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VOLUME XIII
PART IX

PUNJAB

CENSUS ATLAS

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The Census Publications

The 1961-census Reports on Punjab will bear uniformly VOLUME No. XIII, and will be printed in the following parts:—

Part I-A	General Report.	Part V-A	Special Tables on Scheduled Castes and Scheduled Tribes.
Part I-B	Report on Vital Statistics.		
Part I-C	Subsidiary Tables (in two books).	Part V-B	Ethnographic notes on Scheduled Castes and Scheduled Tribes.
Part II-A	General Population Tables.		
Part II-B(i)	General Economic Tables (Tables B-I to B-IV, B-VIII and B-IX).	Part VI	Village Survey Monographs: 44 in number, each relating to an individual village.
Part II-B(ii)	General Economic Tables (Tables B-V to B-VII).	Part VII-A	Report on Selected Handicrafts.
Part II-C(i)	Social and Cultural Tables.	Part VII-B	Fairs and Festivals
Part II-C(ii)	Migration Tables.	Part VIII-A	Administration Report: Enumeration (Not for sale).
Part III	Household Economic Tables.		
Part IV-A	Report on Housing and Establishments.	Part VIII-B	Administration Report: Tabulation (Not for sale).
Part IV-B	Tables on Housing and Establishments.	Part IX	Census Atlas. (*the present book*).

BESIDES, THERE WILL BE 19 DISTRICT CENSUS HANDBOOKS, ONE FOR EACH DISTRICT

FOREWORD

FEW PEOPLE REALISE, much less appreciate, that apart from the Survey of India and the Geological Survey, the Census of India had been perhaps the largest single producer of maps of the Indian subcontinent. Intimate collaboration between geographer and demographer began quite early in the modern era, almost two centuries before the first experiments in a permanent decennial Census were made in the 1850's. For example, the population estimates of Fort St. George, Madras, made in 1639 and 1648, and of Masulipatnam and Bombay by Dr. John Fryer around 1672-3 were supported by cartographic documents of no mean order. The first detailed modern maps, the results of Major James Rennell's stupendous Survey of 1767-74, were published in 1778-1780 and Henry Taylor Colebrooke, almost our first systematic demographer, was quick to make good use of them by making estimates of population in the East India Company's Possessions in the 1780's. Upjohn's map of Calcutta City, drawn in 1792-3, reprinted in the Census Report of Calcutta for 1951, gives an idea of the standards of cartographic excellence reached at that period. In the first decade of the nineteenth century, Francis Buchanan Hamilton improved upon Colebrooke's method in which he was undoubtedly helped by the improved maps prepared for the areas he surveyed.

It is possible that the Great Revenue Survey, begun in the middle of the last century, offered the best guarantee of the success of decennial population censuses proposed shortly before the Mutiny of 1857. In the experimental censuses organised between 1865 and 1872 the Survey of India, the Provincial Surveys and Census of India struck an informal but stable partnership which has been fascinatingly described by R.H. Phillimore in his monumental four-volume work on the *Historical Records of the Survey of India.* This partnership continues to this day. On the eve of each census, the Census of India proceeds by making use of (*a*) the cadastral surveys prepared by the Provincial (now State) Surveys and (*b*) the topographical surveys of the Survey of India. In the course of its decennial operation, the Census of India begins by revising and bringing up-to-date the minute jurisdictional changes made during the decade. Next, and equally important, it revises the lists of inhabited and uninhabited villages and of towns and cities. These are placed at the disposal of the Survey of India. Thirdly, at each decade the Census of India itself produces maps of its own which serve to strengthen the study of geography at official and academic levels. These are both numerous and of great range and variety. What is more, they are often unsurpassed for their wealth of authentic regional detail. For proof, if proof were needed, one has only to turn to the geographical maps published in the 1872 Census Reports of North-West Provinces, Cochin, Bengal and the very excellent volume of maps of different Collectorates of the Bombay Presidency, published as Part IV of the 1872 Census Report of Bombay, or the fine taluk maps of Mysore State published in the Census Report of 1891. The high watermark of a skilful fusion of topographical and thematic maps was reached in maps published in the encyclopaedic Linguistic Survey of India and the State Census Reports of 1931 and the special All India Ethnographic Appendix published in 1933. In fact, the particular genius of the Census of India seems to lie as much in the high quality of its themato-topographic maps as in the pure thematic maps so essential for Census analysis and presentation.

The restricted programme in 1941 on account of World War II temporarily restrained the cartographic activities of the Census of India, although several excellent contributions were made. One of the major contributions of the 1951 Census was the excellence of detail achieved in the great bulk of taluk/tehsil maps published in the District Handbooks.

The Census of India has been a discontinuous affair up to 1961. The Census Commissioner for India in 1941 compared it to the mythical phoenix. The Census starts every time with a very limited assignment, but ends up, thanks to the vistas that open up with the progress of the work and the hunger they stimulate, by becoming the most fruitful single source of information about the country.

The seeds of the 1961 Census Atlas Project were unobtrusively sown in para 42 of the Registrar General's first 1961 Census Circular of March 1959 to State Census Superintendents as follows :

It will be very useful to have a map for every village and ward of a town showing the broad layout of the village and the housenumbers shown therein. The map need not be drawn to scale but a map large enough to show the housenumbers would be sufficient. A map of this kind, if prepared, will also help the maintenance of housenumbers.

This suggestion was wholly accepted in the First Conference of State Census Superintendents held in September 1959, which authorised State Census Offices "to appoint one or two good draftsmen for the preparation of experimental maps, charts, graphs and histograms for their own use." Note was taken of 'the serious but avoidable blemish' left in some census years on account of 'the lack of good maps and charts'.

That the seeds did not fall on stony ground was evident from the enthusiasm with which the States welcomed the Registrar General's next circular laying down the details to be incorporated in the village maps. It caught their imagination so well that many State Census Superintendents added of their own accord to the details stipulated by the Registrar General's Office. A zest was thus created which whetted the appetite it fed.

By August 1960 several State Census Superintendents had set up their own Map Section. The experience and confidence gained in the process encouraged a general desire at the Second Census Conference in August 1960 to go in for a much enlarged programme of map production than had been originally proposed. It was no longer a question of selling an idea but of feeding the organisation with a project that would be worth working for.

The satisfactory progress of the sorting and tabulation programme placed at the disposal of my colleagues an exciting world of possibilities. On the eve of the Third Census Conference in February 1962 the map project had passed its tentative stage. All Census Superintendents were now thinking of producing enough maps to fill a sizable atlas.

The Registrar General's circular of September 1961 had already anticipated the general desire by proposing that Part IX of the State Census Series should take the form of an atlas. This was followed up by two circulars in November 1961 giving details of the contents of the projected Atlases and the method by which each map was to be produced. This was in turn followed up some time later by a third circular in September 1962 suggesting the levels to which analysis of data should be carried out for the purpose of each map.

Inquiries had in the meantime been made of the Survey of India and the National Atlas Organisation on the extent to which either would be prepared to share the task with the Census of India. The Director of the National Atlas Organisation was good enough to undertake the preparation on 1 : 1 M scale of population maps for 1961. Similar maps containing the 1951 data had meanwhile been completed which the Government published at the Registrar General's request.

A chance meeting in the middle of July 1959 with Dr. Joseph E. Schwartzberg of the University of Wisconsin proved of great profit to the 1961 project. I am under a personal debt to Dr. Schwartzberg for his very thoughtful and detailed memorandum which he was good enough to send me in September 1959 on the kind of maps that should be incorporated in census volumes. He was even more helpful when I gave him the outline of a full Atlas Project. The Project owes much to the readiness with which he placed himself at my disposal to the detriment no doubt of his own work, in November 1962, when he and I, with Miss Sengupta joining in toward the end, went over every item and worked out many improvements.

The Government of India had meanwhile accepted the Census Atlas proposals and sanctioned the staff and funds.

Dr. Miss P. Sengupta, Map Officer to the Registrar General, joined at the end of November 1962 and immediately applied herself to several tasks at once. She instilled purpose and dedication into her rapidly expanding staff and in the course of a strenuous three-month seminar trained and equipped the staff from the State Census Offices. She followed it up with extensive tours to all State Census offices and helped them to achieve uniformity of quality and presentation.

Unexpected and welcome assistance for the Punjab Atlas Project came in the middle of 1962 when I met Dr. Gurdev Singh Gosal, Head of the Department of Geography of Panjab University. Dr. Gosal enthusiastically responded to my request to assist in the work of the Punjab Atlas. Shri R. L. Anand gave Dr. Gosal freedom to design a more elaborate Atlas Project for the Punjab than what had been standardised for other States. The devotion with which Shri B. S. Ojha, Deputy Superintendent of Census Operations, Punjab, applied himself to this task and continued to work for it even after he had left it for an assignment with the Punjab Government contributed to the success of the undertaking. By a unique working arrangement between the Punjab Census Office and the Department of Geography of Panjab University, the computing and cartographic staff of the Census Office was placed, for several years, at the disposal of Dr. Gosal and went to augment Dr. Gosal's own resources which he, in his turn, placed at the disposal of the Census. The Project was under an informal group of three: Shri R. L. Anand, Dr. Gurdev Singh Gosal and Shri B. S. Ojha, Dr. Gosal being of course the chief architect and executor. This excellent arrangement would not, of course, have been possible without the approval of Dr. A. C. Joshi, Vice-Chancellor of Panjab University who permitted the use of equipment and space in the Geography Department of his University. This Atlas has therefore been the fruit of perfect harmony and collaboration between a University and a Government Department. I am, therefore, under a special debt to Dr. Gurdev Singh Gosal and Dr. A. C. Joshi, as well as to Shri R. L Anand and Shri B. S. Ojha.

NEW DELHI :
February 2, 1966.

ASOK MITRA
Registrar General India

PREFACE

Because of the big staff uniformly posted all over the country in connection with the decennial human census, it has been a practice in the past censuses to take up for study, conjointly with the census, some subjects of nation-wide importance. With his missionary zeal and unquenching thirst for new facts, Shri A. Mitra, the Registrar General & *ex-officio* Census Commissioner for India, threw a wider net during the 1961-census operations; and among such auxiliary projects were: (1) socio-economic survey of selected villages, (2) selected crafts, (3) fairs & festivals, (4) consanguineous marriages, (5) ethnographic notes on Scheduled Castes and Scheduled Tribes, and (6) a census atlas. The work placed a formidable burden on the census organisation, but happily in the end, it has been fruitful of a number of books on diverse subjects.

2. The first essential step towards conducting a census is to bring up-to-date maps of the area to be enumerated: for the Districts, Tahsils, towns, and finally for each 'block' to be assigned to an enumerator. These maps in Punjab were prepared during the early stages of the 1961-census, with considerable difficulty. The Office of the Director of Land Records, Punjab, which has as one of its functions to bring out at regular intervals revised maps of Districts and Tahsils, had stopped performing this function since Partition, presumably due to the more urgent administrative work. In the meantime, the Partition, the rationalisation of enclaves between Punjab, PEPSU and Himachal Pradesh, and later the absorption of PEPSU with Punjab, effected innumerable changes in the State maps. In the circumstances, the maps for census work had to be prepared almost afresh, and independently of the office of the Director of Land Records. Help in this work was received from the Deputy Commissioners, Municipal Committees and the Public Works Department.

3. The maps presented in this Atlas are, however, a separate series, designed to serve a different purpose. They are designed to portray in an easy but effective manner, the various aspects of the land, the man and the economy of Punjab. Tabular data, howsoever well-arranged, fail to reveal areal contiguity and patterns in perspective. The same data when presented in maps and diagrams are comprehended more easily because of the visual effect.

4. Cartography, according to Max Eckert, the great German cartographer, is a mixture of science and art. It is concerned on the one hand with problems of exactitute susceptible to precise treatment and varying according to the laws of mathematics and geometry. On the other hand, a map is made to be looked at, and in this respect it is one of the visual arts. Possessing neither the necessary knowledge of cartographic techniques nor the required equipment which was both costly and scarce, I felt I was up against a baffling assignment. My diffidence, however, gave way to confidence when I could pursuade Dr. Gurdev Singh Gosal, Head of the Geography Department of the Panjab University, to collaborate in the project. Dr A. C. Joshi, the then Vice-Chancellor of the University, very kindly accorded approval to Dr. Gosal undertaking this work, and allowed the work to be done within the Geography Department. In the meantime, Dr. (Miss) P. Sen Gupta was appointed as the Map Officer in the Registrar General's Office at Delhi, and she spelt out the scheme through a series of circular letters, prescribing the subject matter and technique for various maps.

5. Dr. Gosal, Shri B. S. Ojha, the Deputy Superintendent of Census Operations and I deliberated for long hours on a number of days on the maps to be prepared and the order in which

they should appear in the Atlas. The list prescribed by Dr. (Miss) Sen Gupta was amended and amplified suiting the features of Punjab. At this stage, I feel, that at places we were rather extravagant in the list we adopted, but our apology is the keeness to present all types of material we thought the reader might be interested in for obtaining a comprehensive understanding of Punjab's socio-economic set-up.

6. The collection and processing of data required for different maps was undertaken in the General and Tabulation Sections of this office. Simultaneously four cartographers were appointed, all M. As'. in Geography. Happily, there was not much turn-over in this team, considering that two among them worked from the start to the finish of the project. A team of workers headed by Shri Pyare Lal, a retired *Kanungo*, was sent out to each Tahsil headquarters to copy out data related to land-use, irrigation, and area and production of crops, from the *Lal Kitabs*.

7. The base map for the State was sent to the office of the Surveyor General, India, Dehra Dun, for testifying to its correctness, and although the responsibility of that Department rests with correcting only the international boundaries of the State, they very kindly looked into the inter-state and inter-district boundaries as well.

8. Maps in this Atlas are grouped under three sections. Section I, containing 15 maps, relates to the 'LAND'. After showing the location of Punjab in India, its Administrative Divisions as in 1961, and the changes effected in them during 1951-61, are portrayed the physiography of the State, its drainage system, temperature, wind roses, amount and distribution over months of rainfall and its reliability, types of soil, minerals, vegetation, sociology and archaeology.

9. The second section, entitled the 'MAN', consists of 139 maps (No. 16 to 154) and depicts different aspects of the population, such as its distribution over land, density, urbanism growth of towns, mobility of population based on the place of birth, distribution of Pakistan-born persons, in-and out-migration, sex ratio, age, marital status, workers in different pursuits, education, housing and medical facilities.

10. The third section (Maps 155 to 275), entitled the 'ECONOMY' shows the classification of land according to agricultural use, acreage and production of important crops, assembling markets for agricultural produce, livestock, co-operative societies, location of banks and various industries, electric transmission system and roads. In the last map (No. 275) the State has been distributed into various socio-economic regions.

11. I cannot express adequately my gratitude to Dr. Gurdev Singh Gosal, for his hard and devoted work in getting the maps prepared and drafting the notes, entirely as a labour of love. I am grateful to Dr. A.C. Joshi, the Vice-Chancellor of the Panjab University for his allowing the cartographers to work in two spacious rooms in the Geography Department, and to their using the cartographic equipment. Acknowledgement is made also to Shri B.S. Ojha, Deputy Superintendent of Census Operations, Punjab for his close association with the compilation of data and drafting the notes which appear in 58 closely printed pages after the maps.

12. Mention needs also to be made of Shri P. N. Tandon, the Office Superintendent, and Shri R.L. Khosla, an office Assistant, for their preparing the progress reports so necessary in this type of work, and for procuring expeditiously the various articles needed by cartographers. Miss Ranbir Sokhi, one of the cartographers, did extra work in the press, of scrutinizing the negatives and the impressions on aluminium plates. Shri Shyam Sunder Sharma and Shri Harish Chander Kapur helped in checking the proofs of the notes and watching the maps coming out of the printing machine.

13. On the next page is given a list of the whole-time cartographers who produced these maps. Among them the cartographer of the Geography Department of the Panjab University did lettering work on some of the maps.

14. Acknowledgement is made of the personal interest taken by Shri A. K. Gavaskar, the Works Manager, and Shri M. L. Samadder, Deputy Manager of the Photo-litho Wing of the Government of India Press at New Delhi, for this publication, as also Shri S.N. Dass and Shri S. K. Roy Chowdhury and their colleagues, for the careful preparation of negatives and plates.

15. I am thankful to Dr. (Miss) P. Sen Gupta for her coming to this office for some days while the maps were being prepared and giving us the benefit of her suggestions. On more than two occasions she spent long hours in kindly going through the maps which were sent to her in lots.

16. I shall, however, be failing grievously in my duty if I do not express my deep sense of gratefulness to Shri A. Mitra who, despite his other multifarious assignments, saw these maps at different stages and benefited us with his valuable suggestions which have gone a long way towards enhancing the informativeness of this publication; particularly his suggestion to incorporate certain types of information assessment circle-wise. His constant encouragement and appreciation of our labour has been most rewarding.

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CHANDIGARH :
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ECONOMY

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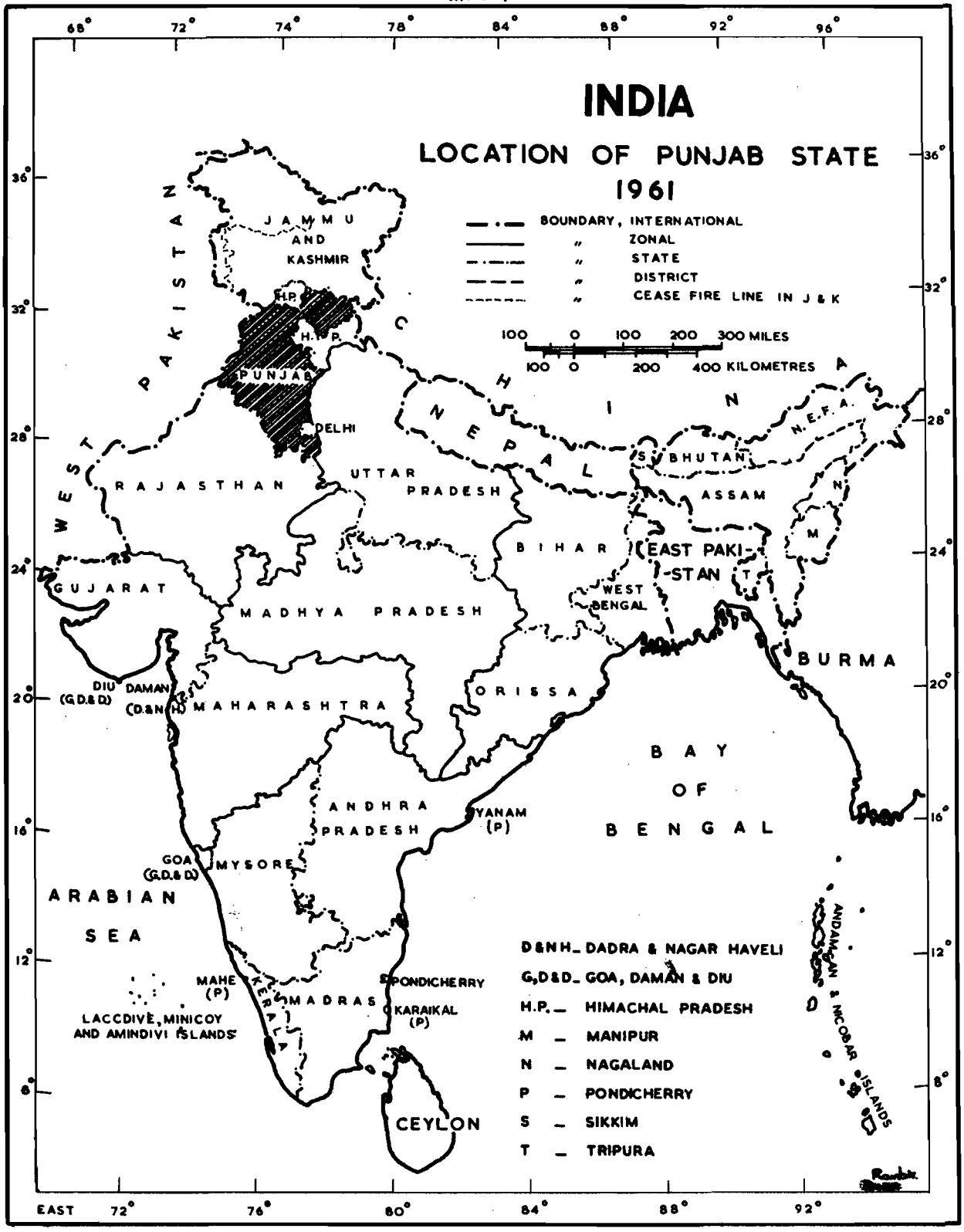
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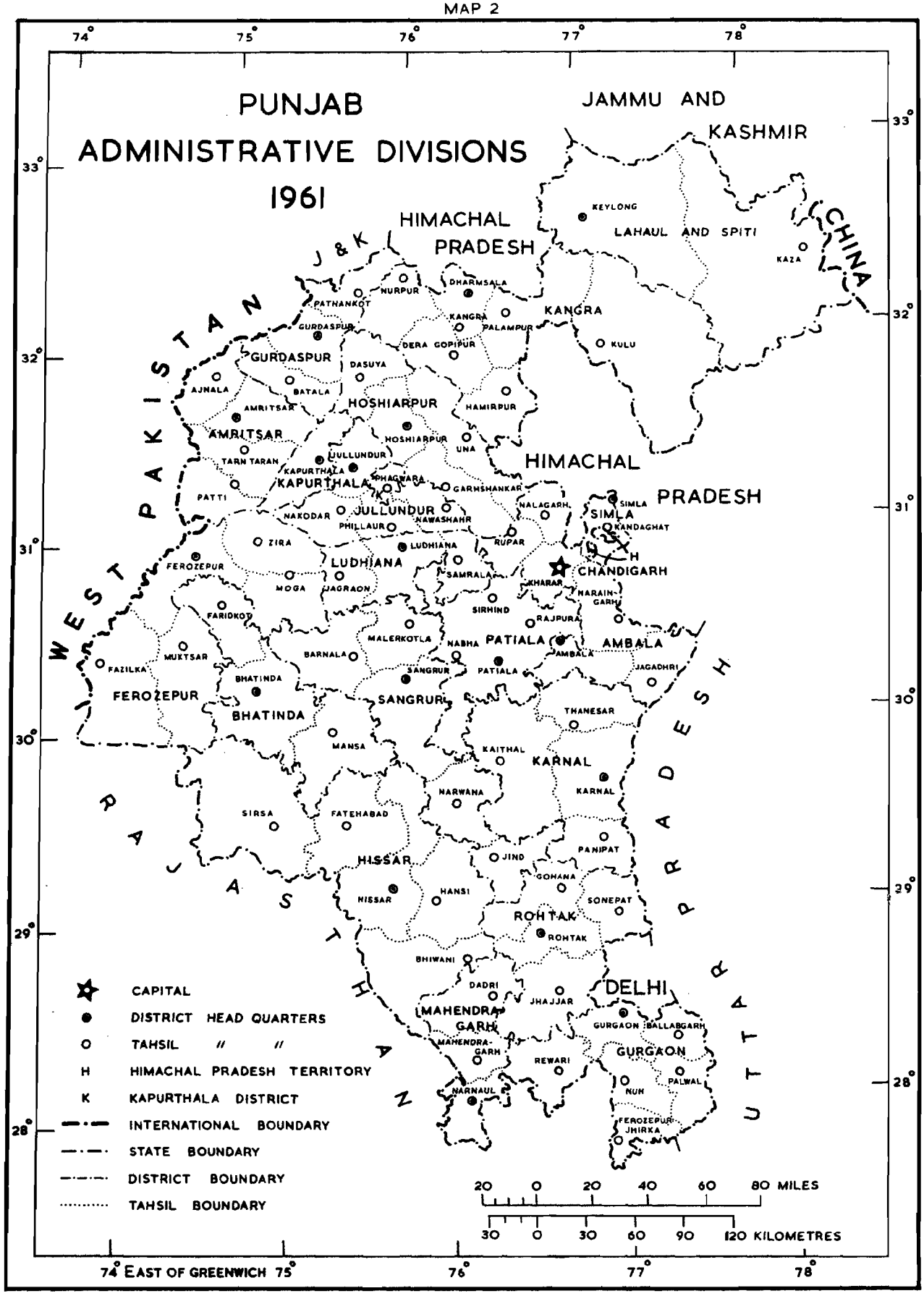
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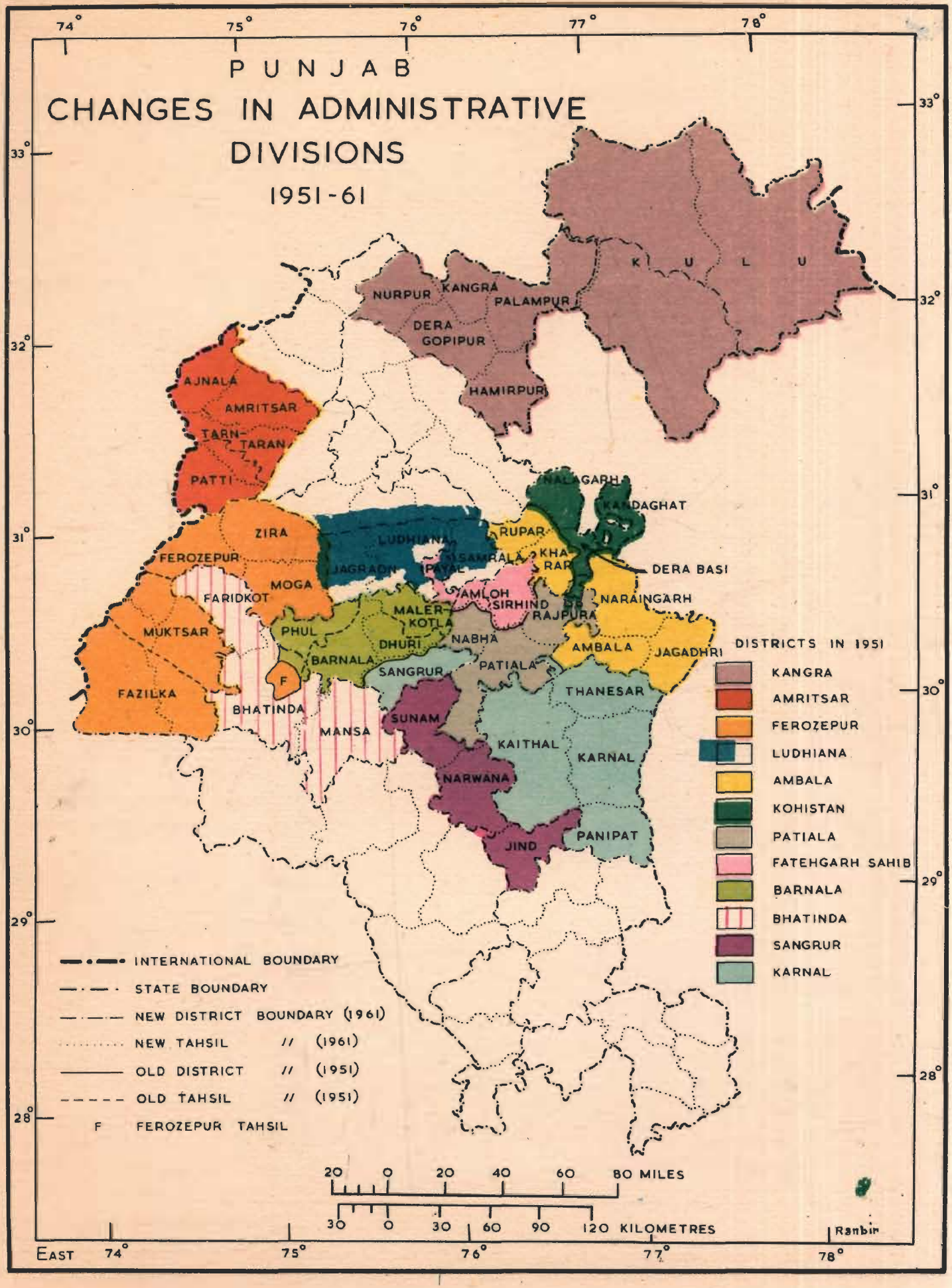
MAP I


INDIA
LOCATION OF PUNJAB STATE
1961
BOUNDARY, INTERNATIONAL
" ZONAL
" STATE
" DISTRICT
" CEASE FIRE LINE IN J & K
100 0 100 200 300 MILES
100 0 200 400 KILOMETRES
JAMMU AND KASHMIR
H.P.
H. P.
PUNJAB
DELHI
RAJASTHAN
UTTAR PRADESH
BIHAR
WEST BENGAL
EAST PAKI-STAN
ASSAM
N.E.F.A.
BHUTAN
NEPAL
CHINA
GUJARAT
MADHYA PRADESH
ORISSA
BURMA
DIU (G.D.&D.)
DAMAN (D.&N.H.)
MAHARASHTRA
ANDHRA PRADESH
YANAM (P)
BAY OF BENGAL
GOA (G.D.&D.)
MYSORE
ARABIAN SEA
MAHE (P)
KERALA
MADRAS
PONDICHERRY
KARAIKAL (P)
LACCDIVE, MINICOY AND AMINDIVI ISLANDS
CEYLON
ANDAMAN & NICOBAR ISLANDS
D&NH_ DADRA & NAGAR HAVELI
G,D&D_ GOA, DAMAN & DIU
H.P._ HIMACHAL PRADESH
M _ MANIPUR
N _ NAGALAND
P _ PONDICHERRY
S _ SIKKIM
T _ TRIPURA
EAST
68° 72° 74° 78° 84° 88° 92° 96°
36° 32° 28° 24° 20° 16° 12° 8°

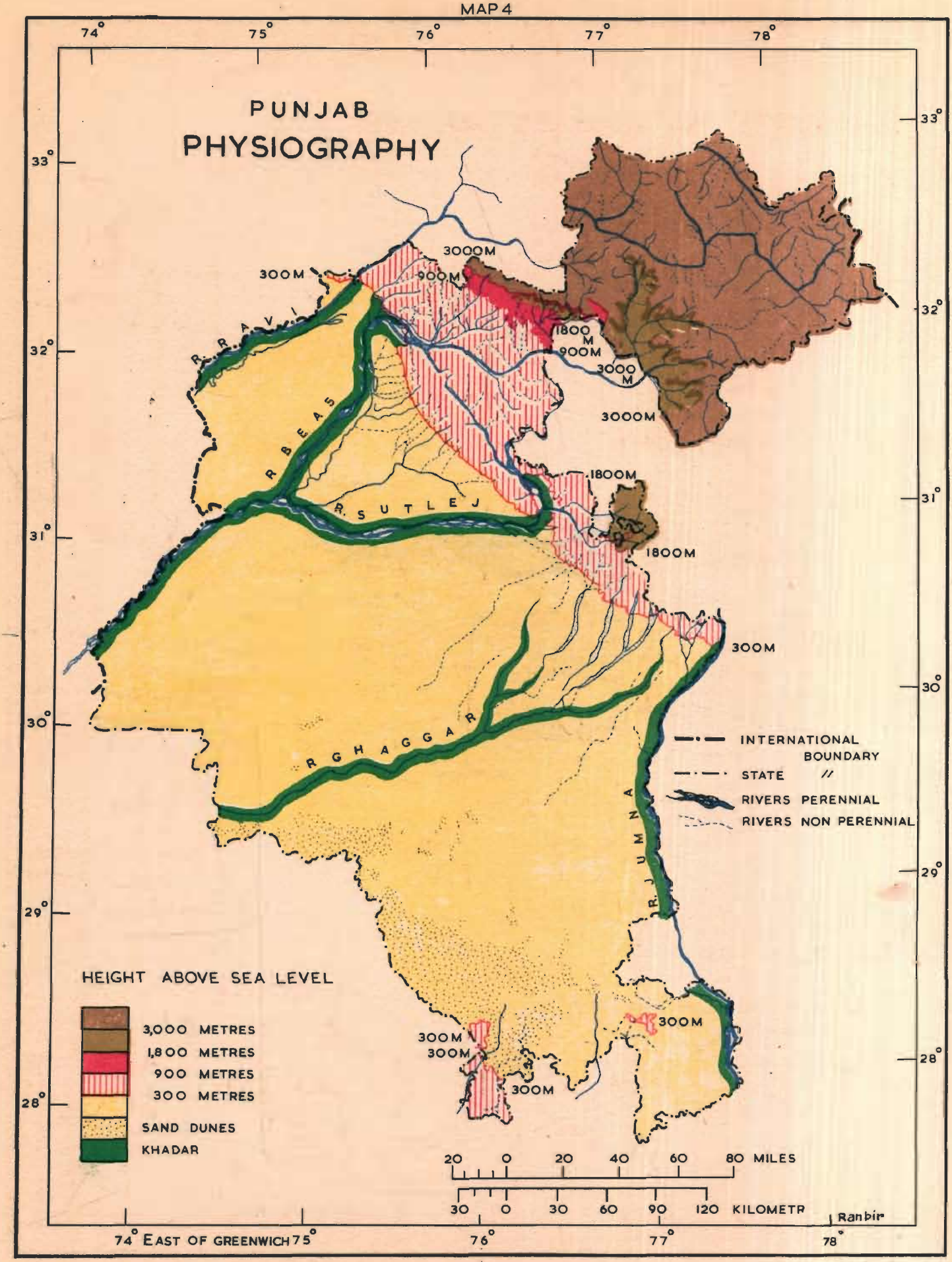
MAP 2


PUNJAB
ADMINISTRATIVE DIVISIONS
1961
JAMMU AND KASHMIR
HIMACHAL PRADESH
LAHAUL AND SPITI
KEYLONG
KAZA
CHINA
J & K
WEST PAKISTAN
KANGRA
DHARMSALA
NURPUR
PATHANKOT
GURDASPUR
PALAMPUR
DERA GOPIPUR
KULU
DASUYA
AJNALA
BATALA
HOSHIARPUR
HAMIRPUR
AMRITSAR
TARN TARAN
LULLUNDUR
UNA
KAPURTHALA
PHAGWARA
GARHSHANKAR
PATTI
NAKODAR
NAWASHAHR
NALAGARH
SIMLA
KANDAGHAT
PHILLAUR
ZIRA
LUDHIANA
RUPAR
FEROZEPUR
MOGA
JAGRAON
SAMRALA
KHARAR
CHANDIGARH
FARIDKOT
SIRHIND
NARAINGARH
RAJPURA
MALERKOTLA
NABHA
PATIALA
AMBALA
MUKTSAR
BARNALA
JAGADHRI
FAZILKA
BHATINDA
SANGRUR
THANESAR
MANSA
KAITHAL
KARNAL
NARWANA
SIRSA
FATEHABAD
PANIPAT
JIND
HISSAR
GOHANA
HANSI
NISSAR
SONEPAT
ROHTAK
BHIWANI
DADRI
DELHI
JHAJJAR
MAHENDRAGARH
GURGAON
BALLABGARH
REWARI
PALWAL
NARNAUL
NUH
FEROZEPUR JHIRKA
RAJASTHAN
UTTAR PRADESH
CAPITAL
DISTRICT HEAD QUARTERS
TAHSIL // //
H HIMACHAL PRADESH TERRITORY
K KAPURTHALA DISTRICT
INTERNATIONAL BOUNDARY
STATE BOUNDARY
DISTRICT BOUNDARY
TAHSIL BOUNDARY
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75° 76° 77° 78°
33° 32° 31° 30° 29° 28°

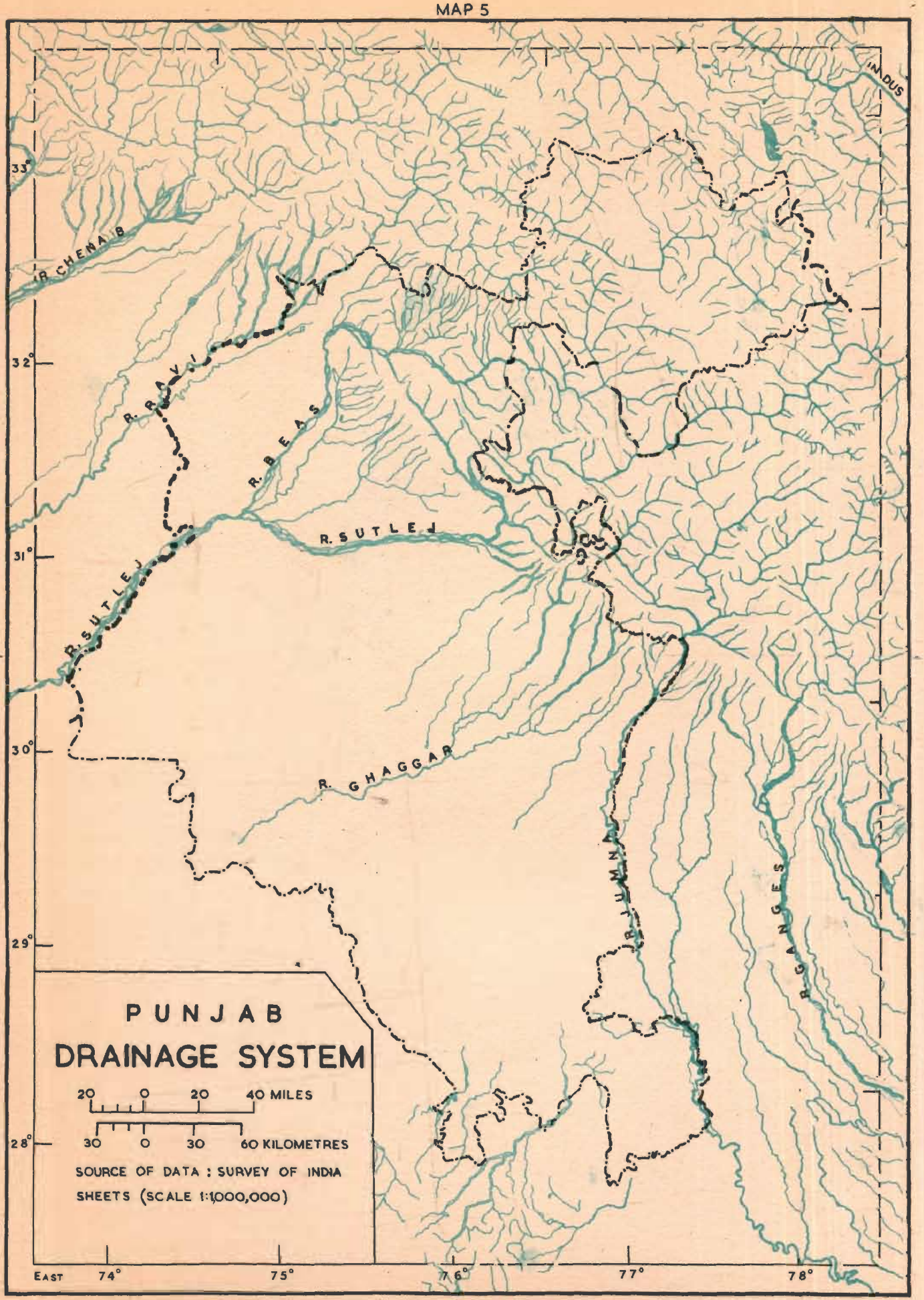
MAP 3.


PUNJAB
CHANGES IN ADMINISTRATIVE DIVISIONS
1951-61
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
KULU
KANGRA
NURPUR
PALAMPUR
DERA GOPIPUR
HAMIRPUR
AJNALA
AMRITSAR
TARN-TARAN
PATTI
NALAGARH
KANDAGHAT
ZIRA
FEROZEPUR
LUDHIANA
JAGRAON
SAMRALA
PAYAL
RUPAR
KHARAR
DERA BASI
MOGA
FARIDKOT
AMLOH
SIRHIND
RAJPURA
NARAINGARH
MUKTSAR
PHUL
MALER-KOTLA
DHURI
NABHA
AMBALA
JAGADHRI
BARNALA
SANGRUR
PATIALA
F
FAZILKA
BHATINDA
MANSA
SUNAM
THANESAR
KAITHAL
KARNAL
NARWANA
JIND
PANIPAT
DISTRICTS IN 1951
KANGRA
AMRITSAR
FEROZEPUR
LUDHIANA
AMBALA
KOHISTAN
PATIALA
FATEHGARH SAHIB
BARNALA
BHATINDA
SANGRUR
KARNAL
INTERNATIONAL BOUNDARY
STATE BOUNDARY
NEW DISTRICT BOUNDARY (1961)
NEW TAHSIL // (1961)
OLD DISTRICT // (1951)
OLD TAHSIL // (1951)
F FEROZEPUR TAHSIL
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
Ranbir
EAST

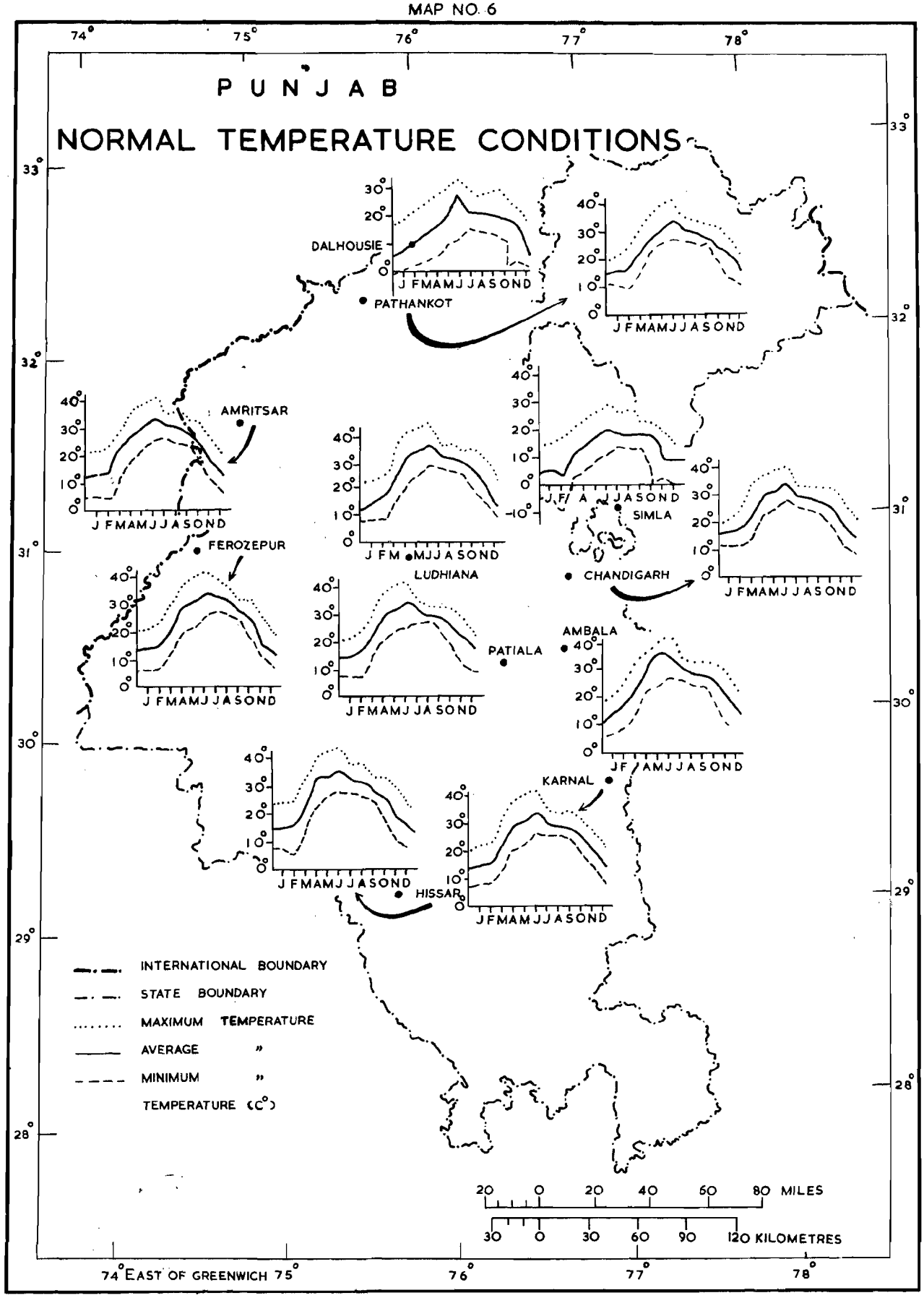
MAP 4


PUNJAB
PHYSIOGRAPHY
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
3000M
900M
300M
1800 M
900M
3000 M
3000M
1800M
1800M
300M
300M
300M
300M
300M
R. RAVI
R. BEAS
R. SUTLEJ
R. GHAGGAR
R. JUMNA
INTERNATIONAL BOUNDARY
STATE //
RIVERS PERENNIAL
RIVERS NON PERENNIAL
HEIGHT ABOVE SEA LEVEL
3,000 METRES
1,800 METRES
900 METRES
300 METRES
SAND DUNES
KHADAR
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETR
Ranbir
74° EAST OF GREENWICH 75°
76°
77°
78°

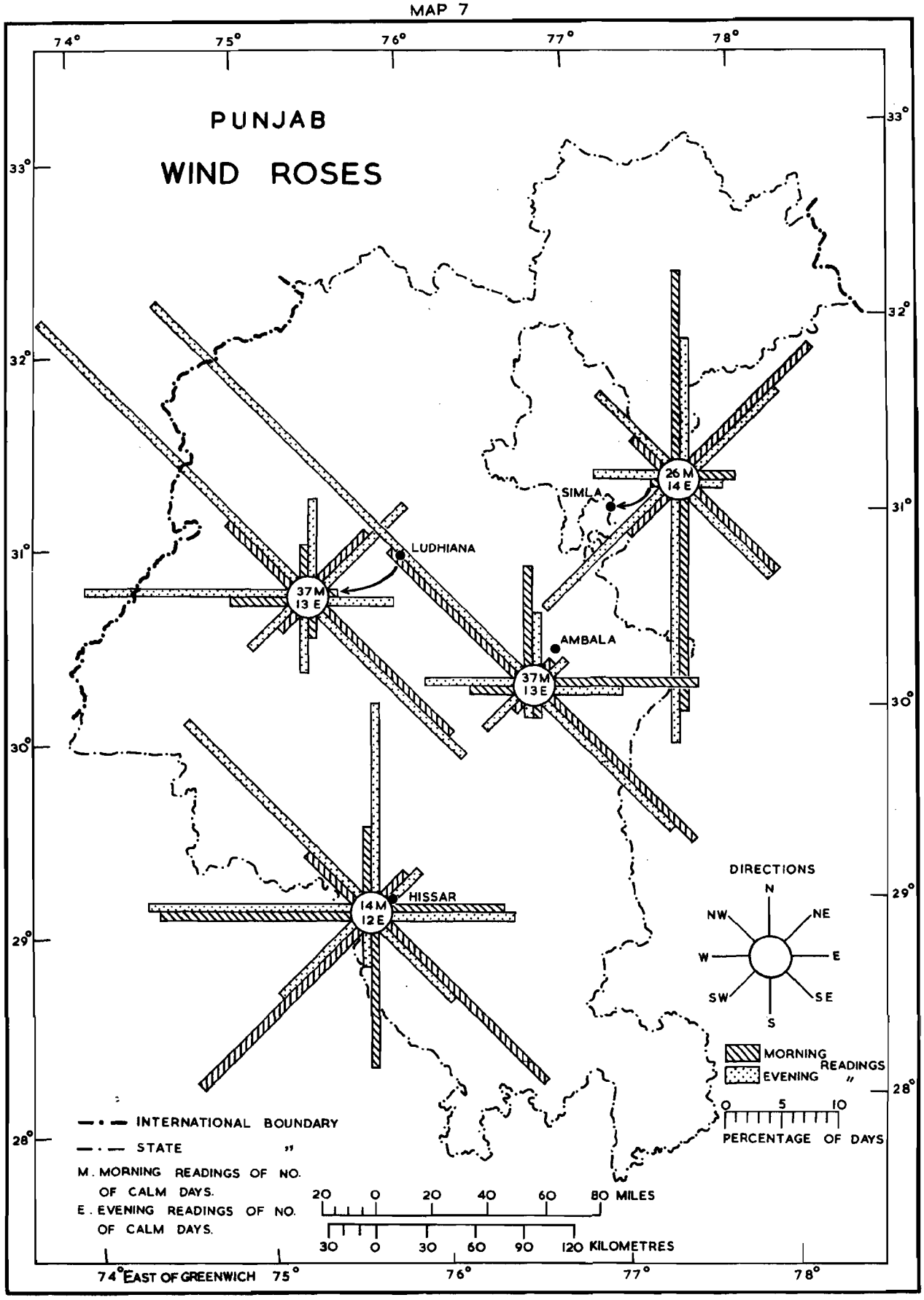
MAP 5


INDUS
R. CHENAB
R. RAVI
R. BEAS
R. SUTLEJ
R. SUTLEJ
R. GHAGGAR
R. JUMNA
R. GANGES
33°
32°
31°
30°
29°
28°
EAST
74°
75°
76°
77°
78°
PUNJAB
DRAINAGE SYSTEM
20 0 20 40 MILES
30 0 30 60 KILOMETRES
SOURCE OF DATA : SURVEY OF INDIA
SHEETS (SCALE 1:1,000,000)

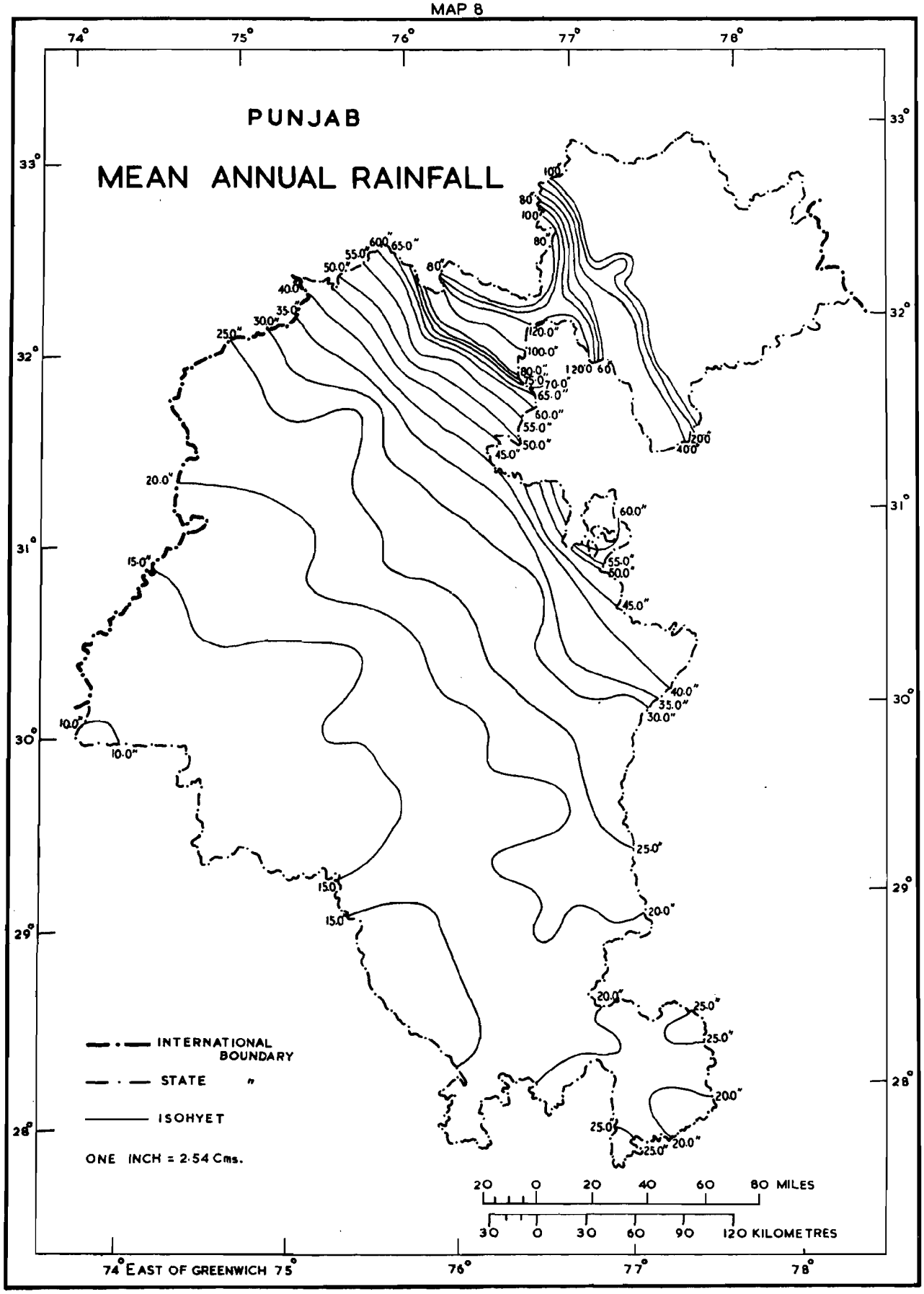
MAP NO. 6


PUNJAB
NORMAL TEMPERATURE CONDITIONS
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
DALHOUSIE
PATHANKOT
AMRITSAR
FEROZEPUR
LUDHIANA
PATIALA
SIMLA
CHANDIGARH
AMBALA
KARNAL
HISSAR
J F M A M J J A S O N D
INTERNATIONAL BOUNDARY
STATE BOUNDARY
MAXIMUM TEMPERATURE
AVERAGE "
MINIMUM "
TEMPERATURE (C°)
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75° 76° 77° 78°

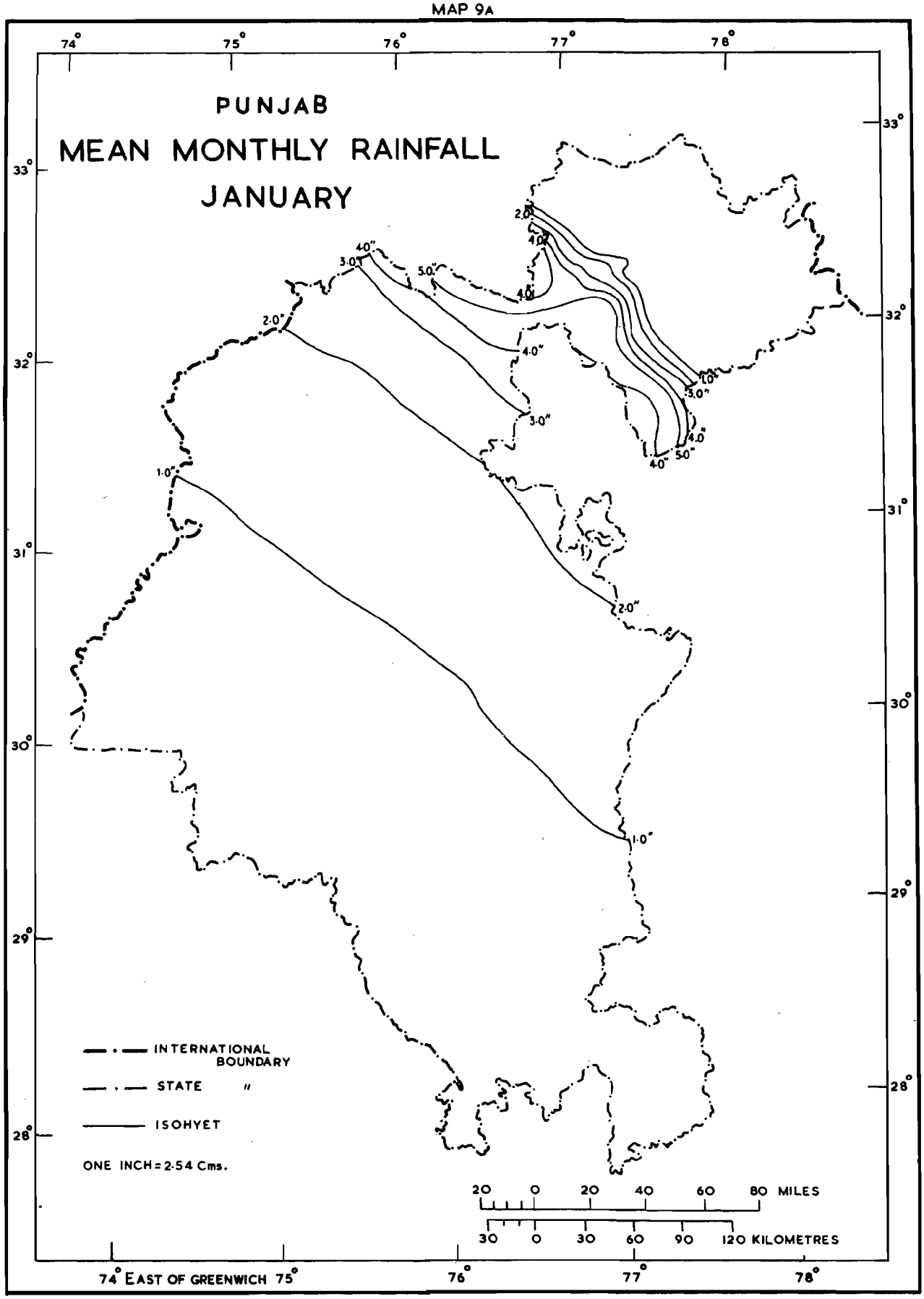
MAP 7


PUNJAB
WIND ROSES
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
SIMLA
26 M
14 E
LUDHIANA
37 M
13 E
AMBALA
37 M
13 E
HISSAR
14 M
12 E
DIRECTIONS
N
NE
E
SE
S
SW
W
NW
MORNING READINGS
EVENING "
0 5 10
PERCENTAGE OF DAYS
INTERNATIONAL BOUNDARY
STATE "
M. MORNING READINGS OF NO. OF CALM DAYS.
E. EVENING READINGS OF NO. OF CALM DAYS.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75° 76° 77° 78°

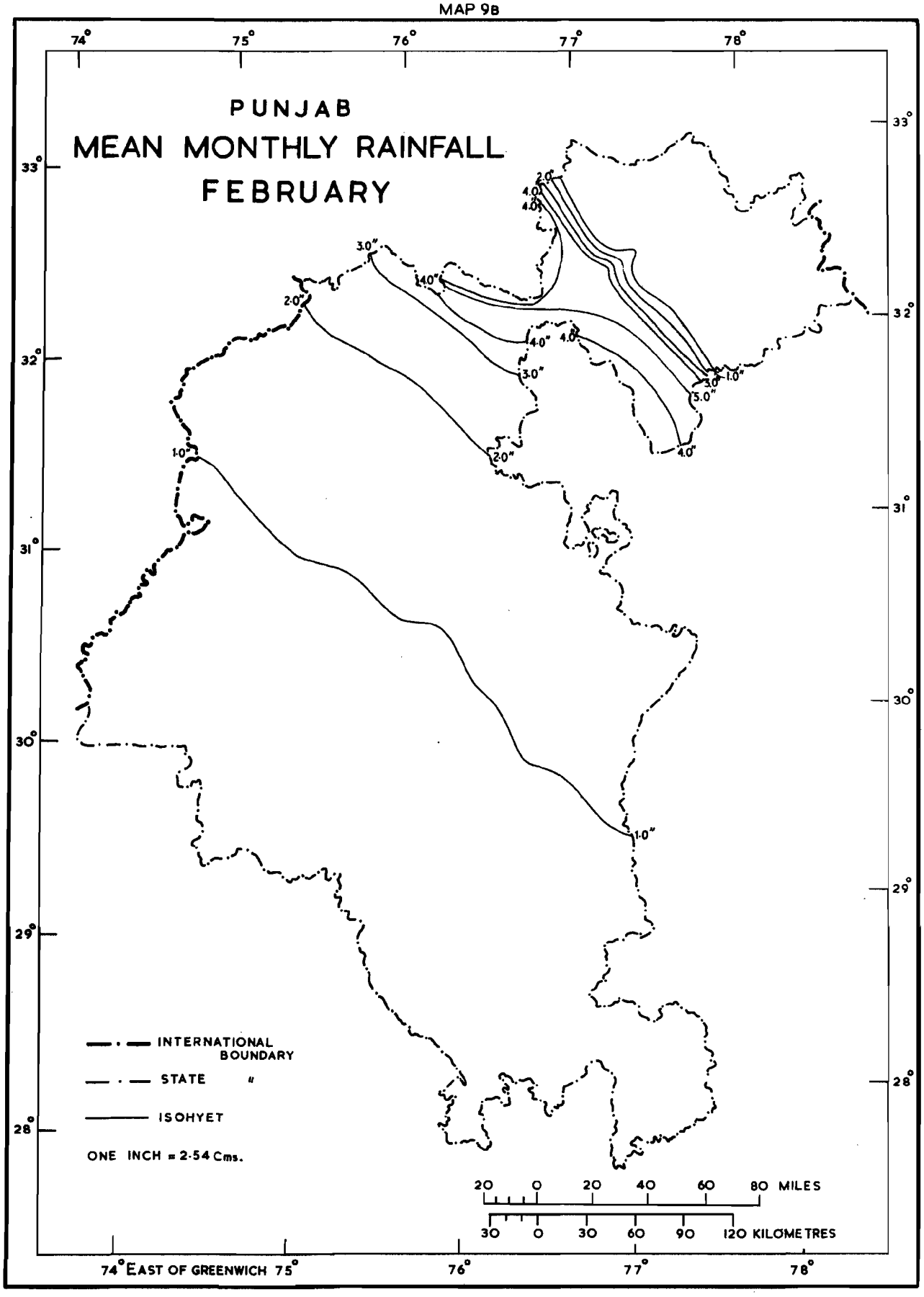
MAP 8


PUNJAB
MEAN ANNUAL RAINFALL
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
ISOHYET
ONE INCH = 2·54 Cms.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75°

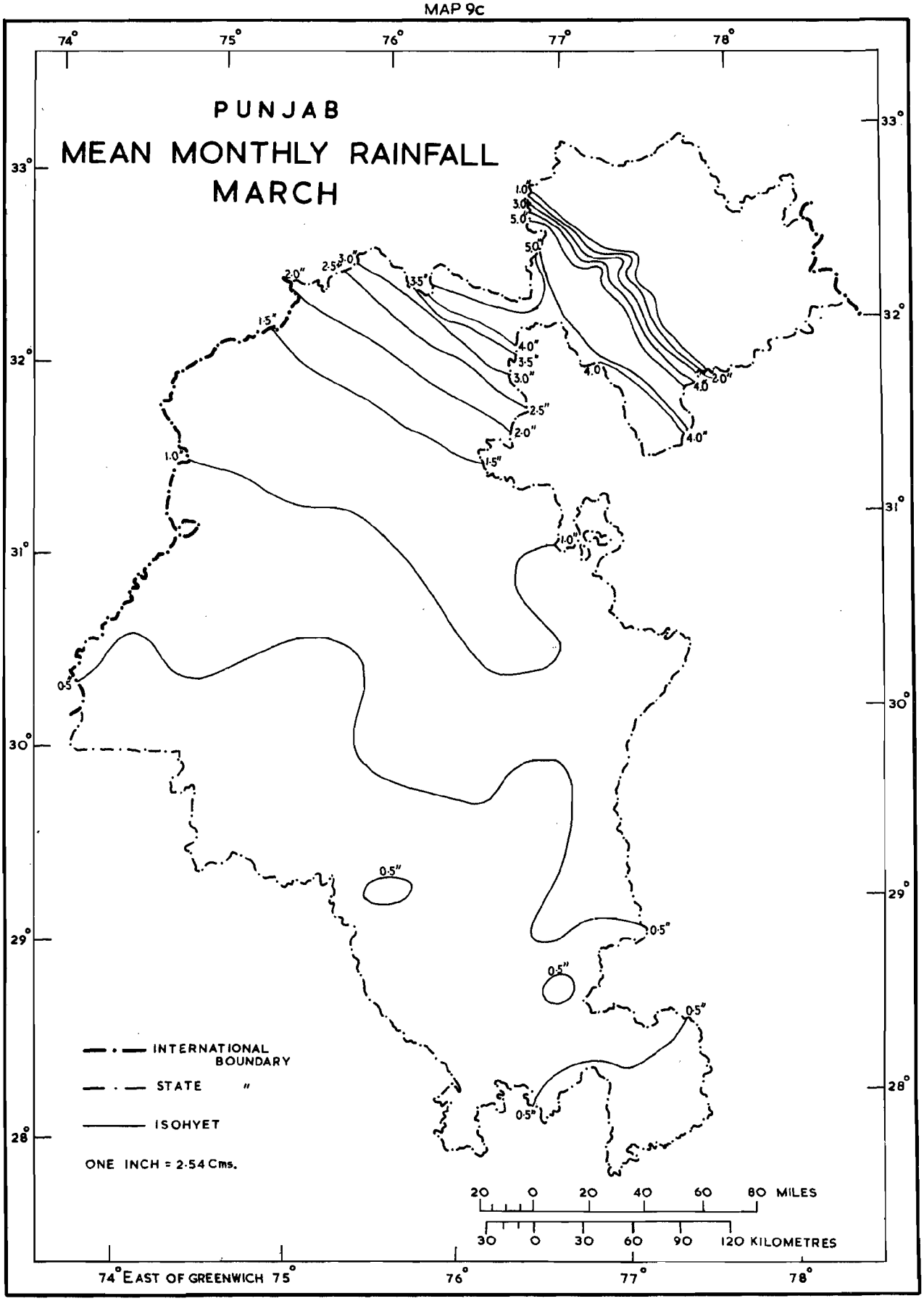
MAP 9A


PUNJAB
MEAN MONTHLY RAINFALL
JANUARY
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
2·0"
4·0"
3·0"
5·0"
1·0"
INTERNATIONAL BOUNDARY
STATE "
ISOHYET
ONE INCH = 2·54 Cms.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

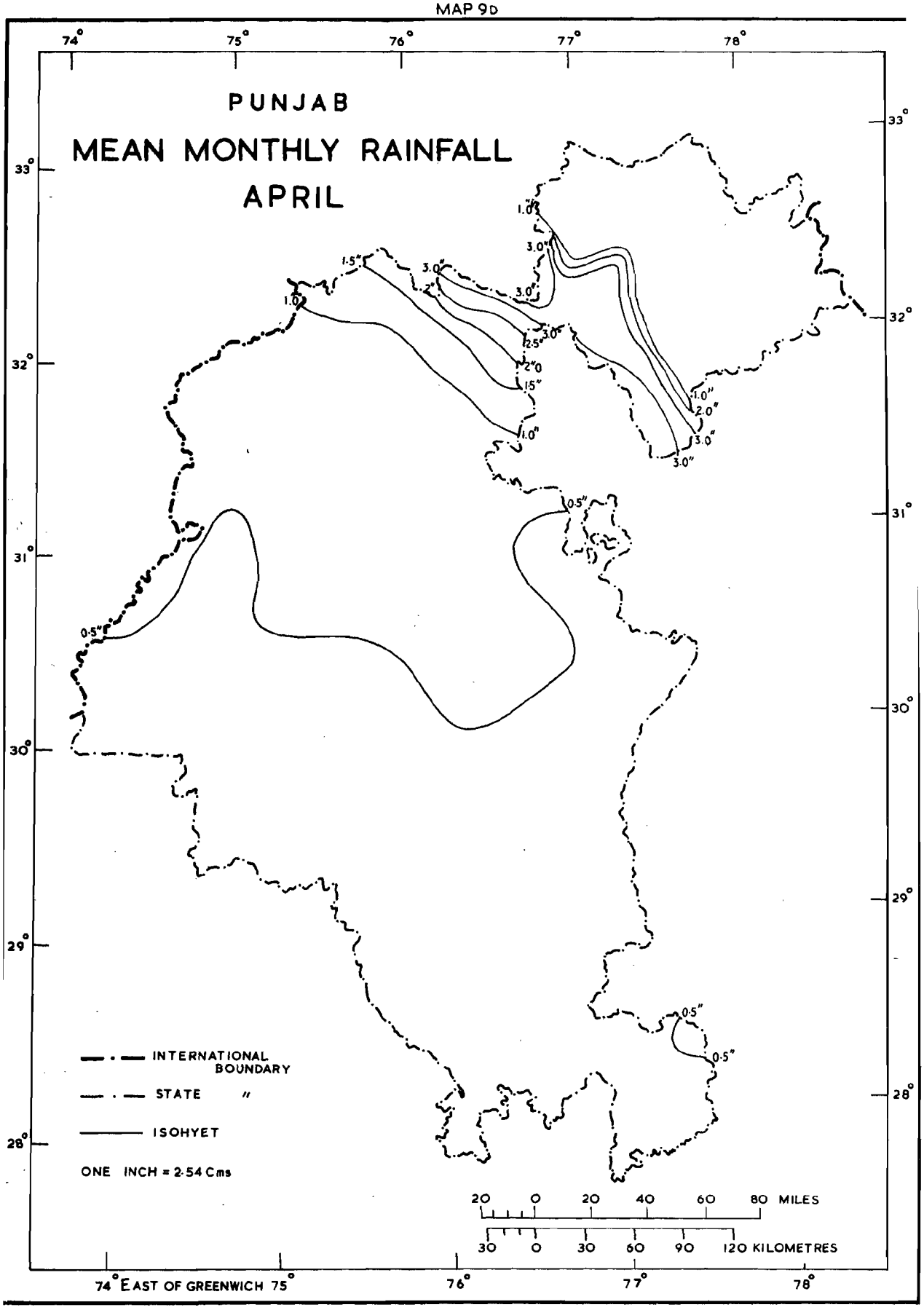
MAP 9B


PUNJAB
MEAN MONTHLY RAINFALL
FEBRUARY
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
1.0"
2.0"
3.0"
4.0"
5.0"
INTERNATIONAL BOUNDARY
STATE "
ISOHYET
ONE INCH = 2·54 Cms.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

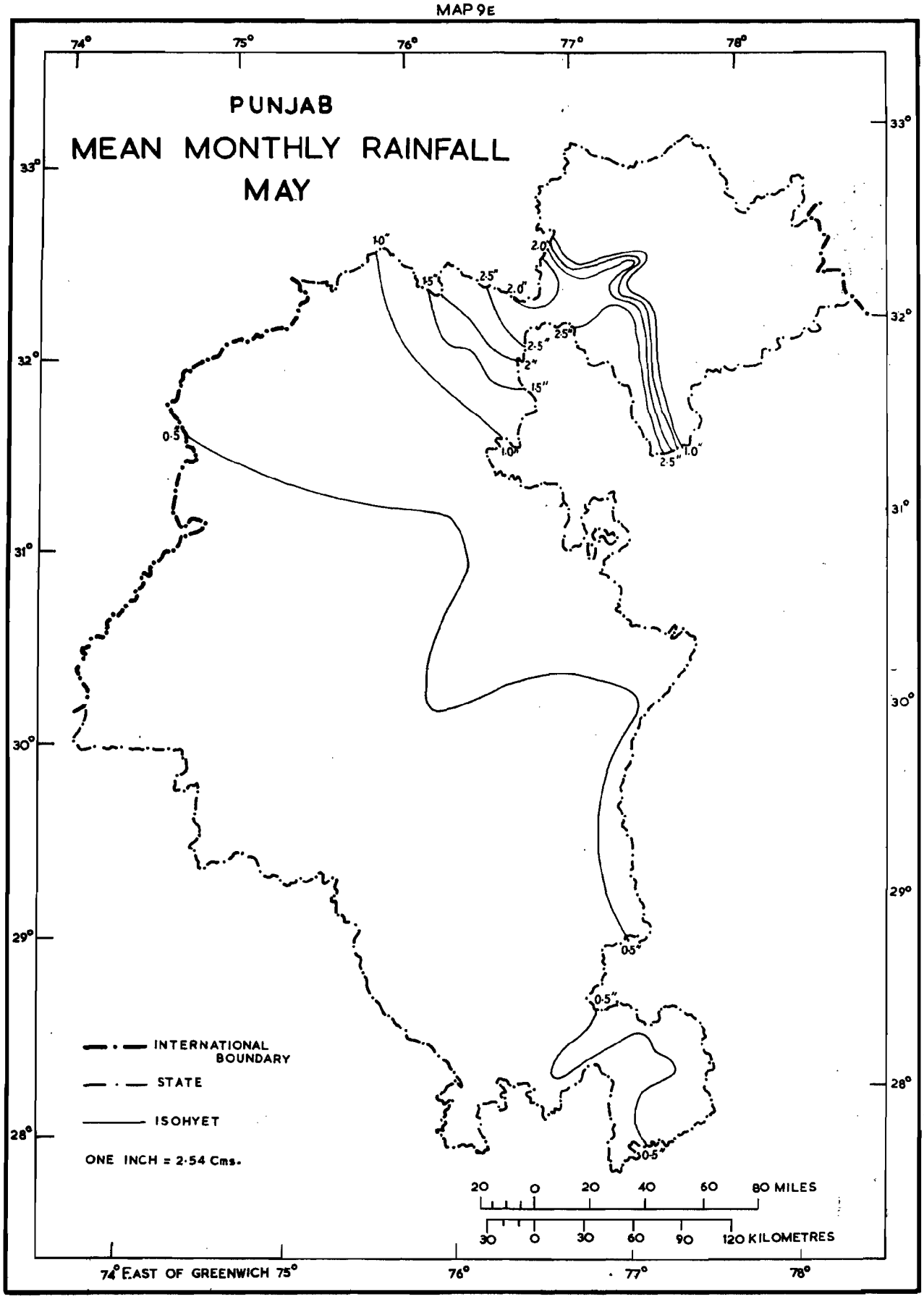
MAP 9c


PUNJAB
MEAN MONTHLY RAINFALL
MARCH
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
1.0"
3.0"
5.0"
5.0"
2.0"
2.5"
3.0"
3.5"
1.5"
4.0"
3.5"
3.0"
2.5"
2.0"
1.5"
4.0"
4.0"
2.0"
4.0"
1.0"
1.0"
0.5"
0.5"
0.5"
0.5"
0.5"
INTERNATIONAL BOUNDARY
STATE "
ISOHYET
ONE INCH = 2.54 Cms.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75°
76°
77°
78°

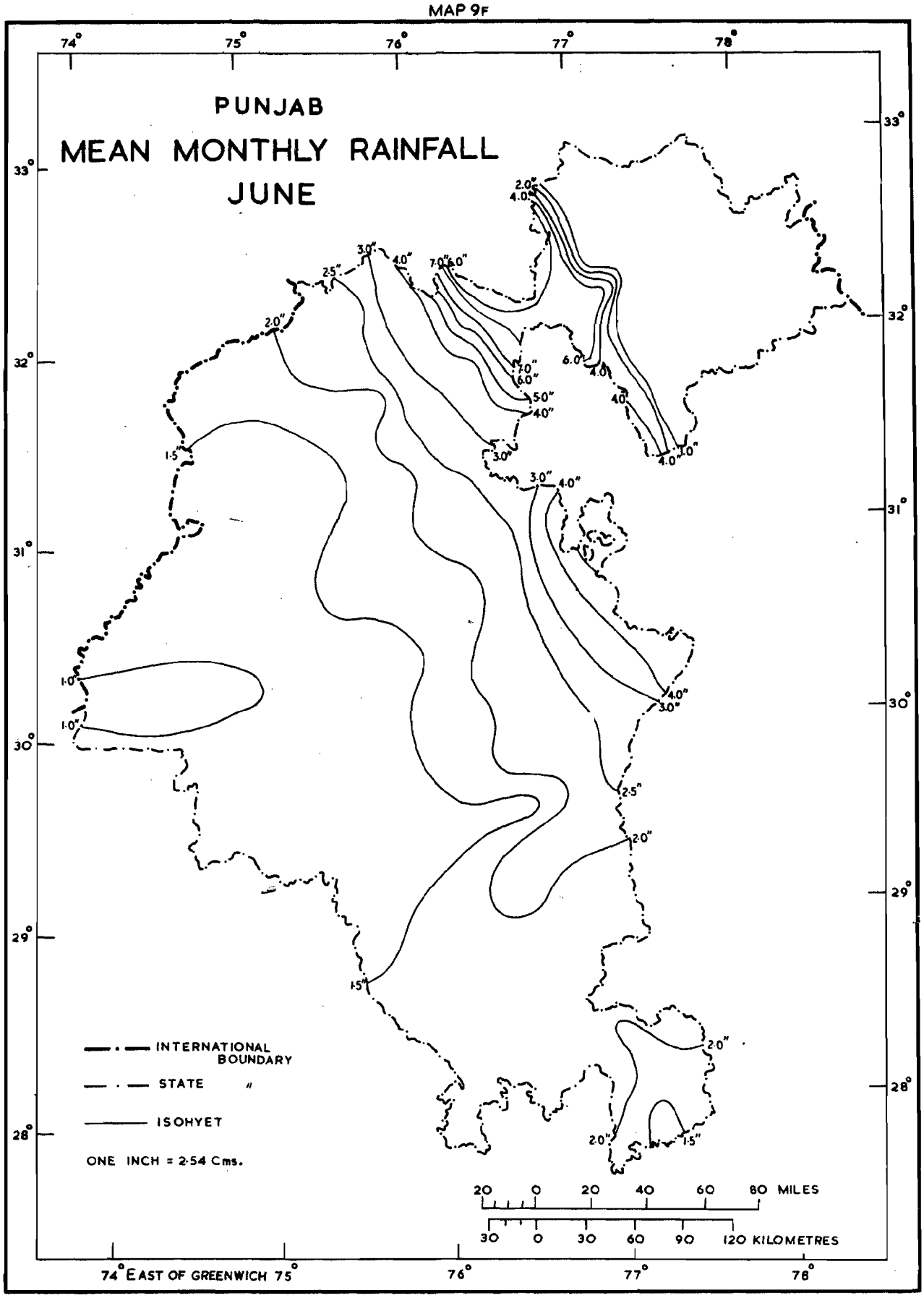
MAP 9D


PUNJAB
MEAN MONTHLY RAINFALL
APRIL
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
1.0"
3.0"
1.5"
2"
2.5"
1.5"
0.5"
INTERNATIONAL BOUNDARY
STATE "
ISOHYET
ONE INCH = 2.54 Cms
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75°

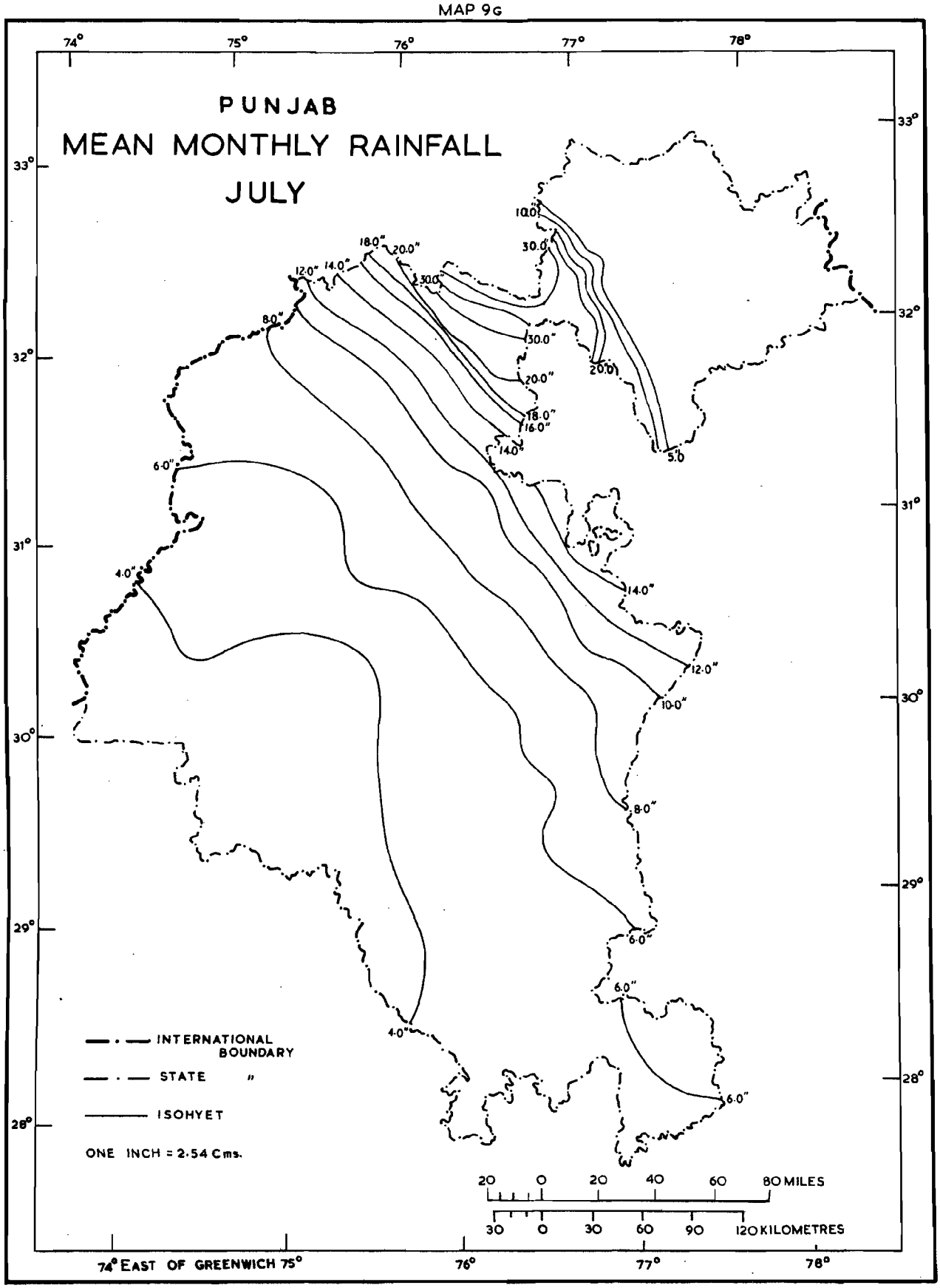
MAP 9E


PUNJAB
MEAN MONTHLY RAINFALL
MAY
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
1.0"
1.5"
2.5"
2.0"
2.5"
2.5"
2"
1.5"
0.5"
1.0"
2.5"
1.0"
0.5"
0.5"
0.5"
INTERNATIONAL BOUNDARY
STATE
ISOHYET
ONE INCH = 2·54 Cms.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75°
76°
77°
78°

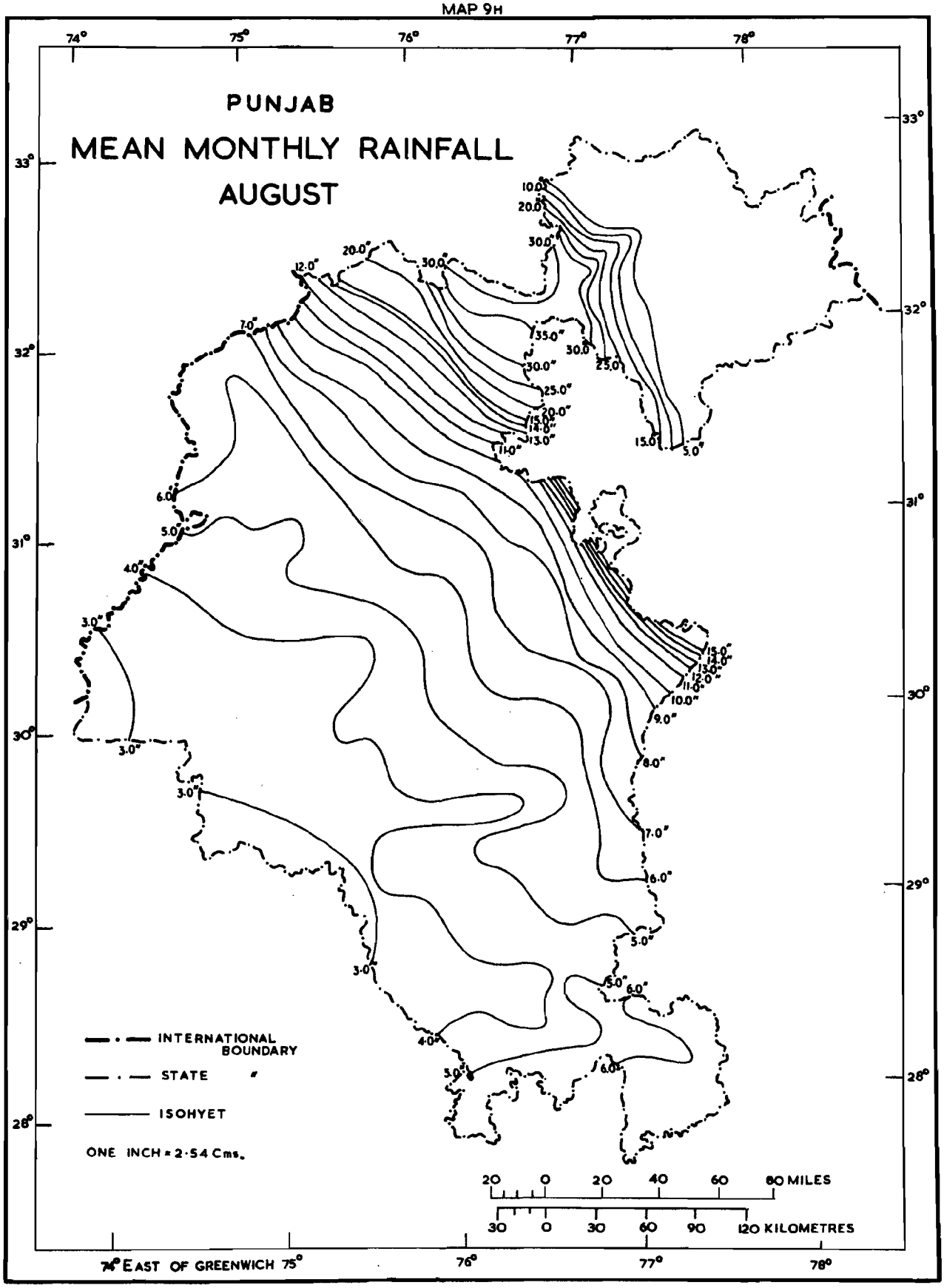
MAP 9F


PUNJAB
MEAN MONTHLY RAINFALL
JUNE
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
2.0"
4.0"
3.0"
2.5"
4.0"
7.0"
6.0"
2.0"
7.0"
6.0"
5.0"
4.0"
6.0"
4.0"
4.0"
1.5"
3.0"
4.0"
3.0"
4.0"
1.0"
1.0"
4.0"
3.0"
2.5"
2.0"
1.5"
2.0"
2.0"
1.5"
INTERNATIONAL BOUNDARY
STATE "
ISOHYET
ONE INCH = 2·54 Cms.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75°
76°
77°
78°

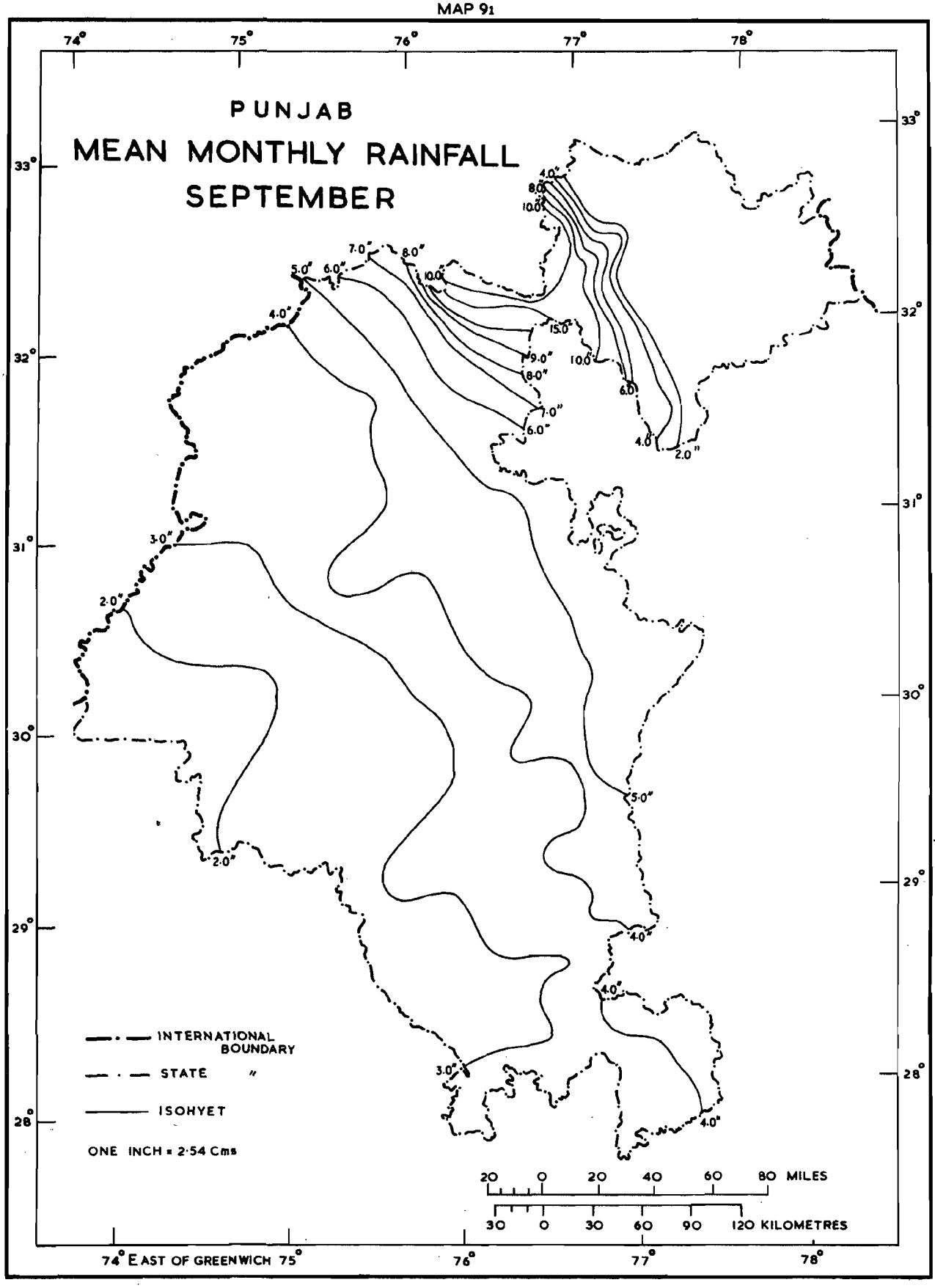
MAP 9G


PUNJAB
MEAN MONTHLY RAINFALL
JULY
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
10.0"
30.0"
18.0"
20.0"
12.0"
14.0"
30.0"
8.0"
30.0"
20.0"
20.0"
18.0"
16.0"
14.0"
5.0
6.0"
4.0"
14.0"
12.0"
10.0"
8.0"
6.0"
6.0"
4.0"
6.0"
INTERNATIONAL BOUNDARY
STATE "
ISOHYET
ONE INCH = 2.54 Cms.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75°
76°
77°
78°

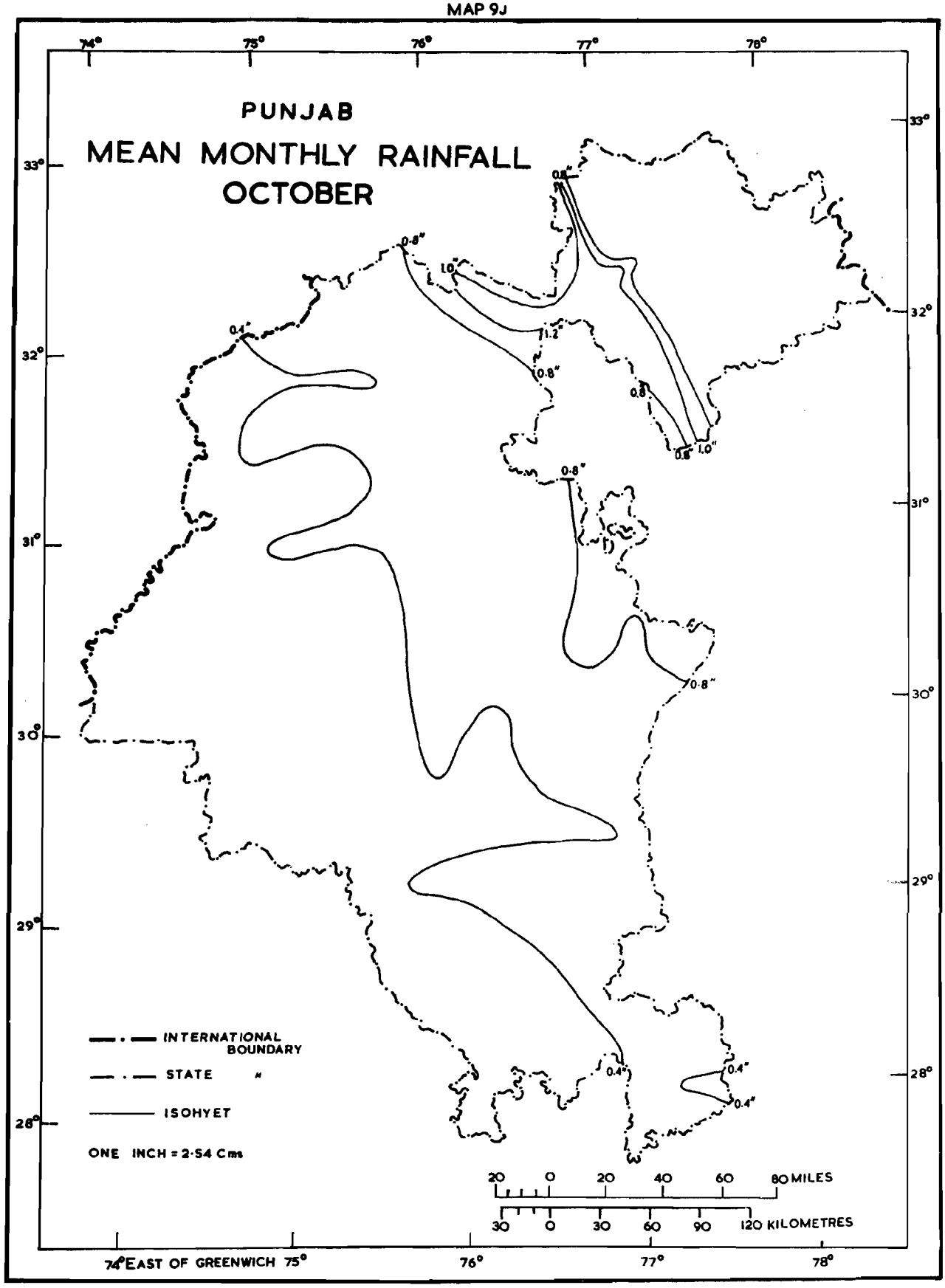
MAP 9H


PUNJAB
MEAN MONTHLY RAINFALL
AUGUST
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE
ISOHYET
ONE INCH = 2·54 Cms.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST OF GREENWICH

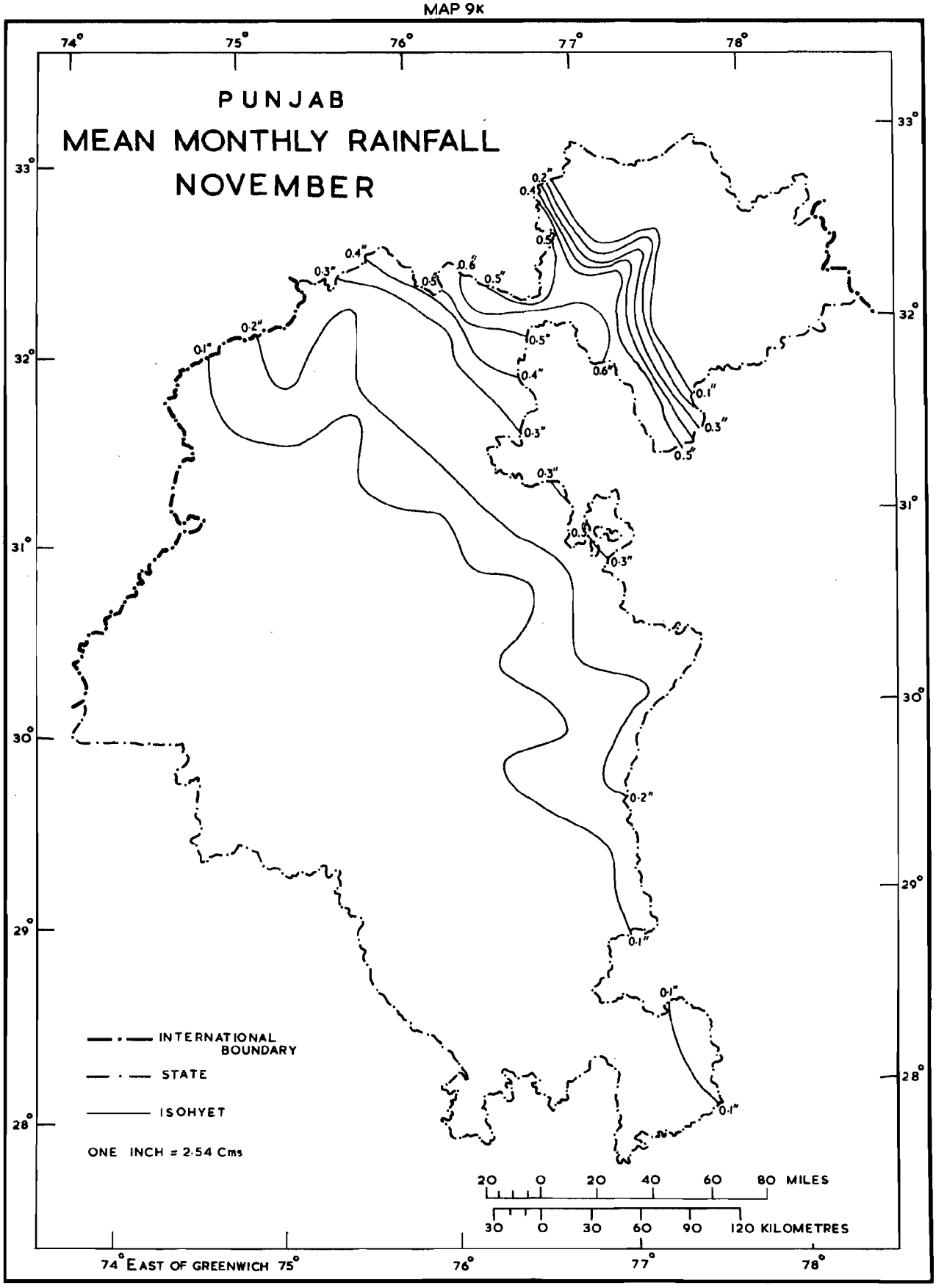
MAP 91


PUNJAB
MEAN MONTHLY RAINFALL
SEPTEMBER
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
4.0"
8.0"
10.0"
7.0"
8.0"
5.0"
6.0"
10.0"
4.0"
15.0"
9.0"
10.0"
8.0"
6.0"
7.0"
6.0"
4.0"
2.0"
3.0"
2.0"
5.0"
2.0"
4.0"
4.0"
3.0"
4.0"
INTERNATIONAL BOUNDARY
STATE "
ISOHYET
ONE INCH = 2·54 Cms
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75°
76°
77°
78°

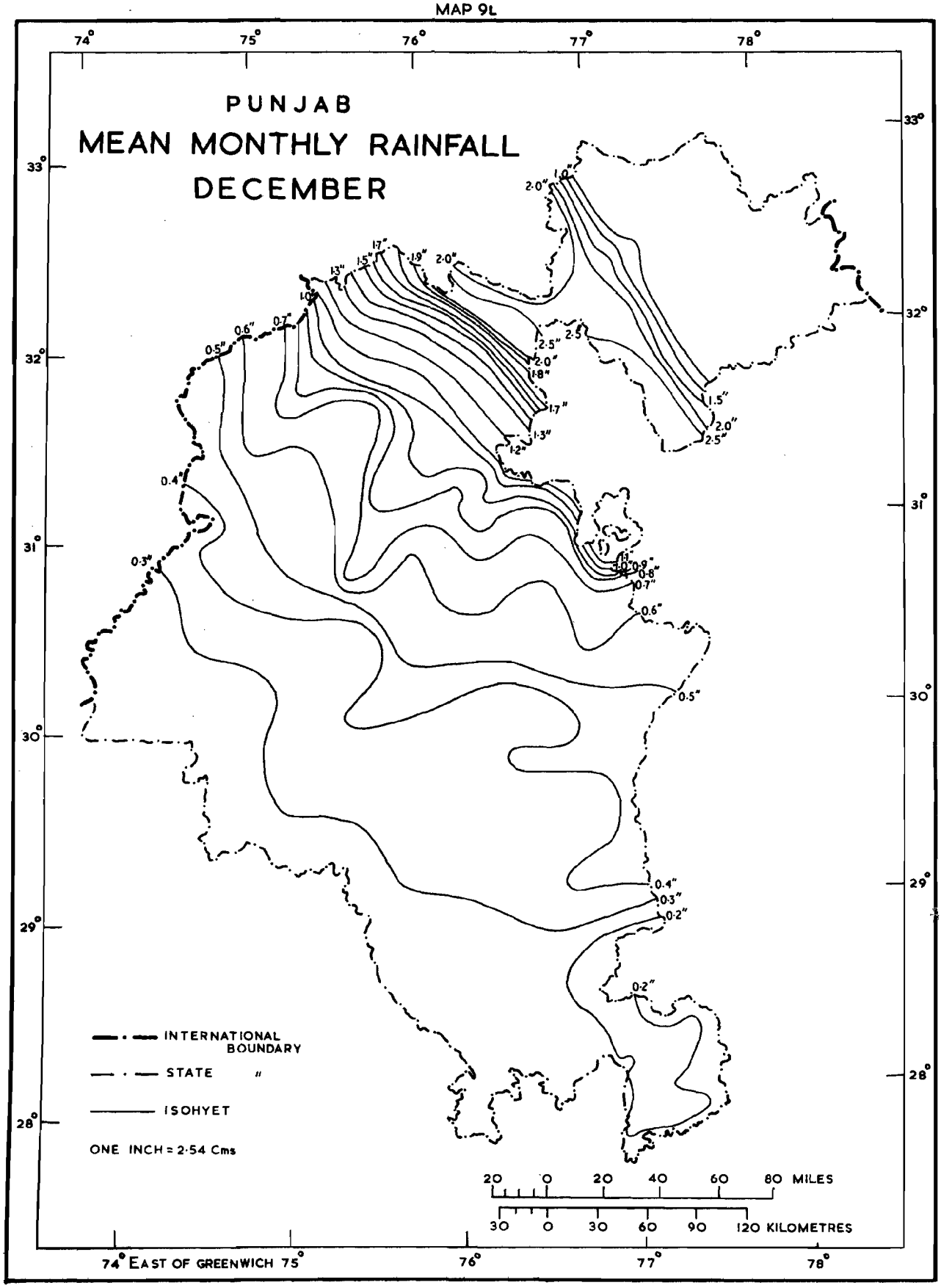
MAP 9J


PUNJAB
MEAN MONTHLY RAINFALL
OCTOBER
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
0.8"
1.0"
0.4"
1.2"
0.8"
0.8"
0.8"
1.0"
0.8"
0.8"
0.4"
0.4"
0.4"
INTERNATIONAL BOUNDARY
STATE "
ISOHYET
ONE INCH = 2·54 Cms
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75° 76° 77° 78°

