5)	6	...	411 (1)	87 (1)	59	3
Education ...	9,078 (551)	8,057 (531)	139 (1)	560 (10)	45 (6)	...	37 (1)	41	195 (2)	4
Medical Services ...	7,929 (336)	7,122 (312)	69	398 (4)	59 (14)	...	42	66	172 (6)	1
Government, Municipal, etc., Services & Legal profession.	96,608 (335)	1,717 (17)	1,699 (3)	72,940 (258)	396 (7)	...	2,328 (10)	1,865 (7)	15,652 (33)	11
Domestic and personal Services.	1,29,096 (5,985)	356 (9)	2,008 (5)	1,638 (5)	1,733 (4)	...	2,424 (15)	15,119 (473)	1,05,812 (5,473)	6
Religion, Art & Public Information, etc.	7,752 (112)	6,328 (58)	32	251 (1)	12 (2)	...	745 (51)	292	92	3
Other & Unclassified (including unemployed).	2,13,055 (2,554)	1,662 (38)	430	10,247 (38)	3,403 (3)	39	3,966 (14)	1,72,068 (2,036)	21,097 (413)	14 (12)

1 Excluding Defence Services.

2 Economic group and occupational classification is not available for 47,137 Refugees.

3 Includes forestry workers in respect of Punjab.

Source : Census of Pakistan, 19

21. Pakistan's goal of expansion in industry and commerce must go hand in hand with increased agricultural production. Statements often have been made to the effect that there is not enough land to take care of displaced persons. This is not quite correct. The total cultivated land in Pakistan is about 53,314,000 acres. In addition to the cultivated land, Pakistan has at least 38,526,000 acres which are waste now but which in time could be made into productive land. There are several reasons why such vast areas of land have been neglected. (1) Before 1947 the Indian sub-continent was occupied by the Foreigners. (2) Previously the pressure of population on land was not so great as it is today. To meet the requirements of this increasing population, the aim has been to increase the present percentage of land under plough.

22. The other question which a Demographer has to consider is whether this huge influx of displaced persons has made the country over-populated. According to 1951 Population Census, the density in Pakistan is 208 persons per square mile while the density in East Pakistan is 777 persons per square mile.

23. Over-population is difficult to define. There can be no absolute limitation on the size of population which a given area can support. Neither is the number of the unemployed at any given time a definite yard-stick. If Pakistan's liability is too many people, her asset is a large pool of low-cost labour. The problems facing Pakistan to-day are not necessarily impossible to solve. These problems are of an economic, social and political nature, which can be solved through bold measures and persistent action.

## URBANIZATION IN PAKISTAN

N. SHAMSI

**T**HE process of urbanization is a useful yard-stick which helps in measuring the progress of the economic and social development in a country during a particular period. With the growth of urban population the percentage of literacy increases, health conditions improve, the standard of living goes up and the industrial development, trade and national income show an upward trend.

2. The present growth of urbanization in the Western countries is almost wholly the product of the last 150 years. In 1800 the population in large cities was distributed over the earth in more or less the same fashion as the general population. With the industrial revolution in the 19th century the European people rapidly increased their degree of urbanization.

3. Obviously the degree of urbanization in a country can vary independently of the absolute number of people living in cities. In some countries there are more people in the cities than in other urbanized countries, but they are far less urbanized than the later. Egypt and Greece come under that category.

4. There can be no doubt that the under-developed areas of the world are less urban than the advanced areas. If we consider all such areas as under-developed as have more than 50 per cent. of their occupied males engaged in agriculture, we find that only 10 per cent. of their combined population lives in cities of 100,000 and over whereas for more industrialized countries the proportion is about 27 per cent.

5. The other interesting facts which one cannot fail to notice while studying the world population problems in relation to urbanization is the fact that there is a close association between economic development and urbanization. The degree of urbanization increases sharply as industrialism increases because the change from an agriculture-handicraft economy to a commercial-industrial one cannot occur without movement of people from rural to urban areas.

6. In Asia very few countries have been industrialised as yet. Although these countries are mainly rural they are all urbanized to some extent. But most of the cities and towns in this region developed primarily on political and religious basis and for a long time commerce and industry followed them.

7. Although Pakistan, according to 1951 Census results, is more urbanized than it has been in previous time, it is still primarily a rural country. The term "urban area" includes cities,

towns, municipalities and any other continuous collection of houses inhabited by not less than five thousand persons having urban characteristics. All incorporated municipalities and towns managed by notified area committees have, however, still been treated as urban for census purposes even if they have less than five thousand inhabitants. Cities are defined as urban areas with a population of 100,000 and above. The method used is somewhat arbitrary. But I think no uniform definition of urbanization has been devised as yet which is acceptable all over the world. Actually it varies from country to country. For Pakistan the above definition has proved quite useful and provides a good yardstick for the measurement of numbers and characteristics of the two population groups. Instead of single farm system with each family dwelling on its land common in Western countries, Pakistan has village system in which people live in self sufficient compact clusters. In fact the above definition coincides with reality since in Pakistan most of the people who live in places less than five thousand inhabitants are generally engaged in agricultural pursuits and there is little of the urban way of life such is found in towns.

## STATEMENT 1

*Percentages rural and urban in Pakistan, 1901—51*

Year	Percentage distribution Total pop-100		Percentage increase by decades	
	Rural	Urban	Rural	Urban
1901 ... ..	94.9	5.1	...	...
1911 ... ..	95.1	4.9	+8.8	+8.5
1921 ... ..	94.6	5.4	+6.2	+16.1
1931 ... ..	93.5	6.5	+7.5	+32.1
1941 ... ..	92.1	7.9	+17.0	+44.1
1951 ... ..	89.6	10.4	+5.0	+41.9

Source : Census of Pakistan, 1951.

8. The above statement shows that urban population has been increasing at a faster rate than its rural counterpart since 1911. According to 1951 Census about 10 per cent. of the total population of Pakistan can be classed as urban. In 1901 the proportion in the areas which are now in Pakistan was only 5 per cent. However, except for the most recent decades, the rate of urbanisation has not been fast. The figures of over all urbanisation of Pakistan can, however, be somewhat misleading and in case of Pakistan it hides the differences which exist between the two provinces. Although East Pakistan has a density of 777 persons per square mile with a population of about 42 million, the urban population is only 4.4 per cent., while West Pakistan which has a density of 108 persons per square mile with a population of

33,779,000 has 17·8 per cent. urban population. This is not the position only in Pakistan, a similar situation exists in many other countries. It has been noticed that some of the most urbanized regions of the world are among the most sparsely settled, whereas some of the least urbanized are among the most densely settled.

9. That population in Pakistan is neither largely a city population nor urban is shown by the finding that the proportion of the population being in places of 100,000 or more is only 5·2 per cent. and of that being in places of five thousand or more about 10·4 per cent.

## Urbanization in Pakistan

## STATEMENT 2

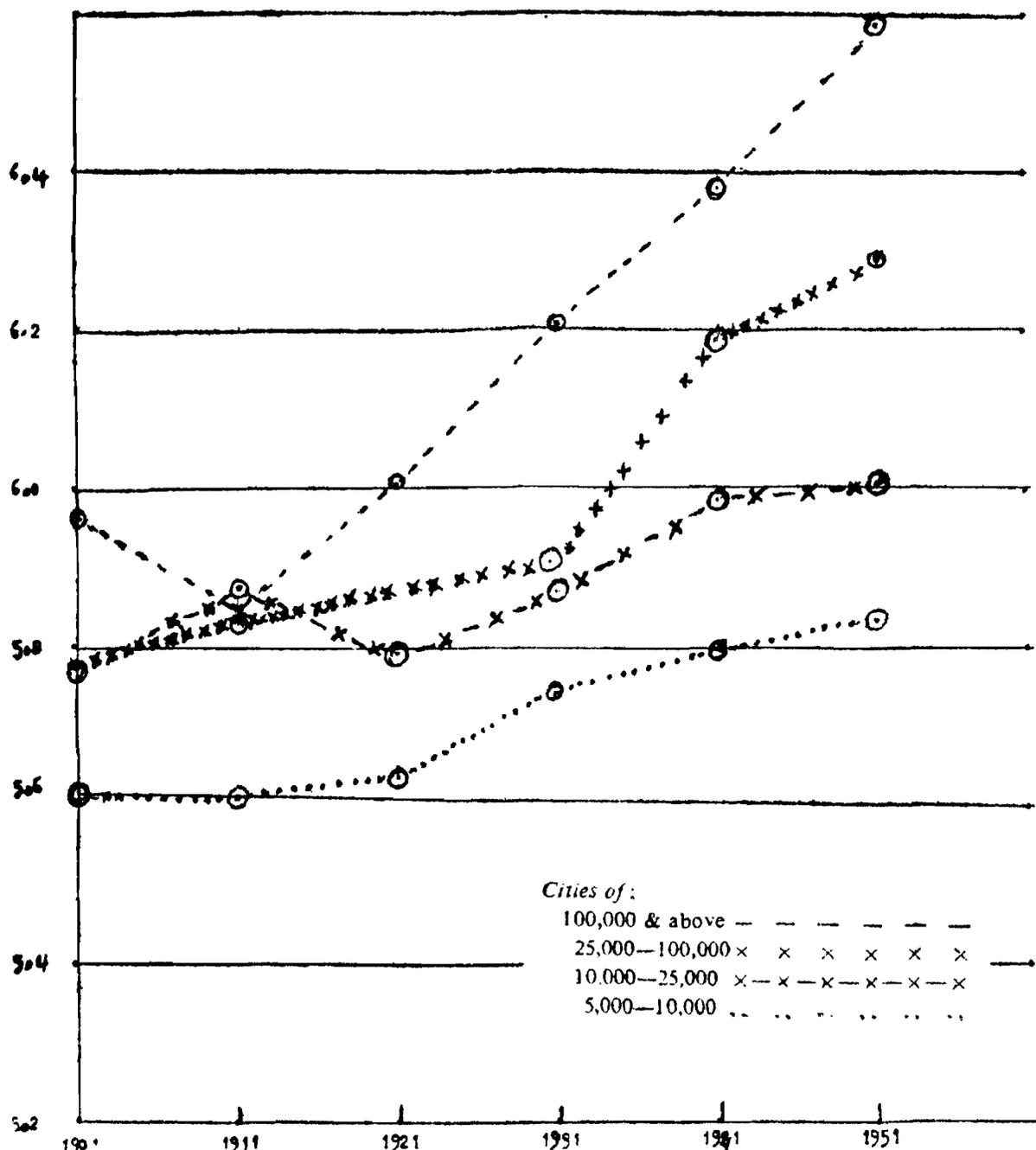
*Cities of 100,000 and above ranked in order of population, 1901—51*

City (including Cantt.)	Population 1951 (000)			Numerical rank at each census					
	Total	Males	Females	1901	1911	1921	1931	1941	1951
Karachi ... ..	1,009	572	437	3	3	2	2	2	1
Lahore ... ..	849	478	371	1	1	1	1	1	2
Dacca ... ..	411	256	155	2	2	3	3	3	3
Chittagong ... ..	294	190	104	4	4	4	4	4	4
Hyderabad ... ..	242	133	109	8	8	8	8	9	5
Rawalpindi ... ..	237	144	93	6	7	6	7	5	6
Multan ... ..	190	104	86	7	5	7	6	7	7
Lyallpur ... ..	179	99	80	12	12	12	12	11	8
Sialkot ... ..	168	95	73	9	9	9	9	8	9
Peshawar ... ..	152	90	62	5	6	5	5	6	10
Gujranwala ... ..	121	65	56	10	11	11	11	10	11
Quetta ... ..	84	55	29	11	10	10	10	12	12

*Source* : Census of Pakistan, 1951.