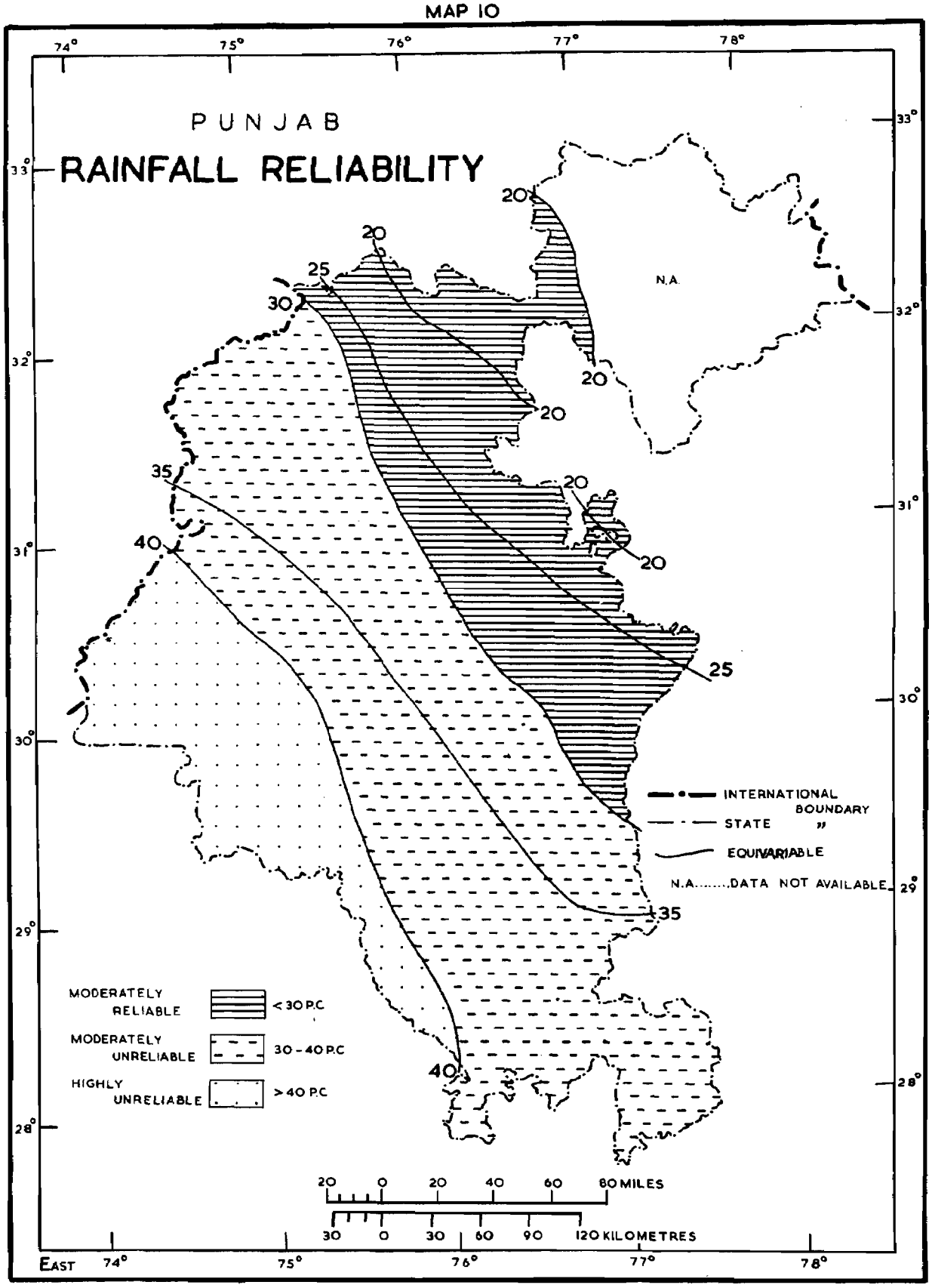
MAP 9K


PUNJAB
MEAN MONTHLY RAINFALL
NOVEMBER
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
0.2"
0.4"
0.5"
0.3"
0.6"
0.1"
INTERNATIONAL BOUNDARY
STATE
ISOHYET
ONE INCH = 2·54 Cms
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75°

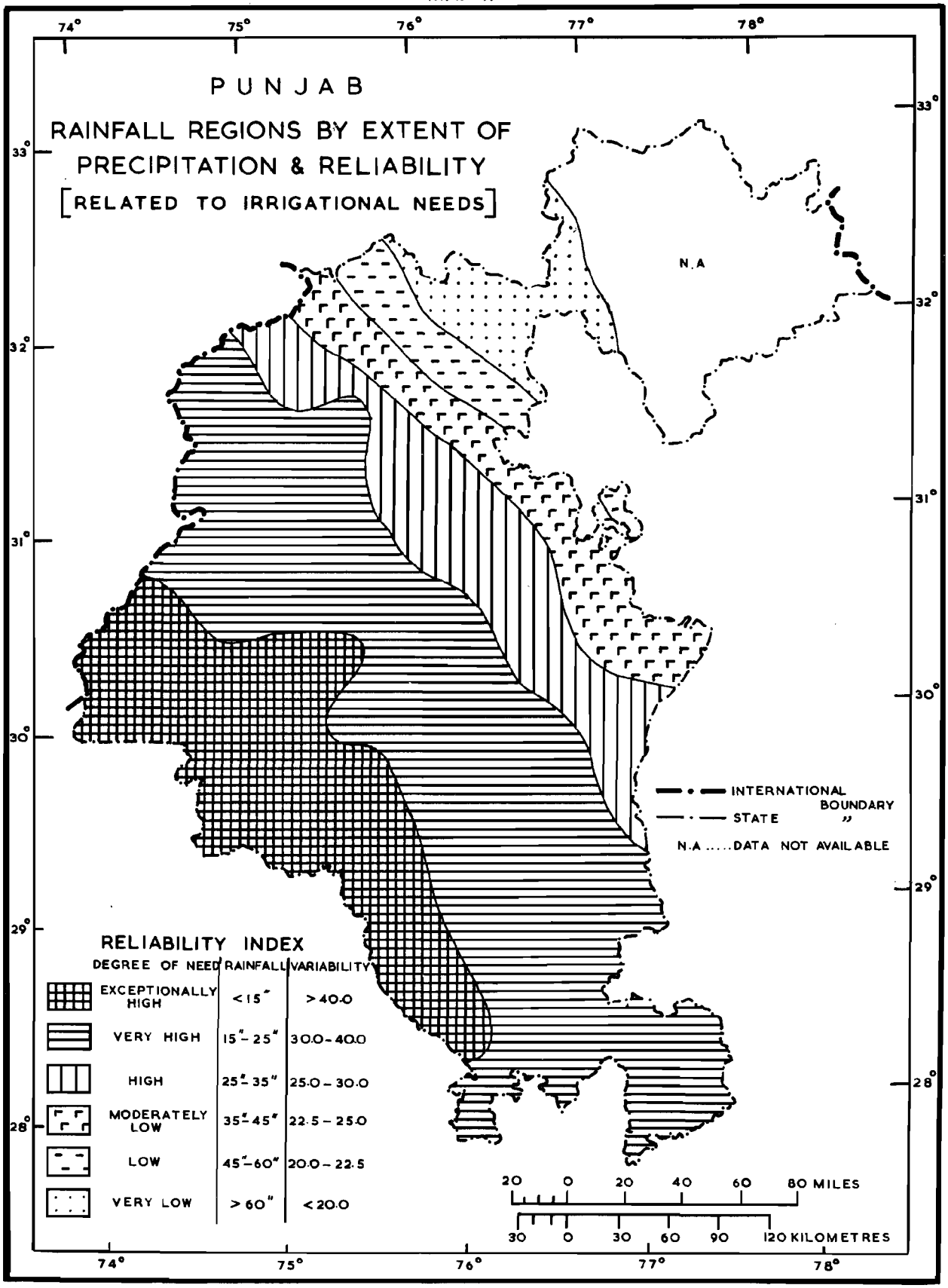
MAP 9L


PUNJAB
MEAN MONTHLY RAINFALL
DECEMBER
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
2·0"
1·7"
1·5"
1·3"
1·0"
0·7"
0·6"
0·5"
0·4"
0·3"
2·5"
1·8"
1·2"
0·9"
0·8"
0·2"
INTERNATIONAL BOUNDARY
STATE "
ISOHYET
ONE INCH = 2·54 Cms
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75°

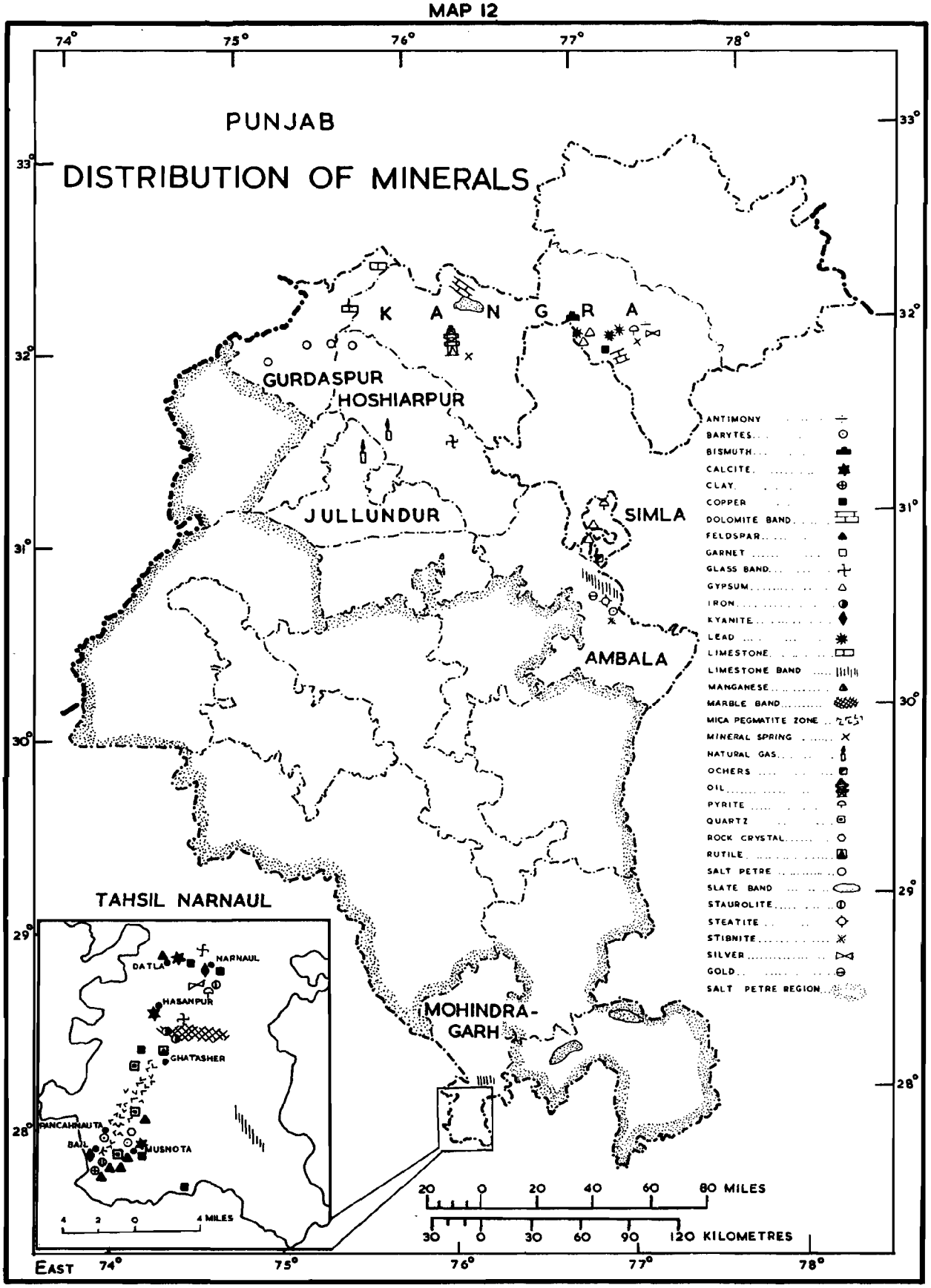
MAP 10

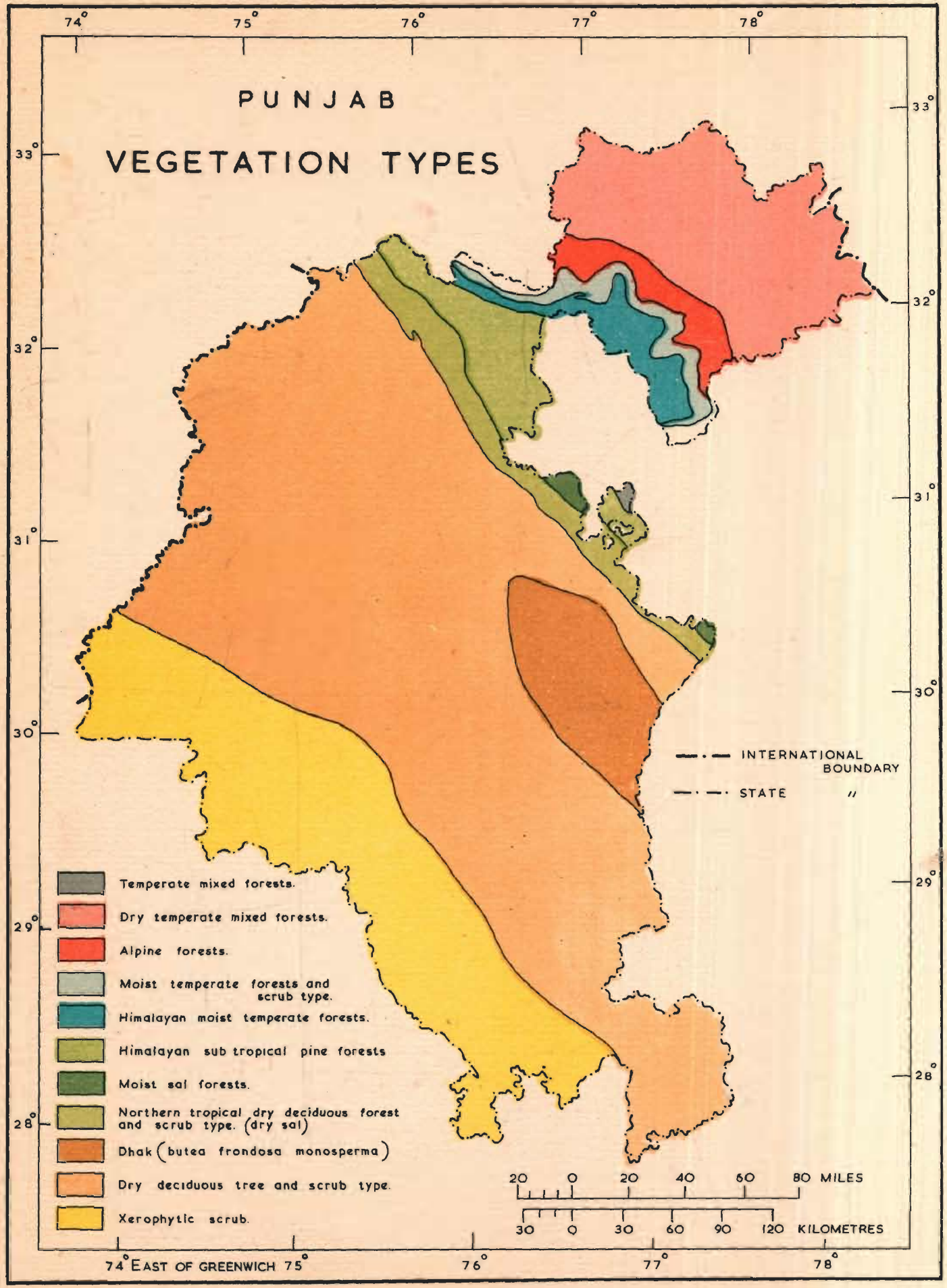

PUNJAB
RAINFALL RELIABILITY
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
20
25
30
35
40
N.A.
INTERNATIONAL BOUNDARY
STATE "
EQUIVARIABLE
N.A.....DATA NOT AVAILABLE
MODERATELY RELIABLE
< 30 P.C
MODERATELY UNRELIABLE
30 - 40 P.C
HIGHLY UNRELIABLE
> 40 P.C
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

MAP II

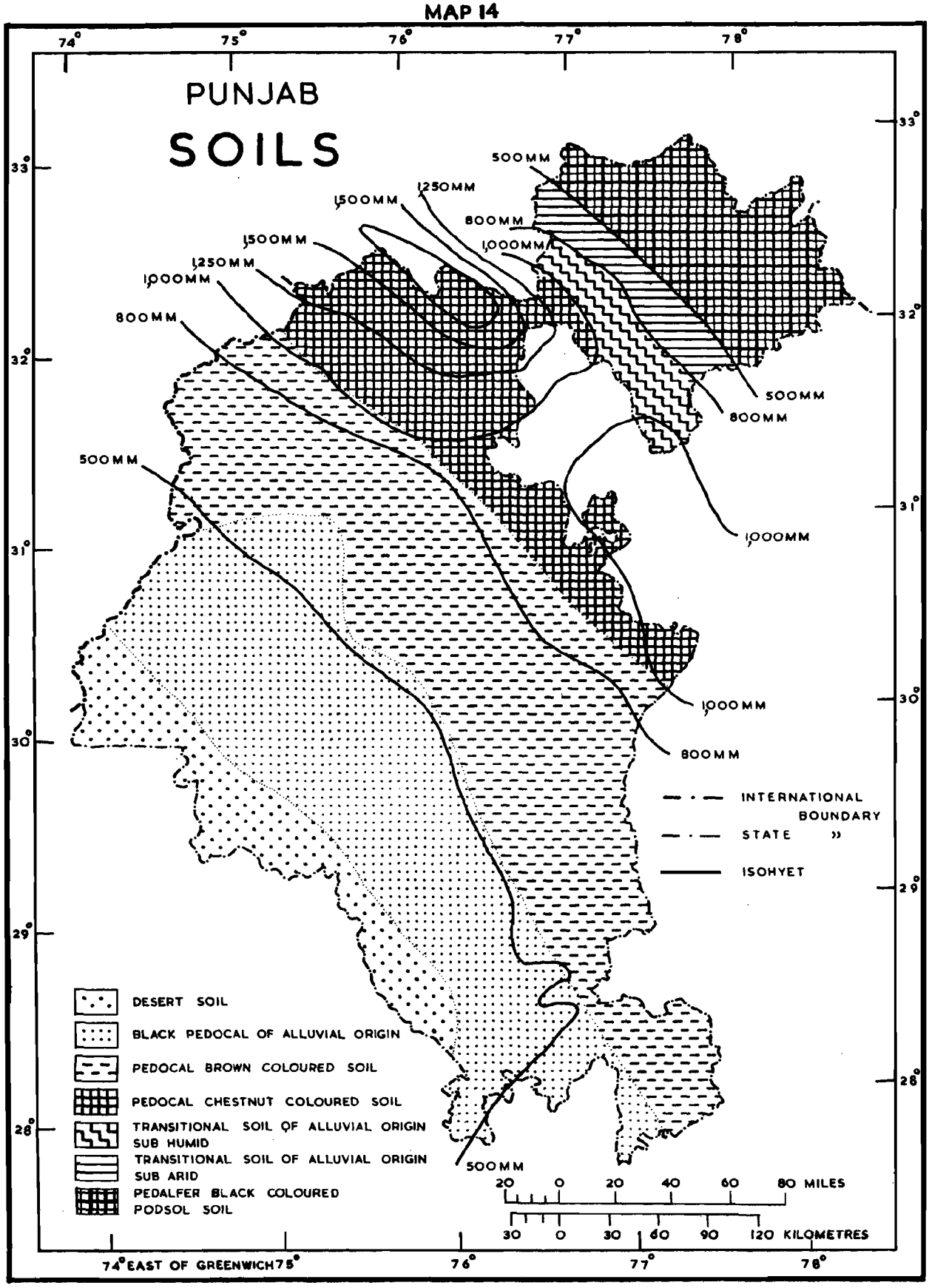

PUNJAB
RAINFALL REGIONS BY EXTENT OF PRECIPITATION & RELIABILITY
[RELATED TO IRRIGATIONAL NEEDS]
N.A
INTERNATIONAL BOUNDARY
STATE "
N.A .....DATA NOT AVAILABLE
RELIABILITY INDEX
DEGREE OF NEED | RAINFALL | VARIABILITY
EXCEPTIONALLY HIGH | <15" | >40.0
VERY HIGH | 15"-25" | 30.0-40.0
HIGH | 25"-35" | 25.0-30.0
MODERATELY LOW | 35"-45" | 22.5-25.0
LOW | 45"-60" | 20.0-22.5
VERY LOW | >60" | <20.0
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° 75° 76° 77° 78°
33° 32° 31° 30° 29° 28°

MAP 12

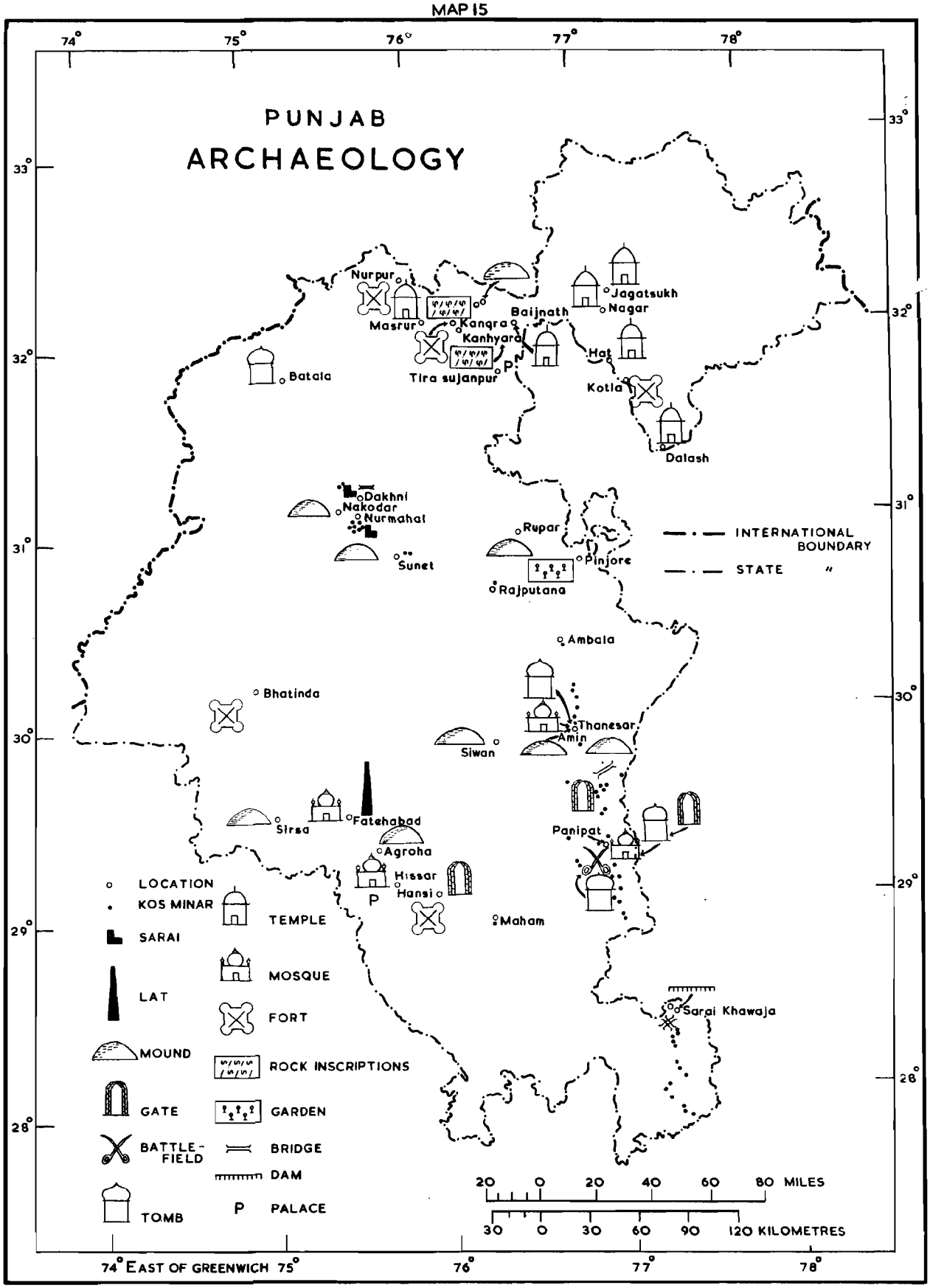

PUNJAB
DISTRIBUTION OF MINERALS
K A N G R A
GURDASPUR
HOSHIARPUR
JULLUNDUR
SIMLA
AMBALA
MOHINDRA-GARH
TAHSIL NARNAUL
DATLA
NARNAUL
HASANPUR
GHATASHER
PANCHNAUTA
BAIL
MUSNOTA
4 MILES
ANTIMONY
BARYTES
BISMUTH
CALCITE
CLAY
COPPER
DOLOMITE BAND
FELDSPAR
GARNET
GLASS BAND
GYPSUM
IRON
KYANITE
LEAD
LIMESTONE
LIMESTONE BAND
MANGANESE
MARBLE BAND
MICA PEGMATITE ZONE
MINERAL SPRING
NATURAL GAS
OCHERS
OIL
PYRITE
QUARTZ
ROCK CRYSTAL
RUTILE
SALT PETRE
SLATE BAND
STAUROLITE
STEATITE
STIBNITE
SILVER
GOLD
SALT PETRE REGION
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST
74° 75° 76° 77° 78°
33° 32° 31° 30° 29° 28°


PUNJAB
VEGETATION TYPES
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
Temperate mixed forests.
Dry temperate mixed forests.
Alpine forests.
Moist temperate forests and scrub type.
Himalayan moist temperate forests.
Himalayan sub tropical pine forests
Moist sal forests.
Northern tropical dry deciduous forest and scrub type. (dry sal)
Dhak (butea frondosa monosperma)
Dry deciduous tree and scrub type.
Xerophytic scrub.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75°

MAP 14

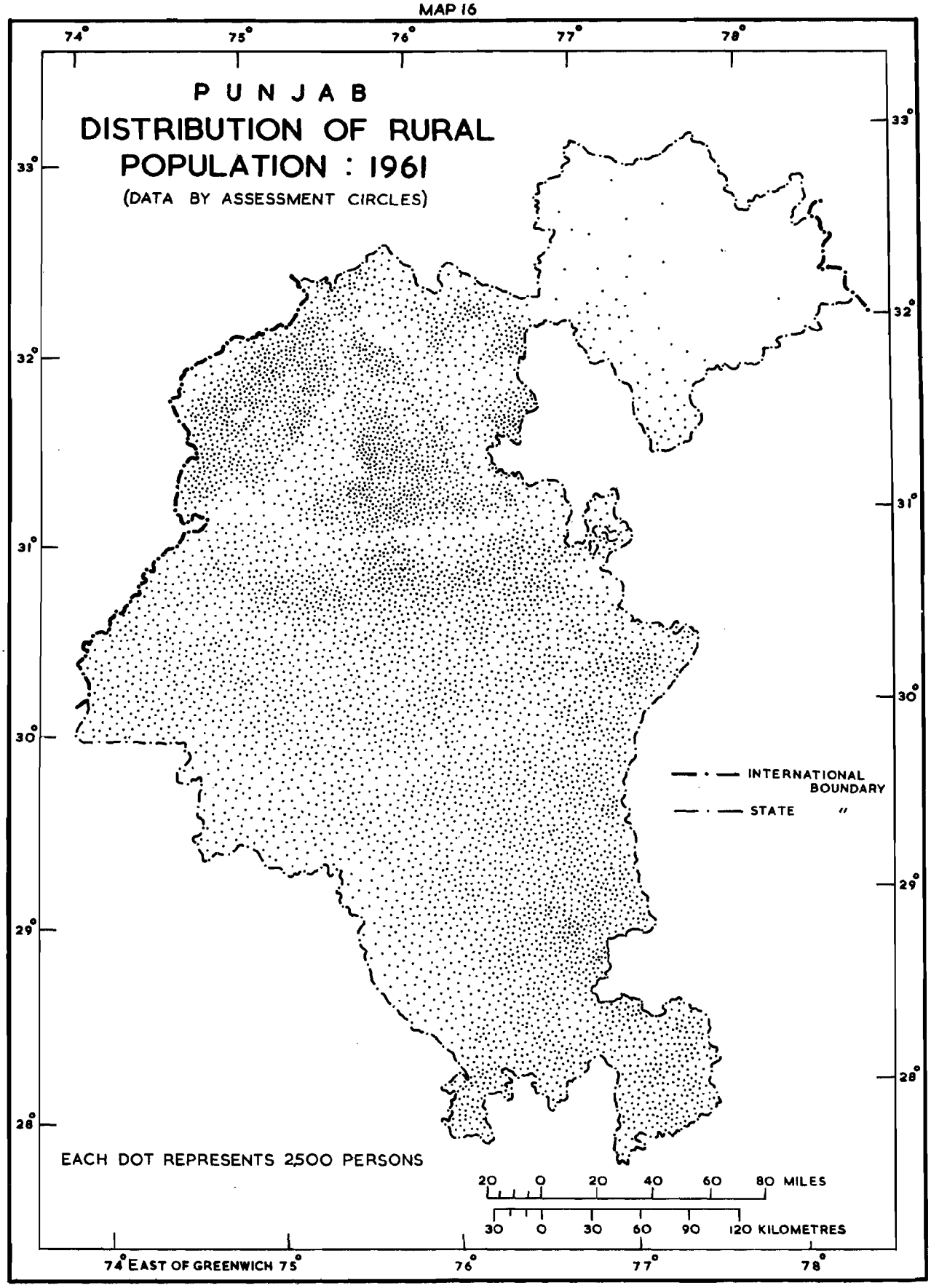

PUNJAB
SOILS
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
500MM
1250MM
1500MM
800MM
1000MM
INTERNATIONAL BOUNDARY
STATE »
ISOHYET
DESERT SOIL
BLACK PEDOCAL OF ALLUVIAL ORIGIN
PEDOCAL BROWN COLOURED SOIL
PEDOCAL CHESTNUT COLOURED SOIL
TRANSITIONAL SOIL OF ALLUVIAL ORIGIN SUB HUMID
TRANSITIONAL SOIL OF ALLUVIAL ORIGIN SUB ARID
PEDALFER BLACK COLOURED PODSOL SOIL
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75°

MAP 15

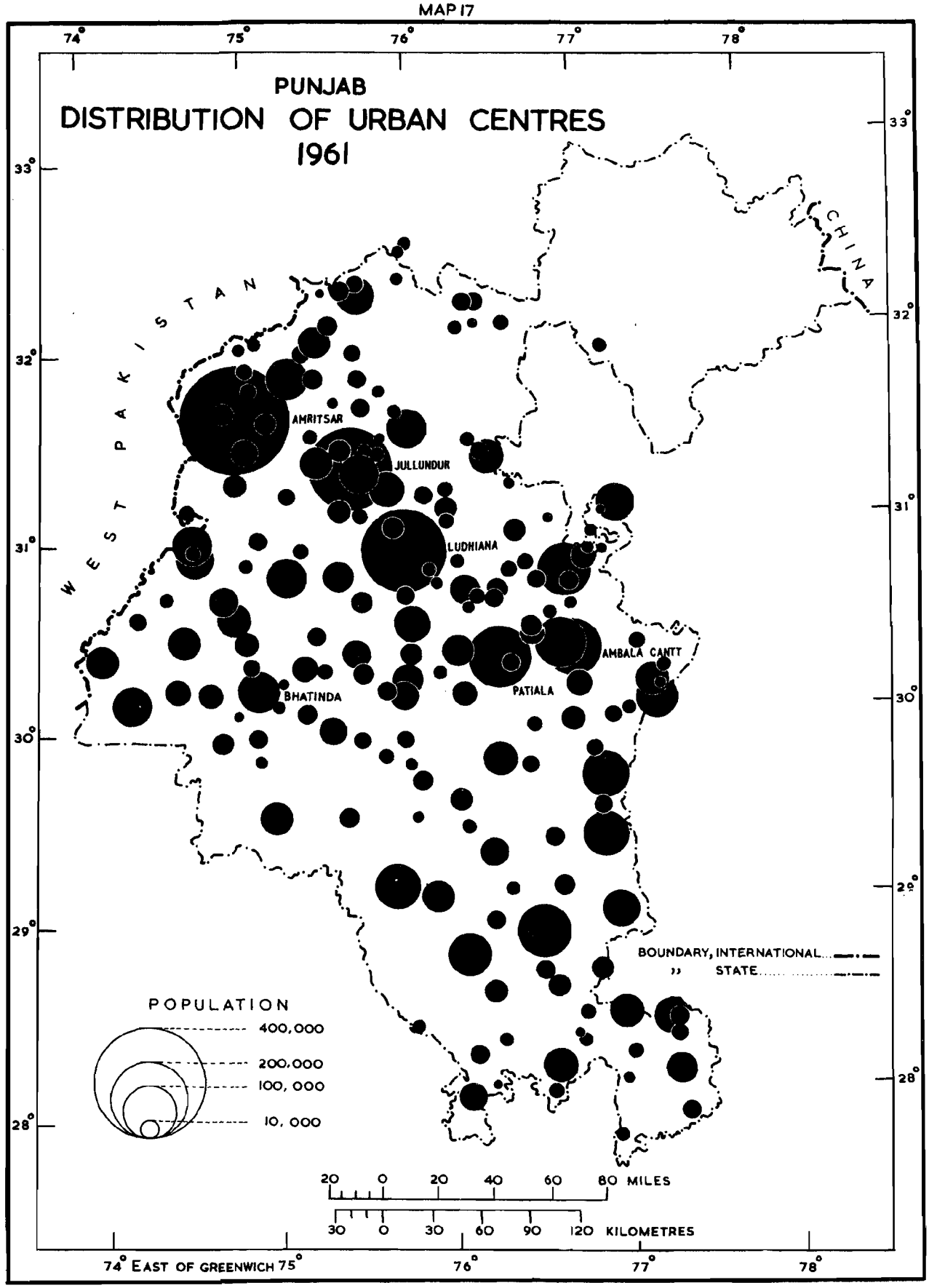

PUNJAB
ARCHAEOLOGY
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
Nurpur
Masrur
Kanqra
Kanhyara
Tira sujanpur
Batala
Baijnath
Jagatsukh
Nagar
Hat
Kotla
Dalash
Dakhni
Nakodar
Nurmahal
Sunet
Rupar
Pinjore
Rajputana
INTERNATIONAL BOUNDARY
STATE "
Ambala
Bhatinda
Thanesar
Amin
Siwan
Sirsa
Fatehabad
Agroha
Hissar
Hansi
Maham
Panipat
Sarai Khawaja
LOCATION
KOS MINAR
SARAI
LAT
MOUND
GATE
BATTLE-FIELD
TOMB
TEMPLE
MOSQUE
FORT
ROCK INSCRIPTIONS
GARDEN
BRIDGE
DAM
P PALACE
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75°
76°
77°
78°

II
MAN

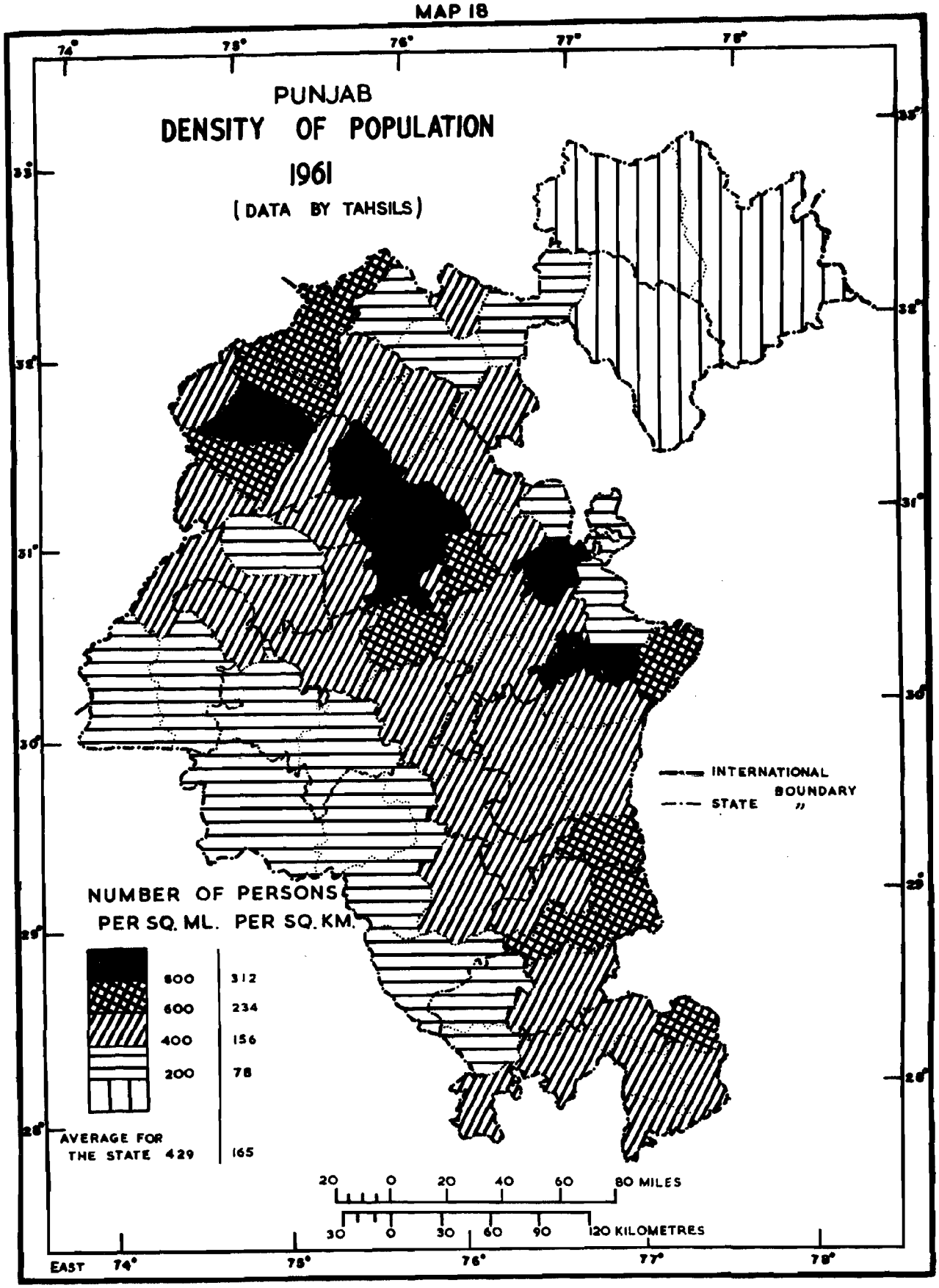
MAP 16


PUNJAB
DISTRIBUTION OF RURAL POPULATION : 1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
EACH DOT REPRESENTS 2,500 PERSONS
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75°

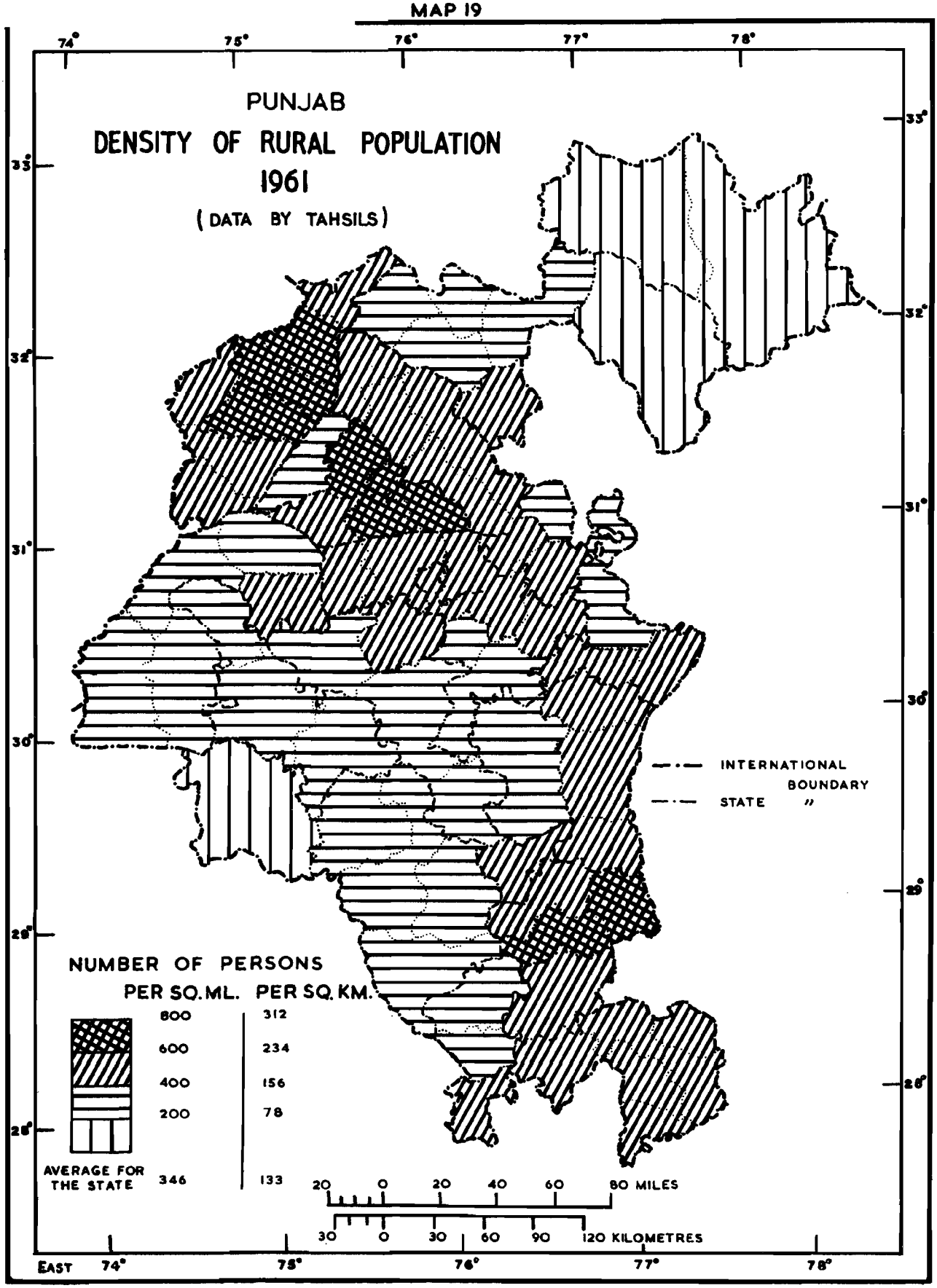
MAP 17


PUNJAB
DISTRIBUTION OF URBAN CENTRES
1961
WEST PAKISTAN
CHINA
AMRITSAR
JULLUNDUR
LUDHIANA
AMBALA CANTT
PATIALA
BHATINDA
POPULATION
400,000
200,000
100, 000
10, 000
BOUNDARY, INTERNATIONAL
" STATE
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

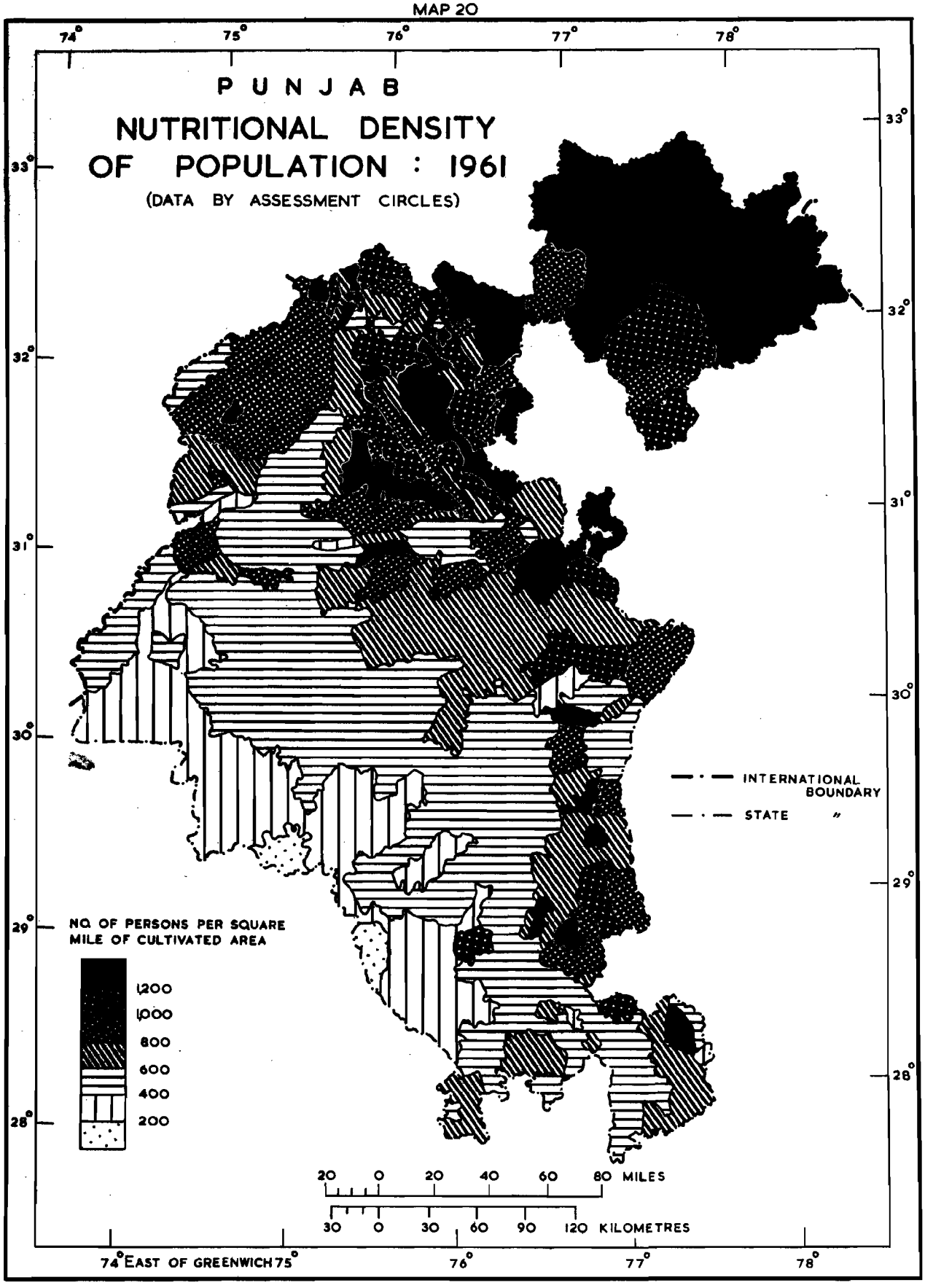
MAP 18


PUNJAB
DENSITY OF POPULATION
1961
(DATA BY TAHSILS)
INTERNATIONAL BOUNDARY
STATE "
NUMBER OF PERSONS
PER SQ. ML. PER SQ. KM.
800 312
600 234
400 156
200 78
AVERAGE FOR THE STATE 429 165
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST
74° 75° 76° 77° 78°
35° 34° 33° 32° 31° 30° 29° 28°

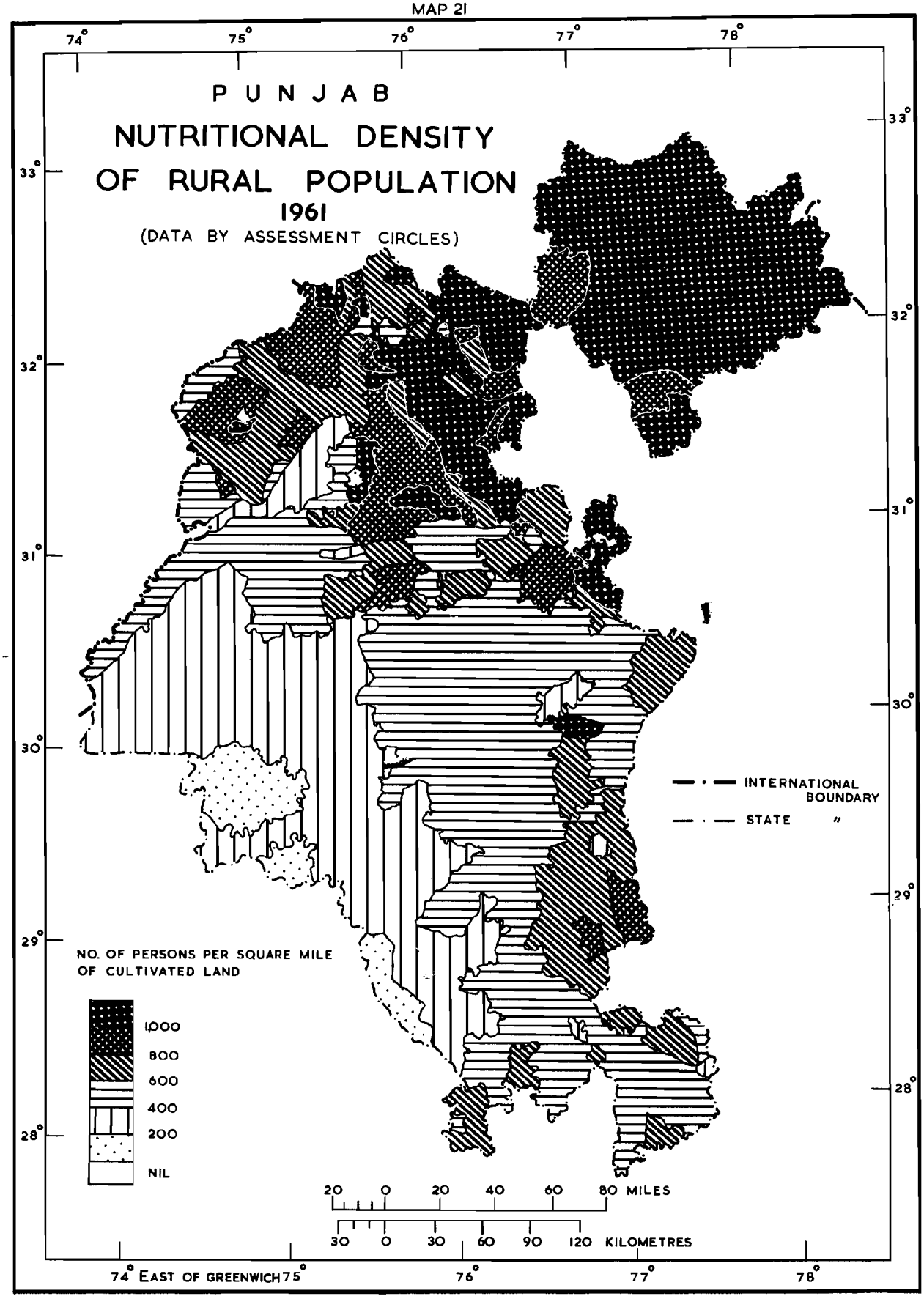
MAP 19


PUNJAB
DENSITY OF RURAL POPULATION
1961
(DATA BY TAHSILS)
INTERNATIONAL BOUNDARY
STATE "
NUMBER OF PERSONS
PER SQ. ML. PER SQ. KM.
800 312
600 234
400 156
200 78
AVERAGE FOR THE STATE 346 133
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° 75° 76° 77° 78°
35° 34° 33° 32° 31° 30° 29° 28°
EAST

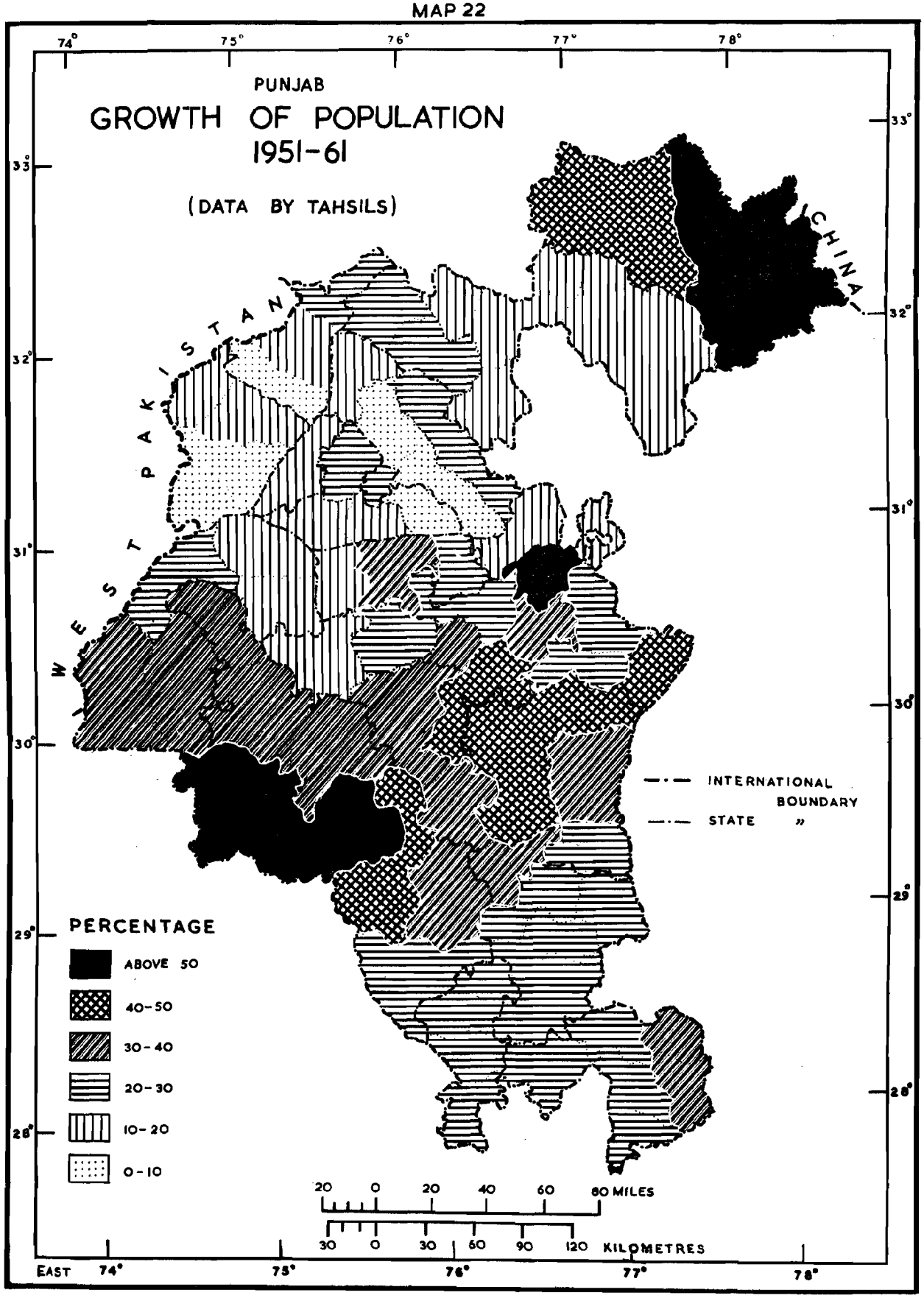
MAP 20


PUNJAB
NUTRITIONAL DENSITY
OF POPULATION : 1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
NO. OF PERSONS PER SQUARE MILE OF CULTIVATED AREA
1200
1000
800
600
400
200
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75°

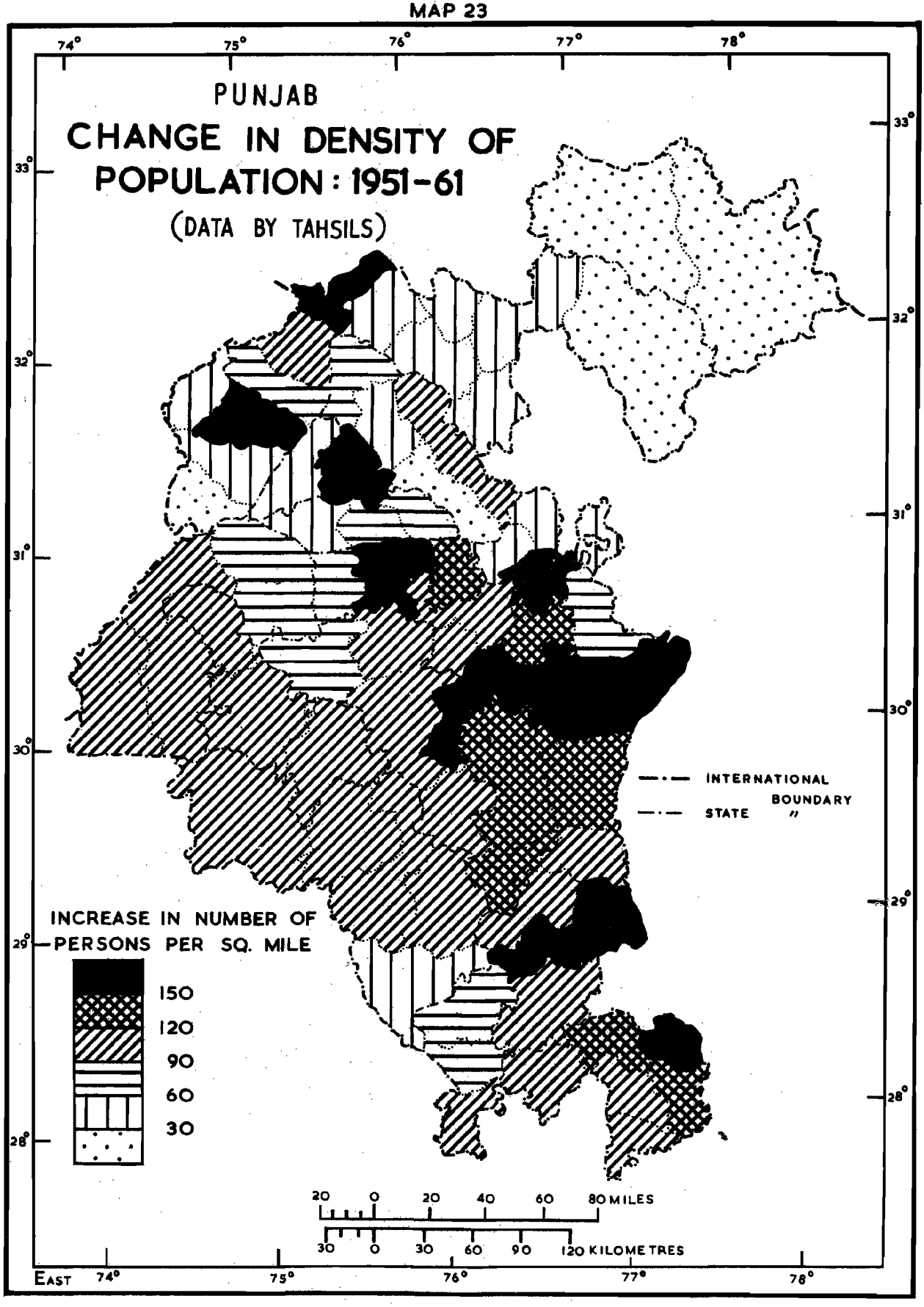
MAP 21


PUNJAB
NUTRITIONAL DENSITY
OF RURAL POPULATION
1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
NO. OF PERSONS PER SQUARE MILE
OF CULTIVATED LAND
1,000
800
600
400
200
NIL
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

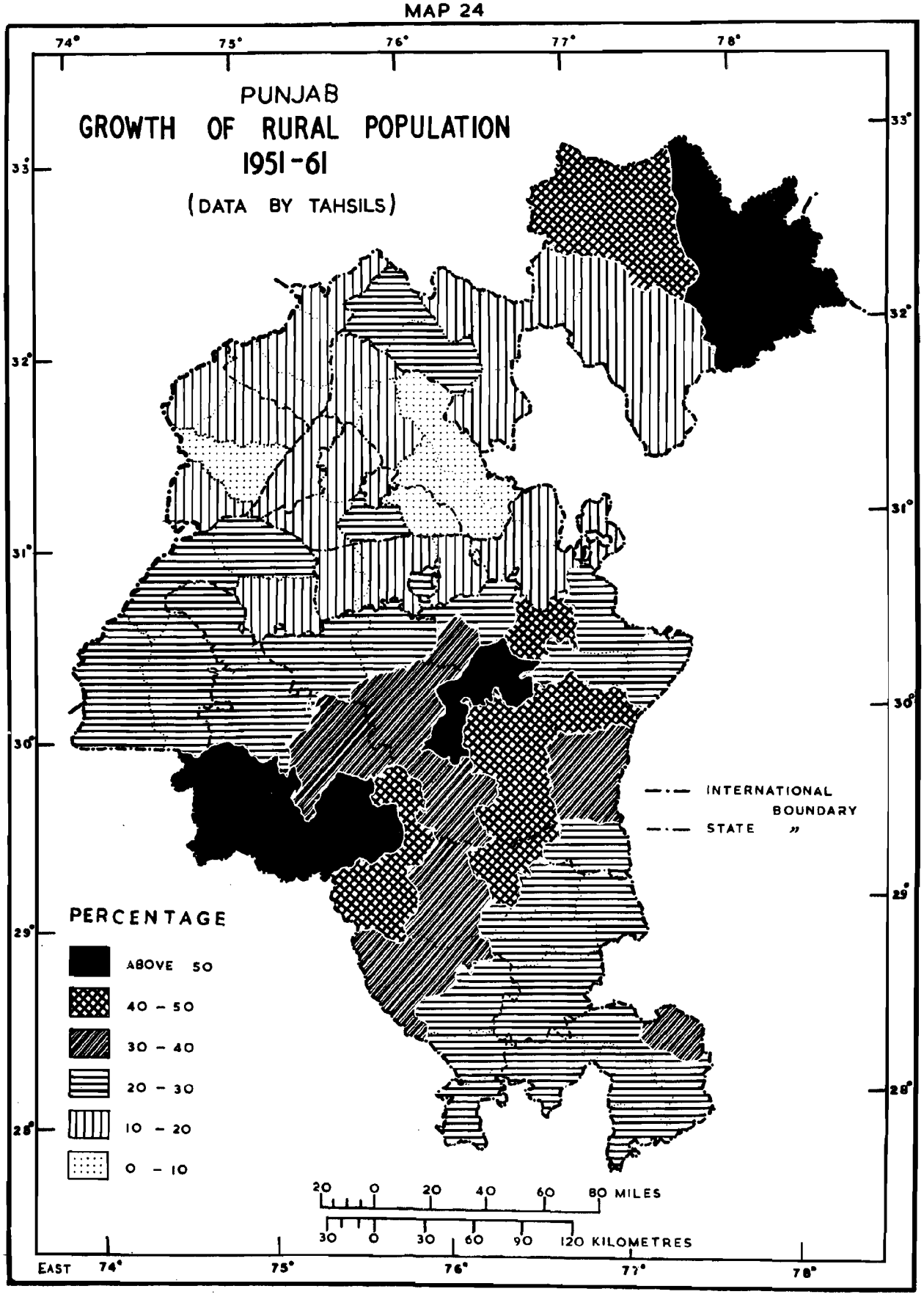
MAP 22


PUNJAB
GROWTH OF POPULATION
1951-61
(DATA BY TAHSILS)
WEST PAKISTAN
CHINA
INTERNATIONAL BOUNDARY
STATE »
PERCENTAGE
ABOVE 50
40-50
30-40
20-30
10-20
0-10
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

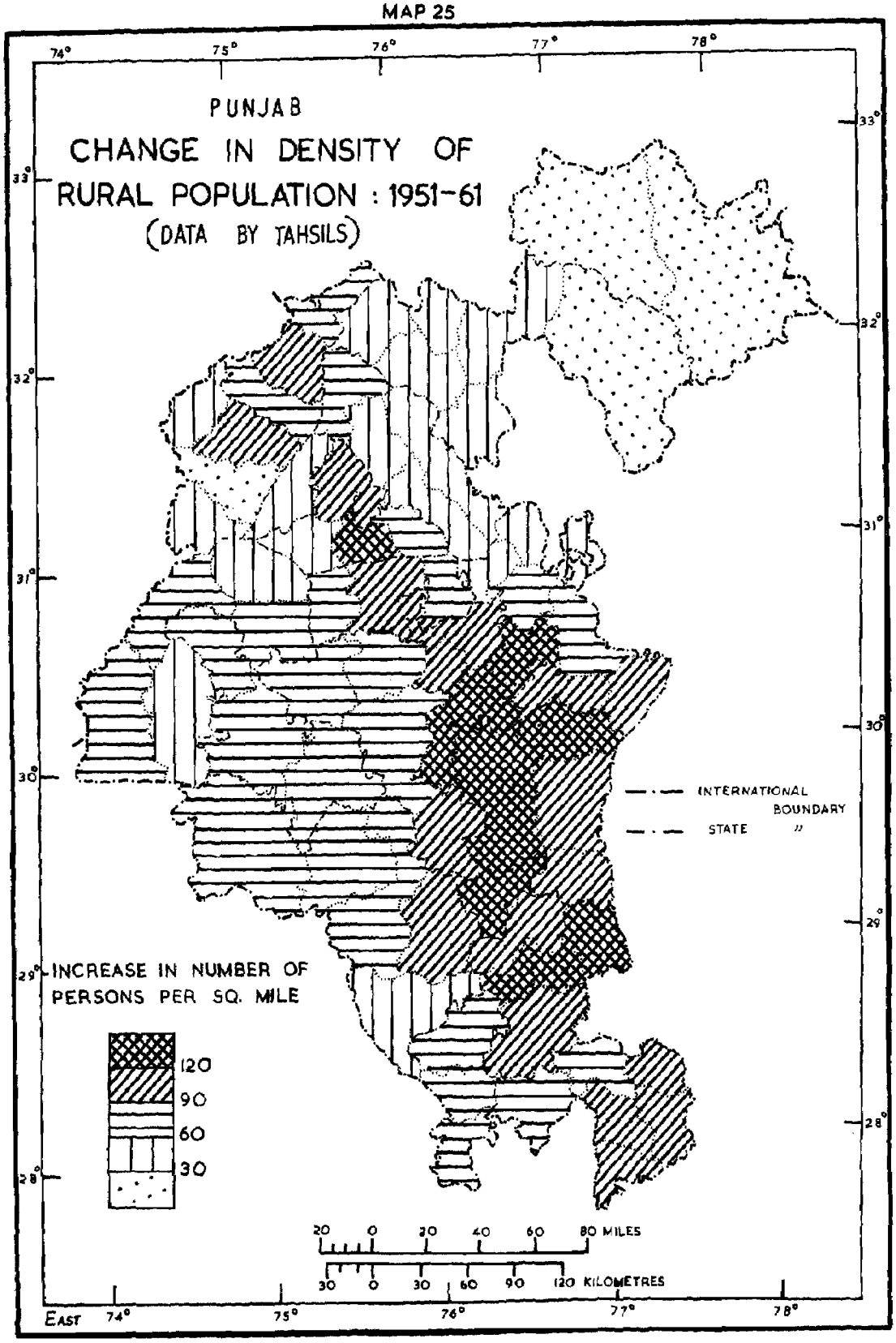
MAP 23


PUNJAB
CHANGE IN DENSITY OF POPULATION : 1951-61
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
INCREASE IN NUMBER OF PERSONS PER SQ. MILE
150
120
90
60
30
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

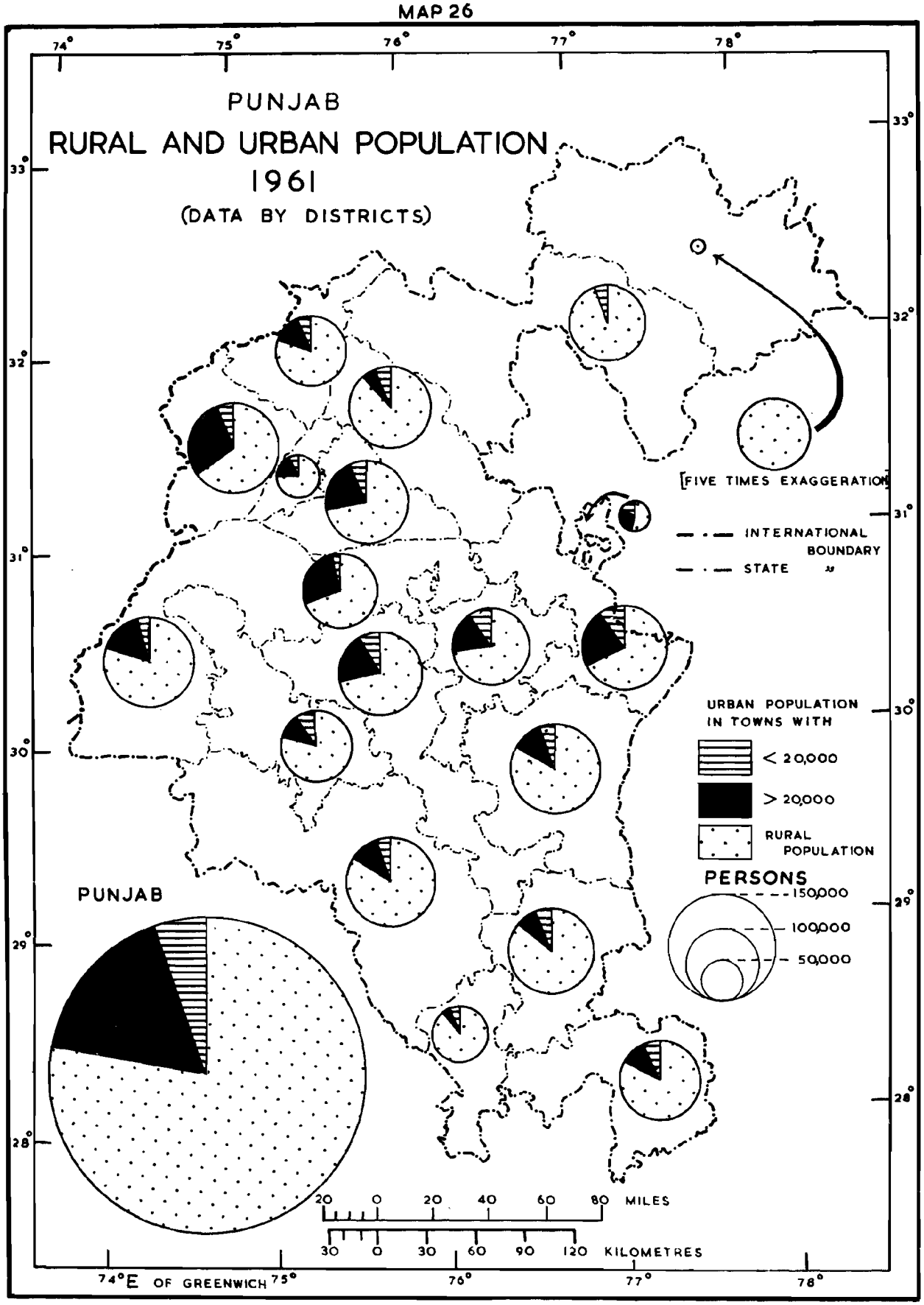
MAP 24


PUNJAB
GROWTH OF RURAL POPULATION
1951-61
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
ABOVE 50
40 - 50
30 - 40
20 - 30
10 - 20
0 - 10
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

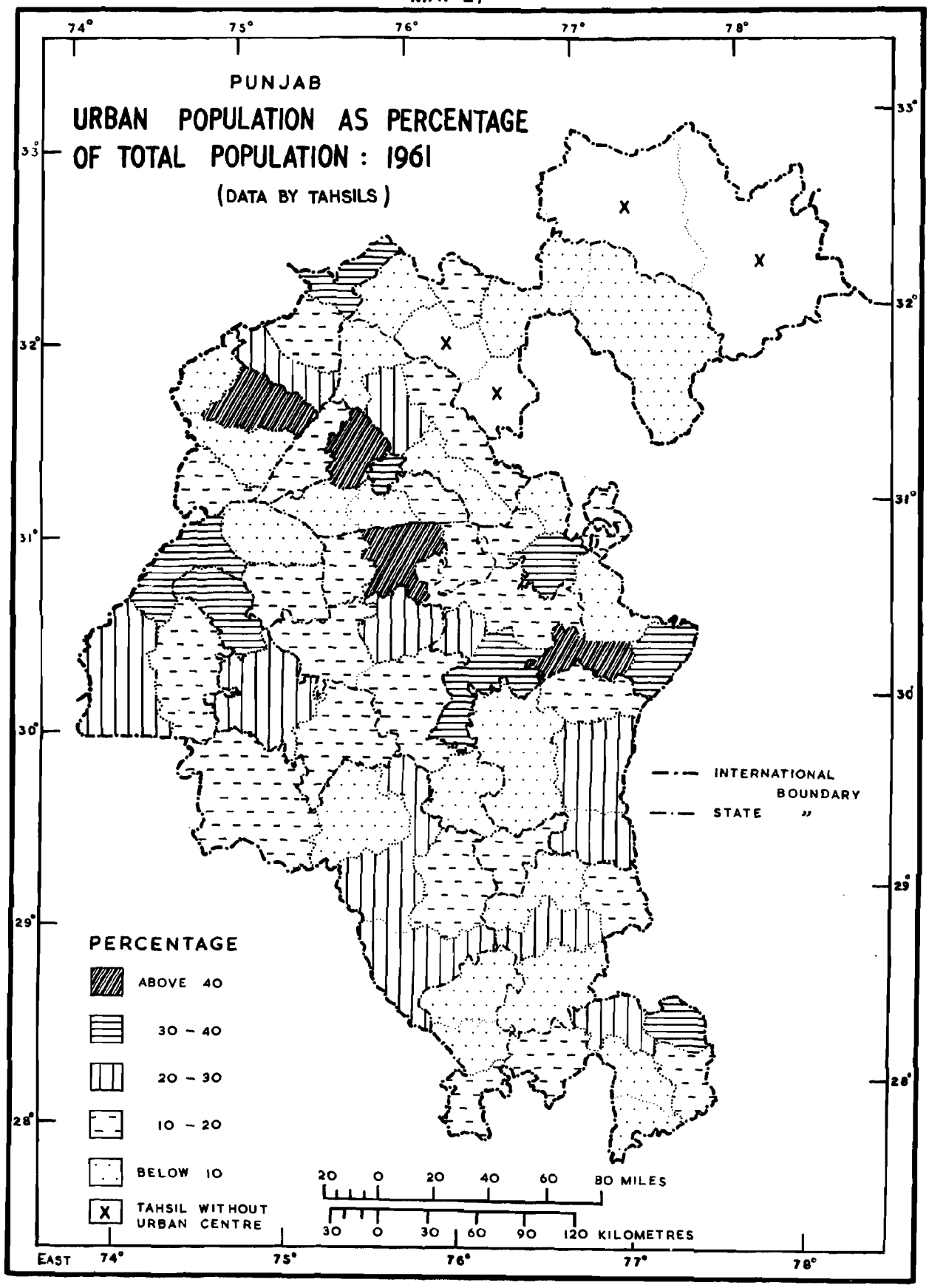
MAP 25


PUNJAB
CHANGE IN DENSITY OF RURAL POPULATION : 1951-61
(DATA BY TAHSILS)
INTERNATIONAL BOUNDARY
STATE "
INCREASE IN NUMBER OF PERSONS PER SQ. MILE
120
90
60
30
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

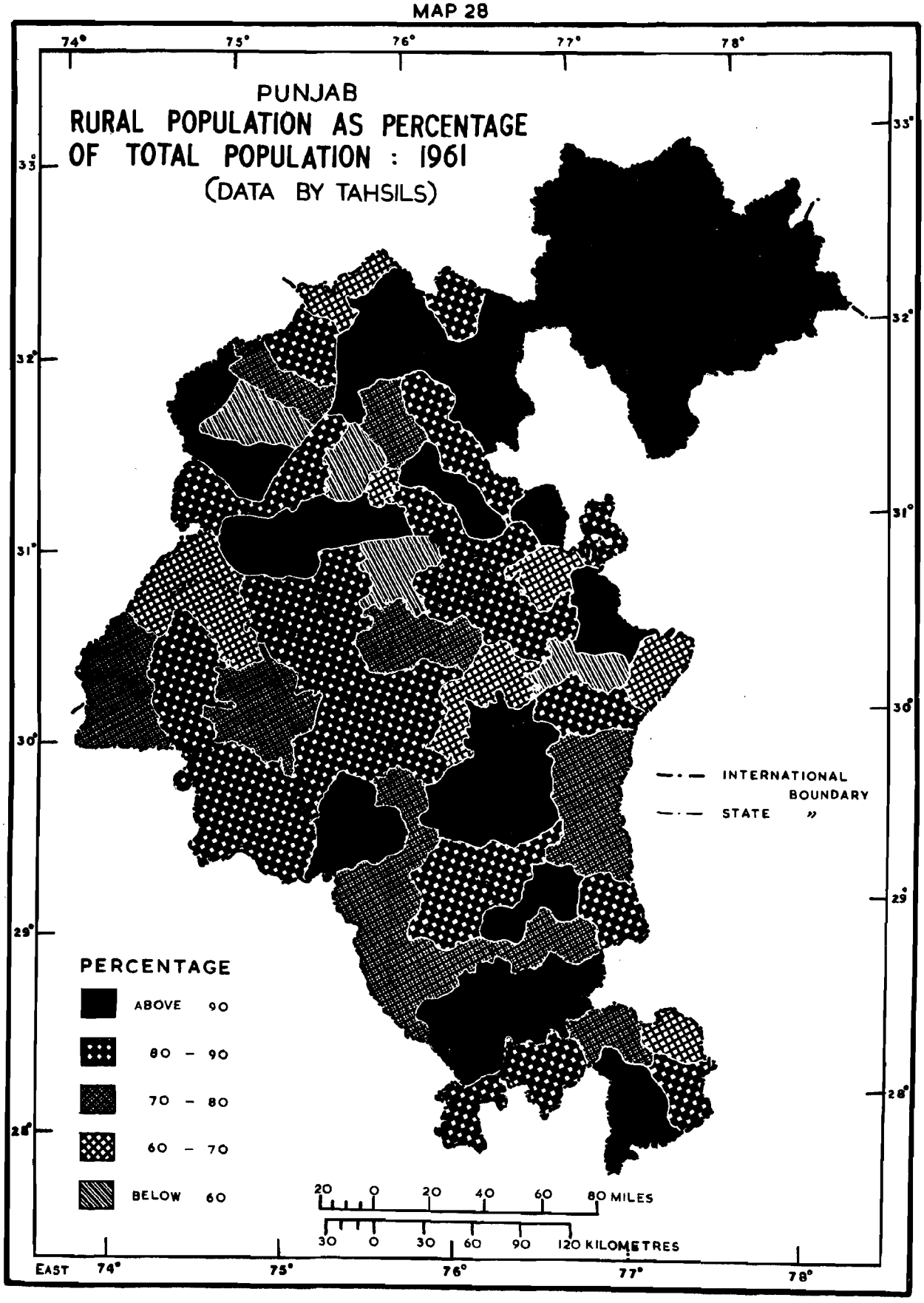
MAP 26


PUNJAB
RURAL AND URBAN POPULATION
1961
(DATA BY DISTRICTS)
FIVE TIMES EXAGGERATION
INTERNATIONAL BOUNDARY
STATE
URBAN POPULATION IN TOWNS WITH
< 20,000
> 20,000
RURAL POPULATION
PERSONS
150,000
100,000
50,000
PUNJAB
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° E OF GREENWICH
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

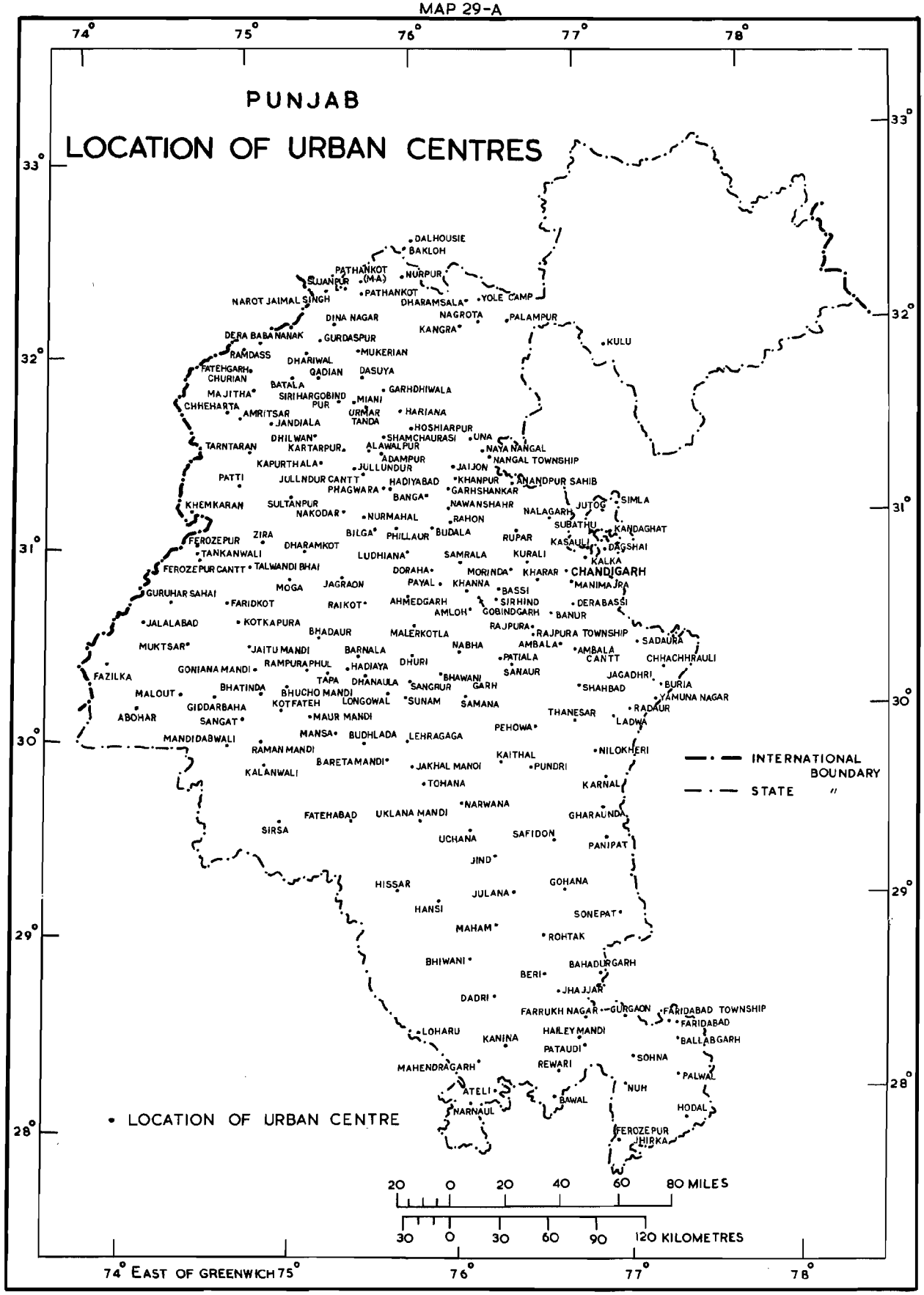
MAP 27


PUNJAB
URBAN POPULATION AS PERCENTAGE OF TOTAL POPULATION : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
ABOVE 40
30 - 40
20 - 30
10 - 20
BELOW 10
TAHSIL WITHOUT URBAN CENTRE
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

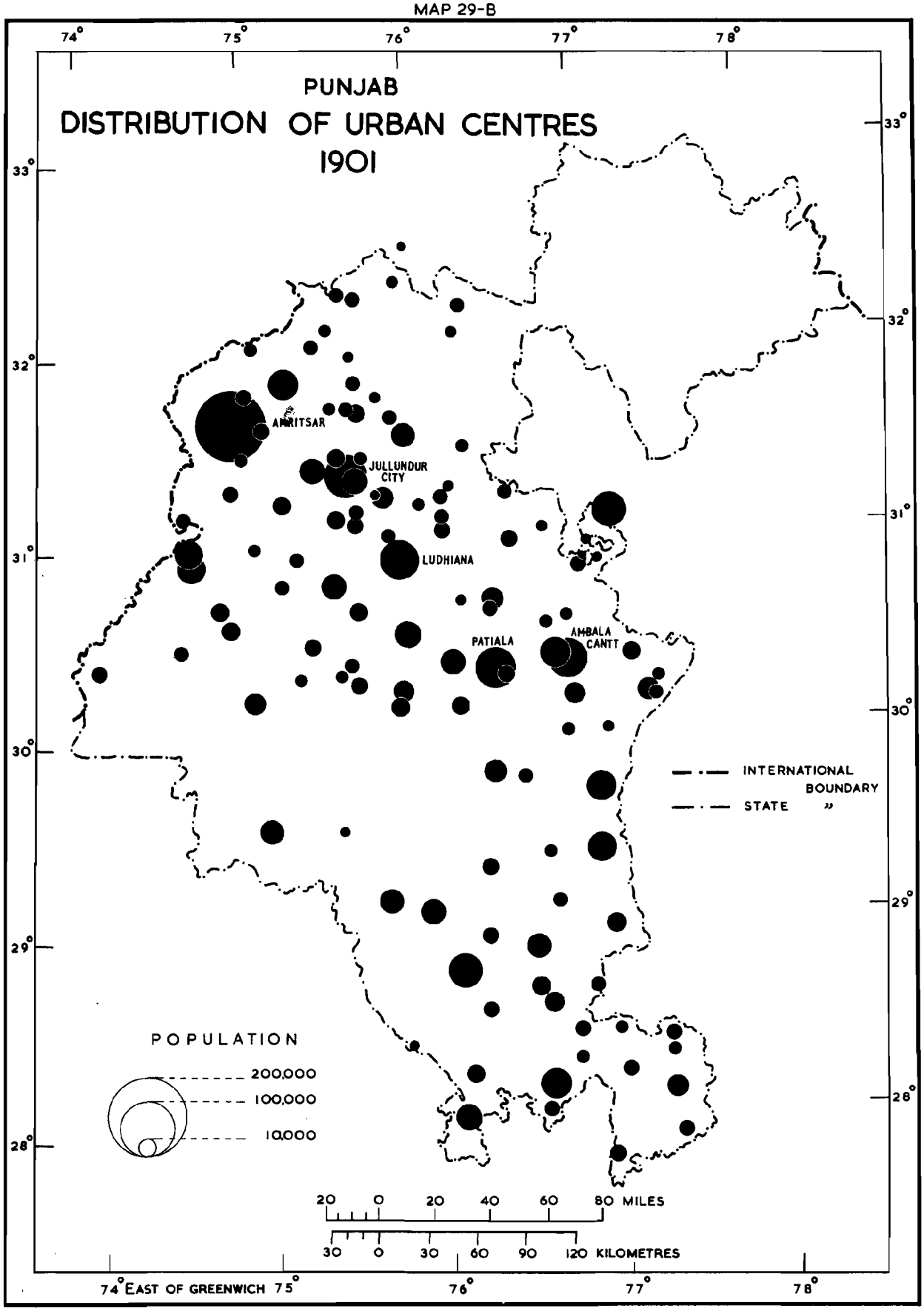
MAP 28


PUNJAB
RURAL POPULATION AS PERCENTAGE OF TOTAL POPULATION : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
ABOVE 90
80 - 90
70 - 80
60 - 70
BELOW 60
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

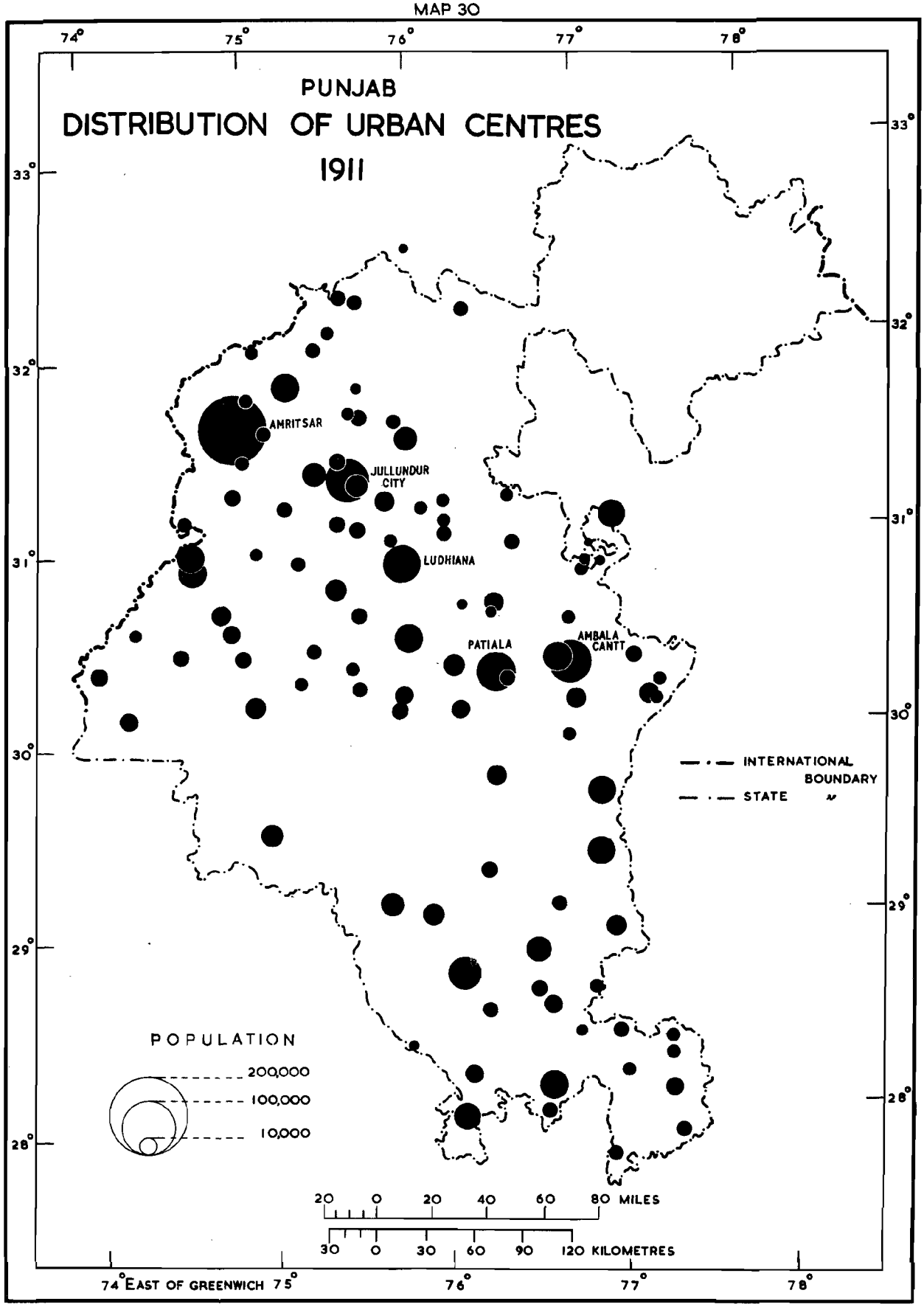
MAP 29-A


PUNJAB
LOCATION OF URBAN CENTRES
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
DALHOUSIE
BAKLOH
PATHANKOT (M.A)
SUJANPUR
NURPUR
PATHANKOT
NAROT JAIMAL SINGH
DHARAMSALA
YOLE CAMP
DINA NAGAR
NAGROTA
PALAMPUR
KANGRA
DERA BABA NANAK
GURDASPUR
KULU
RAMDASS
MUKERIAN
DHARIWAL
FATEHGARH CHURIAN
QADIAN
DASUYA
BATALA
GARHDHIWALA
MAJITHA
SIRIHARGOBIND PUR
MIANI
CHHEHARTA
AMRITSAR
URMAR TANDA
HARIANA
JANDIALA
HOSHIARPUR
DHILWAN
SHAMCHAURASI
UNA
TARNTARAN
KARTARPUR
ALAWALPUR
NAYA NANGAL
NANGAL TOWNSHIP
KAPURTHALA
ADAMPUR
JULLUNDUR
JAIJON
PATTI
JULLUNDUR CANTT
HADIYABAD
KHANPUR
ANANDPUR SAHIB
PHAGWARA
GARHSHANKAR
BANGA
SIMLA
KHEMKARAN
SULTANPUR
NAWANSHAHR
JUTOG
NAKODAR
NURMAHAL
RAHON
NALAGARH
SUBATHU
KANDAGHAT
FEROZEPUR
ZIRA
BILGA
PHILLAUR
BUDALA
RUPAR
KASAULI
DAGSHAI
DHARAMKOT
TANKANWALI
LUDHIANA
SAMRALA
KURALI
KALKA
FEROZEPUR CANTT
TALWANDI BHAI
DORAHA
MORINDA
KHARAR
CHANDIGARH
MOGA
JAGRAON
PAYAL
KHANNA
MANIMAJRA
BASSI
GURUHAR SAHAI
FARIDKOT
RAIKOT
AHMEDGARH
SIRHIND
DERABASSI
AMLOH
GOBINDGARH
BANUR
JALALABAD
KOTKAPURA
BHADAUR
MALERKOTLA
RAJPURA
RAJPURA TOWNSHIP
SADAURA
MUKTSAR
JAITU MANDI
BARNALA
NABHA
AMBALA
AMBALA CANTT
CHHACHHRAULI
PATIALA
RAMPURA PHUL
DHURI
SANAUR
GONIANA MANDI
HADIAYA
JAGADHRI
FAZILKA
TAPA
DHANAULA
BHAWANI
SHAHBAD
BHATINDA
SANGRUR
GARH
BURIA
MALOUT
BHUCHO MANDI
LONGOWAL
SUNAM
SAMANA
YAMUNA NAGAR
KOTFATEH
GIDDARBAHA
THANESAR
RADAUR
ABOHAR
SANGAT
MAUR MANDI
LADWA
PEHOWA
MANSA
BUDHLADA
LEHRAGAGA
MANDIDABWALI
RAMAN MANDI
NILOKHERI
KAITHAL
BARETA MANDI
JAKHAL MANDI
PUNDRI
KALANWALI
TOHANA
KARNAL
NARWANA
FATEHABAD
UKLANA MANDI
GHARAUNDA
SIRSA
UCHANA
SAFIDON
PANIPAT
JIND
HISSAR
GOHANA
JULANA
HANSI
SONEPAT
MAHAM
ROHTAK
BHIWANI
BAHADURGARH
BERI
JHAJJAR
DADRI
FARRUKH NAGAR
GURGAON
FARIDABAD TOWNSHIP
FARIDABAD
LOHARU
KANINA
HAILEY MANDI
BALLABGARH
PATAUDI
SOHNA
MAHENDRAGARH
REWARI
PALWAL
ATELI
NUH
BAWAL
NARNAUL
HODAL
FEROZEPUR JHIRKA
INTERNATIONAL BOUNDARY
STATE "
• LOCATION OF URBAN CENTRE
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

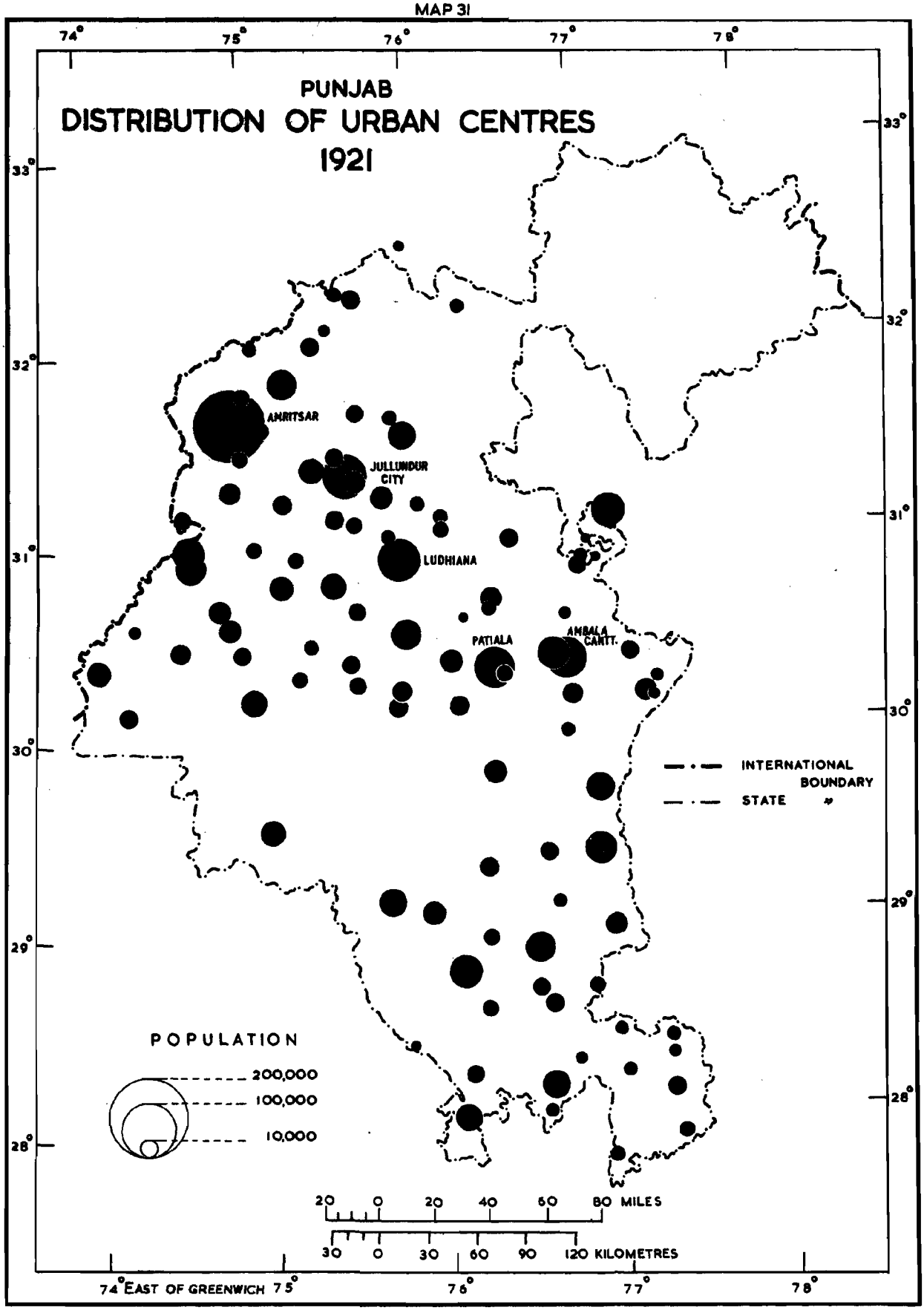
MAP 29-B


PUNJAB
DISTRIBUTION OF URBAN CENTRES
1901
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
AMRITSAR
JULLUNDUR CITY
LUDHIANA
PATIALA
AMBALA CANTT
INTERNATIONAL BOUNDARY
STATE "
POPULATION
200,000
100,000
10,000
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

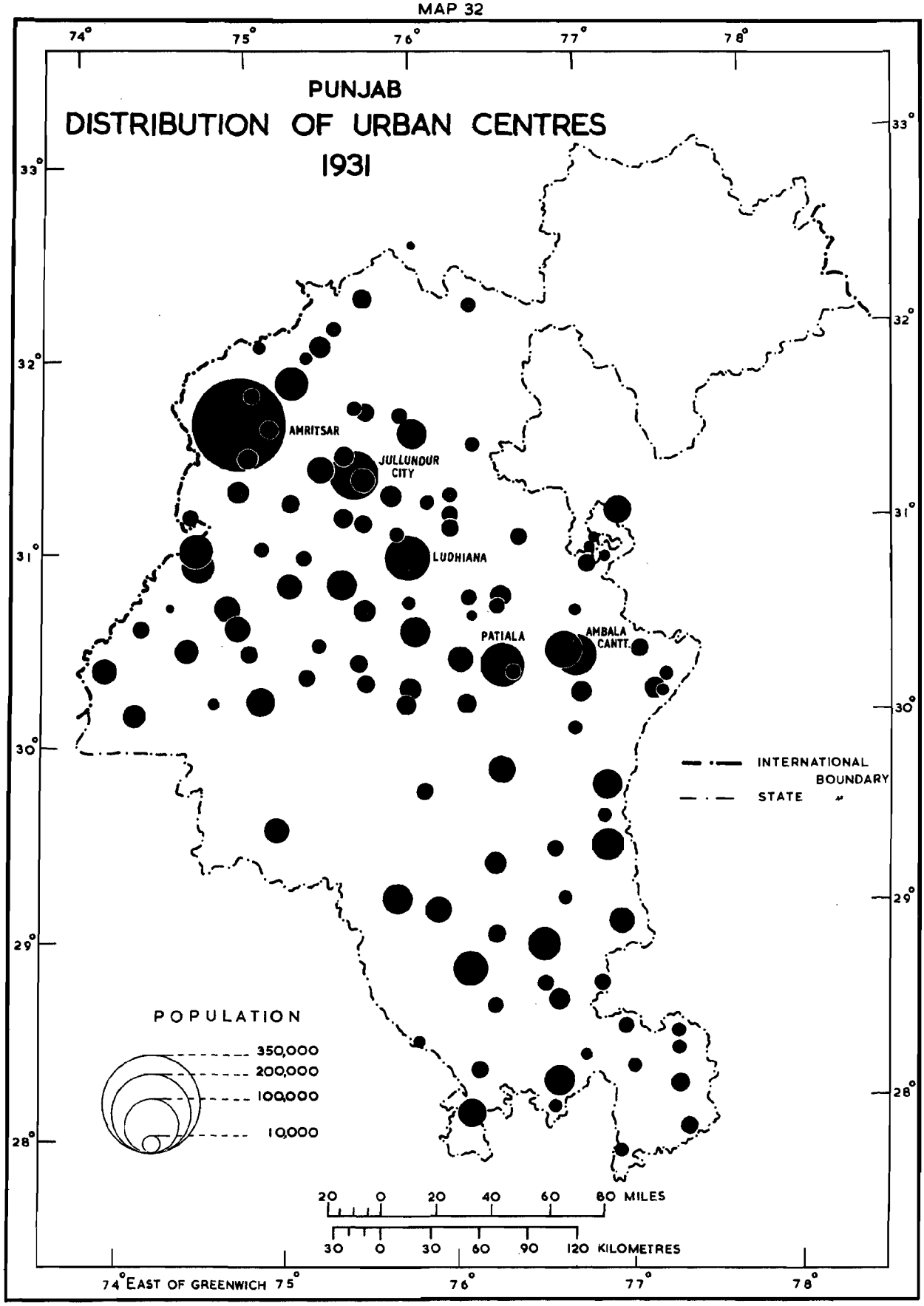
MAP 30


PUNJAB
DISTRIBUTION OF URBAN CENTRES
1911
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
AMRITSAR
JULLUNDUR CITY
LUDHIANA
PATIALA
AMBALA CANTT
INTERNATIONAL BOUNDARY
STATE
POPULATION
200,000
100,000
10,000
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

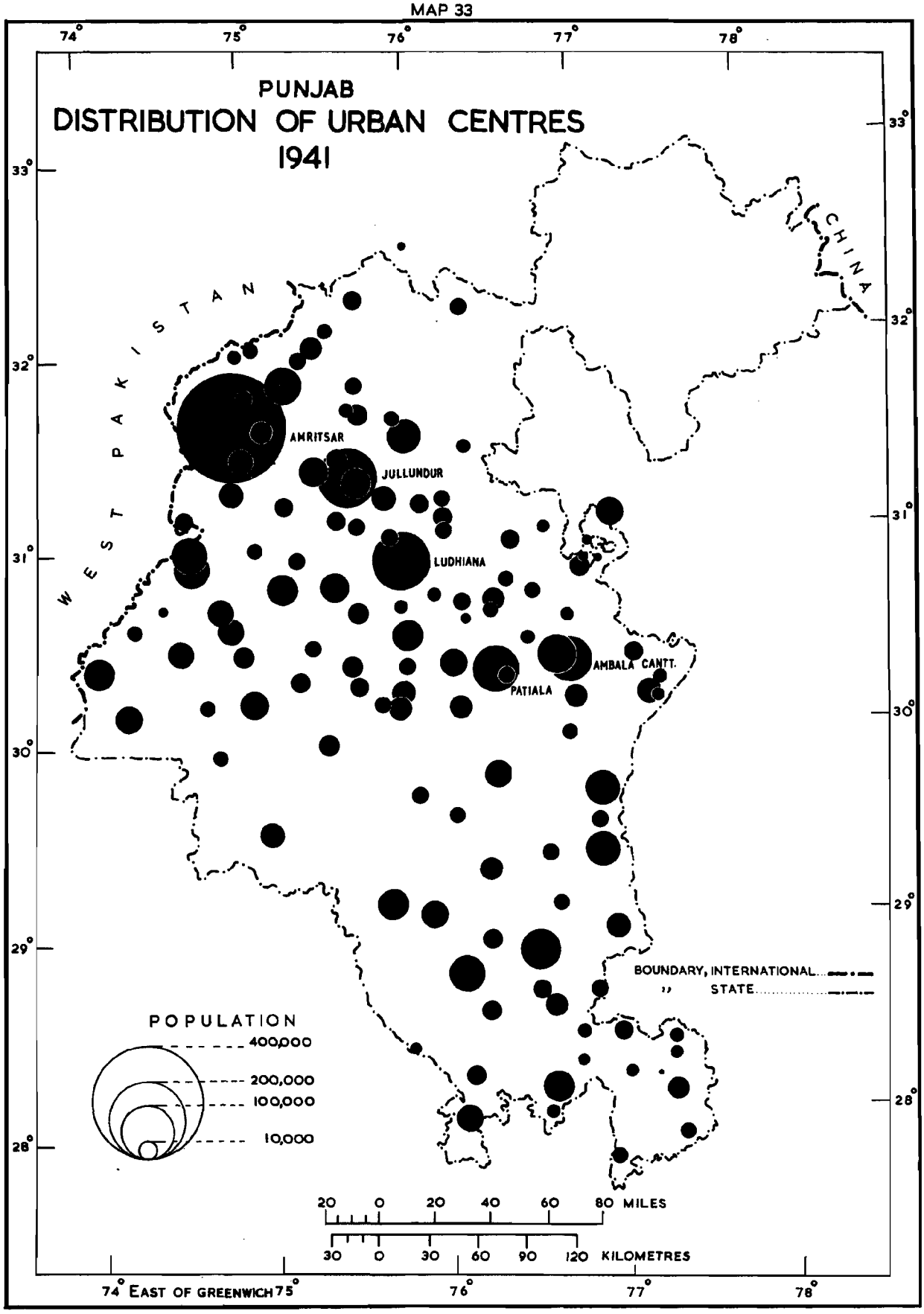
MAP 31


PUNJAB
DISTRIBUTION OF URBAN CENTRES
1921
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
AMRITSAR
JULLUNDUR CITY
LUDHIANA
PATIALA
AMBALA CANTT.
INTERNATIONAL BOUNDARY
STATE
POPULATION
200,000
100,000
10,000
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

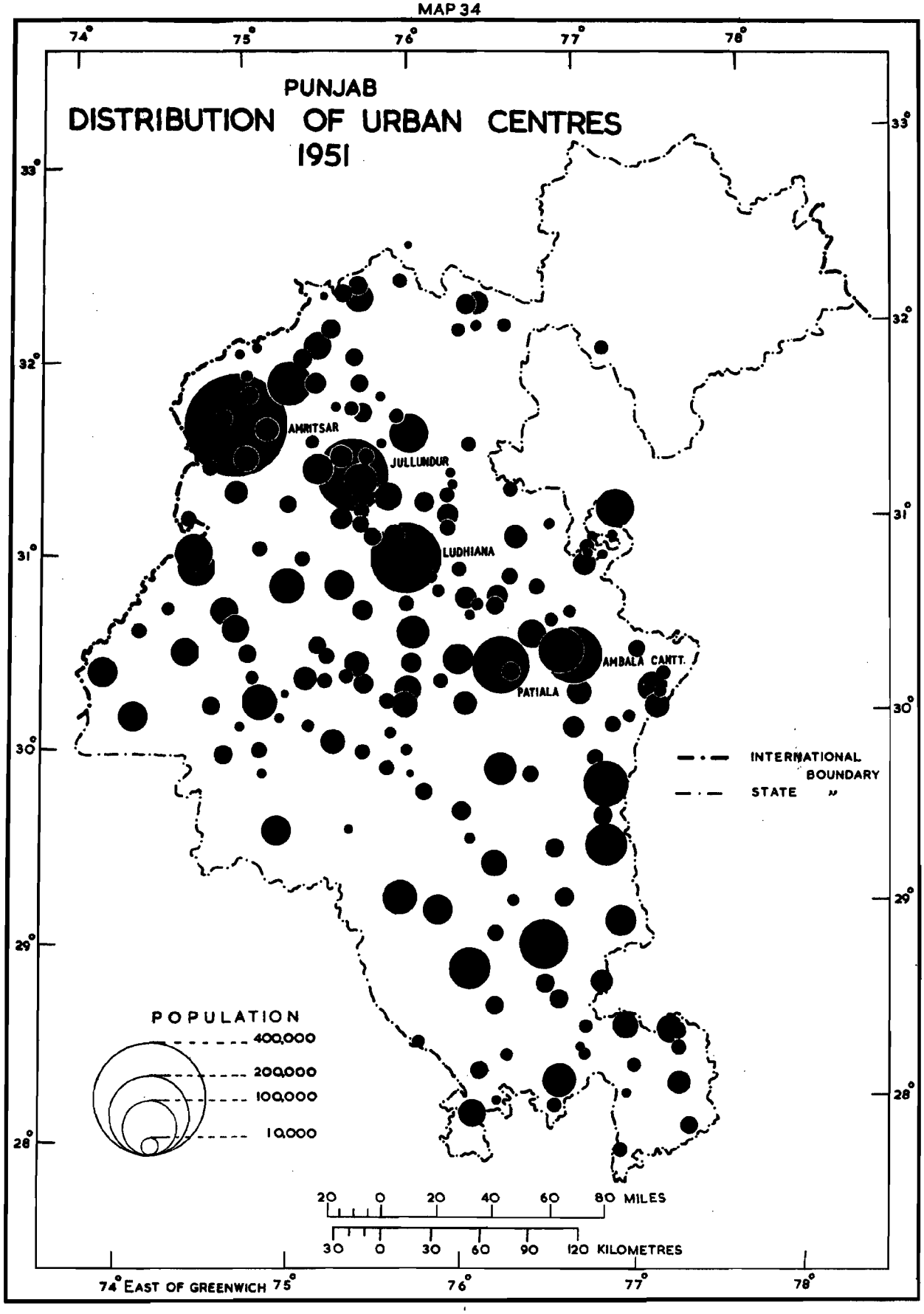
MAP 32


PUNJAB
DISTRIBUTION OF URBAN CENTRES
1931
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
AMRITSAR
JULLUNDUR CITY
LUDHIANA
PATIALA
AMBALA CANTT.
INTERNATIONAL BOUNDARY
STATE
POPULATION
350,000
200,000
100,000
10,000
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75° 76° 77° 78°

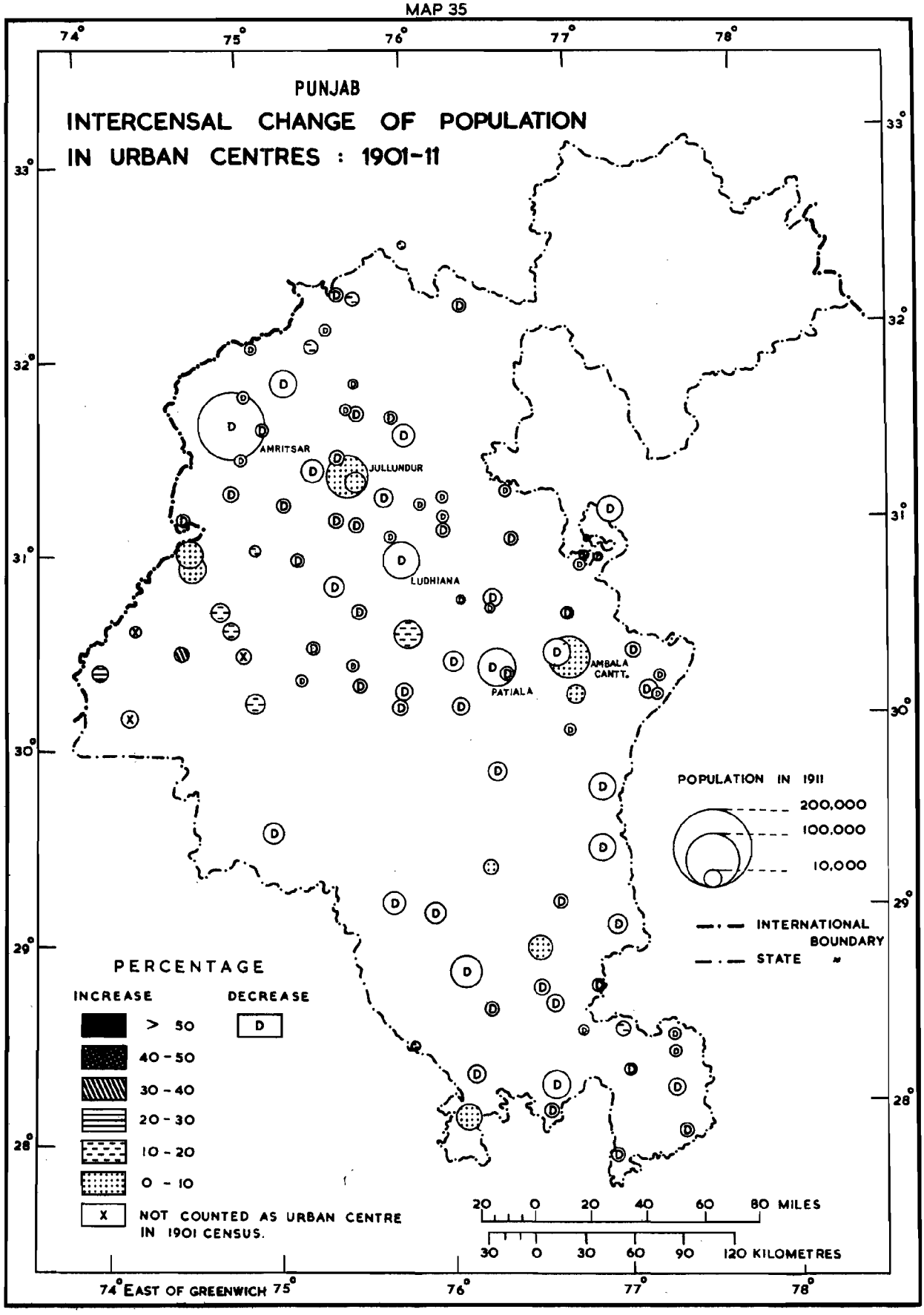
MAP 33


PUNJAB
DISTRIBUTION OF URBAN CENTRES
1941
WEST PAKISTAN
CHINA
AMRITSAR
JULLUNDUR
LUDHIANA
AMBALA CANTT.
PATIALA
BOUNDARY, INTERNATIONAL
" STATE
POPULATION
400,000
200,000
100,000
10,000
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

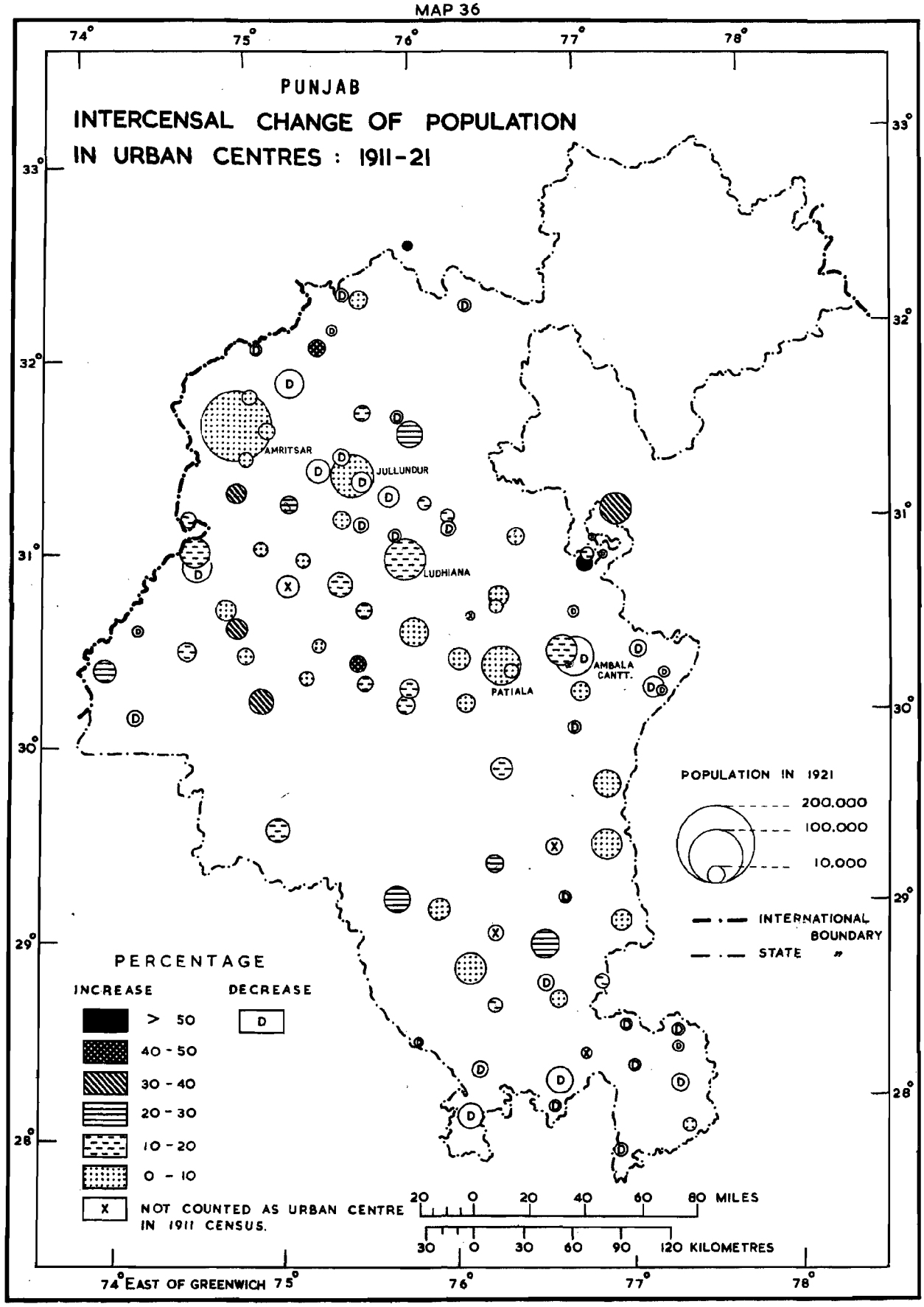
MAP 34


PUNJAB
DISTRIBUTION OF URBAN CENTRES
1951
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
AMRITSAR
JULLUNDUR
LUDHIANA
PATIALA
AMBALA CANTT.
INTERNATIONAL BOUNDARY
STATE "
POPULATION
400,000
200,000
100,000
10,000
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

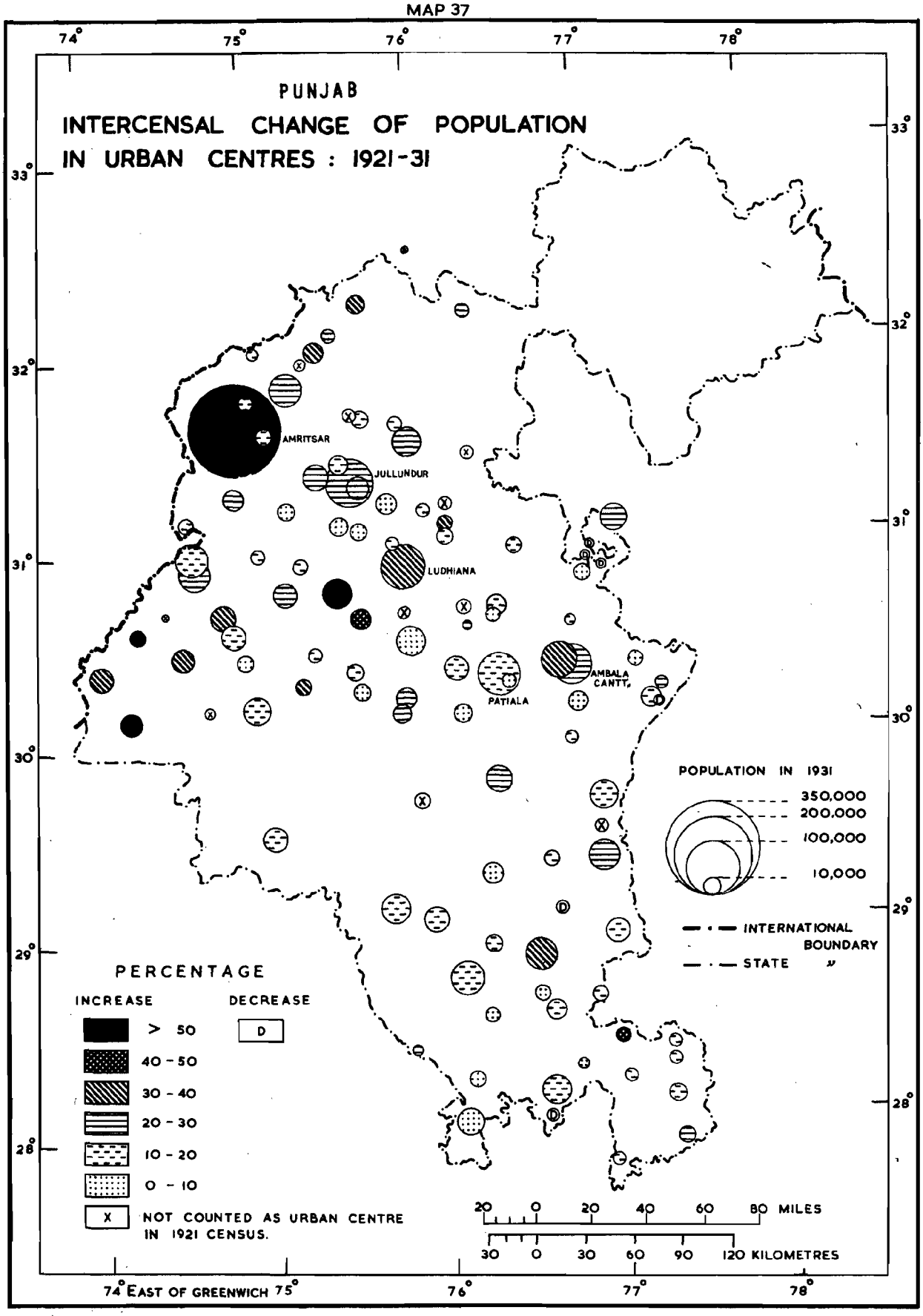
MAP 35


PUNJAB
INTERCENSAL CHANGE OF POPULATION
IN URBAN CENTRES : 1901-11
AMRITSAR
JULLUNDUR
LUDHIANA
PATIALA
AMBALA CANTT.
POPULATION IN 1911
200,000
100,000
10,000
INTERNATIONAL BOUNDARY
STATE
PERCENTAGE
INCREASE
DECREASE
> 50
40 - 50
30 - 40
20 - 30
10 - 20
0 - 10
D
X
NOT COUNTED AS URBAN CENTRE IN 1901 CENSUS.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

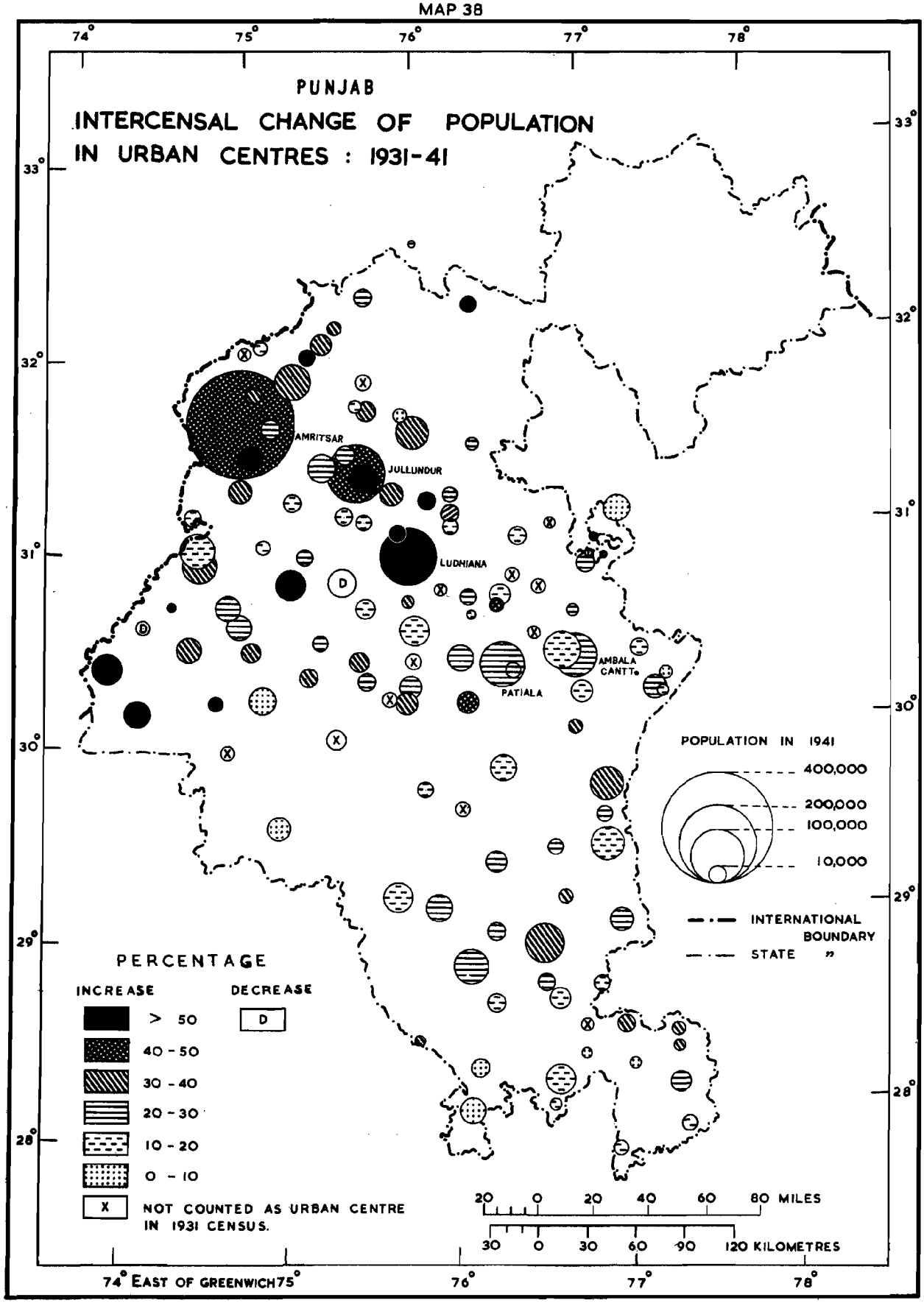
MAP 36


PUNJAB
INTERCENSAL CHANGE OF POPULATION
IN URBAN CENTRES : 1911-21
AMRITSAR
JULLUNDUR
LUDHIANA
PATIALA
AMBALA CANTT.
POPULATION IN 1921
200,000
100,000
10,000
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
INCREASE
DECREASE
> 50
40 - 50
30 - 40
20 - 30
10 - 20
0 - 10
D
X
NOT COUNTED AS URBAN CENTRE IN 1911 CENSUS.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
74° 75° 76° 77° 78°
33° 32° 31° 30° 29° 28°

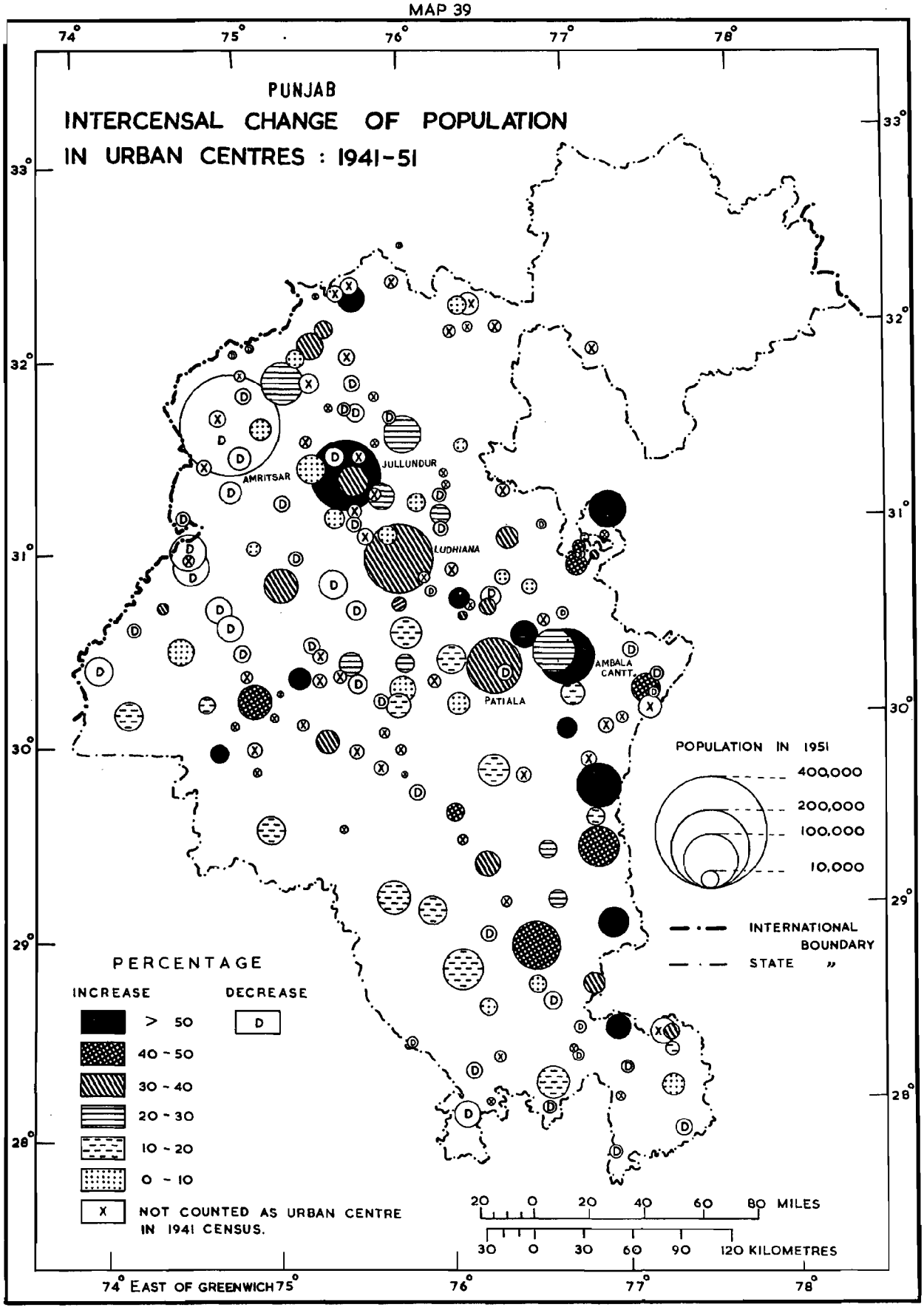
MAP 37


PUNJAB
INTERCENSAL CHANGE OF POPULATION
IN URBAN CENTRES : 1921-31
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
AMRITSAR
JULLUNDUR
LUDHIANA
PATIALA
AMBALA CANTT.
POPULATION IN 1931
350,000
200,000
100,000
10,000
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
INCREASE
DECREASE
> 50
40 - 50
30 - 40
20 - 30
10 - 20
0 - 10
D
X
NOT COUNTED AS URBAN CENTRE IN 1921 CENSUS.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

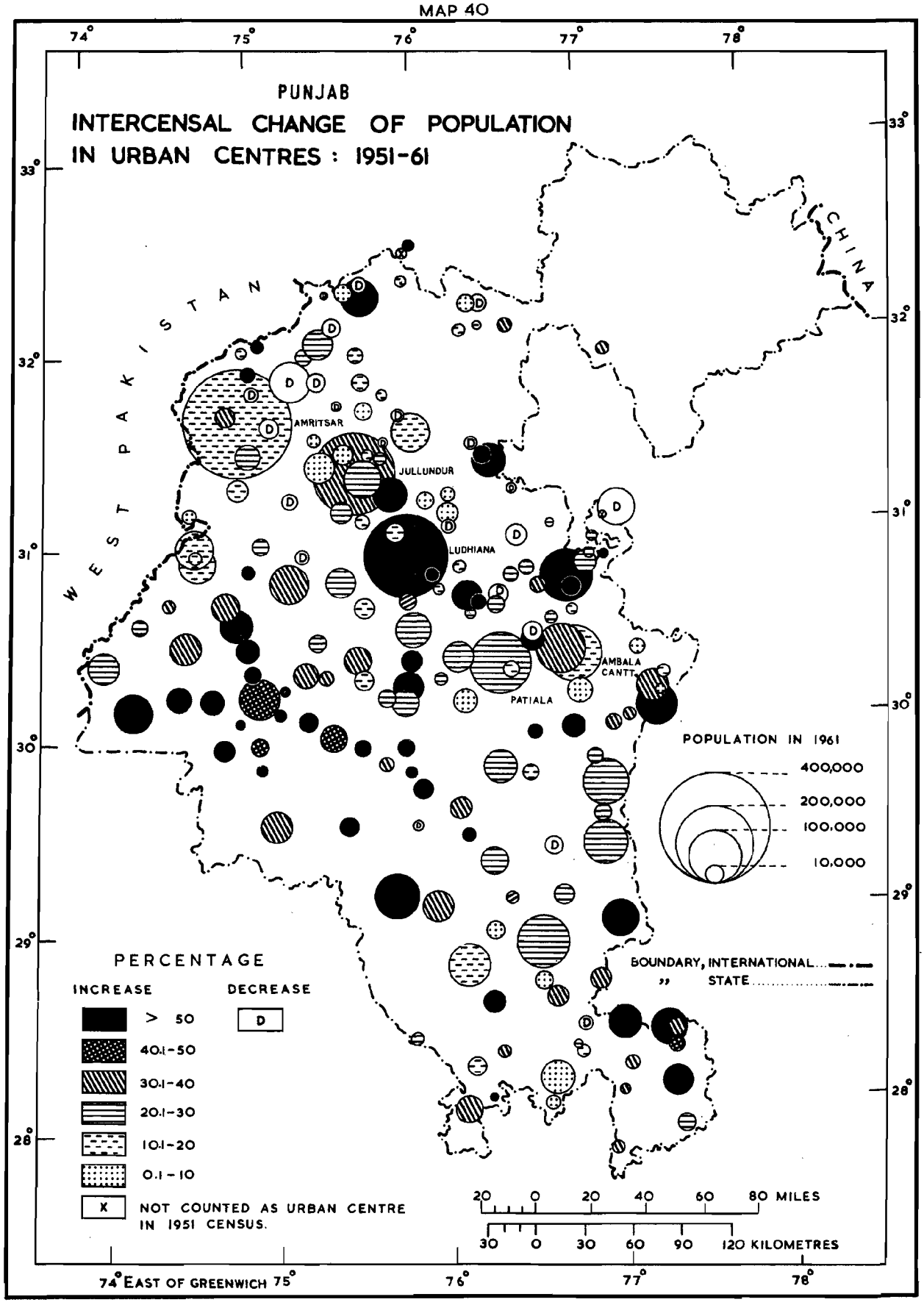
MAP 38


PUNJAB
INTERCENSAL CHANGE OF POPULATION
IN URBAN CENTRES : 1931-41
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
AMRITSAR
JULLUNDUR
LUDHIANA
PATIALA
AMBALA CANTT.
POPULATION IN 1941
400,000
200,000
100,000
10,000
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
INCREASE
DECREASE
> 50
40 - 50
30 - 40
20 - 30
10 - 20
0 - 10
D
X
NOT COUNTED AS URBAN CENTRE IN 1931 CENSUS.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

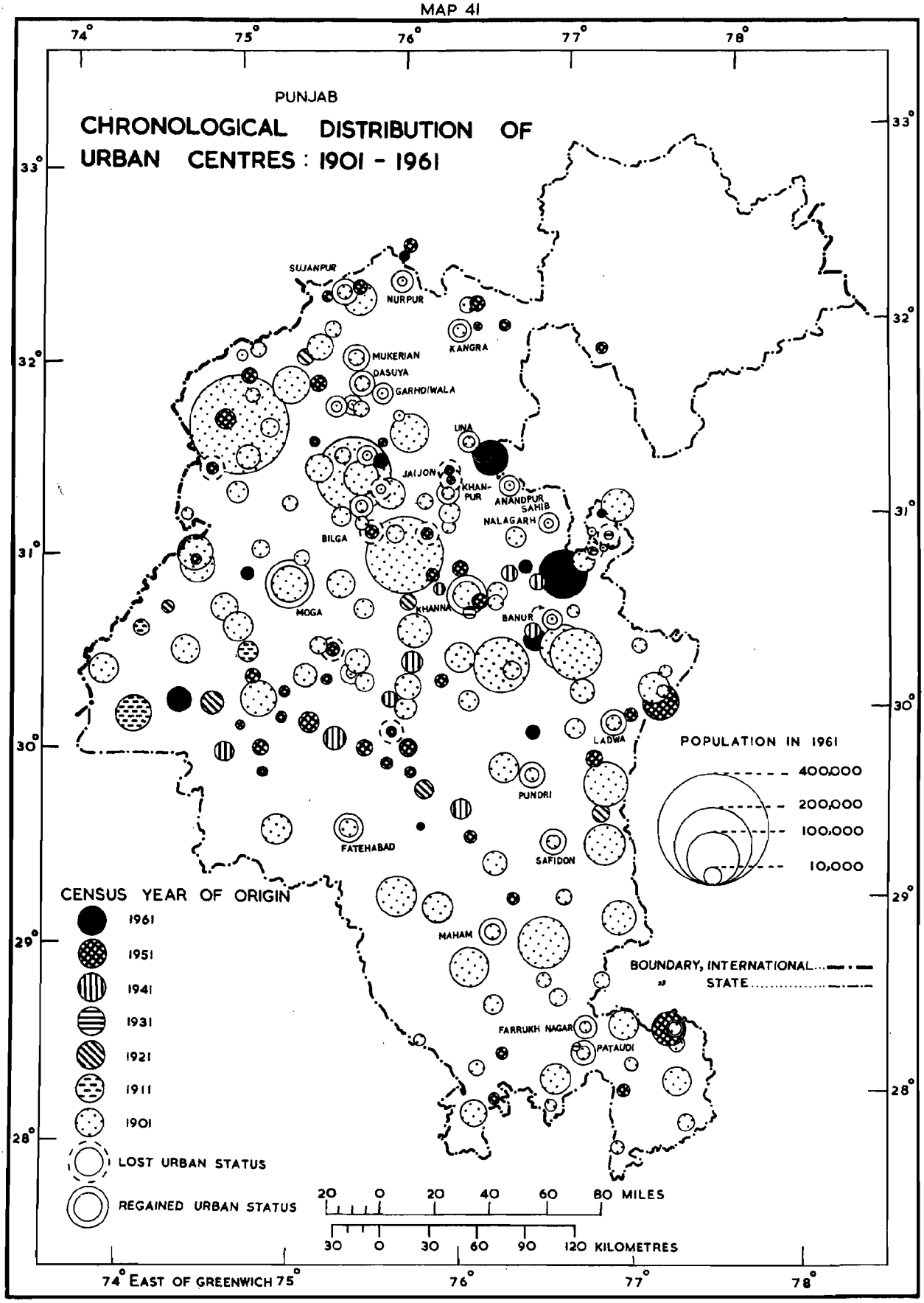
MAP 39


PUNJAB
INTERCENSAL CHANGE OF POPULATION
IN URBAN CENTRES : 1941-51
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
AMRITSAR
JULLUNDUR
LUDHIANA
PATIALA
AMBALA CANTT.
POPULATION IN 1951
400,000
200,000
100,000
10,000
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
INCREASE
DECREASE
> 50
40 - 50
30 - 40
20 - 30
10 - 20
0 - 10
D
X
NOT COUNTED AS URBAN CENTRE IN 1941 CENSUS.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75°

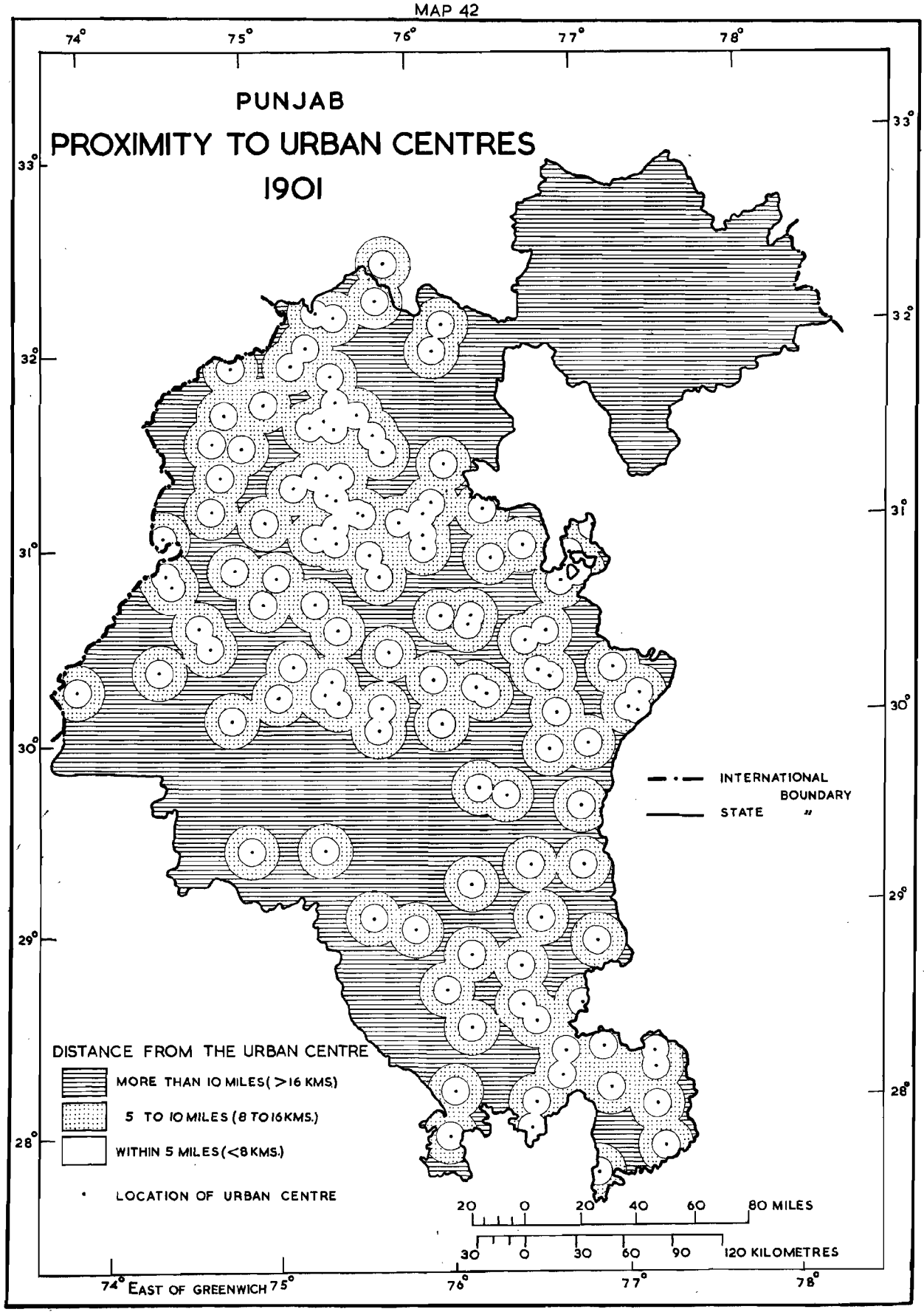
MAP 40


PUNJAB
INTERCENSAL CHANGE OF POPULATION
IN URBAN CENTRES : 1951-61
WEST PAKISTAN
CHINA
AMRITSAR
JULLUNDUR
LUDHIANA
PATIALA
AMBALA CANTT.
POPULATION IN 1961
400,000
200,000
100,000
10,000
PERCENTAGE
INCREASE
DECREASE
> 50
40.1-50
30.1-40
20.1-30
10.1-20
0.1-10
D
X
NOT COUNTED AS URBAN CENTRE IN 1951 CENSUS.
BOUNDARY, INTERNATIONAL
" STATE
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
74° 75° 76° 77° 78°
33° 32° 31° 30° 29° 28°

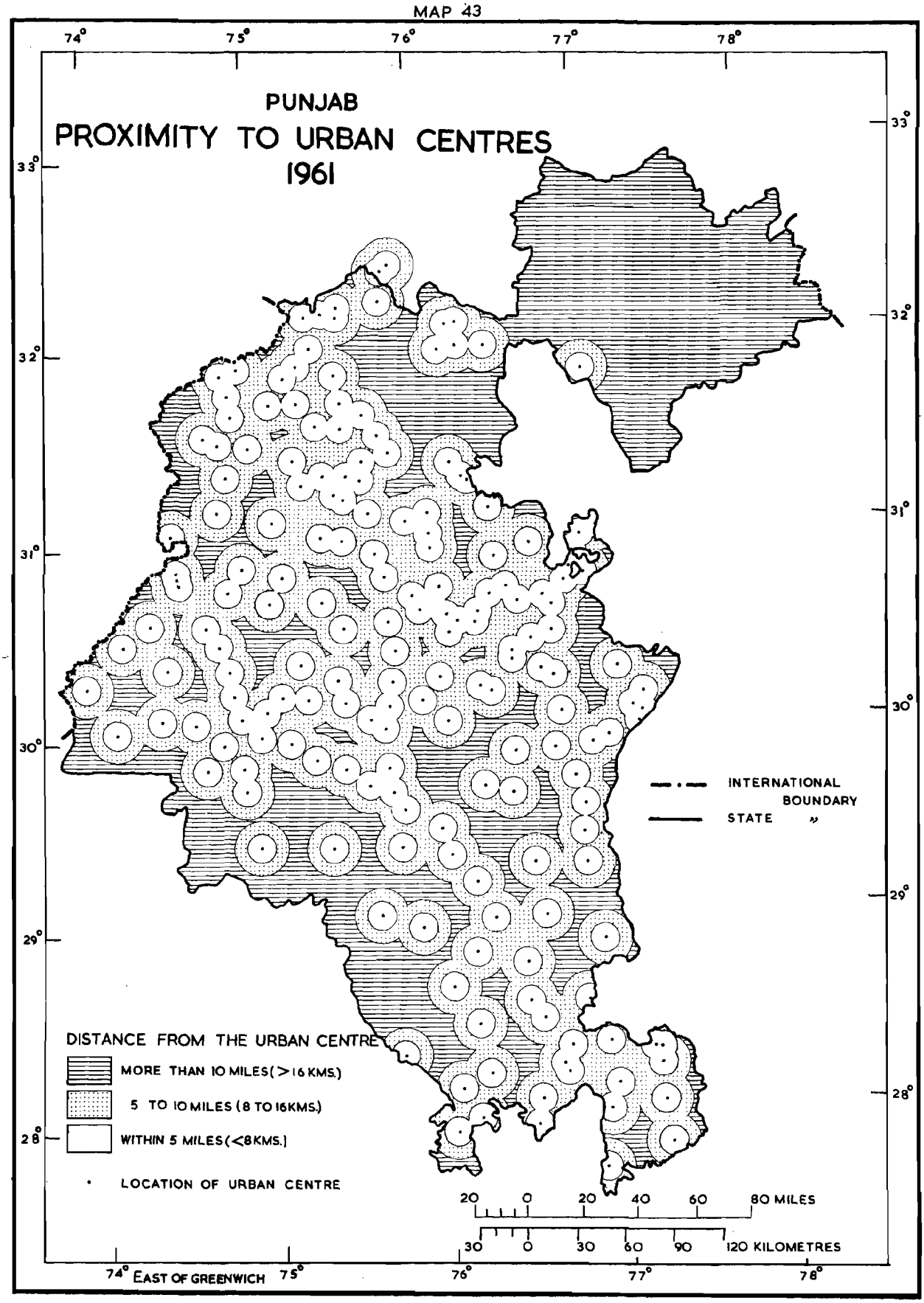
MAP 41


PUNJAB
CHRONOLOGICAL DISTRIBUTION OF URBAN CENTRES : 1901 - 1961
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
SUJANPUR
NURPUR
KANGRA
MUKERIAN
DASUYA
GARHDIWALA
UNA
JAIJON
KHAN-PUR
ANANDPUR SAHIB
NALAGARH
BILGA
MOGA
KHANNA
BANUR
LADWA
PUNDRI
FATEHABAD
SAFIDON
MAHAM
FARRUKH NAGAR
PATAUDI
POPULATION IN 1961
400,000
200,000
100,000
10,000
CENSUS YEAR OF ORIGIN
1961
1951
1941
1931
1921
1911
1901
LOST URBAN STATUS
REGAINED URBAN STATUS
BOUNDARY, INTERNATIONAL
STATE
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

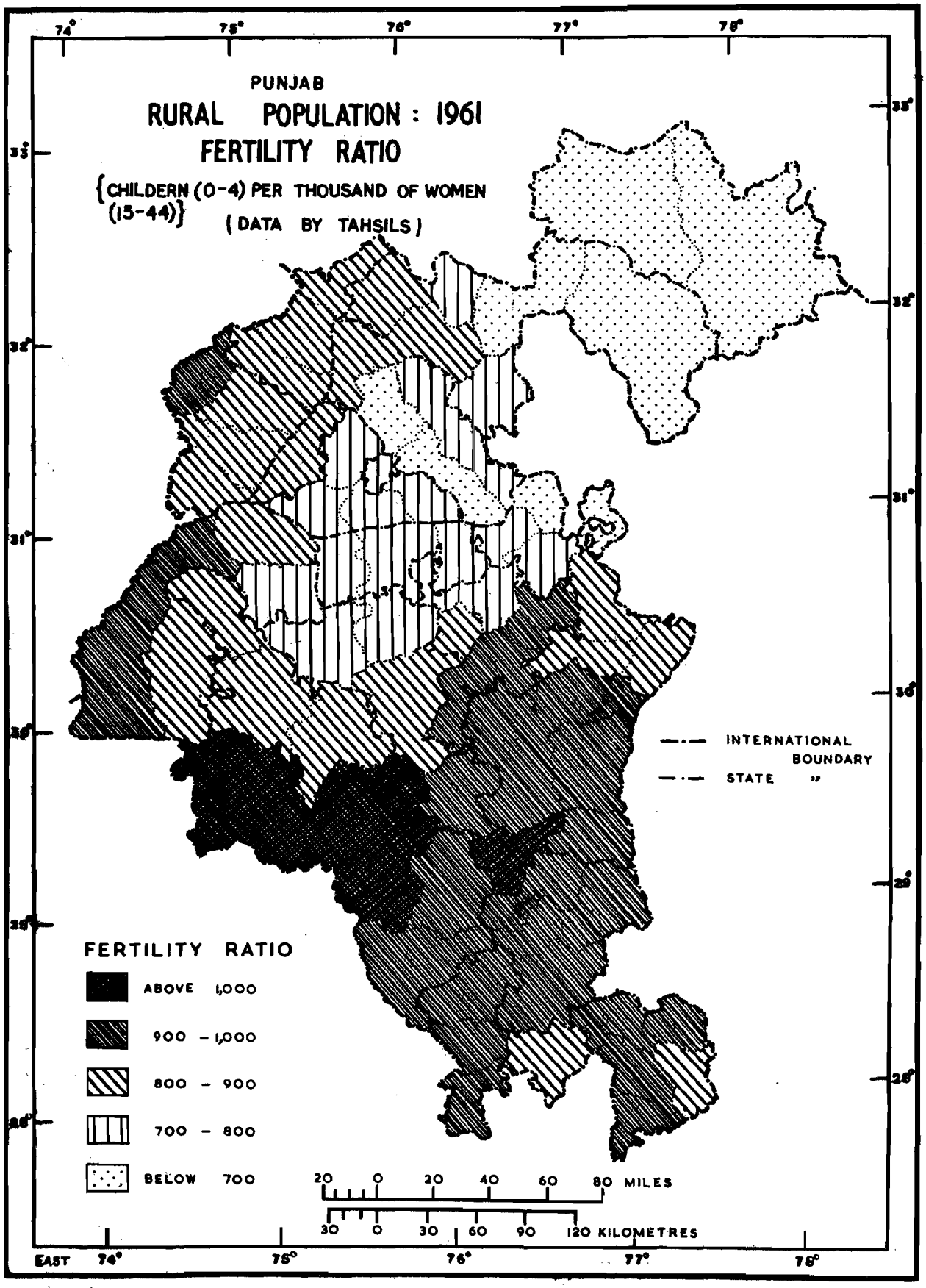
MAP 42


PUNJAB
PROXIMITY TO URBAN CENTRES
1901
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
DISTANCE FROM THE URBAN CENTRE
MORE THAN 10 MILES(>16 KMS)
5 TO 10 MILES (8 TO 16 KMS.)
WITHIN 5 MILES (<8 KMS.)
LOCATION OF URBAN CENTRE
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

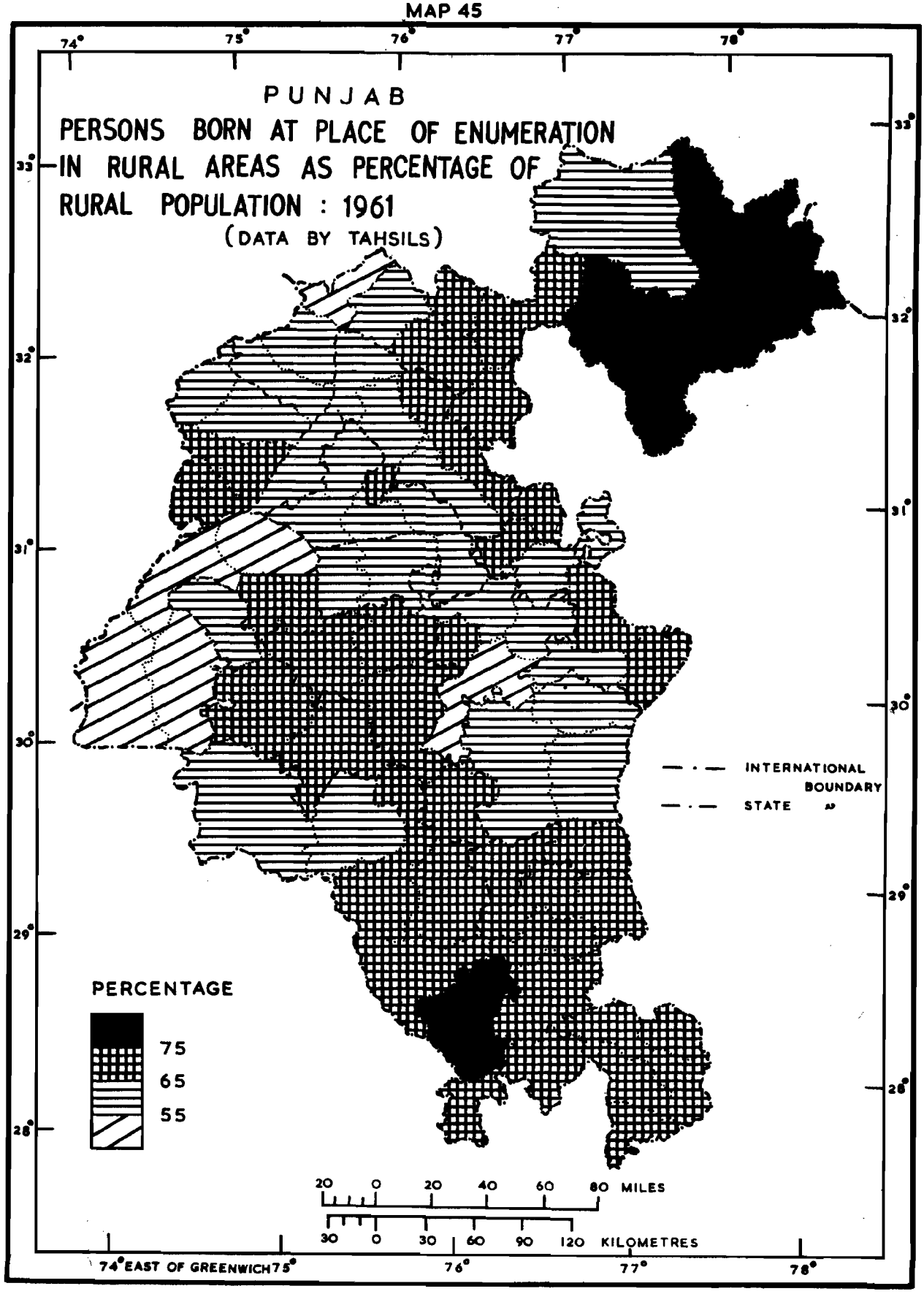
MAP 43


PUNJAB
PROXIMITY TO URBAN CENTRES
1961
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE »
DISTANCE FROM THE URBAN CENTRE
MORE THAN 10 MILES (>16 KMS.)
5 TO 10 MILES (8 TO 16 KMS.)
WITHIN 5 MILES (<8 KMS.)
LOCATION OF URBAN CENTRE
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

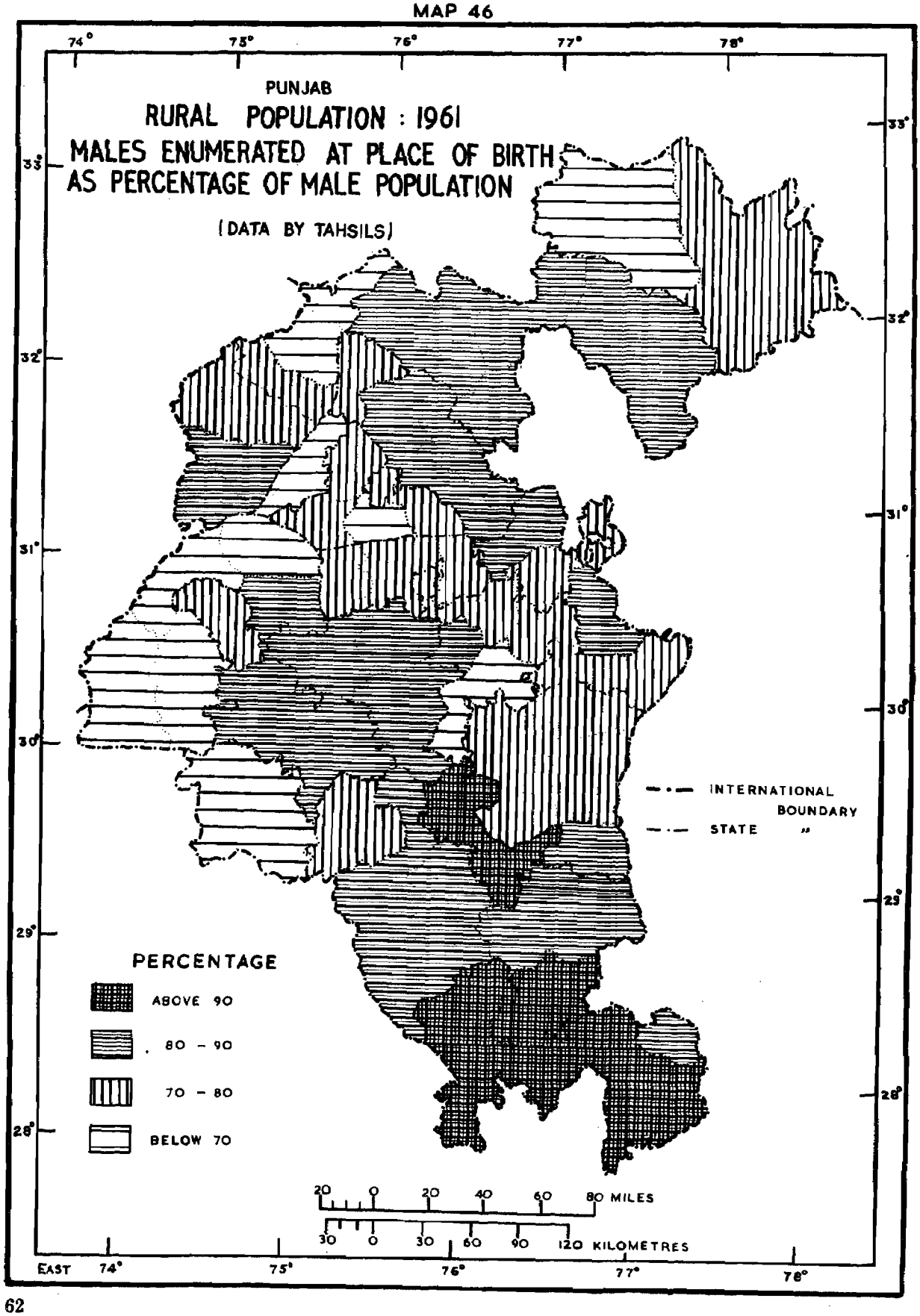
MAP 44


PUNJAB
RURAL POPULATION : 1961
FERTILITY RATIO
{CHILDERN (0-4) PER THOUSAND OF WOMEN (15-44)}
(DATA BY TAHSILS)
INTERNATIONAL BOUNDARY
STATE "
FERTILITY RATIO
ABOVE 1,000
900 - 1,000
800 - 900
700 - 800
BELOW 700
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
27°

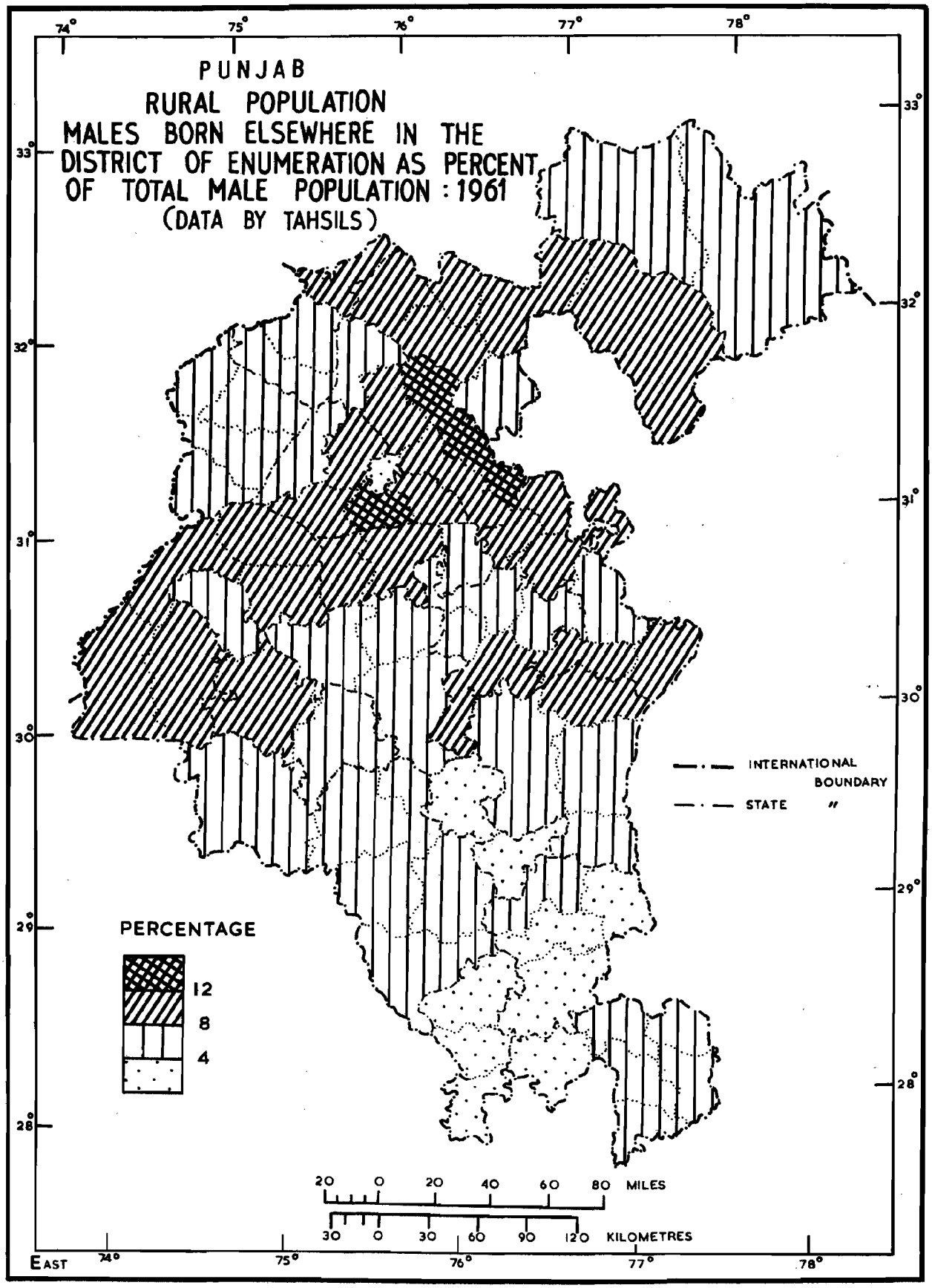
MAP 45


PUNJAB
PERSONS BORN AT PLACE OF ENUMERATION IN RURAL AREAS AS PERCENTAGE OF RURAL POPULATION : 1961
(DATA BY TAHSILS)
INTERNATIONAL BOUNDARY
STATE
PERCENTAGE
75
65
55
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

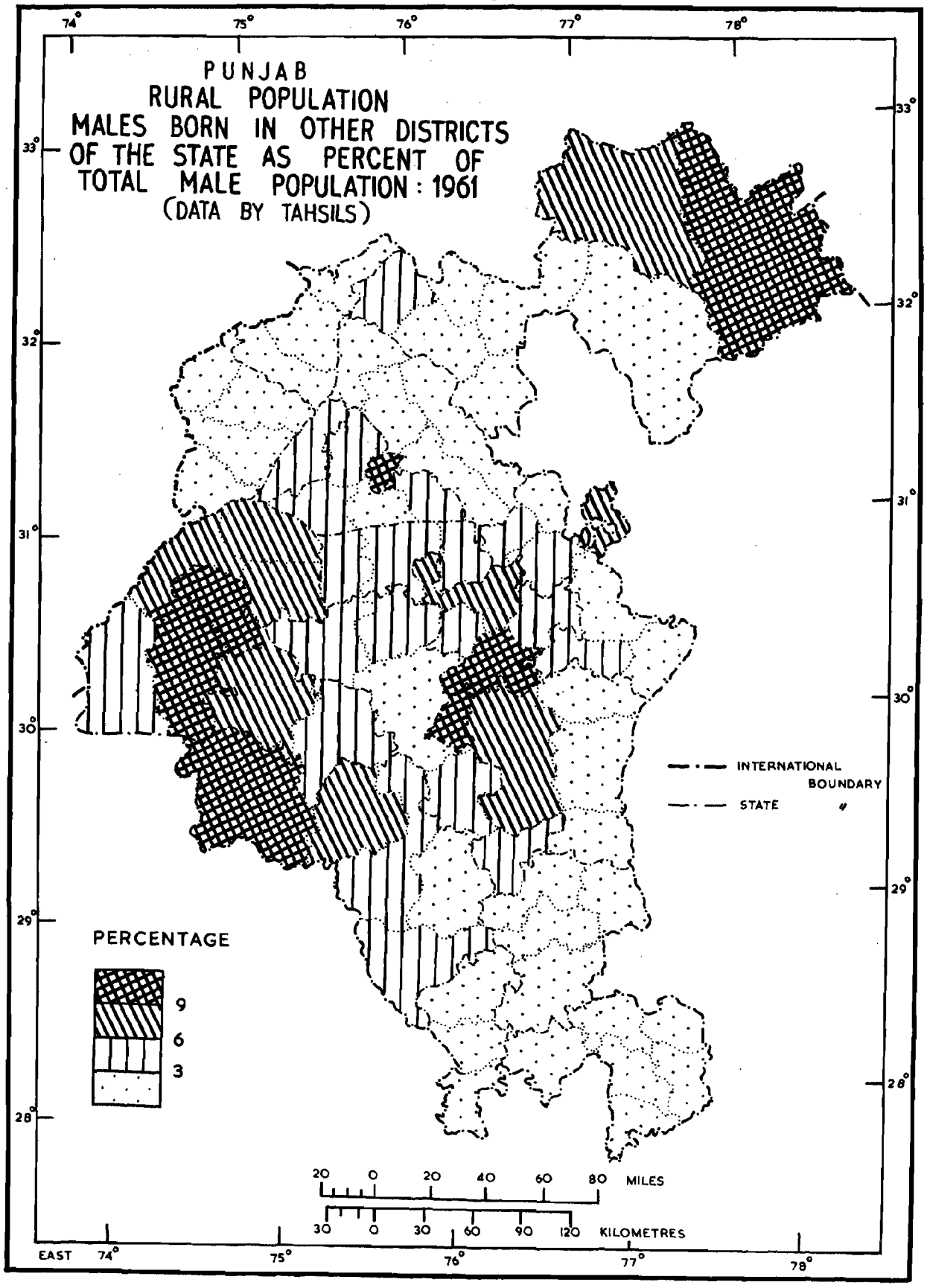
MAP 46


PUNJAB
RURAL POPULATION : 1961
MALES ENUMERATED AT PLACE OF BIRTH
AS PERCENTAGE OF MALE POPULATION
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
ABOVE 90
80 - 90
70 - 80
BELOW 70
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

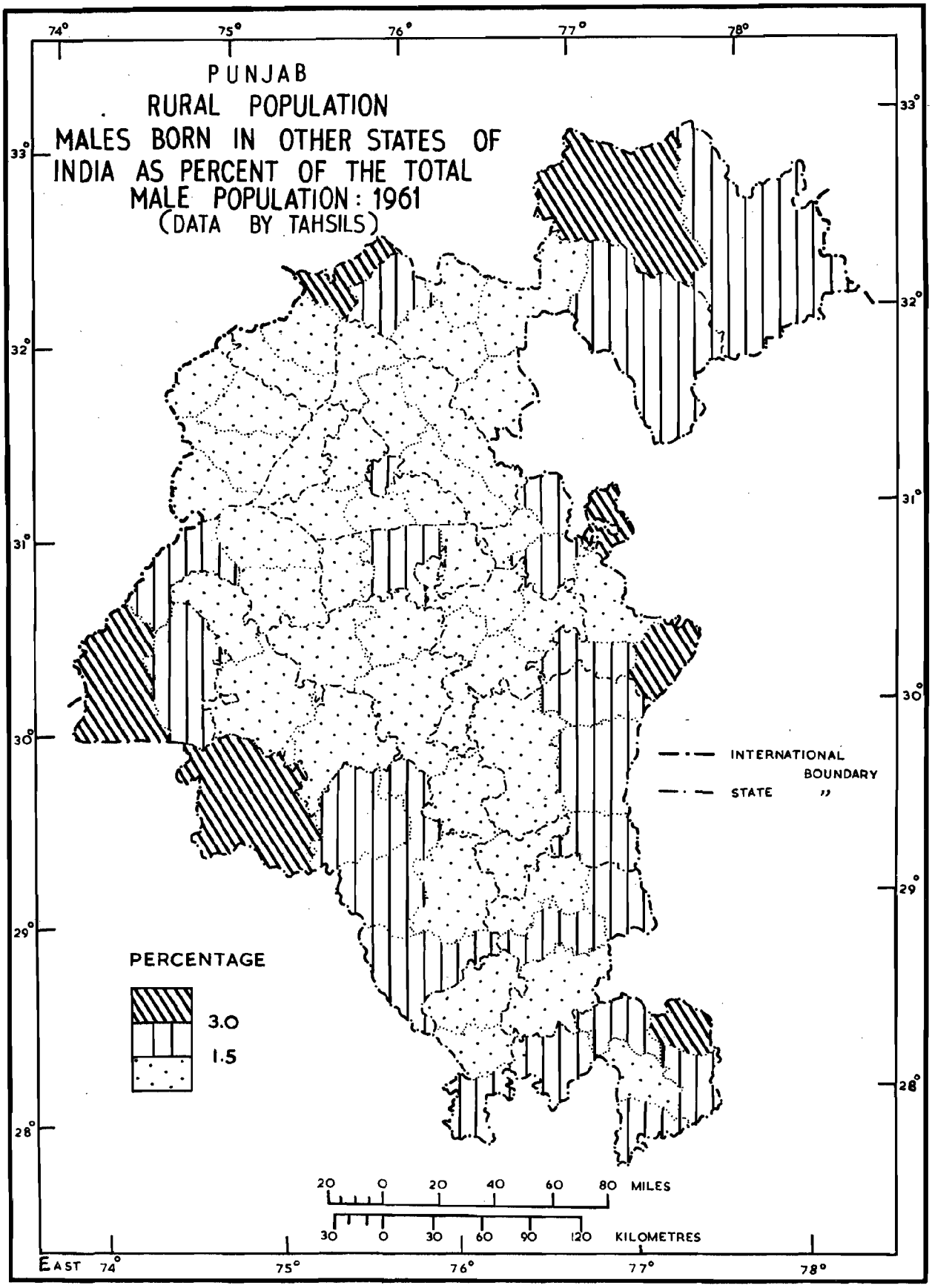
MAP 47


PUNJAB
RURAL POPULATION
MALES BORN ELSEWHERE IN THE DISTRICT OF ENUMERATION AS PERCENT OF TOTAL MALE POPULATION : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
PERCENTAGE
12
8
4
INTERNATIONAL BOUNDARY
STATE "
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

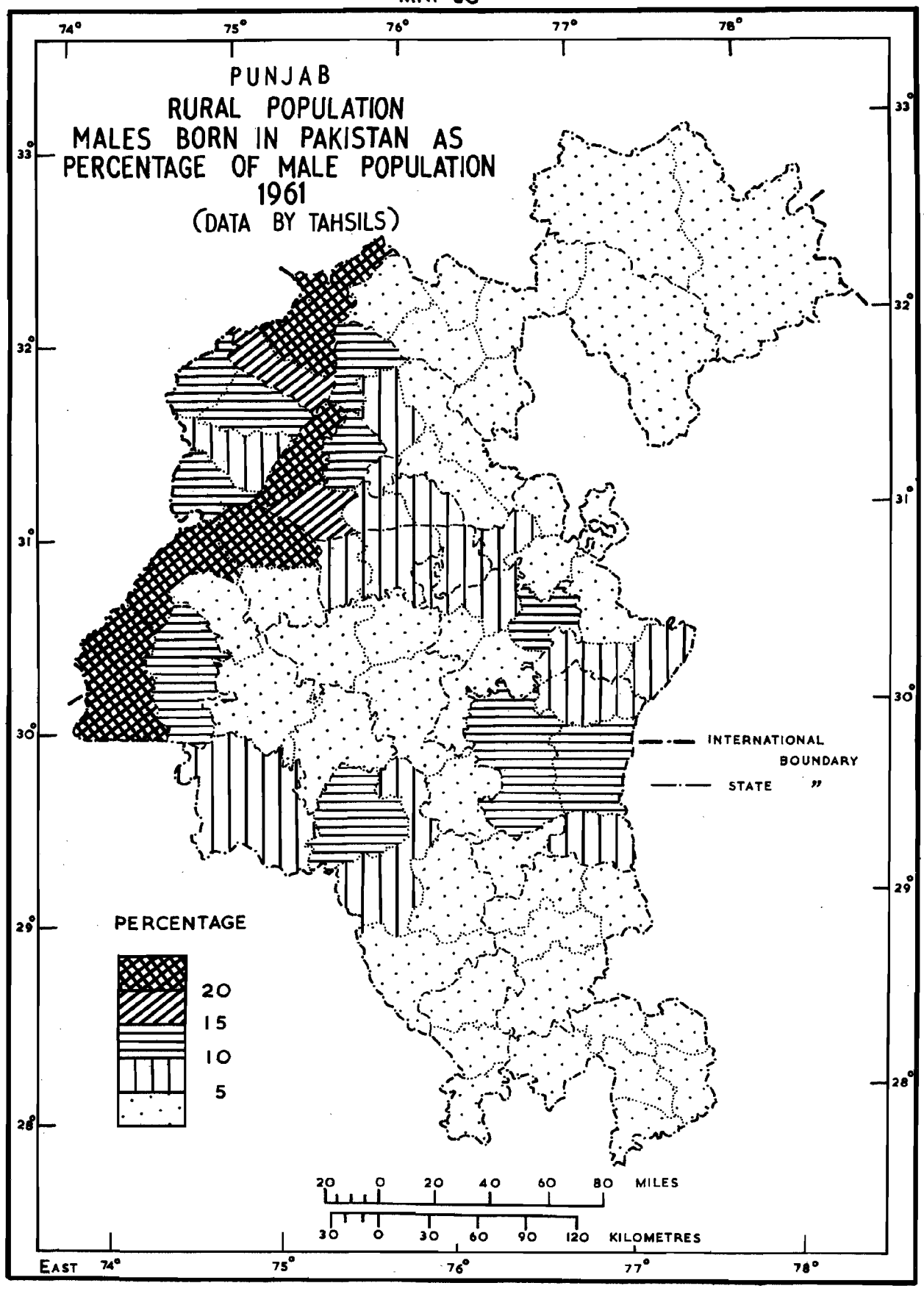
MAP 48


PUNJAB
RURAL POPULATION
MALES BORN IN OTHER DISTRICTS
OF THE STATE AS PERCENT OF
TOTAL MALE POPULATION : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE
PERCENTAGE
9
6
3
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

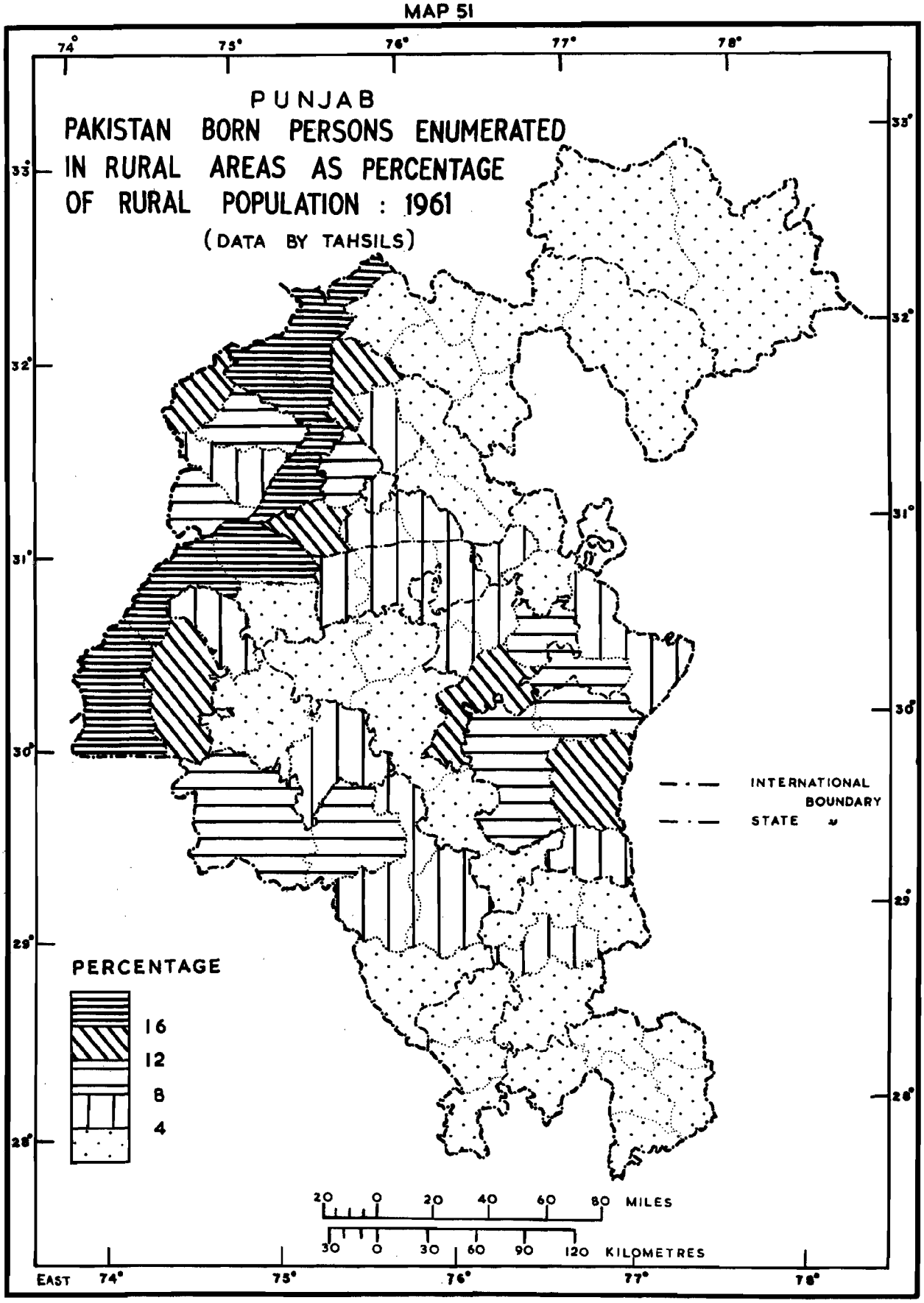
MAP 49


PUNJAB
RURAL POPULATION
MALES BORN IN OTHER STATES OF INDIA AS PERCENT OF THE TOTAL MALE POPULATION : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
3.0
1.5
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

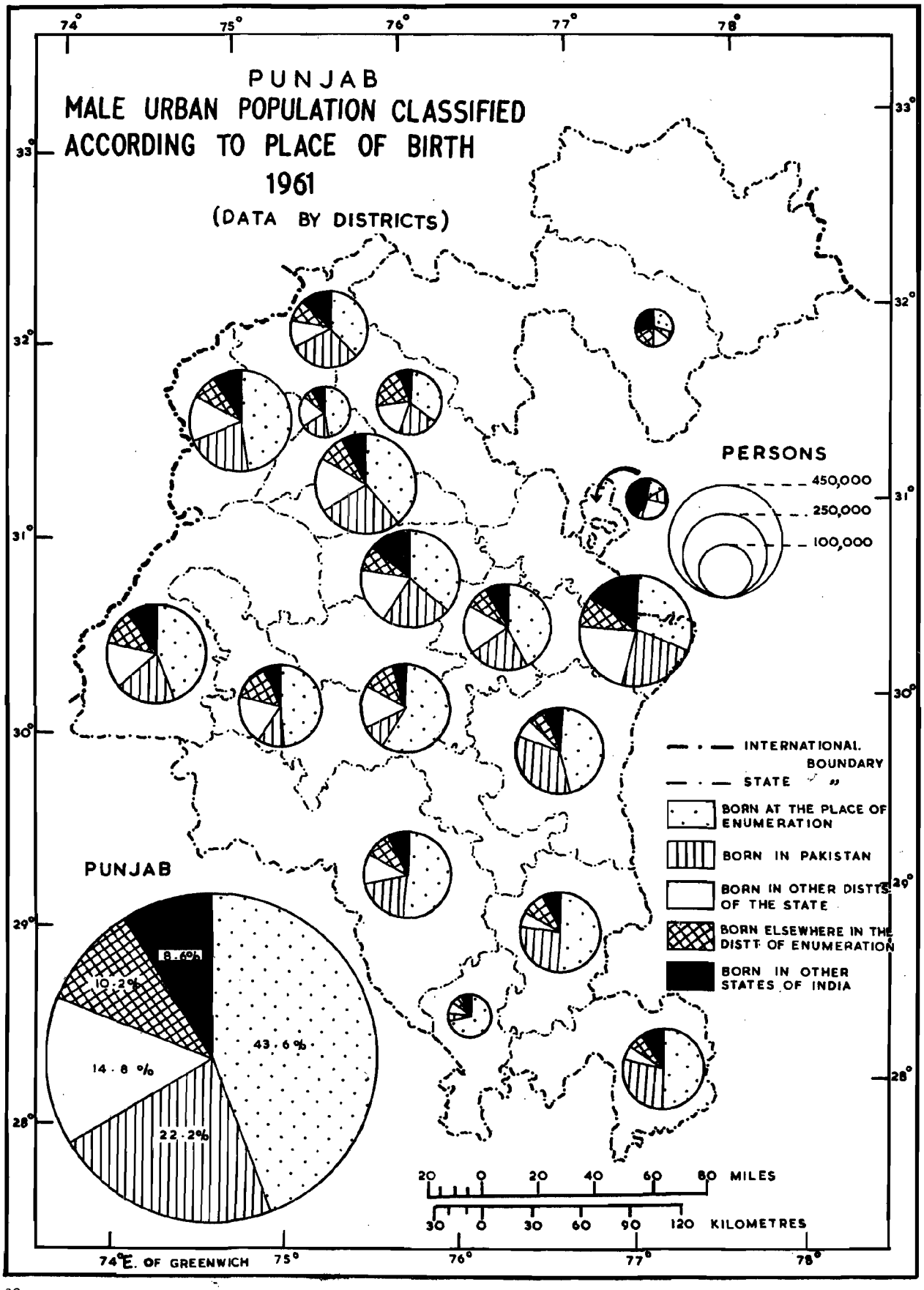
MAP 50


PUNJAB
RURAL POPULATION
MALES BORN IN PAKISTAN AS
PERCENTAGE OF MALE POPULATION
1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
20
15
10
5
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

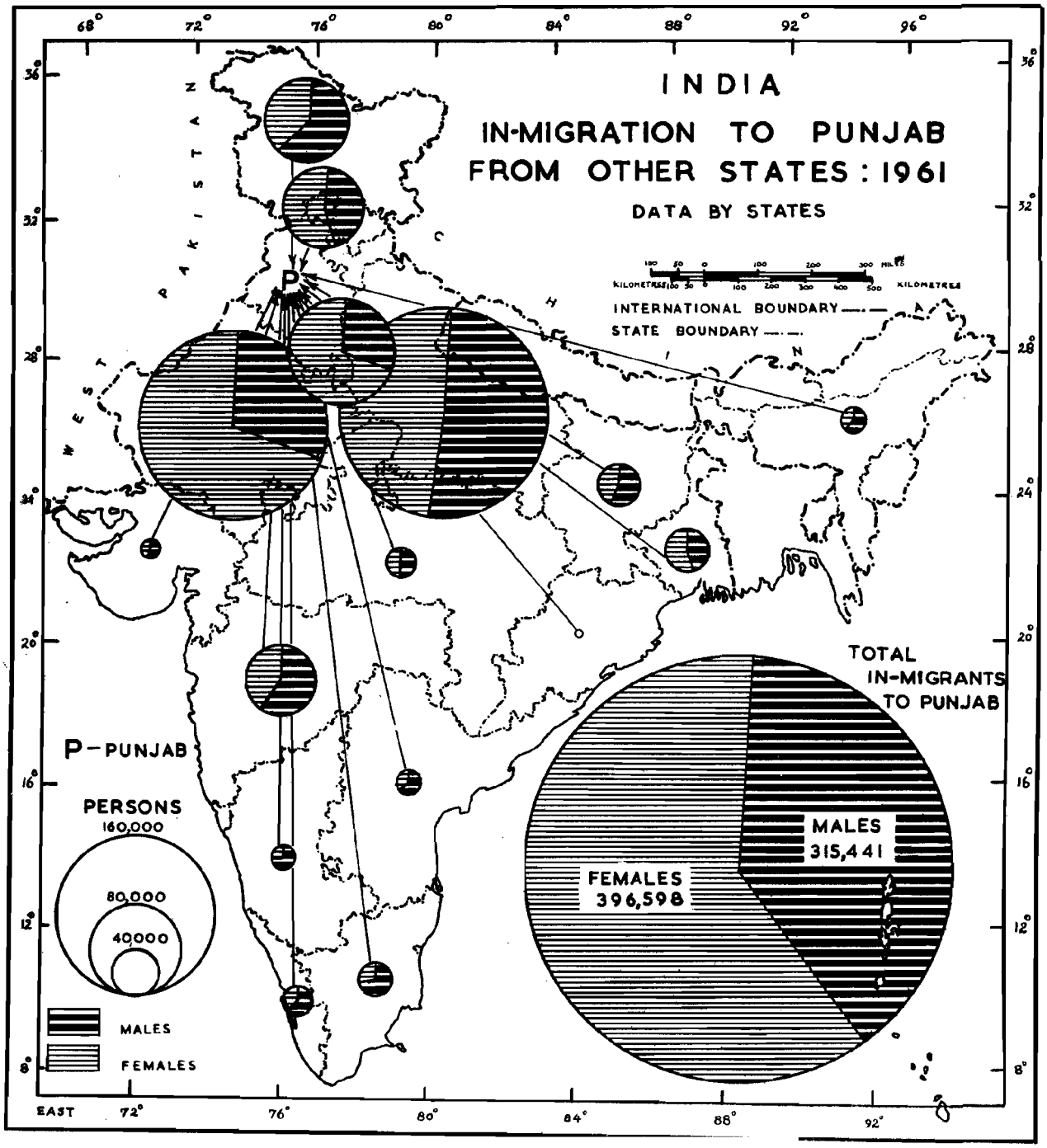
MAP 51


PUNJAB
PAKISTAN BORN PERSONS ENUMERATED IN RURAL AREAS AS PERCENTAGE OF RURAL POPULATION : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE
PERCENTAGE
16
12
8
4
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

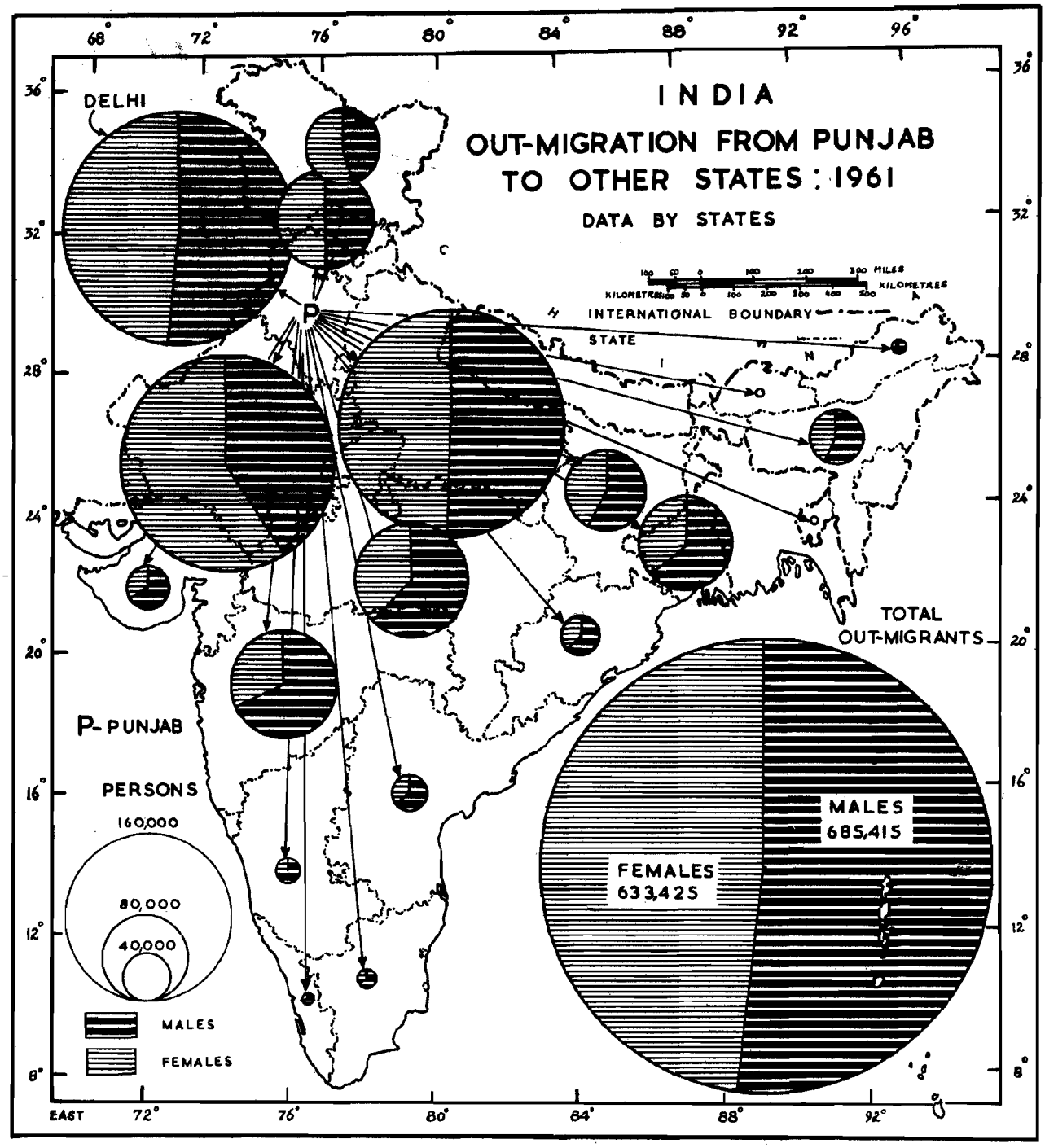
MAP 52


PUNJAB
MALE URBAN POPULATION CLASSIFIED ACCORDING TO PLACE OF BIRTH
1961
(DATA BY DISTRICTS)
PERSONS
450,000
250,000
100,000
INTERNATIONAL BOUNDARY
STATE "
BORN AT THE PLACE OF ENUMERATION
BORN IN PAKISTAN
BORN IN OTHER DISTTS OF THE STATE
BORN ELSEWHERE IN THE DISTT OF ENUMERATION
BORN IN OTHER STATES OF INDIA
PUNJAB
8.6%
10.2%
43.6%
14.8%
22.2%
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° E. OF GREENWICH
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

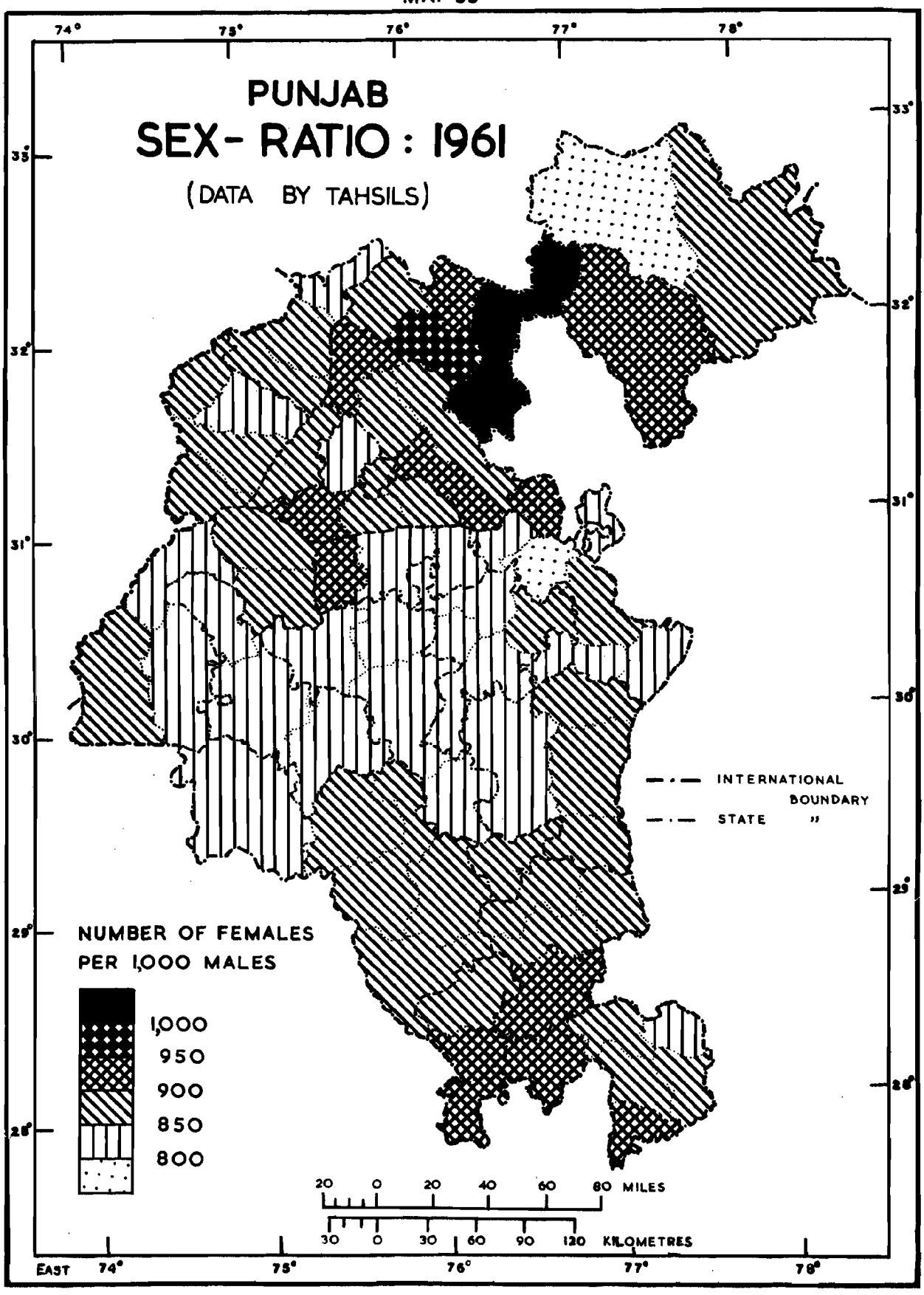
MAP 53


INDIA
IN-MIGRATION TO PUNJAB
FROM OTHER STATES : 1961
DATA BY STATES
INTERNATIONAL BOUNDARY
STATE BOUNDARY
P
PAKISTAN
P – PUNJAB
PERSONS
160,000
80,000
40000
MALES
FEMALES
TOTAL
IN-MIGRANTS
TO PUNJAB
MALES
315,441
FEMALES
396,598
68°
72°
76°
80°
84°
88°
92°
96°
36°
32°
28°
24°
20°
16°
12°
8°
EAST