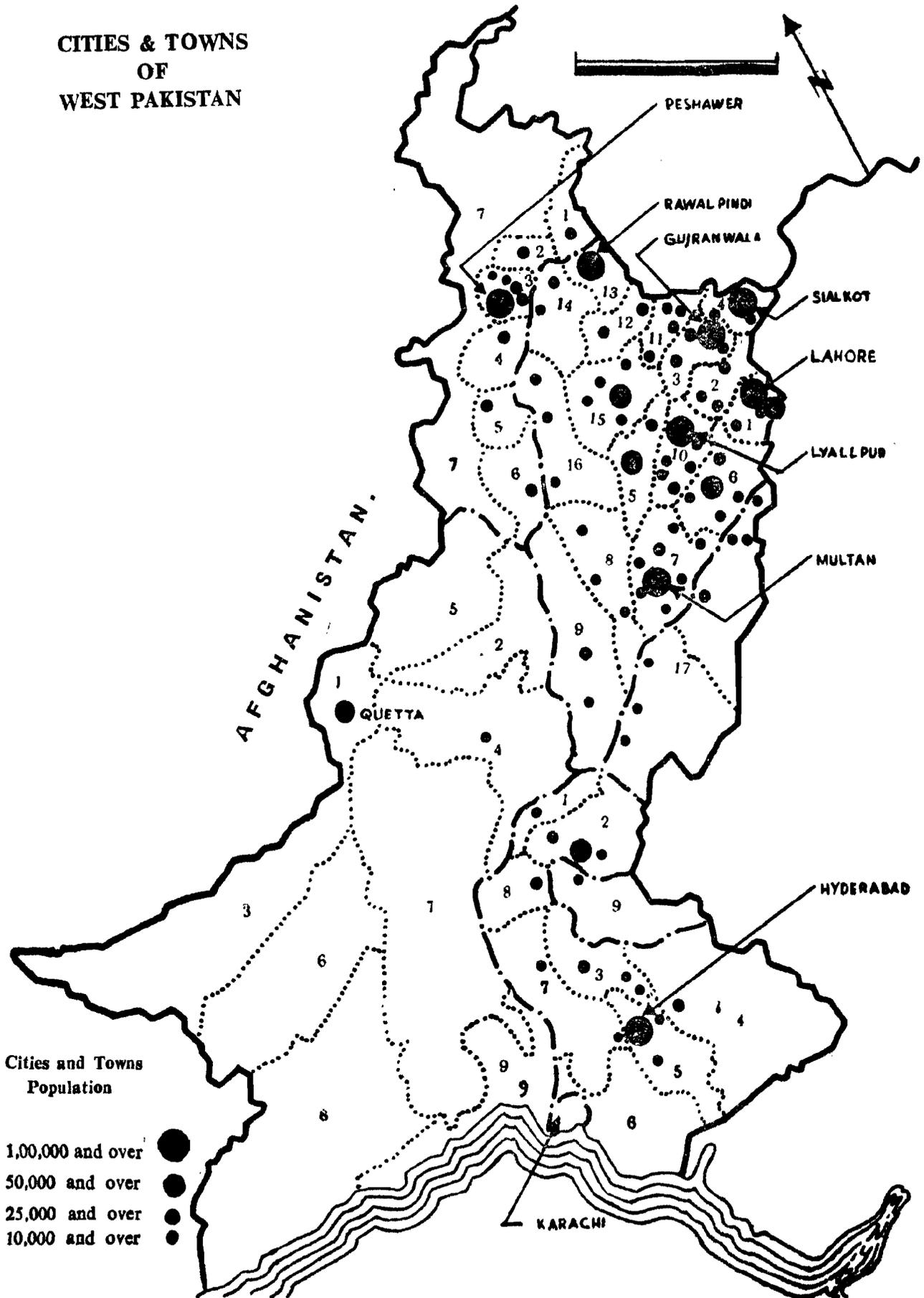
10. In a study of the expansion of cities of different size, one should keep in mind two distinct ways of measuring urban growth. One is class method which ascertains the population in all urban categories from one census to the next incorporating the shifting of particular cities from one class to another. The second, the city method, begins with particular cities and traces their subsequent extension, ignoring what class they will later fall into or what cities may later enter the same class. The first measure shows what is actually happening to the population in terms of its distribution by the size of the city. The second one shows what is happening to specific cities as a result of their natural size itself. Since the methods are complementary both are used here.

FIGURE 1  
Population changes by size of city.



11. The curves shown in figure 1 reveal some very interesting facts regarding the growth of urban population by class method. It reveals that cities with a population of 100,000 and above are increasing their proportion of the population faster than the smaller areas. Thus in 1951 the cities with 100 thousand and over comprised one half of the total urban population of Pakistan and accounted for four million souls or 5 per cent. of Pakistan total population as compared with 1 million or 2 per cent. of the total population in 1901. Since 1931, the population gains in the category of cities 25,000-100,000 is also remarkable. This great impetus in these two categories is largely due to the world war II and the refugee movements in 1947-48. It also reveals that in the other two categories, that is 10,000-25,000 and 5,000 to 10,000, the differential changes had been slight.

**CITIES & TOWNS  
OF  
WEST PAKISTAN**



**CITIES & TOWNS  
OF  
EAST PAKISTAN**

**KEY TO DISTRICT PUNJAB  
AND STATES.**

**BALUCHISTAN**

- 1. Quetta-Pishin ...
- 2. Loralai ...
- 3. Changi ...
- 4. Sibi ...
- 5. Zhob ...

**BALUCHISTAN STATE  
UNION**

- 6. Kharan ...
- 7. Kalat ...
- 8. Mekran ...
- 9. Las Bela ...

**FEDERAL CAPITAL  
AREA KARACHI.**

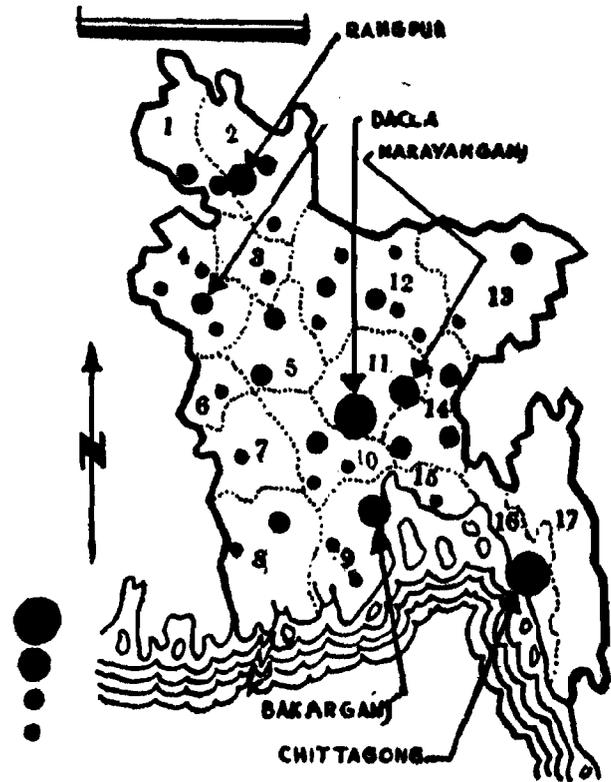
**N. W. F. P.**

- 1. Hazara ...
- 2. Mardan ...
- 3. Peshawar ...
- 4. Kohat ...
- 5. Bannu ...
- 6. Dera Islami Khan ...
- 7. FRONTIER RE-  
GIONS

- 1. Lahore ...
- 2. Sheikhpura ...
- 3. Gujranwala ...
- 4. Sialkot ...
- 5. Jhang ...
- 6. Montgomery ...
- 7. Multan ...
- 8. Muzaffargarh ...
- 9. Dera Ghazi Khan ...
- 10. Layallpur ...
- 11. Guirat ...
- 12. Jhelum ...
- 13. Rawalpindi ...
- 14. Campbellpur ...
- 15. Shahpur ...
- 16. Mianwali ...
- 17. BAHAWALPUR  
STATE

**Cities and Towns  
Population**

- 100,000 and over
- 50,000 and over
- 25,000 and over
- 10,000 and over



**EAST PAKISTAN**

**SIND.**

- 1. Upper Sind Fron-  
tier
- 2. Sukkur ...
- 3. Nawabshah ...
- 4. Tharparkar ...
- 5. Hyderabad ...
- 6. Tatta ...
- 7. Dadu ...
- 8. Larkana ...
- 9. KHAIRPUR  
STATE

- 1. Dinajpur ...
- 2. Rangpur ...
- 3. Bogra ...
- 4. Rajshahi ...
- 5. Pabna ...
- 6. Kushtia ...
- 7. Jessore ...
- 8. Khulna ...
- 9. Bakherganj ...
- 10. Faridpur ...
- 11. Dacca ...
- 12. Mymensingh ...
- 13. Sylhet ...
- 14. Tipperr ...
- 15. Noakhali ...
- 16. Chittagong ...
- 17. Chittagonj Hill  
Tracts

*Note ; The map has been reproduced from 1951 Cences Report, Volum 1 and therefore shows the boundaries of the provinces as they existed in 1951.*

12. Now we come to the second method, "city method". Here we select 12 cities with a population of 100,000 and over and make 1901 as the basis and then trace their growth till

1951. Statement 2 reveals some very interesting facts. It can be seen that there was considerable shifting up and down. Karachi which was third in 1901 has become No. 1 being the capital of Pakistan. Lahore which was No. 1 city from 1901 to 1941 has taken the second place. There has been no shifting as far as Dacca is concerned since 1921. Chittagong has always remained the 4th. Hyderabad in 5th place in 1951, began in 8th position in 1901. Rawalpindi, Multan and Sialkot after lot of shifting retained their 6th, 7th and 9th positions respectively which they had in 1901. Lyallpur now in 8th place was in 12th place in 1901. Peshawar has shown a sharp decline in rank since 1941. There is a little downward trend in the position of Gujranwala and Quetta.

13. The 12 cities shown in Statement 2 comprise more than half of the total urban population of Pakistan and account for 5 per cent. of Pakistan's total population. It also shows that the growth of the cities in West Pakistan has been rapid during the last 20 years and that it shows no sign of slowing down.

14. Basically a city is an efficient mode of human settlement because with large numbers concentrated in a small area, it minimises the greatest obstacles to human production, that is, time and distance factors. Consequently production may be concentrated in a small space. Actually each city becomes in a sense a great factory. No city is expected to be self-contained. It must export and import to live. In fact it becomes an exchange centre in which the mass market is ready at hand. This is why adequate transportation is indispensable to a high degree of urbanisation. A city in due course also becomes a reservoir of skilled labour.

15. These generalizations concerning the cities will perhaps be more useful if we analyse in greater detail the three most important cities of Pakistan. All the three differ in demography, economy and society from one another.

16. (a) **Karachi.**—Presumably the concentration of a country's urban population in the principal city is proportionate to the number of functions combined in the city. Thus if the political capital is also the centre of commerce, the centre of industry and the centre of recreation, it will have an extremely dominant position. This is the position of Karachi. It became the capital of Pakistan in 1947 and it is the only port from where goods are imported and exported for West Pakistan. Industry has also made good progress. The result is obvious. There has been a rapid increase in the population of Karachi since 1947. Refugees from India now account for more than half of the total population of the Federal Capital Area. But its growth is not only due to their arrival. Government servants, business-men and skilled workers from all parts of Pakistan have been drawn to the capital. This is confirmed by the Statement 3 which summarises the population according to birth-place.

## STATEMENT 3

*Persons enumerated in Federal Capital Area according to birthplace—1951*

Born							Persons	Percent
All places	...	...	...	...	...	...	11,22,406	100
Karachi	...	...	...	...	...	...	3,06,856	27·3
West Pakistan	...	...	...	...	...	...	1,50,536	13·4
East Pakistan	...	...	...	...	...	...	2,844	0·3
Rest of Indo-Pak Sub-continent	...	...	...	...	...	...	6,55,811	58·4
Other places	...	...	...	...	...	...	6,358	0·6

*Source* : Census of Pakistan, 1951.

17. For Karachi we have got more reliable data on age than for any other city of Pakistan. Statement 4—shows that the figures in the age group 20-39 are very big especially on the male side and account for much of the disproportion of the sexes.

## STATEMENT 4

*Karachi Age Percentage and Sex Ratios—1951*

Age Groups					Males	Females	Males per 100 females
All ages	...	...	...	...	100	100	134
0—9	...	...	...	...	23·9	30·5	105
10—19	...	...	...	...	20·2	23·2	117
20—29	...	...	...	...	23·6	18·8	168
30—39	...	...	...	...	14·6	10·8	182
40—49	...	...	...	...	8·9	7·3	164
50—59	...	...	...	...	5·0	4·9	137
60—69	...	...	...	...	2·6	3·0	120
70 & over	...	...	...	...	1·3	1·7	104

*Source* : Census of Pakistan, 1951.

18. The above figures plainly show that the city is attracting workers aged 10-39. The figures also show that it does not attract females proportionately in age group 20-39. There is no likelihood that the age structure and sex ratio of the city will be normalised in the near future. With industrialisation the chances are that the 1961 Census will show the city more distorted in age structure and sex than before.

19. (b) **Lahore.**—It is the second largest city in Pakistan. The city has been growing constantly since 1901. It has a density of 6,640 persons per square mile with a population of 849,000 persons. There are 1,290 males per thousand females, in this city. The question of sex ratio has been discussed in more detail at another place in this paper.

20. Being the head-quarter of the Provincial Government and West Pakistan Railways, here is a big staff of officials which forms an important part of the population. Commerce, trade, industry and education have also contributed significantly to the growth of the city. Finally the in-coming refugees who are far in excess of the out-going Hindus and Sikhs in 1947, accounted for the greater rise over the last decade.

21. (c) **Dacca.**—It is the third biggest city of Pakistan and is the capital of East Pakistan Government. This is an old historic city and also includes not only the suburban environments but also the municipality of Narain Ganj which is its port, and is only a few miles away from Dacca proper. It has a density of 12,450 persons per square mile with a population of 4,11,000 persons. The preponderance of males which is common in all the cities is more apparent in Dacca where there are 1,650 males per thousand females.

22. Generally the rapid urban growth is not due to excess of births to deaths in cities and towns. In all probability, the natural increase of the urban population is less than that of the rural population. Without exception, wherever data are available, the rate of children to women in the reproductive ages is lower in the cities than in the country. Further more, when vital statistics are sufficiently reliable for comparisons to be made, the urban birth rate is substantially lower than the rural. At the same time, death rate in the cities is not sufficiently lower than that in the country to be balanced by the inferior fertility, in fact in some cases the urban mortality may be higher.

23. The flow of refugees from India to cities and towns in Pakistan is very rapid. The social disorganisation to which it gives rise is perhaps greater than that ever before experienced by urban population.

## STATEMENT 5

*Refugees Percentage in Rural and Urban Population of Pakistan 1951*

Area	Total Population		Refugees	
	Rural	Urban	Rural	Urban
Pakistan ... ..	89.6	10.4	60.9	39.1
East Pakistan ... ..	95.6	4.4	68.4	31.6
West Pakistan ... ..	82.2	17.8	60.1	39.9

Source : Census of Pakistan, 1951.

24. Statement 5 shows that 39.1 per cent. of the refugee population lives in urban places as compared with 10.4 per cent. of the total population. It is natural that once people are uprooted from their ancestral homes in rural areas, they prefer to reside in urban areas. The bulk of these people arrived in West Pakistan from India during 1947-48.

## STATEMENT 6

*Age Structure in Towns—1951*

Age Groups	East Pakistan Towns (1)		Hyderabad City		Karachi		All Pakistan average	
	M	F	M	F	M	F	M	F
All ages ... ..	100	100	100	100	100	100	...	...
0—9 ... ..	16.6	30.3	25.3	27.6	23.9	30.6	27.3	29.5
10—39 ... ..	65.7	53.7	54.8	54.8	58.5	52.7	52.4	52.2
40—59 ... ..	14.3	11.6	14.8	12.9	13.8	12.1	15.2	13.5
60—onward ... ..	3.4	4.4	5	4.7	3.9	4.6	5.11	4.8

(1) Dacca, Narayanganj, Chittagong & Barisal.

Source : Census of Pakistan,—1951.

25. If we exclude the refugees migration, the rural-urban migration which is generally the main cause of growth of cities, has contributed at times far more to urban numbers than the natural increase in cities could ever contribute. The importance of this factor is also shown

by the age group distribution of some cities. The data shows that in towns more than 50 per cent. population belongs to the age group 10-39, whereas the rest of the population which is less than 50 per cent. is distributed among remaining three age-groups. The main causes of internal migration are that (a) to the agricultural worker almost any city wage looks attractive : (b) city life is more glittering. Once a persons spends some time in a city he does not like to go back to the village.

26. The preponderance of males which is shown all over Pakistan is accentuated in the cities and towns. For comparison the sex ratio in the cities is set out below :—

Cities	Males per thousand females
Karachi ... ..	1350
Lahore ... ..	1290
Rawalpindi ... ..	1550
Dacca ... ..	1650
Chittagong ... ..	1820
Hyderabad ... ..	1210
Peshawar ... ..	1440
Quetta ... ..	1910

27. The average for Pakistan as a whole (including both urban and rural areas) is 1128 and for East and West Pakistan 1101 and 1164 males per thousand females respectively. The average for Pakistan for rural area is 111 and for urban areas 133 males per hundred females. The excess of males over females has been a feature of all the censuses of the Indo-Pakistan Sub-continent. A specific single reason cannot be assigned to the pre-ponderance of the masculine population which may be attributed to several causes. The persistence of disparity in all censuses and in all localities suggests that the excess is now a reality and is not due to under-enumeration of females as compared to males. One cause of the lack of balance between the sexes might be that more male births than female are occurring over the years. Another factor is the better care of male children by parents who value boys more than girls. This is difficult to confirm in the absence of complete and reliable information on births classified by sex. As shown above rural and urban differences in the sex ratio of Pakistan are extremely marked. The reasons for this difference are not hard to find. The migration of men from rural areas in search of employment particularly in the most populous cities, are often necessitate leaving their females in the villages from which they had come, is a well known feature of Pakistan's economic life. The seclusion of women persists as social institution, and few women are employed in any kind of work outside the home.

28. The urban population is more literate than rural. This fact can easily be verified from 1951 Census results according to which Karachi has 31·6 per cent. Lahore 36·2 per cent. and Dacca 47·4 per cent. literates. Among the provinces East Pakistan has 21 per cent. literates and West Pakistan has about 16 per cent. while literacy figures for Pakistan are 18·9 per cent. Unfortunately urban literacy figures of 1951 cannot easily be compared with the previous censuses because the definition of literacy used in 1951 differs from that used in previous censuses. The above figures show that there are very few countries where the difference in literacy between city and country is so great.

29. It is common all over the world that the occupational pattern shows a sharp distinction between a city and a country. This is of course associated with the fact that non-agricultural activities are carried on more frequently in cities and towns.

## STATEMENT 7

*Urban and Rural Proportions of Economic Categories—1951.*

Economic Categories	West Pakistan			East Pakistan		
	Total	Urban	Rural	Total	Urban	Rural
POPULATION ... ..	100	18·2	81·2	100	4·3	95·7
Civil Labour Force ... ..	30·7	5·6	25·1	30·7	1·6	29·1
Agricultural ... ..	20·1	1·2	18·9	25·6	0·3	25·3
Non-Agricultural ... ..	10·6	4·4	6·2	5·1	1·3	3·8
Self-supporting persons not in Civilian Labour Force	0·9	0·5	0·4	0·3	0·04	0·26
Dependents ... ..	68·4	12·1	56·3	69·0	2·7	66·3
Children under 12 years of age ... ..	35·8	5·9	29·9	36·3	1·3	35·0
Persons aged 12 years and over ... ..	32·6	6·2	26·4	32·7	1·4	31·3

Source : Census of Pakistan, 1951.

Statement 7 shows the distribution of the total populations of West Pakistan and East Pakistan classified according to economic categories in urban and rural areas. In West Pakistan 40 per cent. of the non-agricultural labour force is found in urban areas, which contains in all 18 per cent. of the total population. In East Pakistan although the towns contain only 4·3 per cent. of the population, 25 per cent. of the non-agricultural labour force is found in them.

30. Pakistan's progress in the direction of semi-industrial economy from a predominantly agricultural one has been highly satisfactory. It has made rapid industrial progress since 1951 when the first population census was taken. The number of vital industries such as chemicals, fertilisers, cement, sugar, ship-building, paper, wool, jute and cotton textile, developed during this period. To give an idea of the progress I quote cotton textile statistics. The installed capacity of the cotton textile industry stood at 1,827,674 spindles and 27,773 looms at the end of December 1956 against 333,126 spindles and 5904 looms on the first January, 1951.

31. Planners have very wisely scattered the industry all over the country and thus have avoided, to a certain extent, the development of big slums which sprang up in certain Western countries where unplanned industry developed at the time of industrial revolution. The result of this industrialisation is obvious. Round each factory a new town has developed in no time. It is expected that urbanisation that is rapidly taking place will not be the urbanisation of the 18th and 19th centuries, it will rather be the urbanisation of the 20th century. There is every hope that these new towns will be well-planned and will provide social facilities like schools, hospitals, drainage and recreation centres.

32. As these towns are still in the making, it is difficult to give an accurate idea in figures regarding urbanisation which has been taking place since 1951. Officially the progress of urbanisation will be known in 1961 when the next stock-taking of the nation will take place. But we need not be surprised if the new figures of 1961 reveal an increase of 100 per cent. in urbanisation.

## PRECISION OF CENSUS DATA

*(Paper prepared by the Pakistan Population Census Office for consideration at the Regional Conference of Statisticians held at Bangkok in March-April 1956)*

THE following are the outlines of the paper:—

1. The ambition of accuracy in Census data and the vigilance required at various stages for achieving it:
  - A. Precision of concepts—Planning of Census Schedule— Some characteristics deserving special consideration for correct and precise definition.
  - B. Planning of an orderly processing methodology—personal qualities required for it.
  - C. Sample check as a means of evaluating the precision of Census data in under-developed countries.
  - D. Statistical evaluation to assess the precision.