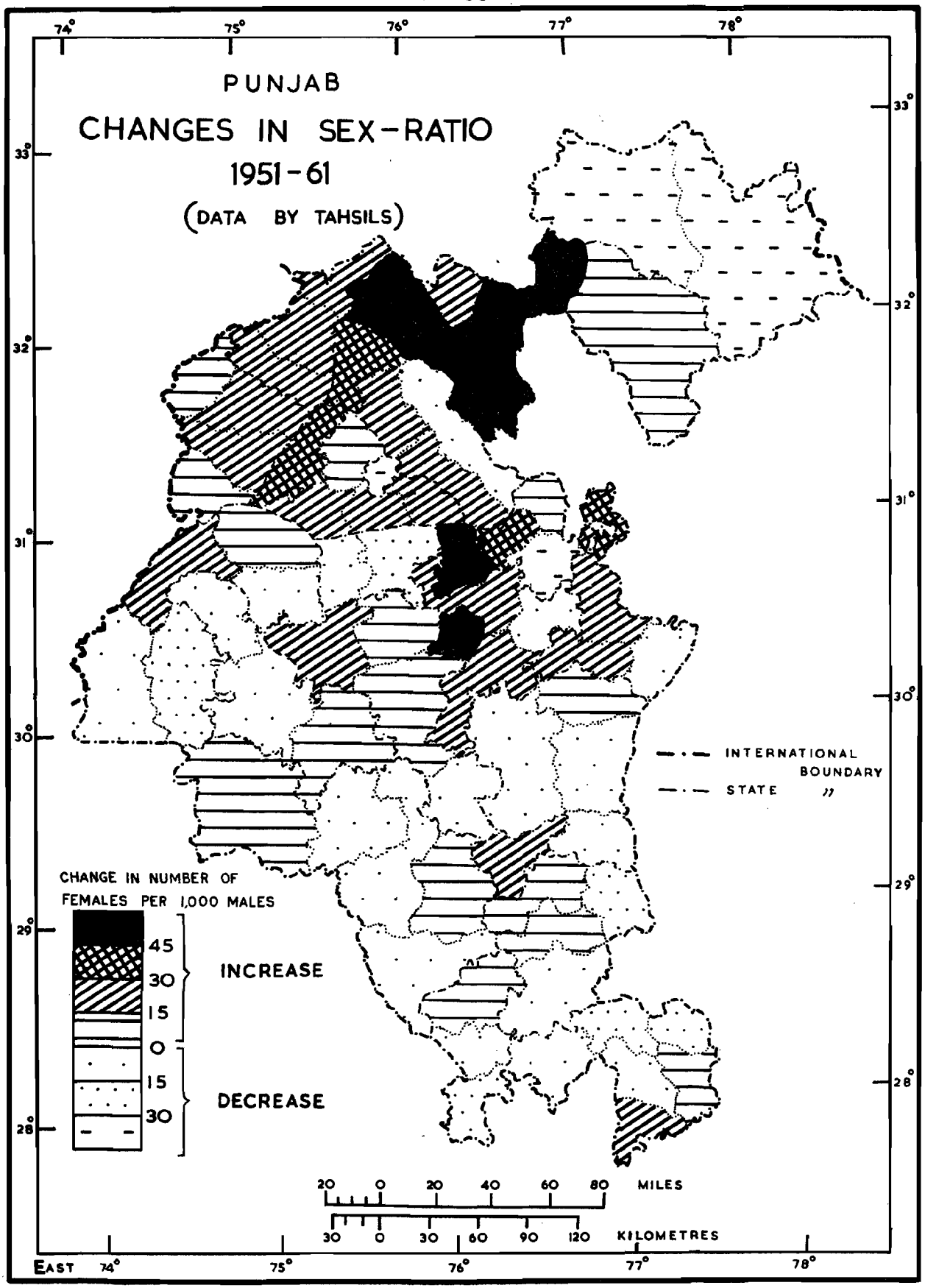
MAP 54


INDIA
OUT-MIGRATION FROM PUNJAB
TO OTHER STATES : 1961
DATA BY STATES
DELHI
P
INTERNATIONAL BOUNDARY
STATE
TOTAL
OUT-MIGRANTS
MALES
685,415
FEMALES
633,425
P- PUNJAB
PERSONS
160,000
80,000
40,000
MALES
FEMALES
68°
72°
76°
80°
84°
88°
92°
96°
36°
32°
28°
24°
20°
16°
12°
8°
EAST

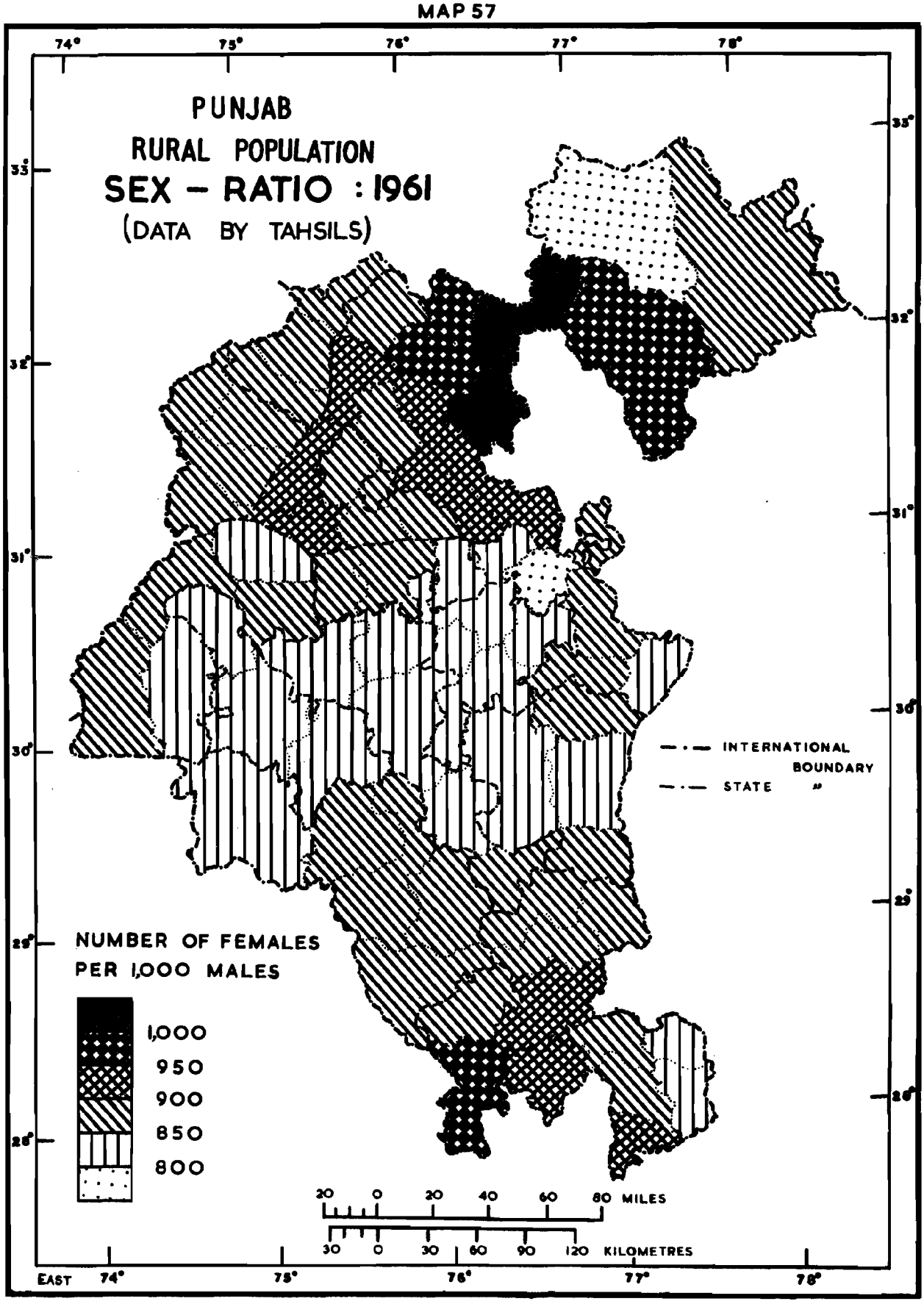
MAP 55


PUNJAB
SEX- RATIO : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
35°
34°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
NUMBER OF FEMALES PER 1,000 MALES
1,000
950
900
850
800
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

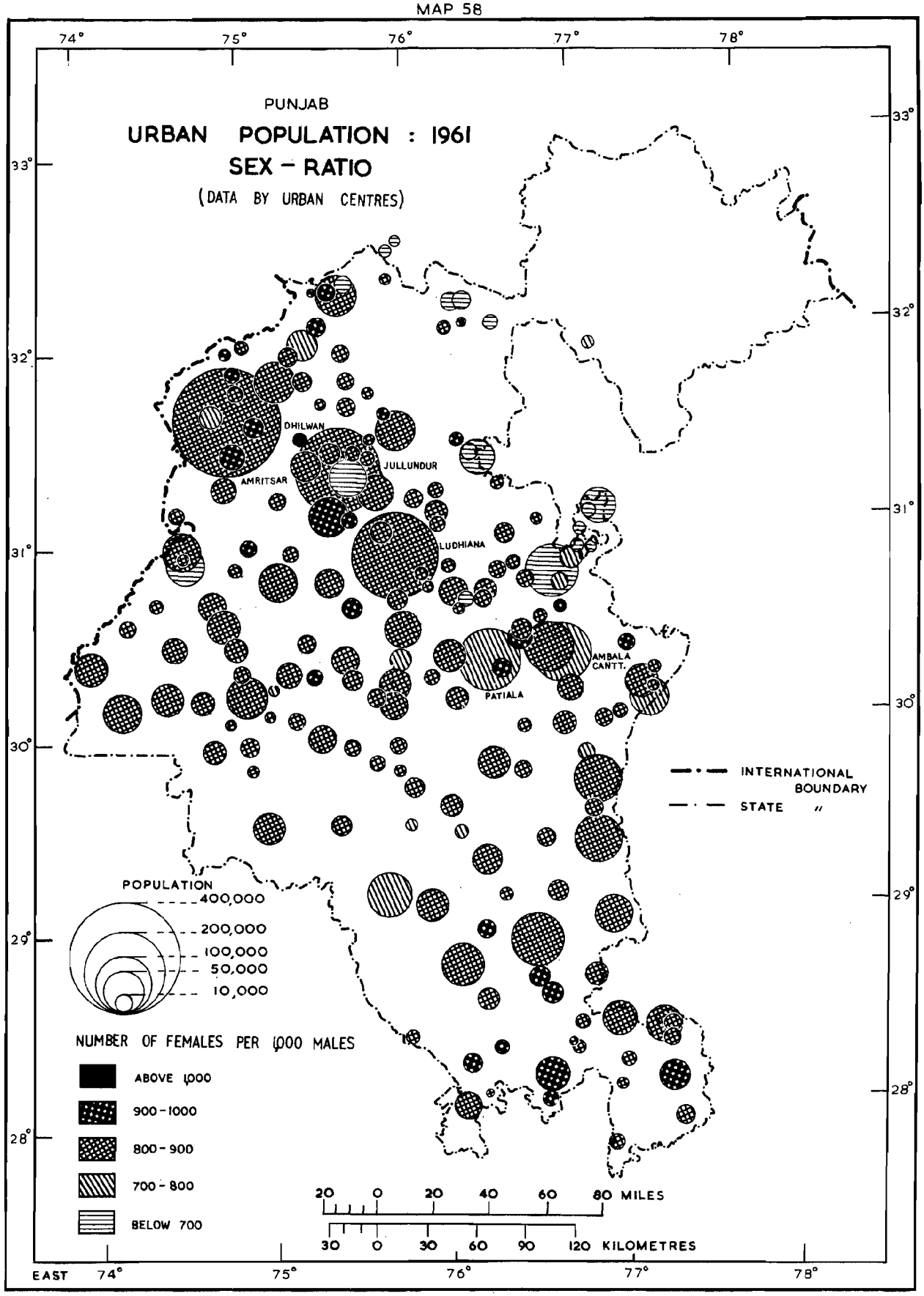
MAP 56


PUNJAB
CHANGES IN SEX-RATIO
1951-61
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
CHANGE IN NUMBER OF FEMALES PER 1,000 MALES
45
30
15
0
15
30
INCREASE
DECREASE
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

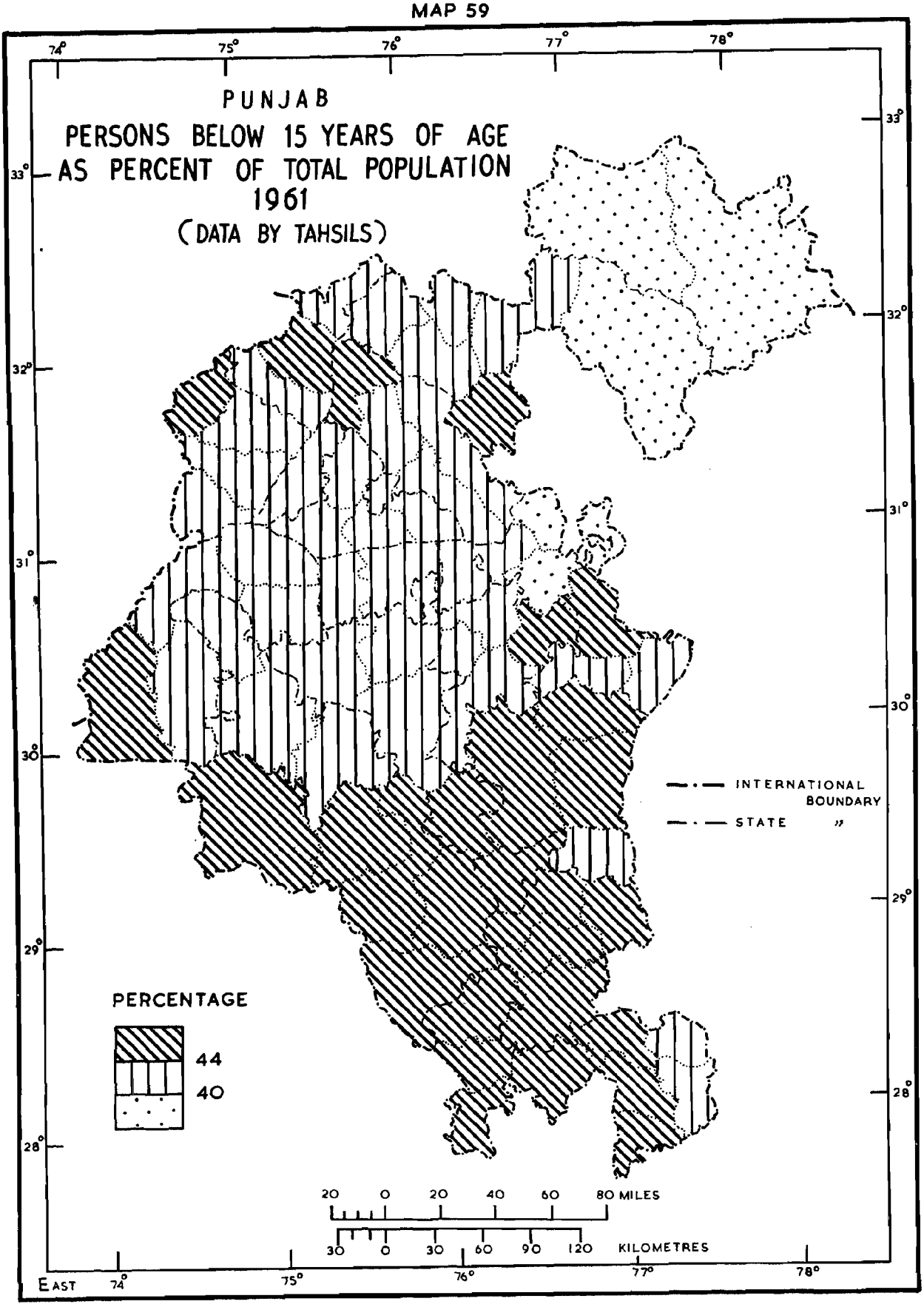
MAP 57


PUNJAB
RURAL POPULATION
SEX – RATIO : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
35°
34°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
NUMBER OF FEMALES PER 1,000 MALES
1,000
950
900
850
800
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

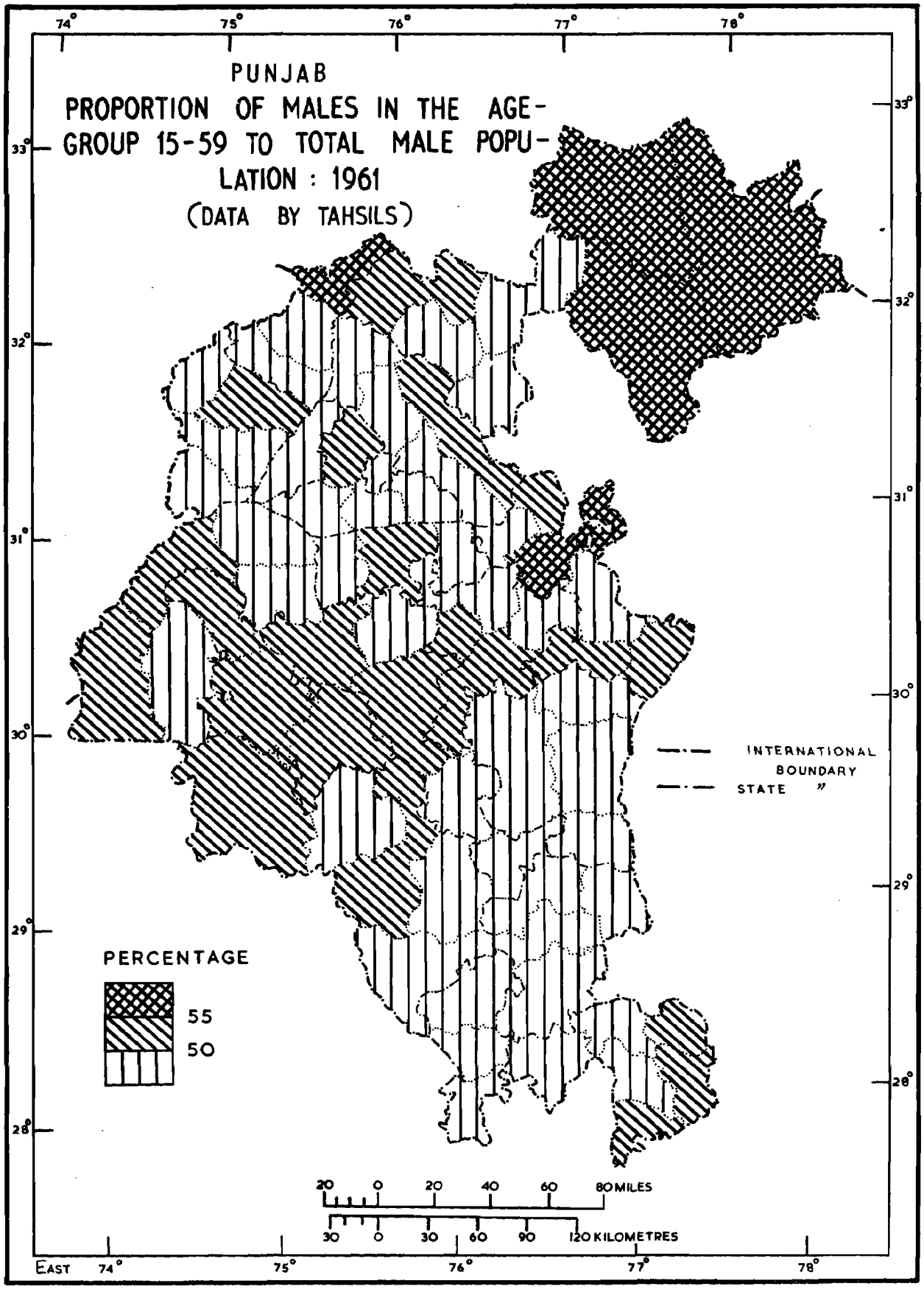
MAP 58


PUNJAB
URBAN POPULATION : 1961
SEX – RATIO
(DATA BY URBAN CENTRES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
EAST
DHILWAN
JULLUNDUR
AMRITSAR
LUDHIANA
PATIALA
AMBALA CANTT.
INTERNATIONAL BOUNDARY
STATE "
POPULATION
400,000
200,000
100,000
50,000
10,000
NUMBER OF FEMALES PER 1000 MALES
ABOVE 1000
900 - 1000
800 - 900
700 - 800
BELOW 700
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES

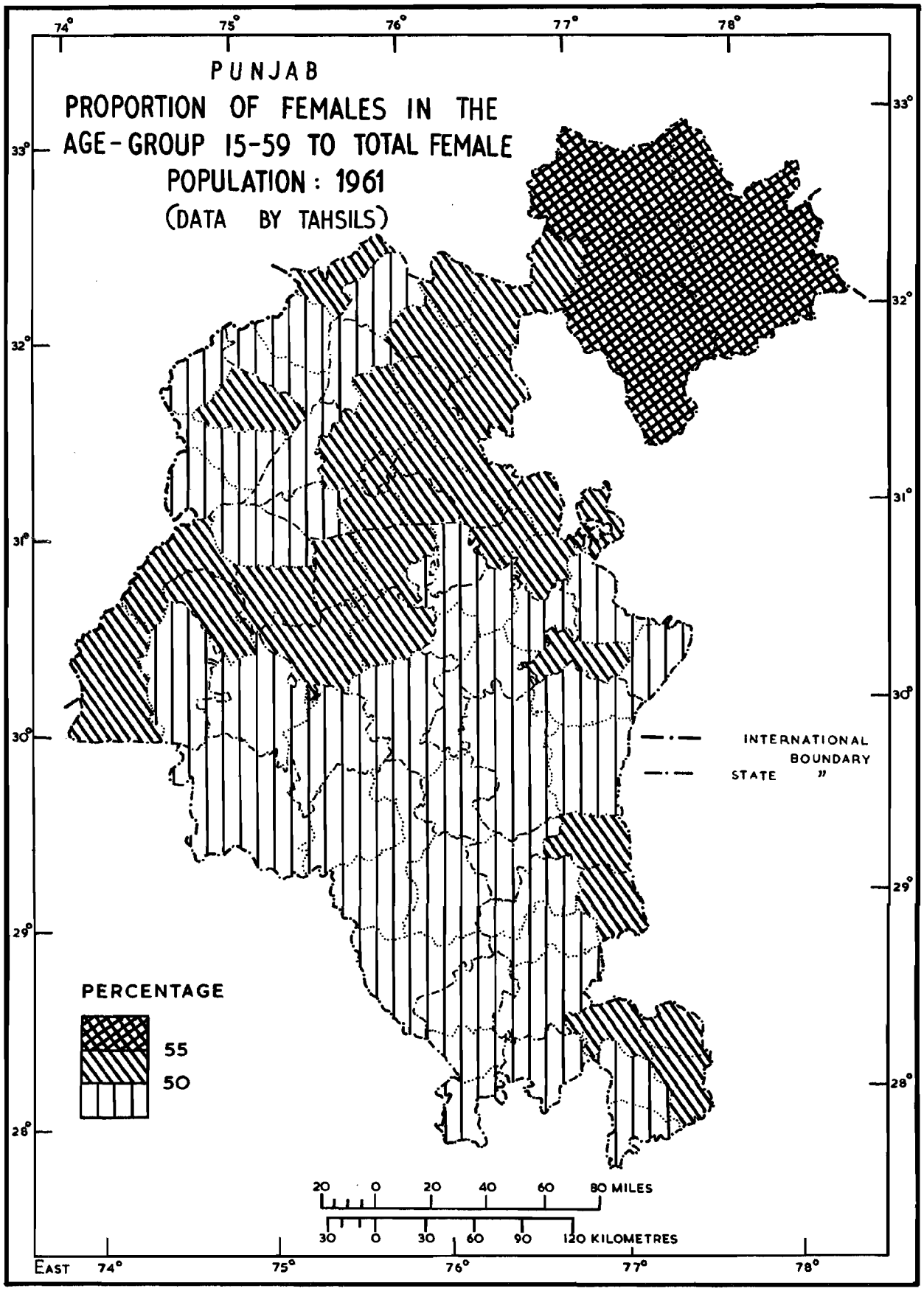
MAP 59


PUNJAB
PERSONS BELOW 15 YEARS OF AGE
AS PERCENT OF TOTAL POPULATION
1961
(DATA BY TAHSILS)
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
44
40
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

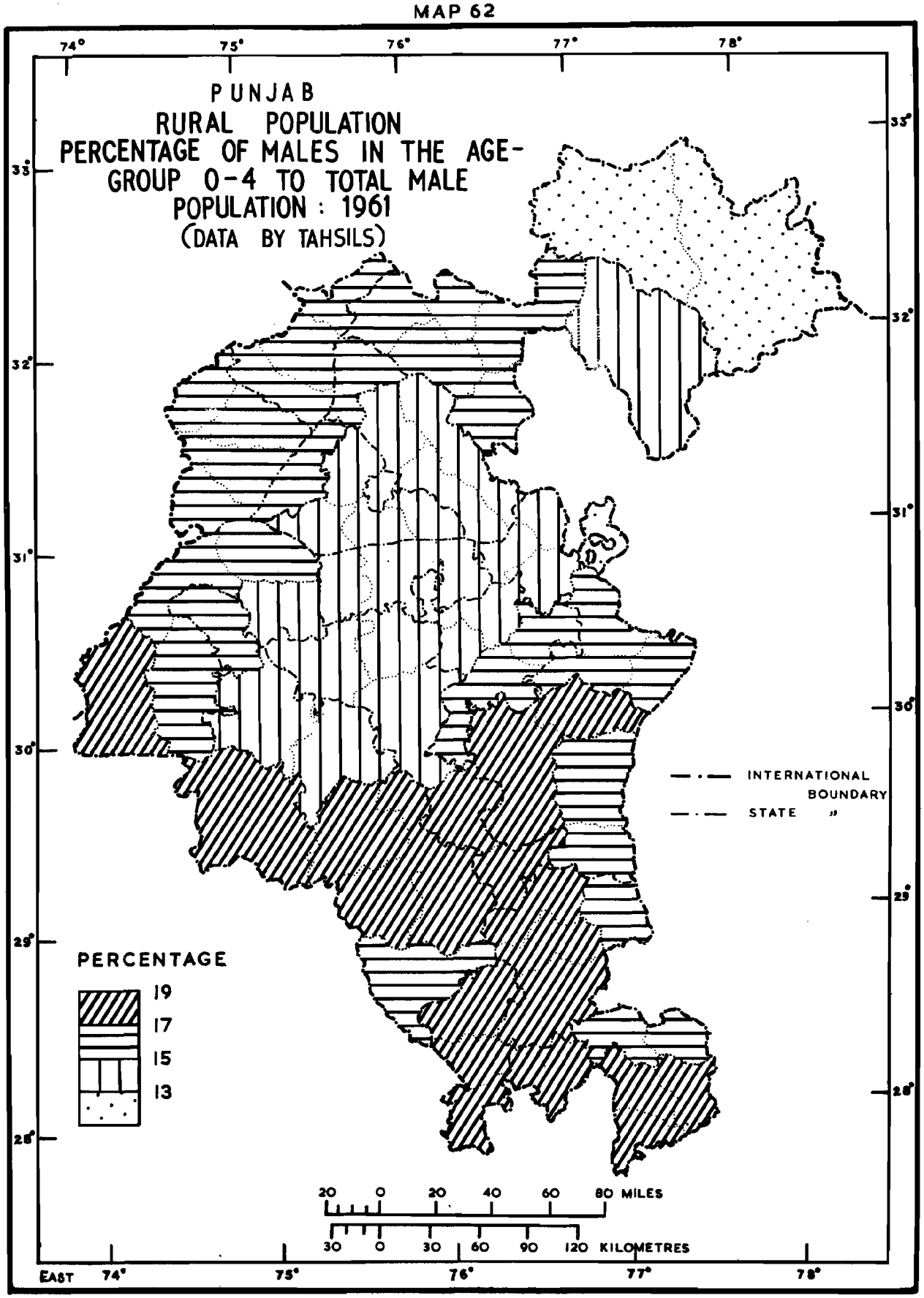
MAP 60


PUNJAB
PROPORTION OF MALES IN THE AGE-GROUP 15-59 TO TOTAL MALE POPULATION : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
55
50
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

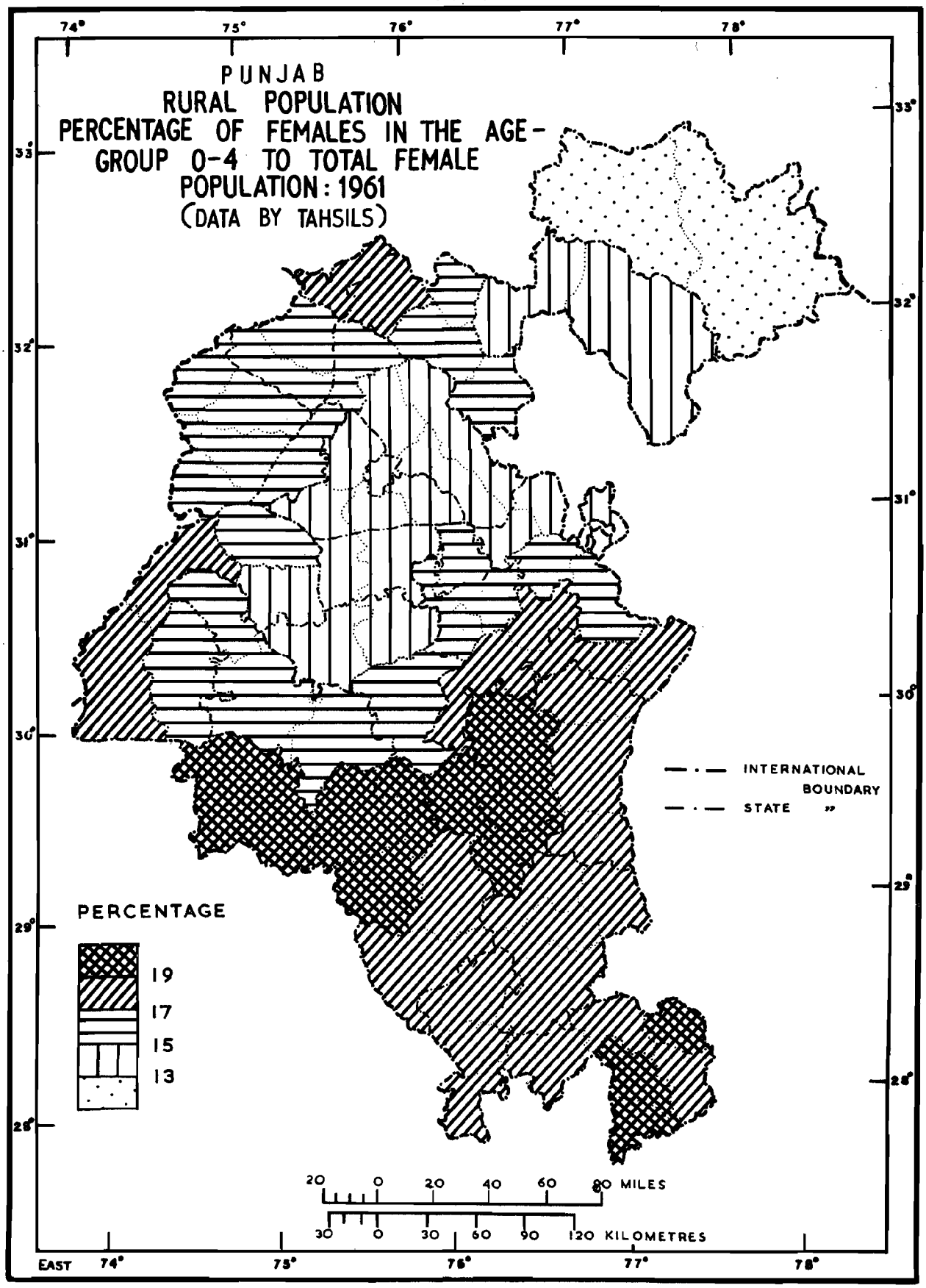
MAP 61


PUNJAB
PROPORTION OF FEMALES IN THE AGE-GROUP 15-59 TO TOTAL FEMALE POPULATION : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
55
50
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

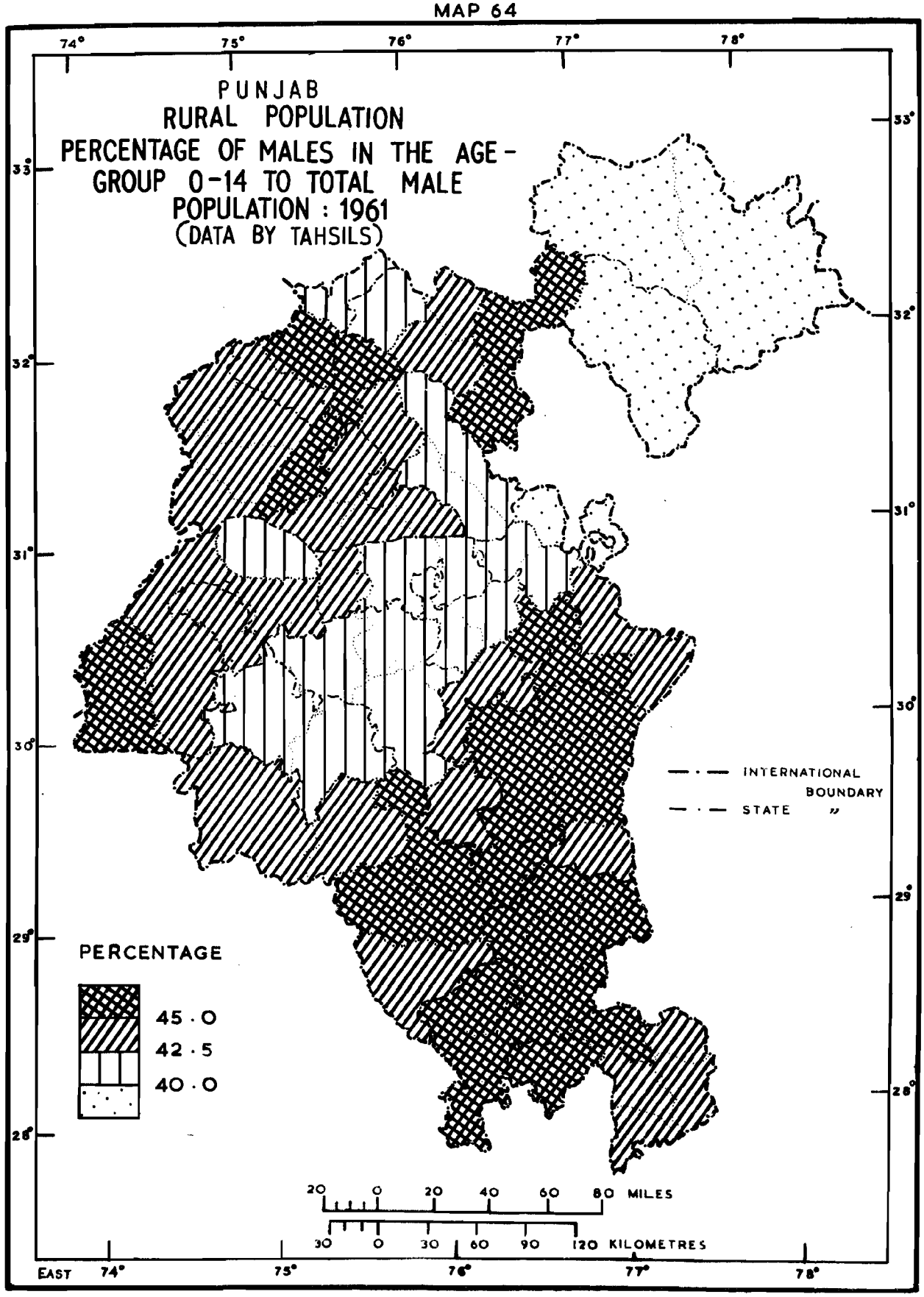
MAP 62


PUNJAB
RURAL POPULATION
PERCENTAGE OF MALES IN THE AGE-GROUP 0-4 TO TOTAL MALE POPULATION : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
PERCENTAGE
19
17
15
13
INTERNATIONAL BOUNDARY
STATE "
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

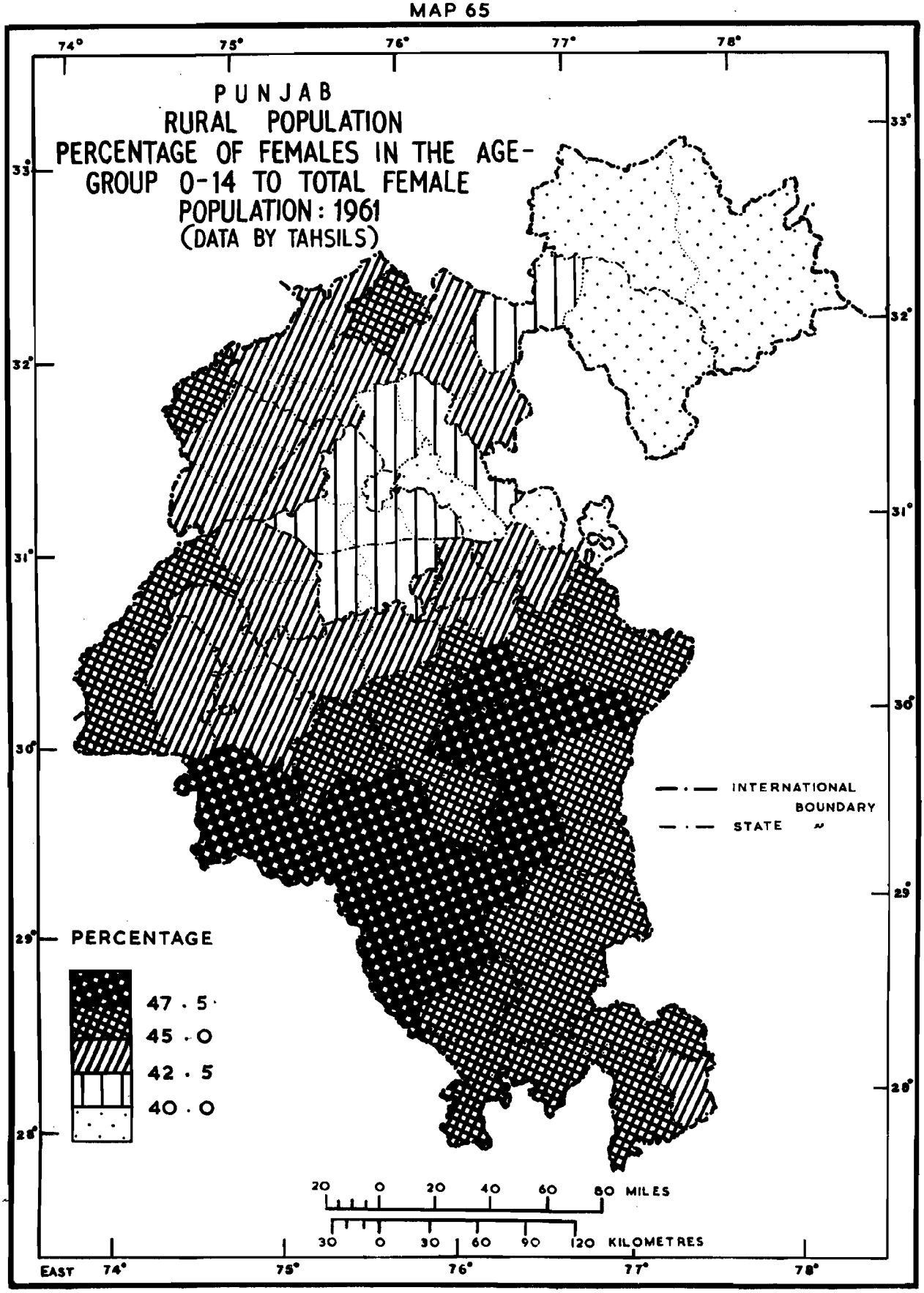
MAP 63


PUNJAB
RURAL POPULATION
PERCENTAGE OF FEMALES IN THE AGE-GROUP 0-4 TO TOTAL FEMALE POPULATION: 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
19
17
15
13
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

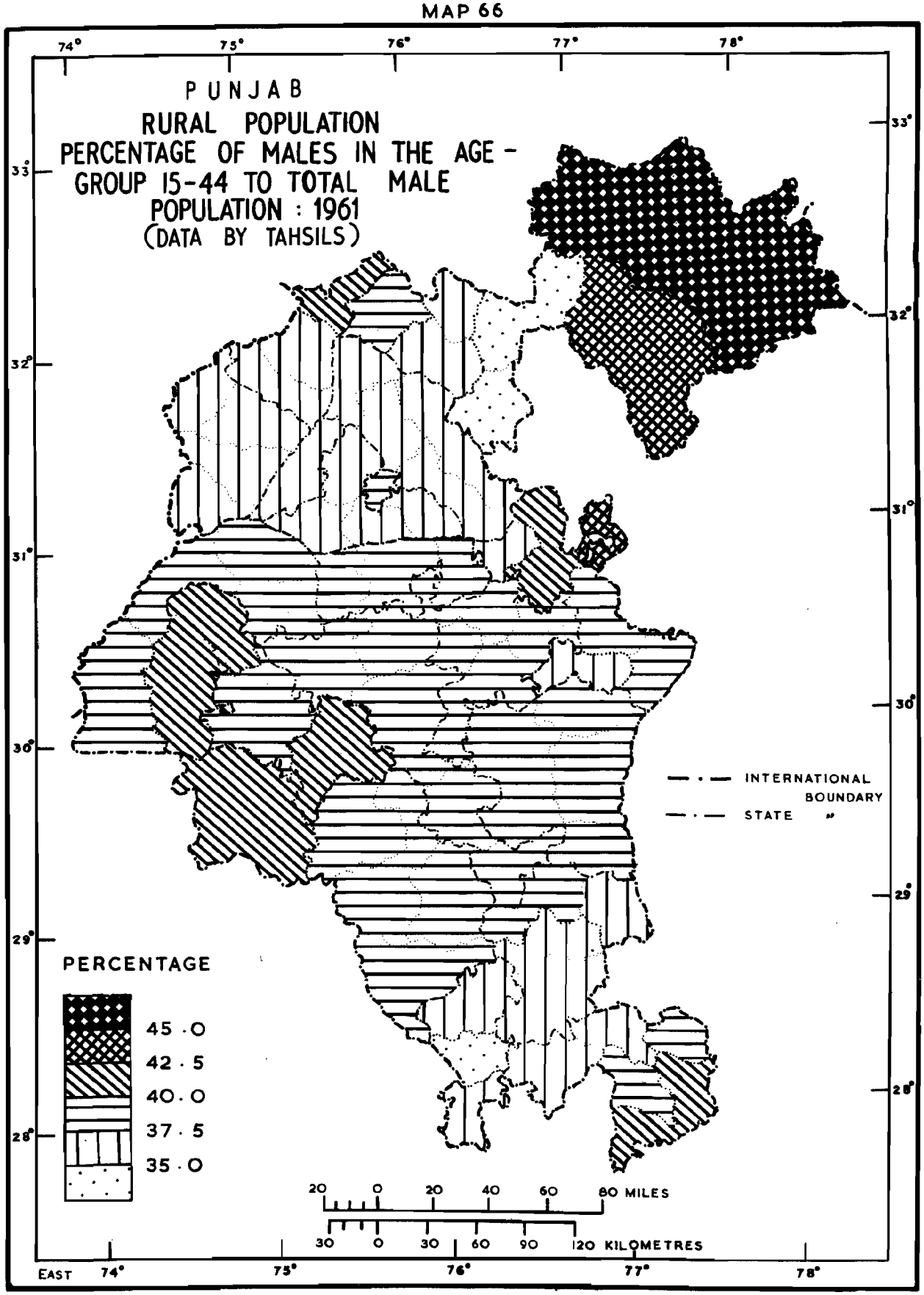
MAP 64


PUNJAB
RURAL POPULATION
PERCENTAGE OF MALES IN THE AGE-GROUP 0-14 TO TOTAL MALE POPULATION : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
45 · 0
42 · 5
40 · 0
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

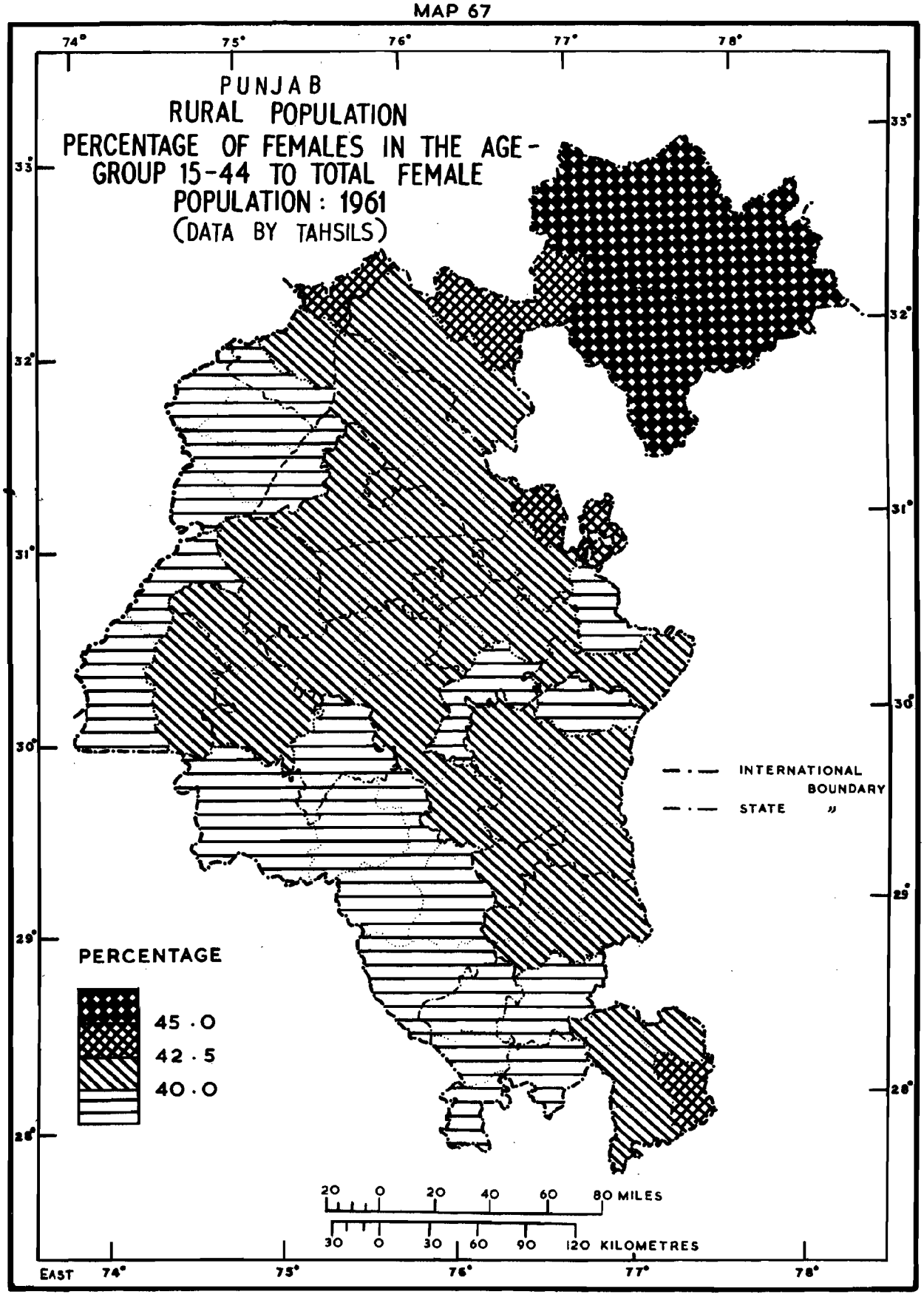
MAP 65


PUNJAB
RURAL POPULATION
PERCENTAGE OF FEMALES IN THE AGE-GROUP 0-14 TO TOTAL FEMALE POPULATION: 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE
PERCENTAGE
47 · 5
45 · 0
42 · 5
40 · 0
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

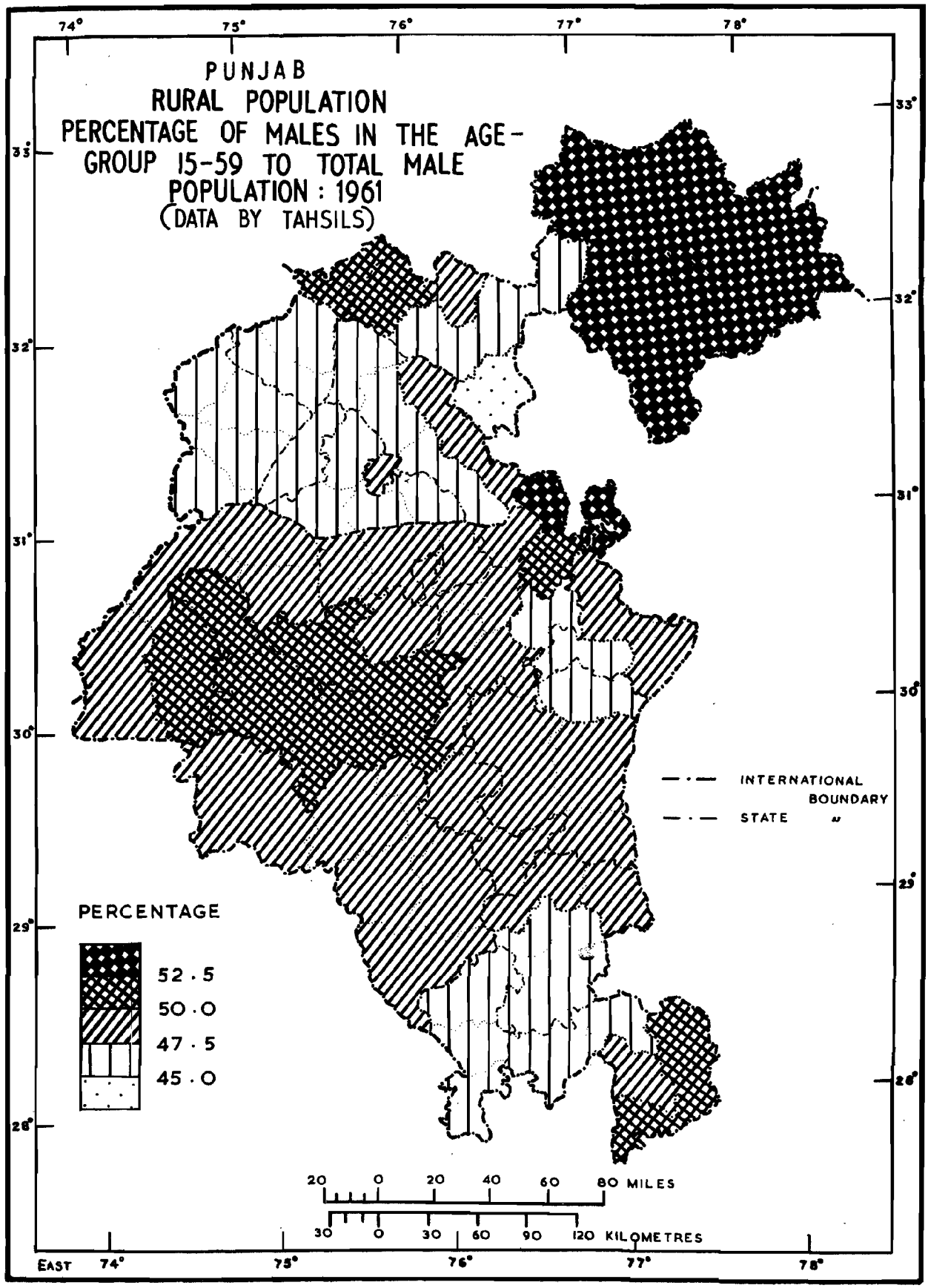
MAP 66


PUNJAB
RURAL POPULATION
PERCENTAGE OF MALES IN THE AGE - GROUP 15-44 TO TOTAL MALE POPULATION : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
45 · 0
42 · 5
40 · 0
37 · 5
35 · 0
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

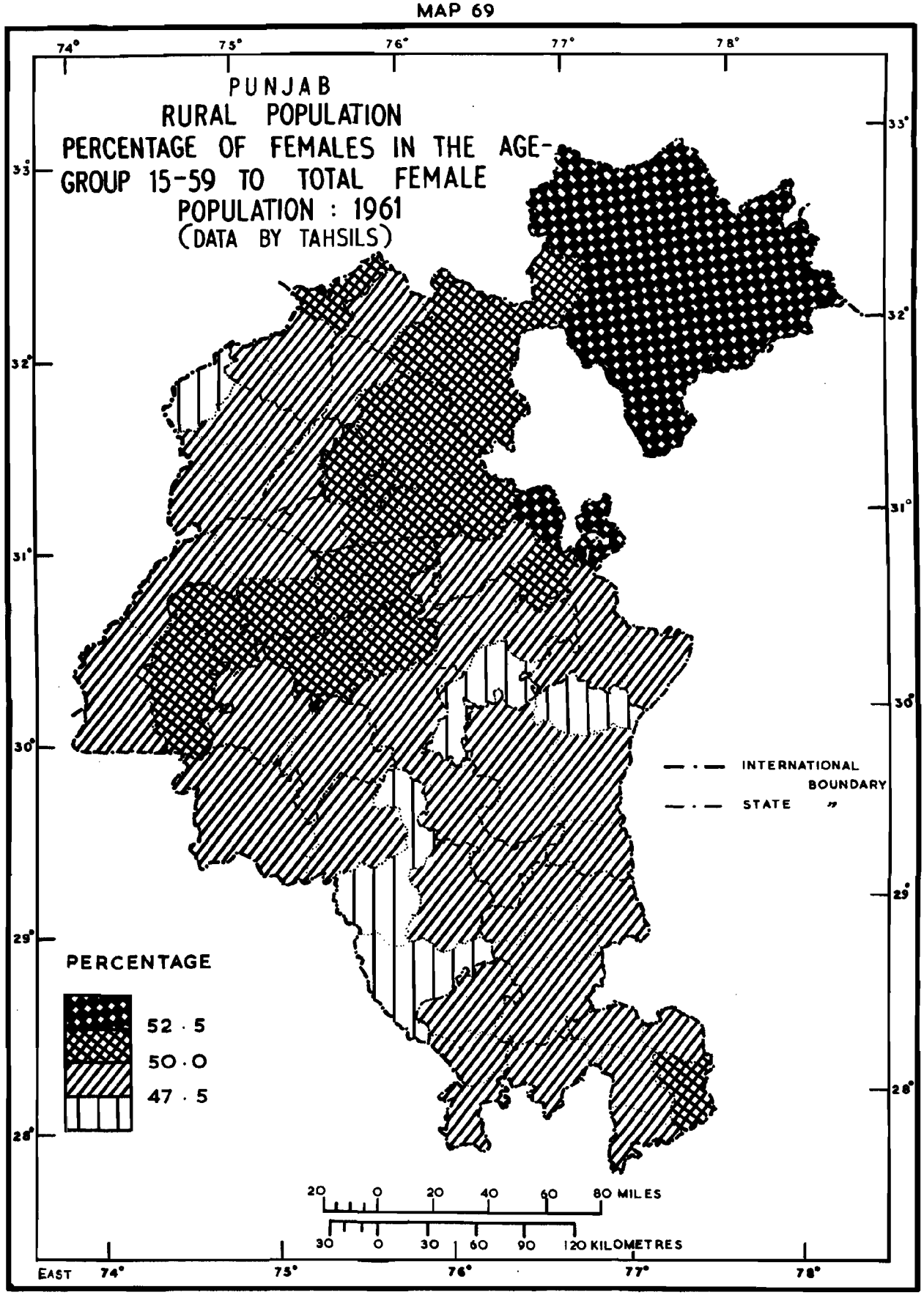
MAP 67


PUNJAB
RURAL POPULATION
PERCENTAGE OF FEMALES IN THE AGE-GROUP 15-44 TO TOTAL FEMALE POPULATION : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
45 · 0
42 · 5
40 · 0
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

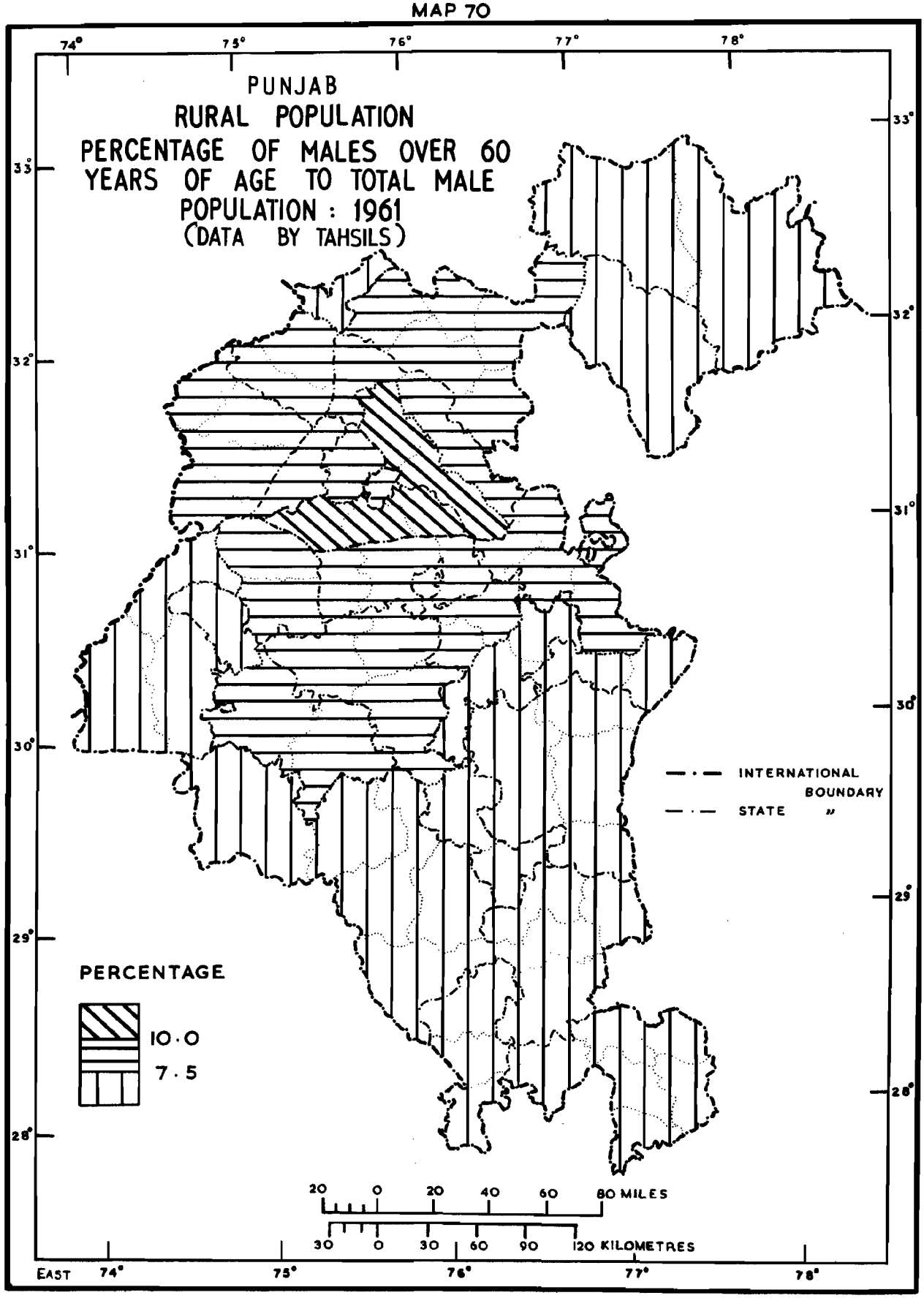
MAP 68


PUNJAB
RURAL POPULATION
PERCENTAGE OF MALES IN THE AGE-GROUP 15-59 TO TOTAL MALE POPULATION : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE
PERCENTAGE
52.5
50.0
47.5
45.0
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

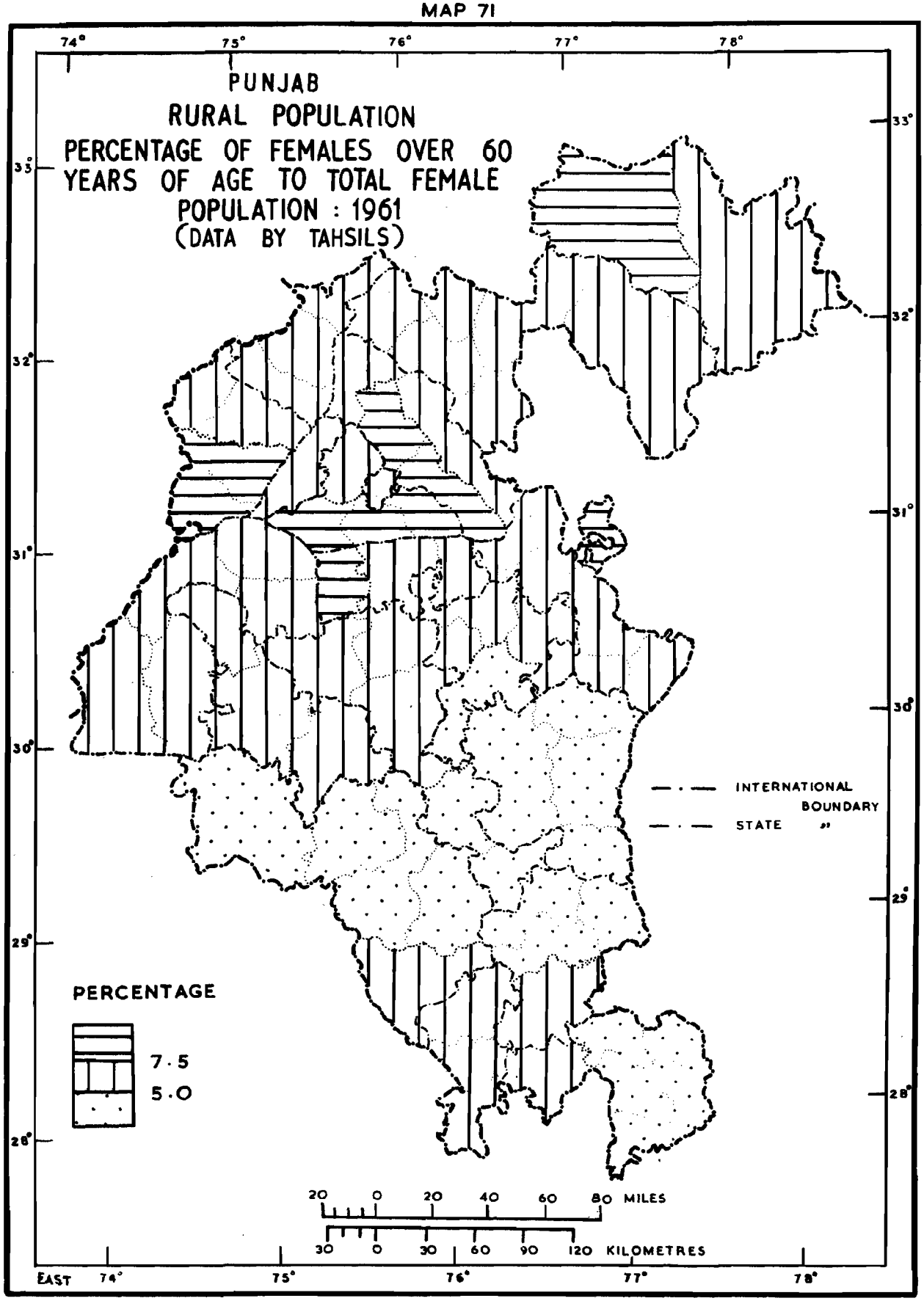
MAP 69


PUNJAB
RURAL POPULATION
PERCENTAGE OF FEMALES IN THE AGE-GROUP 15-59 TO TOTAL FEMALE POPULATION : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
52 · 5
50 · 0
47 · 5
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

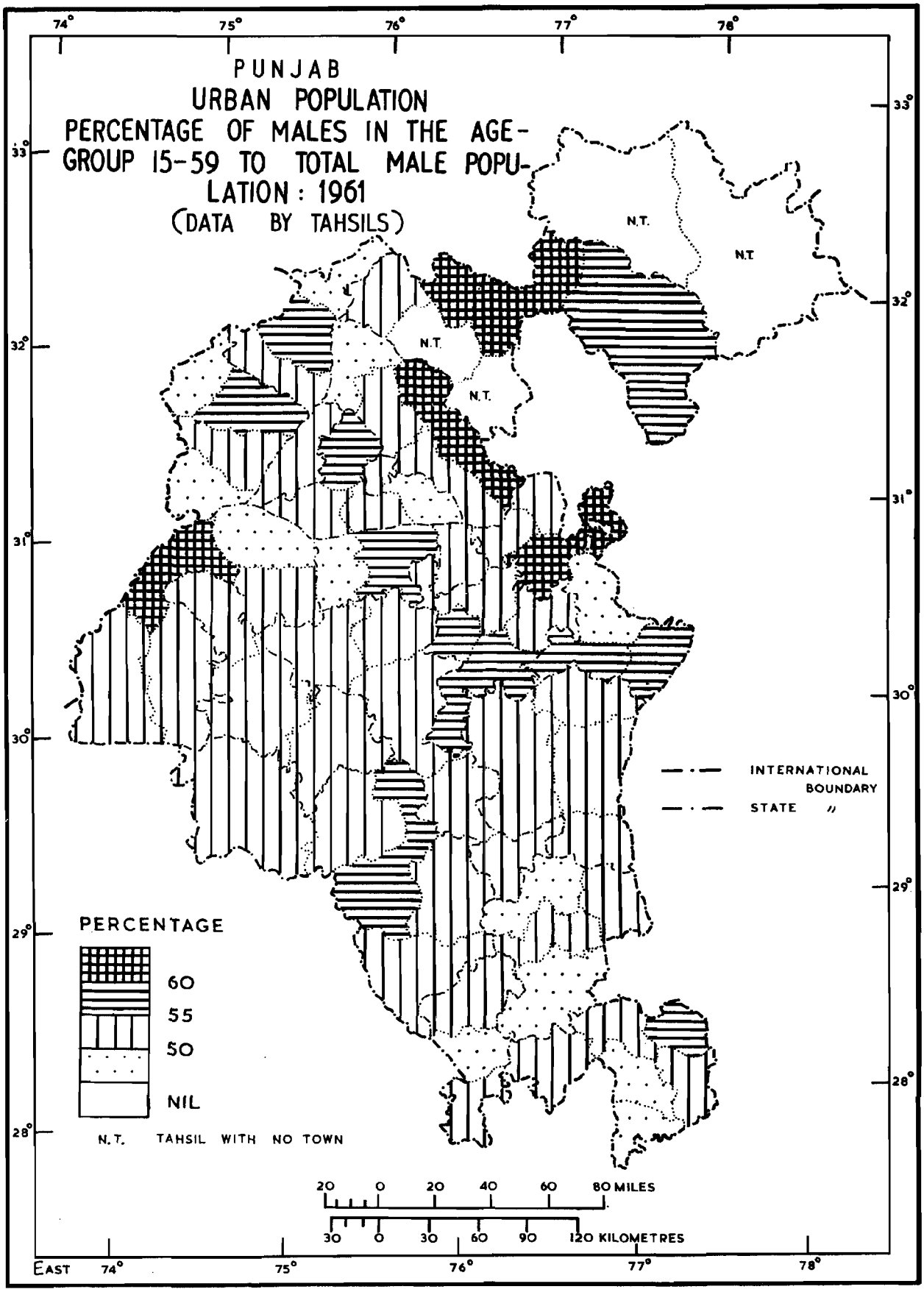
MAP 70


PUNJAB
RURAL POPULATION
PERCENTAGE OF MALES OVER 60 YEARS OF AGE TO TOTAL MALE POPULATION : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
10·0
7·5
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

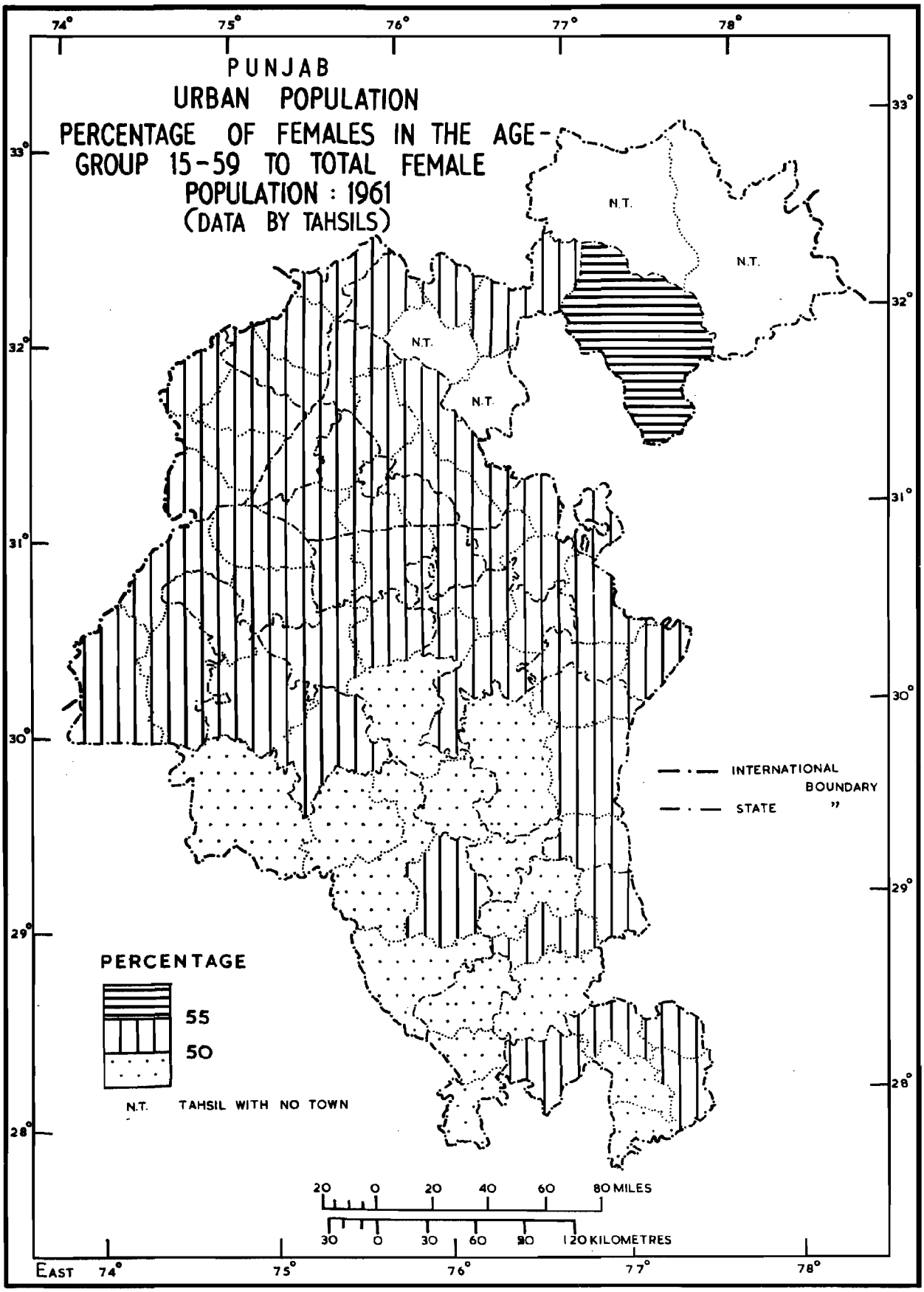
MAP 71


PUNJAB
RURAL POPULATION
PERCENTAGE OF FEMALES OVER 60 YEARS OF AGE TO TOTAL FEMALE POPULATION : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
7.5
5.0
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

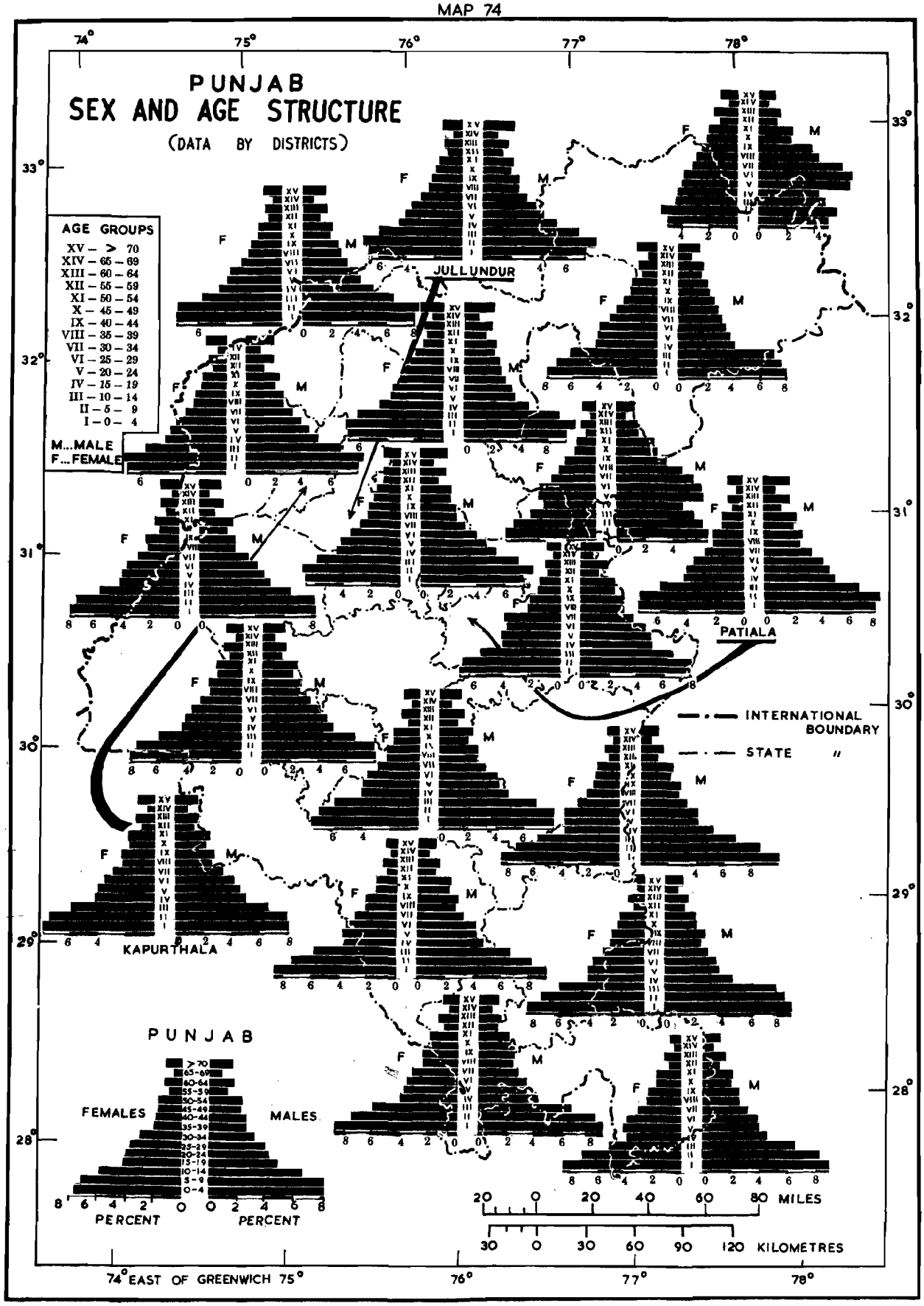
MAP 72


PUNJAB
URBAN POPULATION
PERCENTAGE OF MALES IN THE AGE-GROUP 15-59 TO TOTAL MALE POPULATION : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
N.T.
N.T.
N.T.
N.T.
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
60
55
50
NIL
N.T. TAHSIL WITH NO TOWN
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

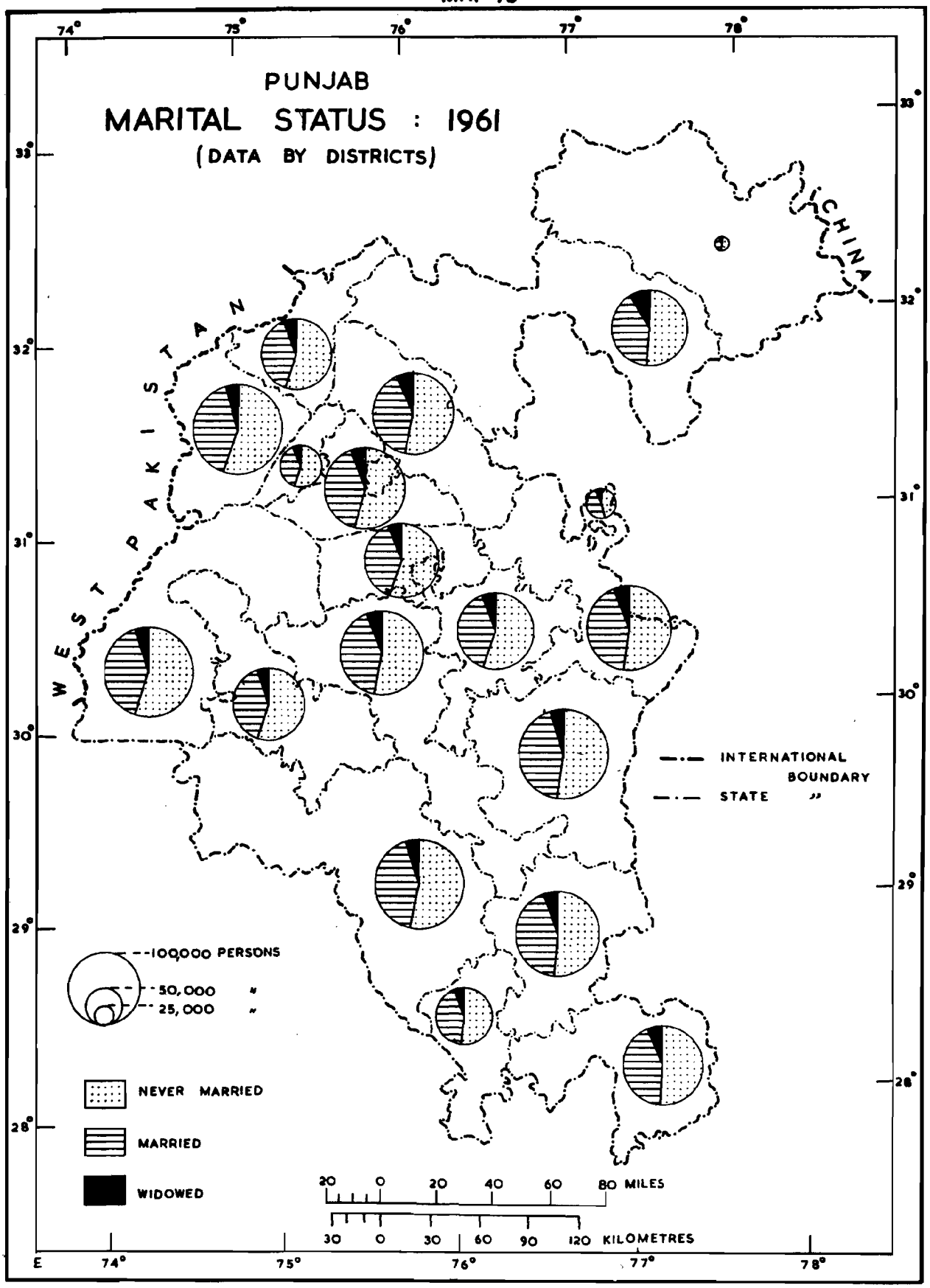
MAP 73


PUNJAB
URBAN POPULATION
PERCENTAGE OF FEMALES IN THE AGE-GROUP 15-59 TO TOTAL FEMALE POPULATION : 1961
(DATA BY TAHSILS)
N.T.
N.T.
N.T.
N.T.
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
55
50
N.T. TAHSIL WITH NO TOWN
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

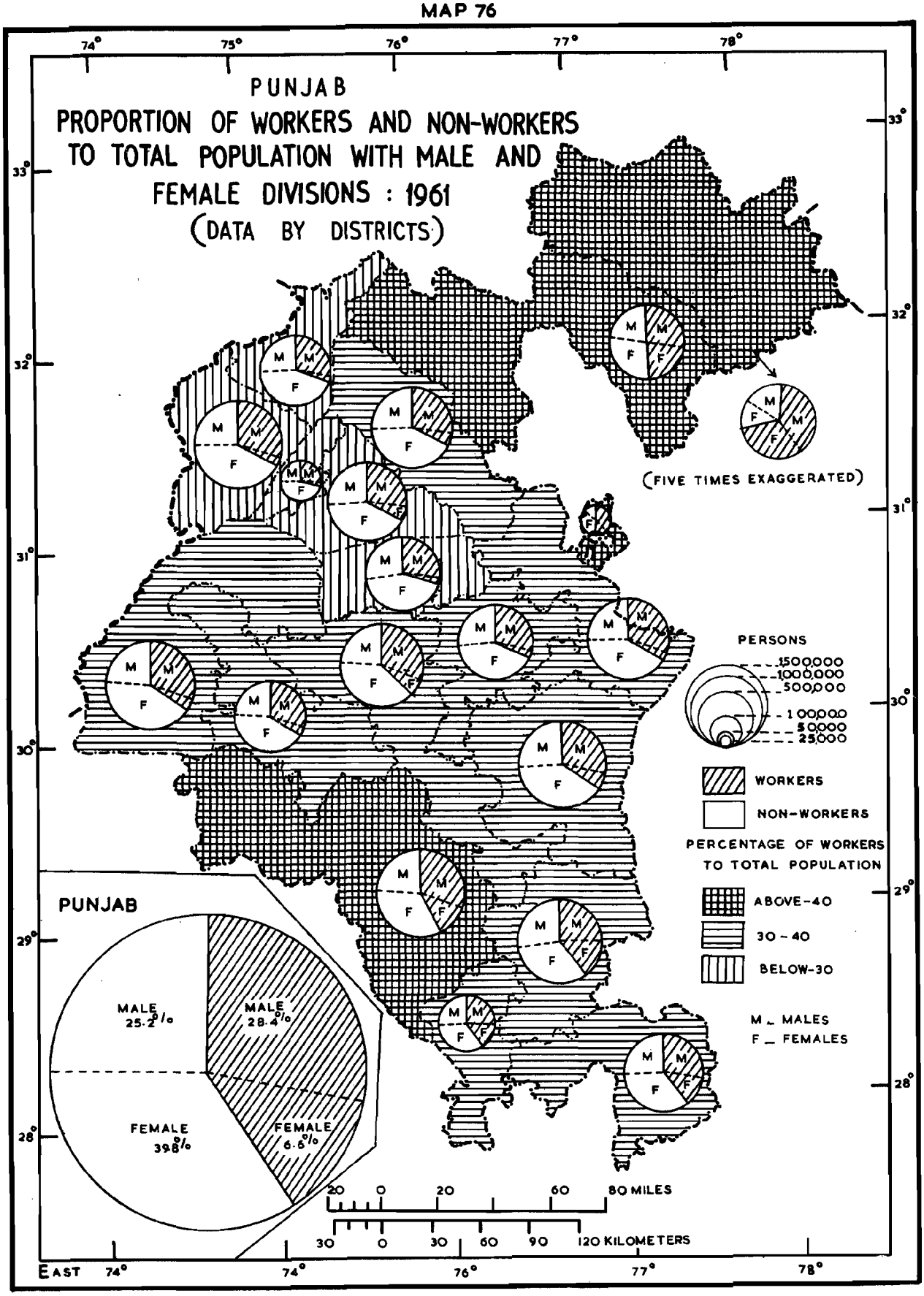
MAP 74


PUNJAB
SEX AND AGE STRUCTURE
(DATA BY DISTRICTS)
AGE GROUPS
XV – > 70
XIV – 65 – 69
XIII – 60 – 64
XII – 55 – 59
XI – 50 – 54
X – 45 – 49
IX – 40 – 44
VIII – 35 – 39
VII – 30 – 34
VI – 25 – 29
V – 20 – 24
IV – 15 – 19
III – 10 – 14
II – 5 – 9
I – 0 – 4
M...MALE
F...FEMALE
JULLUNDUR
PATIALA
KAPURTHALA
INTERNATIONAL BOUNDARY
STATE "
PUNJAB
FEMALES
MALES
PERCENT
PERCENT
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75° 76° 77° 78°
74° 75° 76° 77° 78°
33° 32° 31° 30° 29° 28°

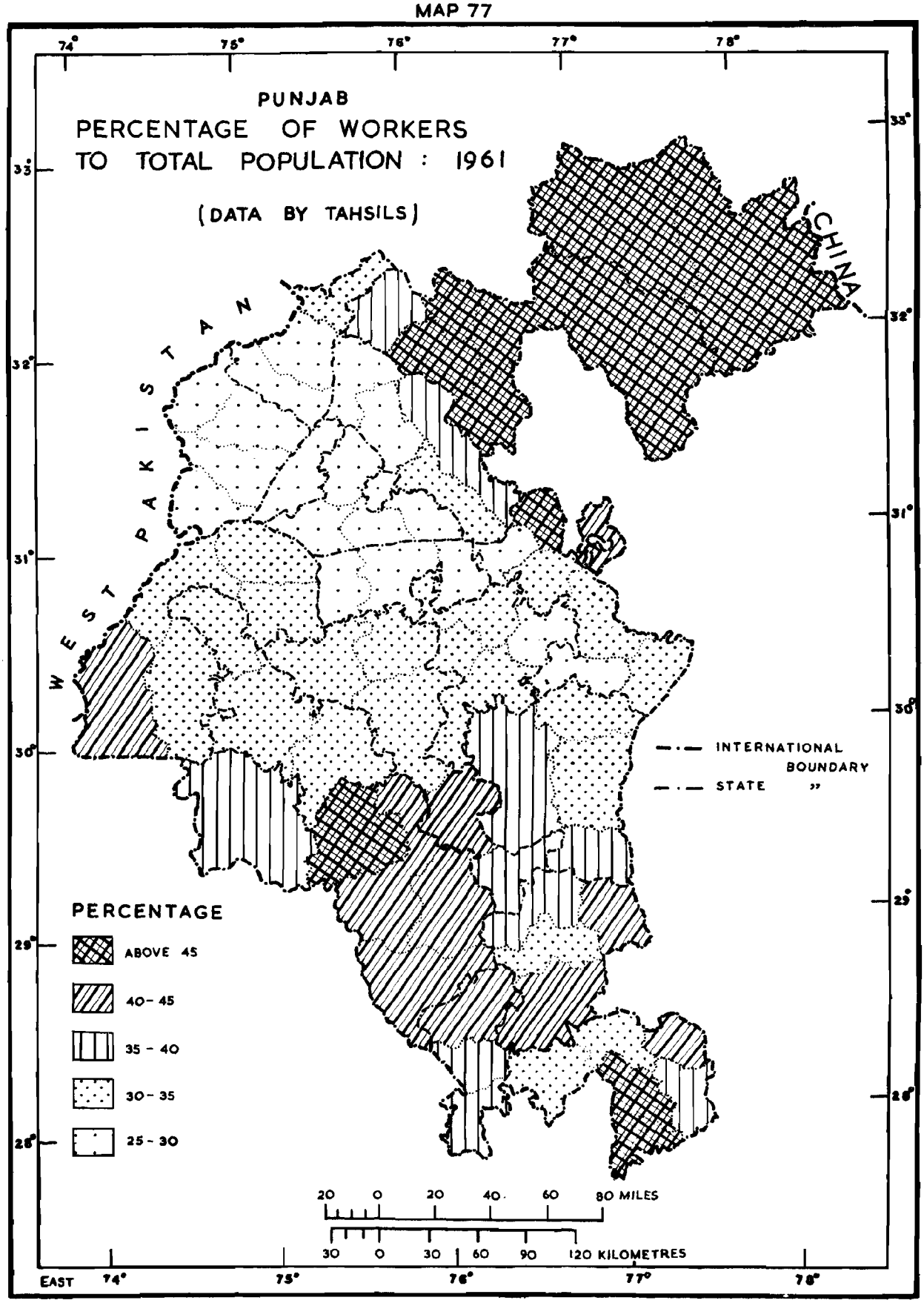
MAP 75


PUNJAB
MARITAL STATUS : 1961
(DATA BY DISTRICTS)
WEST PAKISTAN
CHINA
INTERNATIONAL BOUNDARY
STATE "
100,000 PERSONS
50,000 "
25,000 "
NEVER MARRIED
MARRIED
WIDOWED
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° 75° 76° 77° 78°
33° 32° 31° 30° 29° 28°

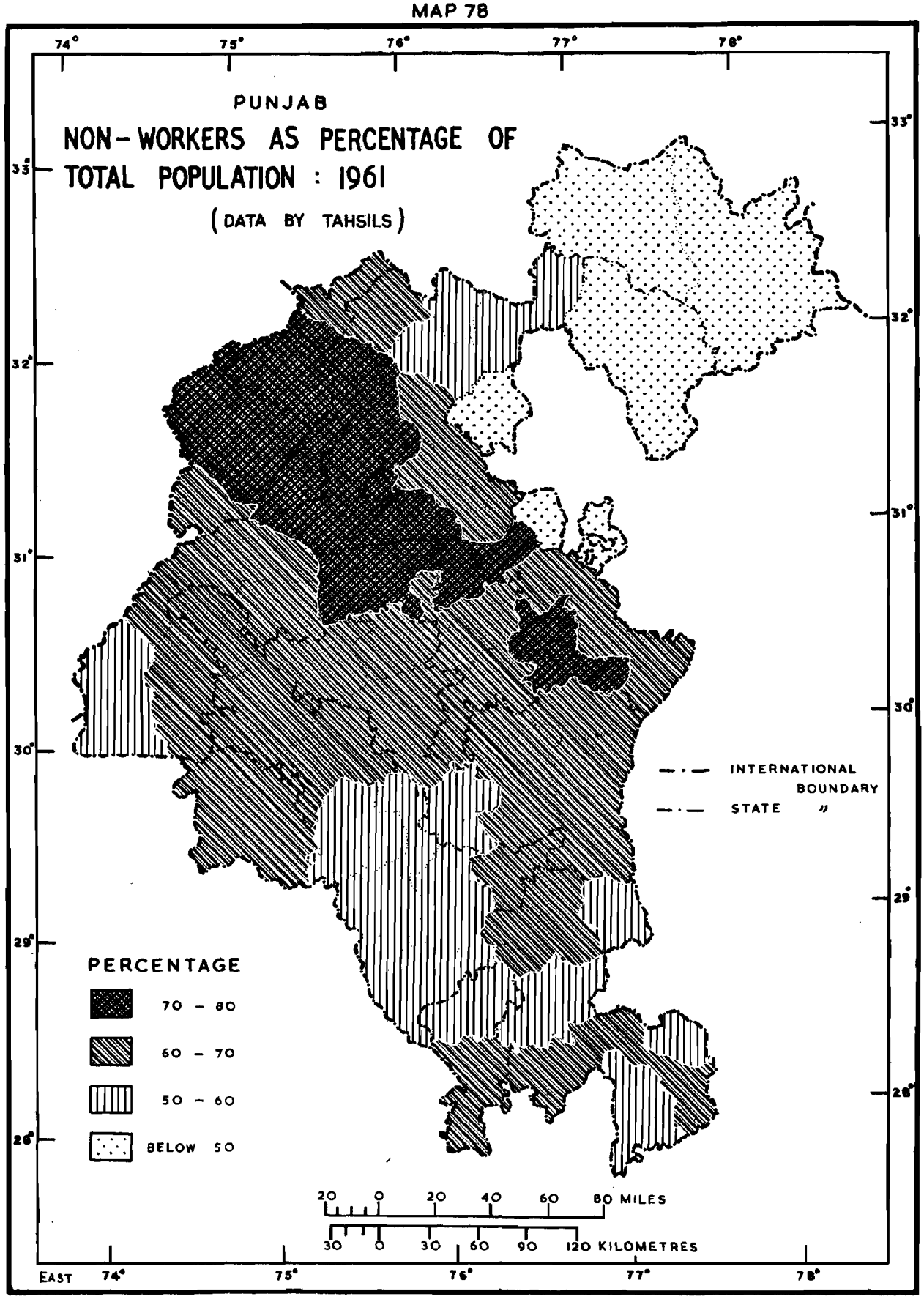
MAP 76


PUNJAB
PROPORTION OF WORKERS AND NON-WORKERS TO TOTAL POPULATION WITH MALE AND FEMALE DIVISIONS : 1961
(DATA BY DISTRICTS)
(FIVE TIMES EXAGGERATED)
PERSONS
1500000
1000000
500000
100000
50000
25000
WORKERS
NON-WORKERS
PERCENTAGE OF WORKERS TO TOTAL POPULATION
ABOVE-40
30 - 40
BELOW-30
M - MALES
F - FEMALES
PUNJAB
MALE 25.2 %
MALE 28.4 %
FEMALE 39.8 %
FEMALE 6.6 %
20 0 20 60 80 MILES
30 0 30 60 90 120 KILOMETERS
EAST
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

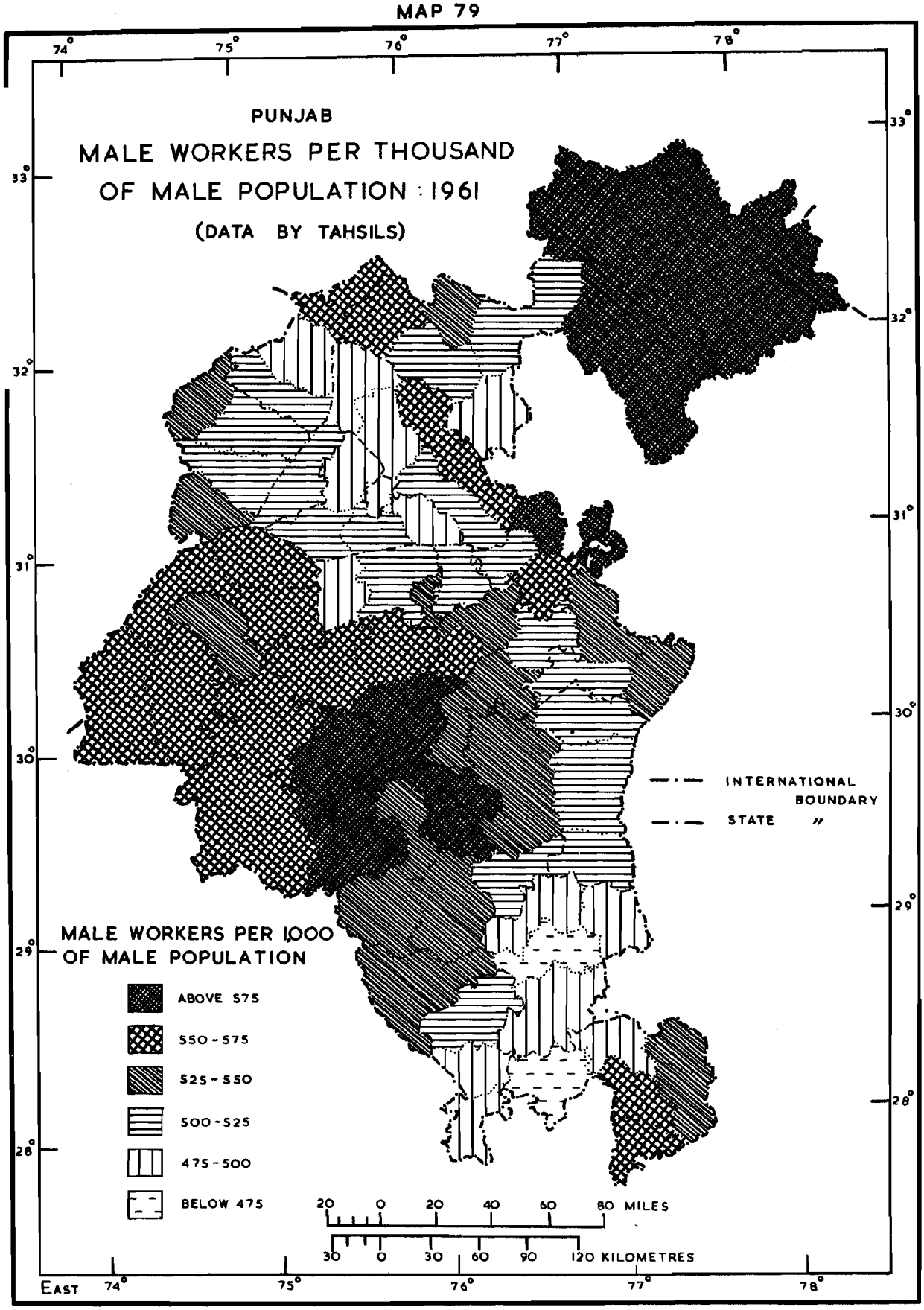
MAP 77


PUNJAB
PERCENTAGE OF WORKERS
TO TOTAL POPULATION : 1961
(DATA BY TAHSILS)
CHINA
WEST PAKISTAN
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
ABOVE 45
40 - 45
35 - 40
30 - 35
25 - 30
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

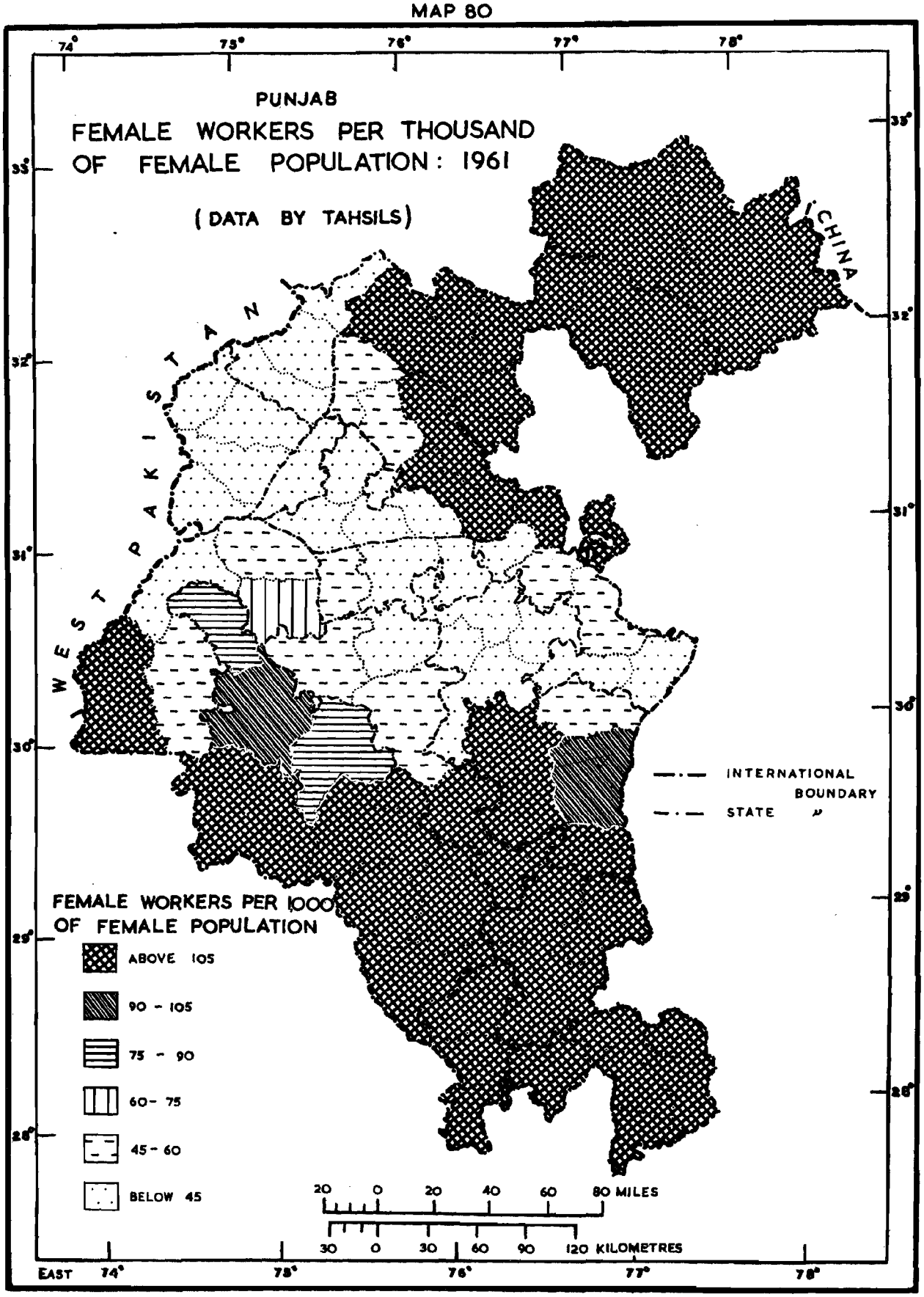
MAP 78


PUNJAB
NON-WORKERS AS PERCENTAGE OF TOTAL POPULATION : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
35°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
70 - 80
60 - 70
50 - 60
BELOW 50
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

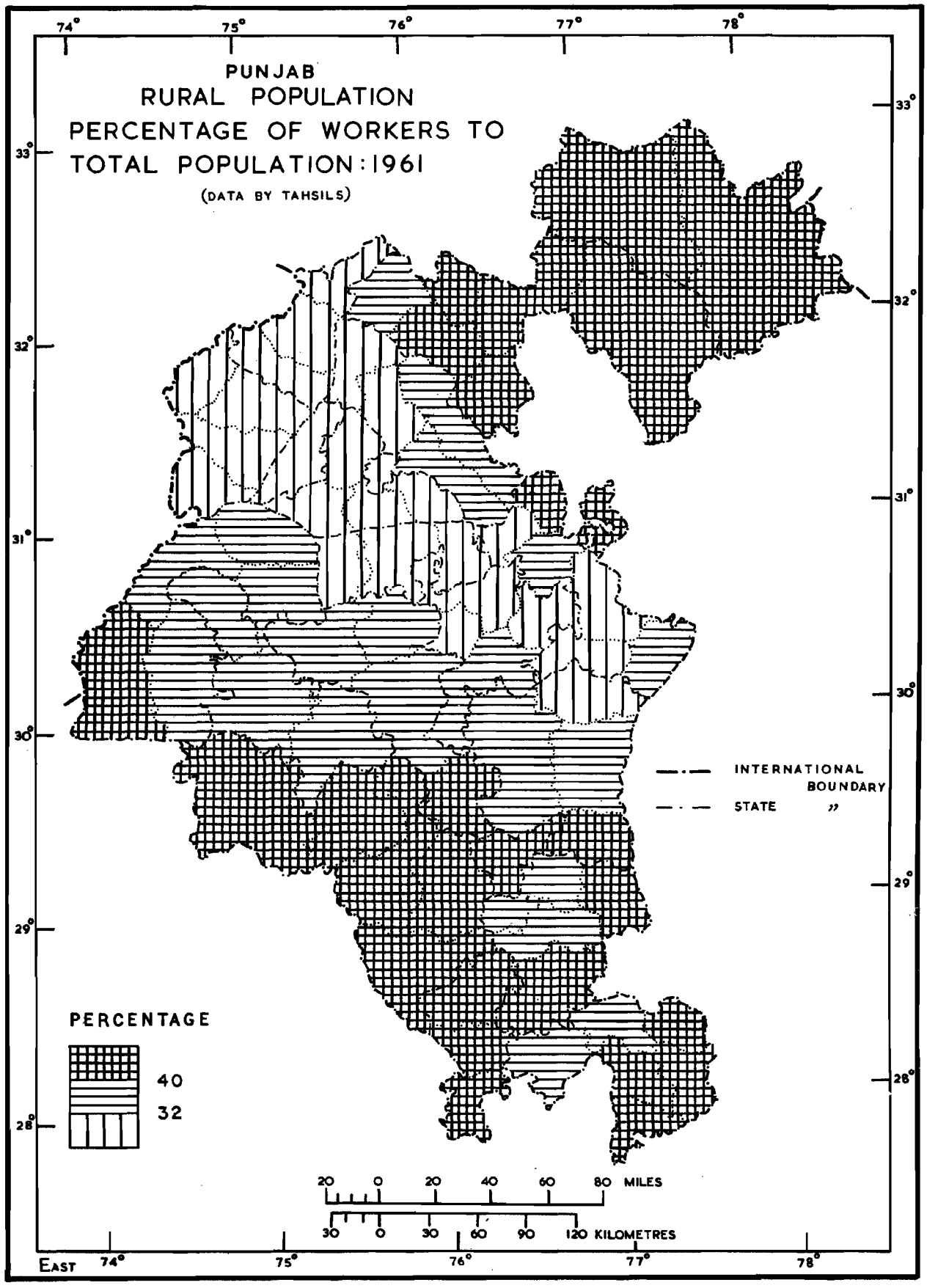
MAP 79


PUNJAB
MALE WORKERS PER THOUSAND OF MALE POPULATION : 1961
(DATA BY TAHSILS)
INTERNATIONAL BOUNDARY
STATE "
MALE WORKERS PER 1,000 OF MALE POPULATION
ABOVE 575
550 - 575
525 - 550
500 - 525
475 - 500
BELOW 475
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

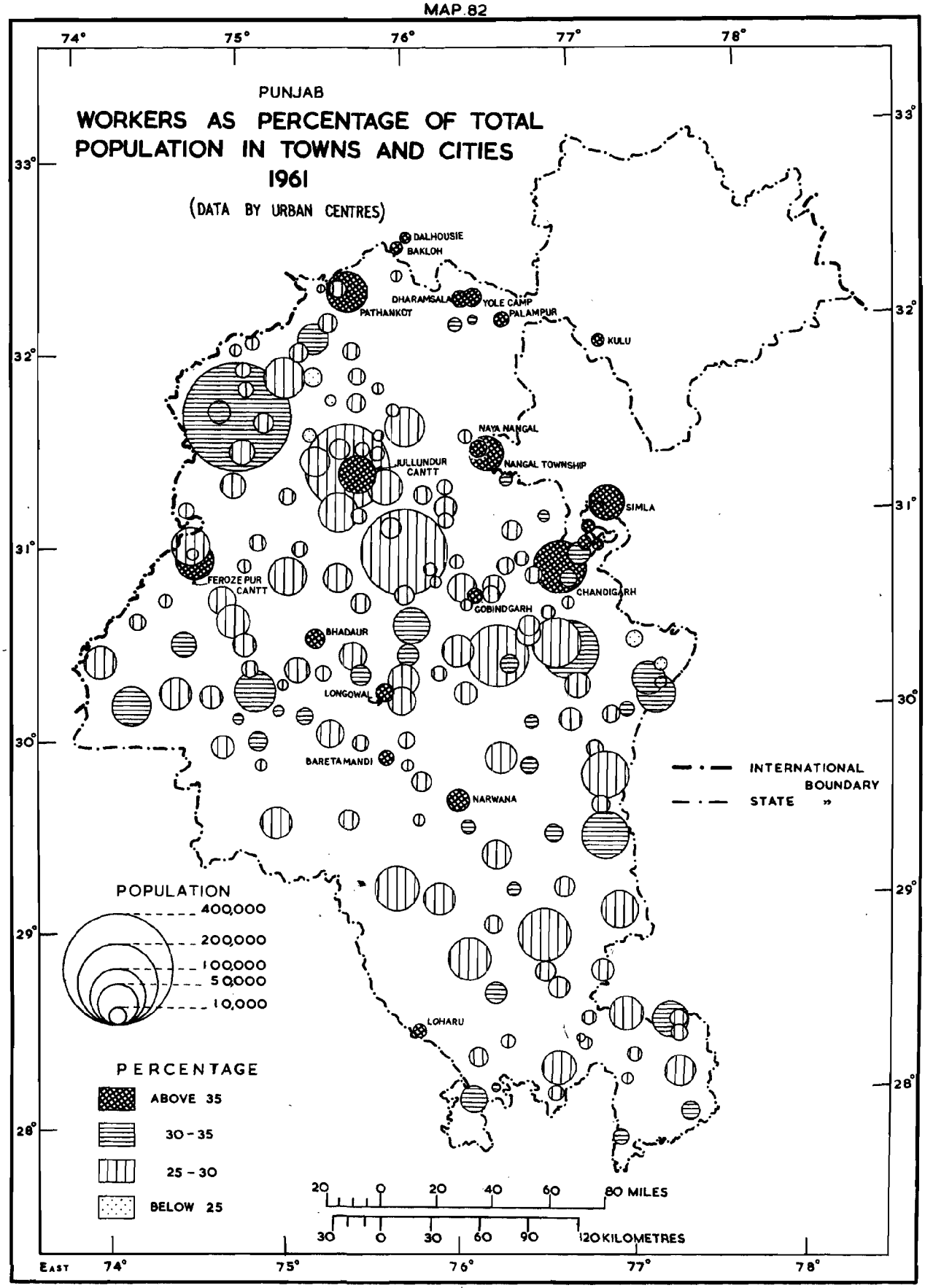
MAP 80


PUNJAB
FEMALE WORKERS PER THOUSAND OF FEMALE POPULATION : 1961
(DATA BY TAHSILS)
WEST PAKISTAN
CHINA
INTERNATIONAL BOUNDARY
STATE
FEMALE WORKERS PER 1000 OF FEMALE POPULATION
ABOVE 105
90 - 105
75 - 90
60 - 75
45 - 60
BELOW 45
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST
74°
75°
76°
77°
78°
35°
34°
33°
32°
31°
30°
29°
28°

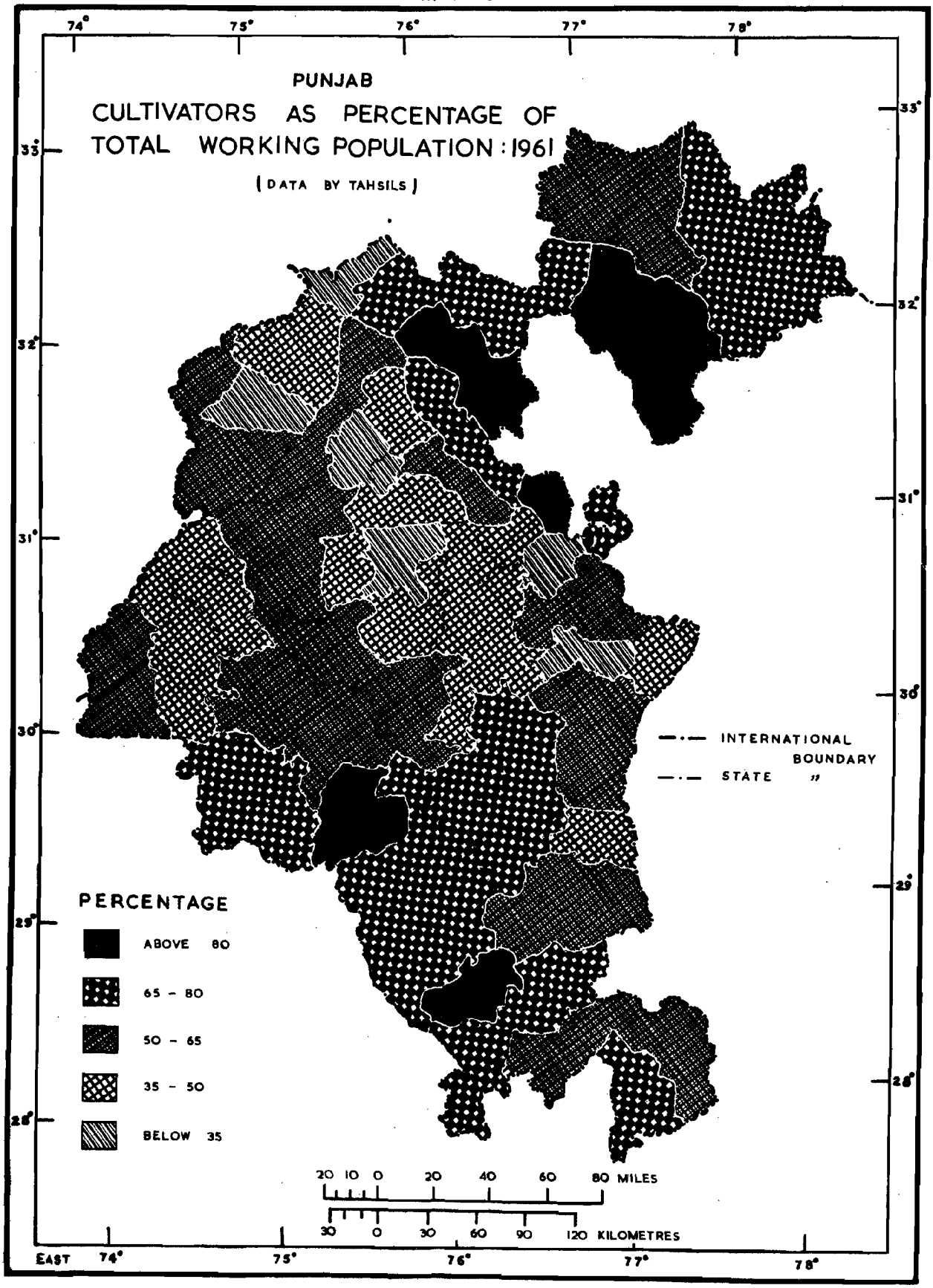
MAP 81


PUNJAB
RURAL POPULATION
PERCENTAGE OF WORKERS TO TOTAL POPULATION: 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
40
32
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

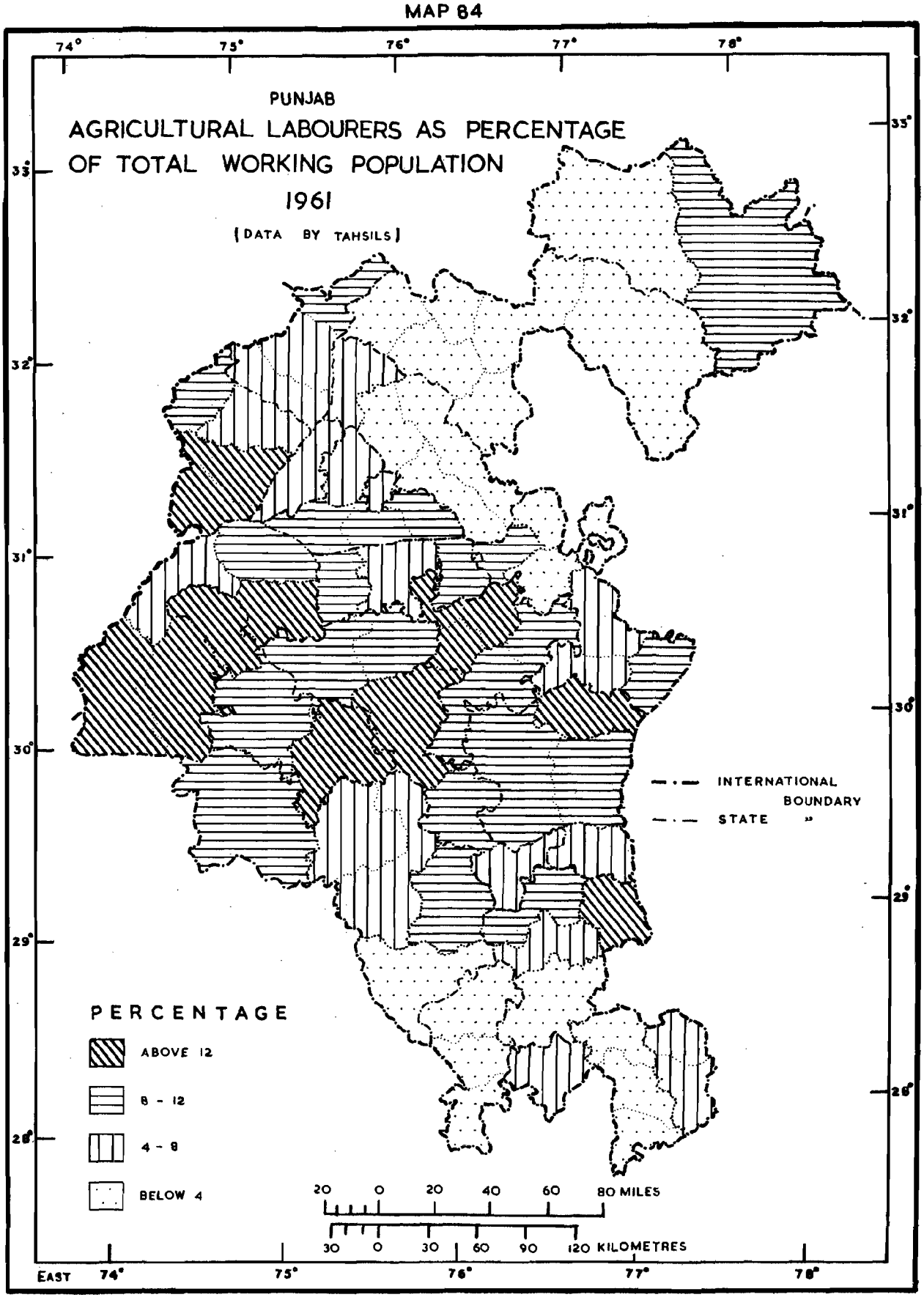
MAP 82


PUNJAB
WORKERS AS PERCENTAGE OF TOTAL POPULATION IN TOWNS AND CITIES 1961
(DATA BY URBAN CENTRES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
DALHOUSIE
BAKLOH
PATHANKOT
DHARAMSALA
YOLE CAMP
PALAMPUR
KULU
NAYA NANGAL
NANGAL TOWNSHIP
JULLUNDUR CANTT
SIMLA
FEROZE PUR CANTT
CHANDIGARH
GOBINDGARH
BHADAUR
LONGOWAL
BARETA MANDI
NARWANA
LOHARU
INTERNATIONAL BOUNDARY
STATE »
POPULATION
400,000
200,000
100,000
50,000
10,000
PERCENTAGE
ABOVE 35
30 - 35
25 - 30
BELOW 25
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

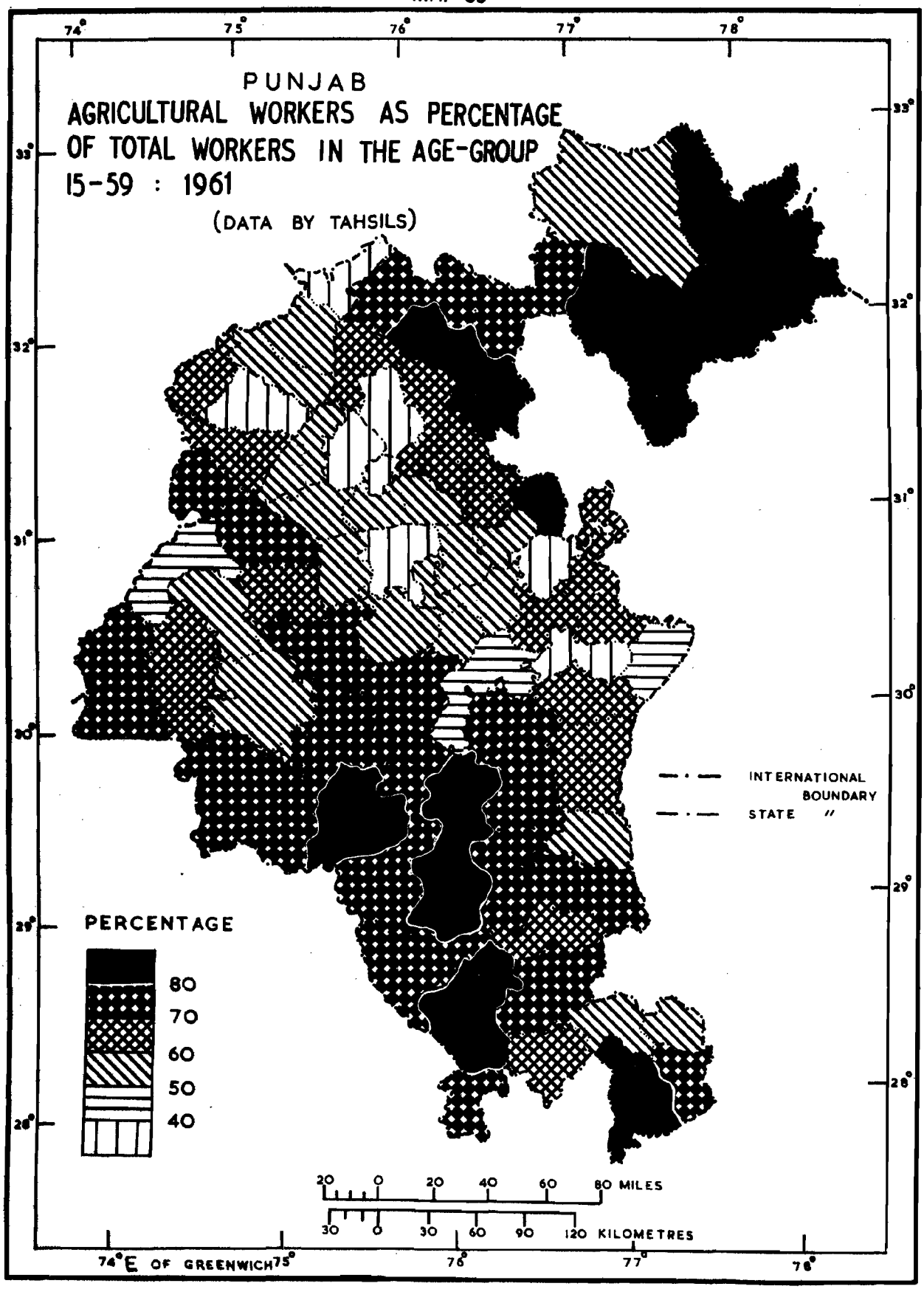
MAP 83


PUNJAB
CULTIVATORS AS PERCENTAGE OF TOTAL WORKING POPULATION : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
ABOVE 80
65 - 80
50 - 65
35 - 50
BELOW 35
20 10 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

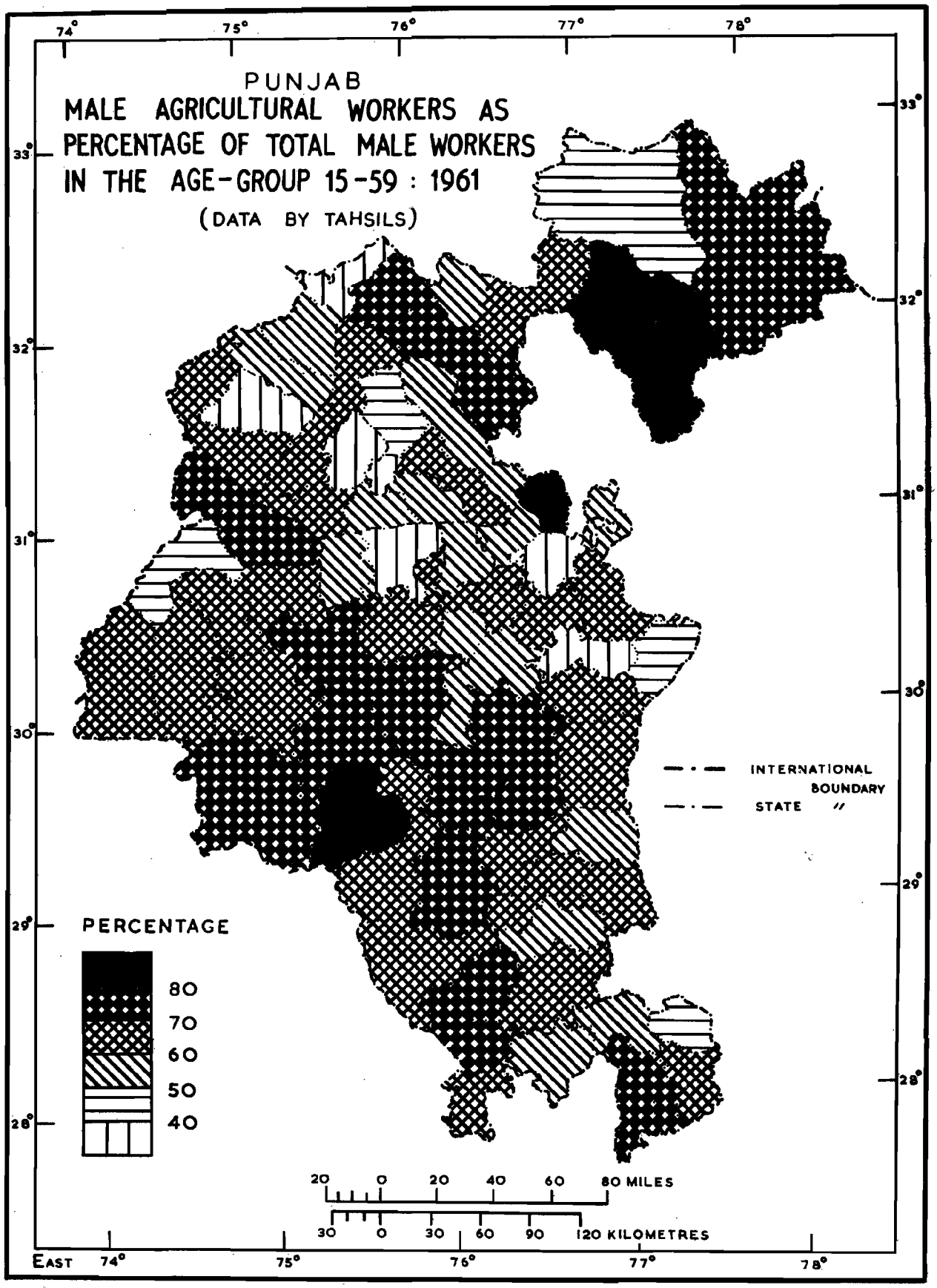
MAP 84


PUNJAB
AGRICULTURAL LABOURERS AS PERCENTAGE OF TOTAL WORKING POPULATION
1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
35°
34°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
ABOVE 12
8 - 12
4 - 8
BELOW 4
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

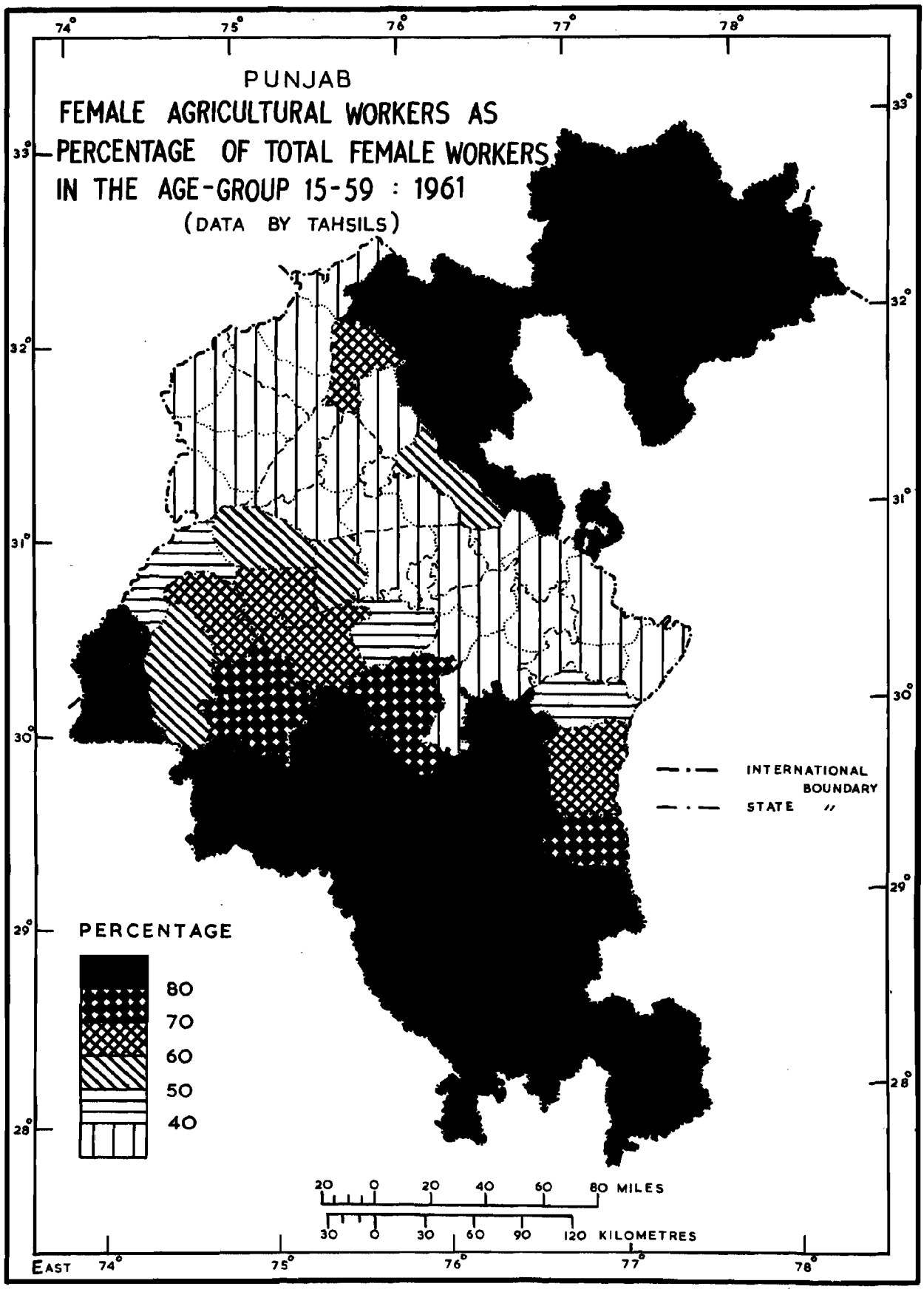
MAP 85


PUNJAB
AGRICULTURAL WORKERS AS PERCENTAGE OF TOTAL WORKERS IN THE AGE-GROUP 15-59 : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
80
70
60
50
40
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74°E OF GREENWICH

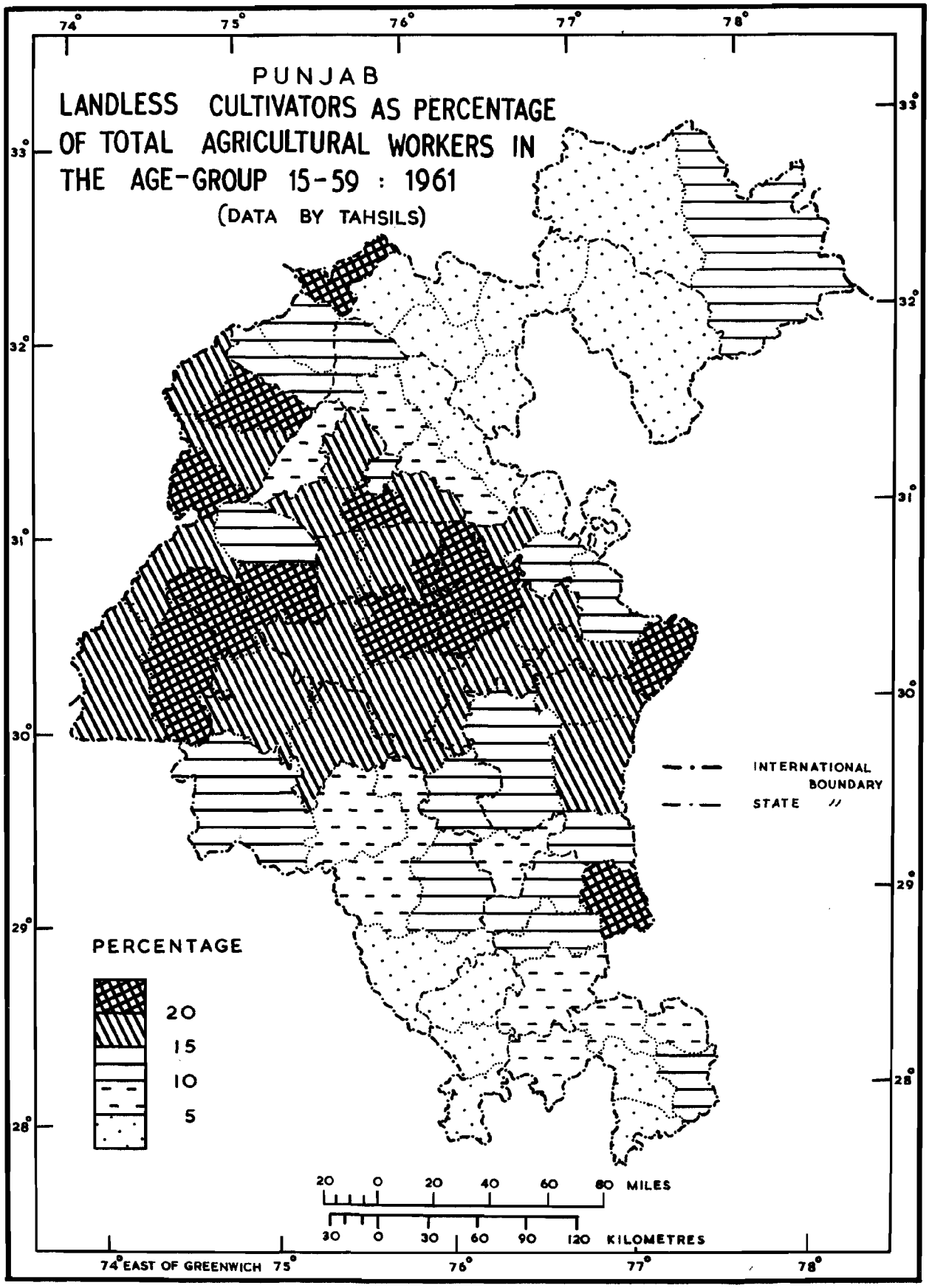
MAP 86


PUNJAB
MALE AGRICULTURAL WORKERS AS PERCENTAGE OF TOTAL MALE WORKERS IN THE AGE-GROUP 15-59 : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
80
70
60
50
40
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

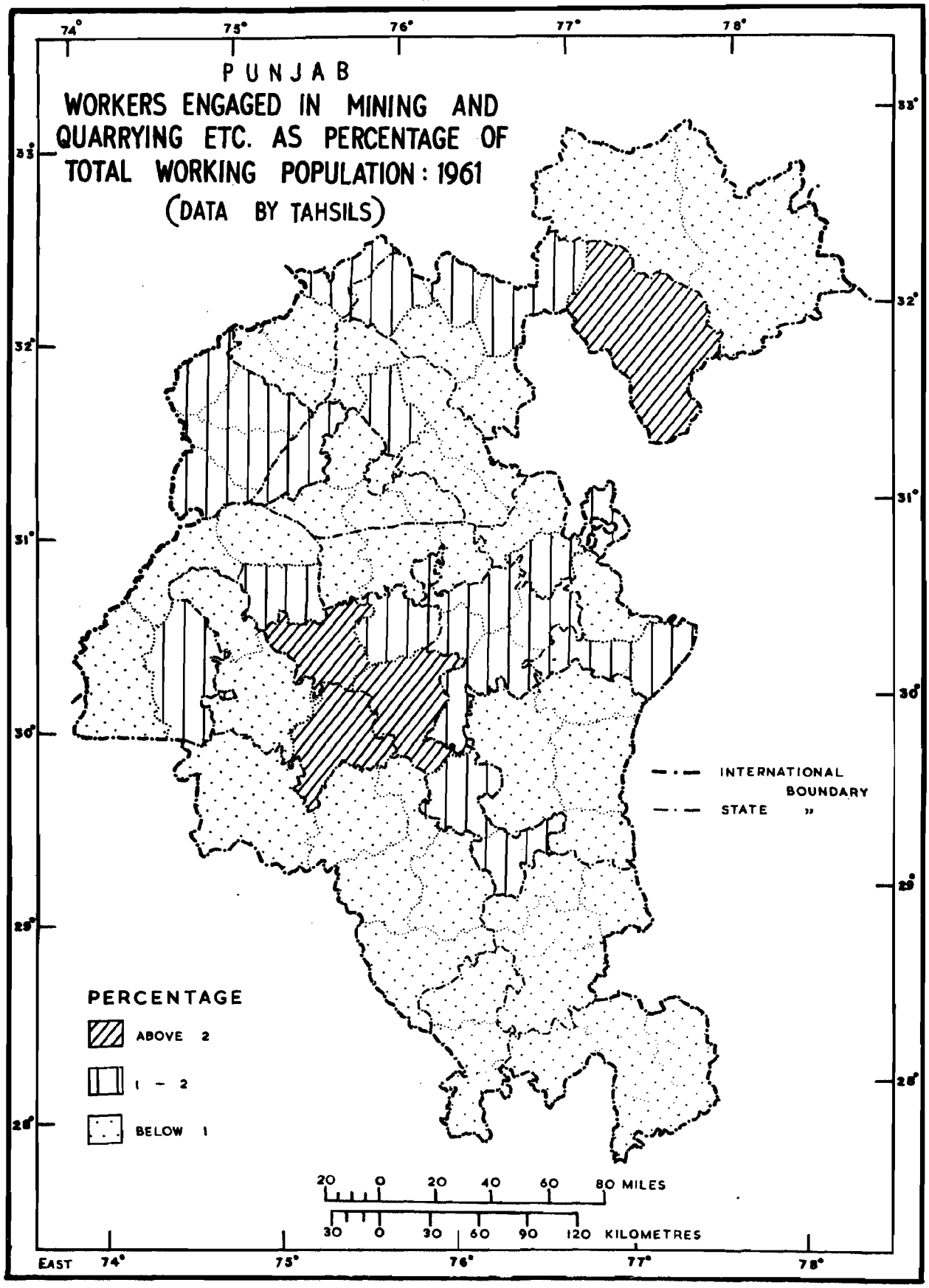
MAP 87


PUNJAB
FEMALE AGRICULTURAL WORKERS AS
PERCENTAGE OF TOTAL FEMALE WORKERS
IN THE AGE-GROUP 15-59 : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
80
70
60
50
40
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

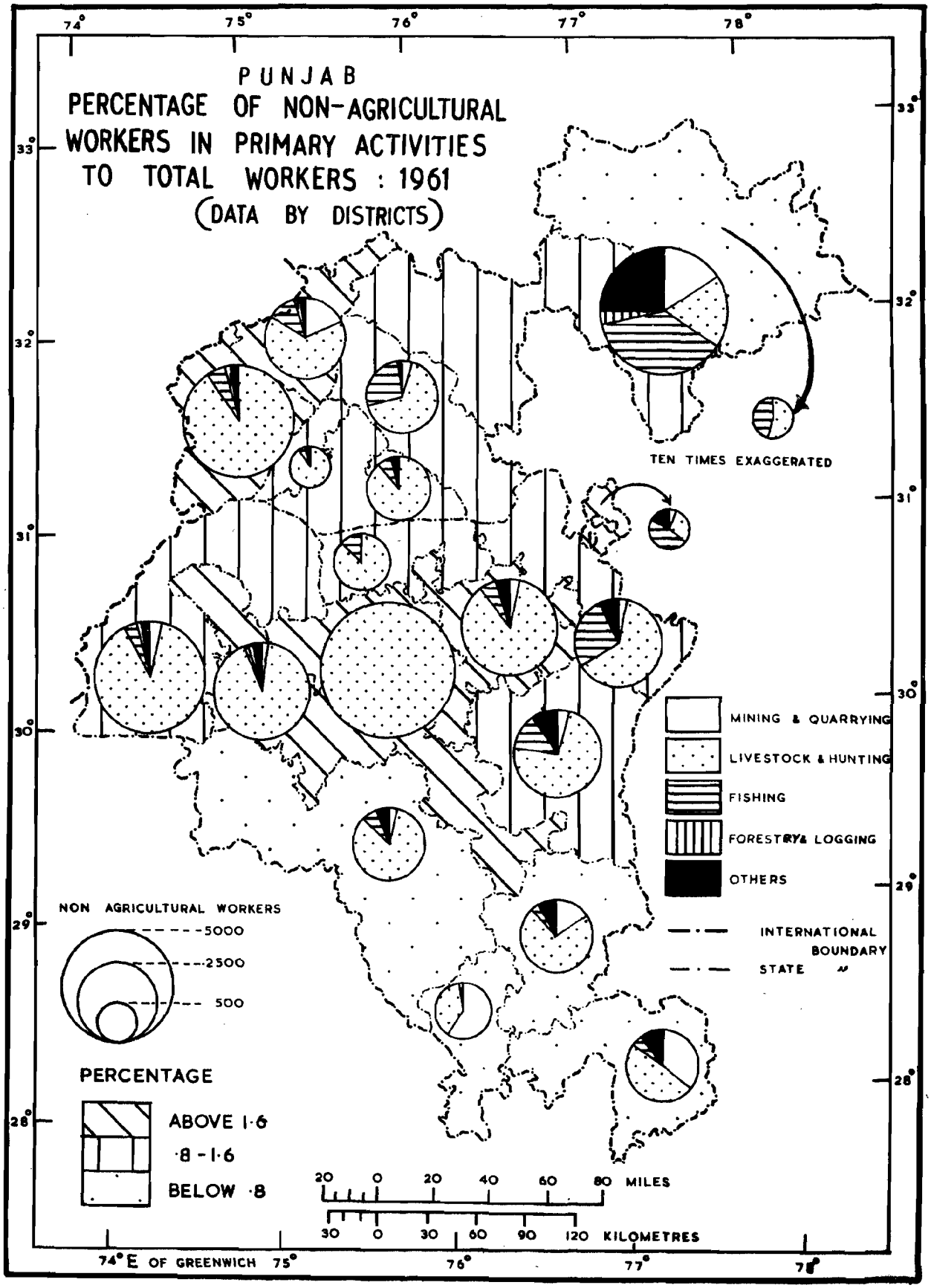
MAP 88


PUNJAB
LANDLESS CULTIVATORS AS PERCENTAGE OF TOTAL AGRICULTURAL WORKERS IN THE AGE-GROUP 15-59 : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE
PERCENTAGE
20
15
10
5
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

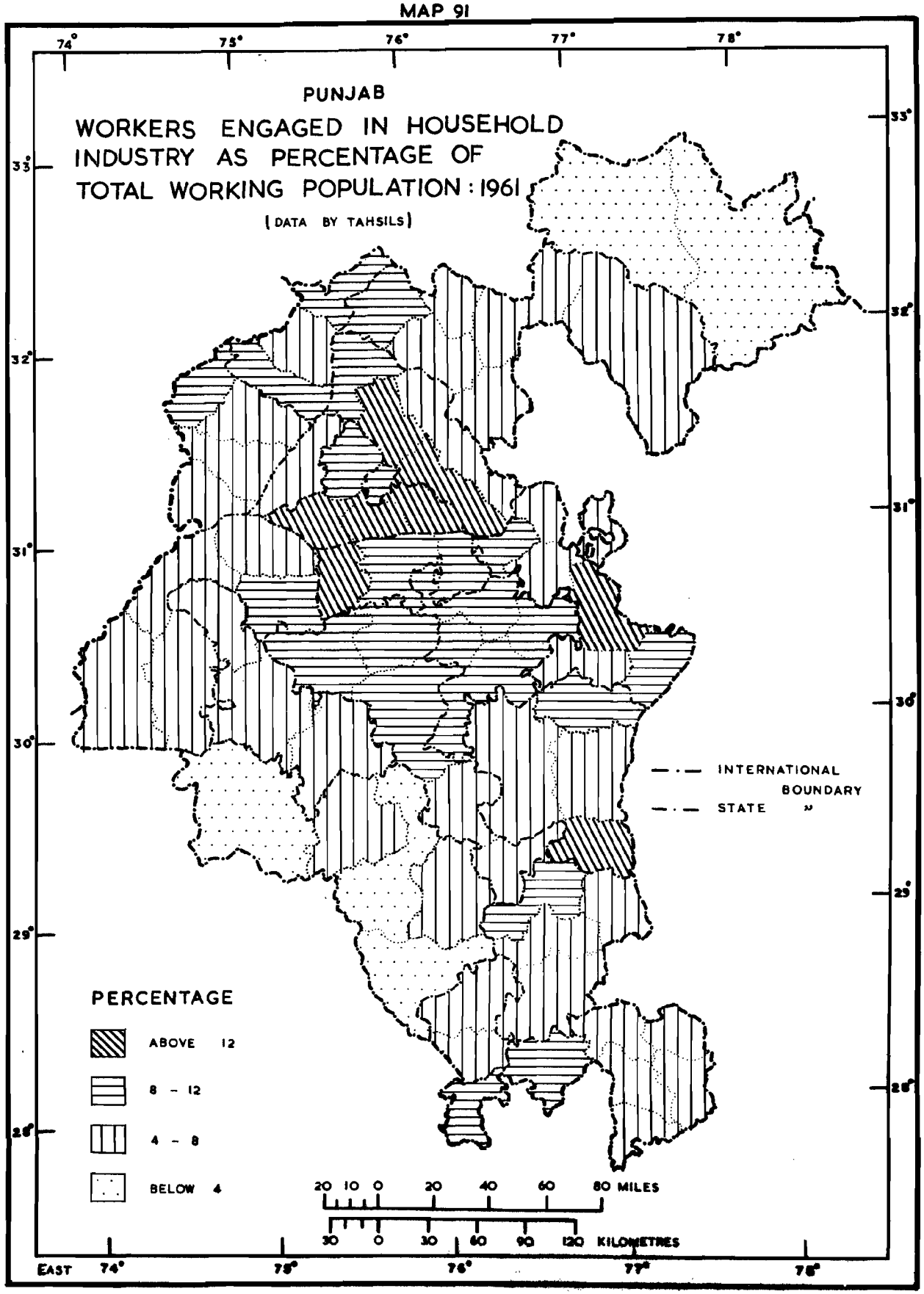
MAP 89


PUNJAB
WORKERS ENGAGED IN MINING AND QUARRYING ETC. AS PERCENTAGE OF TOTAL WORKING POPULATION : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE »
PERCENTAGE
ABOVE 2
1 - 2
BELOW 1
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

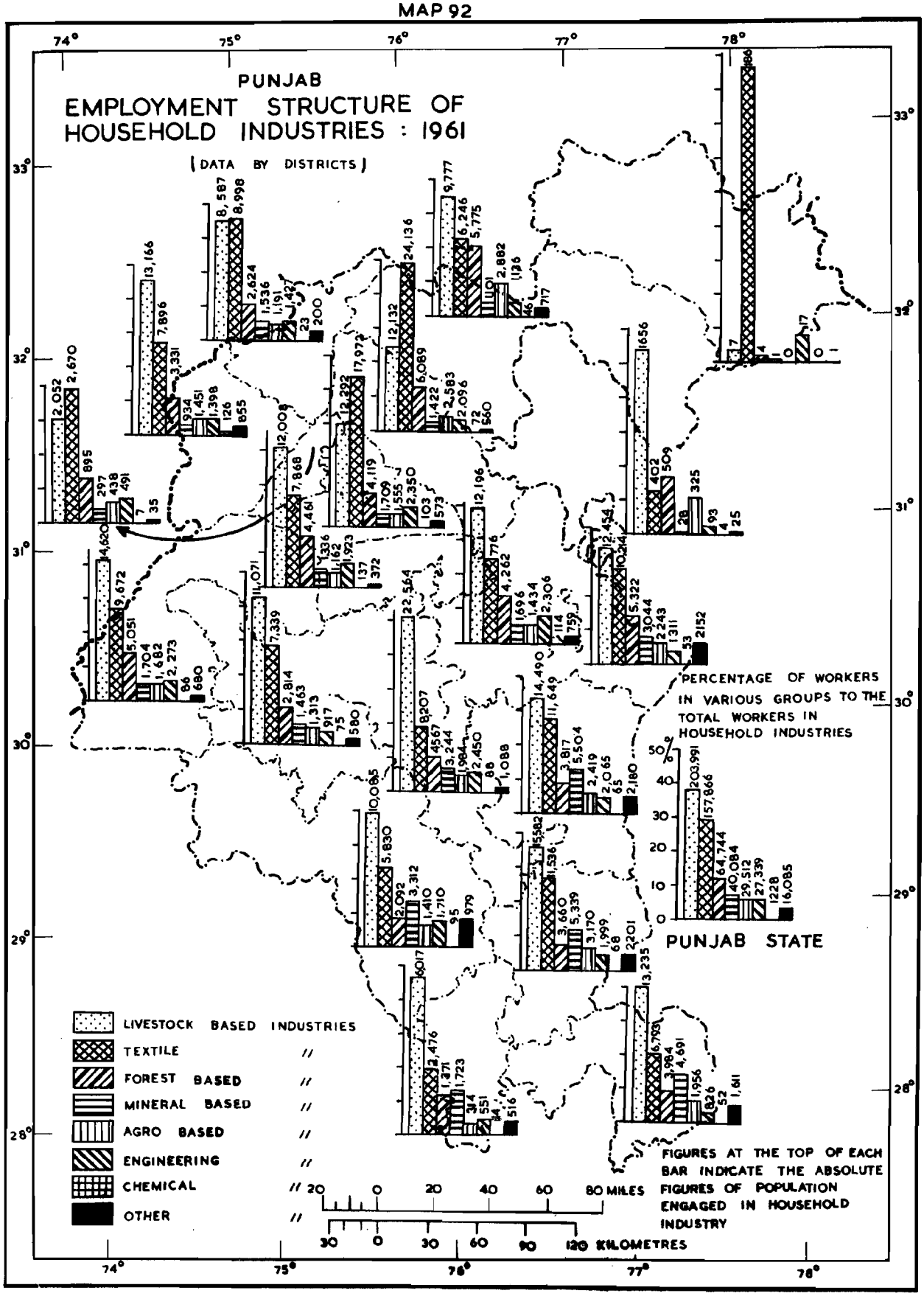
MAP 90


PUNJAB
PERCENTAGE OF NON-AGRICULTURAL WORKERS IN PRIMARY ACTIVITIES TO TOTAL WORKERS : 1961
(DATA BY DISTRICTS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
TEN TIMES EXAGGERATED
MINING & QUARRYING
LIVESTOCK & HUNTING
FISHING
FORESTRY & LOGGING
OTHERS
INTERNATIONAL BOUNDARY
STATE
NON AGRICULTURAL WORKERS
5000
2500
500
PERCENTAGE
ABOVE 1·6
·8 - 1·6
BELOW ·8
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° E OF GREENWICH

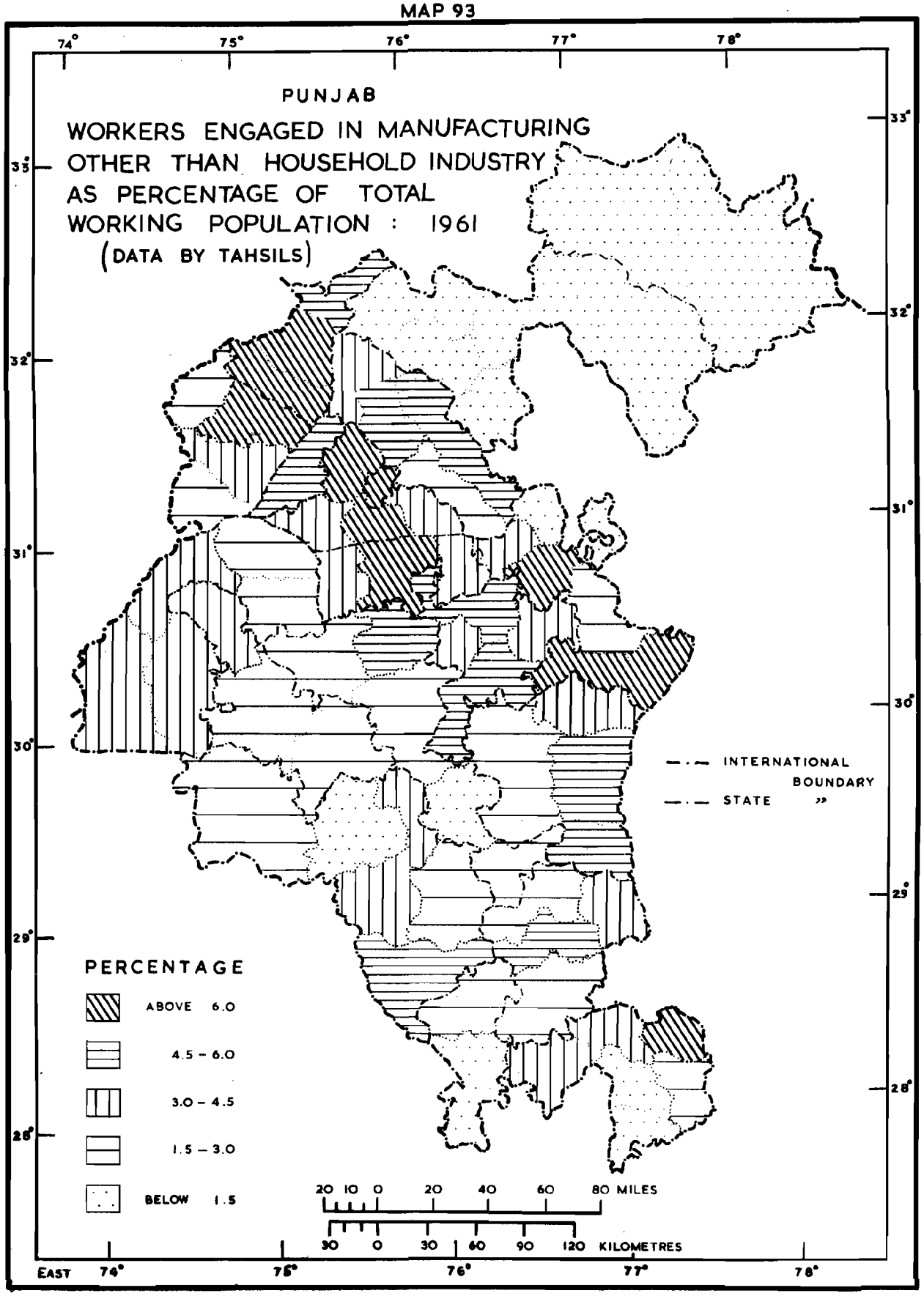
MAP 91


PUNJAB
WORKERS ENGAGED IN HOUSEHOLD INDUSTRY AS PERCENTAGE OF TOTAL WORKING POPULATION : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
ABOVE 12
8 - 12
4 - 8
BELOW 4
20 10 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

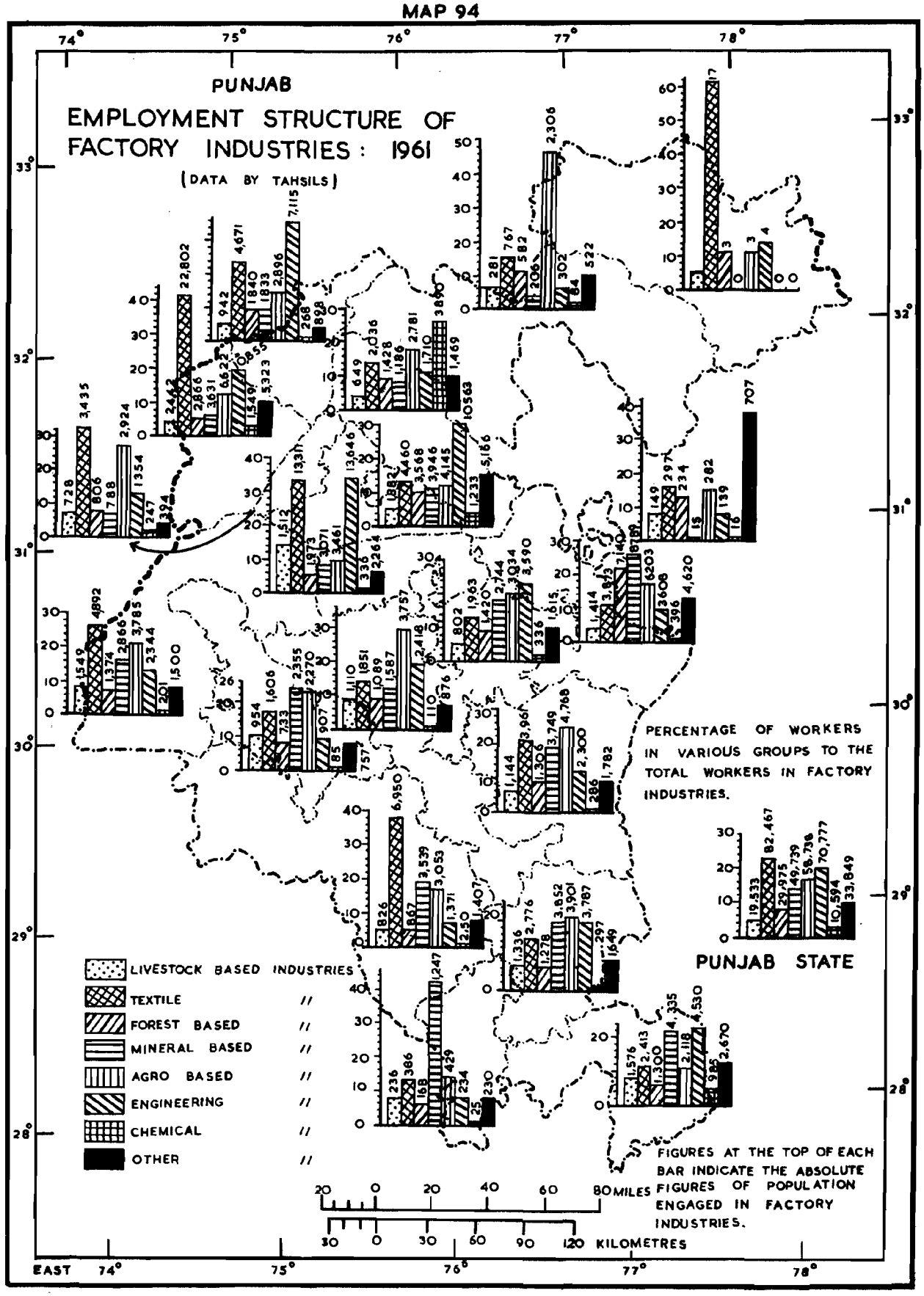
MAP 92


PUNJAB
EMPLOYMENT STRUCTURE OF HOUSEHOLD INDUSTRIES : 1961
(DATA BY DISTRICTS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
LIVESTOCK BASED INDUSTRIES
TEXTILE //
FOREST BASED //
MINERAL BASED //
AGRO BASED //
ENGINEERING //
CHEMICAL //
OTHER //
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
PERCENTAGE OF WORKERS IN VARIOUS GROUPS TO THE TOTAL WORKERS IN HOUSEHOLD INDUSTRIES
50
40
30
20
10
0
203,991
157,866
64,744
40,084
29,512
27,339
1228
16,085
PUNJAB STATE
FIGURES AT THE TOP OF EACH BAR INDICATE THE ABSOLUTE FIGURES OF POPULATION ENGAGED IN HOUSEHOLD INDUSTRY

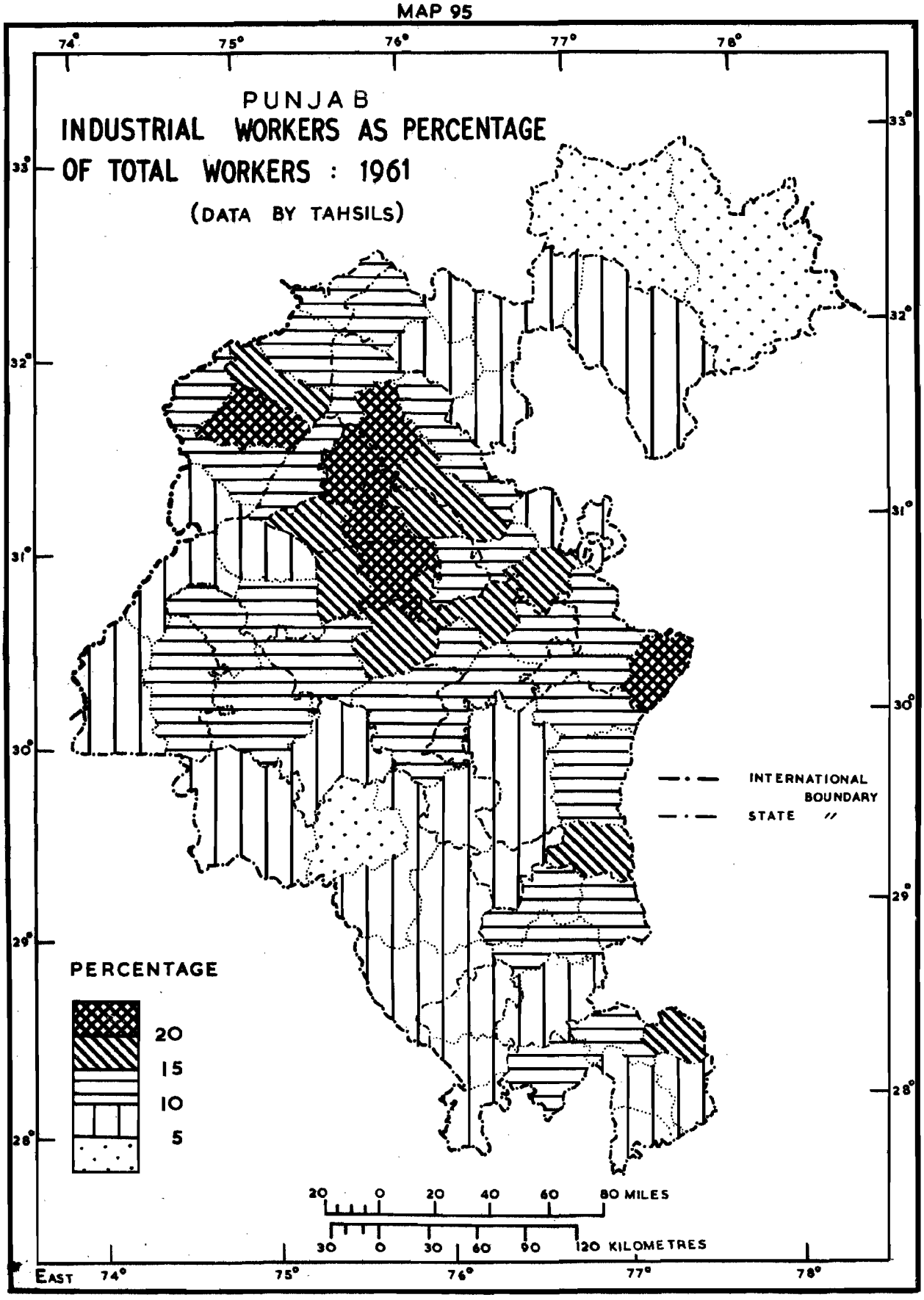
MAP 93


PUNJAB
WORKERS ENGAGED IN MANUFACTURING OTHER THAN HOUSEHOLD INDUSTRY AS PERCENTAGE OF TOTAL WORKING POPULATION : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
35°
34°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
ABOVE 6.0
4.5 - 6.0
3.0 - 4.5
1.5 - 3.0
BELOW 1.5
20 10 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

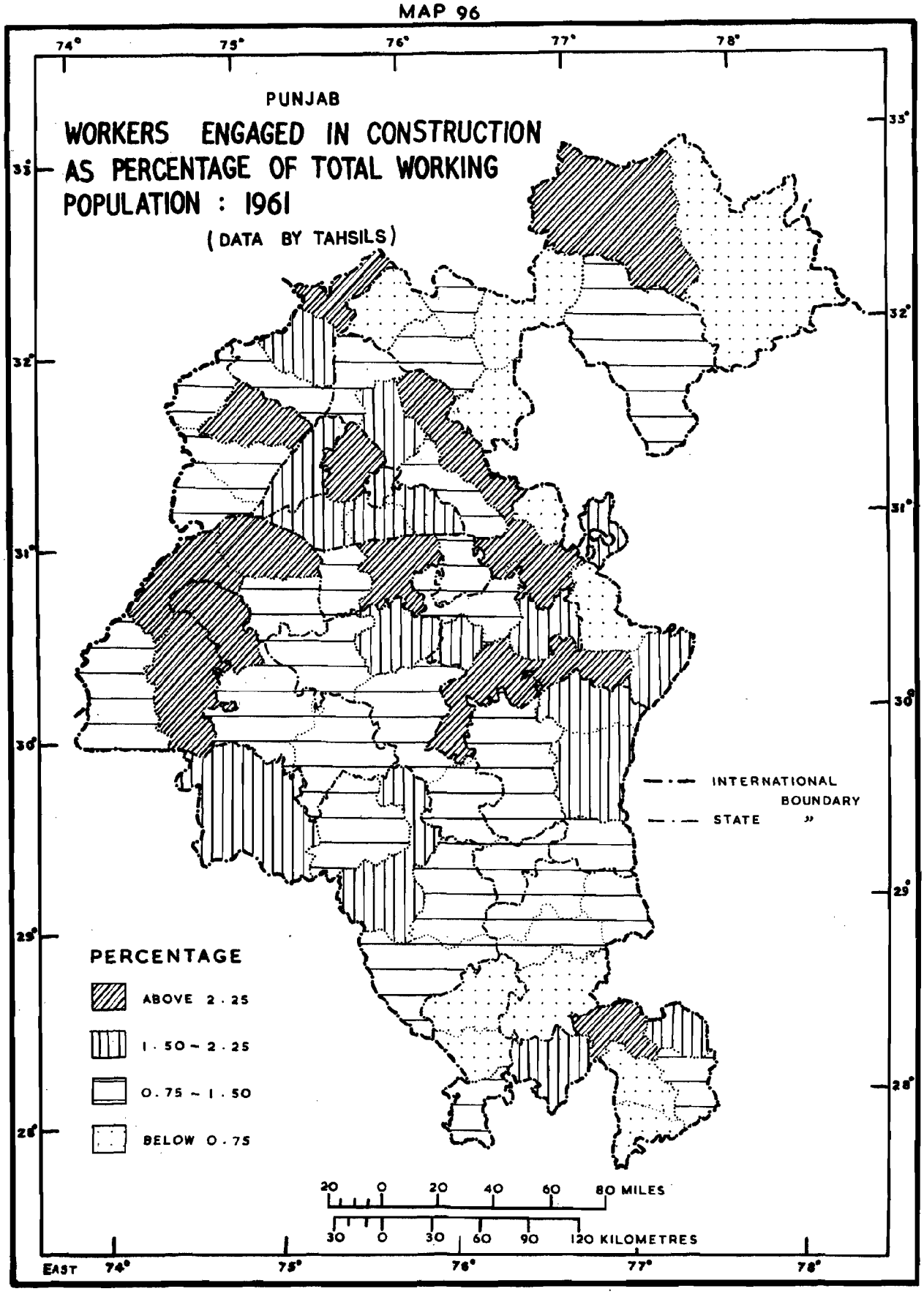
MAP 94


PUNJAB
EMPLOYMENT STRUCTURE OF FACTORY INDUSTRIES : 1961
(DATA BY TAHSILS)
LIVESTOCK BASED INDUSTRIES
TEXTILE //
FOREST BASED //
MINERAL BASED //
AGRO BASED //
ENGINEERING //
CHEMICAL //
OTHER //
PERCENTAGE OF WORKERS IN VARIOUS GROUPS TO THE TOTAL WORKERS IN FACTORY INDUSTRIES.
PUNJAB STATE
FIGURES AT THE TOP OF EACH BAR INDICATE THE ABSOLUTE FIGURES OF POPULATION ENGAGED IN FACTORY INDUSTRIES.
80 MILES
120 KILOMETRES
EAST
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

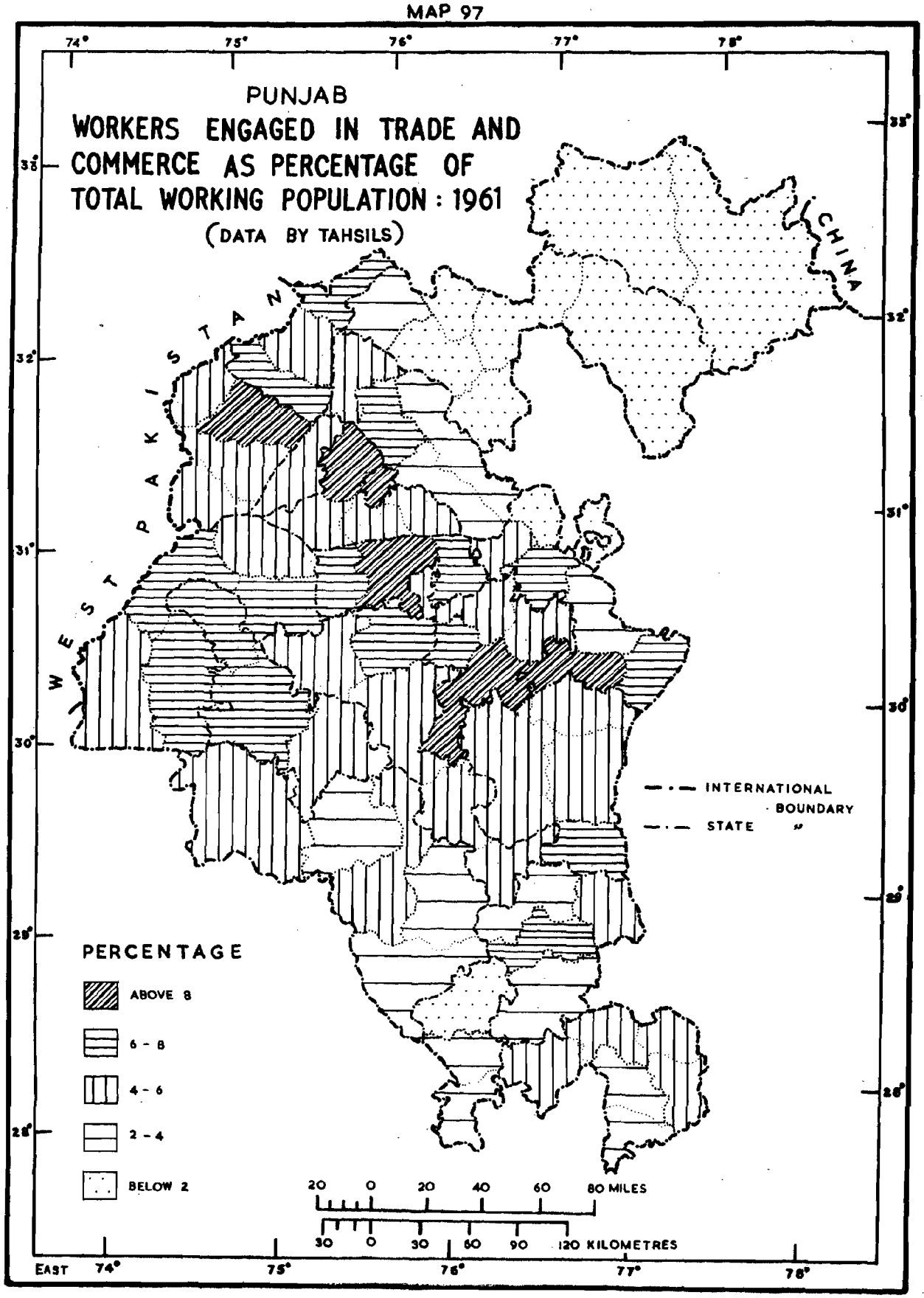
MAP 95


PUNJAB
INDUSTRIAL WORKERS AS PERCENTAGE
OF TOTAL WORKERS : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE //
PERCENTAGE
20
15
10
5
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

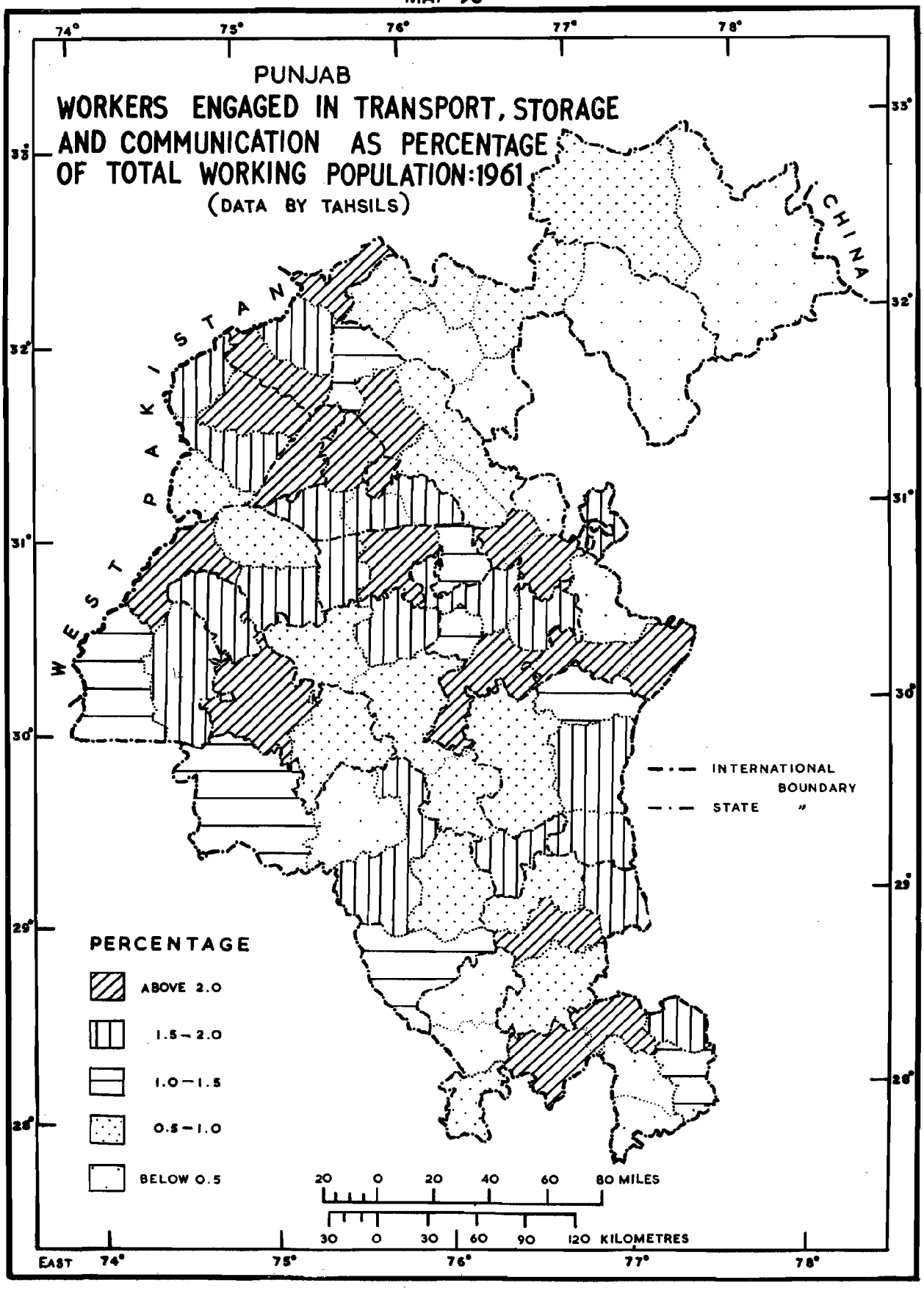
MAP 96


PUNJAB
WORKERS ENGAGED IN CONSTRUCTION AS PERCENTAGE OF TOTAL WORKING POPULATION : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
35°
34°
33°
32°
31°
30°
29°
28°
25°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
ABOVE 2.25
1.50 ~ 2.25
0.75 ~ 1.50
BELOW 0.75
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

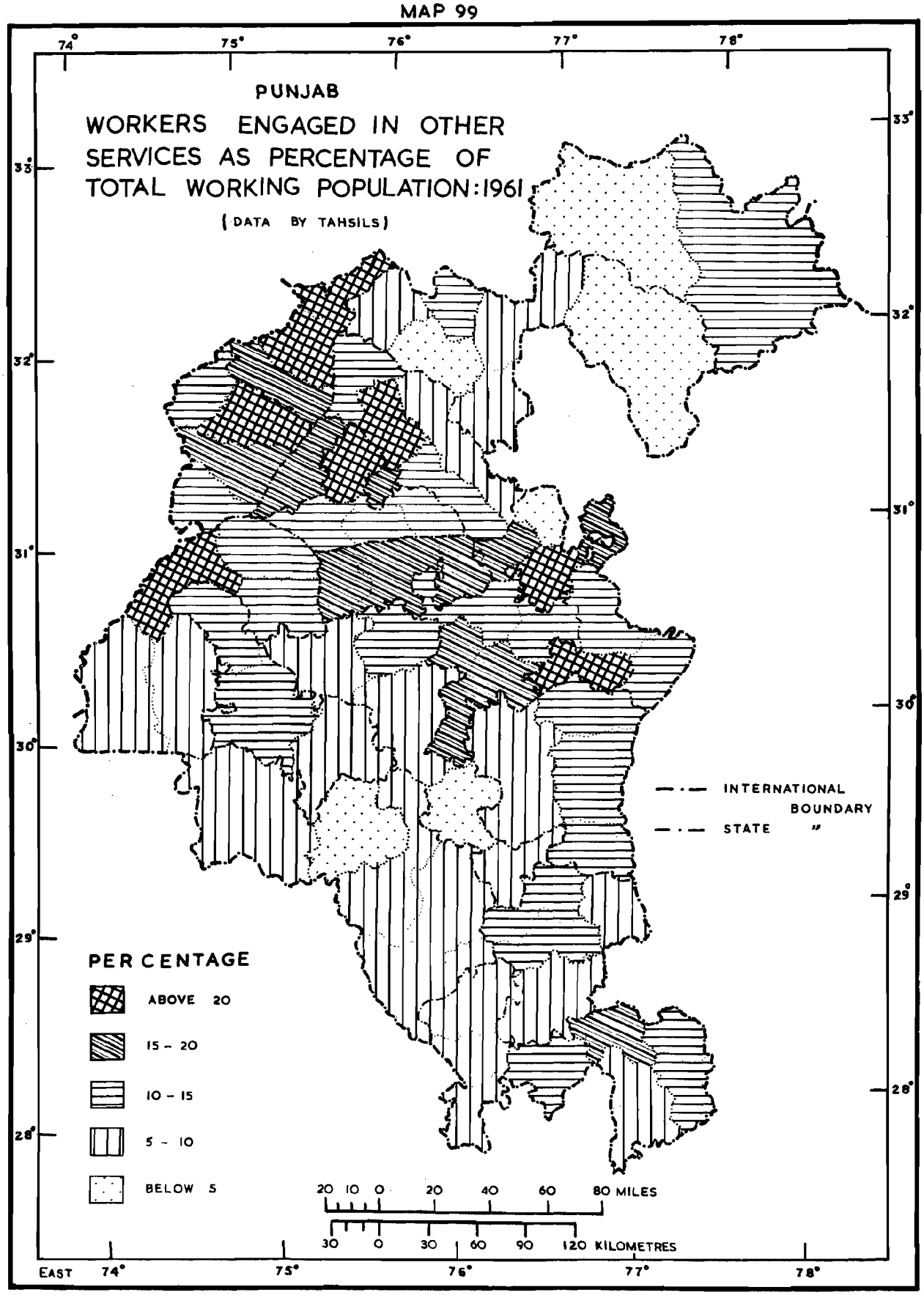
MAP 97


PUNJAB
WORKERS ENGAGED IN TRADE AND COMMERCE AS PERCENTAGE OF TOTAL WORKING POPULATION : 1961
(DATA BY TAHSILS)
WEST PAKISTAN
CHINA
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
ABOVE 8
6 - 8
4 - 6
2 - 4
BELOW 2
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST
74°
75°
76°
77°
78°
38°
32°
31°
30°
28°

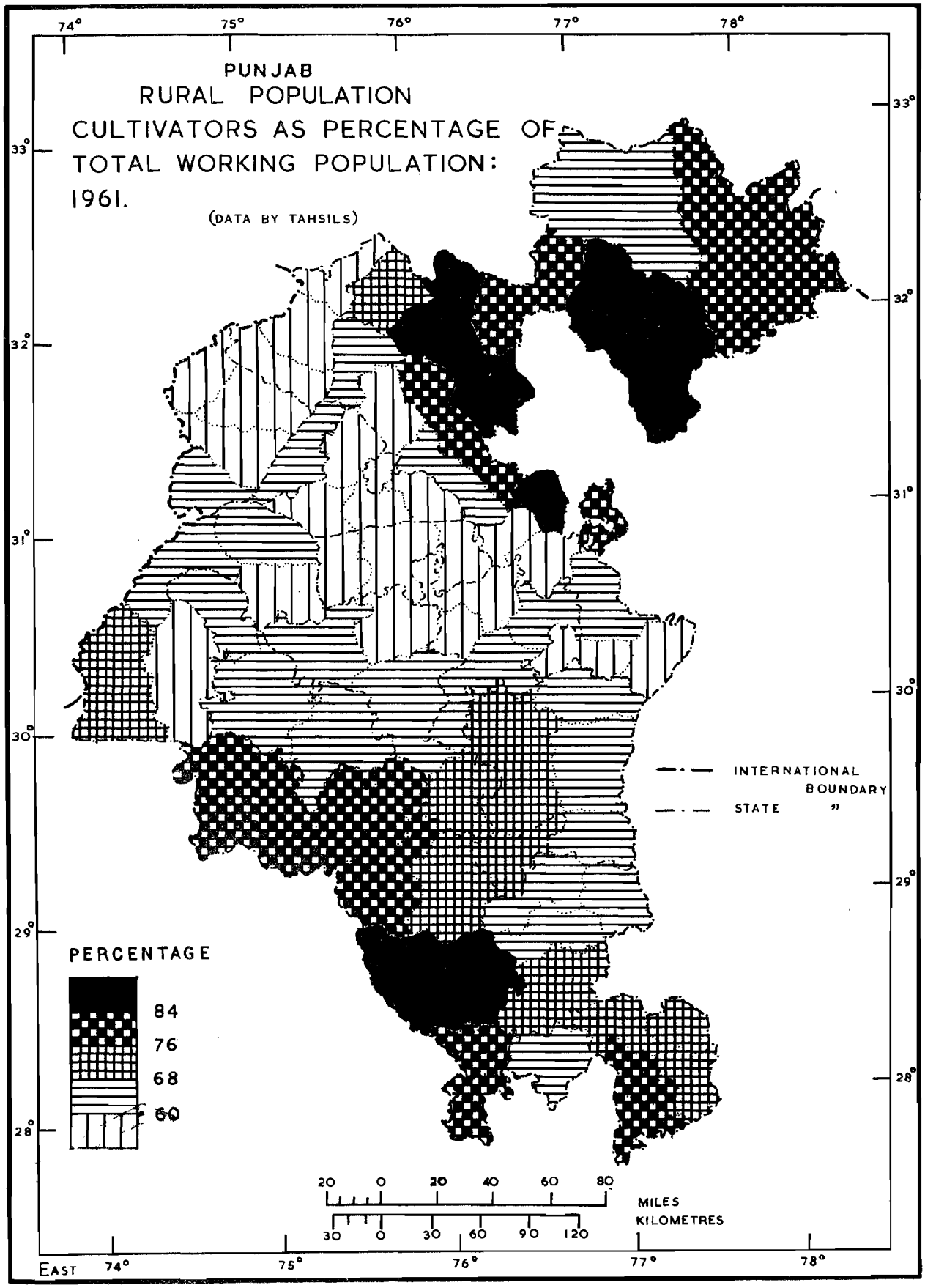
MAP 98


PUNJAB
WORKERS ENGAGED IN TRANSPORT, STORAGE AND COMMUNICATION AS PERCENTAGE OF TOTAL WORKING POPULATION: 1961
(DATA BY TAHSILS)
WEST PAKISTAN
CHINA
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
ABOVE 2.0
1.5 – 2.0
1.0 – 1.5
0.5 – 1.0
BELOW 0.5
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST
74°
75°
76°
77°
78°
35°
34°
33°
32°
31°
30°
29°
28°

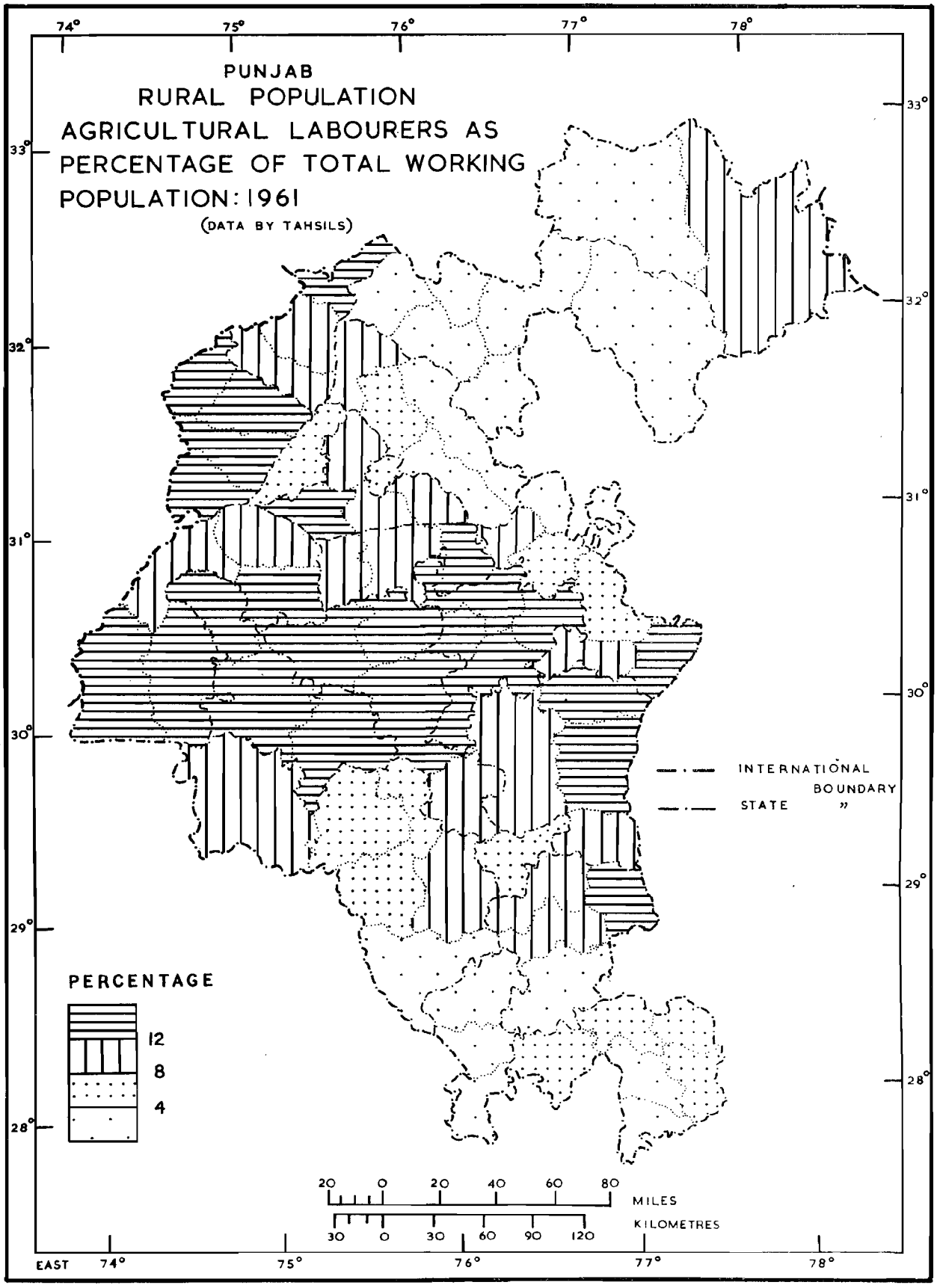
MAP 99


PUNJAB
WORKERS ENGAGED IN OTHER SERVICES AS PERCENTAGE OF TOTAL WORKING POPULATION: 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PER CENTAGE
ABOVE 20
15 - 20
10 - 15
5 - 10
BELOW 5
20 10 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

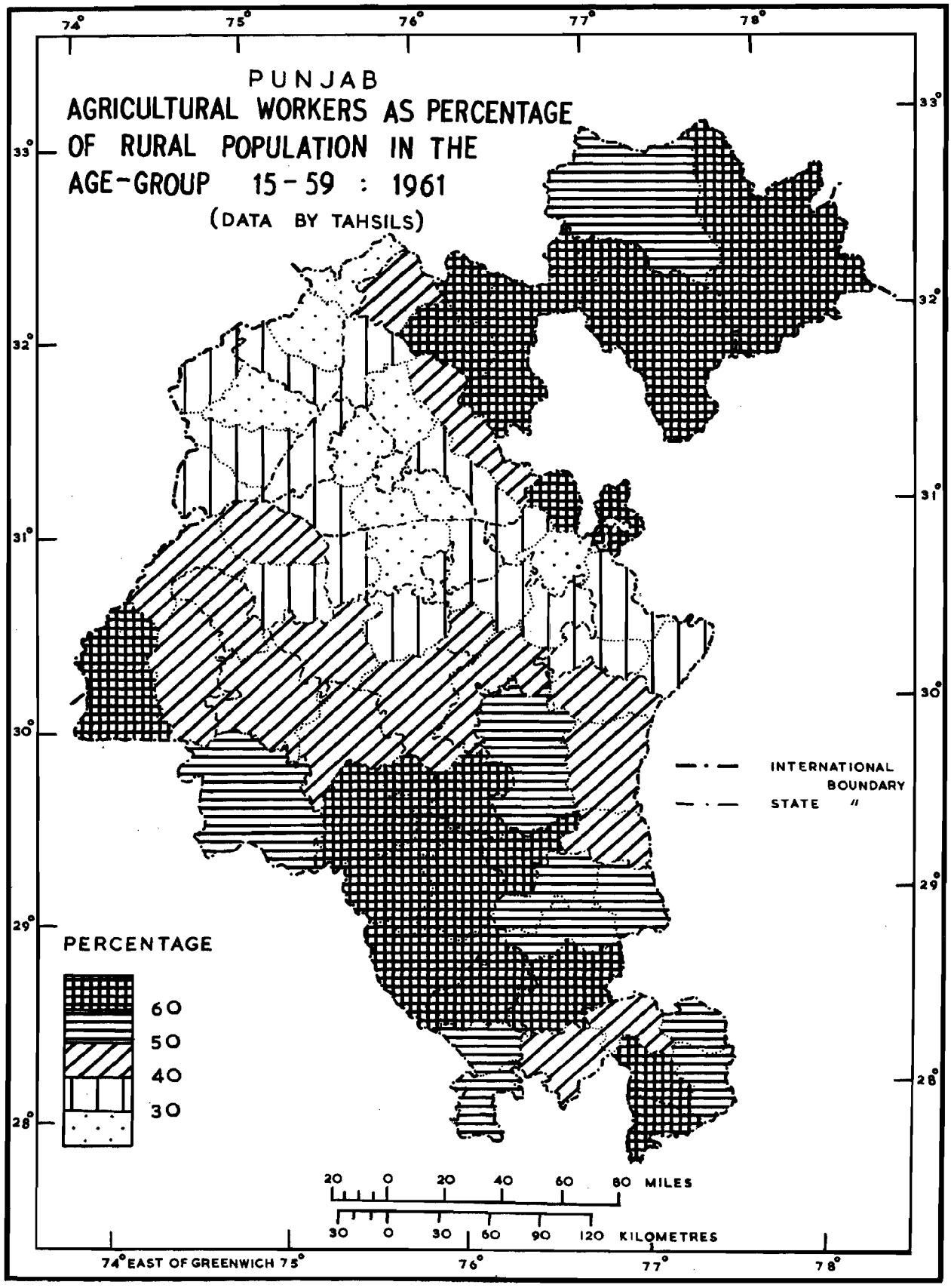
MAP 100


PUNJAB
RURAL POPULATION
CULTIVATORS AS PERCENTAGE OF TOTAL WORKING POPULATION: 1961.
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
84
76
68
60
20 0 20 40 60 80
MILES
30 0 30 60 90 120
KILOMETRES
EAST

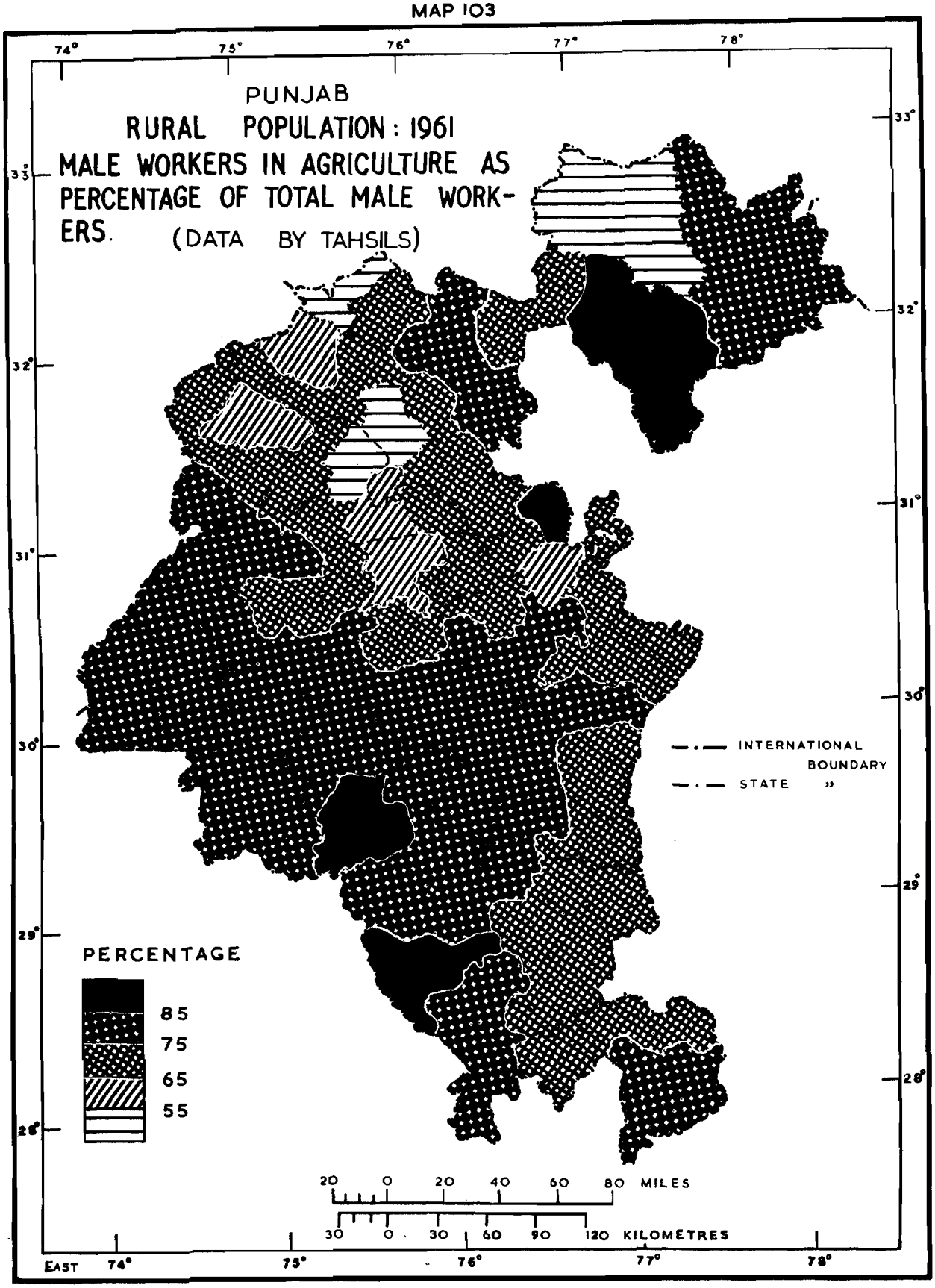
MAP 101


PUNJAB
RURAL POPULATION
AGRICULTURAL LABOURERS AS
PERCENTAGE OF TOTAL WORKING
POPULATION: 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
12
8
4
20 0 20 40 60 80
MILES
30 0 30 60 90 120
KILOMETRES
EAST

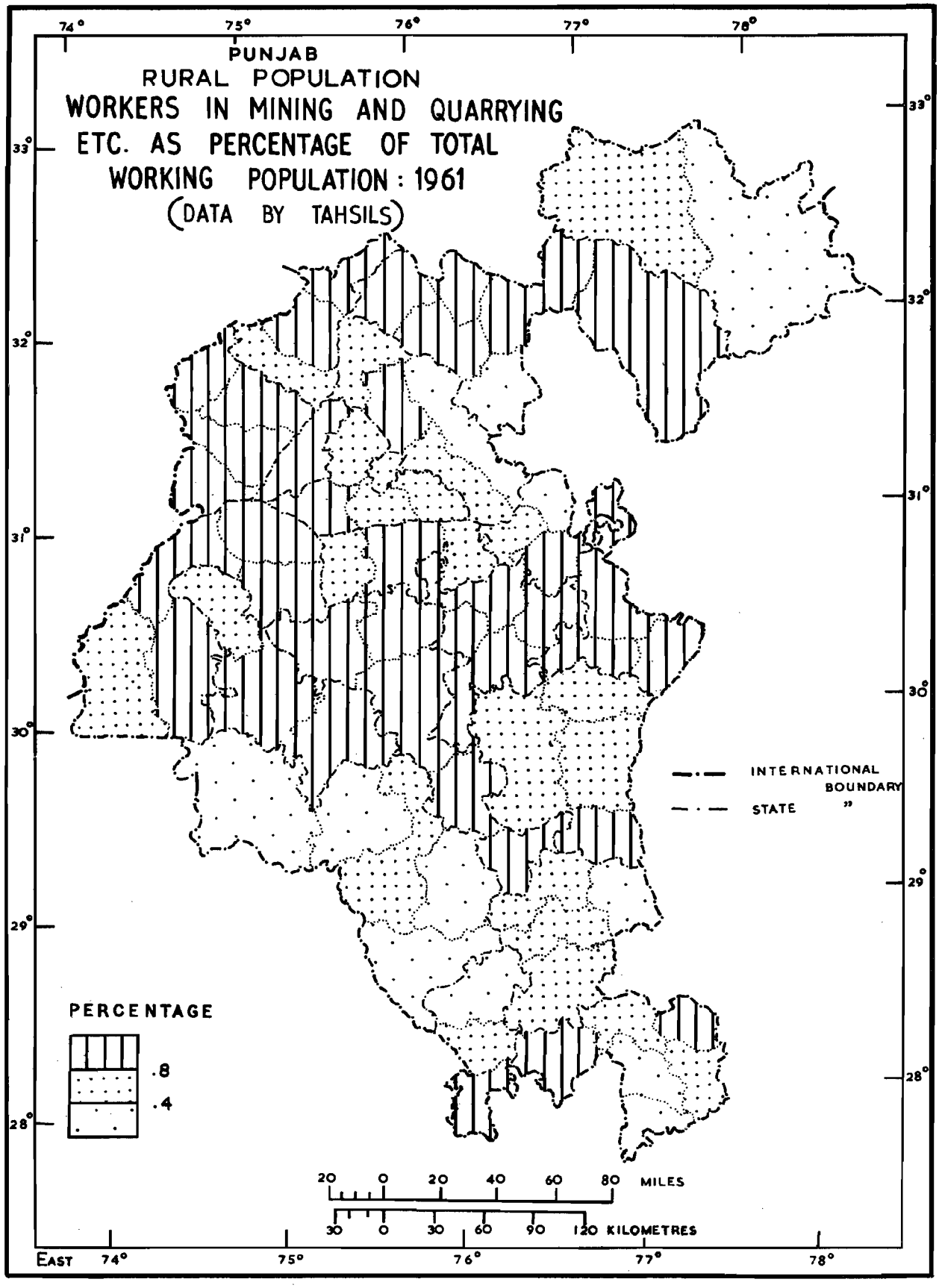
MAP 102


PUNJAB
AGRICULTURAL WORKERS AS PERCENTAGE OF RURAL POPULATION IN THE AGE-GROUP 15-59 : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
60
50
40
30
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

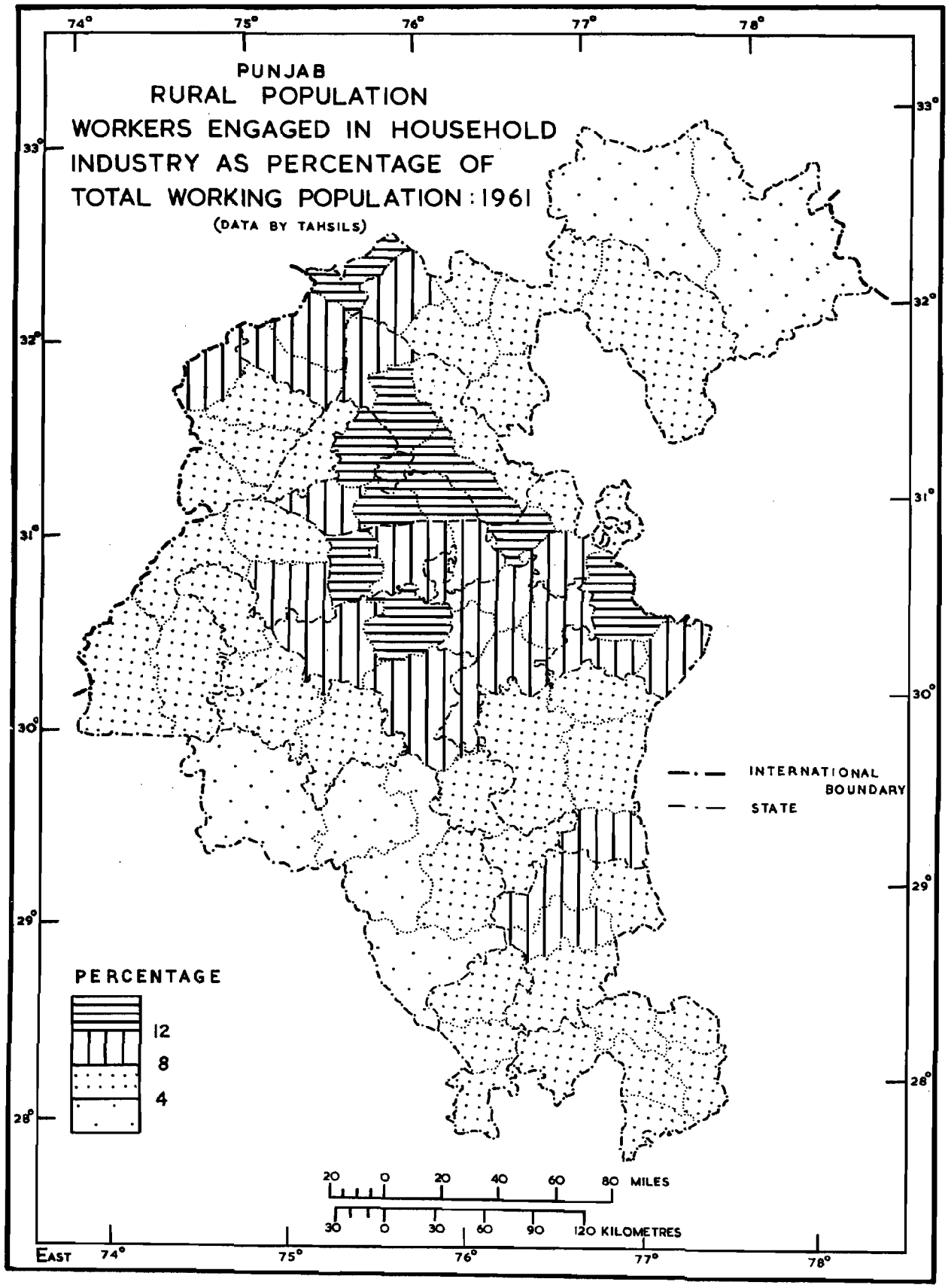
MAP 103


PUNJAB
RURAL POPULATION : 1961
MALE WORKERS IN AGRICULTURE AS PERCENTAGE OF TOTAL MALE WORKERS.
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
85
75
65
55
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