**The Ambition of Accuracy in Census Data and the Vigilance Required at various stages for Achieving it.**—The Census of Population taken in 1951, required the services of approximately 1,700 Charge Superintendents 16,100 Supervisors and 173,000 enumerators covering approximately 365,000 Sq. Miles and 75,842,000 people. From the standpoint of sheer size, it is inconceivable that such a census would be free from errors.

Complete coverage and perfect accuracy in Census data is the ambition of every Census Administrator. But this ambition falls short of its fulfilment due to various reasons, the majority of which is beyond his control. Nevertheless he succeeds through his statistical skill and the knowledge of social conditions prevailing in the country in eliminating to a certain extent incorrect response to the Census questions through organisation and thorough training of efficient field staff and planning an orderly processing procedure. Whatever inaccuracies are left even after this are assessed either through conducting a sample survey or through statistical evaluation of the data obtained. These in short are the major fields of the activities of a Census organisation and give an idea of the administrative and statistical knowledge and the experience required for the officials responsible for conducting the census. All problems of Census technique revolve round the core of the accurate statistical data. Economic planners will be saved of much of their worries and frustration if the Census administrator gives an honest evaluation of his achievements taking the people in full confidence.

The recognition of the existence of errors in Census is not new. What is relatively new is the attempt to provide a measure of the errors on the basis of an independent enumerative check. This need for a correct appraisal of the data collected cannot be dispensed with, even in highly advanced and developed countries, where the standard of accuracy attained is comparatively high, mainly due to high percentage of literacy and accurate planning. This question is however, of special significance in under-developed countries where the percentage of literacy is low and the means of communications and transport inadequate to fulfil the requirements of an efficient Census Organisation. In this paper we confine ourselves to the discussions of the work in the central office as regards three important stages of a Census; *viz.* (i) planning and drafting of the Census questionnaire, which is governed by the *precision of concepts* for the data as regards various characteristics, (ii) planning of an orderly method of processing and (iii) the evaluation of Census data. This will, *inter-alia*, give an idea of the type of men required for these jobs and will thus help the under-developed countries in chalking out the training programme for the personnel who may be required for the Census to be taken in hand around the year 1960. Emphasis has therefore been laid on the personal qualifications and personal qualities.

**Precision of Concepts—Planning of Census Schedule.**—This phase of a Census plan requires a thorough grasp of the economic and social problems of the country. It is for the assessment of the order and balance in inter-play of Demographic, Economic and Social factors that the data is collected. Demographic study is directly related with the sociological pattern of the population. The usual practice is to call for the requirements of the main users or prospective users of the Census data who are mainly the economic planners, the employment placement agencies, the educational authorities and social reformers. Of course, the Demographic statisticians should get a high priority for their requirements. If fortunately, the planning of the Census schedule happens to be a Demographic statistician with sound knowledge of the sociological set up of the country, he can easily analyse and combine the requirements of the economic planners and such other agencies, and arrive at a minimum number of questions that can elicit such answers which after proper processing and presentation can cater the needs of several users. A competent sociologist can plan an effective training programme for the enumerators, as also an appealing publicity material keeping in view the local amenability to the type of publicity. The above point which is in common knowledge is being emphasised to stress the type of training necessary for the census administrators and statisticians that may be required for 1961 Census.

Needless to say that the phraseology of the census questionnaire in the local language is an important factor which helps eliciting accurate response.

An important point worth noting is the part played by the actual programme of economic and social uplift which can arouse real enthusiasm among the people, not only to get themselves enumerated, but to get themselves correctly enumerated, as regards their Demographic, Social

and Economic characteristics. It is hoped that the development programmes undertaken in countries of South East Asia, specially the Village Aid Programme, will help a great deal in shaking off the apathy of the people towards correct enumeration; both among the honorary field staff and the respondents, and will greatly facilitate the fulfilment of the ambition of accuracy to a considerable extent. In the regions where the impact of the development programme has not yet been felt, it will be useful to publicise the blessings of the development plans which could only be based on correct statistics.

Certain examples of the types of data which have been found wanting a precision are cited below. The first aspect requiring a higher degree of precision than it has been possible to attain is the complete coverage of enumeration. Preliminary house listing or household listing, if done very carefully will help in removing this inaccuracy. Household listing was carried out in 1951 Census of Pakistan. But it is felt that this operation should be carried out with greater care, specially in Urban areas and big and thickly populated cities. This phase could be regarded almost as important as the detailed enumeration itself. The quality of the household listing may be taken as an indicator of the quality of enumeration. In the short period intervening the household listing and the enumeration the household list could be scrutinized to remove any omission.

Another typical example of defective data is that of age returns. An accurate age data even in five year age groups will perhaps remain an ambition till the general standard of literacy and education is sufficiently raised. But efforts should be made for achieving maximum accuracy of data in five year age groups and by single years for at least the first five years. The sex ratios in earlier groups will help in evaluation of the higher age groups, besides providing a good field for the study of rates of reproduction and rates of growth. If it is made possible to have an accurate data for age and educational standards attained, with a special mark for persons still at school, a lot of cross tabulation becomes possible which may cater for almost the entire requirements of educational planners if they could obtain the information regarding the number and grades of schools through other administrative channels. At the same time the Demographer may be able to use the age data for all his calculations and will also be able to cross evaluate the coverage of vital statistics. The attainment of accuracy has two important prerequisites, one the correct response and the other orderly processing and systematic presentation.

Infant mortality is also a subject that should be given special attention as it will facilitate the cross evaluation of the vital statistics collected through the registration system. The rate of growth of population calculated on the basis of census data could be cross evaluated with the corresponding rate calculated from vital statistics. The deficiencies of the latter, which are considerable in the present system of registration in under-developed countries, can be gauged.

A lot of cross tabulation depends on the correct recording of ages, such as the condition of educational and health amenities, the age pattern of the total population and that of the labour force, the social picture as regards marital status and the trend of population growth. All

this valuable study remains incomplete in the absence of precise age data. Its correct evaluation shall be an important subject in the future censuses and further studies for its correct evaluation should be carried out, keeping in view the conditions in the under-developed countries.

Among the other topics requiring precision are the status of agricultural workers and the industrial or economic group affiliation of the non-agricultural labour force. It may be noted that the status of an unpaid family help in agricultural families specially the status of women and children taking part in the economic activities of the family deserves careful study in order to assess the actual size of the potential and productive labour force. At the same time, these partly self-supporting persons should not be counted as fully productive instruments in the economic pattern. A precise information on this subject will help the study of the conditions of the agricultural population. Lack of precise idea on this point is likely to lead to the inclusion of some of the unpaid family help in this category as full fledged members of the labour force while a portion may get enumerated as dependants. The eliminating question, if any, should be so designed as not to eliminate this category from subsequent questions regarding occupation and Industry. For women in agricultural families, in particular, and in rural areas in general who report themselves as dependants it is necessary to ask further question such as:—

1. Are you engaged in any work other than the household work.
2. Do you work in Dairy farming and poultry farming or any other cottage industry such as weaving etc.

This aspect can be investigated in greater detail through sample surveys. But the Census data should also precisely define these classes of the labour force.

The industrial affiliation of a labourer is again an essential subject of study. As a matter of fact, the detailed and precise data on the distribution of the labour force by economic groups is the correct measure of the importance and degree of development of various sectors of economic activity. A few of the occupations such as medical and teaching professions directly reveal the economic group of the worker. But a large number of occupations specially of the unskilled labourers which have a high degree of inter-group mobility require separate classification by economic groups. A direct question regarding the economic group of individual has not yielded precise and complete information. Perhaps better training of enumerators will yield better results. Another method is the system of recording the name of the employing concern. This also may not be wholly successful in the absence of complete trade directory, but it is worth trying. Besides, its success depends on the intelligence of the staff supervising the process of coding. If intelligent staff could be recruited, and thoroughly instructed in sorting offices covering smaller regions then the results might, perhaps, be better due to good knowledge of the local conditions.

**Planning of an orderly Processing Methodology-Personal Qualities Required for it.**—This is also an important factor directly concerning the smaller number of experts who are responsible for the planning of the Census. The number of experts and experienced persons is not large in

the countries of South East Asia. This stage of Census technique requires three fundamental characteristics in the personal to attain precision. One is the experience of handling this nerve taxing job which requires a high degree of patience and perseverance, skill in the planning procedure, skill in presentation; and last but not least, is the professional integrity and the ability to infuse the same in the large team of workers in sorting centres or what may be called the Census factories. The last mentioned quality is an essential requisite. The fixation of standard of output should be done after actual observations of the skill and speed attained by an average worker in a Census factory. Fixing of the standard on the basis of the out-put attained in developed countries in congenial climates, combined with a system of remuneration on the basis of out put, is always likely to prejudice the quality of precision, specially because a cent per cent check is not only not possible, but if attempted would cost more. Not only the man in the Central Office responsible for planning the process of methodology but all the chiefs and the supervisory staff in sorting centres should possess the above mentioned requisites. professional integrity should be developed to such an extent that the people should be able to resist the tendency for short cut methods and hasty improvisation, which not only mar the accuracy of the data but make the evaluation of the data a very difficult job. In case any resort is had during the processing stage to a degree of estimation rather than actual count then, a statement showing the method and extent of such estimation should be appended to the data. This practice was observed during the compilation of the 1951 census data, specially of the Economic Group Classifications.

*Presentation.*—Classification, and presentation or tabulation is the next stage which requires an expert handling to attain precision. The usual practice is to call a conference of statisticians and the users to consider the desirability and extent of having an elaborate tabulation programme with a high degree of cross tabulation and for small geographical regions. The proforma or the layout adopted for the tables should suit their intelligibility and their calculations. One way of achieving precision in tabulation would be to have the expert opinion of the users, asking them to carefully note the defects of the existing information in this field, that is the type of tabulation of the data available in the reports of the past censuses. Their requirements may be ascertained keeping in view the expanding scope of the field of their activity. The descriptive reviews in the past census reports will also help in this work. All this means an effective coordination at experts level of the users of the data in all Governmental Agencies, in order to have a precise idea of the enquiry to be covered by the census on every characteristics.

**Sample Check as a Means of Evaluating the Precision of Census Data in Under-Developed Countries.**—This is no doubt, the best acknowledged method of checking the accuracy of the Census data. But its success depends mostly on the expert handling of the sampling technique and the quality of the Investigators conducting the sample survey. The most important point is of course the selection of a representative sample of adequate size for various strata of the population and the regions of the country. In a big country, therefore, the cost of a really good

and adequate sample check will be considerable. One point worth noting is that the deficiencies of the census data detected through the sample check may not be evenly applicable to the whole region or even the whole stratum as the quality of enumeration in that region may be of a differing value. In other words the sample may not be representative for all the strata and regions as regards the degree of deficiency revealed. Nevertheless if the evaluation of the sample data and the census data is carefully carried out in cross comparison with each other, the results will no doubt, help in arriving at dependable and precise conclusions. The quality of sample check will again be governed largely, or rather wholly on the quality of the regional and divisional experts within the country, who will be able to train their investigators. In view of the present conditions prevailing in under-developed countries, it is difficult to give an opinion on the effectiveness of the check that a sample inquiry will provide for the census count. Errors which occur in complete count can also occur in a sample survey. These errors are:—

- (i) Collection of data.
- (ii) Processing of data.
- (iii) Interviewing approach.
- (iv) Knowledge of the respondent.

**Statistical Evaluation to Assess the Precision.**—If we do not depend wholly on the effectiveness and perfect handling of a sample check much precision can still be achieved through correct evaluation and analysis of the data. This field of work again requires all the qualities and qualifications recounted above for a census statistician. The U.N. Statistical Office is also helping through the development of techniques for the analytical evaluation of the data. This work is, however, a matter of experience in statistical analysis. If the analysis is carried out by the persons who have been organising and watching the working of the enumeration and processing methodology, then it is likely to yield better results, as their knowledge of the sources of errors might help a correct evaluation with reference to specific sociological and economic conditions of the areas instead of being guided by generalizations. If this work is handled by persons who have organized the enumeration then it requires a high degree of professional integrity on their part to expose the defects in the data which is the result of their own endeavours. If they realize the importance of the data and the consequent effects of its deficiencies on the national development programmes then they will not hesitate in suitably qualifying it for its defects and shortcomings. Such attendant qualifications of the data will make it more precise by indicating the degree and the type of inaccuracy if any, which has crept in. This will help in drawing correct inferences. The process of evaluation is, however, a continuous process. The evaluation of data collected in one census may continue till the next census, and even after that in the light of the data collected at the next census. It is, therefore, imperative that the census administrators should most clearly bring out the defects in the procedure which were revealed during the course of their operations.

## POPULATION GROWTH IN PAKISTAN AND FUTURE ESTIMATES

INAM-UL HAQ

**F**UTURE population estimates for individual countries, however conjectural, are often needed for an approximate assessment of future needs in nutrition, education, finance, or other matters. For countries possessing fair amount of statistical data, it is always desirable to estimate future population by the best possible method that the data permits.<sup>1</sup>

These recommendations of the Population Division of the United Nations are all the more significant for a country like Pakistan where planning and development programmes are the talk of the day. There is no denying of the fact that successful economic development is always threatened by extraordinary or undesirable growth of population, and a legitimate desire is often felt to assess the magnitude of the numbers for whom the economic resources are to be exploited, in order to achieve a particular standard of living. There is a definite relationship between the three factors, *viz.*, cost of living, production and population, which can be visualized by a functional relationship of the form:—

$$L = \frac{P_r}{P_o} \dots\dots\dots^2$$

or when the rate of change is considered :—

$$\frac{\Delta L}{L} = \frac{\Delta P_r}{P_r} - \frac{\Delta P_o}{P_o}$$

Where

L = Cost of Living.

P<sub>r</sub> = Production.

P<sub>o</sub> = Population.

Δ = Variation in 't' units of time.

This is just a simple way of incorporating the following generalizations in the form of a mathematical equation:

- (a) The standard of living (L) can be raised only if increases in production exceed the increases in population.

<sup>1</sup> " Framework for Future Population Estimates; 1950—1960, by World Regions"— Population Division of the United Nations.

<sup>2</sup> " Population Statistics and Research in Planning Economic Development "—Philip M', Hauser, Director, Population Research and Training Centre, University of Chicago, U.S.A.

<sup>3</sup> *Ibid.*

- (b) If population remains constant, increases in production are directly reflected in increases in the standard of living.
- (c) If production remains constant, increases in population are directly reflected in decreases in the standard of living.
- (d) The slower the rate of population growth the greater the increase in the standard of living due to increase in production.

It is obvious from these statements that "population as a factor in economic development must be considered both as a dependent and independent variable. Specific development projects will affect the rate of population growth through their influence on mortality, fertility or migration. In turn population changes will influence economic development programmes and output in that they will affect the size and composition of labour force, available as a factor of production and the size of the market for both consumption and capital goods".<sup>1</sup>

The task of projecting future populations on the basis of certain assumptions is a hazardous one in the absence of comprehensive and reliable statistical information, still it is absolutely necessary for planning for the future, and an attempt in this direction is really worth while. Population predictions cannot be dismissed merely by the remark that they imply a wide margin of error and that in the final analysis no one knows what will happen in the future. Such projections are not intended as prophecies of the future, rather, they describe what is going on now and what is likely to happen in future on the basis of current developments provided they are not changed or blocked by new factors.

#### **Methods of Population Projection :**

Generally there are three approaches for estimating future population :<sup>2</sup>

- (a) Statistical.
- (b) Mathematical.
- (c) Historical.

#### **STATISTICAL APPROACH**

Statistical Approach is based on definite assumptions regarding the future number of births and deaths that are expected to occur at current or prevailing rates. We can explain it as follows :

Suppose that in 1956 we wish to estimate the probable population of the country in 1961 and we have at our disposal the census data of 1951. Everyone who will be 10 years or more in 1961 had been born when the 1951 census was taken, but some persons enumerated in this census will have died by 1961. The first task is to estimate how many of the 1951 population are likely to survive the decade. This estimate is obtained by applying, consecutively, definite mortality rates to each 5-year (or 10 year) age groups of males and females recorded in the census.

For this task we require (a) age and sex-distribution of the population at 5-year or 10-year intervals, (b) specific death rates with regard to the age and sex-distribution of the population.

---

<sup>1</sup> "World Population and Production. Trends and Outlook"—W.S. Woytinsky and E.S. Woytinsky The 20th Century Fund. New York. February, 1953, pp. 243..

<sup>2</sup> 1951 Census.

The second task is to estimate the number of persons under 10 years of age in 1961 ; in other words the number of survivors among those who will have been born between 1951—1961. It requires a definite assumption about the future number of births.

The difficulty of applying this kind of demographic analysis lies in the fact that ' it is necessarily restricted to countries with comprehensive statistics ', and such statistics are lacking in Pakistan. An essential prerequisite of the method is complete information on natality and mortality trends, which is only possible if the system of registration of births and deaths is working satisfactorily. The conditions in Pakistan are such as to eliminate the possibility of applying this method for projection purposes.

The Census of Pakistan Volume II (East Bengal) describes the registration of births and deaths in East Pakistan as follows :—

“ The system of vital statistics, *i.e.*, the registration of births and deaths was introduced in Bengal in 1892 but the machinery for collecting the information through chowkidars in rural areas or through heads of families in towns is far from perfect. In this census<sup>1</sup> an enquiry was made regarding children born during the last 12 months. The response was not altogether satisfactory but over 18 lakhs of births were reported compared with 5·7 lakhs of births registered. Similarly the children enumerated in the ages between 0 and 9, *i.e.*, the survivors of the last 10 years' births, numbered about 135 lakhs but in that period only 90·8 lakhs of births were registered ”.

In West Pakistan also the conditions are disappointing. Except the former Punjab province no other region of West Pakistan has any effective system of collecting vital statistics. In the former Punjab a Statistical Section in the Directorate of Health Services collected and maintained elaborate information on this subject but even there the registration was incomplete. Now that the jurisdiction of the Directorate extends over a wider territory with no system of reporting in vast areas, the task is all the more vague and obscure.

### THE MATHEMATICAL APPROACH

In the absence of comprehensive vital statistics if census data is available, we can rely on it as the only available valid mean of measuring the past rate of growth and estimating the future population. Projections of mathematical type rest on the assumption that population grows in accordance with a definite mathematical formula that is derived from the past data. This approach is practicable in Pakistan for measuring the past rate and the expected growth of population in future, for we have at our disposal six census figures for the country from 1901 to 1951.<sup>1</sup>

The regions now comprising Pakistan were a part of the Indian sub-continent prior to the Partition of the country (1947), and, therefore, the growth of Pakistan's population cannot be completely isolated from that of India's. Still the territories included in Pakistan have their

---

<sup>1</sup> Census of Pakistan (1951), Volume I.

own demographic characteristics distinctly different from the rest of the sub-continent to permit a study of the growth of population in the Pakistan areas separately. This fact is established by the following observations.

Before trying to search out a mathematical pattern representing the growth of Pakistan's population it is worth while to have a bird-eye view of the role played by Pakistan territories in the expansion of population in the Indo-Pakistan sub-continent. The census enumerated population of the sub-continent from 1871 to 1951 has been recorded as below :

TABLE I  
Population of Indo-Pakistan Sub-Continent (1871—1951)

Year	Census Population (in 000's)	Estimated Population (000's)	Percent increase during previous decade
1871	203,415	255,166	...
1881	250,160	257,380	0.9
1891	279,593	282,134	9.4
1901	283,870	285,288	1.0
1911	303,041	302,985	6.1
1921	305,730	305,679	0.9
1931	338,171	338,171	10.6
1941	388,998	388,998	15.0
1951	432,721*	432,721	11.2

The following characteristics of the growth of population are important to be considered :

(1) Past increase of population in the sub-continent has not been rapid when compared to other countries as is apparent from the following statement :<sup>1</sup>

TABLE 2  
Percentage growth of Population in Different Countries

Country	Years	Percentage Growth of Population
Indo-Pakistan sub-continent	1871—1941	52
U. K.	1871—1941	57
Japan	1870—1940	120
U.S.A.	1870—1940	230

\*Combined census figures for Pakistan and India—

Pakistan ... 75,842 thousands.

India ... 356,879 thousands.

<sup>1</sup> The Population of India and Pakistan—Kingsley Davis, p. 27.

(2) A second striking feature of the sub-continent's "population growth since 1830 has been its extremely sporadic nature"<sup>1</sup>. The percentage growth figures, indicated above, show that for a long time decades of marked increase have regularly alternated with decades of slight increase.....war as a deterrant factor has dropped out of the picture, leaving only famine and disease. In the decades of negligible growth, the trouble lay in one of the other of these catastrophes. During the 1871—1881 period, there occurred the great Indian famine of 1876—1878 ; during the 1891—1901 decade, another famine, and during the 1911—1921 decennium the great influenza epidemic of 1918.....During the other decades, called "normal", ..no widespread catastrophes occurred and the population grew rapidly."<sup>1</sup>

"The rate of growth since 1921 (1·2 % per annum) has not been phenomenal for modern times. The United States population increased 16% during the decade 1920—30, a rate never equalled in India. But because of the massiveness of India's existing population, even a moderate increase means a huge absolute increment. The modest 1·2 % annual increase during the two decades from 1921 to 1941, added no less than 83 million inhabitants to India's teeming millions, more people than all of Germany contains and nearly two-third of the population of the United States".<sup>2</sup>

(3) "The crude rate of natural increase, obtained by subtracting the death rate from the birth rate, has fluctuated sharply in India because of fluctuations in the death rate".<sup>3</sup> This statement is approved by the following :

TABLE 3

*Average Annual Birth, Death, and Natural Increase Rates in Indo-Pakistan Sub-Continent, by Decades (1871—1941)*

Decade	AVERAGE ANNUAL RATES		
	Birth	Death	Natural Increase
1881—1891     ...     ...     ...	48·9	41·3	7·6
1891—1901     ...     ...     ...	45·8	44·4	1·4
1901—1911     ...     ...     ...	49·2	42·6	6·6
1911—1921     ...     ...     ...	48·1	47·2	0·9
1921—1931     ...     ...     ...	46·4	36·3	10·1
1931—1941     ...     ...     ...	45·2	31·2	14·0

(1) The Population of India and Pakistan—Kingsley Davis—p. 28. (2) *Ibid* p. 28. (3) *Ibid* p. 85.