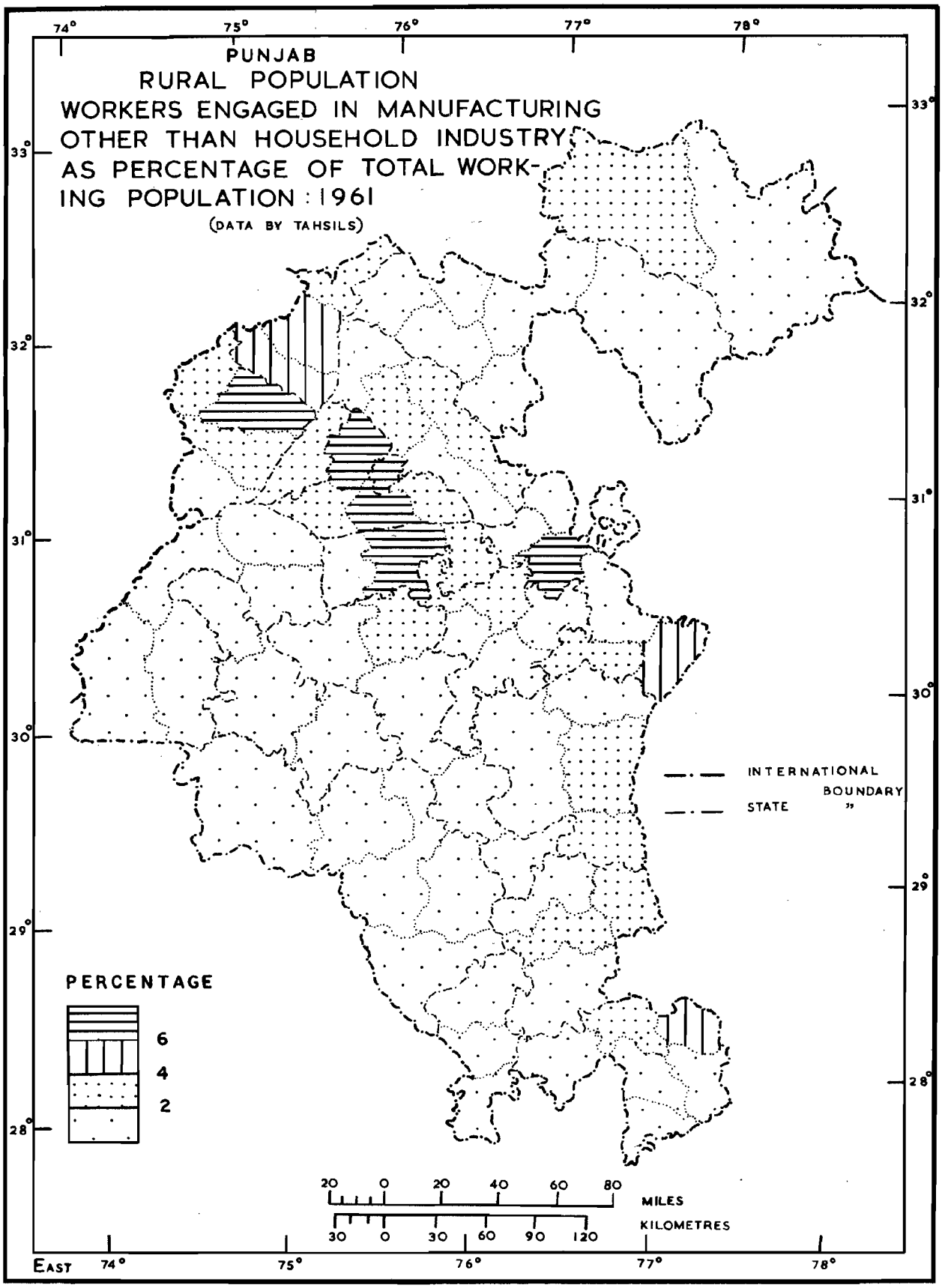
MAP 104


PUNJAB
RURAL POPULATION
WORKERS IN MINING AND QUARRYING
ETC. AS PERCENTAGE OF TOTAL
WORKING POPULATION : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
.8
.4
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

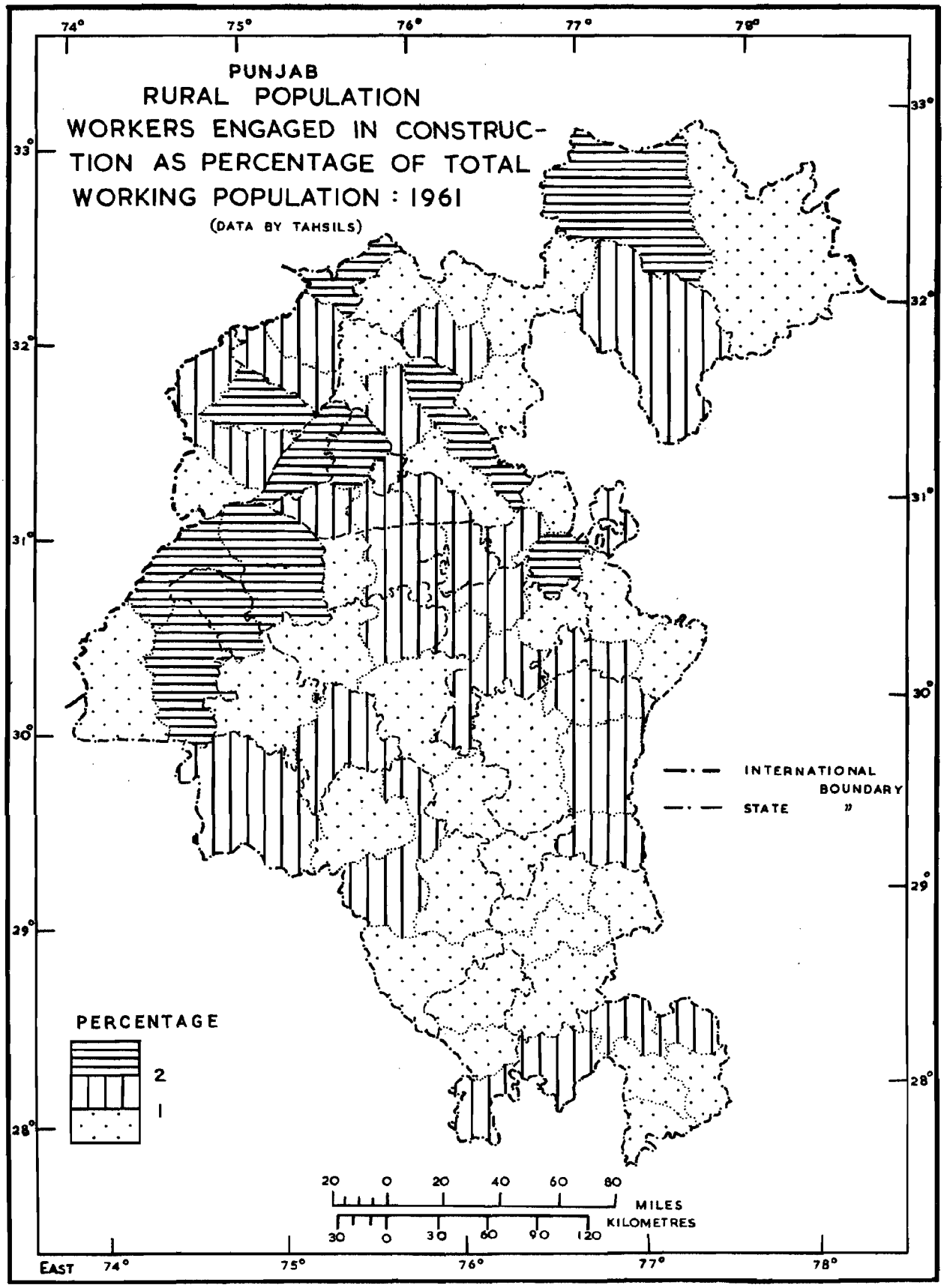
MAP 105


PUNJAB
RURAL POPULATION
WORKERS ENGAGED IN HOUSEHOLD INDUSTRY AS PERCENTAGE OF TOTAL WORKING POPULATION: 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE
PERCENTAGE
12
8
4
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

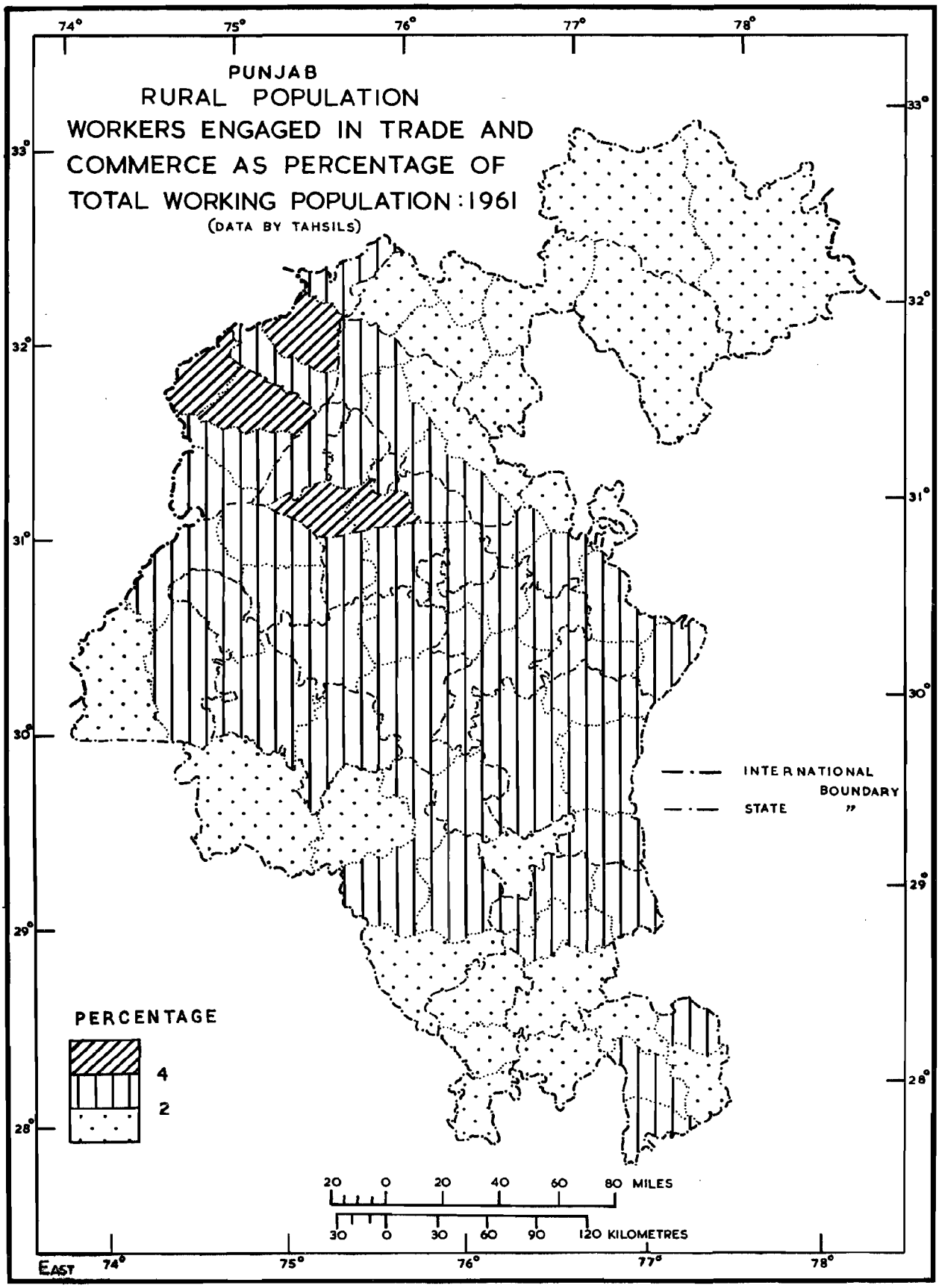
MAP 106


PUNJAB
RURAL POPULATION
WORKERS ENGAGED IN MANUFACTURING OTHER THAN HOUSEHOLD INDUSTRY AS PERCENTAGE OF TOTAL WORKING POPULATION : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
6
4
2
20 0 20 40 60 80
MILES
30 0 30 60 90 120
KILOMETRES
EAST

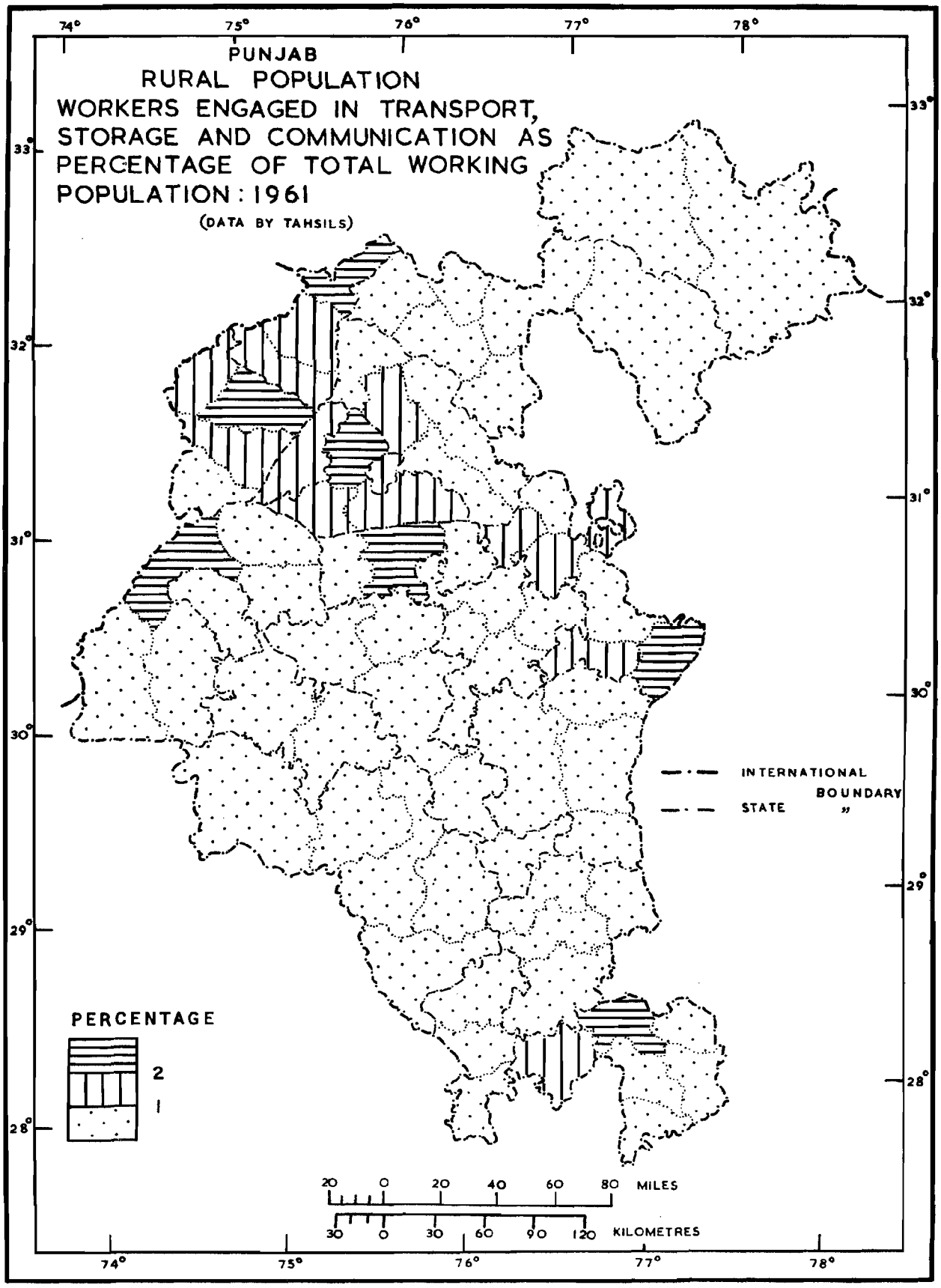
MAP 107


PUNJAB
RURAL POPULATION
WORKERS ENGAGED IN CONSTRUCTION AS PERCENTAGE OF TOTAL WORKING POPULATION : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE »
PERCENTAGE
2
1
20 0 20 40 60 80
MILES
30 0 30 60 90 120
KILOMETRES
EAST

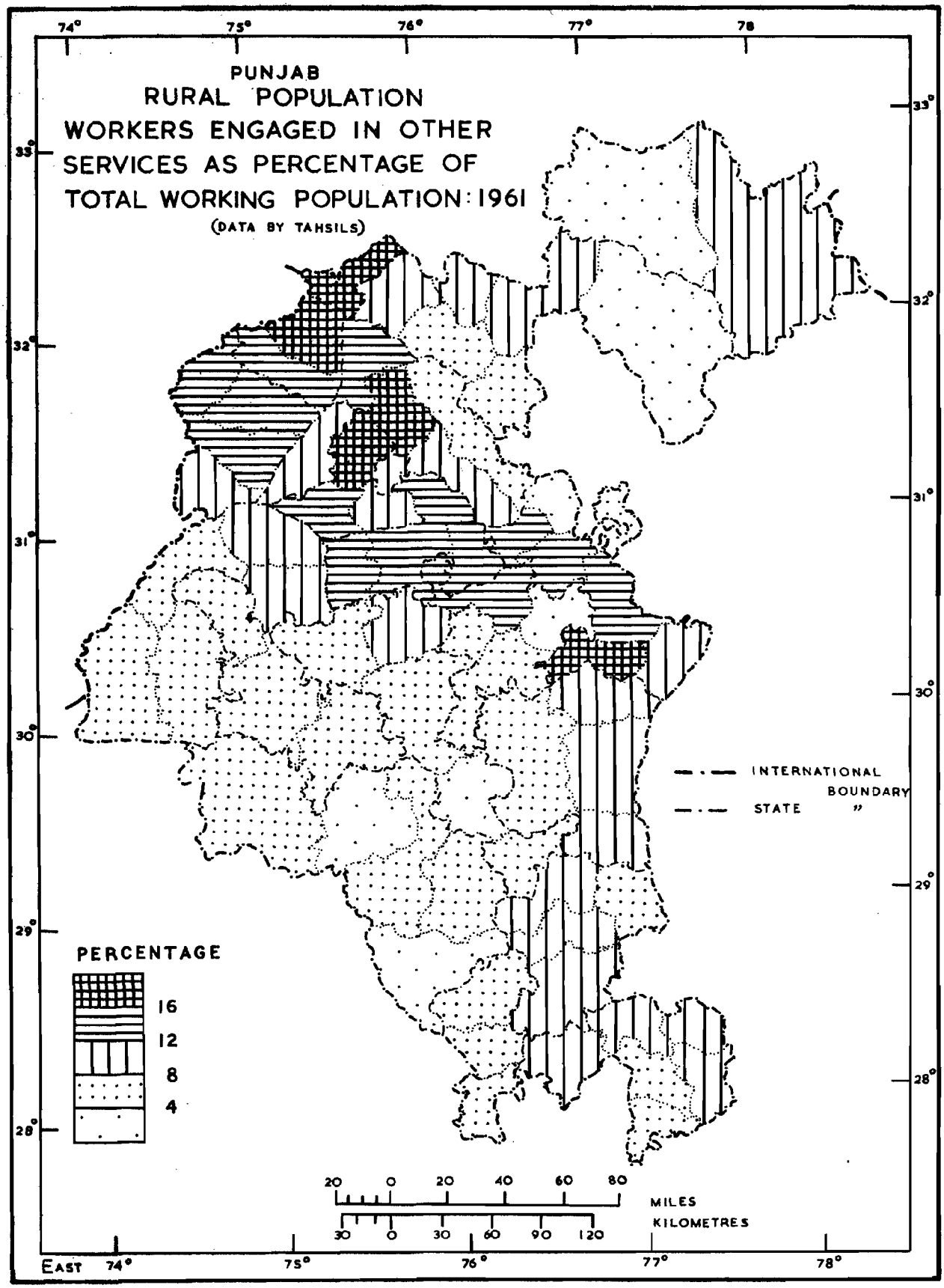
MAP 108


PUNJAB
RURAL POPULATION
WORKERS ENGAGED IN TRADE AND COMMERCE AS PERCENTAGE OF TOTAL WORKING POPULATION: 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
4
2
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

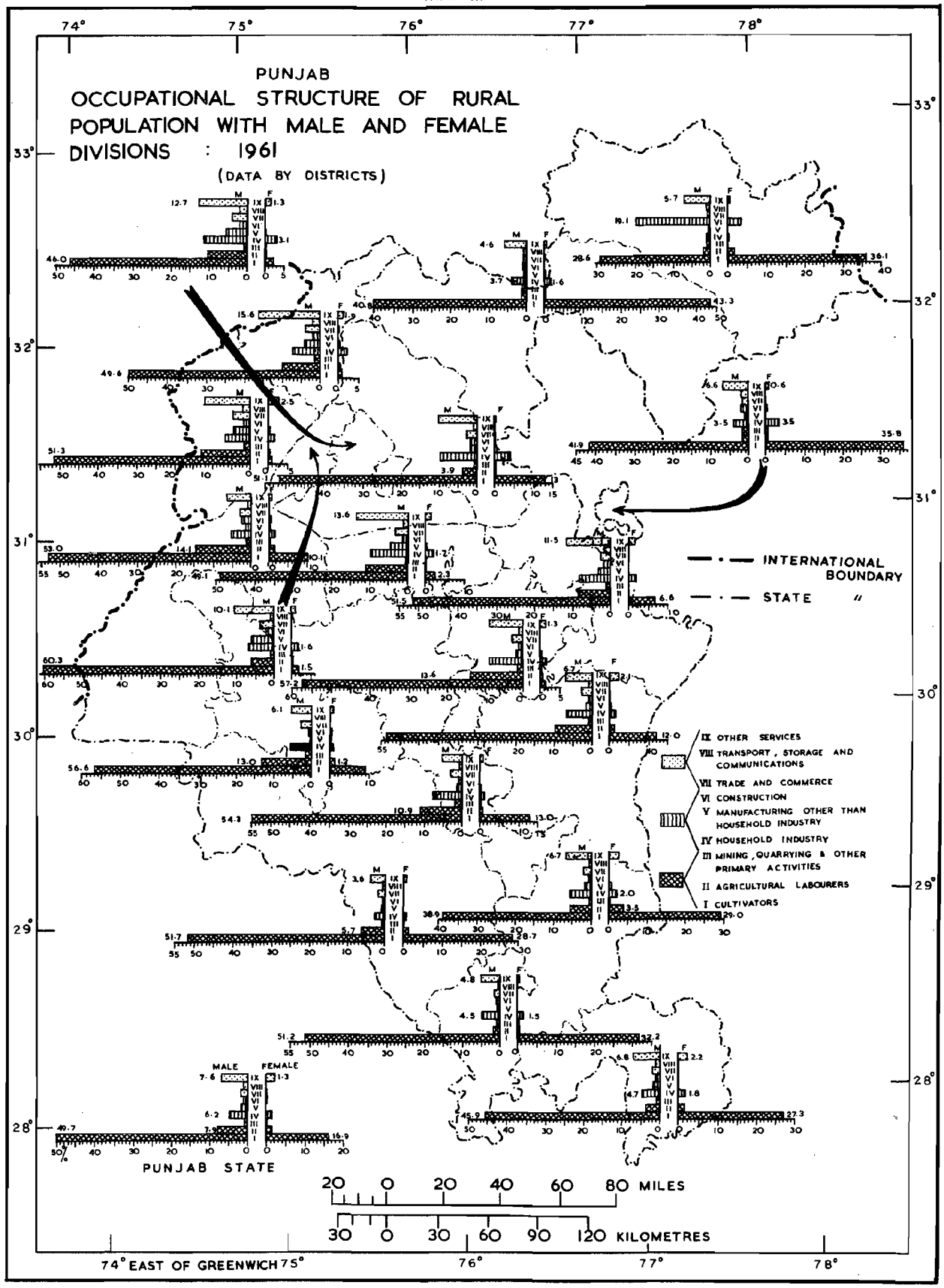
MAP 109


PUNJAB
RURAL POPULATION
WORKERS ENGAGED IN TRANSPORT, STORAGE AND COMMUNICATION AS PERCENTAGE OF TOTAL WORKING POPULATION : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
2
1
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES

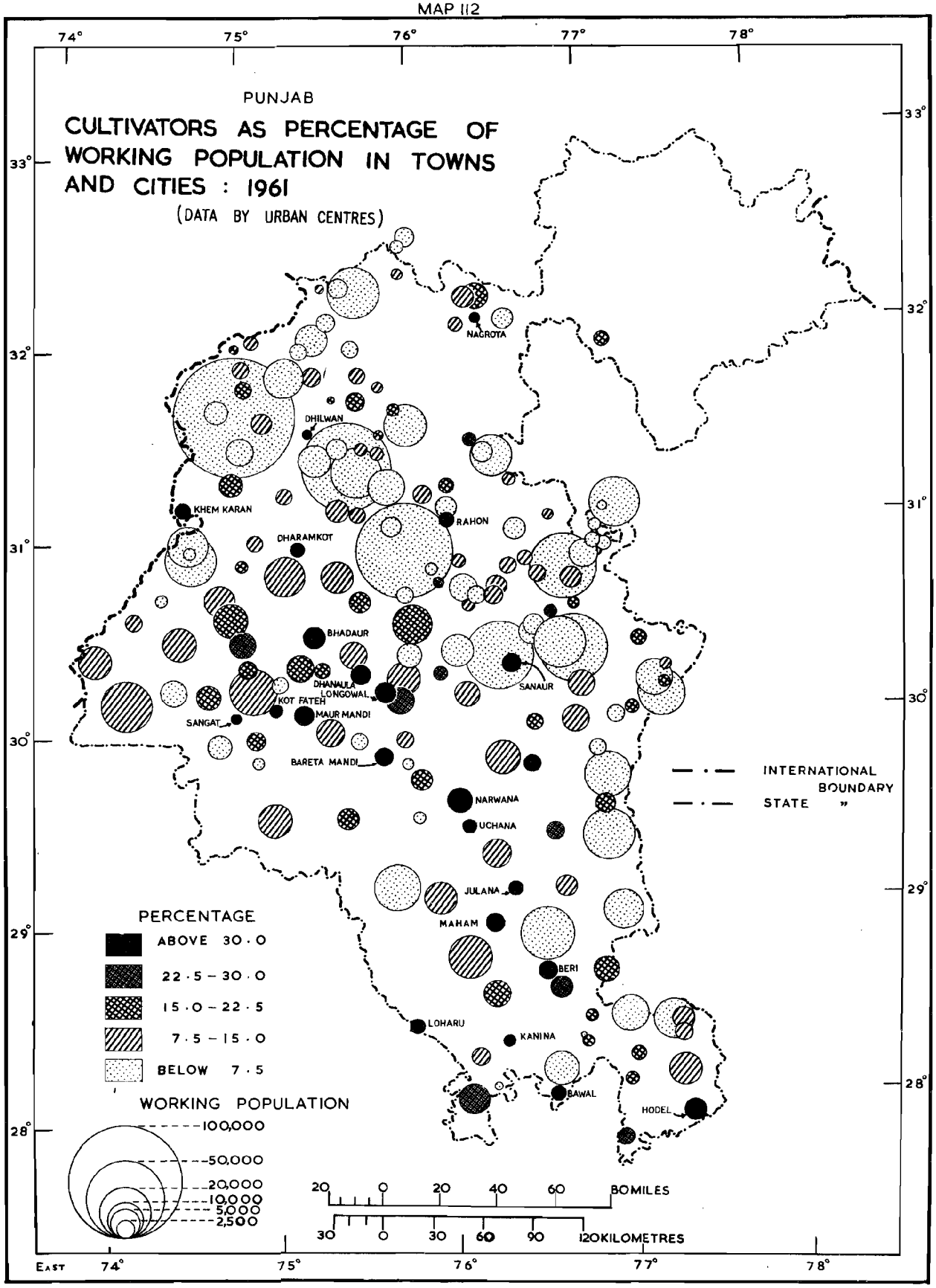
MAP 110


PUNJAB
RURAL POPULATION
WORKERS ENGAGED IN OTHER SERVICES AS PERCENTAGE OF TOTAL WORKING POPULATION: 1961
(DATA BY TAHSILS)
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
16
12
8
4
20 0 20 40 60 80
MILES
30 0 30 60 90 120
KILOMETRES
EAST
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

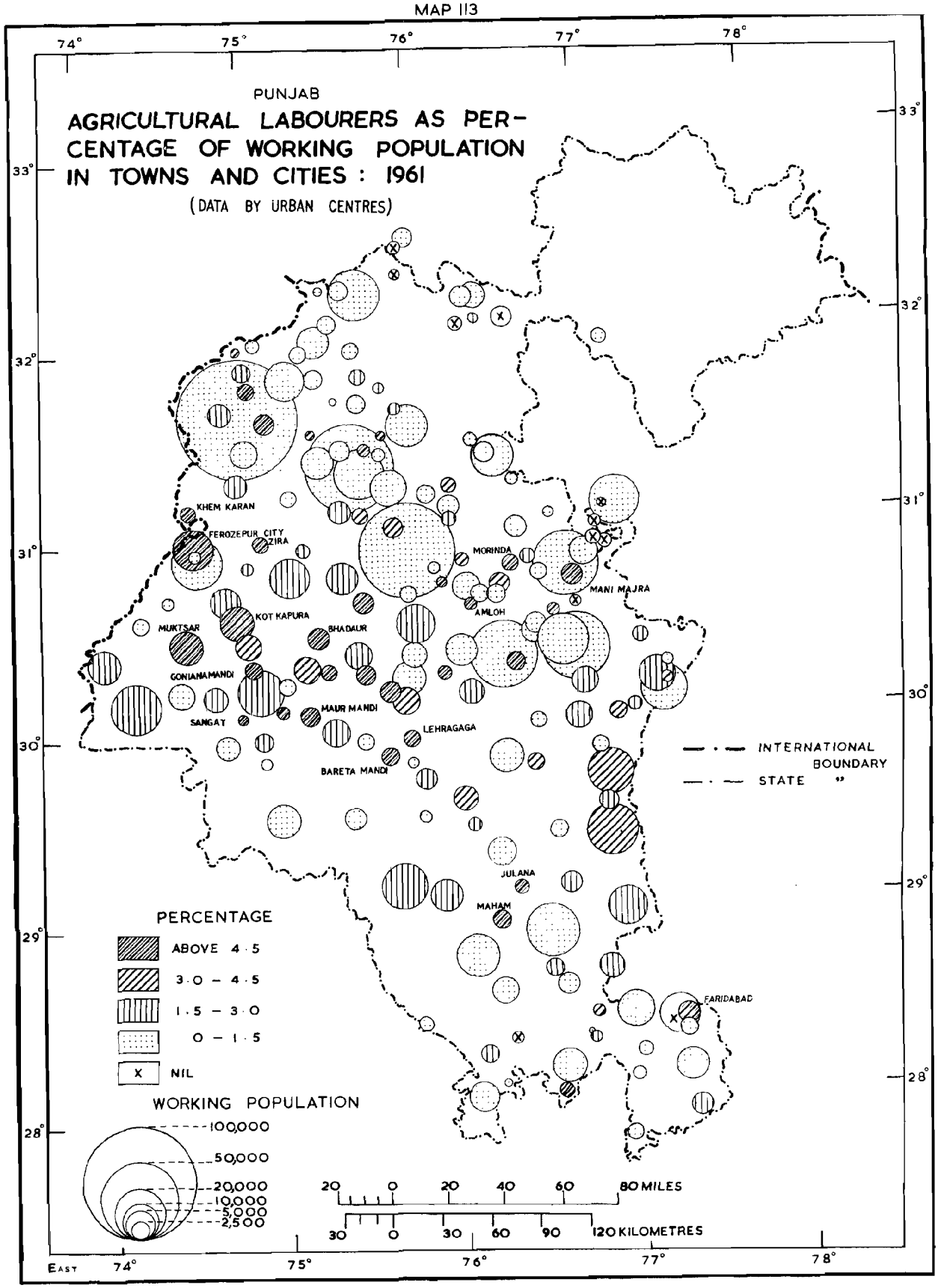
MAP III


PUNJAB
OCCUPATIONAL STRUCTURE OF RURAL POPULATION WITH MALE AND FEMALE DIVISIONS : 1961
(DATA BY DISTRICTS)
INTERNATIONAL BOUNDARY
STATE "
IX OTHER SERVICES
VIII TRANSPORT, STORAGE AND COMMUNICATIONS
VII TRADE AND COMMERCE
VI CONSTRUCTION
V MANUFACTURING OTHER THAN HOUSEHOLD INDUSTRY
IV HOUSEHOLD INDUSTRY
III MINING, QUARRYING & OTHER PRIMARY ACTIVITIES
II AGRICULTURAL LABOURERS
I CULTIVATORS
MALE
FEMALE
PUNJAB STATE
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

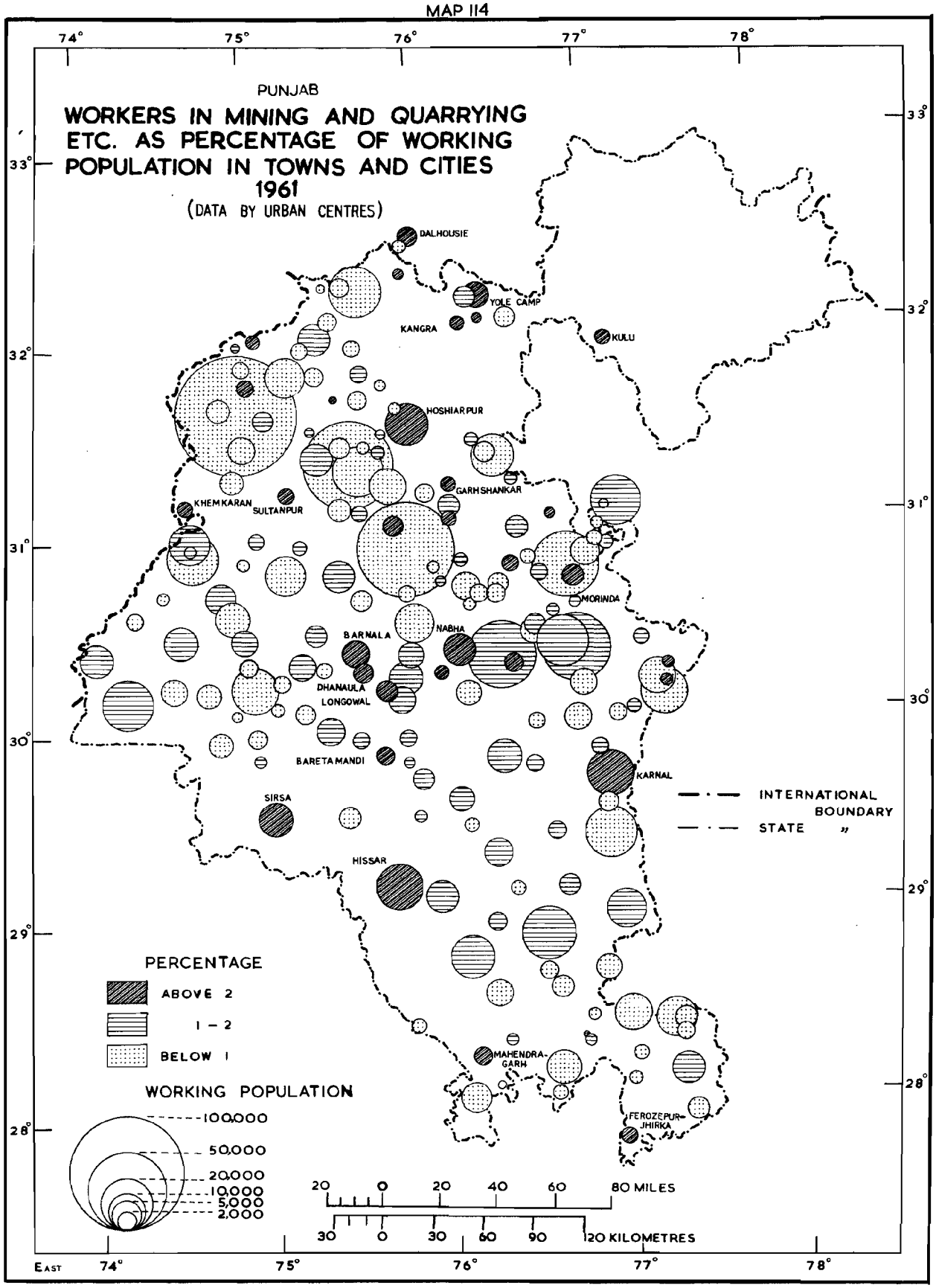
MAP 112


PUNJAB
CULTIVATORS AS PERCENTAGE OF WORKING POPULATION IN TOWNS AND CITIES : 1961
(DATA BY URBAN CENTRES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
NAGROTA
DHILWAN
KHEM KARAN
DHARAMKOT
RAHON
BHADAUR
DHANAULA
LONGOWAL
KOT FATEH
MAUR MANDI
SANGAT
BARETA MANDI
SANAUR
NARWANA
UCHANA
JULANA
MAHAM
BERI
LOHARU
KANINA
BAWAL
HODEL
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
ABOVE 30·0
22·5 – 30·0
15·0 – 22·5
7·5 – 15·0
BELOW 7·5
WORKING POPULATION
100,000
50,000
20,000
10,000
5,000
2,500
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

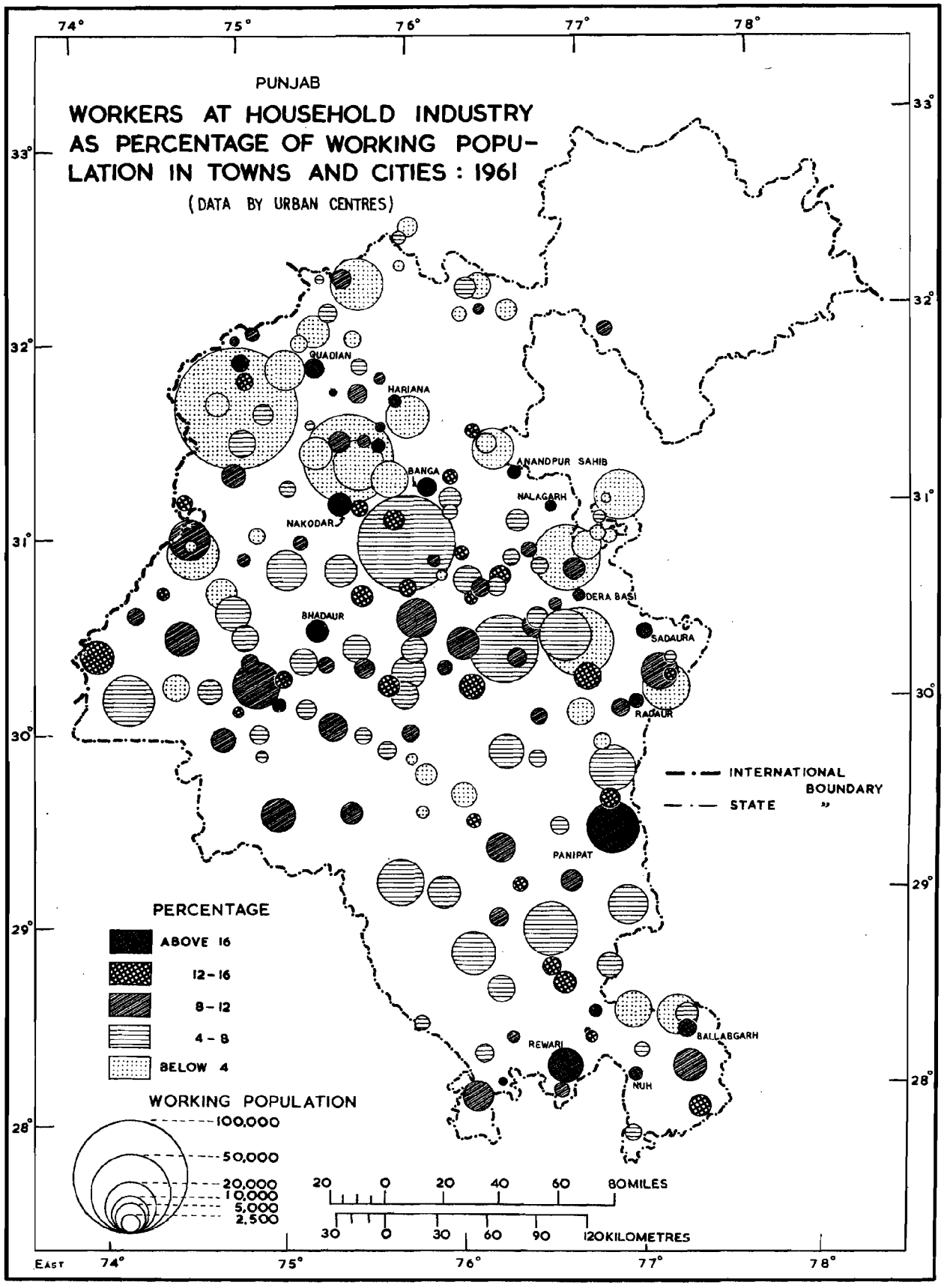
MAP 113


PUNJAB
AGRICULTURAL LABOURERS AS PER-CENTAGE OF WORKING POPULATION IN TOWNS AND CITIES : 1961
(DATA BY URBAN CENTRES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
KHEM KARAN
FEROZEPUR CITY
ZIRA
MORINDA
MANI MAJRA
AMLOH
KOT KAPURA
MUKTSAR
BHADAUR
GONIANA MANDI
SANGAT
MAUR MANDI
LEHRAGAGA
BARETA MANDI
JULANA
MAHAM
FARIDABAD
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
ABOVE 4·5
3·0 – 4·5
1·5 – 3·0
0 – 1·5
NIL
WORKING POPULATION
100,000
50,000
20,000
10,000
5,000
2,500
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

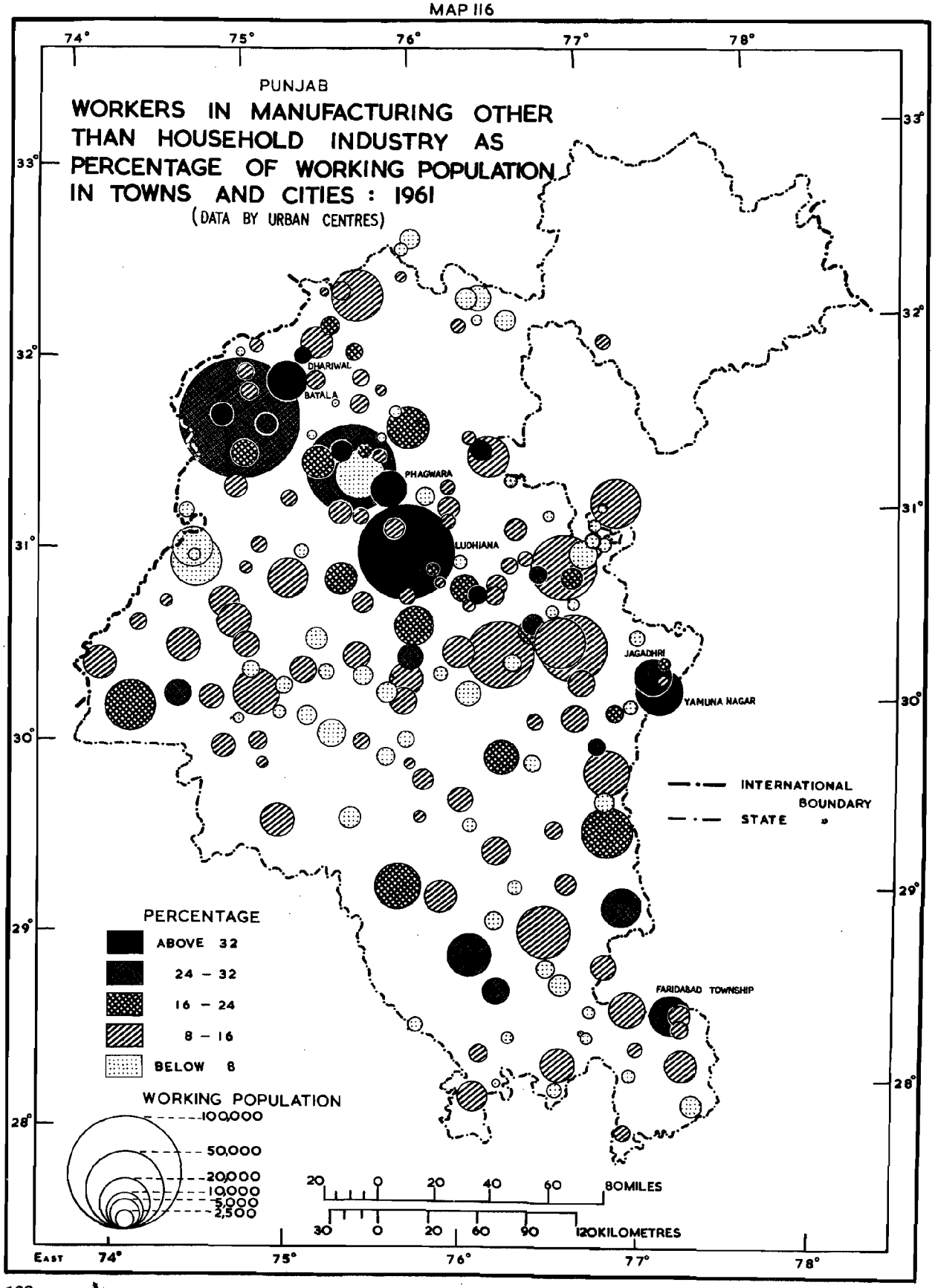
MAP 114


PUNJAB
WORKERS IN MINING AND QUARRYING ETC. AS PERCENTAGE OF WORKING POPULATION IN TOWNS AND CITIES 1961
(DATA BY URBAN CENTRES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
DALHOUSIE
YOLE CAMP
KANGRA
KULU
HOSHIARPUR
GARHSHANKAR
KHEMKARAN
SULTANPUR
MORINDA
BARNALA
NABHA
DHANAULA
LONGOWAL
BARETA MANDI
KARNAL
SIRSA
HISSAR
MAHENDRA-GARH
FEROZEPUR-JHIRKA
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
ABOVE 2
1 - 2
BELOW 1
WORKING POPULATION
100,000
50,000
20,000
10,000
5,000
2,000
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

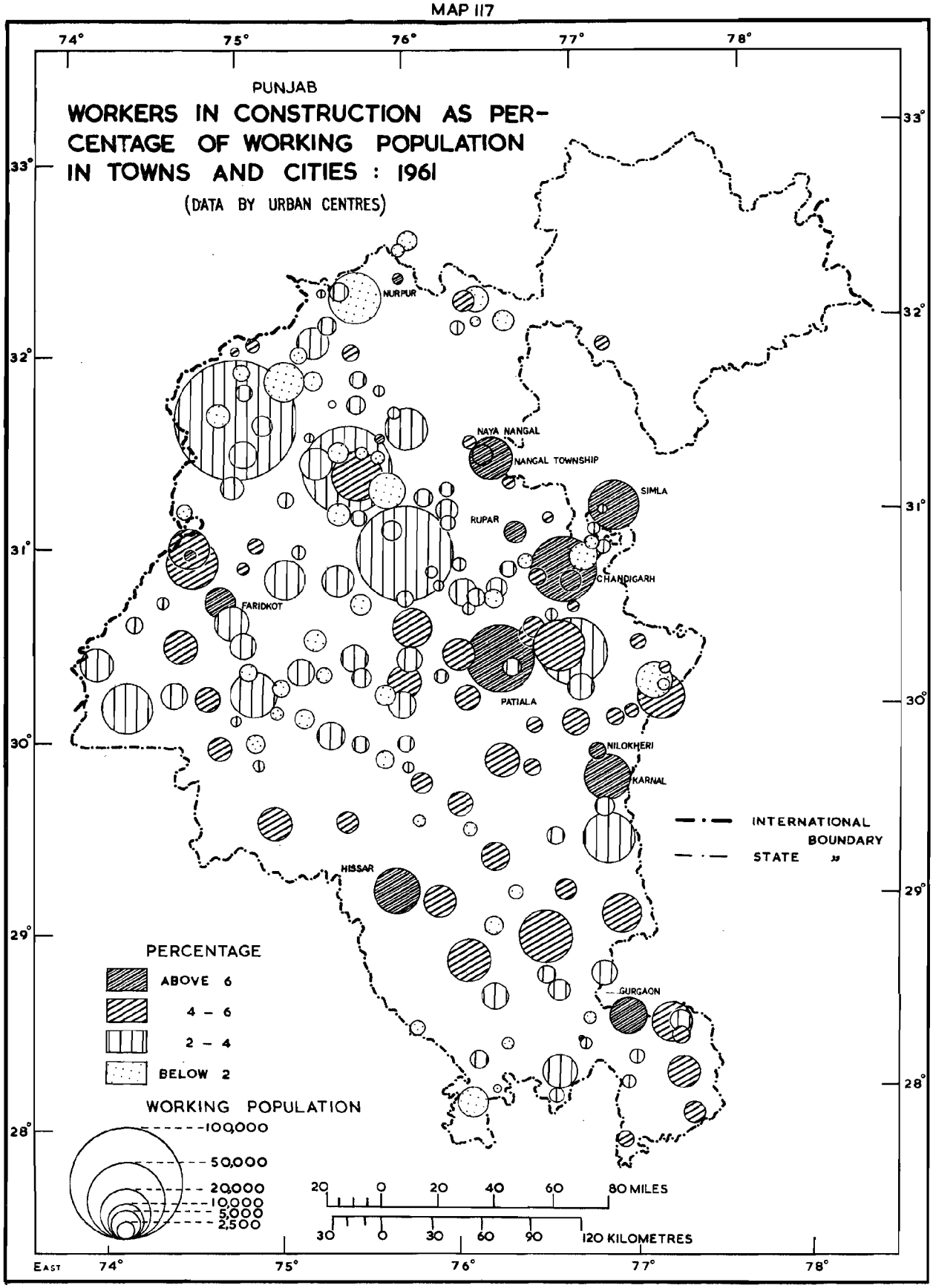
MAP 115


PUNJAB
WORKERS AT HOUSEHOLD INDUSTRY AS PERCENTAGE OF WORKING POPULATION IN TOWNS AND CITIES : 1961
(DATA BY URBAN CENTRES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
QUADIAN
HARIANA
BANGA
ANANDPUR SAHIB
NALAGARH
NAKODAR
DERA BASI
BHADAUR
SADAURA
RADAUR
PANIPAT
REWARI
NUH
BALLABGARH
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
ABOVE 16
12-16
8-12
4-8
BELOW 4
WORKING POPULATION
100,000
50,000
20,000
10,000
5,000
2,500
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

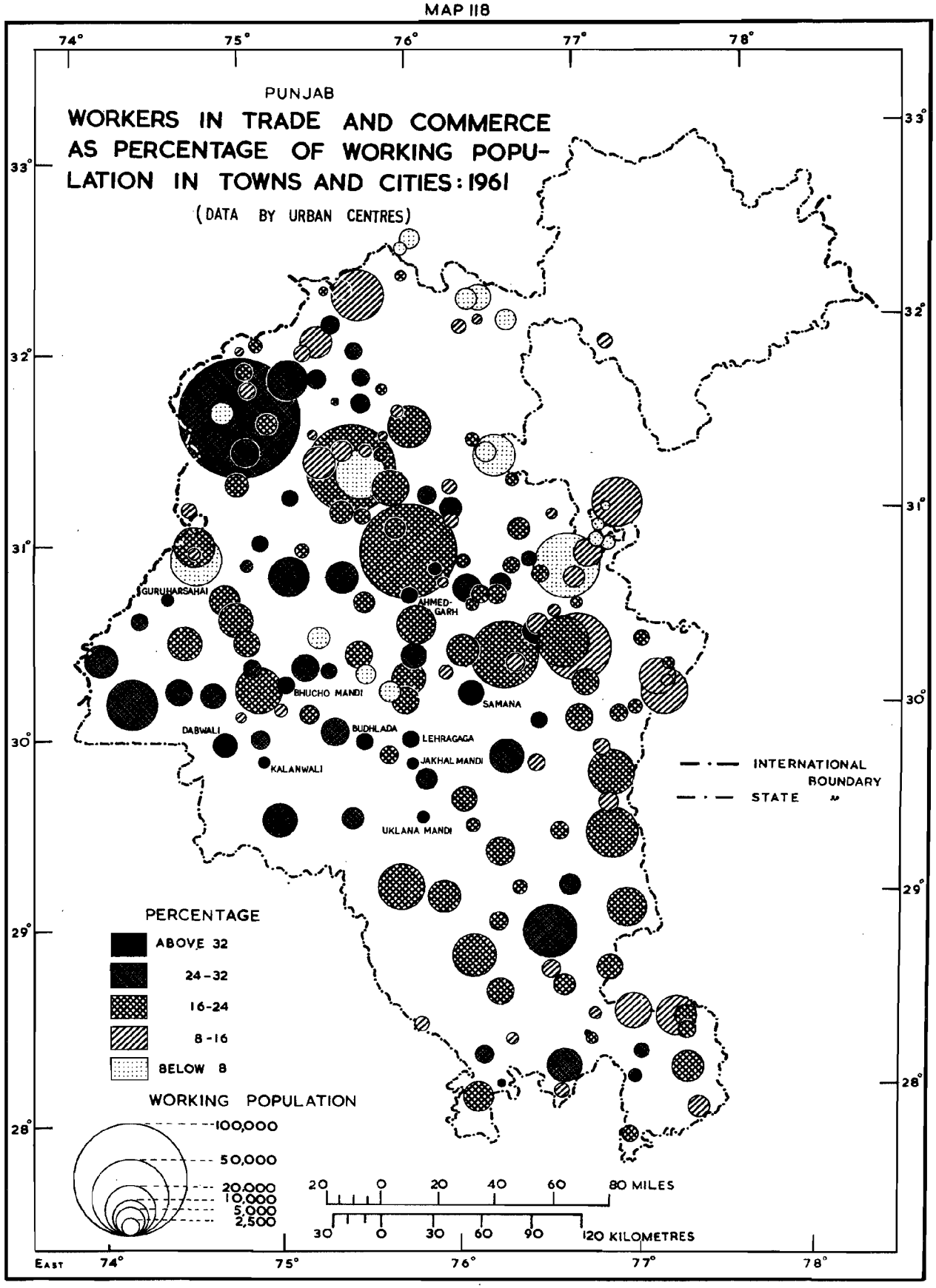
MAP 116


PUNJAB
WORKERS IN MANUFACTURING OTHER THAN HOUSEHOLD INDUSTRY AS PERCENTAGE OF WORKING POPULATION IN TOWNS AND CITIES : 1961
(DATA BY URBAN CENTRES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
DHARIWAL
BATALA
PHAGWARA
LUDHIANA
JAGADHRI
YAMUNA NAGAR
FARIDABAD TOWNSHIP
INTERNATIONAL BOUNDARY
STATE »
PERCENTAGE
ABOVE 32
24 - 32
16 - 24
8 - 16
BELOW 8
WORKING POPULATION
100,000
50,000
20,000
10,000
5,000
2,500
80 MILES
120 KILOMETRES
EAST

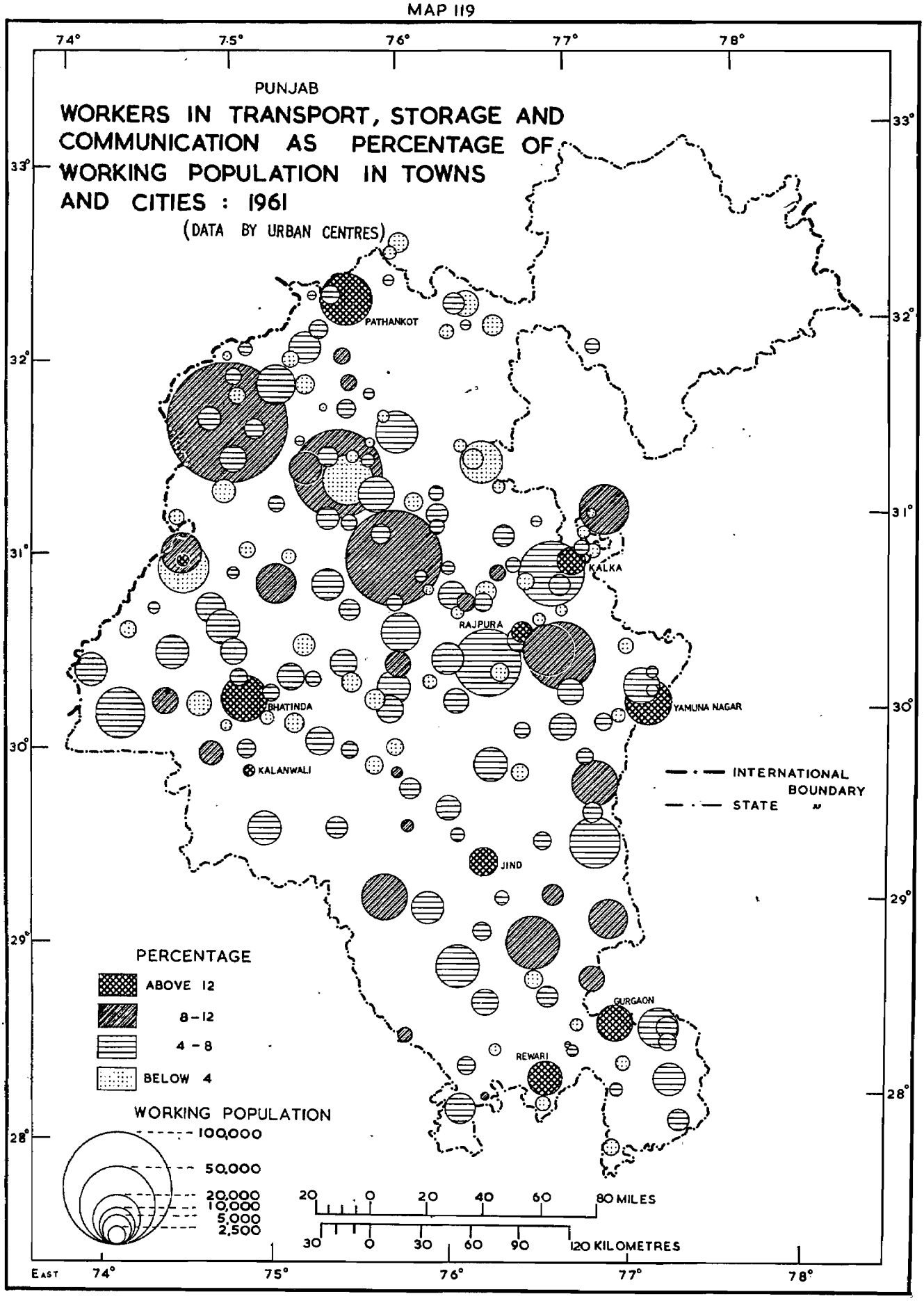
MAP 117


PUNJAB
WORKERS IN CONSTRUCTION AS PER-CENTAGE OF WORKING POPULATION IN TOWNS AND CITIES : 1961
(DATA BY URBAN CENTRES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
NURPUR
NAYA NANGAL
NANGAL TOWNSHIP
SIMLA
RUPAR
CHANDIGARH
FARIDKOT
PATIALA
NILOKHERI
KARNAL
HISSAR
GURGAON
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
ABOVE 6
4 - 6
2 - 4
BELOW 2
WORKING POPULATION
100,000
50,000
20,000
10,000
5,000
2,500
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

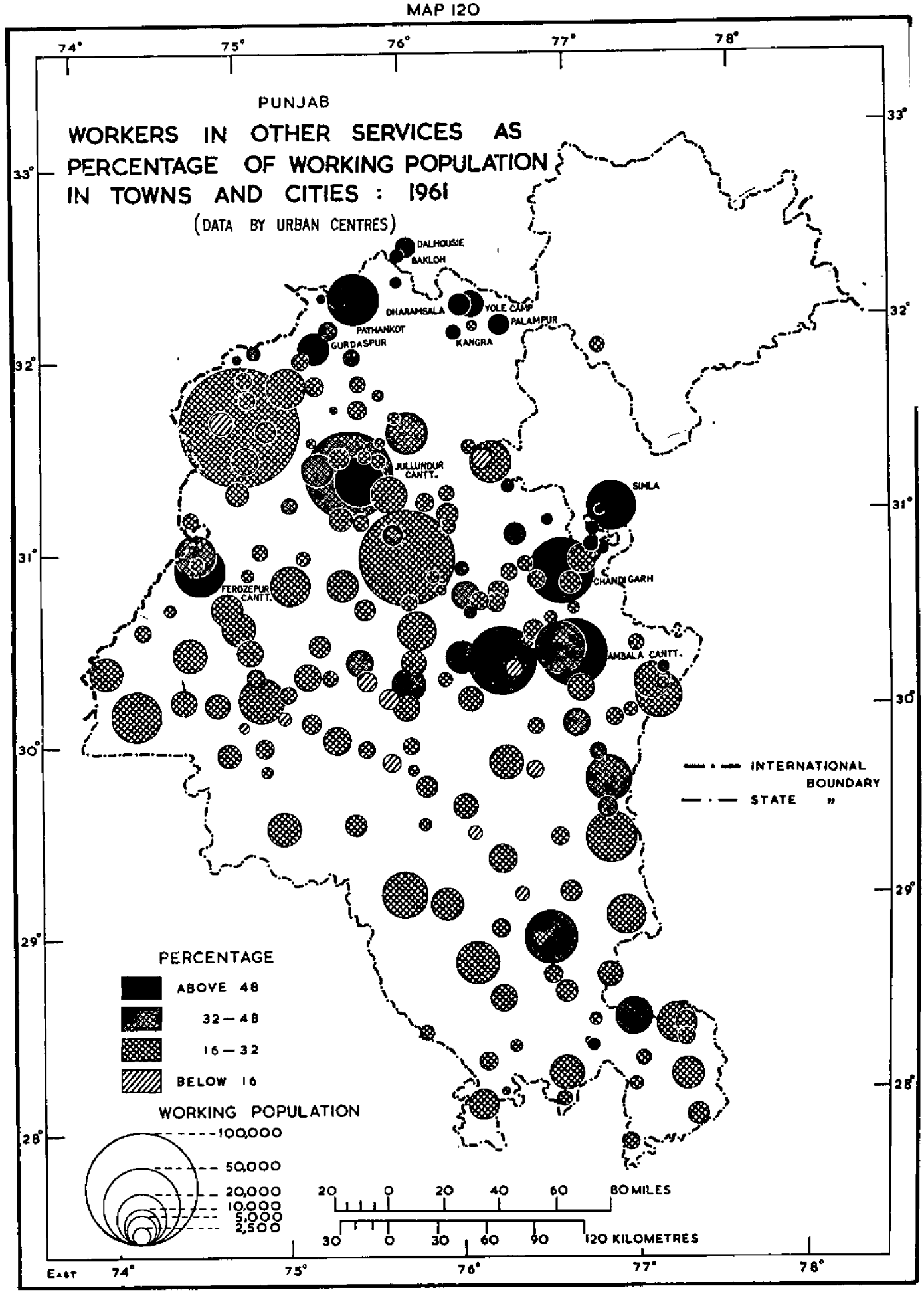
MAP 118


PUNJAB
WORKERS IN TRADE AND COMMERCE AS PERCENTAGE OF WORKING POPULATION IN TOWNS AND CITIES: 1961
(DATA BY URBAN CENTRES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
GURUHARSAHAI
AHMED-GARH
BHUCHO MANDI
SAMANA
DABWALI
BUDHLADA
LEHRAGAGA
KALANWALI
JAKHAL MANDI
UKLANA MANDI
INTERNATIONAL BOUNDARY
STATE
PERCENTAGE
ABOVE 32
24-32
16-24
8-16
BELOW 8
WORKING POPULATION
100,000
50,000
20,000
10,000
5,000
2,500
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

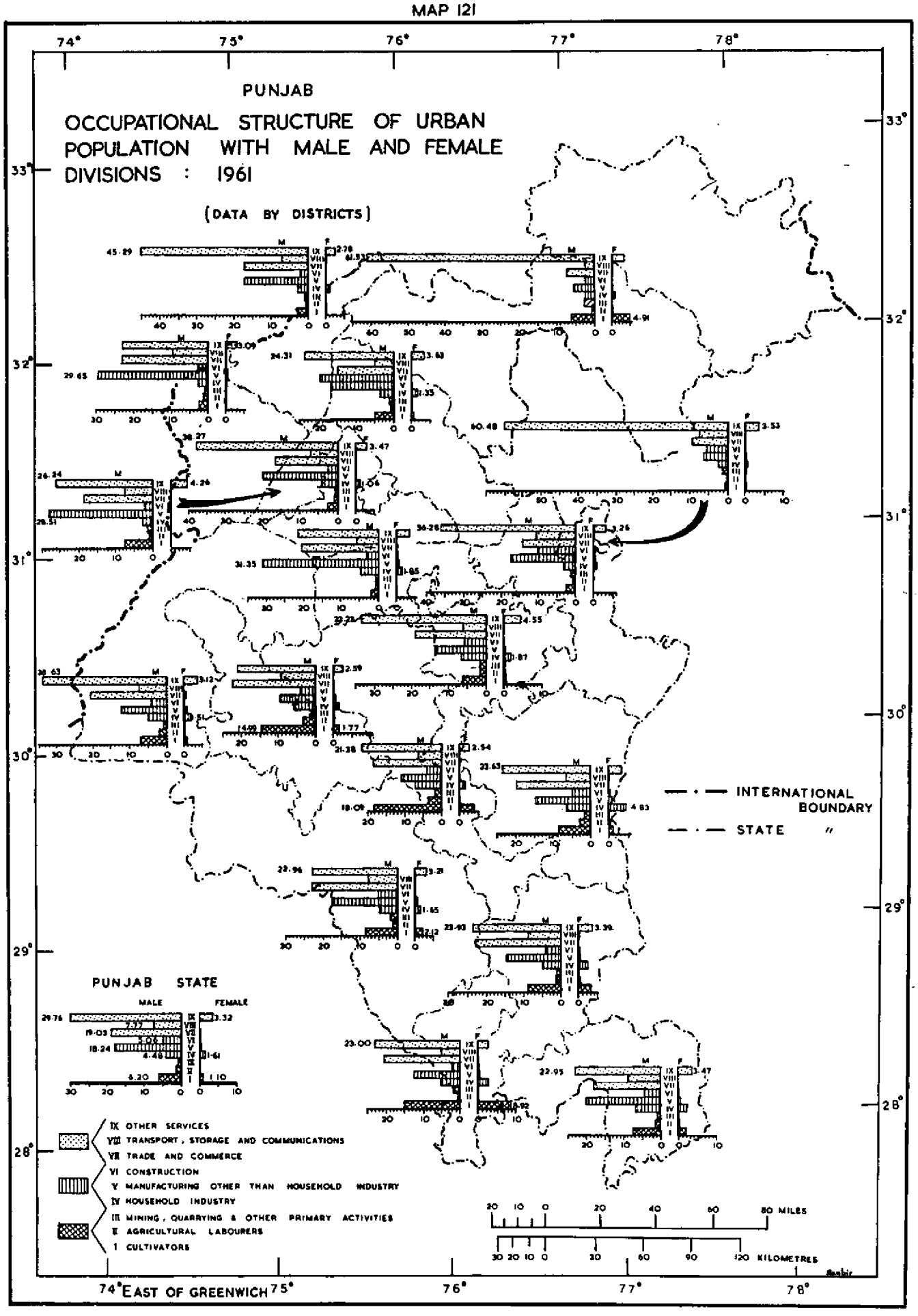
MAP 119


PUNJAB
WORKERS IN TRANSPORT, STORAGE AND COMMUNICATION AS PERCENTAGE OF WORKING POPULATION IN TOWNS AND CITIES : 1961
(DATA BY URBAN CENTRES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
PATHANKOT
KALKA
RAJPURA
BHATINDA
YAMUNA NAGAR
KALANWALI
JIND
GURGAON
REWARI
INTERNATIONAL BOUNDARY
STATE
PERCENTAGE
ABOVE 12
8-12
4-8
BELOW 4
WORKING POPULATION
100,000
50,000
20,000
10,000
5,000
2,500
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

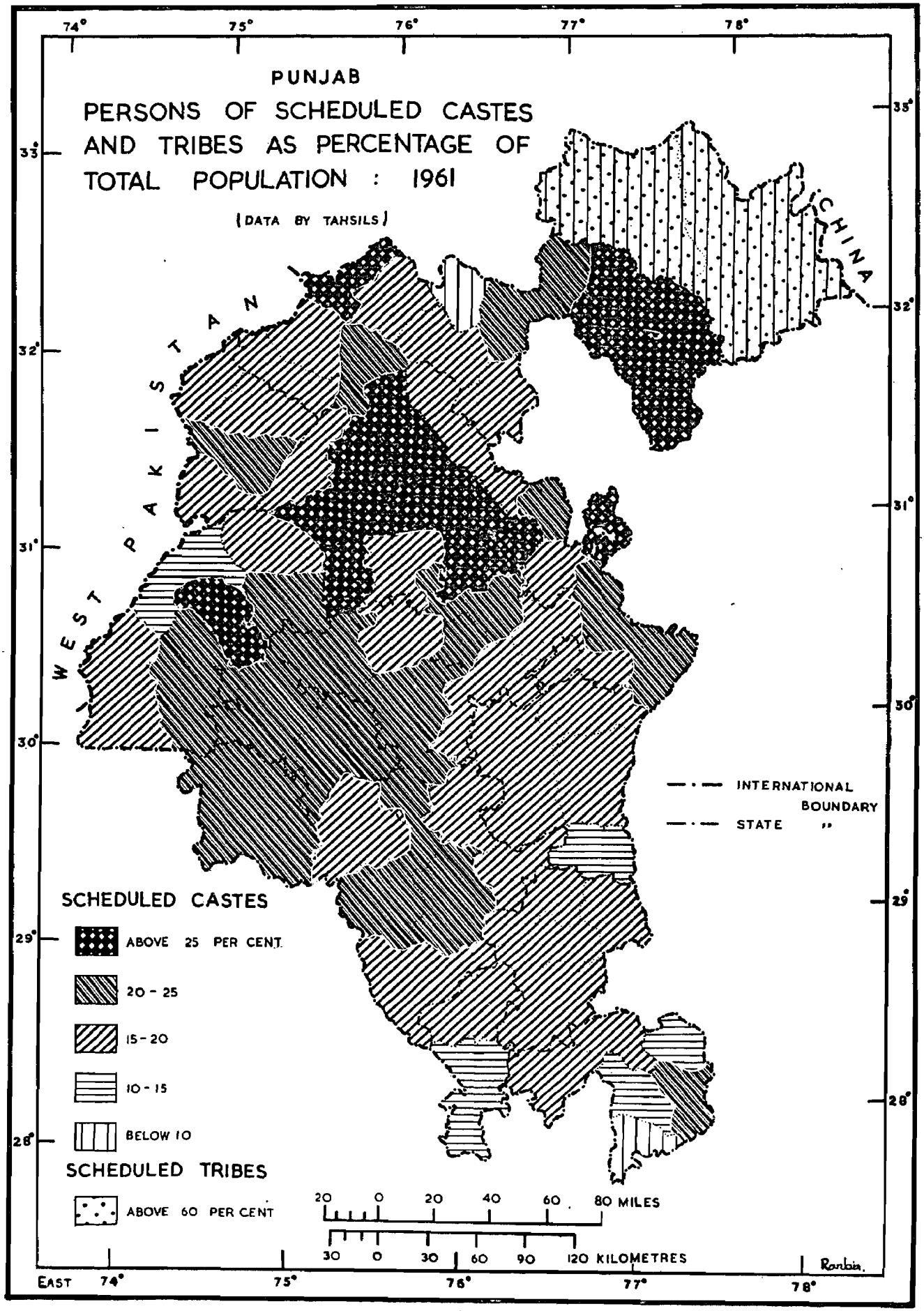
MAP 120


PUNJAB
WORKERS IN OTHER SERVICES AS PERCENTAGE OF WORKING POPULATION IN TOWNS AND CITIES : 1961
(DATA BY URBAN CENTRES)
DALHOUSIE
BAKLOH
DHARAMSALA
YOLE CAMP
PALAMPUR
PATHANKOT
KANGRA
GURDASPUR
JULLUNDUR CANTT.
SIMLA
CHANDIGARH
FEROZEPUR CANTT.
AMBALA CANTT.
INTERNATIONAL BOUNDARY
STATE »
PERCENTAGE
ABOVE 48
32 — 48
16 — 32
BELOW 16
WORKING POPULATION
100,000
50,000
20,000
10,000
5,000
2,500
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° 75° 76° 77° 78°
33° 32° 31° 30° 29° 28°
EAST

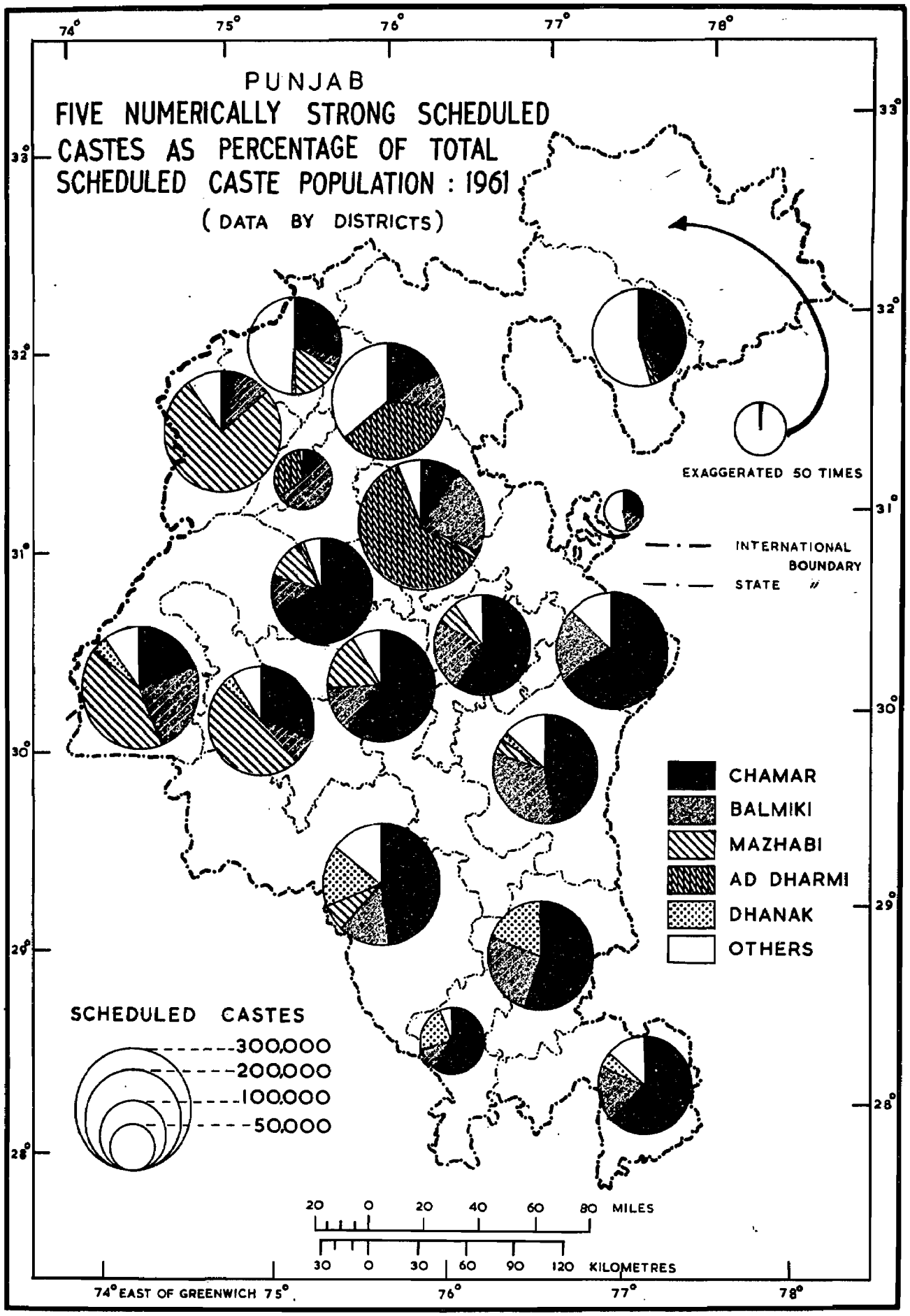
MAP 121


PUNJAB
OCCUPATIONAL STRUCTURE OF URBAN POPULATION WITH MALE AND FEMALE DIVISIONS : 1961
(DATA BY DISTRICTS)
PUNJAB STATE
MALE
FEMALE
INTERNATIONAL BOUNDARY
STATE "
IX OTHER SERVICES
VIII TRANSPORT, STORAGE AND COMMUNICATIONS
VII TRADE AND COMMERCE
VI CONSTRUCTION
V MANUFACTURING OTHER THAN HOUSEHOLD INDUSTRY
IV HOUSEHOLD INDUSTRY
III MINING, QUARRYING & OTHER PRIMARY ACTIVITIES
II AGRICULTURAL LABOURERS
I CULTIVATORS
80 MILES
120 KILOMETRES
74° EAST OF GREENWICH
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

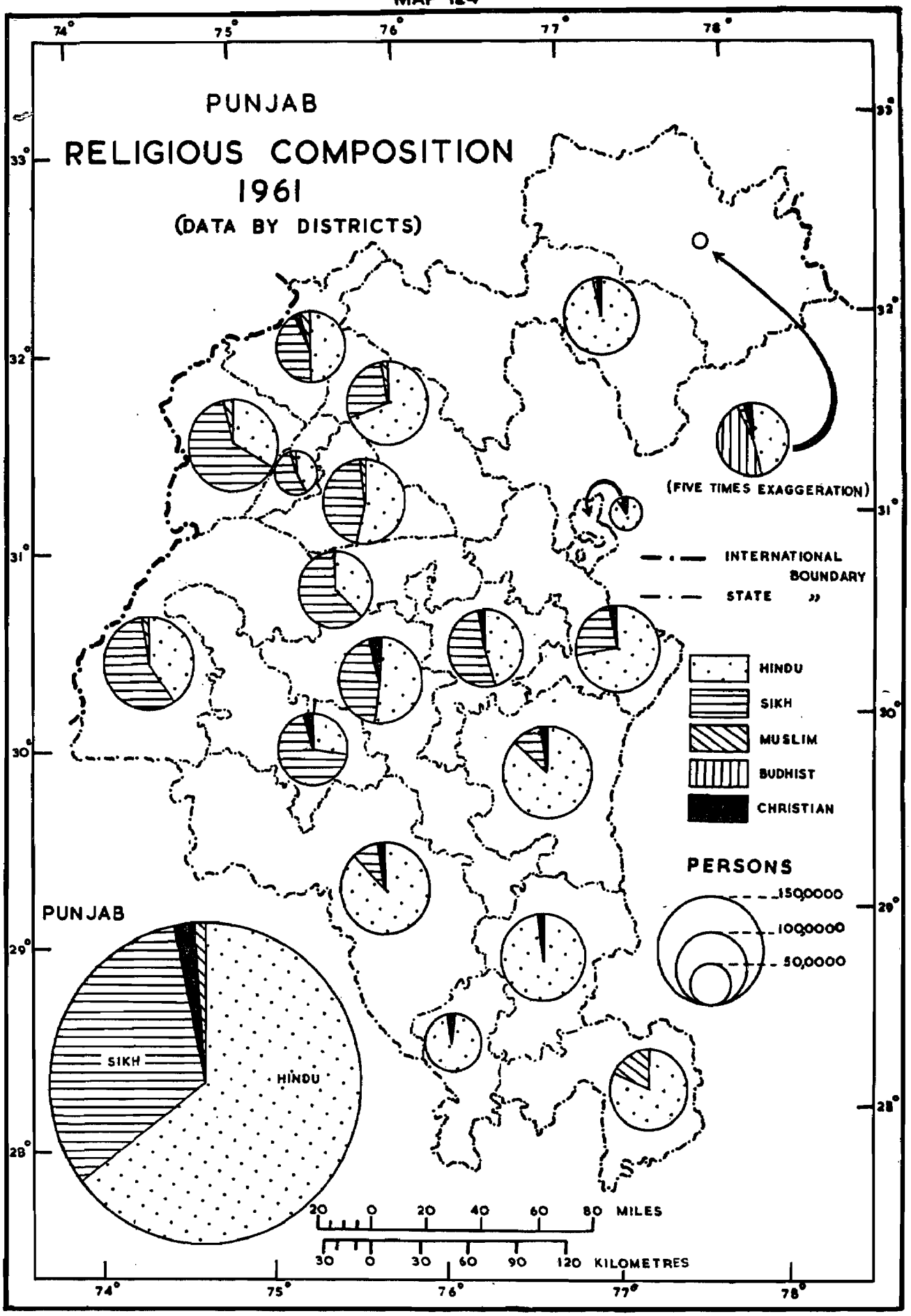
MAP 122


PUNJAB
PERSONS OF SCHEDULED CASTES AND TRIBES AS PERCENTAGE OF TOTAL POPULATION : 1961
(DATA BY TAHSILS)
WEST PAKISTAN
CHINA
INTERNATIONAL BOUNDARY
STATE ,,
SCHEDULED CASTES
ABOVE 25 PER CENT
20 - 25
15 - 20
10 - 15
BELOW 10
SCHEDULED TRIBES
ABOVE 60 PER CENT
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
Ranbir.
74° 75° 76° 77° 78°
EAST
33° 32° 31° 30° 29° 28°

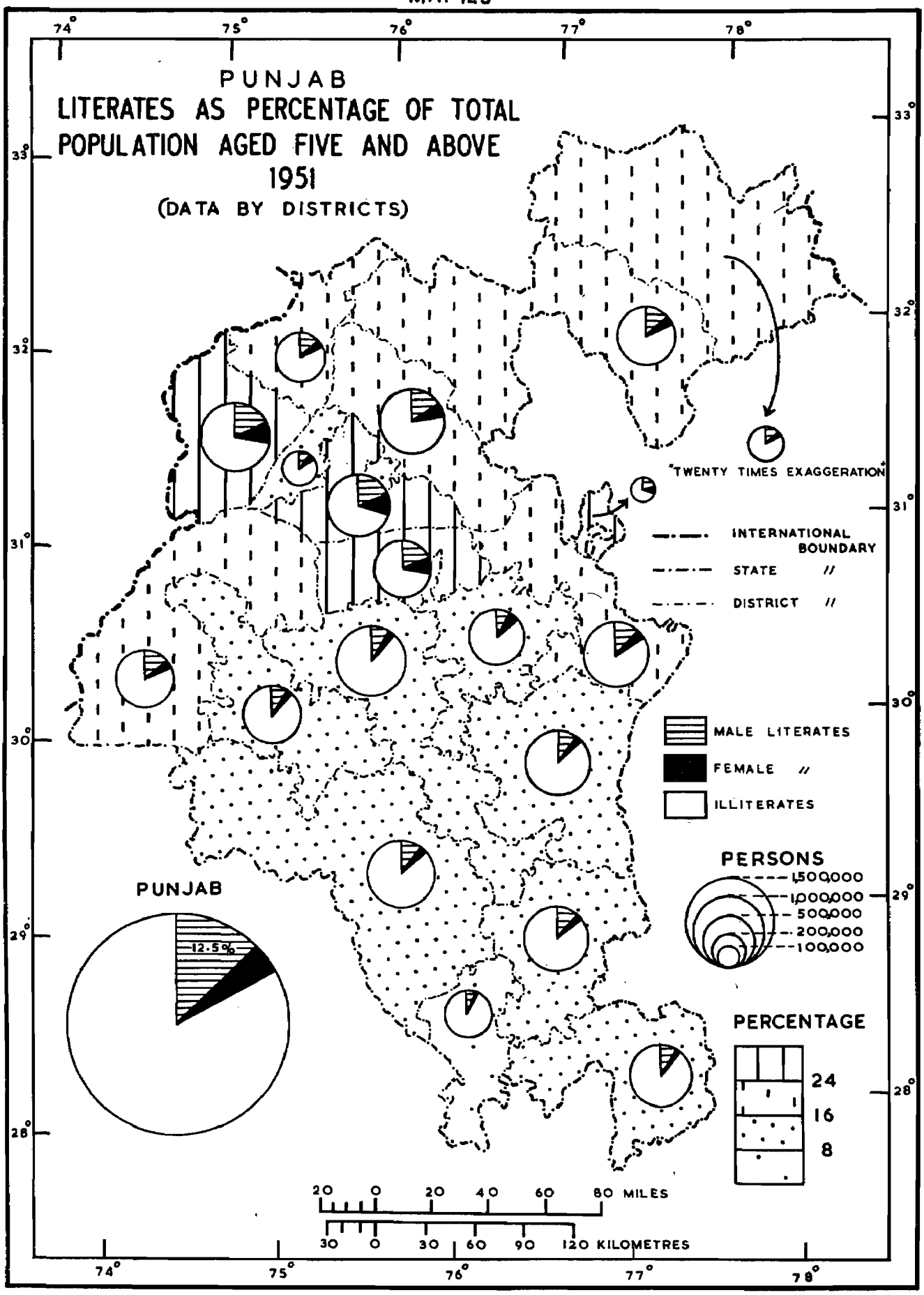
MAP 123


PUNJAB
FIVE NUMERICALLY STRONG SCHEDULED CASTES AS PERCENTAGE OF TOTAL SCHEDULED CASTE POPULATION : 1961
(DATA BY DISTRICTS)
EXAGGERATED 50 TIMES
INTERNATIONAL BOUNDARY
STATE "
CHAMAR
BALMIKI
MAZHABI
AD DHARMI
DHANAK
OTHERS
SCHEDULED CASTES
300,000
200,000
100,000
50,000
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

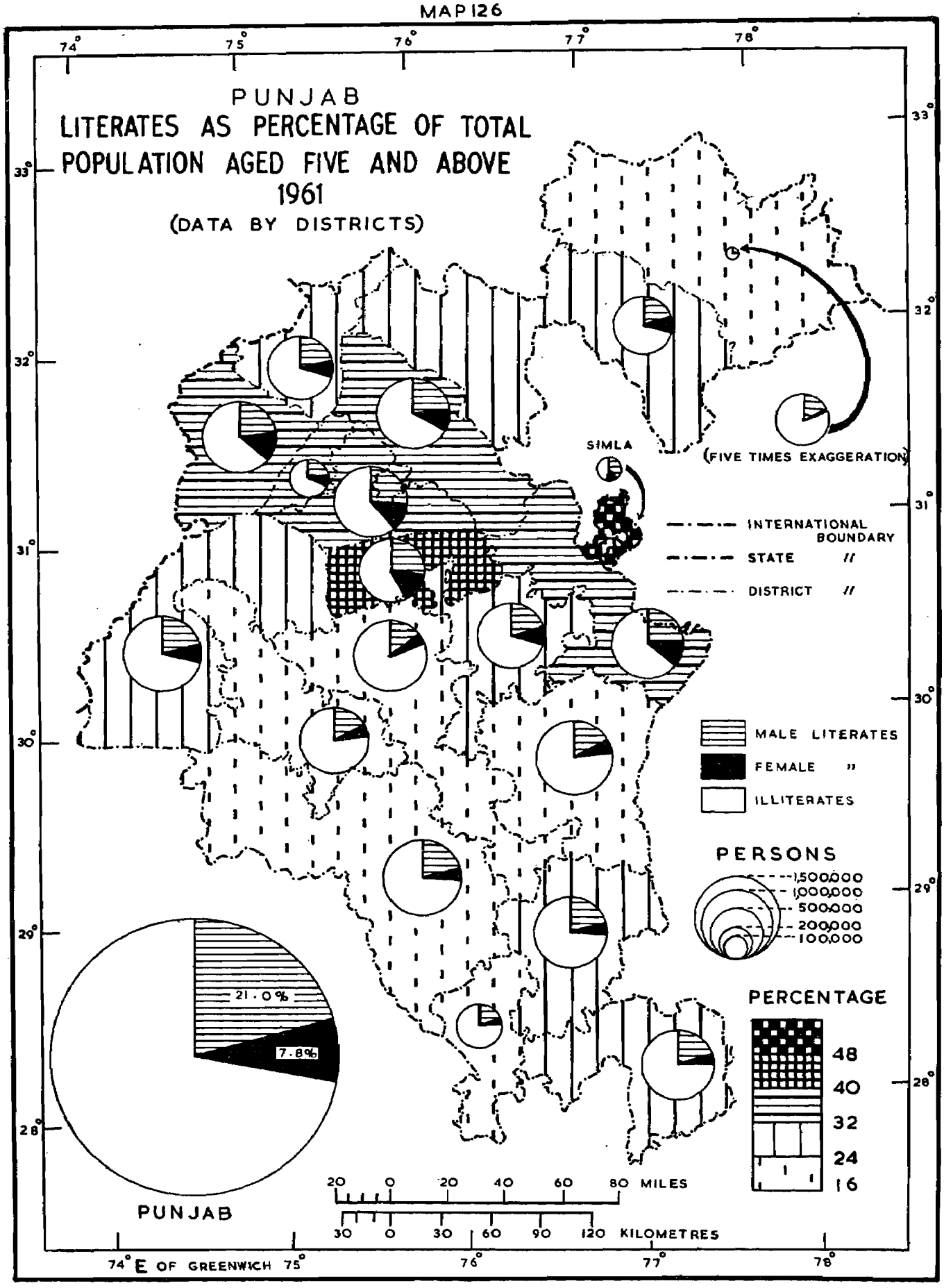
MAP 124


PUNJAB
RELIGIOUS COMPOSITION
1961
(DATA BY DISTRICTS)
(FIVE TIMES EXAGGERATION)
INTERNATIONAL BOUNDARY
STATE "
HINDU
SIKH
MUSLIM
BUDHIST
CHRISTIAN
PERSONS
150,0000
100,0000
50,0000
PUNJAB
SIKH
HINDU
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° 75° 76° 77° 78°
33° 32° 31° 30° 29° 28°

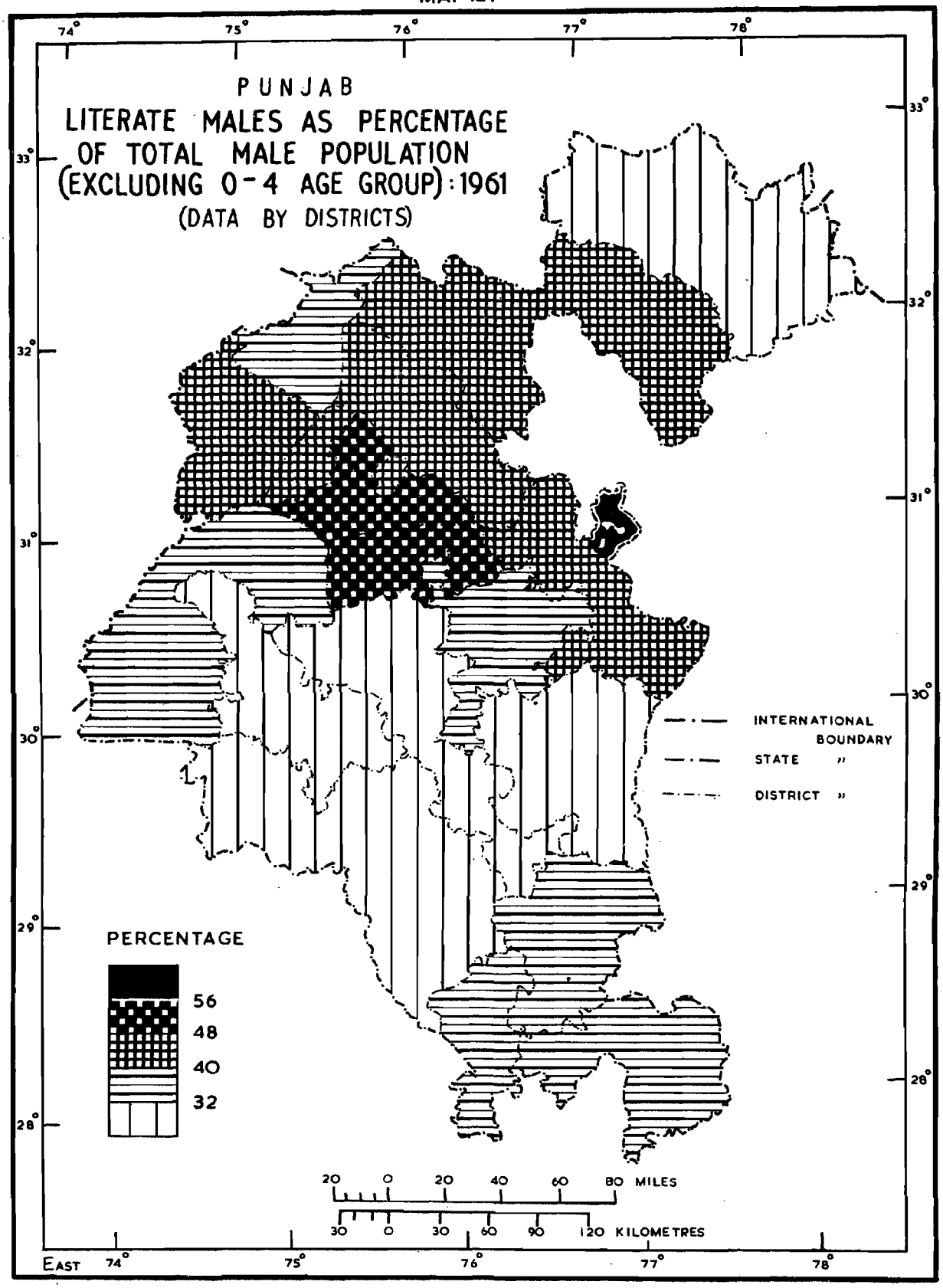
MAP 125


PUNJAB
LITERATES AS PERCENTAGE OF TOTAL POPULATION AGED FIVE AND ABOVE
1951
(DATA BY DISTRICTS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
TWENTY TIMES EXAGGERATION
INTERNATIONAL BOUNDARY
STATE //
DISTRICT //
MALE LITERATES
FEMALE //
ILLITERATES
PERSONS
1,500,000
1,000,000
500,000
200,000
100,000
PUNJAB
12·5%
PERCENTAGE
24
16
8
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES

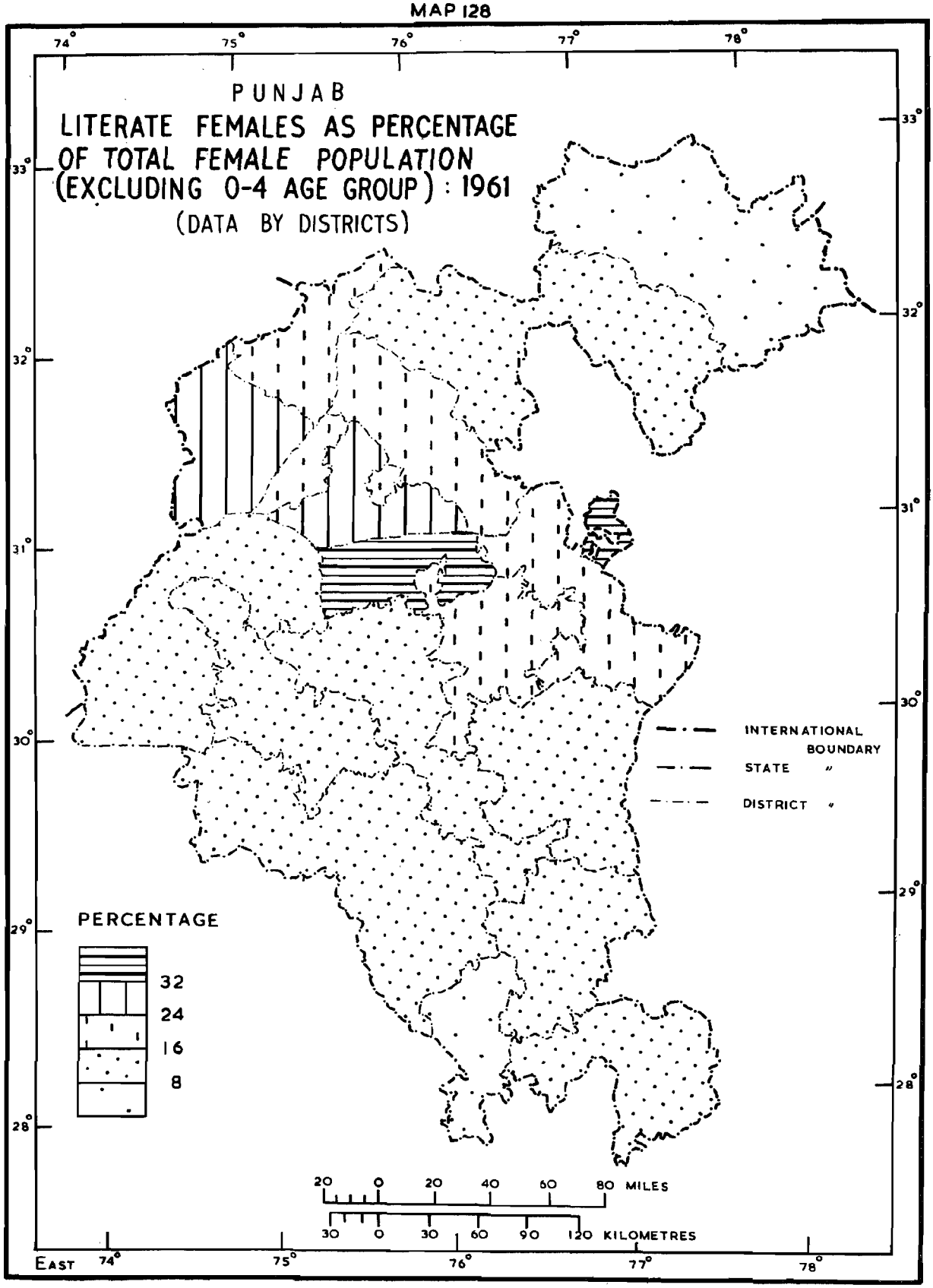
MAP 126


PUNJAB
LITERATES AS PERCENTAGE OF TOTAL POPULATION AGED FIVE AND ABOVE
1961
(DATA BY DISTRICTS)
SIMLA
(FIVE TIMES EXAGGERATION)
INTERNATIONAL BOUNDARY
STATE //
DISTRICT //
MALE LITERATES
FEMALE //
ILLITERATES
PERSONS
1,500,000
1,000,000
500,000
200,000
100,000
PERCENTAGE
48
40
32
24
16
21.0%
7.8%
PUNJAB
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° E OF GREENWICH
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

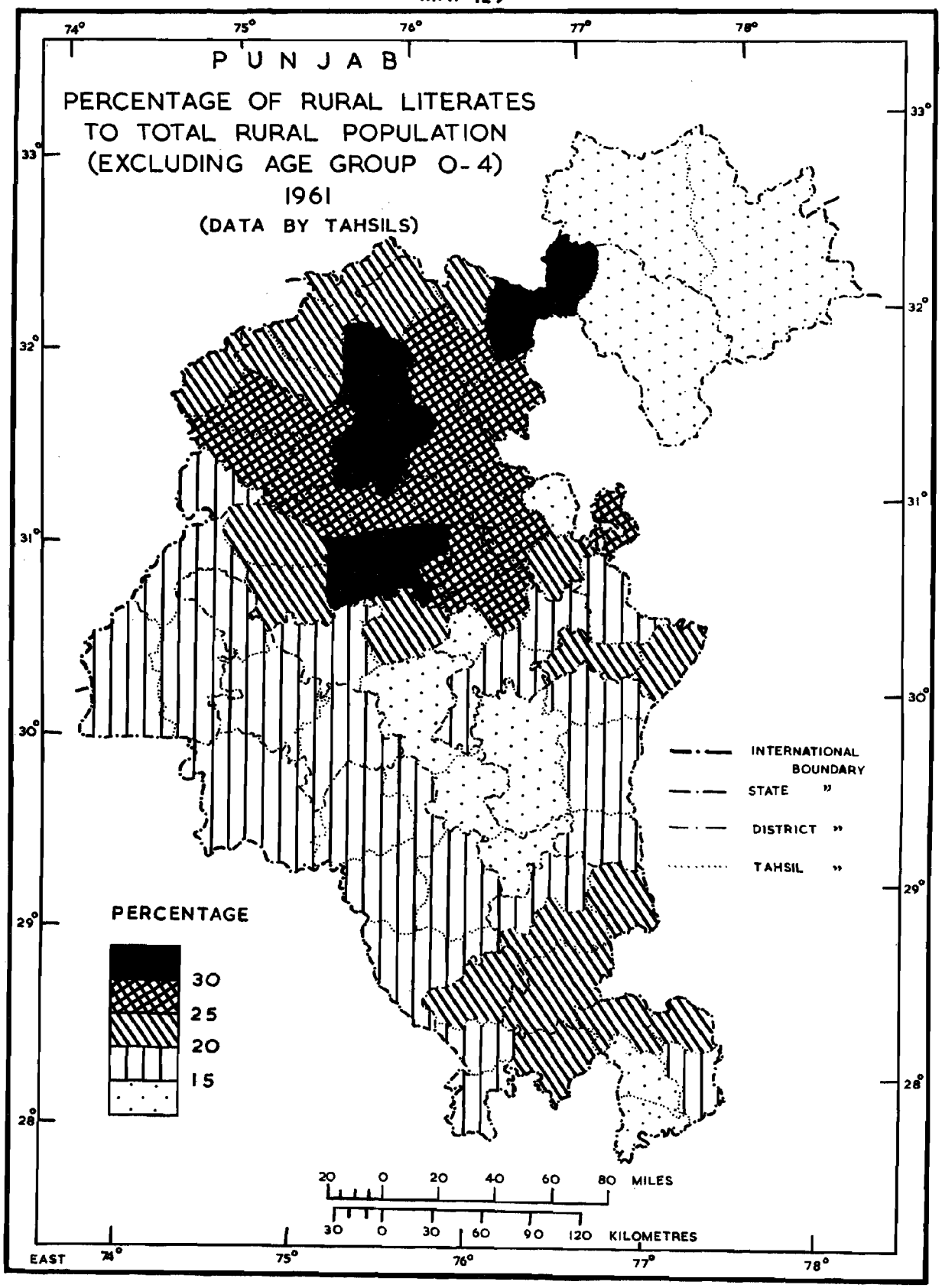
MAP 127


PUNJAB
LITERATE MALES AS PERCENTAGE OF TOTAL MALE POPULATION (EXCLUDING 0-4 AGE GROUP): 1961
(DATA BY DISTRICTS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
DISTRICT "
PERCENTAGE
56
48
40
32
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