“ With migration playing little part, population growth in the Indian region has been determined primarily by natural increase, it is the fluctuations in the latter that explain the unsteadiness of the growth rate ”.<sup>1</sup>

(4) It is interesting to note yet another feature in this phenomenon of growth and that is the composition of the population with respect to religious communities, which differ from each other in respect of fertility and other demographic characteristics. The proportion of the Muslim population has increased gradually and steadily as shown in the following table <sup>2</sup> :—

TABLE 4  
*Religious Composition of Indo-Pakistan Population (1881—1941)*

Year	PER CENT OF POPULATION		
	Muslim	Hindu	Others
1881	19·97	75·1	6·93
1891	20·41	74·2	5·39
1901	21·88	72·9	5·22
1911	22·39	71·7	5·91
1921	23·23	70·7	6·07
1931	23·49	70·7	5·01
1941	24·28	69·5	6·22

As is evident from the above table, in six decades the percentage difference between Muslims and Hindus has been cut by more than one-seventh. The proportional increase of Muslims has been remarkably constant. ‘At no census have the Muslims failed to improve their percentage, or the Hindus failed to lose’.<sup>3</sup>

The reason for this change in proportion in favour of Muslims lies in the greater fertility of the Muslims, which in turn is attributable primarily to their greater tolerance of widow re-marriage muslim women marry almost as universally as Hindu women, and they re-marry considerably more frequently. The result is that a higher proportion of women in the reproductive ages are married, and this accounts for a portion of the higher fertility of Muslims”<sup>4</sup>. Also the fertility ratios indicate higher fertility among married Muslim women than among the Hindus.

<sup>1</sup> *Ibid.*

<sup>2</sup> *Ibid* p. 79.

<sup>3</sup> *Ibid* p. 193.

<sup>4</sup> *Ibid.*

Besides other factors religious composition of the territories now belonging to Pakistan and India has also considerably influenced the rate of growth of population in the two countries. The rate is more widely fluctuating in case of India as compared to Pakistan. India has shown an increase of 50% from 1901 to 1951 while Pakistan's population experienced a growth of 66.7%, during the same period. The following table shows the position in this respect :

TABLE 6  
*Percentage Increase in Population by Decade for Pakistan and India*

Decade	Pakistan	India	Combined
1901—11 ... ..	11.9	5.7	6.7
1911—21 ... ..	6.7	0.4	0.9
1921—31 ... ..	8.8	11.0	10.6
1931—41 ... ..	18.8	13.5	15.0
1941—51 ... ..	7.9	14.1	12.9

When considering the "rate of growth and the variation in population one should keep in view the factors that have exercised considerable influence in inflating or deflating the enumerated figures". Unfortunately the operation of census enumeration in the Indo-Pakistan sub-continent has been plagued by political considerations and the reliability of census data has become dubious at certain stages. However, the magnitude of the erroneous element in the enumerated figures can be detected by considering the unusual discrepancy between the observed figures and the estimated ones obtained from certain mathematical curves discussed below.

The following tables give the enumerated population and its variation in the territories now comprising Pakistan and her two wings as recorded in six decennial censuses :

TABLE 7  
*Enumerated Population of Territories Belonging to Pakistan and its Variation (1901—1951)*

Year	VARIATION		Percent	Index of Growth (1901 100)
	Enumerated Population	Actual		
1901 ... ..	4,55,04,379	...	...	100
1911 ... ..	5,09,36,588	54,32,209	11.9	112
1921 ... ..	5,43,62,875	34,26,287	6.7	119
1931 ... ..	5,91,46,241	47,83,366	8.8	130
1941 ... ..	7,02,79,361	1,11,13,312	18.8	154
1951 ... ..	7,58,42,165	55,62,804	7.9	167

TABLE 8

*Enumerated Population of the Areas of East Pakistan and its Variation (1901—1951).*

Year	Enumerated Population	VARIATION		Index of Growth (1901=100)
		Actual	Per cent	
1901 ... ..	2,89,27,786	...	...	100
1911 ... ..	3,15,55,056	26,27,270	9·0	109
1921 ... ..	3,32,54,096	16,99,040	5·3	115
1931 ... ..	3,56,04,170	23,50,074	7·0	123
1941 ... ..	4,19,97,297	63,93,127	17·9	145
1951 ... ..	4,20,62,610	65,313	0·1	145·4

TABLE 9

*Enumerated Population of the Areas of West Pakistan and its Variation (1901—1951)*

Year	Enumerated Population	VARIATION		Index of Growth (1901=100)
		Actual	Per cent	
1901 ... ..	1,65,76,593	...	...	100
1911 ... ..	1,83,81,532	18,04,939	10·8	111
1921 ... ..	2,11,08,779	27,27,247	11·4	127
1931 ... ..	2,35,42,071	24,33,292	11·2	142
1941 ... ..	2,82,82,064	47,39,993	12·0	171
1951 ... ..	3,73,79,555	54,97,491	11·9	204

The above three tables furnish evidence to permit the following conclusions :—

- (i) Percentage rate of growth in West Pakistan is extraordinarily steady, *i.e.*, nearly 11% increase during each decade (1·1% per annum). In fifty years the population of the areas comprising West Pakistan has just doubled itself.

- (ii) Percentage rate of growth in East Pakistan is not following any systematic trend and the sporadic fluctuations in the rate are mainly due to the circumstances discussed below.
- (iii) The population of West Pakistan is growing at a faster rate than that of East Pakistan, as shown by the six census figures. While the former's population has doubled itself in 50 years, the latter's has just shown an overall increase of 45% during the same period, as indicated by the index of growth in the last column of the tables No. 8 and 9.

In the following passages we consider briefly such factors as have influenced census figures between different decades : (official views are frequently quoted).

### **1901—1911**

In East Pakistan territories, the Partition of Bengal (1904), creating a separate province of East Bengal and Assam, aroused communal feelings to such an extent that the census of 1911 is considered to have suffered from some inflation.<sup>1</sup>

In West Pakistan the figures for the Tribal Areas have not been included which might have made the total population about 46 million, as indicated by mathematical considerations.

The rate of increase, 11·9% during the decade is rather artificially high and not in tune with the subsequent rates. During the same decade an epidemic of plague of great violence with fever of specially fatal type took a heavy toll in the undivided Punjab so much so that the decade closed with an excess of deaths over births. The undivided Punjab showed a decrease of 2·4% over this decade whereas the population of the area forming the former Punjab (Pakistan) registered an increase of 6·4%. This epidemic caused an appreciable decrease in the districts of Gujranwala, Sialkot and Lahore but the population in Montgomery, Jhang, Multan and some other districts showed an excess partly due to migration to the new colonies, which had sprung up as a result of the lower Jhelum and Lower Chenab canals and partly to better living conditions of the colonies made possible by their prosperity.<sup>2</sup>

### **1911—1921**

During this decade a severe influenza epidemic broke out (1918). According to an estimate by Kingsley Davis the loss of life due to the epidemic amounted to nearly 18·5 million<sup>3</sup> in the whole sub-continent. Due to this catastrophe the population of the sub-continent showed a nominal increase of 0·9%. The population of Pakistan areas was comparatively less affected and made a gain of 6·7% whereas India (excluding Pakistan areas) registered an increase of only 0·4%, as shown in Table 6.

---

(<sup>1</sup>) Census of Pakistan 1951. Volume 3—(East Bengal). pp. 29.

(<sup>2</sup>) Census of Pakistan. 1951. Volume 5 (Punjab). pp. 40, 41.

(<sup>3</sup>) *The Population of India and Pakistan—Kingsley Davis.* pp. 23—Appendix B.

In 1921 the non-co-operation movement started and the enumeration of the year was boycotted in some quarters which may have resulted in under enumeration. The decade also saw the first world War (1914—1918) which coupled with the failure of crops in 1915-16, 1918-19 and 1919-20 upset the economic balance of the country.<sup>1</sup>

### **1921—1931**

It was on the whole a 'healthy' and 'normal' decade. There was, no doubt, still some opposition from the 'non co-operation' movement, but in view of the forthcoming political reforms communal rivalries and factional feelings were spurred, tending to inflate the enumeration.

Rapid growth commenced in this decade with the extension of irrigation system in former Punjab and Sind provinces; it was further accelerated in subsequent decades.

### **1931—1941**

It is difficult to explain the figures for this decade which are very high,.....but it is relevant that the census figures may have been somewhat under-stated in 1931 and over-stated in 1941.<sup>2</sup>

In 1931 there was, no doubt, still some opposition from non-co-operation but "the political disadvantages of under enumeration have become apparent and in certain quarters attempts were made to swell the figures of one's own community and to curtail the strength of a rival community"<sup>3</sup>. The Census Superintendent of Punjab for 1931 census estimated a net error not more than 1% of the total population. However, on the whole 'the result of 1931 is considered reasonably accurate'.<sup>4</sup>

### **1941-1951**

In 1941 the census became a burning political question especially in Bengal and cities of the former Punjab. Both the Muslim and the Hindu communities vied with each other in increasing their recorded number by multiple enumeration and the inclusion of bogus entries. The rate of increase in East Bengal and Punjab were exceptionally high, showing 17.3% and 22.7% increase over the preceding census figure. The figure for the 1941 census also shows a maximum discrepancy from mathematically calculated estimates which show the estimated population to be somewhere near 68 million for the whole country; the enumerated figure stands at 70 million. If this could be treated a valid justification we can surmise the degree of artificial inflation of population to be nearly 3%.

---

(1) Census of Pakistan 1951. Volume 5.

(2) Census of Pakistan. Volume 1 (Pakistan). pp. 26.

(3) Census of Pakistan Bulletin No. 3.

(4) Census of Pakistan, 1951, Volume III—(East Pakistan).

The Census Superintendent for East Pakistan remarks :<sup>1</sup>

“ Nature had interfered with the growth of population in the decade, 1941—51, in more than one way. First in World War II with the fall of Burma in 1942 and Imphal (Assam) in 1943 hostilities came to the very border of East Bengal and people were evacuated from many rural areas and towns. Many of the people were enrolled in the army, navy, coastal defence and other war organizations and lakhs of people were thus detached from their families resulting in fewer births. To some extent however, this was counteracted by evacuation into East Bengal from Burma and Assam. Secondly, the devastating famine of 1943, and the epidemics of cholera and smallpox took a huge toll of lives. The famine was preceded by floods and cyclones, especially the Bhola cyclone (Bakergunj's) of 1942. These caused great havoc. The Birth and Death Registration system is notoriously unsatisfactory, but during the famine year even this defective machinery practically collapsed. The famine death toll as worked out from the official statements, for East Bengal, comes to about 17,14,000. The signs of famine became visible about July 1942 and its worst effect in the form of epidemics continued until December 1944. The total number of deaths in these years has been estimated at 33,35,000 which, reduced by the quinquennial normal average of about 5,40,000 deaths annually, gives the foregoing official figures of deaths from famine in East Bengal between two and a half million (20 to 25 lakhs).

Thirdly the high prices of food stuffs and consumer goods, not only caused ill nourishment but also delay of marriages and hence again fewer births.

Fourthly there were large communal movements of people during the decade. A number of Muslims from East Bengal especially from Mymensingh and Tippera, had migrated during the early 1900's and onwards to Assam and colonized there. This was considered to be much against the interest of the natives of Assam, and government of the province adopted a law prohibiting the settlement of East Bengal Muslims in certain areas which they had already colonized. This is known as the “ Line System ”. Many Muslims displaced from their colonized area on the strength of this system returned to their original homes in East Bengal during the decade. Finally very large movements of population on a communal basis occurred as a result of Partition. Many Muslims from India migrated to East Bengal while many Hindus left the province for India ”.

In West Pakistan the Partition of Punjab uprooted millions. It is estimated that till February 1951, the census time, nearly 62 lakhs persons migrated to and 50 lakhs migrated from West Pakistan, thus resulting in an increase of more than 12 lakhs in the normal population of this wing.

---

(<sup>1</sup>) Census of Pakistan 1951. Volume 3-(East Bengal).

**Estimates**

After having considered the quality of census data at our disposal we now make an effort to search out a suitable mathematical curve that can claim, on the basis of statistical considerations, to be the most faithful representation of the observed figures. The following tables throw light on the capacity of certain curves to portray faithfully the past growth and estimates for the future have been worked out in each case. When considering these estimates and projections for the future one should keep in view the magnitude of error involved in individual cases.

The most widely used method of extrapolation is by parabolas at the second or third degree<sup>1</sup>.

A parabola of the second degree ( $P_t = a - bt - ct^2$ ) is sensitive not only to average rate of growth but also to the observed acceleration or deceleration in these rates. A parabola of the third order ( $P_t = a - bt - ct^2 - dt^3$ ) "takes into account not only acceleration or deceleration in the rates of growth but also of a changing momentum in the acceleration or deceleration"<sup>2</sup>.

A very important defect of parabolas, if they are extrapolated over a considerable length of time, is that they eventually move more and more rapidly either in an upward or a downward direction. This tendency is more pronounced in a third degree parabola.

"The tendency of parabolas after several years of projection to show a steeper and steeper rise or fall can be modified by applying parabolic extrapolations to the logarithms of the figures instead of the figures themselves, *i.e.*,

$$\log P_t = a - bt - ct^2$$

$$\log P_t = 1 - bt - ct^2 - dt^3.$$

The extrapolation of logarithms implies a changing rate of growth rather than of changing absolute figures.

Another transformation of data which can sometimes be used with advantage consists in using reciprocals. Extrapolation of reciprocals implies an assumption of accelerating growth, which is realistic in some instances. Parabolic extrapolations by reciprocals may be pertinent where estimates derived by direct parabolic extrapolation tend to be too conservative or result in rapidly decreasing figures.

(<sup>1</sup>) Methods of Estimating Total Population for Current Date. Population Division of the United Nations.

(<sup>2</sup>) *Ibid.*

Growth curves (Logistic and Gompertz) are usually computed for a long series of census figures in such a manner that they do not coincide exactly with any one of the census results but approximate each and all of them. The reason for this practice is that individual census results are affected not only by the long term trend in population growth but also by temporary departures from this trend, whereas growth curves are intended to portray the long term trend only<sup>(1)</sup>.

It has been demonstrated that population growth, over a period of a hundred years or more, in many countries has approximated fairly closely to a logistic curve of growth.

The abovementioned characteristics of the curves meant for population projections should serve as a guide when studying the following estimates. Almost all the procedures, recommended as above, have been tried to search out a pattern of growth in the population of Pakistan.

(1) SEMI-LOGARITHMIC CURVE OF THE FORM :

$$\log P_t = \log a + t \log b.$$

FITTED FORM :

$$\log P_t = 1.766175 + 0.02222t$$

(Origin middle of 1921—31 decade, *i.e.*, 1926, with 5—yearly increment).

TABLE 10

*Estimates from a Semi-Logarithmic Curve*

Year	t	Estimates (Millions)	Discrepancy from the observed
1901 ... ..	-5	45.19	0.31
1911 ... ..	-3	50.06	0.88
1921 ... ..	-1	55.46	-1.10
1931 ... ..	1	61.43	-2.28
1941 ... ..	3	68.05	2.23
1951 ... ..	5	75.39	0.45

(3) A PARABOLA OF THE SECOND ORDER IN THE FORM :

$$P_t = a + bt + ct^2$$

FITTED FORM :

$$P_t = 57.71166 + 3.06443t - 0.14t^2.$$

(1) *Ibid.*

TABLE 11

*Estimates from A Second Degree Parabola*

Year	t	Estimates (Millions)	Discrepancy from the observed
1901 ... ..	-5	45.89	-0.38
1911 ... ..	-3	49.68	1.26
1921 ... ..	-1	54.79	-0.43
1931 ... ..	1	60.92	-1.77
1941 ... ..	3	68.16	2.12
1951 ... ..	5	76.53	-0.69

(3) A PARABOLA OF THE THIRD ORDER IN THE FORM:

$$P_t = a + bt + ct^2 - dt^3$$

FITTED FORM :

$$P_t = 57.71166 + 3.13089t + 0.14t^2 - 0.00329t^3.$$

TABLE 12

*Estimates from a Third Degree Parabola*

Year	t	Estimates (Millions)	Discrepancy from the observed
1901 ... ..	-5	45.81	-0.31
1911 ... ..	-3	49.89	1.05
1921 ... ..	-1	54.85	-0.49
1931 ... ..	1	60.85	-1.70
1941 ... ..	3	68.05	2.23
1951 ... ..	5	76.61	-0.77

(4) SEMI LOGARITHMIC PARABOLA OF THE SECOND ORDER IN THE FORM :

$$\log P_t = a + bt + ct^2.$$

FITTED FORM :

$$\log P_t = 1.76116 + 0.02221t + 0.00043t^2.$$

TABLE 13  
Estimates from a Semi Logarithmic Parabola of the Second Order

Year	t	Estimates (Millions)	Discrepancy from the observed
1901 ... ..	-5	44.86	0.64
1911 ... ..	-3	49.93	1.01
1921 ... ..	-1	54.87	-0.51
1931 ... ..	1	60.79	-1.64
1941 ... ..	3	67.87	2.41
1951 ... ..	5	74.89	0.95

(5) SEMI LOGARITHMIC PARABOLA OF THE THIRD ORDER IN THE FORM :

$$\log P_t = a + bt + ct^2 + dt^3$$

FITTED FORM :

$$\log P_t = 1.76116 + 0.022283t + 0.00043t^2 - 0.00003t^3.$$

TABLE 14  
Estimates from a Semi Logarithmic Parabola of the Third Order

Year	t	Estimates (Millions)	Discrepancy from the observed
1901 ... ..	-5	46.16	-0.56
1911 ... ..	-3	50.00	0.94
1921 ... ..	-1	54.87	-0.51
1931 ... ..	1	60.78	-1.63
1941 ... ..	3	67.77	2.51
1951 ... ..	5	75.76	0.08

(6) A CURVE OF THE FORM :

$$\frac{1}{P_t} = a + bt + ct^2$$

FITTED FORM :

$$\frac{100,000}{P_t} = 1734.71873 - 88.04286t + 0.35268t^2.$$

$P_t$

TABLE 15

*Estimates from a Second Degree Parabola fitted to the Reciprocals of the Observed Figures.*

Year	t	Estimates (Millions)	Discrepancy from the observed
1901 ... ..	-5	45.79	-0.29
1911 ... ..	-3	49.95	0.99
1921 ... ..	-1	54.85	-0.49
1931 ... ..	1	60.72	-1.56
1941 ... ..	3	67.84	2.44
1951 ... ..	5	76.74	-0.90

(7) A CURVE OF THE FORM :

$$\frac{1}{P_t} = a + bt + ct^2 + dt^3$$

FITTED FORM :

$$\frac{100,000}{P_t} = 1734.71873 - 87.56765t + 0.35268t^2 - 0.02662t^3.$$

TABLE 16

*Estimates from a Third Degree Parabola fitted to the Reciprocals of the Observed Figures.*

Year	t	Estimates (Millions)	Discrepancy from the observed
1901 ... ..	-5	45.77	-0.27
1911 ... ..	-3	49.98	0.96
1921 ... ..	-1	54.85	-0.49
1931 ... ..	1	60.72	-1.57
1941 ... ..	3	67.84	2.44
1951 ... ..	5	76.80	-0.96

(8) GOMPertz CURVE IN THE FORM :

$$\log P_t = \log a + \log b (c)t$$

FITTED FORM :

$$\log P_t = 1.54848 + 0.11996 (1.23689)t$$

TABLE 17  
Estimates from a Gompertz Curve

Year	t	Estimates (Millions)	Discrepancy from the observed
1901 ... ..	0	46.59	1.09
1911 ... ..	1	49.75	1.19
1921 ... ..	2	53.94	0.42
1931 ... ..	3	59.62	-0.47
1941 ... ..	4	67.48	2.80
1951 ... ..	5	78.55	-2.71

(9) THE LOGISTIC CURVE IN THE FORM :

$$\frac{1}{P_t} = a + b(c)^t$$

FITTED FORM :

$$\frac{100,000}{P_t} = 3348.54085 - 1197.65454 (1.11750)^t.$$

TABLE 18  
Estimates from a Logistic Curve

Year	t	Estimates (Millions)	Discrepancy from the observed
1901 ... ..	0	46.49	-0.99
1911 ... ..	1	49.75	1.19
1921 ... ..	2	53.97	0.39
1931 ... ..	3	59.62	-0.47
1941 ... ..	4	67.53	2.95
1951 ... ..	5	79.28	-3.44

Yule's method for fitting the Logistic requires that

(i)  $\gamma_0 < \gamma_1 < \gamma_2$

(ii)  $\frac{1}{\gamma_0} - \frac{1}{\gamma_1} > \frac{1}{\gamma_1} - \frac{1}{\gamma_2}$

We have

$$\gamma_0 = 48.18$$

$$\gamma_2 = 56.71$$

$$\gamma_3 = 72.84$$

(These being the geometric means of the first, middle and the last two census figures).

The first condition is satisfied but the second is not, therefore, this method cannot be applied on the population data under consideration.

### Comparative Study

For scrutinising the fidelity of the above curves as a faithful representation of the observed population figures of population we now try to make a distinction among them according to the amount of variance explained by each one out of the total variance of the observed figures.

Total Variance of the observed data of population = 135.77511.

TABLE 19

Variance explained by the Different Curves

Curve Types						Variance Explained by the Curve	Coefficients of Determination	Explained Variance / Total Variance
(1)	...	...	...	...	...	127.8395	0.94155	
(2)	...	...	...	...	...	133.8016	0.98547	
(3)	...	...	...	...	...	133.7841	0.98534	
(4)	...	...	...	...	...	126.7061	0.93321	
(5)	...	...	...	...	...	124.7204	0.91858	
(6)	...	...	...	...	...	133.7635	0.98518	
(7)	...	...	...	...	...	134.1839	0.98828	
(8)	...	...	...	...	...	143.8101	...	
(9)	...	...	...	...	...	150.1251	...	