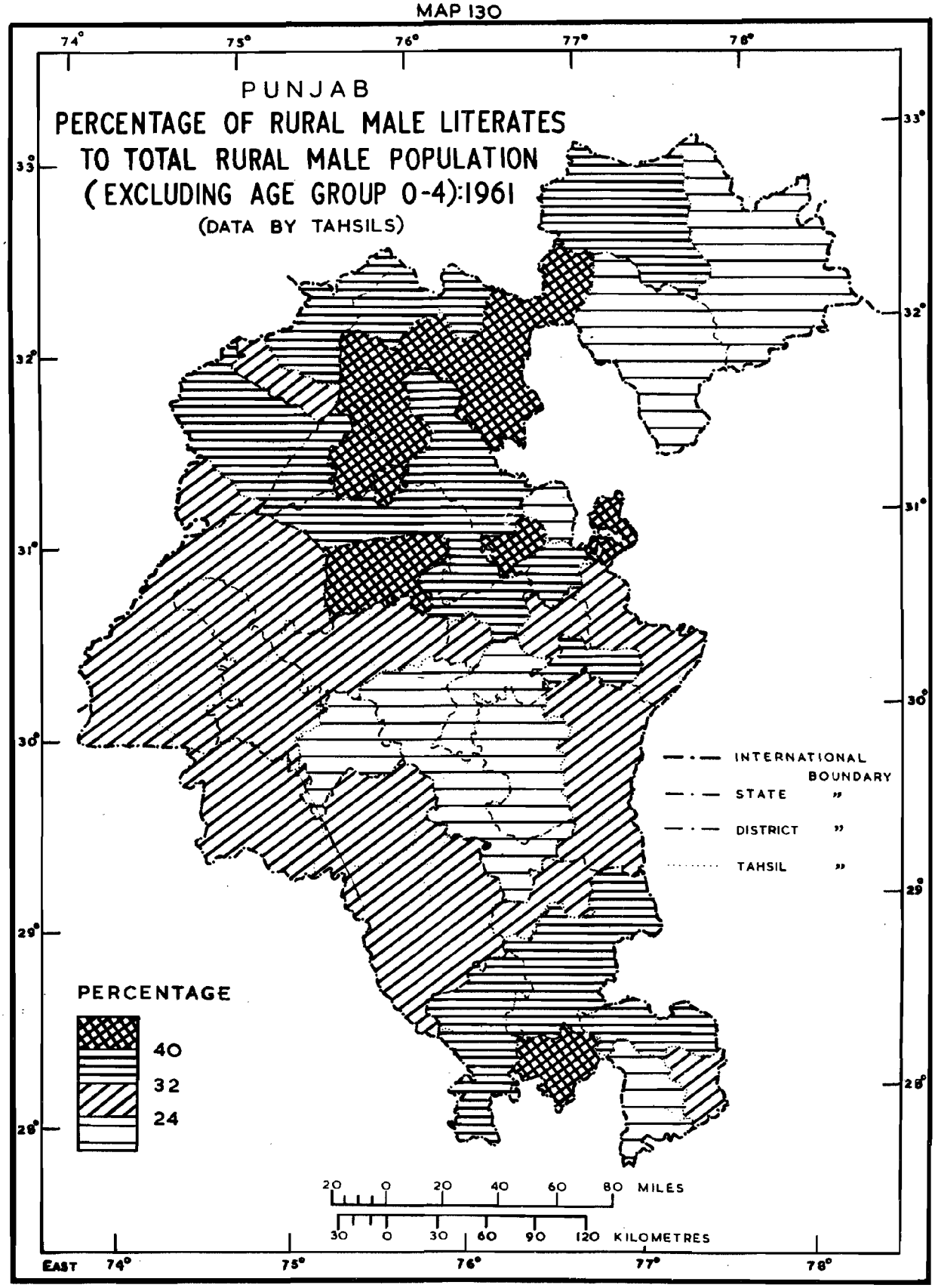
MAP 128


PUNJAB
LITERATE FEMALES AS PERCENTAGE OF TOTAL FEMALE POPULATION (EXCLUDING 0-4 AGE GROUP) : 1961
(DATA BY DISTRICTS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
DISTRICT "
PERCENTAGE
32
24
16
8
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

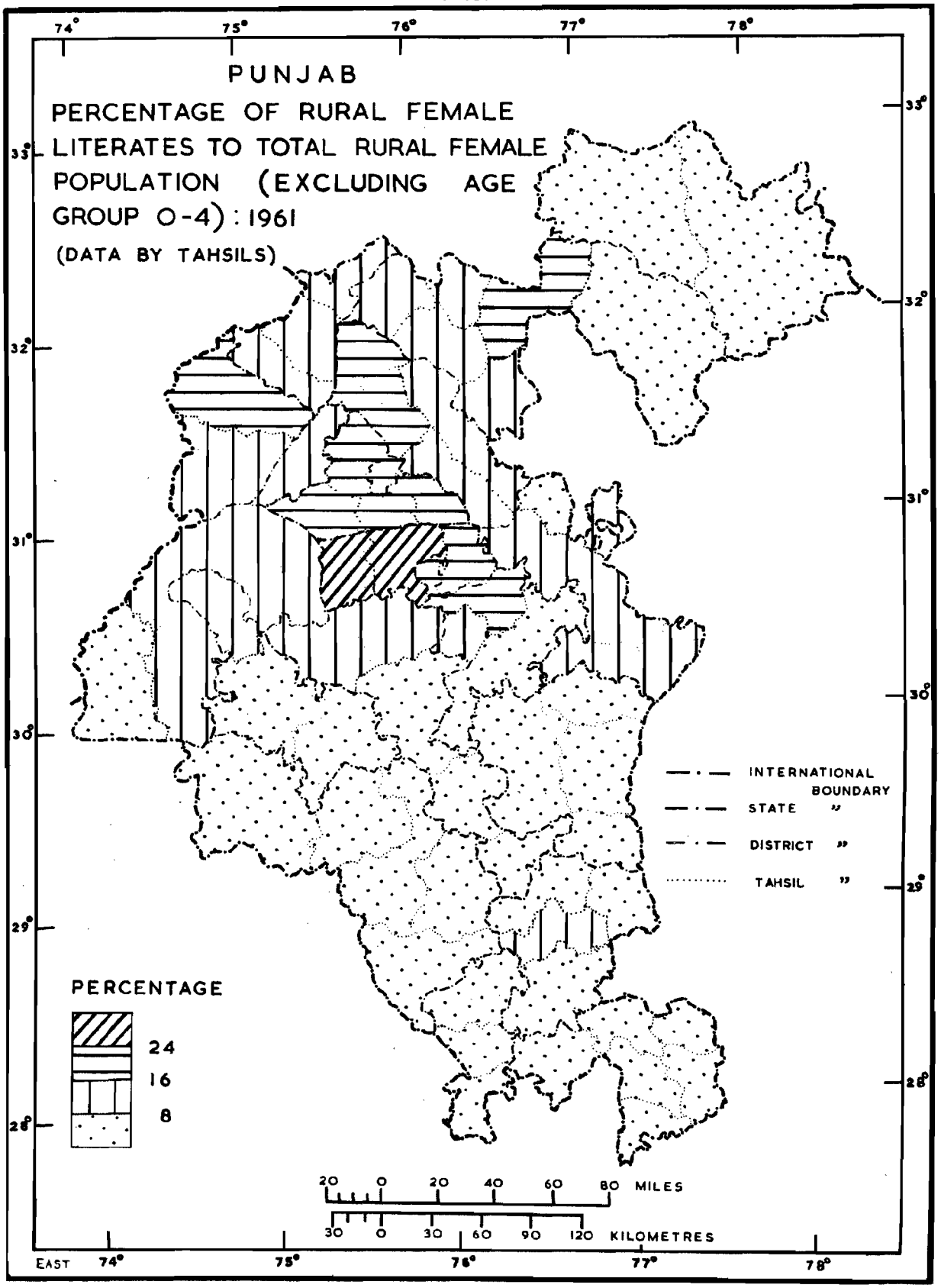
MAP 129


PUNJAB
PERCENTAGE OF RURAL LITERATES
TO TOTAL RURAL POPULATION
(EXCLUDING AGE GROUP 0-4)
1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
DISTRICT "
TAHSIL "
PERCENTAGE
30
25
20
15
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

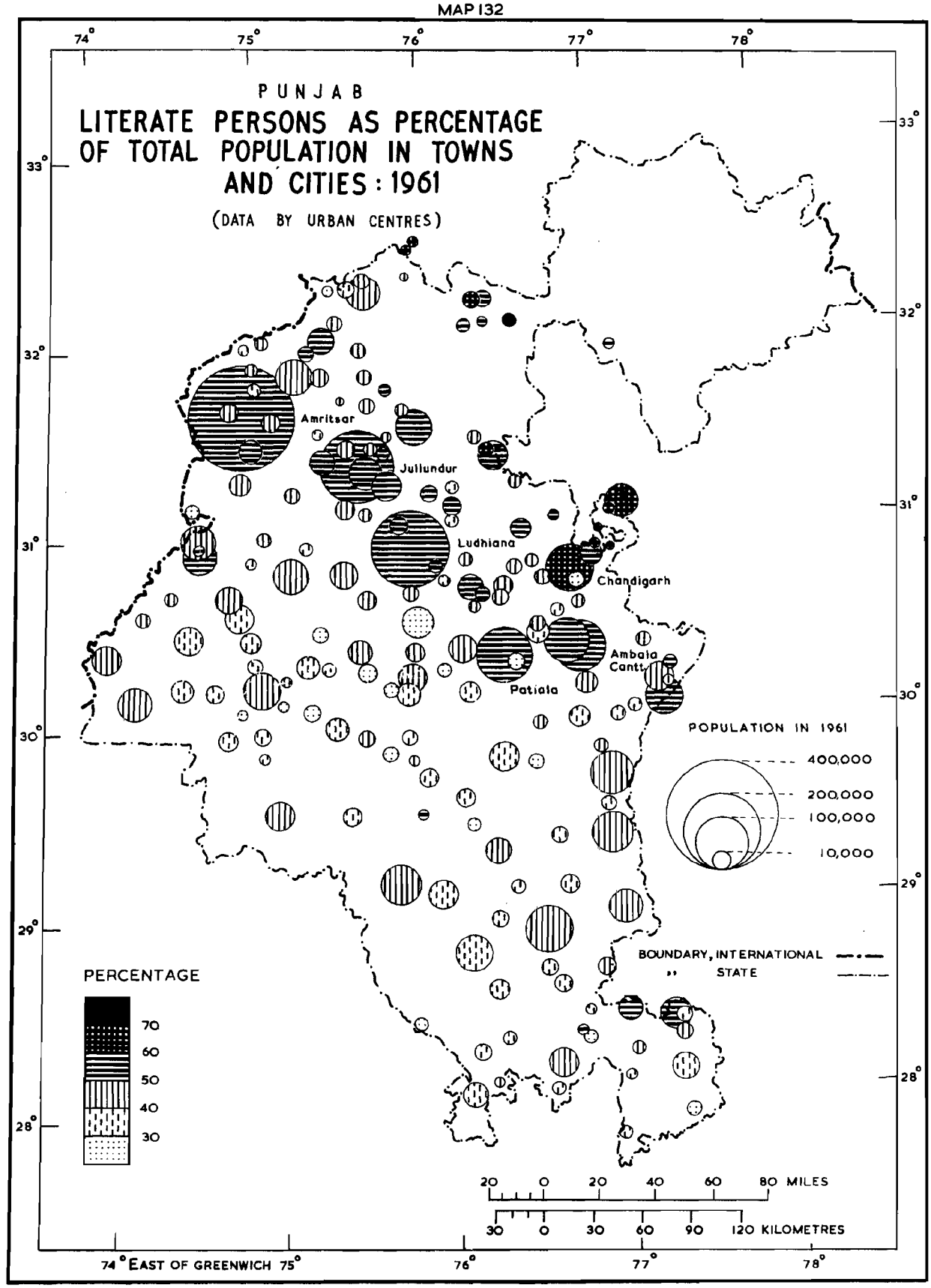
MAP 130


PUNJAB
PERCENTAGE OF RURAL MALE LITERATES
TO TOTAL RURAL MALE POPULATION
(EXCLUDING AGE GROUP 0-4):1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
DISTRICT "
TAHSIL "
PERCENTAGE
40
32
24
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

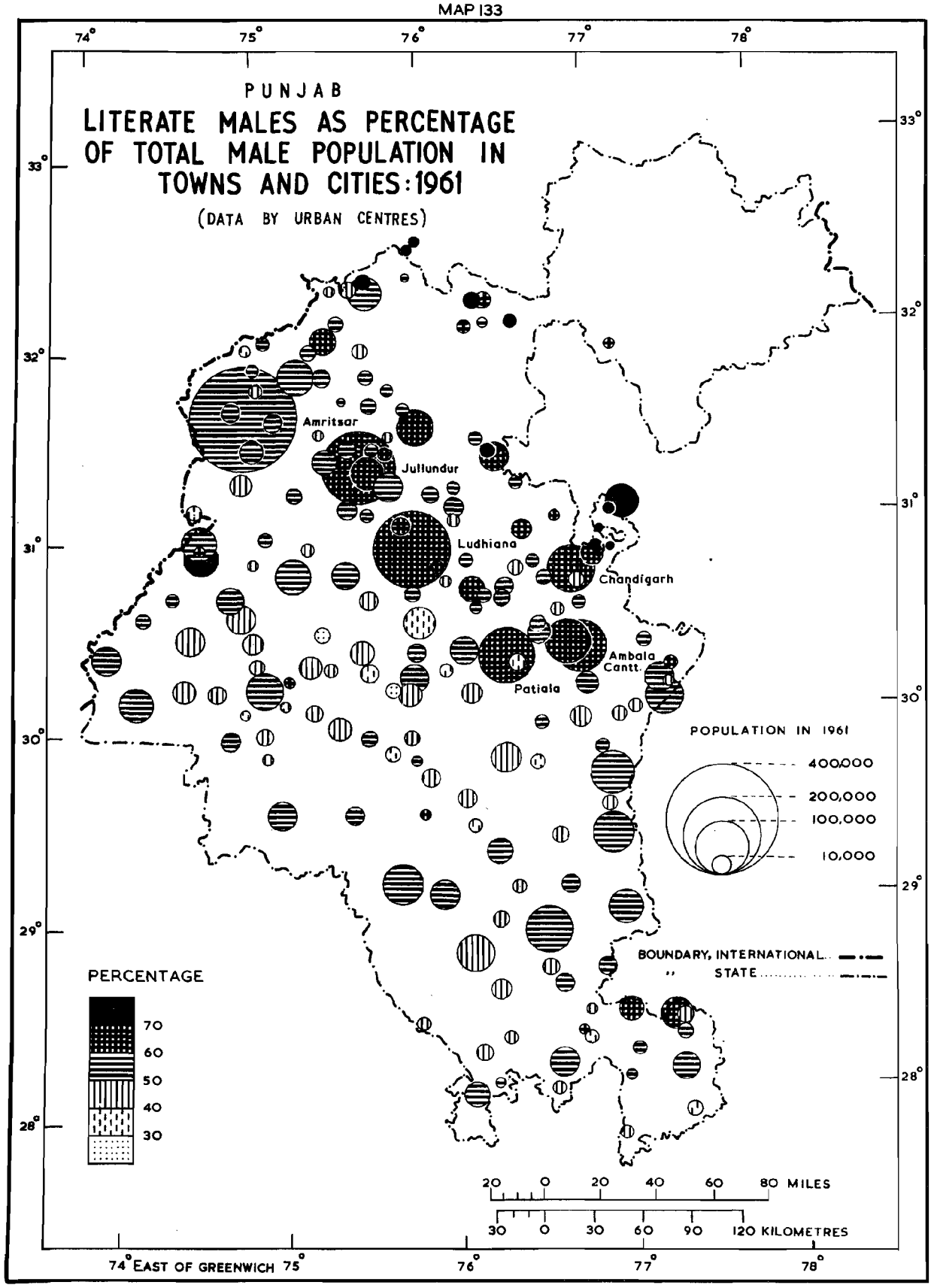
MAP 131


PUNJAB
PERCENTAGE OF RURAL FEMALE LITERATES TO TOTAL RURAL FEMALE POPULATION (EXCLUDING AGE GROUP 0-4) : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
DISTRICT "
TAHSIL "
PERCENTAGE
24
16
8
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

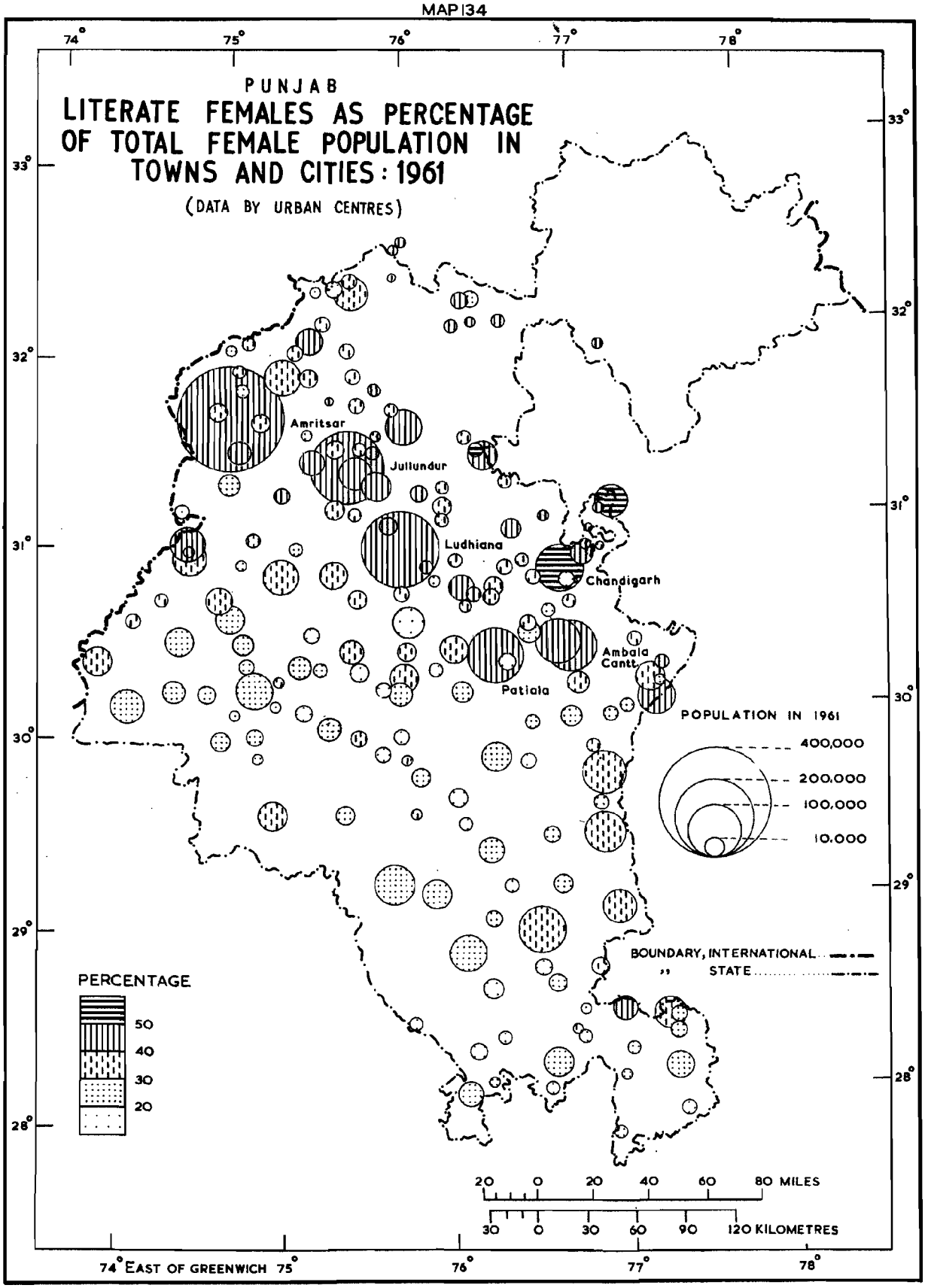
MAP 132


PUNJAB
LITERATE PERSONS AS PERCENTAGE OF TOTAL POPULATION IN TOWNS AND CITIES : 1961
(DATA BY URBAN CENTRES)
Amritsar
Jullundur
Ludhiana
Chandigarh
Ambala Cantt.
Patiala
POPULATION IN 1961
400,000
200,000
100,000
10,000
PERCENTAGE
70
60
50
40
30
BOUNDARY, INTERNATIONAL
" STATE
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75° 76° 77° 78°
33° 32° 31° 30° 29° 28°

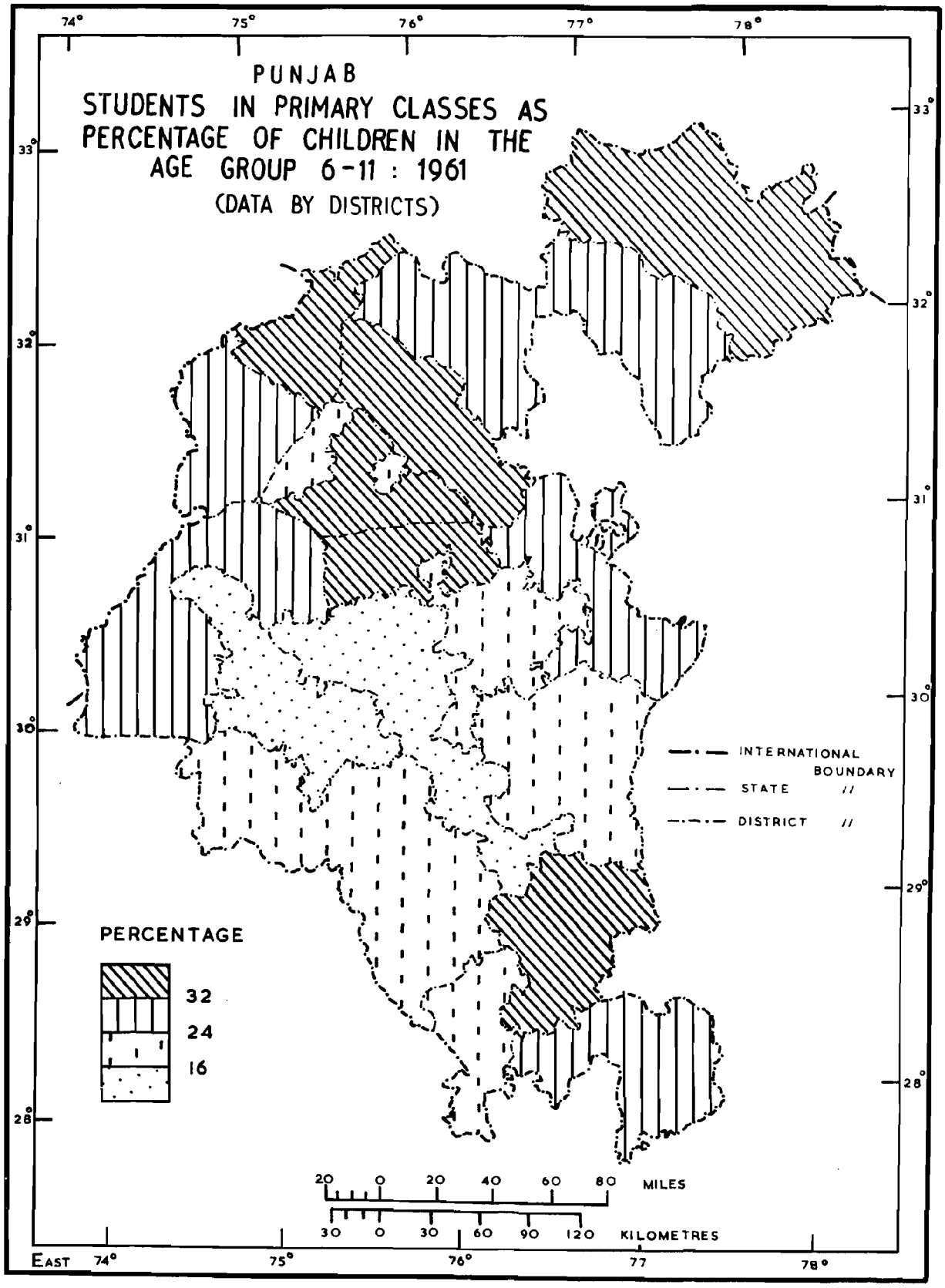
MAP 133


PUNJAB
LITERATE MALES AS PERCENTAGE OF TOTAL MALE POPULATION IN TOWNS AND CITIES: 1961
(DATA BY URBAN CENTRES)
Amritsar
Jullundur
Ludhiana
Chandigarh
Ambala Cantt.
Patiala
POPULATION IN 1961
400,000
200,000
100,000
10,000
PERCENTAGE
70
60
50
40
30
BOUNDARY, INTERNATIONAL
STATE
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

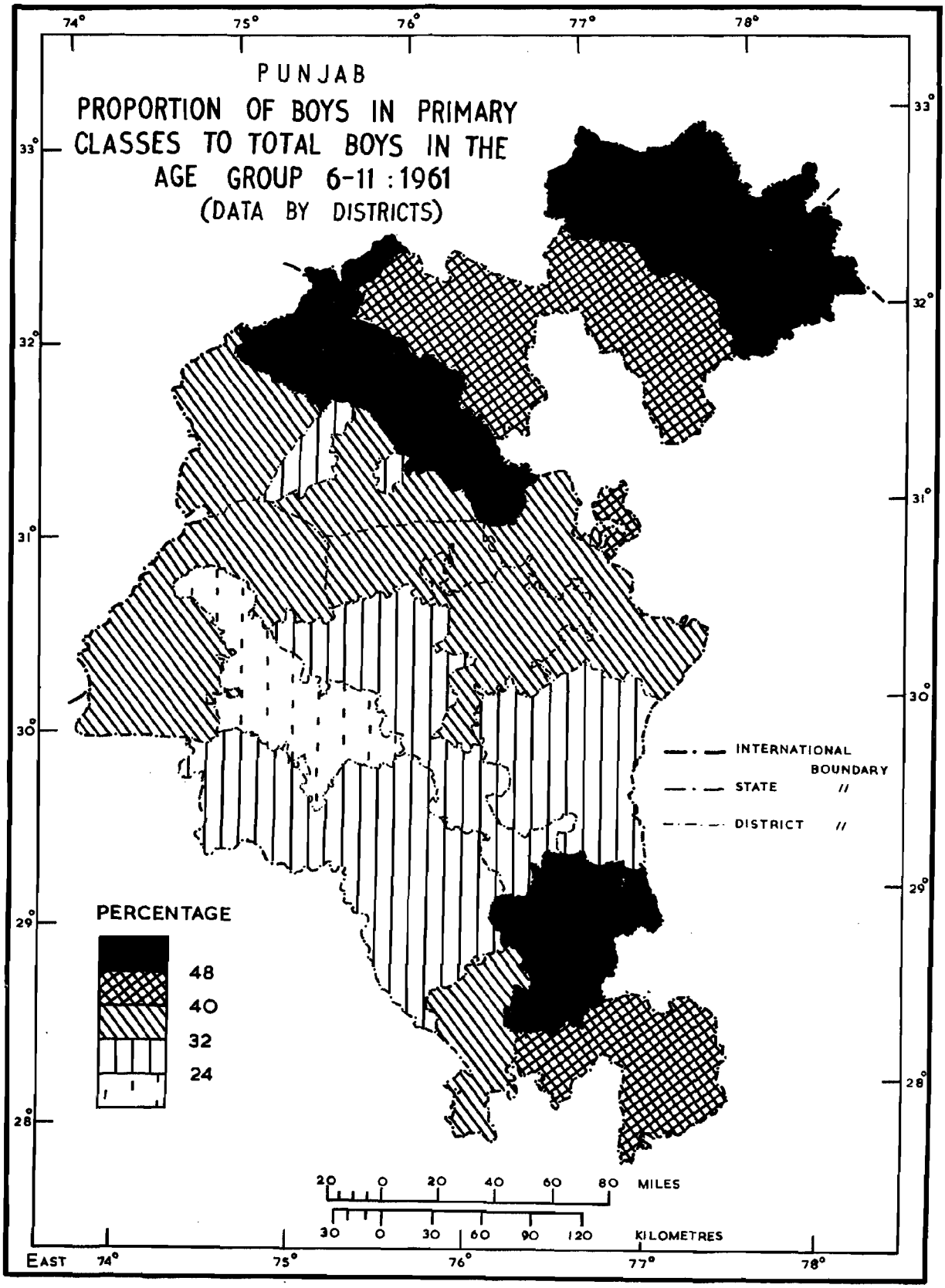
MAP 134


PUNJAB
LITERATE FEMALES AS PERCENTAGE OF TOTAL FEMALE POPULATION IN TOWNS AND CITIES: 1961
(DATA BY URBAN CENTRES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
Amritsar
Jullundur
Ludhiana
Chandigarh
Ambala Cantt.
Patiala
POPULATION IN 1961
400,000
200,000
100,000
10,000
PERCENTAGE
50
40
30
20
BOUNDARY, INTERNATIONAL
" STATE
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75°

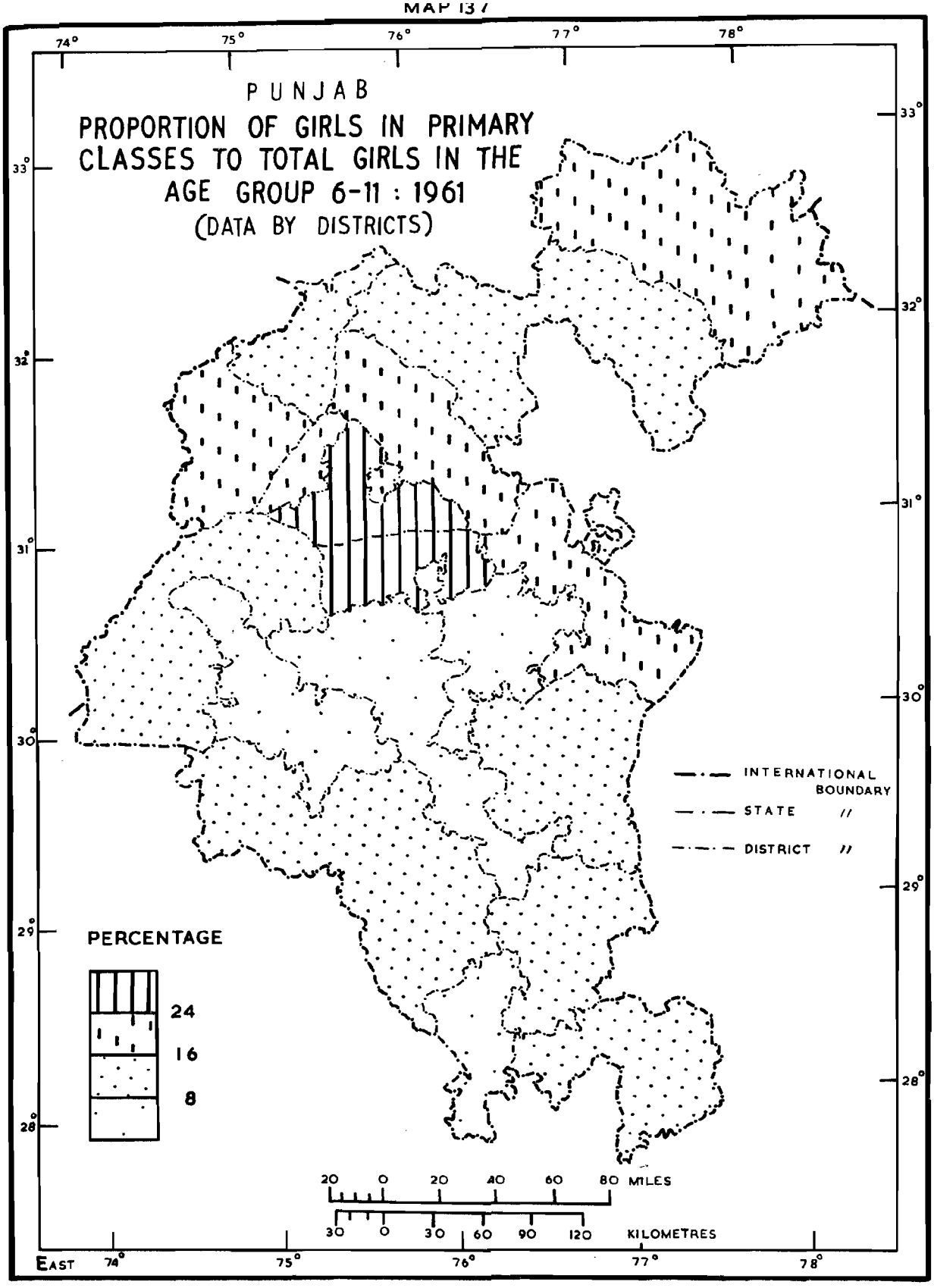
MAP 135


PUNJAB
STUDENTS IN PRIMARY CLASSES AS PERCENTAGE OF CHILDREN IN THE AGE GROUP 6-11 : 1961
(DATA BY DISTRICTS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE //
DISTRICT //
PERCENTAGE
32
24
16
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

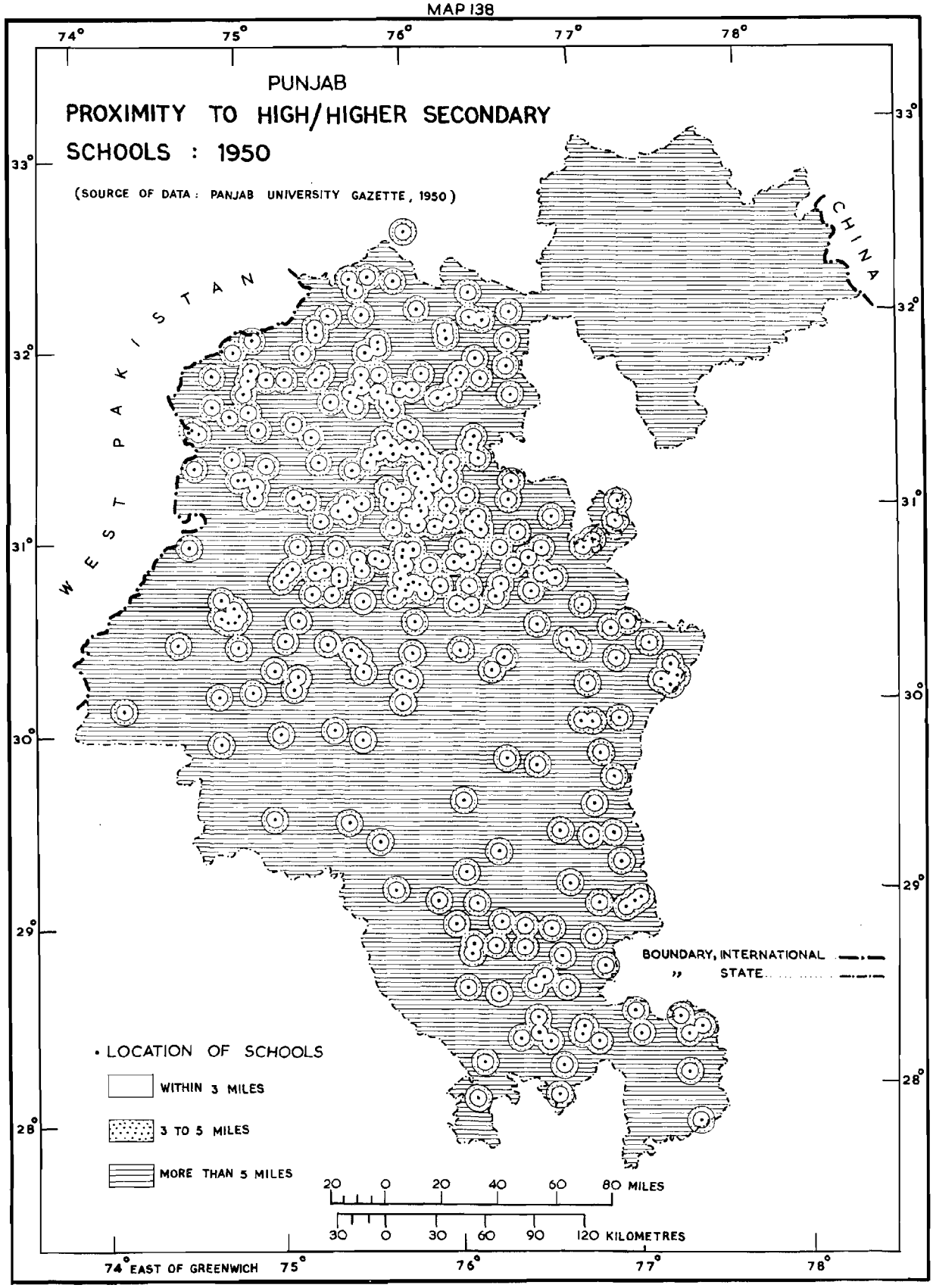
MAP 136


PUNJAB
PROPORTION OF BOYS IN PRIMARY CLASSES TO TOTAL BOYS IN THE AGE GROUP 6-11 : 1961
(DATA BY DISTRICTS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE //
DISTRICT //
PERCENTAGE
48
40
32
24
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

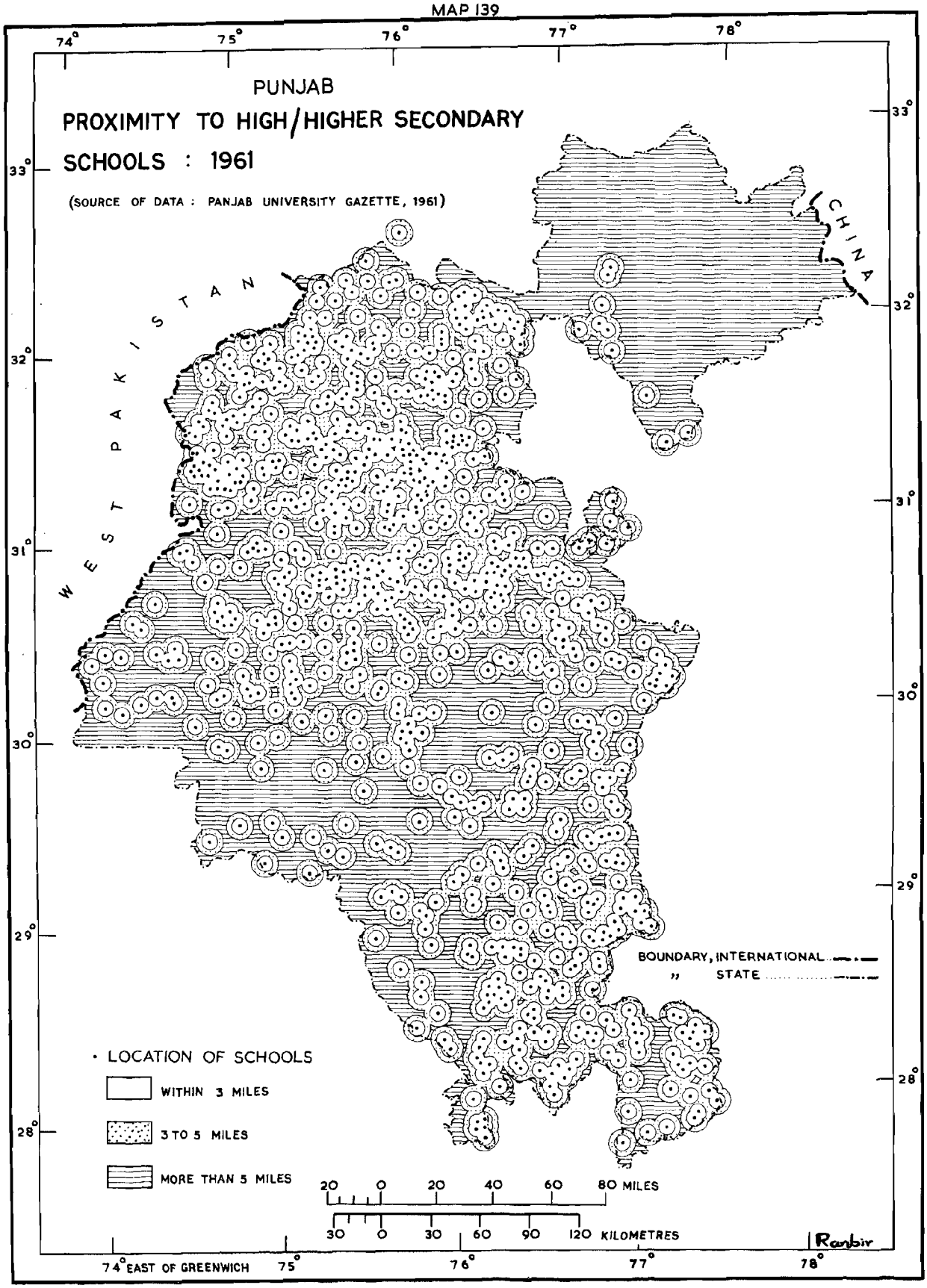
MAP 137


PUNJAB
PROPORTION OF GIRLS IN PRIMARY CLASSES TO TOTAL GIRLS IN THE AGE GROUP 6-11 : 1961
(DATA BY DISTRICTS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE //
DISTRICT //
PERCENTAGE
24
16
8
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

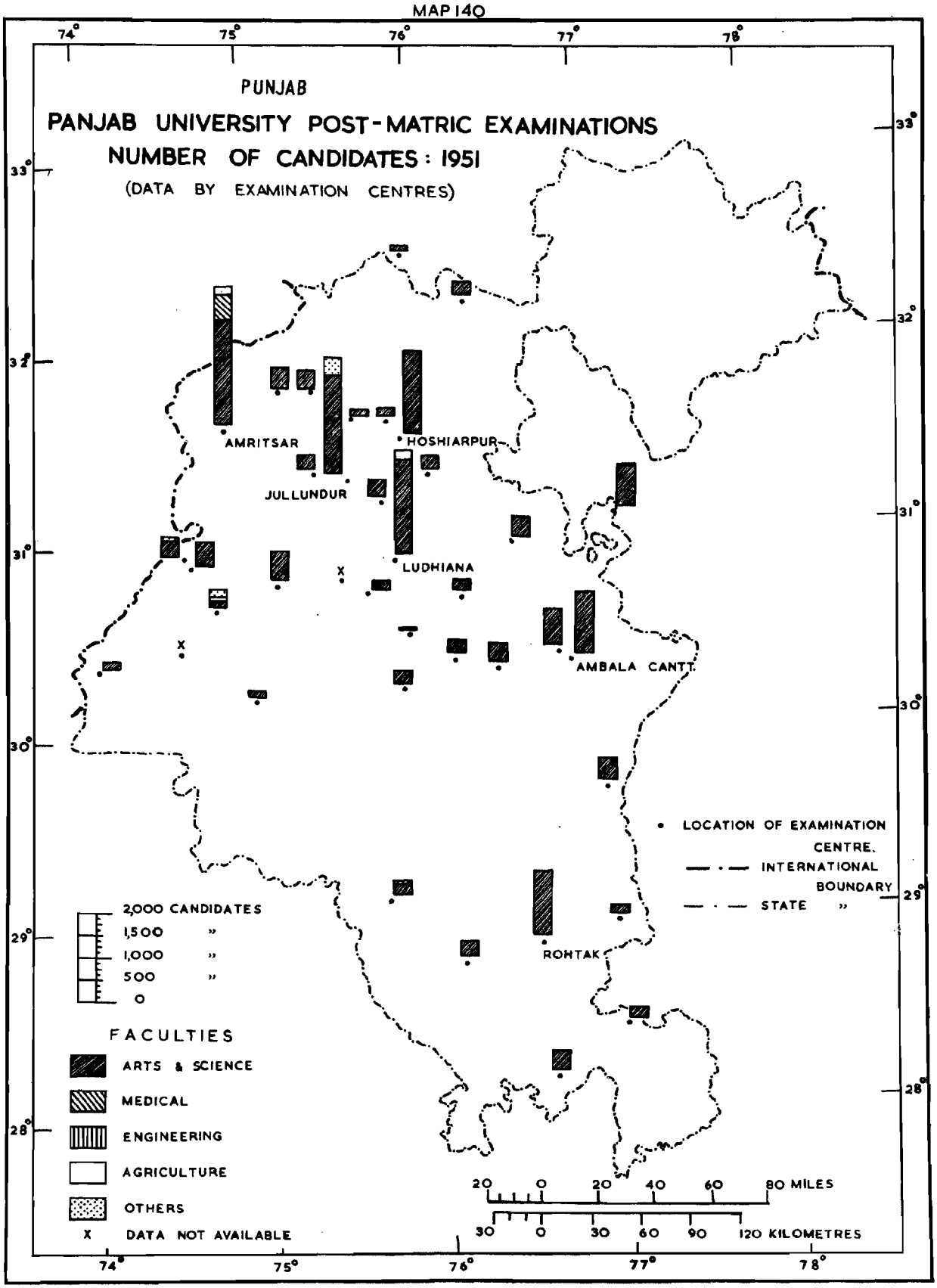
MAP 138


PUNJAB
PROXIMITY TO HIGH/HIGHER SECONDARY SCHOOLS : 1950
(SOURCE OF DATA : PANJAB UNIVERSITY GAZETTE, 1950)
WEST PAKISTAN
CHINA
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
BOUNDARY, INTERNATIONAL
" STATE
• LOCATION OF SCHOOLS
WITHIN 3 MILES
3 TO 5 MILES
MORE THAN 5 MILES
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

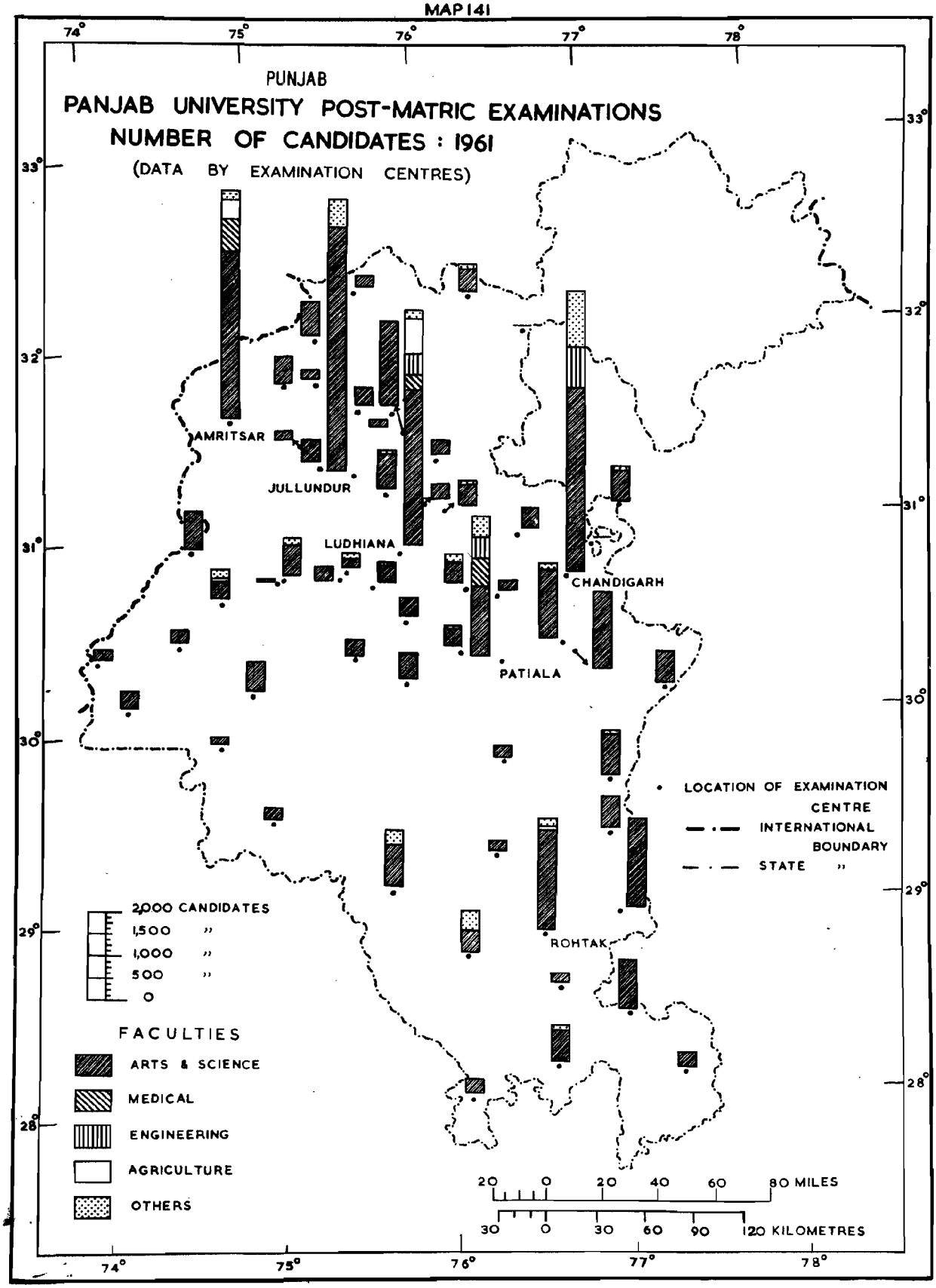
MAP 139


PUNJAB
PROXIMITY TO HIGH/HIGHER SECONDARY SCHOOLS : 1961
(SOURCE OF DATA : PANJAB UNIVERSITY GAZETTE, 1961)
WEST PAKISTAN
CHINA
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
BOUNDARY, INTERNATIONAL
" STATE
• LOCATION OF SCHOOLS
WITHIN 3 MILES
3 TO 5 MILES
MORE THAN 5 MILES
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
Ranbir

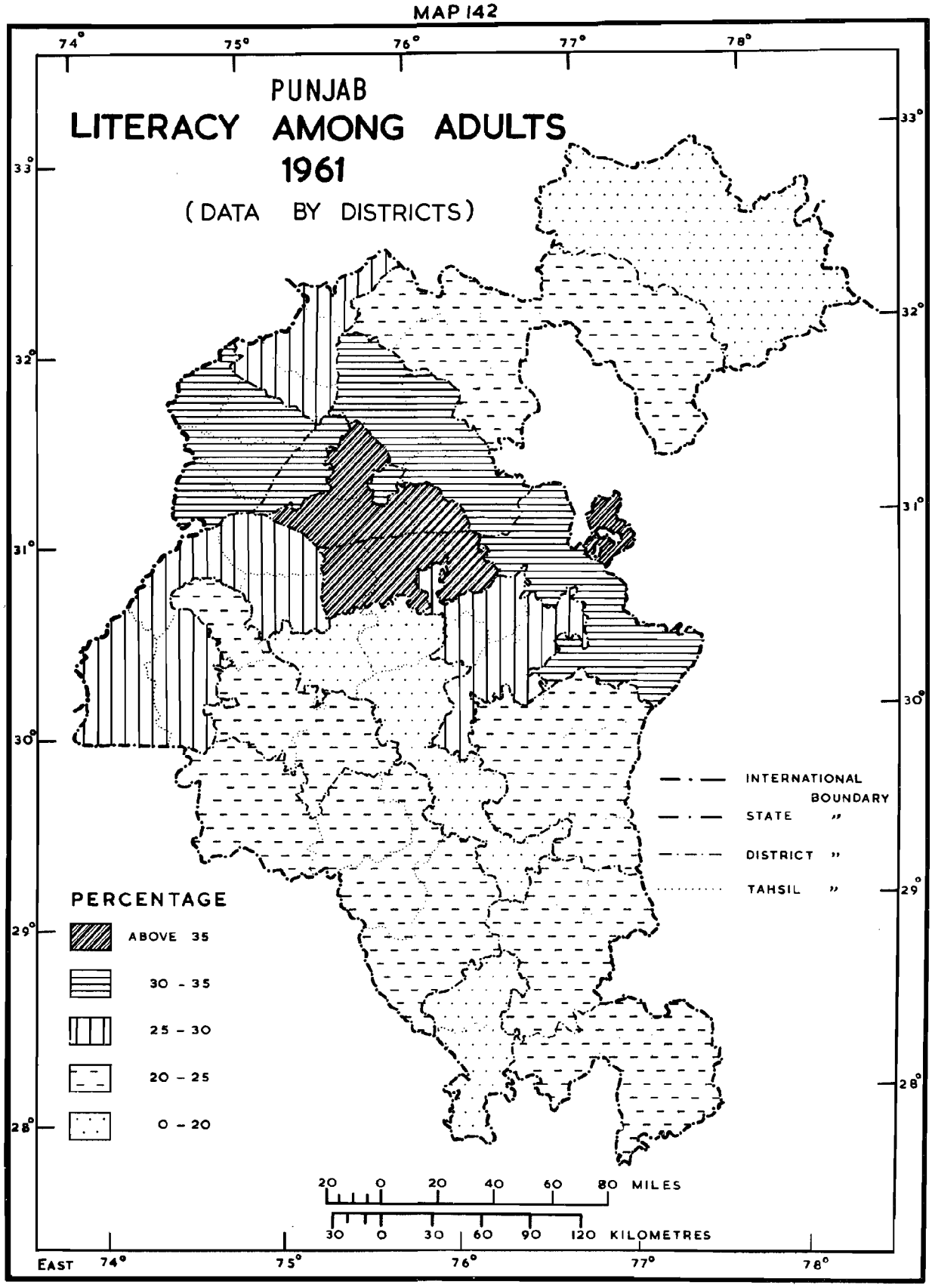
MAP 140


PUNJAB
PANJAB UNIVERSITY POST-MATRIC EXAMINATIONS
NUMBER OF CANDIDATES : 1951
(DATA BY EXAMINATION CENTRES)
AMRITSAR
HOSHIARPUR
JULLUNDUR
LUDHIANA
AMBALA CANTT.
ROHTAK
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
2,000 CANDIDATES
1,500 »
1,000 »
500 »
0
FACULTIES
ARTS & SCIENCE
MEDICAL
ENGINEERING
AGRICULTURE
OTHERS
X DATA NOT AVAILABLE
LOCATION OF EXAMINATION CENTRE.
INTERNATIONAL BOUNDARY
STATE »
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES

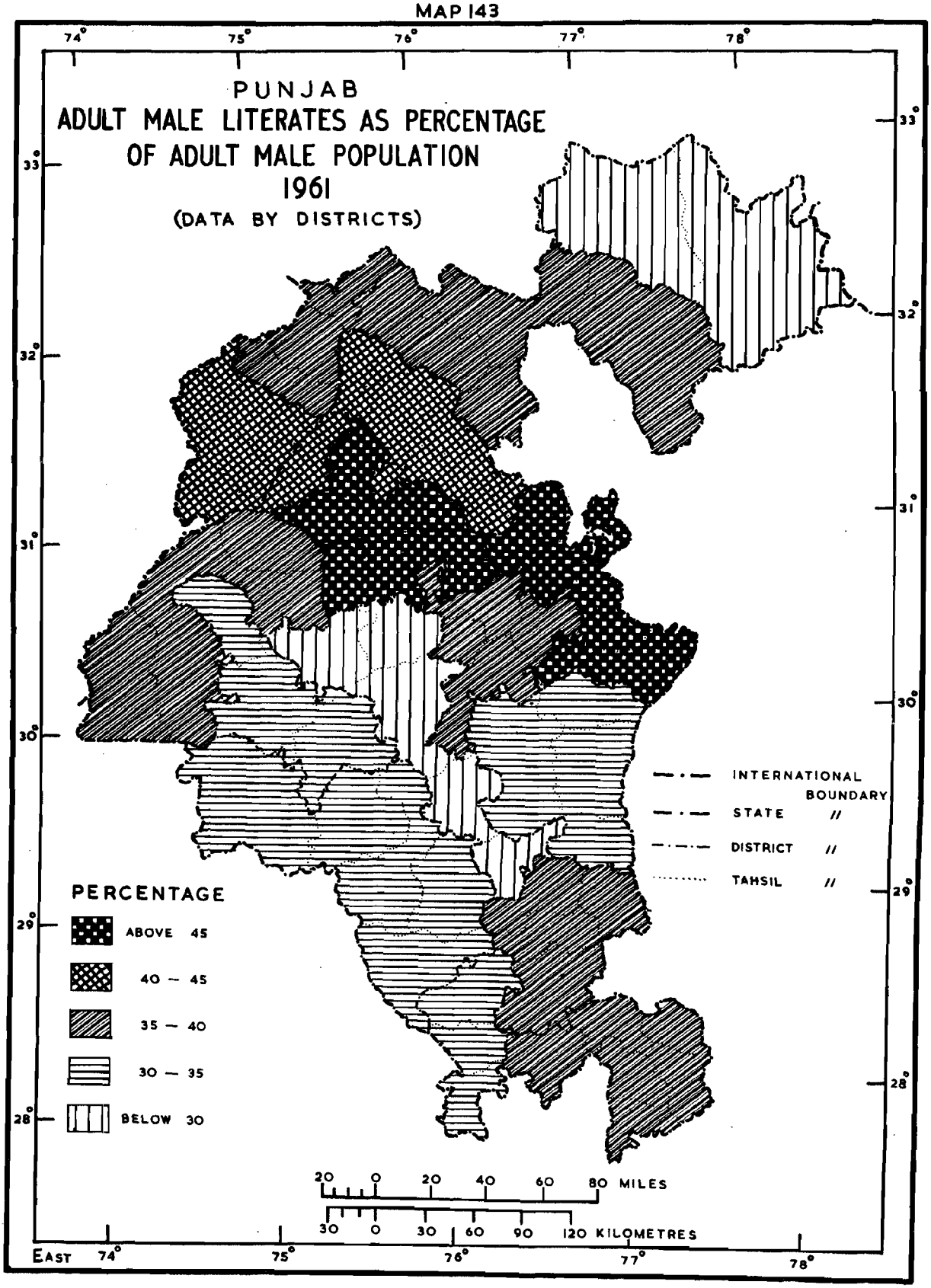
MAP 141


PUNJAB
PANJAB UNIVERSITY POST-MATRIC EXAMINATIONS
NUMBER OF CANDIDATES : 1961
(DATA BY EXAMINATION CENTRES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
AMRITSAR
JULLUNDUR
LUDHIANA
CHANDIGARH
PATIALA
ROHTAK
LOCATION OF EXAMINATION CENTRE
INTERNATIONAL BOUNDARY
STATE ,,
2,000 CANDIDATES
1,500 ,,
1,000 ,,
500 ,,
0
FACULTIES
ARTS & SCIENCE
MEDICAL
ENGINEERING
AGRICULTURE
OTHERS
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES

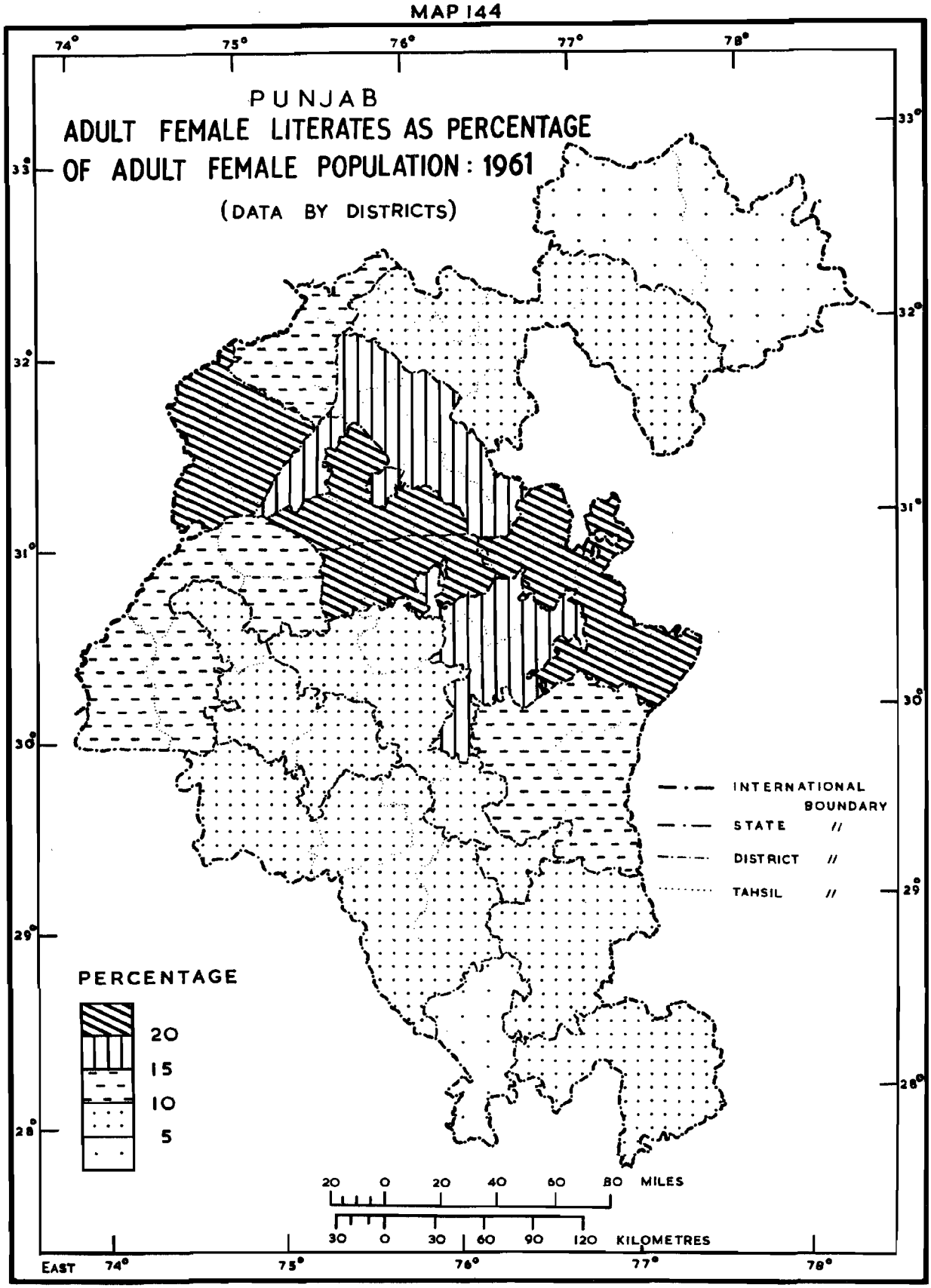
MAP 142


PUNJAB
LITERACY AMONG ADULTS
1961
(DATA BY DISTRICTS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
EAST
PERCENTAGE
ABOVE 35
30 - 35
25 - 30
20 - 25
0 - 20
INTERNATIONAL BOUNDARY
STATE "
DISTRICT "
TAHSIL "
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES

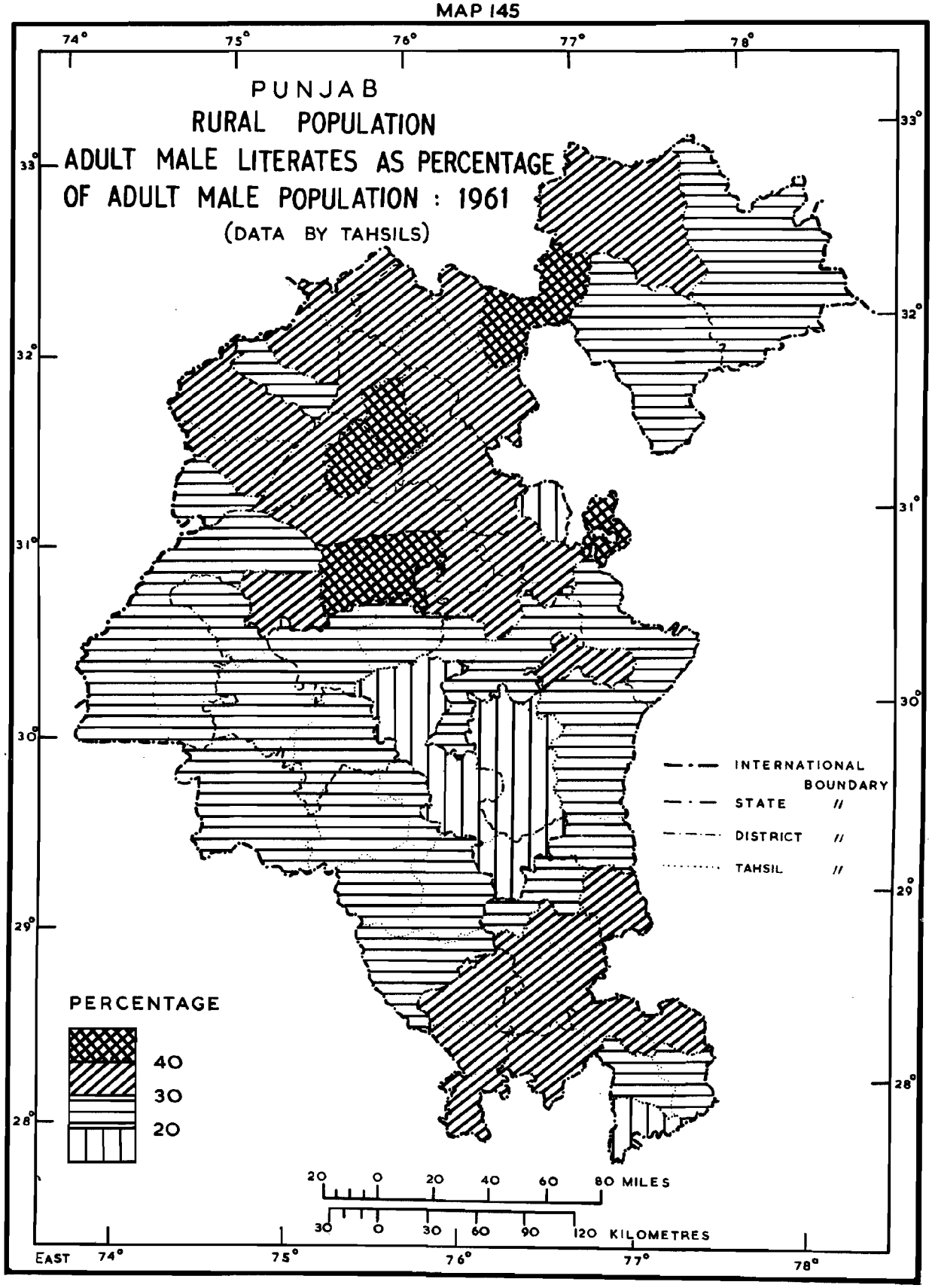
MAP 143


PUNJAB
ADULT MALE LITERATES AS PERCENTAGE OF ADULT MALE POPULATION 1961
(DATA BY DISTRICTS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
PERCENTAGE
ABOVE 45
40 — 45
35 — 40
30 — 35
BELOW 30
INTERNATIONAL BOUNDARY
STATE //
DISTRICT //
TAHSIL //
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

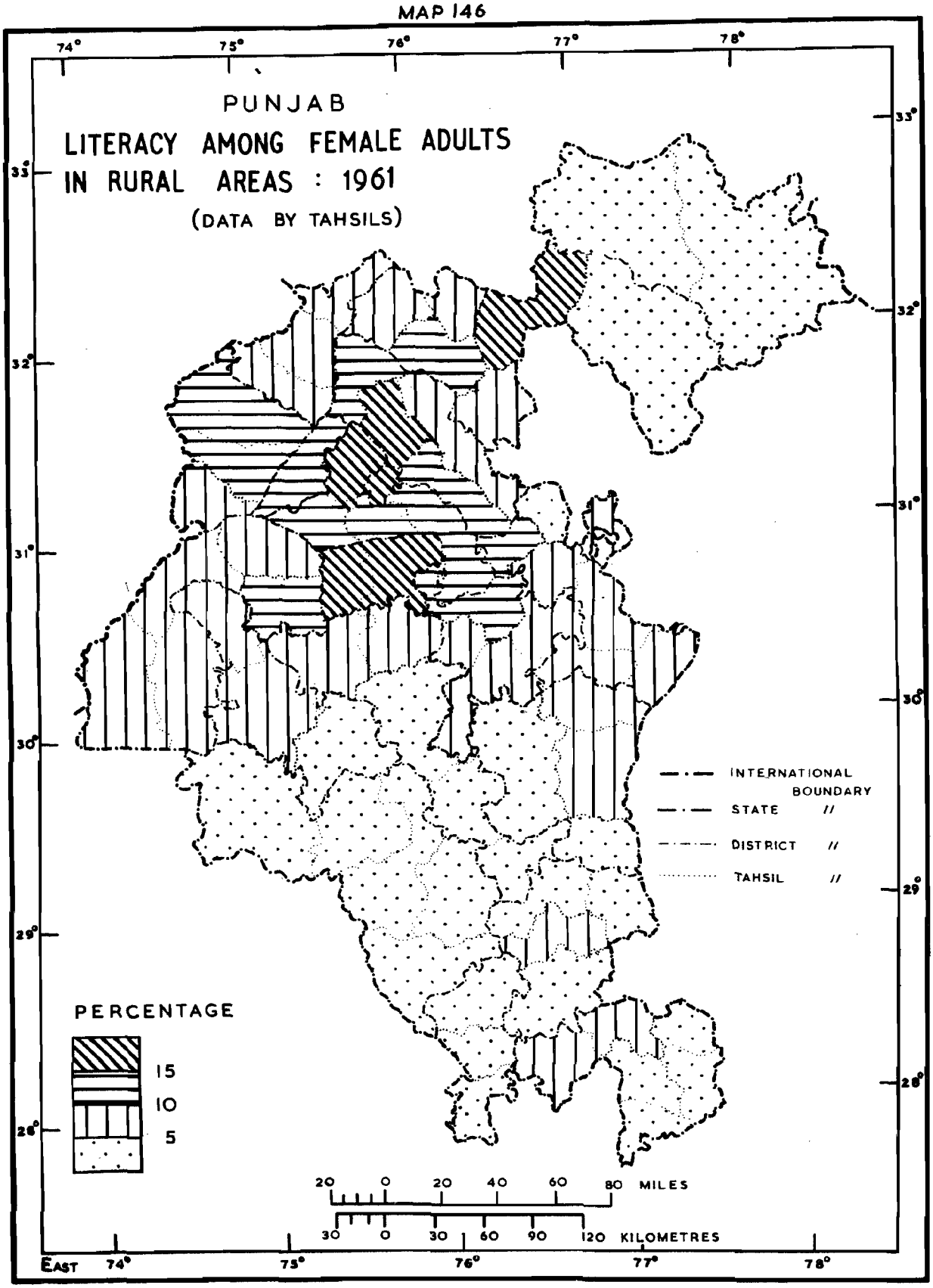
MAP 144


PUNJAB
ADULT FEMALE LITERATES AS PERCENTAGE
OF ADULT FEMALE POPULATION : 1961
(DATA BY DISTRICTS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE //
DISTRICT //
TAHSIL //
PERCENTAGE
20
15
10
5
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

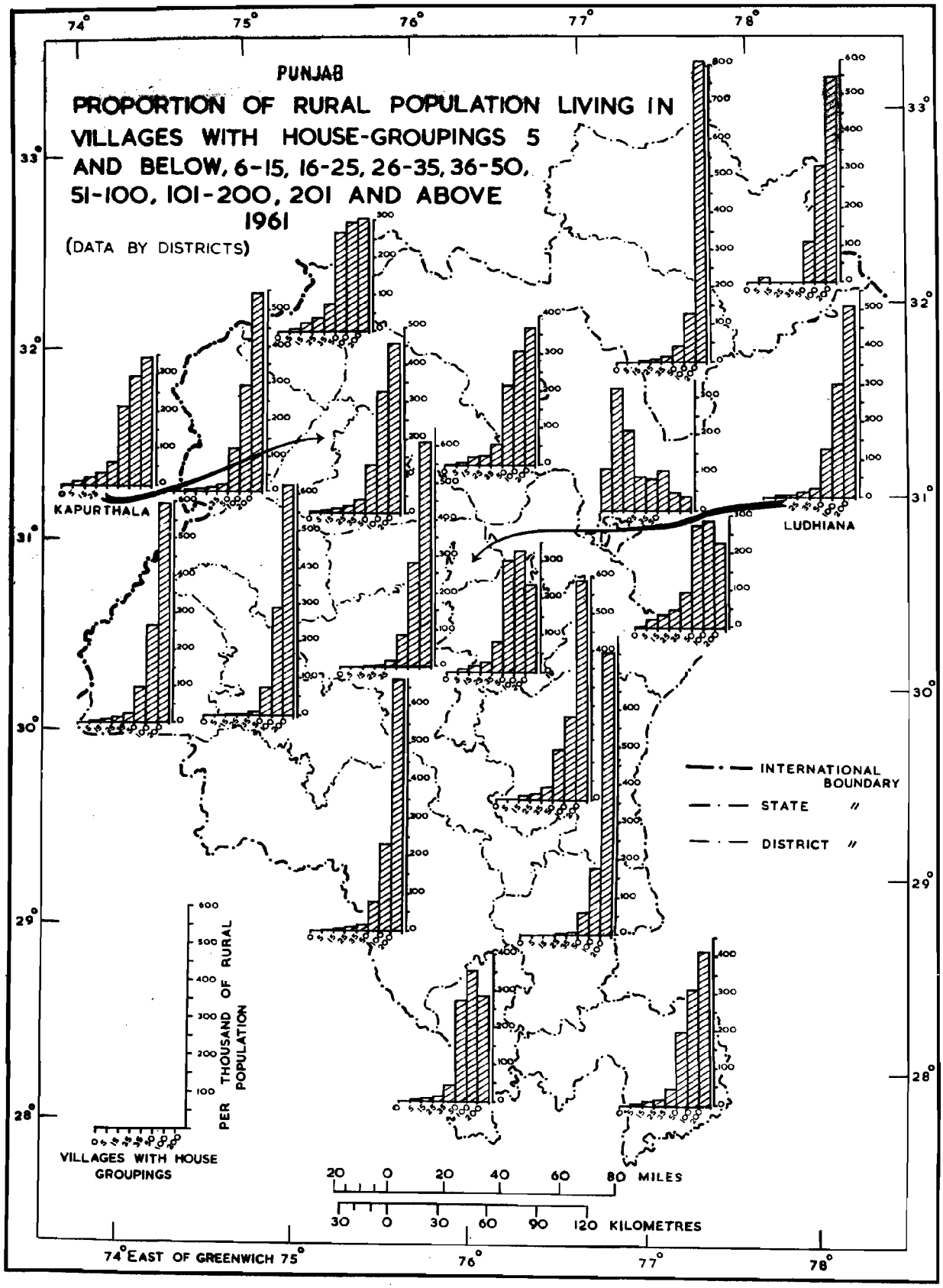
MAP 145


PUNJAB
RURAL POPULATION
ADULT MALE LITERATES AS PERCENTAGE OF ADULT MALE POPULATION : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE //
DISTRICT //
TAHSIL //
PERCENTAGE
40
30
20
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

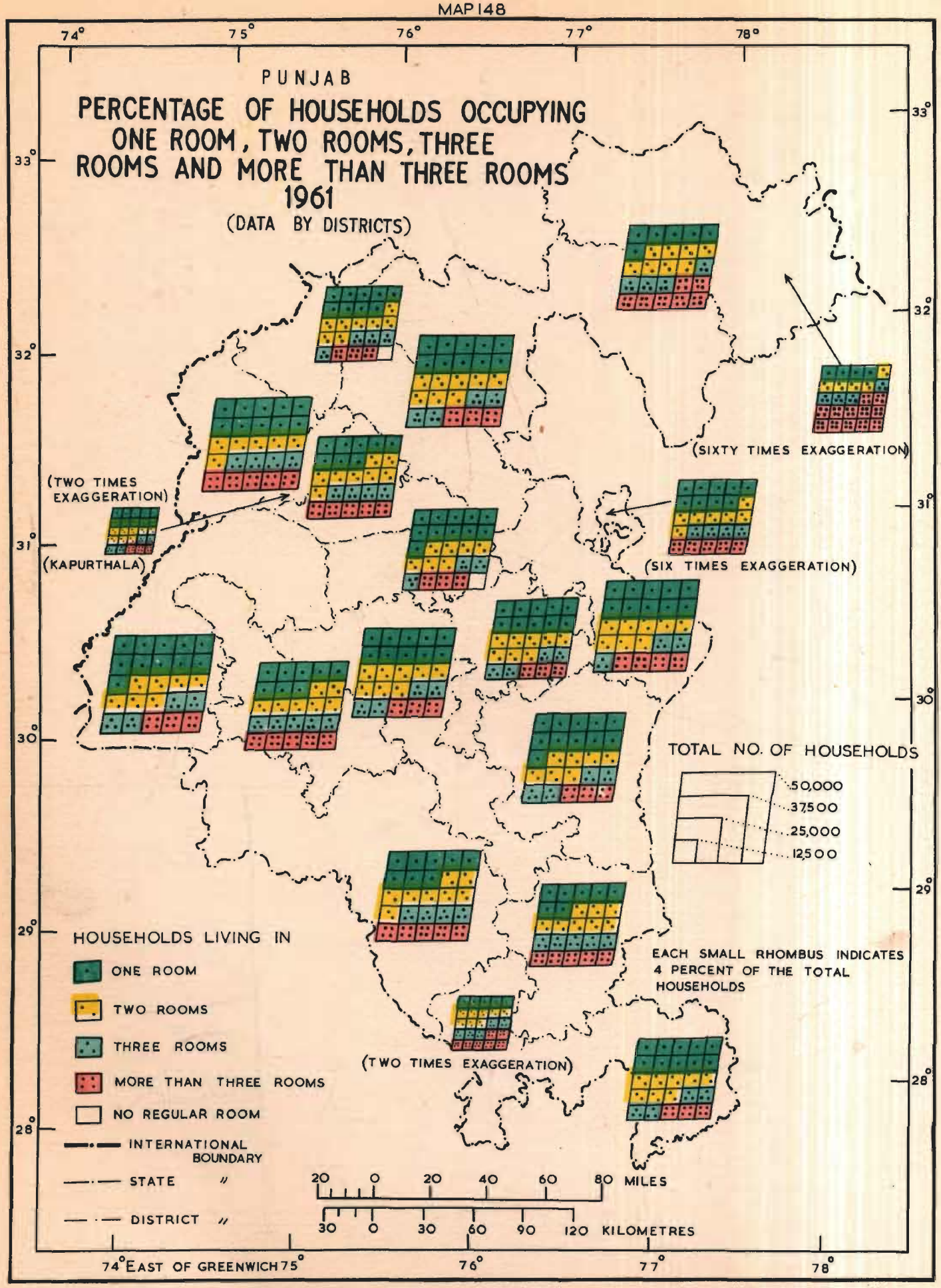
MAP 146


PUNJAB
LITERACY AMONG FEMALE ADULTS
IN RURAL AREAS : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE //
DISTRICT //
TAHSIL //
PERCENTAGE
15
10
5
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

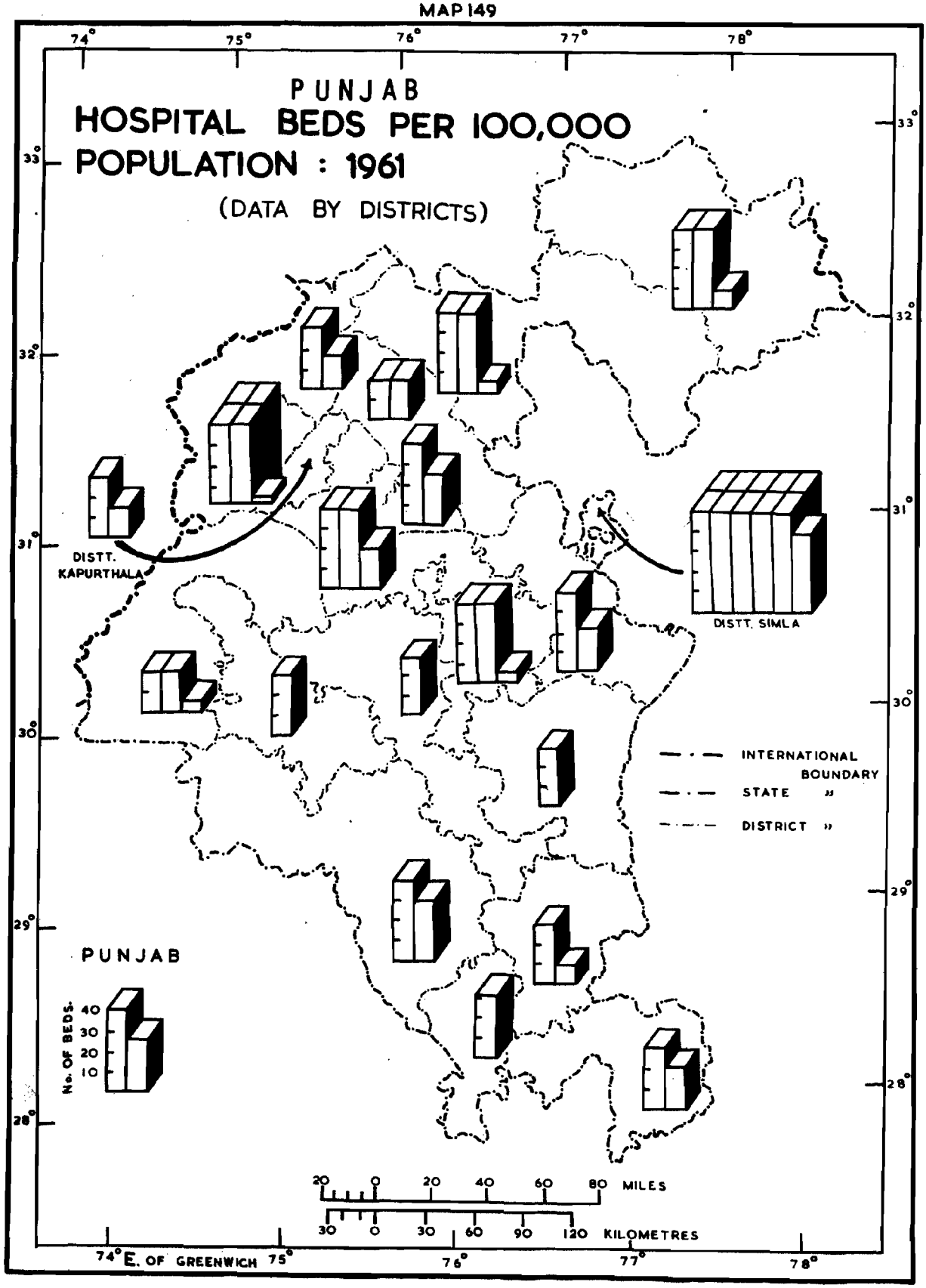
MAP 147


PUNJAB
PROPORTION OF RURAL POPULATION LIVING IN VILLAGES WITH HOUSE-GROUPINGS 5 AND BELOW, 6-15, 16-25, 26-35, 36-50, 51-100, 101-200, 201 AND ABOVE
1961
(DATA BY DISTRICTS)
KAPURTHALA
LUDHIANA
INTERNATIONAL BOUNDARY
STATE "
DISTRICT "
PER THOUSAND OF RURAL POPULATION
VILLAGES WITH HOUSE GROUPINGS
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75° 76° 77° 78°
74° 75° 76° 77° 78°
33° 32° 31° 30° 29° 28°

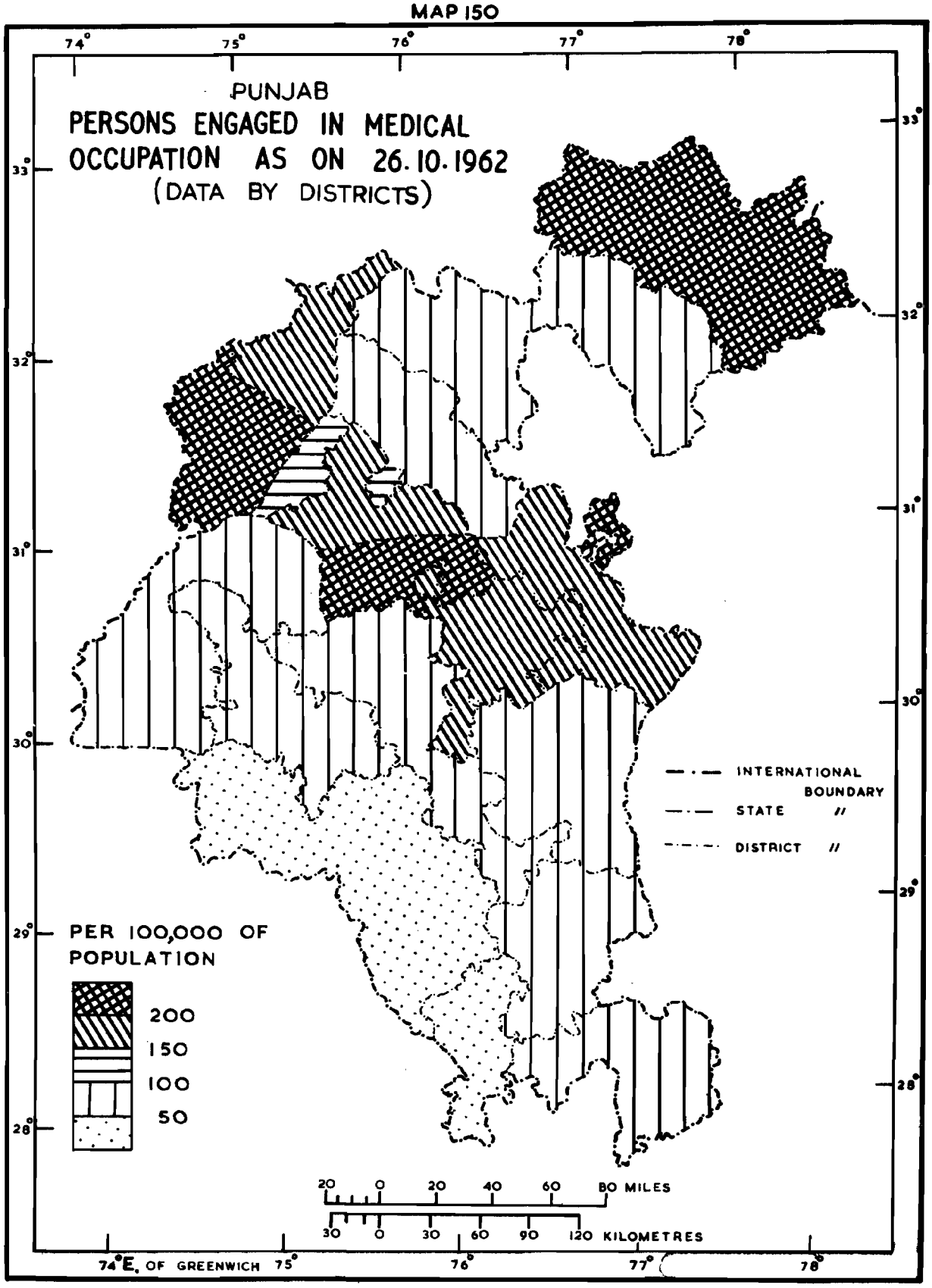
MAP 148


PUNJAB
PERCENTAGE OF HOUSEHOLDS OCCUPYING ONE ROOM, TWO ROOMS, THREE ROOMS AND MORE THAN THREE ROOMS
1961
(DATA BY DISTRICTS)
(SIXTY TIMES EXAGGERATION)
(TWO TIMES EXAGGERATION)
(KAPURTHALA)
(SIX TIMES EXAGGERATION)
(TWO TIMES EXAGGERATION)
TOTAL NO. OF HOUSEHOLDS
50,000
37,500
25,000
12,500
HOUSEHOLDS LIVING IN
ONE ROOM
TWO ROOMS
THREE ROOMS
MORE THAN THREE ROOMS
NO REGULAR ROOM
INTERNATIONAL BOUNDARY
STATE "
DISTRICT "
EACH SMALL RHOMBUS INDICATES 4 PERCENT OF THE TOTAL HOUSEHOLDS
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
74° 75° 76° 77° 78°
33° 32° 31° 30° 29° 28°

MAP 149


PUNJAB
HOSPITAL BEDS PER 100,000
POPULATION : 1961
(DATA BY DISTRICTS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
DISTT. KAPURTHALA
DISTT. SIMLA
INTERNATIONAL BOUNDARY
STATE »
DISTRICT »
PUNJAB
No. OF BEDS
40
30
20
10
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° E. OF GREENWICH

MAP 150

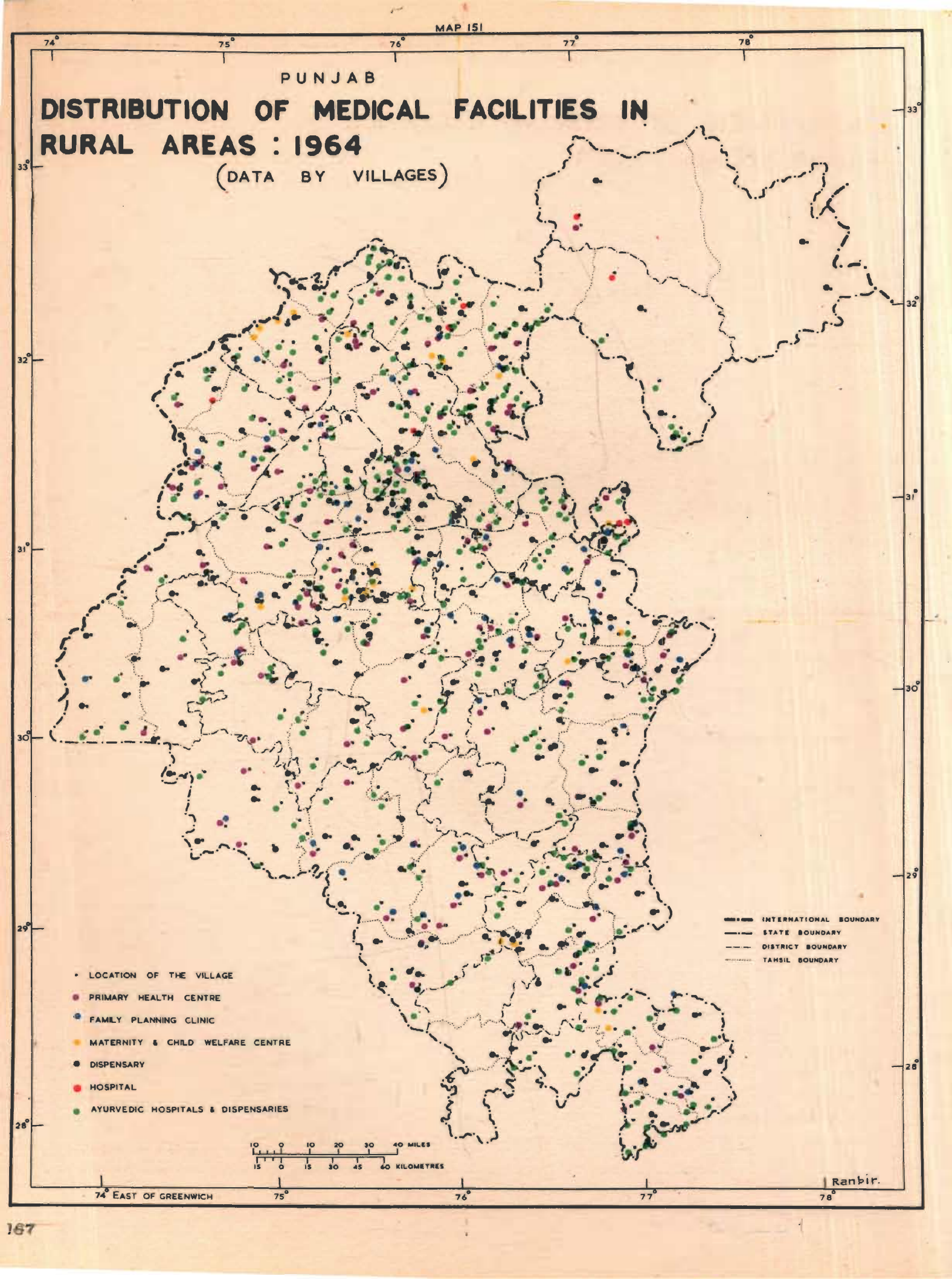

PUNJAB
PERSONS ENGAGED IN MEDICAL OCCUPATION AS ON 26.10.1962
(DATA BY DISTRICTS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE //
DISTRICT //
PER 100,000 OF POPULATION
200
150
100
50
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° E. OF GREENWICH

MAP 151

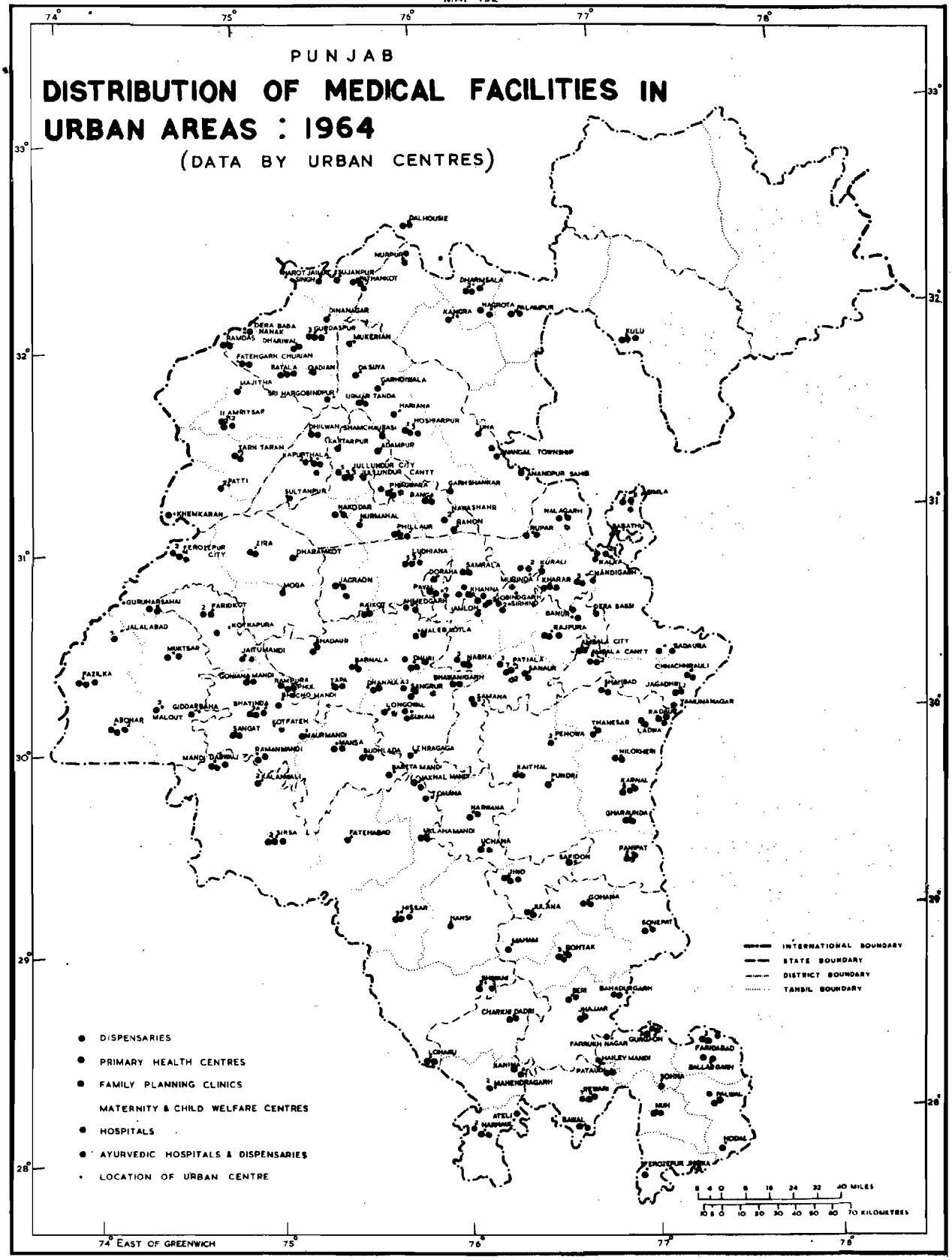
PUNJAB

DISTRIBUTION OF MEDICAL FACILITIES IN RURAL AREAS : 1964

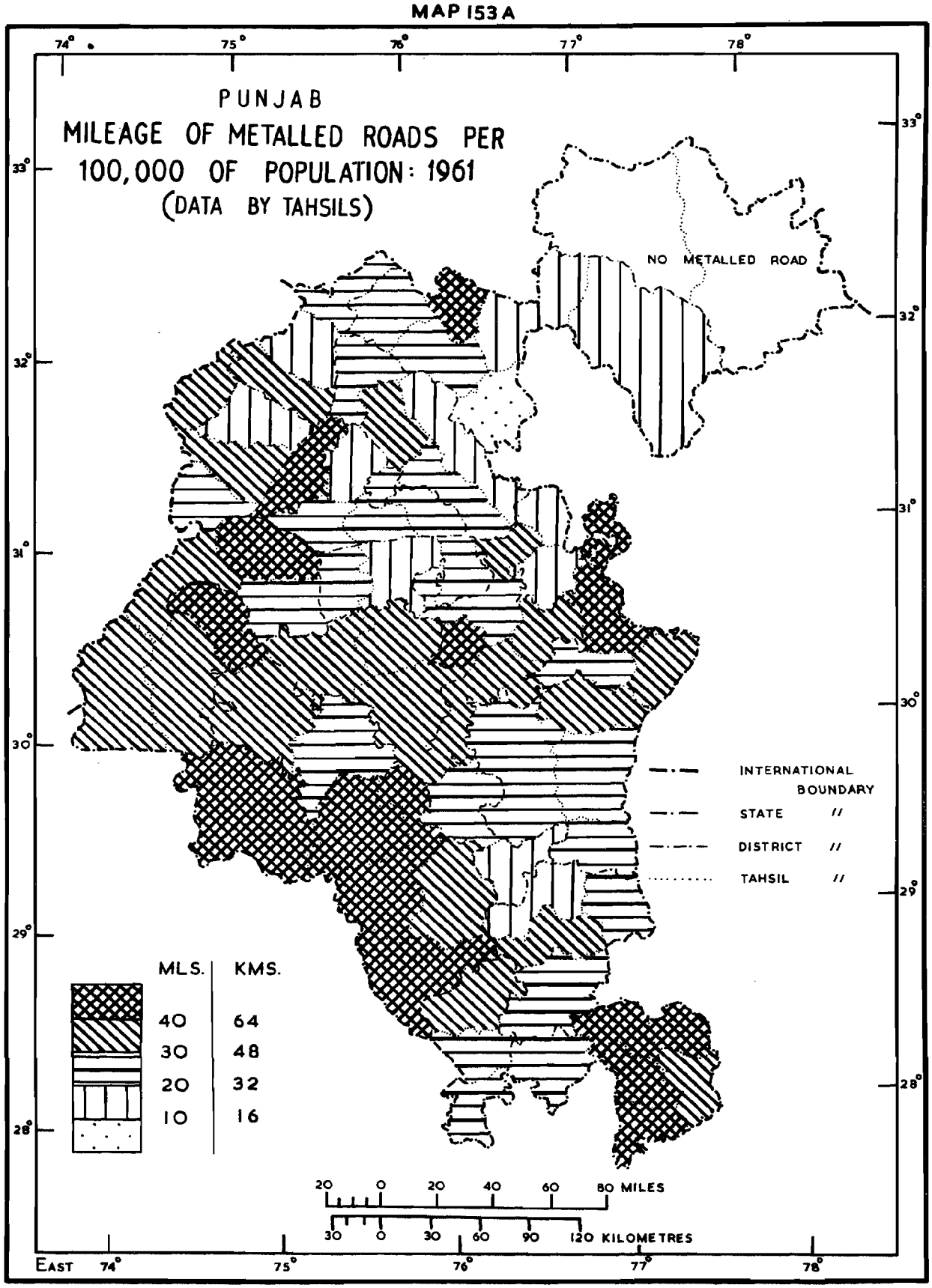
(DATA BY VILLAGES)