If we establish the criterion that the more the amount of explained variance out of the total variance the more faithful or better the fit, we can conclude that the above seven curves (excluding the last two) may be ranked in the following order of merit :

(7), (2), (3), (6), (1), (4), (5)

This comparison makes it clear that the observed figures have a greater tendency to follow the second degree parabolic trend more closely than the others. The same fact was established for the observed population of the Indo-Pak subcontinent by the author in another study. S. Chandrashekhar in his "India's Population" (1950) has also fitted a second degree parabola of type (2) to estimate the expected population of the subcontinent in 1951.

The last two curves (Gompertz and the Logistic) are suitable for rapidly expanding series. The population series under consideration has not grown so rapidly as the nature of these growth curves requires, so that the two curves outstrip the observed series by comparatively large discrepancies and the variance of the estimated values has exceeded that of the observed ones. Moreover, the data extends over 6 census figures only and, therefore, it is difficult to discern logistic pattern at such an immature stage, when the series has not touched the 'critical point' of the Logistic.

We now consider the estimates of future population (projections) as obtained from the above-mentioned seven curves, as the last two may lead to erroneous results :

TABLE 20

*Projections for the Future Population of Pakistan*

Years			Projections from arve Tyhe (in millions)						
			I	II	III	IV	V	VI	VII
1956	...	...	79.34	81.14	80.13	82.20	81.07	82.71	82.24
1961	...	...	83.55	87.49	86.49	87.53	85.68	89.29	88.50
1966	...	...	87.89	91.19	90.03	93.61	90.48	94.97	95.88
1971	...	...	92.50	96.63	94.83	101.94	95.41	102.98	104.7 <sup>1</sup>
1976	...	...	97.36	102.36	99.73	107.45	100.54	111.17	115.34
1981	...	...	102.71	108.36	104.71	115.47	105.52	124.22	128.37

**Ratio Method**

" Population estimates for the years 1920, 1930, 1940 and 1950, corrected and adjusted wherever necessary, have been compiled by the Population Division of the United Nations for all the countries of the world. The method employed for this purpose is the ratio method and consists essentially of the following principle. From the available estimates the ratio of the population of the given country to the population of the entire region to which it forms part was ascertained both for 1920 and 1950, and the change in this ratio was noted. It was assumed that this ratio would continue to change at the same rate in the future and expected future values of this ratio were obtained by linear extrapolation for five-year intervals up to the year 1980."<sup>1</sup>

(1) Frame Work for Future Population Estimates, 1950—1980, by World Regions—U. N. Population Division.

In accordance with this method the following estimates were compiled for Pakistan. World estimates are also quoted for the sake of comparison :

TABLE 22  
*Future Estimates of the Population of Pakistan by the " Ratio Method "*

Year	Estimated Populations (in Millions)	World Total (in millions)
1950 ... ..	76.211	2454.3
1955 ... ..	81.102	2603.2
1960 ... ..	86.707	2768.5
1965 ... ..	93.132	2950.8
1970 ... ..	100.497	3152.9
1975 ... ..	109.044	3378.3
1980 ... ..	118.862	3628.4

### Natural Increase

It is generally composed of four factors and defined as follows :

$$\text{Natural Increase} = (\text{Births} - \text{Deaths}) + (\text{Immigrations} - \text{Emigrations})$$

In certain instances the influence of the latter two components, due to migration, is negligible and in that case natural increase is determined only by the excess of births over deaths.

As indicated by this definition, the first requirement of the method is complete registration of births and deaths. For this purpose a continuous population register is maintained in which each birth is added and each death deleted so as to obtain readily the excess of the one over the other to be added to the previous balance to obtain a current estimate. If such a register is maintained systematically there can be no other estimate more reliable than this. Such a register may not be actually maintained by a country but the nature of biostatistical information collected by the country may allow to obtain readily a current figure of the population by considering the birth and death rates along with the net effect of migration.

As pointed out earlier, unfortunately, we lack such statistics for the whole country. However, on the basis of certain assumptions, enumerated below, we have tried to obtain an estimate by this method. The assumptions are :

- (i) The excess of births over deaths is of such a magnitude as to allow an increase of 1.4% per annum.

(ii) The influx of refugees in West Pakistan will continue.

(iii) In the Census of Pakistan, 1951, the urban population was under enumerated to the tune of 5%<sup>a</sup>.

The following mid year estimates are obtained for single years from 1951 to 1961<sup>a</sup>—

Population 28th February, 1951 including the estimated population of Frontier Regions ... ..	75842,165
Population, under-enumerated in urban areas 5% of (7,63,000) ... ..	393,166
<hr/>	
Population, February 1951 ... ..	76235,331
Natural increase till 30th June, 1951 at 1.4% per annum ... ..	355764
<hr/>	
Net migration March—June 1951 ... ..	824,620
Population, mid 1951 ... ..	76915,715
Natural increase, 1951-52, at 1.4% per annum ... ..	1076,820
<b>Net Migration—</b>	
West Pakistan ... ..	112,435
East Pakistan ... ..	807,094
<hr/>	
Population, mid 1952 ... ..	78912,064
Natural increase, 1952-53, at 1.4% per annum ... ..	1104,769
<b>Net Migration—</b>	
West Pakistan ... ..	45,000
East Pakistan ... ..	...
<hr/>	
Population, mid 1953 ... ..	80061,833
Natural increase, 1953-54, at 1.4% per annum ... ..	1120,866
<b>Net Migration—</b>	
West Pakistan ... ..	45,000
East Pakistan ... ..	...
<hr/>	
Population, mid 1954 ... ..	81227,699
Natural increase, 1954-55, at 1.4% per annum ... ..	1137,187
<hr/>	

(1) Source : Census Office, Government of Pakistan.

(2) Census of Pakistan, 1951. Volume I.

(3) 1951—57 Estimates worked out by Census Office, Government of Pakistan.

**Population Growth in Pakistan and Future Estimates**

<b>Net Migration—</b>							
West Pakistan	...	...	...	...	...	...	74,000
East Pakistan	...	...	...	...	...	...	...
Population, mid 1955	...	...	...	...	...	...	<u>82,438,886</u>
Natural increase, 1955-56, at 1.4% per annum	...	...	...	...	...	...	654,120
<b>Net Migration—</b>							
West Pakistan	...	...	...	...	...	...	15,000
East Pakistan	...	...	...	...	...	...	...
Population, mid 1956	...	...	...	...	...	...	<u>83,603,006</u>
Natural increase, 1956-57, at 1.4% per annum	...	...	...	...	...	...	1,170,442
<b>Net Migration—</b>							
West Pakistan	...	...	...	...	...	...	4,000
East Pakistan	...	...	...	...	...	...	...
Population, mid 1957	...	...	...	...	...	...	<u>84,777,448</u>
Natural increase, 1957-58, at 1.4% per annum	...	...	...	...	...	...	1,86,884
<b>Net Migration—</b>							
West Pakistan	...	...	...	...	...	...	4,000
East Pakistan	...	...	...	...	...	...	...
Population, mid 1958	...	...	...	...	...	...	<u>85,968,332</u>
Natural increase, 1958-59, at 1.4% per annum	...	...	...	...	...	...	1,203,557
<b>Net Migration—</b>							
West Pakistan	...	...	...	...	...	...	4,000
East Pakistan	...	...	...	...	...	...	...
Population, mid 1959	...	...	...	...	...	...	<u>87,175,889</u>
Natural increase, 1959-60, at 1.4% per annum	...	...	...	...	...	...	1,220,462
<b>Net Migration—</b>							
West Pakistan	...	...	...	...	...	...	4,000
East Pakistan	...	...	...	...	...	...	...
Population, mid 1960	...	...	...	...	...	...	<u>88,400,351</u>
Natural increase, 1960-61, at 1.4% per annum	...	...	...	...	...	...	1,237,605
<b>Net Migration—</b>							
West Pakistan	...	...	...	...	...	...	4,000
East Pakistan	...	...	...	...	...	...	...
Population, mid 1961	...	...	...	...	...	...	<u>89,641,956</u>

## HISTORICAL APPROACH

The historical approach considers the growth of population as an aspect of the evolution of mankind. Although historical events are not subject to any rigid mathematical rule or natural law, it is sound to assume that various countries in the orbit of our civilization are passing through the same population cycle and are now in its various phases. The experience of the more developed nations, therefore, casts light on what is in store for other countries that follow them on the road on industrialisation.

The rate of population increase in any part of the world is chiefly determined by the balance of births over deaths, as the net increase due to the movement of population is not appreciable in most part of the world. "By and large, the several demographic types now to be found among the various regions of the world can be regarded as different stages in an evolutionary process. Originally, because of insufficient knowledge and means to control mortality, death rates everywhere were high. In more recent times thanks to the application of new knowledge death rates in most parts of the world have been reduced. In some areas, this reduction of death rates has only hardly begun. In other areas, it has advanced already so far that henceforth any further progress in the reduction of mortality can only be small".<sup>1</sup>

The different types of 'demographic situations' now prevailing in the regions of the world are shown in the following table, along with their estimated population in 1950.

TABLE 22

*Demographic Trends in the various Regions of the World and the Estimated Population in 1950.*

Type	Demographic Trend	Regions	Estimated population (1950)	% of world total
1	High birth rates and high death rates.	Middle Africa ... ..	141	6
2	High birth rates and declining death rates through still rather high.	North Africa Asian Region* ...	1,280	52
3	High birth rates and already fairly low death rates.	Southern Africa, Middle America. Tropical South America.	149	4
4	Declining birth rates and fairly low death rates.	Temperate America, Japan, U. S. S. R., Balkan Peninsula.	359	15
5	Low or fluctuating birth rates and low death rates.	North America, most part of Europe, Australia and New Zealand.	523	21

(1) "Frame-work for future population estimates 1950-1980, by World Regions" U. N. population Division.

The five types are arranged in their proper sequence as 'different stages in an evolutionary process'. As a country advances in material welfare and the standard of living registers increase, it follows a path along the different types of demographic situations according to the sequence indicated above. The fact is further established if we scrutinize the distribution of world regions under the five types. The most advanced regions in the world belong to the 5th type whereas the vast under-developed areas in Asia and Africa are still in the initial stages of "demographic evolution". Table 22 indicates that 50% of the world population is still experiencing high birth rates and high death rates with a net increase so enormous that the world population as a whole is increasing at a fantastic rate.

Pakistan is contributing its share in this process of growth as a member of type 2 'demographic situation' to which belongs the largest percentage of the world population. It can be speculated that the tempo of growth during coming decades will be further accelerated as a result of widening gulf between the falling death rates and increasing birth rates.

---

\*Excluding Japan.

*References—*

- Davis, Kingsley ... .. The Population of India and Pakistan. (Princeton University Press, Princeton, New Jersey, 1951).
- United Nations, Population Division ... Frame work for Future Population Estimates, 1950—1980, by World Regions. (World Population Conference, Rome, 1954).
- Population Growth and the Standard of Living in Under Developed Countries (W. P. C. 1954).
- Demographic Year book, 1954.
- Hauser, Philip M. ... .. Population Statistics and Research in Planning Economic Development (W. P. C. 1954).
- Woytinsky, W. S. and Woytinsky, E. S. ... World Population and Production. Trends and Outlook. 20th Century Fund. New York (February 1953).
- Chandrashekhar, S. ... .. India's Population. Fact and Policy.
- Indian Institute for Population Studies.
- Anna malai University. Chidambaram. India, (1950 second edition).
- Government of Pakistan ... .. Census Publications, 1951.