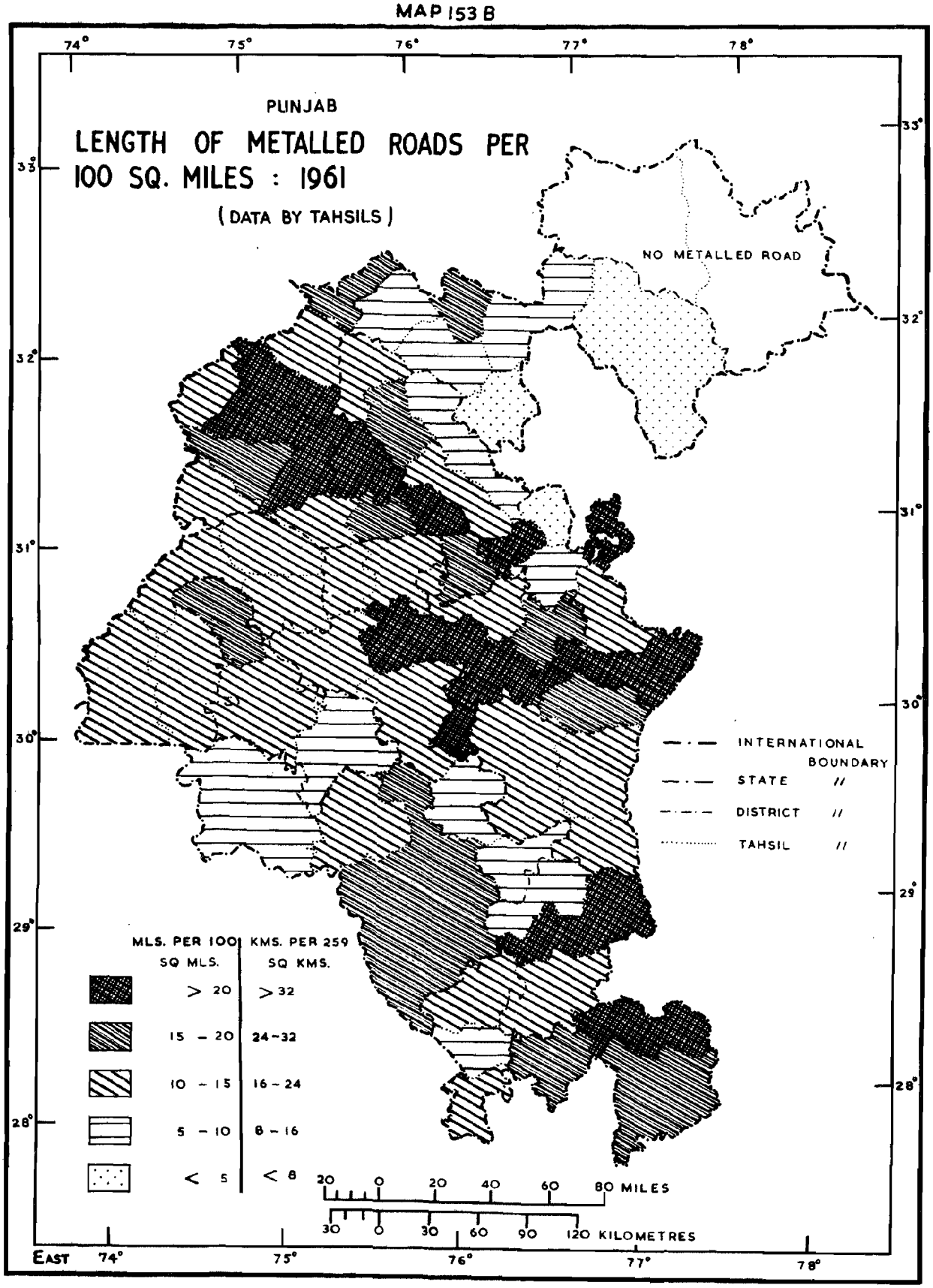
MAP 152


PUNJAB
DISTRIBUTION OF MEDICAL FACILITIES IN URBAN AREAS : 1964
(DATA BY URBAN CENTRES)
DISPENSARIES
PRIMARY HEALTH CENTRES
FAMILY PLANNING CLINICS
MATERNITY & CHILD WELFARE CENTRES
HOSPITALS
AYURVEDIC HOSPITALS & DISPENSARIES
LOCATION OF URBAN CENTRE
INTERNATIONAL BOUNDARY
STATE BOUNDARY
DISTRICT BOUNDARY
TAHSIL BOUNDARY
74° EAST OF GREENWICH
40 MILES
70 KILOMETRES

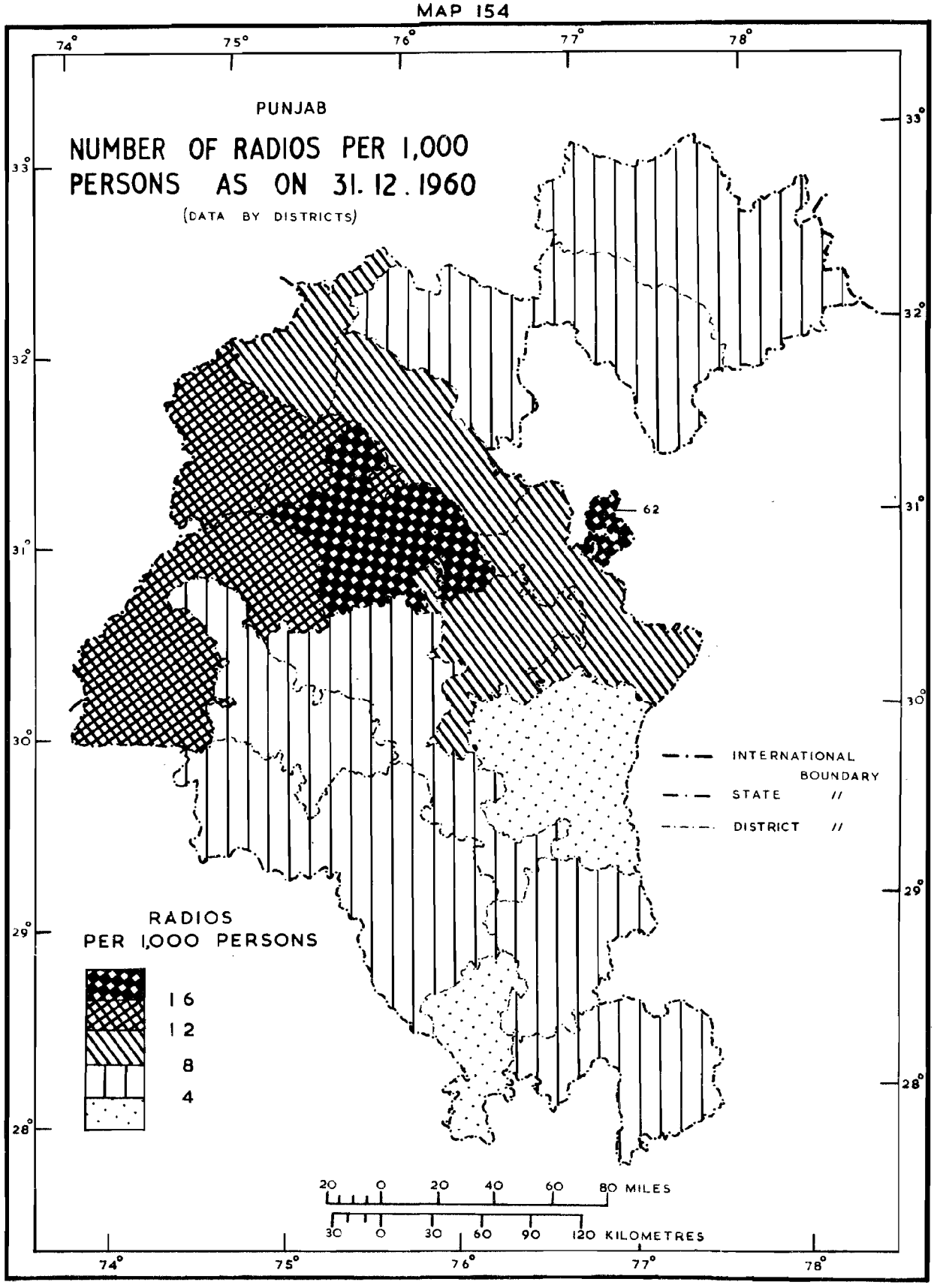
MAP 153 A


PUNJAB
MILEAGE OF METALLED ROADS PER 100,000 OF POPULATION: 1961
(DATA BY TAHSILS)
NO METALLED ROAD
INTERNATIONAL BOUNDARY
STATE //
DISTRICT //
TAHSIL //
MLS. KMS.
40 64
30 48
20 32
10 16
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
East
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

MAP 153 B

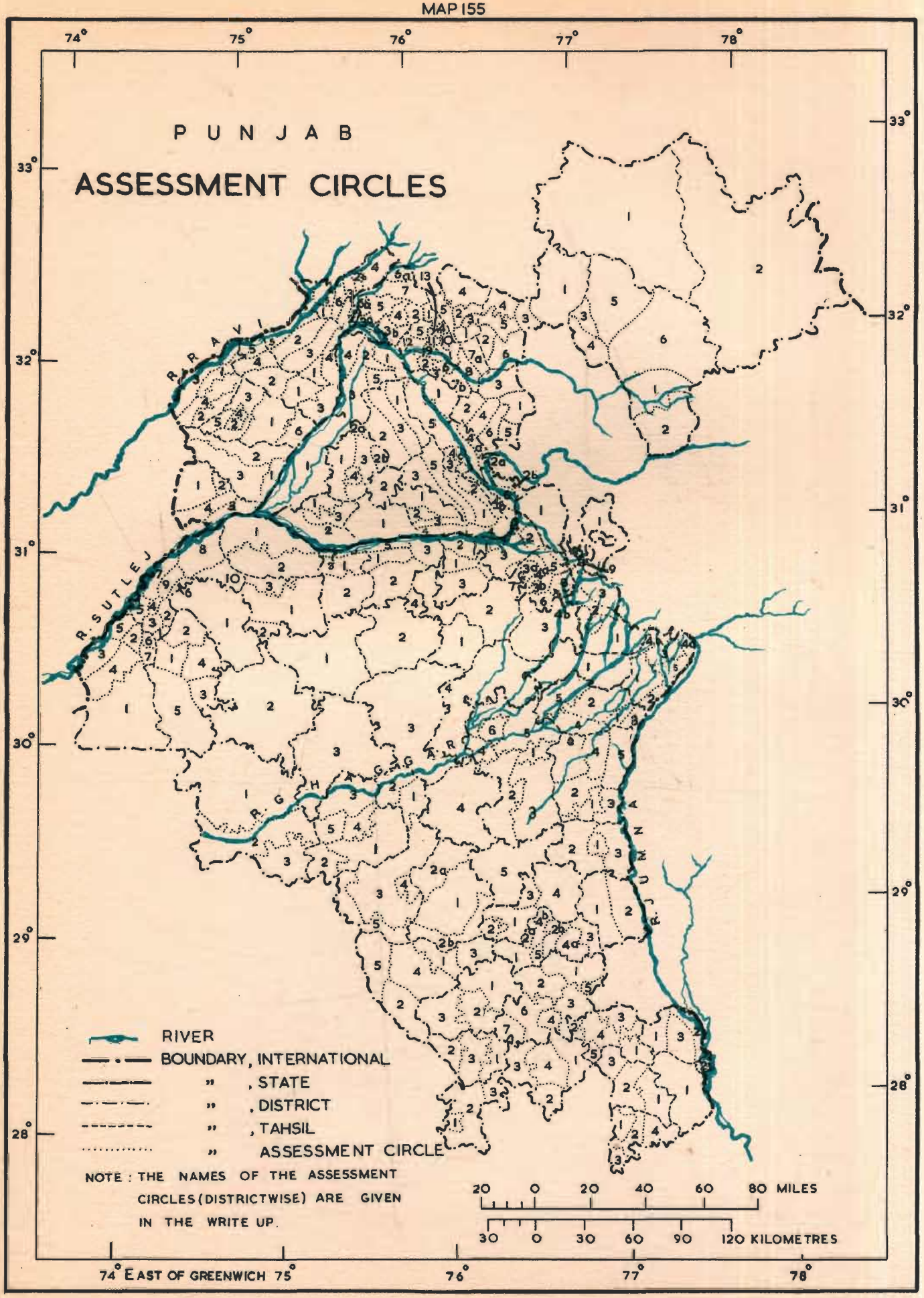

PUNJAB
LENGTH OF METALLED ROADS PER 100 SQ. MILES : 1961
(DATA BY TAHSILS)
NO METALLED ROAD
INTERNATIONAL BOUNDARY
STATE //
DISTRICT //
TAHSIL //
MLS. PER 100 SQ MLS.
KMS. PER 259 SQ KMS.
> 20
> 32
15 - 20
24-32
10 - 15
16 - 24
5 - 10
8 - 16
< 5
< 8
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
EAST

MAP 154

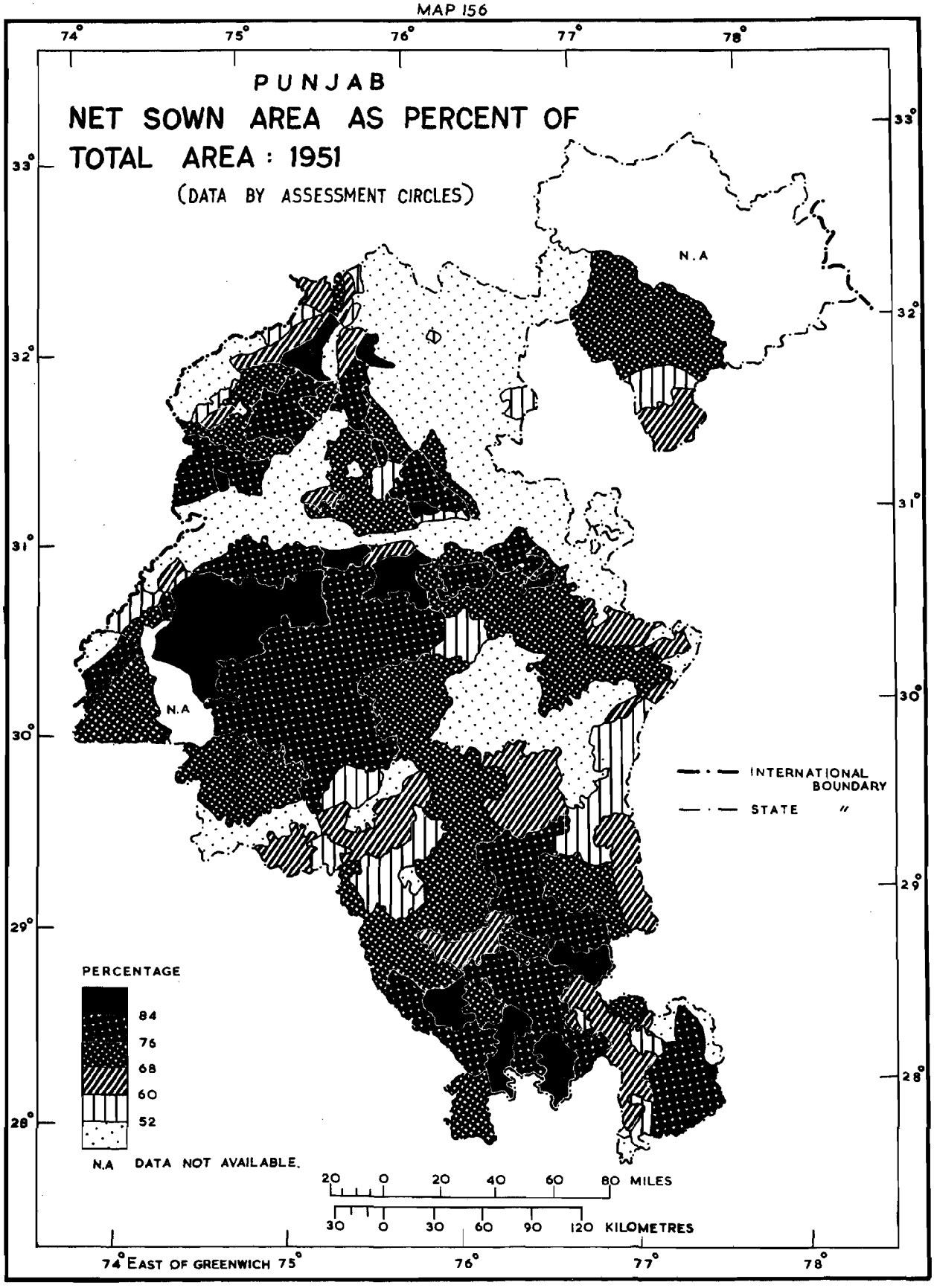

PUNJAB
NUMBER OF RADIOS PER 1,000 PERSONS AS ON 31. 12. 1960
(DATA BY DISTRICTS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
62
INTERNATIONAL BOUNDARY
STATE //
DISTRICT //
RADIOS PER 1,000 PERSONS
16
12
8
4
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES

III
ECONOMY

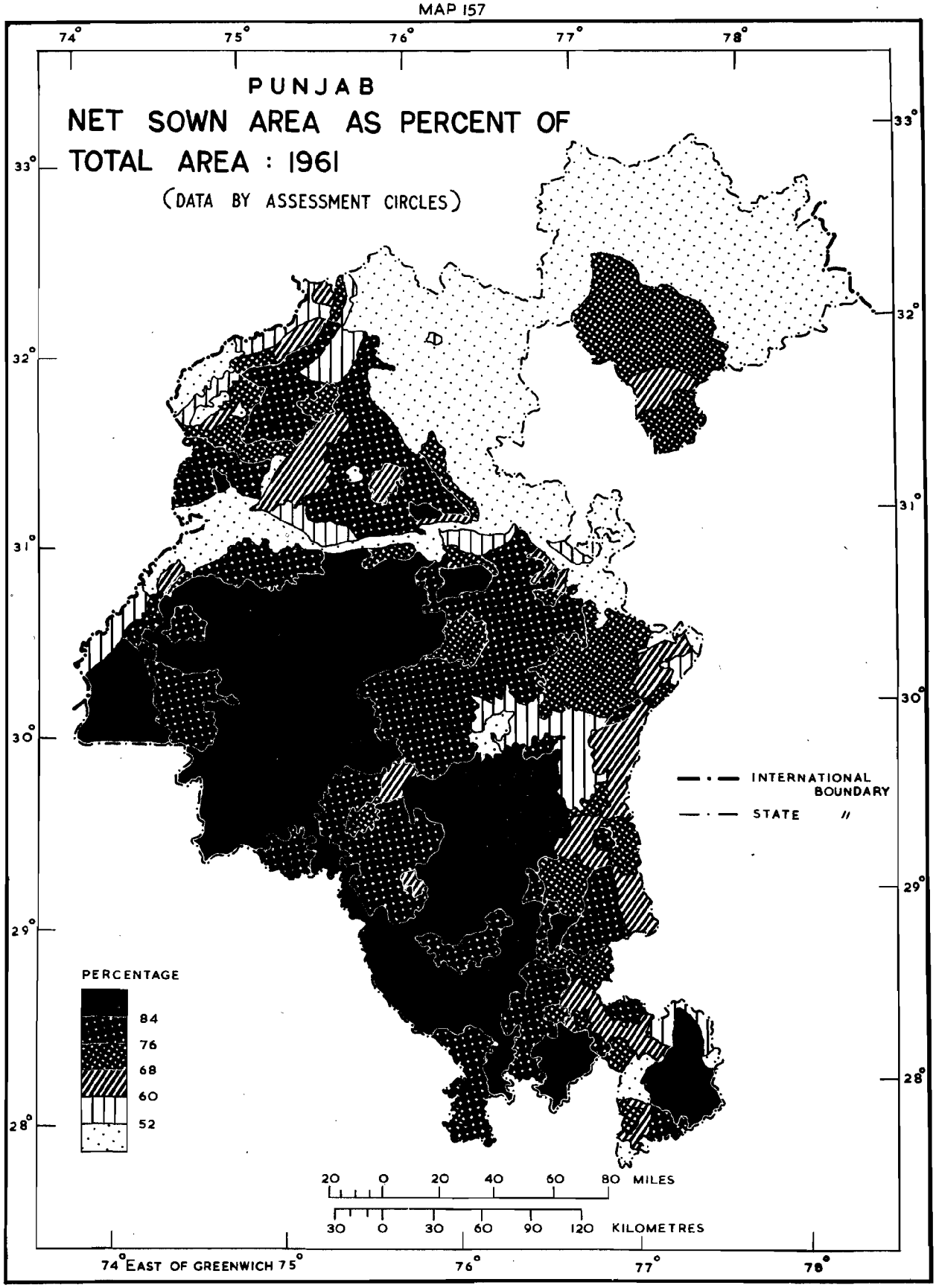
MAP 155


PUNJAB
ASSESSMENT CIRCLES
R. RAVI
R. SUTLEJ
R. GHAGGAR
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
RIVER
BOUNDARY, INTERNATIONAL
" , STATE
" , DISTRICT
" , TAHSIL
" ASSESSMENT CIRCLE
NOTE : THE NAMES OF THE ASSESSMENT CIRCLES (DISTRICTWISE) ARE GIVEN IN THE WRITE UP.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75°

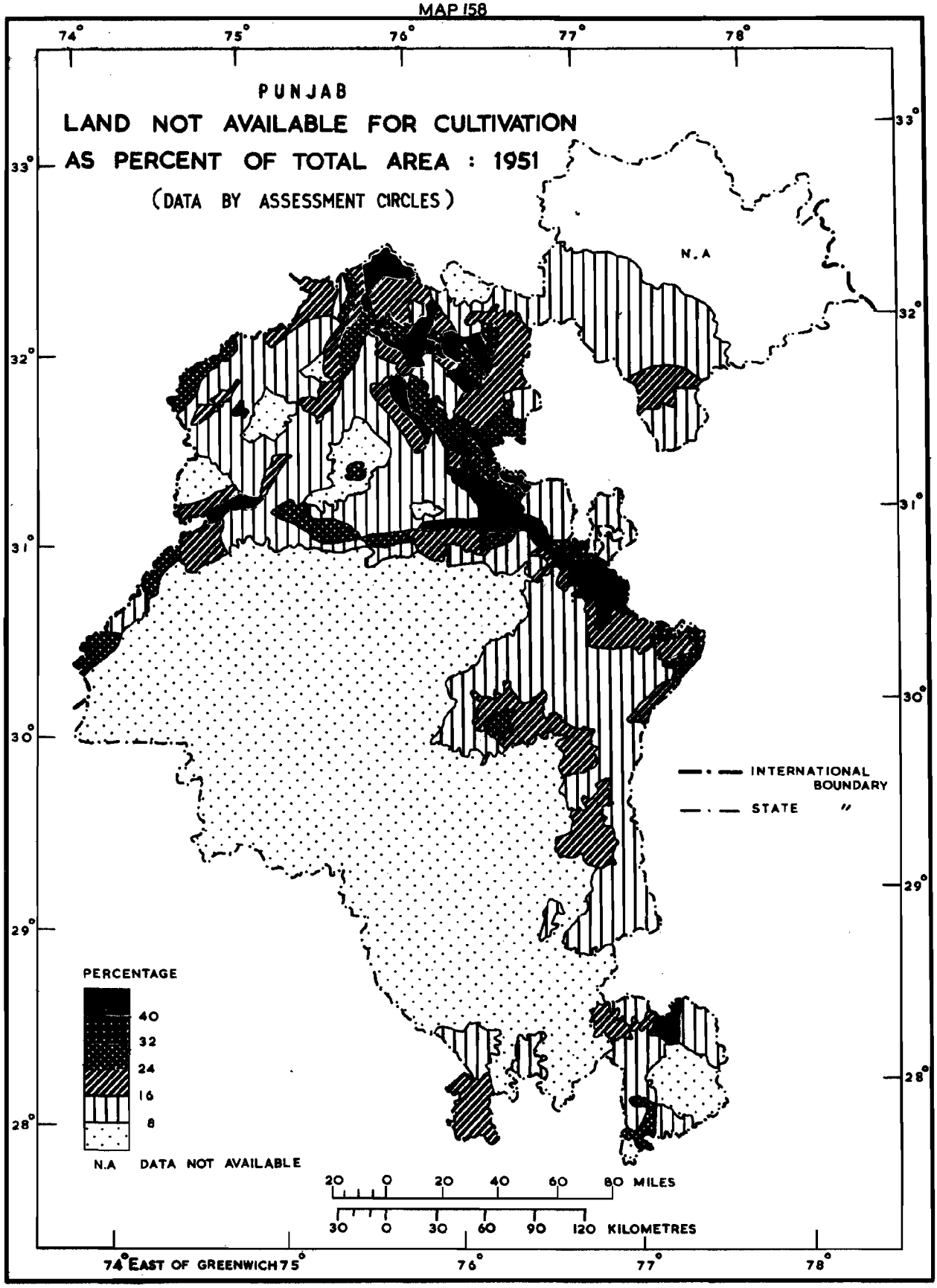
MAP 156


PUNJAB
NET SOWN AREA AS PERCENT OF TOTAL AREA : 1951
(DATA BY ASSESSMENT CIRCLES)
N.A
N.A
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
84
76
68
60
52
N.A DATA NOT AVAILABLE.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75° 76° 77° 78°
33° 32° 31° 30° 29° 28°

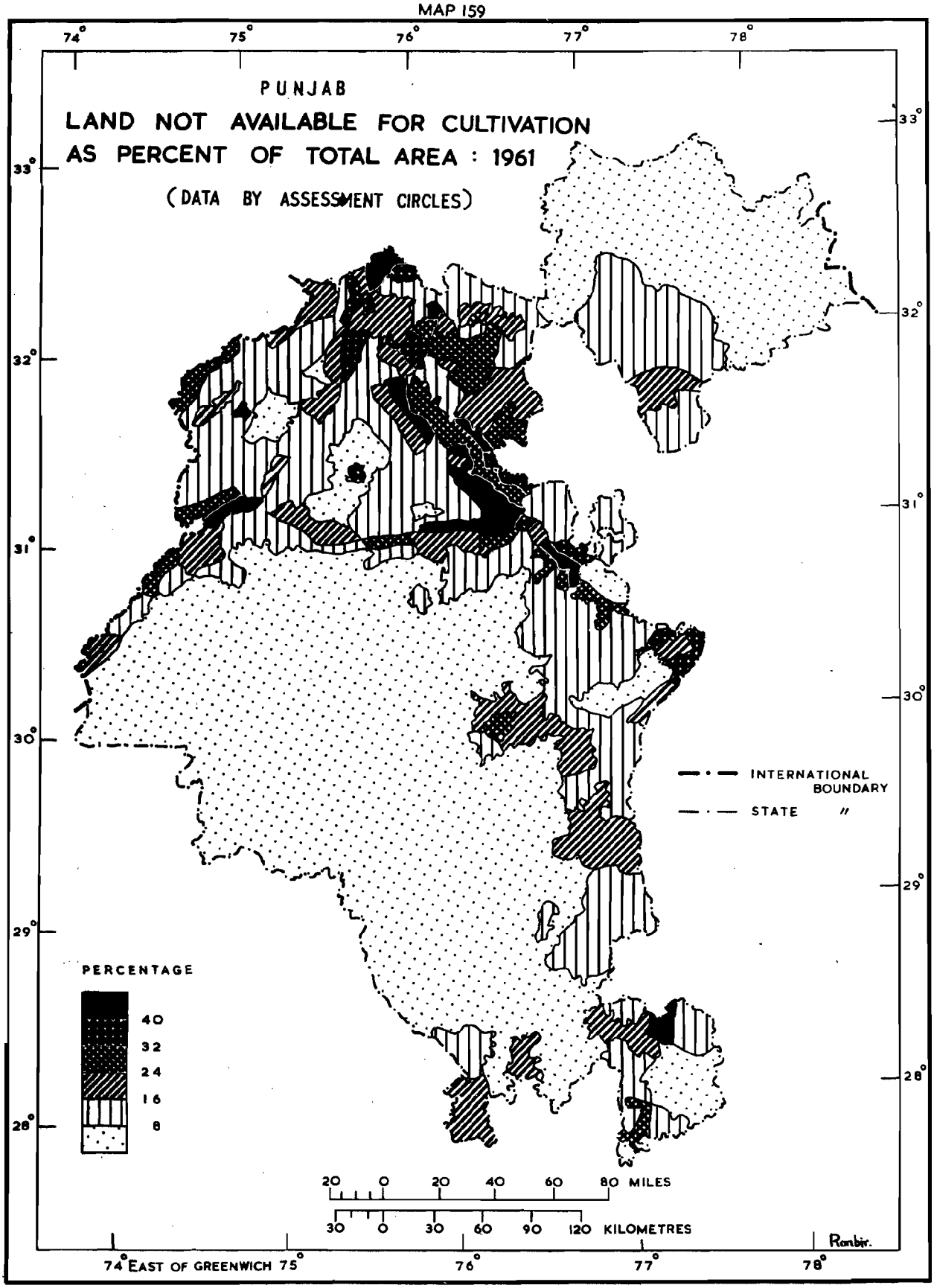
MAP 157


PUNJAB
NET SOWN AREA AS PERCENT OF TOTAL AREA : 1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE //
PERCENTAGE
84
76
68
60
52
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

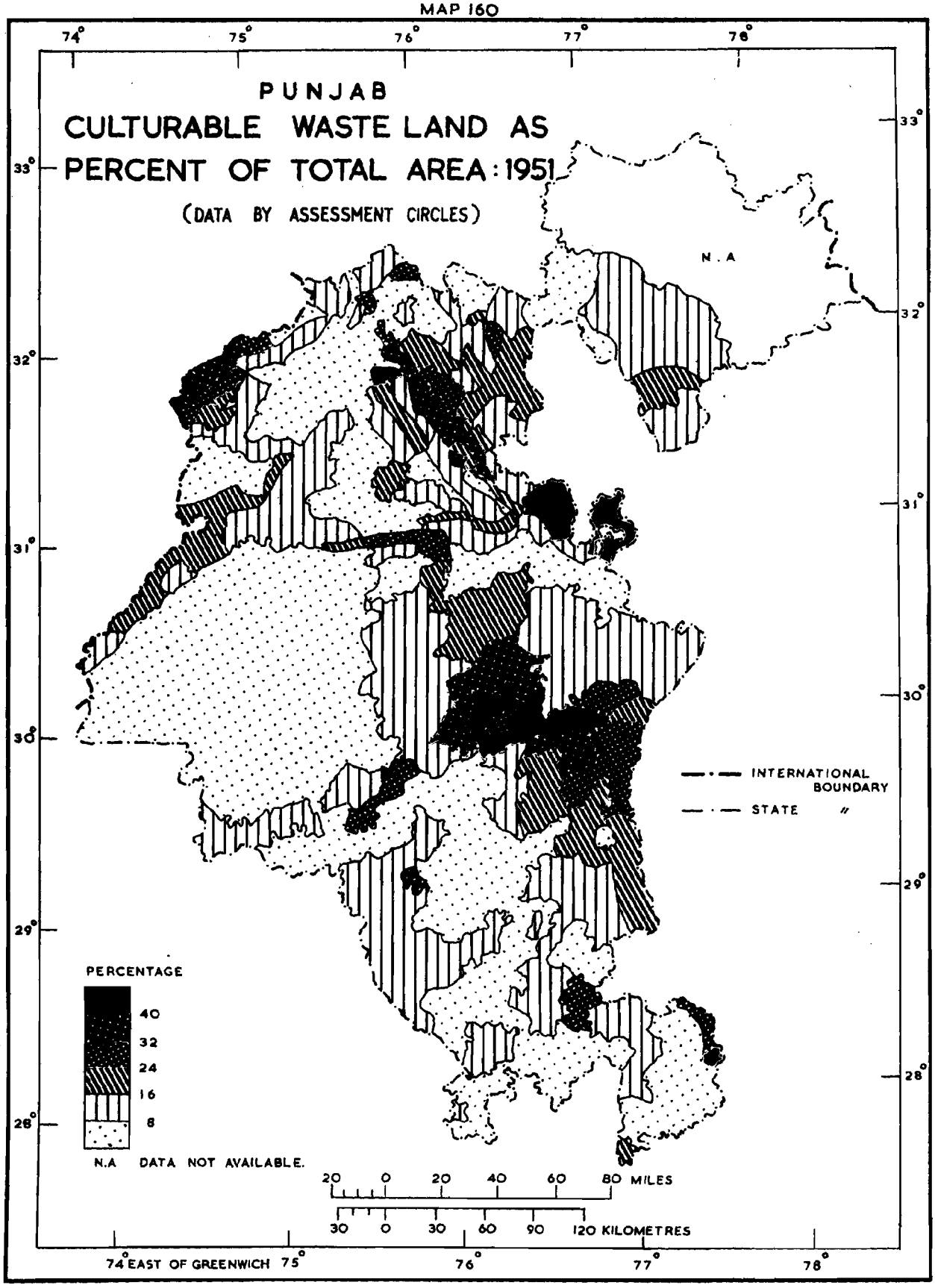
MAP 158


PUNJAB
LAND NOT AVAILABLE FOR CULTIVATION
AS PERCENT OF TOTAL AREA : 1951
(DATA BY ASSESSMENT CIRCLES)
N.A
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
40
32
24
16
8
N.A DATA NOT AVAILABLE
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

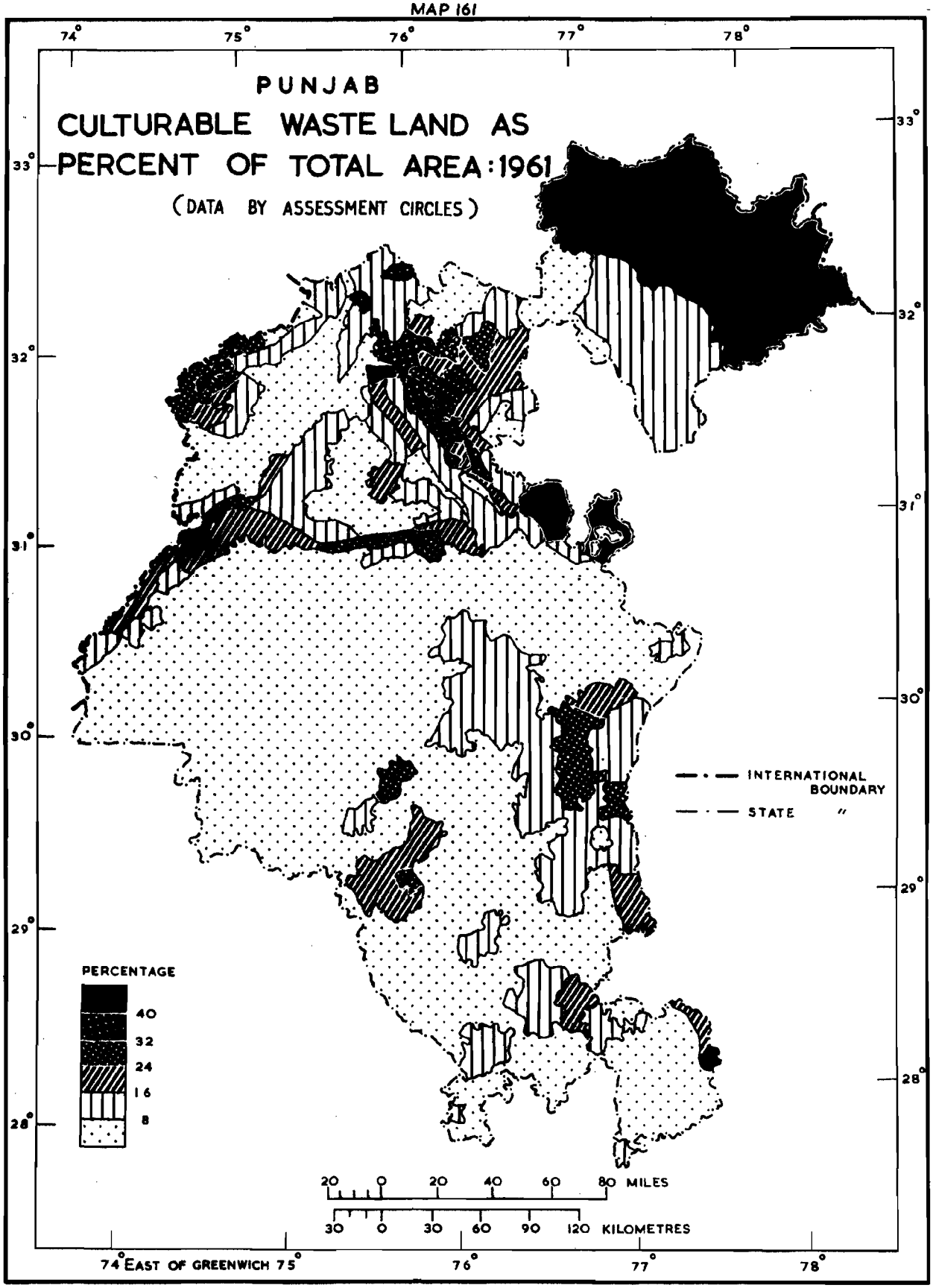
MAP 159


PUNJAB
LAND NOT AVAILABLE FOR CULTIVATION
AS PERCENT OF TOTAL AREA : 1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
40
32
24
16
8
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
Ranbir.
74° EAST OF GREENWICH

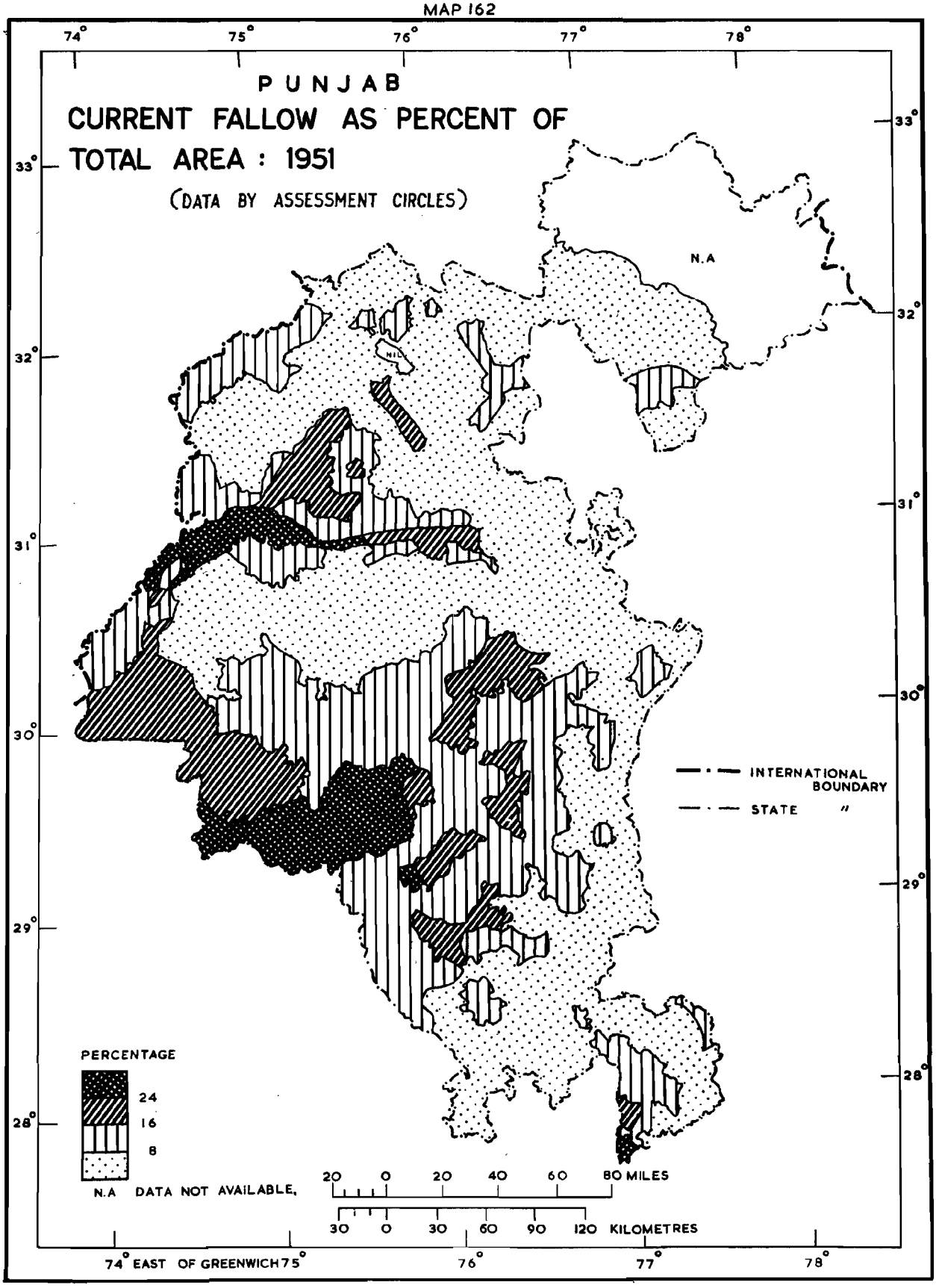
MAP 160


PUNJAB
CULTURABLE WASTE LAND AS PERCENT OF TOTAL AREA: 1951
(DATA BY ASSESSMENT CIRCLES)
N.A
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
40
32
24
16
8
N.A DATA NOT AVAILABLE.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

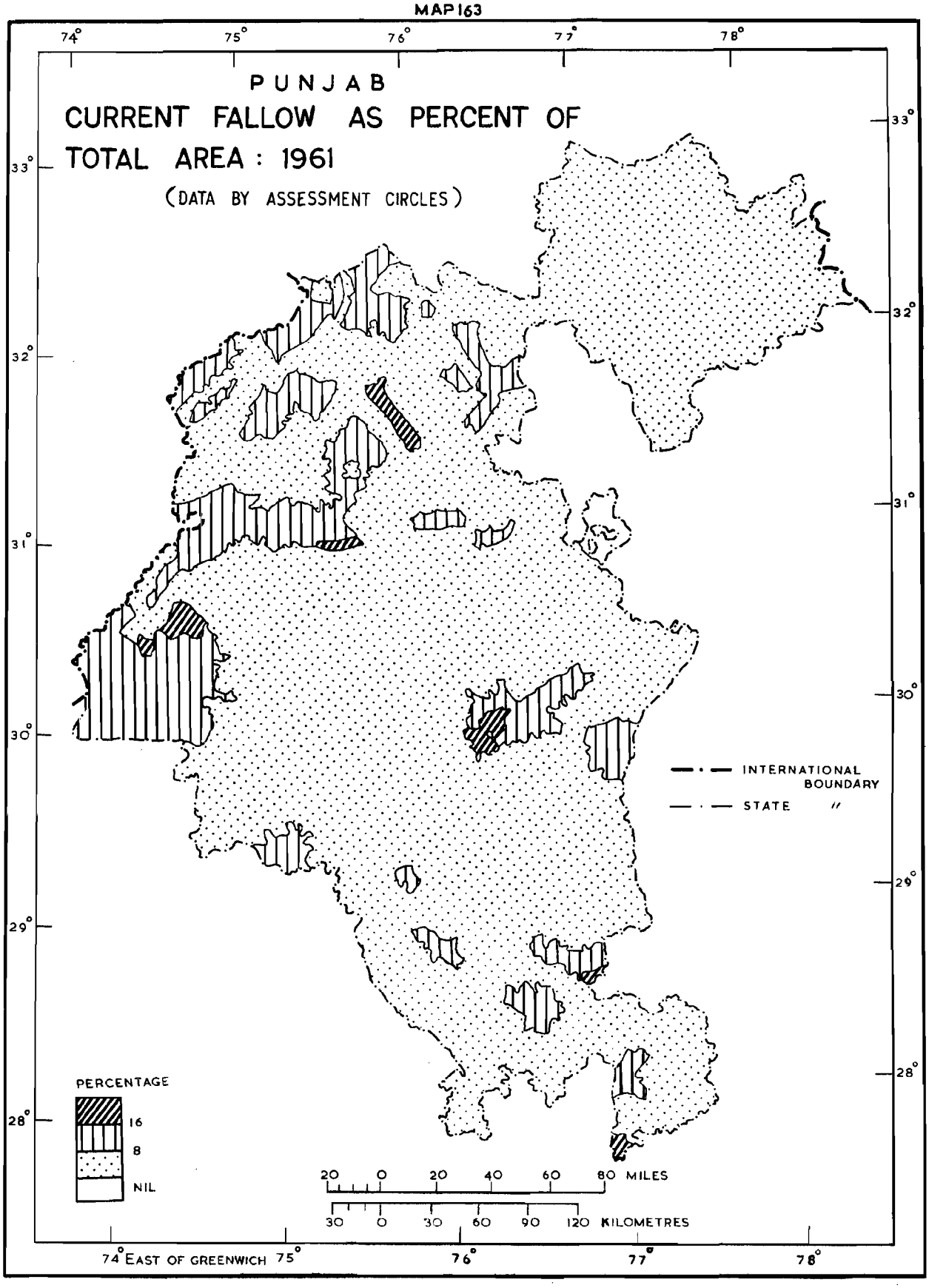
MAP 161


PUNJAB
CULTURABLE WASTE LAND AS PERCENT OF TOTAL AREA: 1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
40
32
24
16
8
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75°

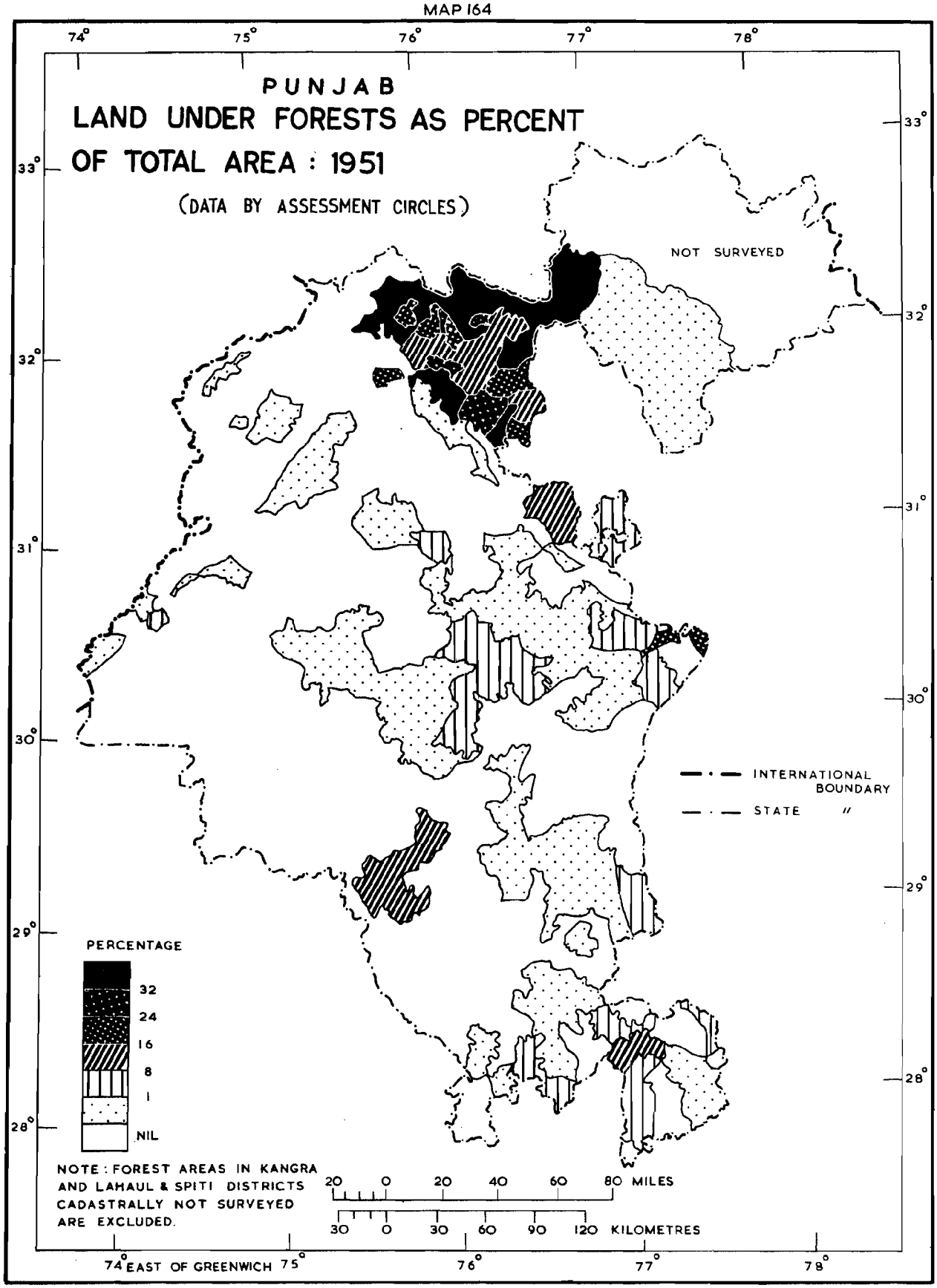
MAP 162


PUNJAB
CURRENT FALLOW AS PERCENT OF TOTAL AREA : 1951
(DATA BY ASSESSMENT CIRCLES)
N.A
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
24
16
8
N.A DATA NOT AVAILABLE.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

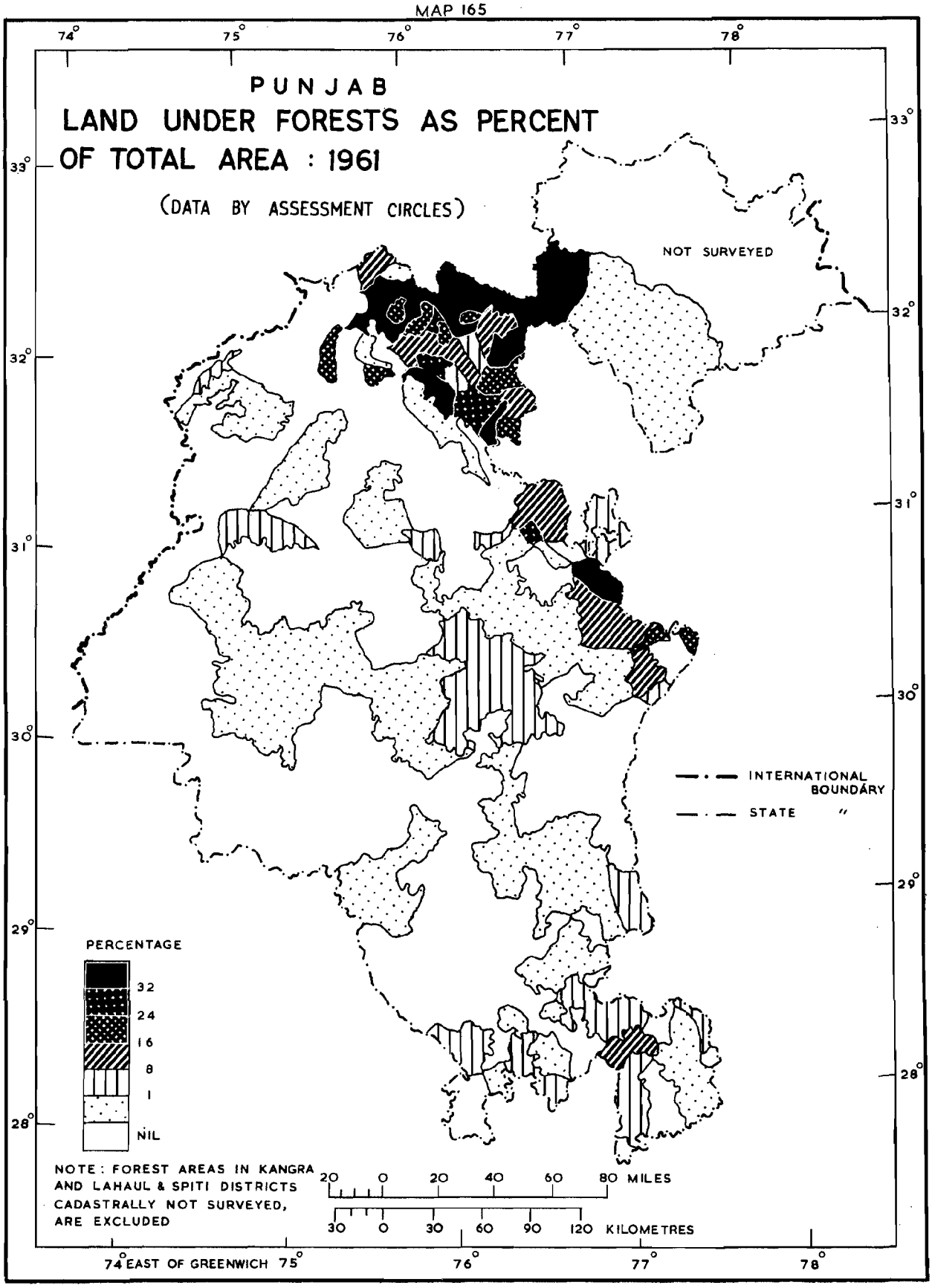
MAP 163


PUNJAB
CURRENT FALLOW AS PERCENT OF TOTAL AREA : 1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE
PERCENTAGE
16
8
NIL
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

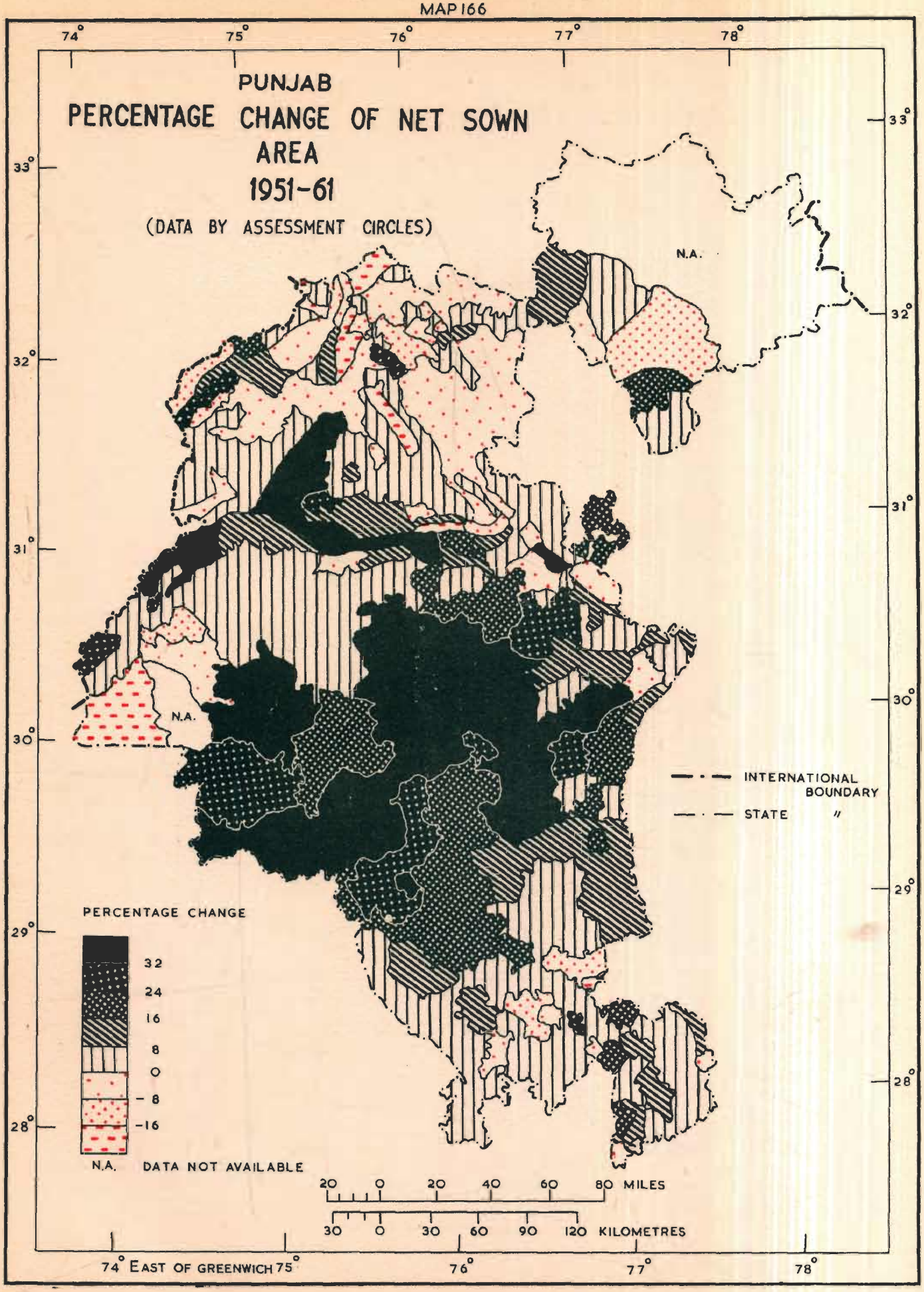
MAP 164


PUNJAB
LAND UNDER FORESTS AS PERCENT OF TOTAL AREA : 1951
(DATA BY ASSESSMENT CIRCLES)
NOT SURVEYED
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
32
24
16
8
1
NIL
NOTE : FOREST AREAS IN KANGRA AND LAHAUL & SPITI DISTRICTS CADASTRALLY NOT SURVEYED ARE EXCLUDED.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75° 76° 77° 78°
33° 32° 31° 30° 29° 28°

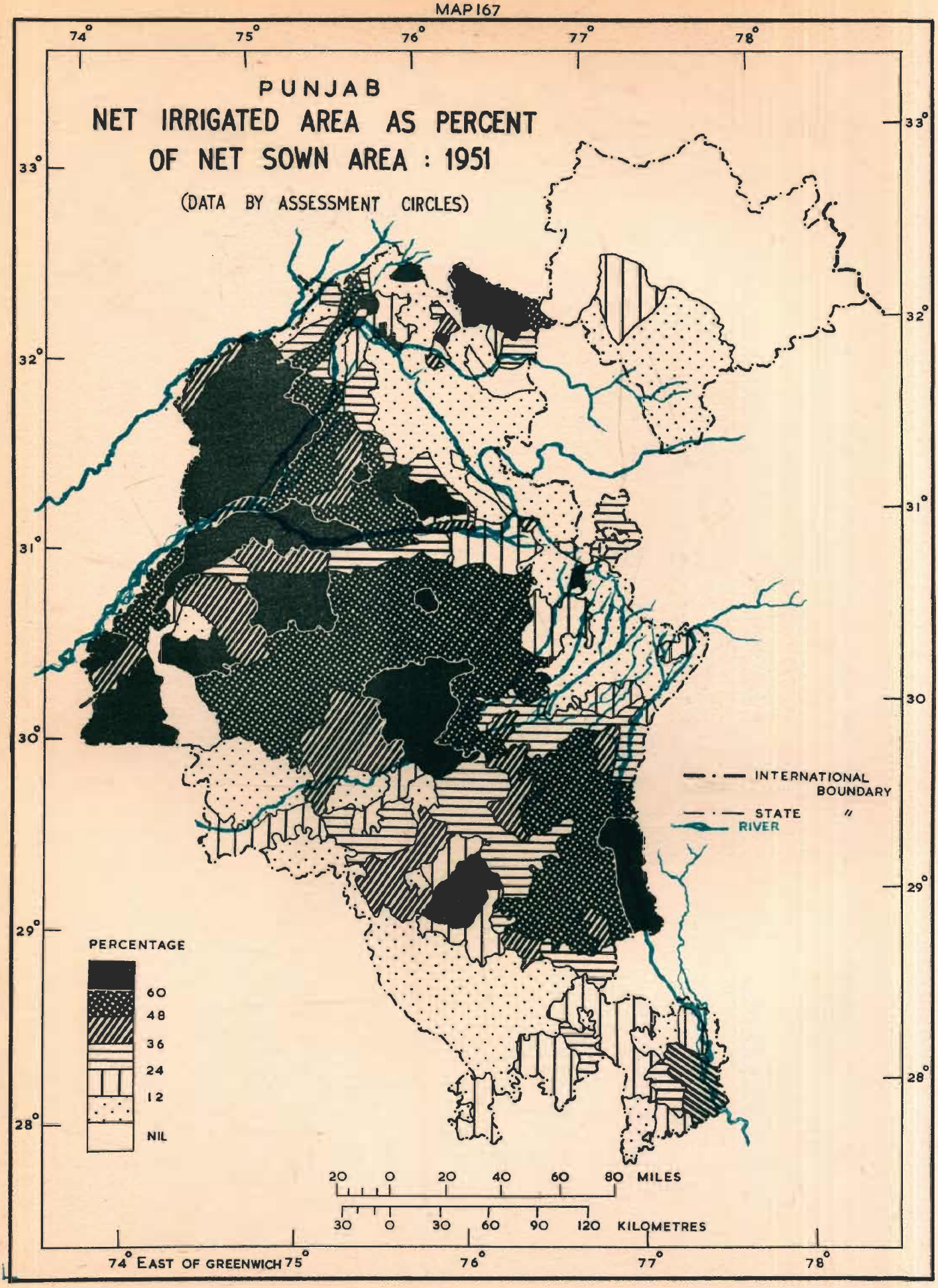
MAP 165

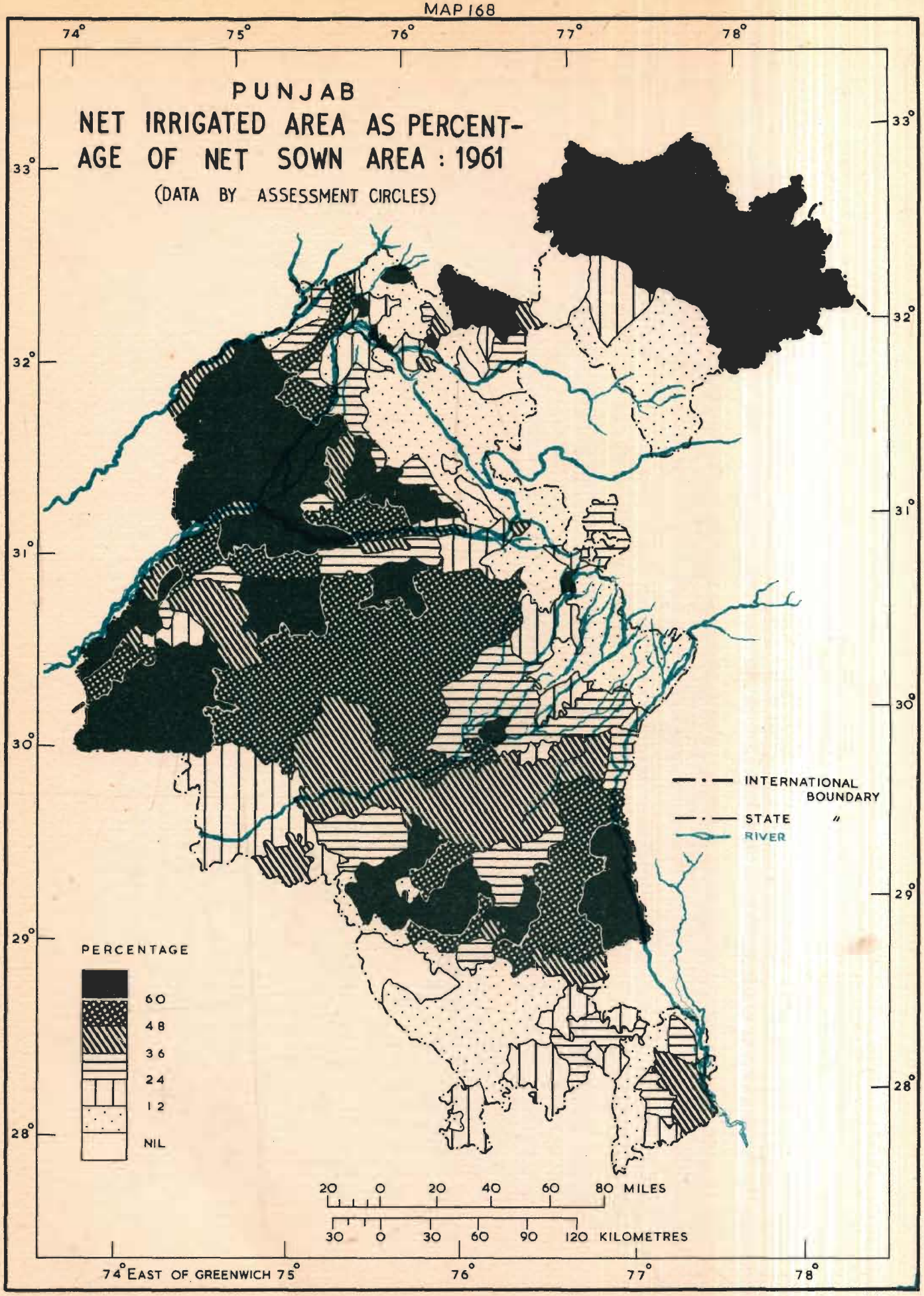

PUNJAB
LAND UNDER FORESTS AS PERCENT OF TOTAL AREA : 1961
(DATA BY ASSESSMENT CIRCLES)
NOT SURVEYED
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
32
24
16
8
1
NIL
NOTE : FOREST AREAS IN KANGRA AND LAHAUL & SPITI DISTRICTS CADASTRALLY NOT SURVEYED, ARE EXCLUDED
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75° 76° 77° 78°
74° 75° 76° 77° 78°
33° 32° 31° 30° 29° 28°

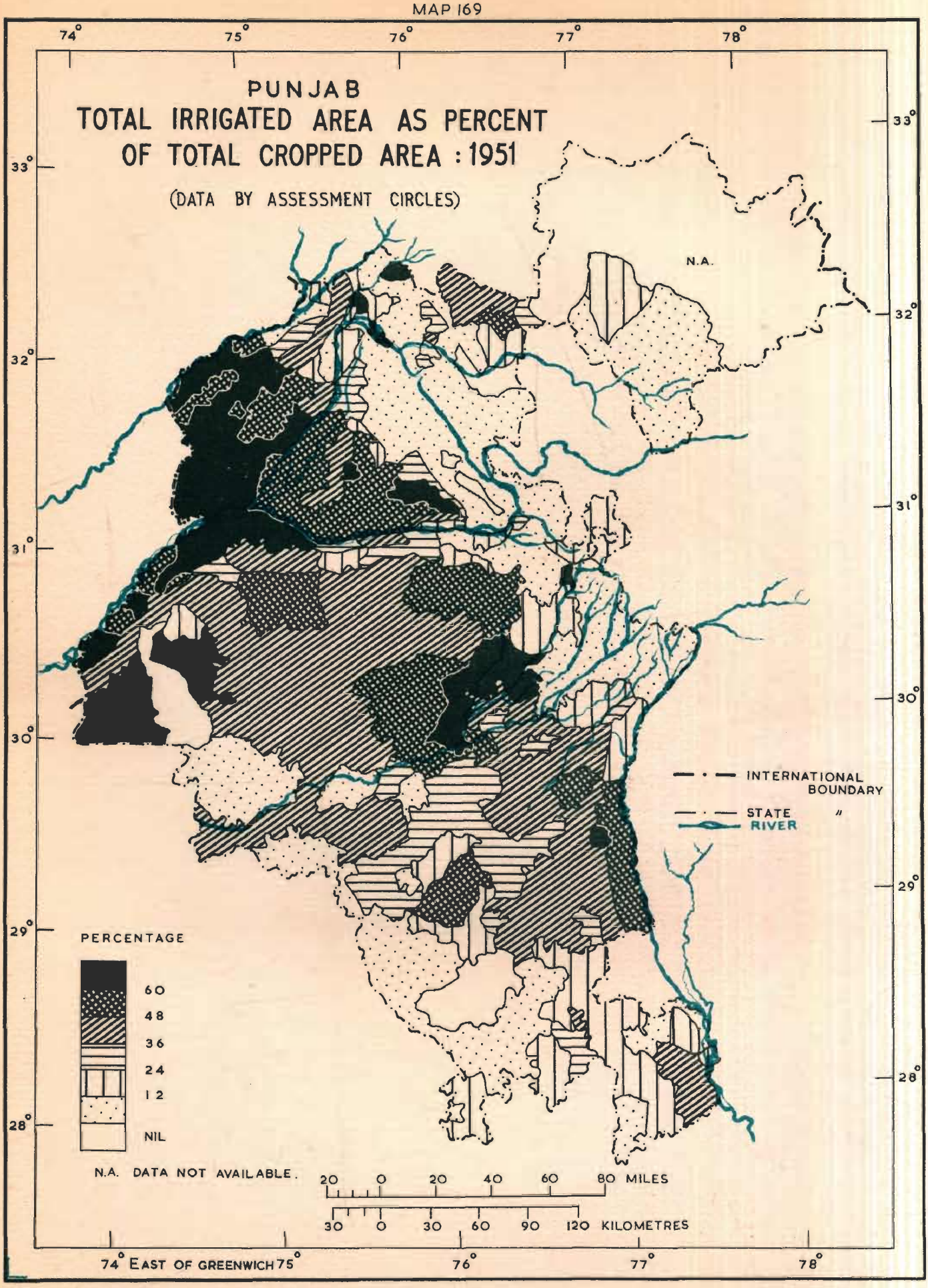
MAP 166


PUNJAB
PERCENTAGE CHANGE OF NET SOWN AREA
1951-61
(DATA BY ASSESSMENT CIRCLES)
N.A.
N.A.
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE CHANGE
32
24
16
8
0
- 8
-16
N.A. DATA NOT AVAILABLE
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

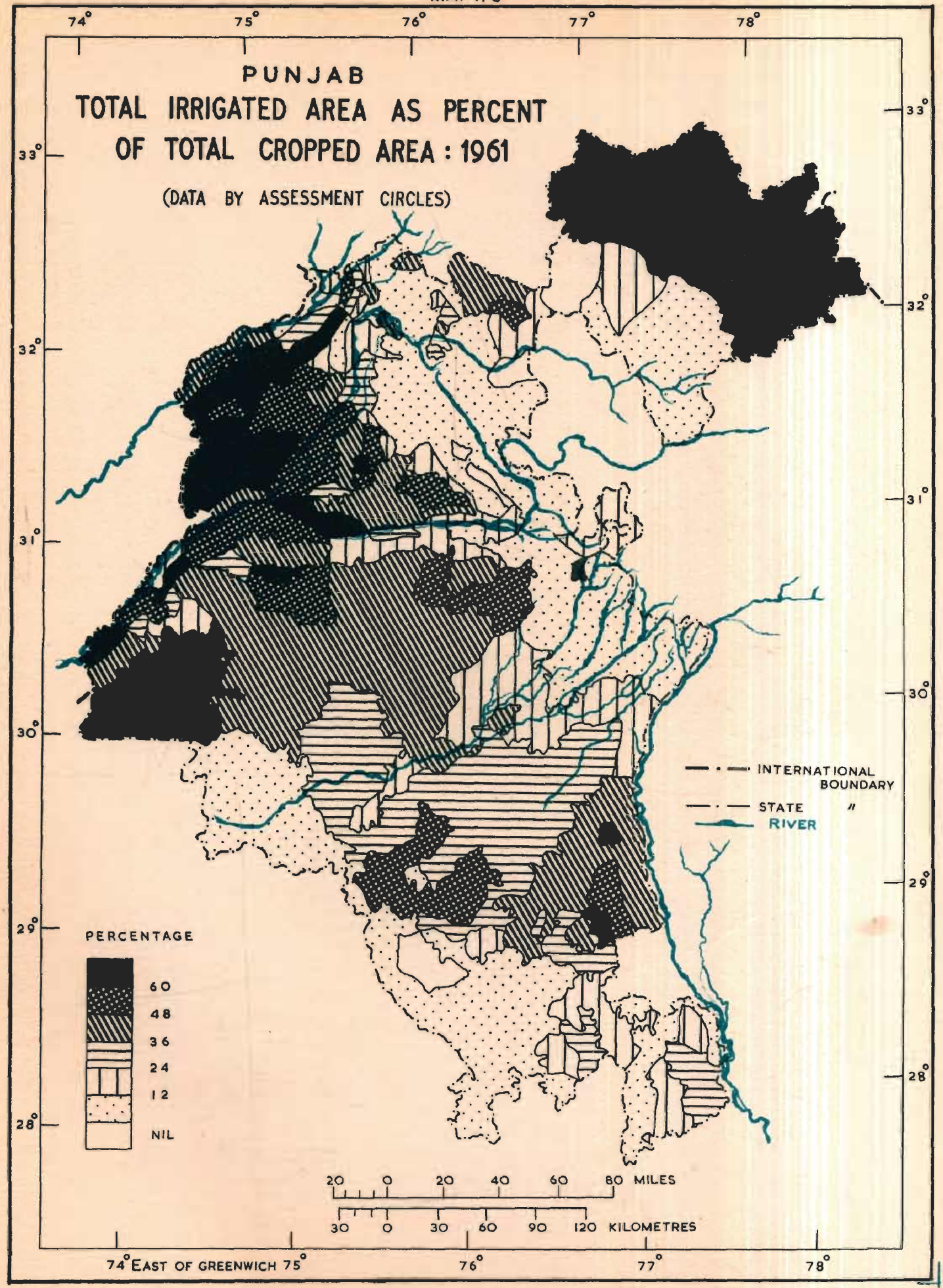
MAP 167


PUNJAB
NET IRRIGATED AREA AS PERCENT OF NET SOWN AREA : 1951
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
RIVER
PERCENTAGE
60
48
36
24
12
NIL
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

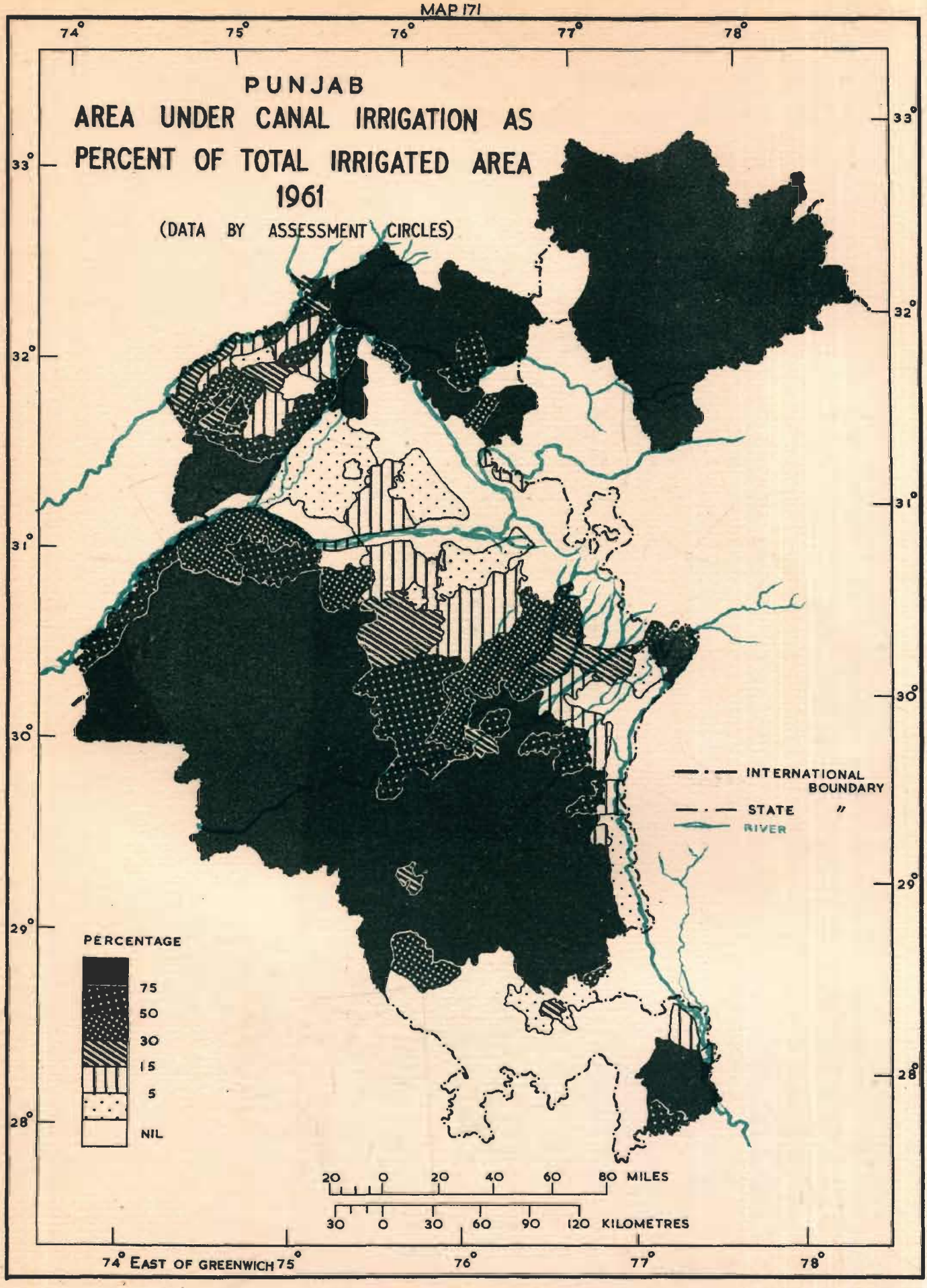

PUNJAB
NET IRRIGATED AREA AS PERCENTAGE OF NET SOWN AREA : 1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
RIVER
PERCENTAGE
60
48
36
24
12
NIL
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH


PUNJAB
TOTAL IRRIGATED AREA AS PERCENT OF TOTAL CROPPED AREA : 1951
(DATA BY ASSESSMENT CIRCLES)
N.A.
INTERNATIONAL BOUNDARY
STATE "
RIVER
PERCENTAGE
60
48
36
24
12
NIL
N.A. DATA NOT AVAILABLE.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

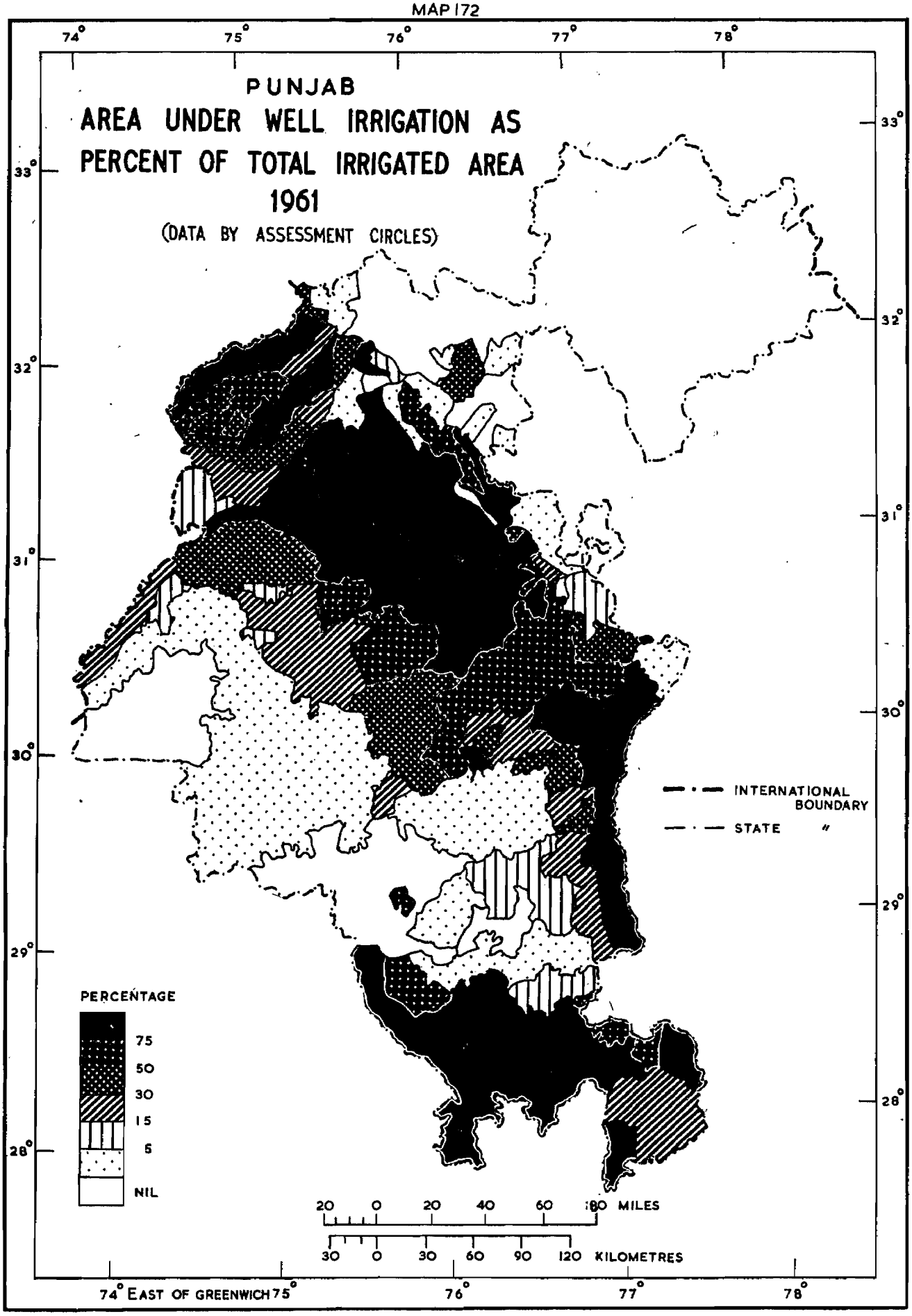
MAP 170


PUNJAB
TOTAL IRRIGATED AREA AS PERCENT OF TOTAL CROPPED AREA : 1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
RIVER
PERCENTAGE
60
48
36
24
12
NIL
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

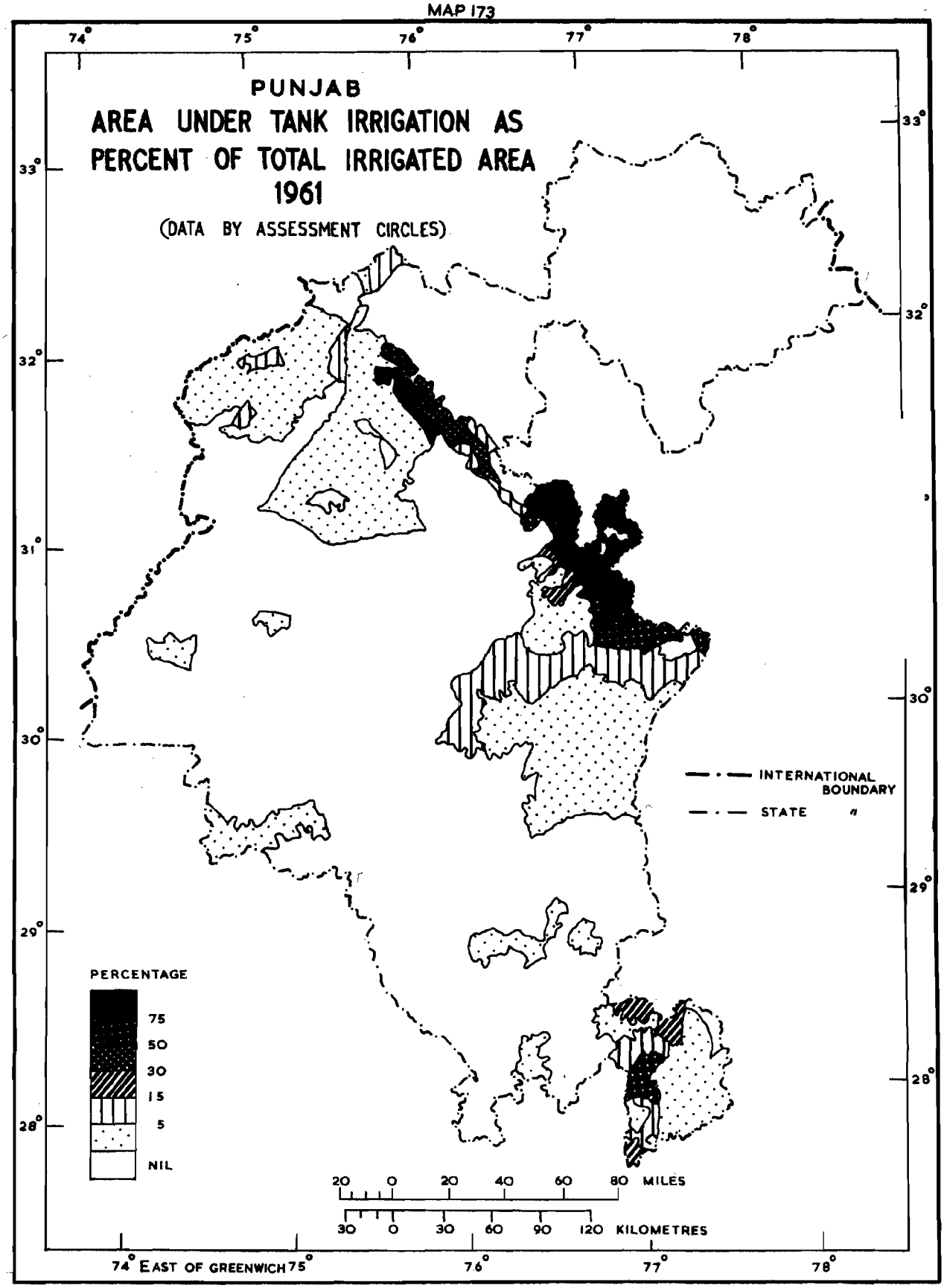
MAP 171


PUNJAB
AREA UNDER CANAL IRRIGATION AS PERCENT OF TOTAL IRRIGATED AREA 1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
RIVER
PERCENTAGE
75
50
30
15
5
NIL
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

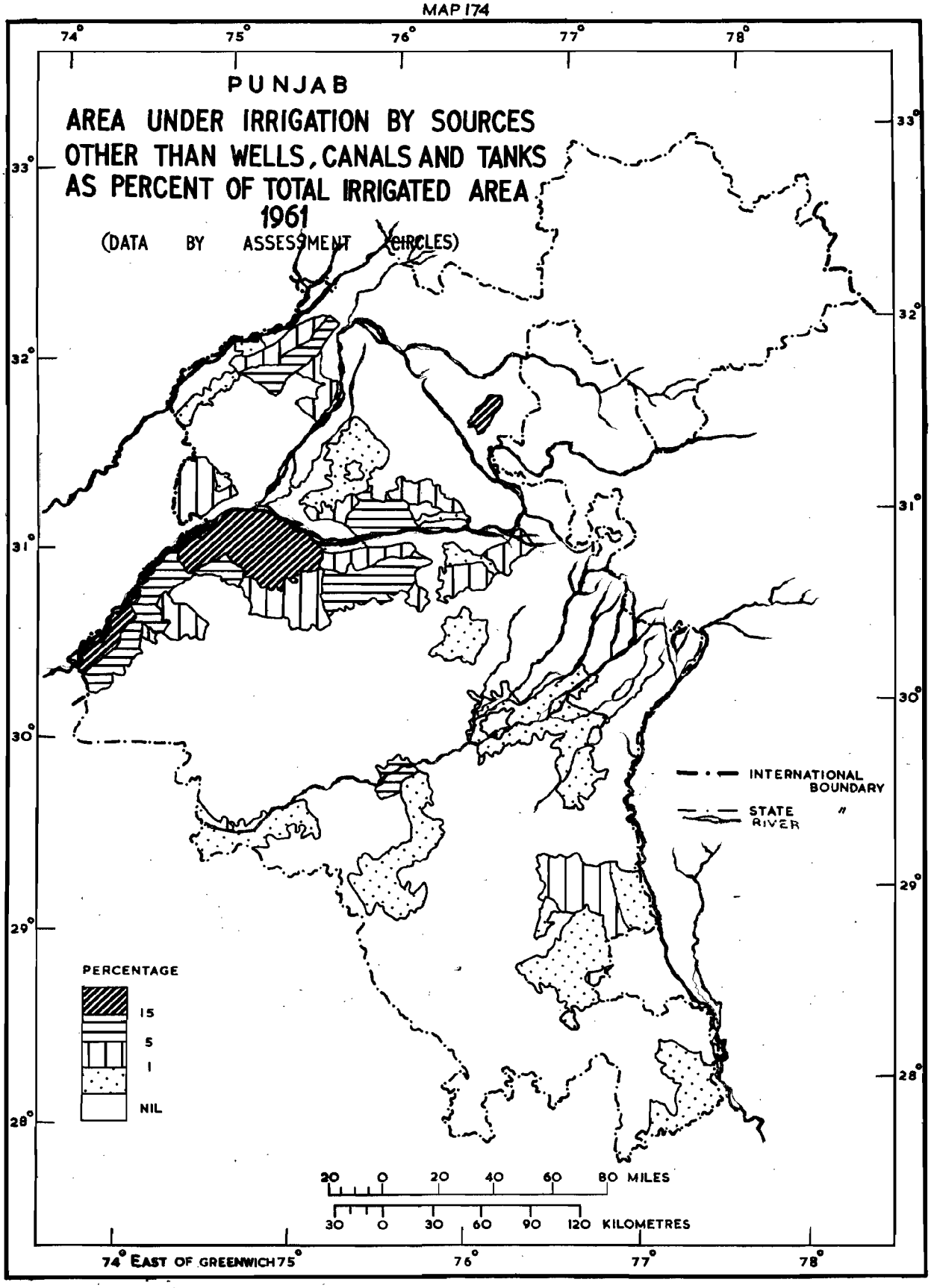
MAP 172

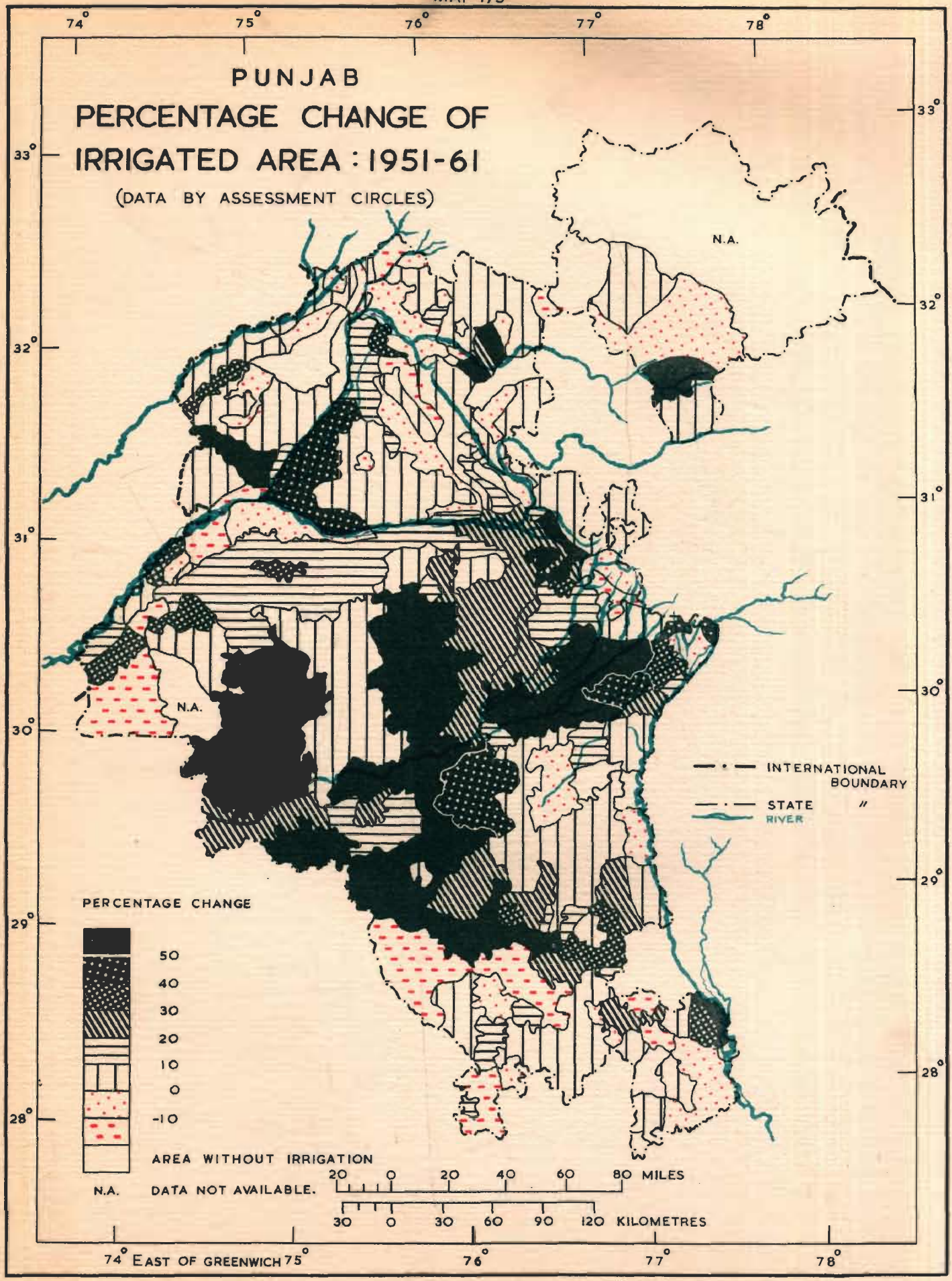

PUNJAB
AREA UNDER WELL IRRIGATION AS PERCENT OF TOTAL IRRIGATED AREA 1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
75
50
30
15
5
NIL
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

MAP 173

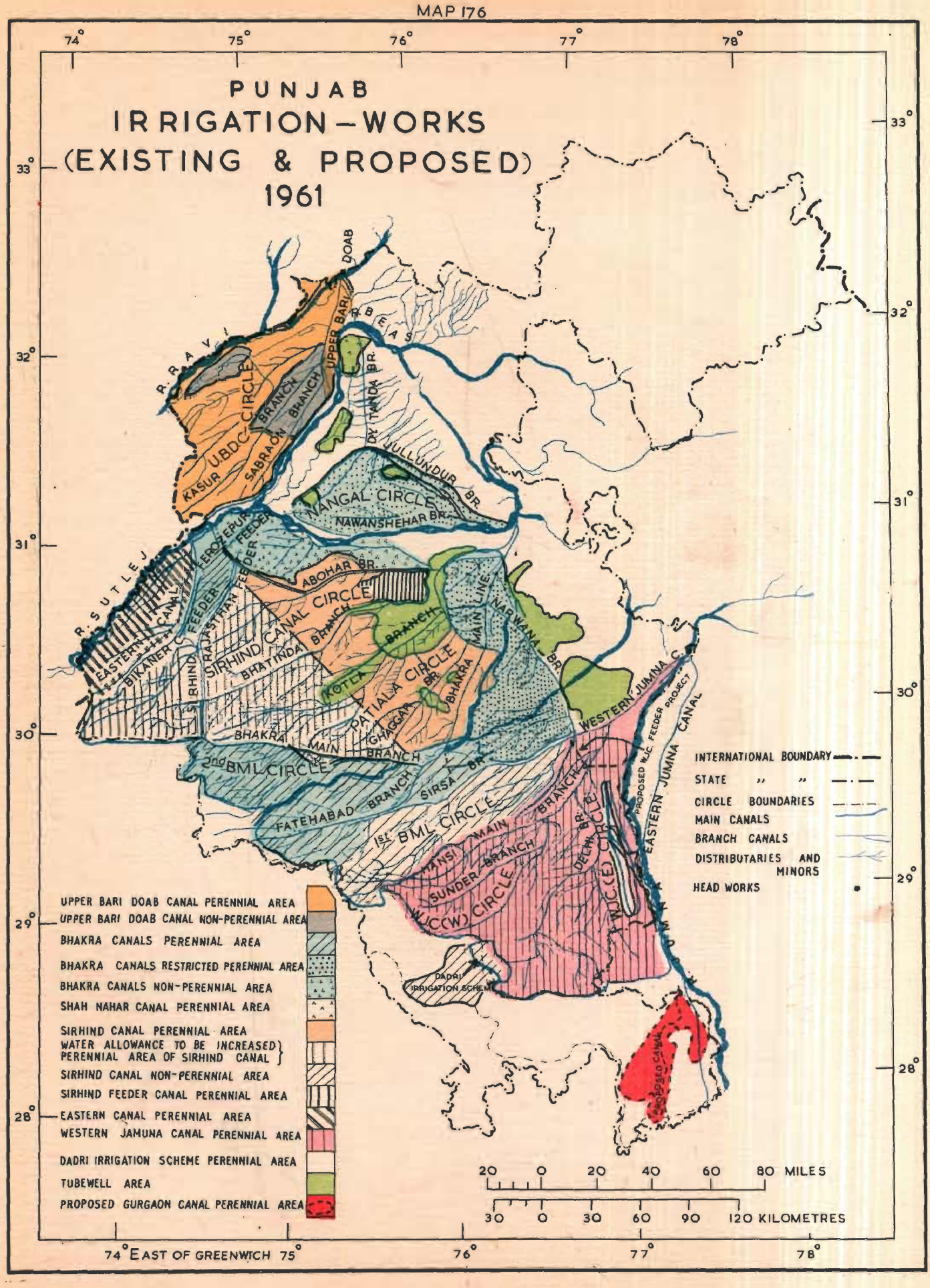

PUNJAB
AREA UNDER TANK IRRIGATION AS PERCENT OF TOTAL IRRIGATED AREA 1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE
PERCENTAGE
75
50
30
15
5
NIL
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

MAP 174

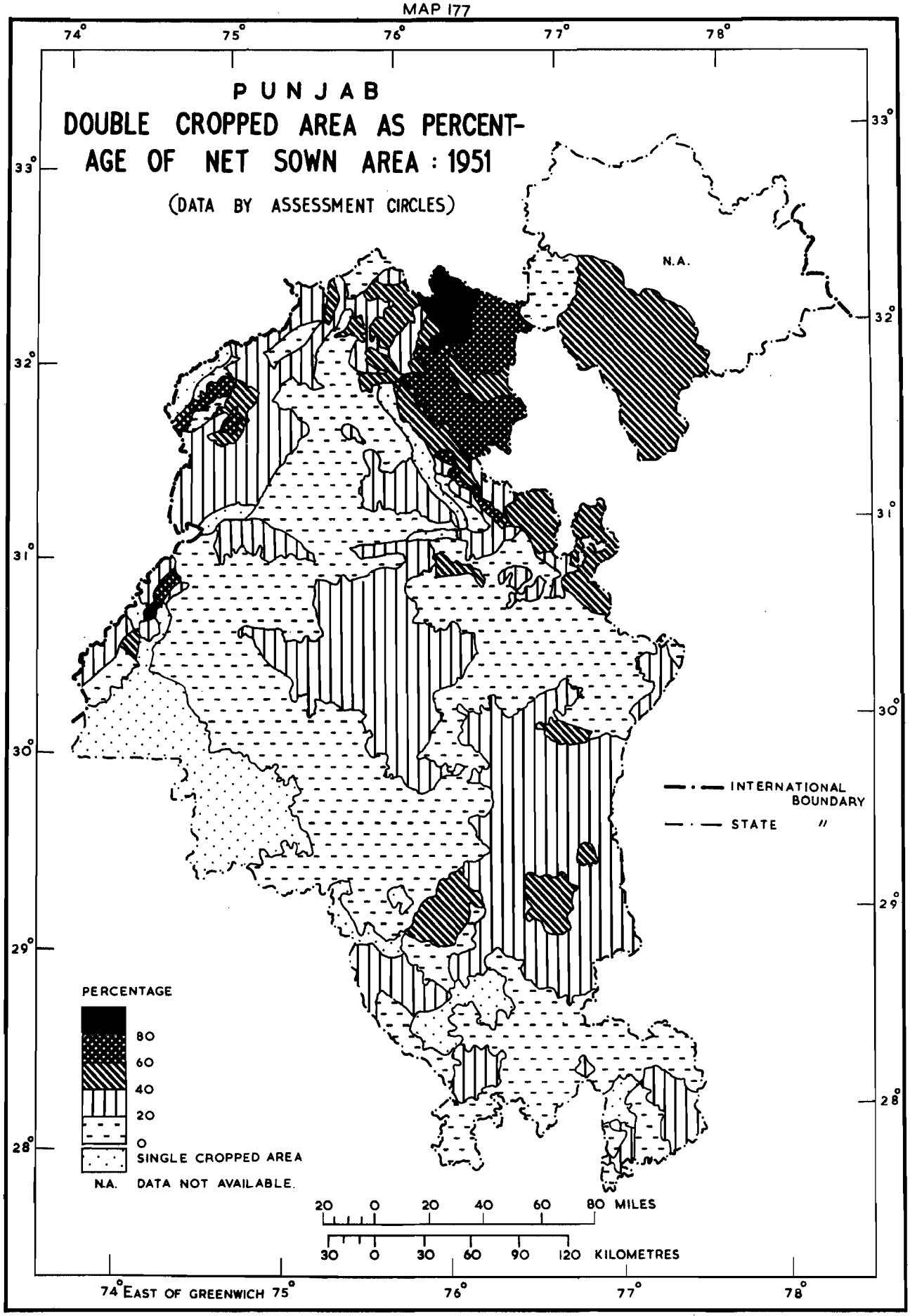

PUNJAB
AREA UNDER IRRIGATION BY SOURCES OTHER THAN WELLS, CANALS AND TANKS AS PERCENT OF TOTAL IRRIGATED AREA
1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE " RIVER
PERCENTAGE
15
5
1
NIL
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH


PUNJAB
PERCENTAGE CHANGE OF IRRIGATED AREA : 1951-61
(DATA BY ASSESSMENT CIRCLES)
N.A.
N.A.
INTERNATIONAL BOUNDARY
STATE "
RIVER
PERCENTAGE CHANGE
50
40
30
20
10
0
-10
AREA WITHOUT IRRIGATION
N.A. DATA NOT AVAILABLE.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

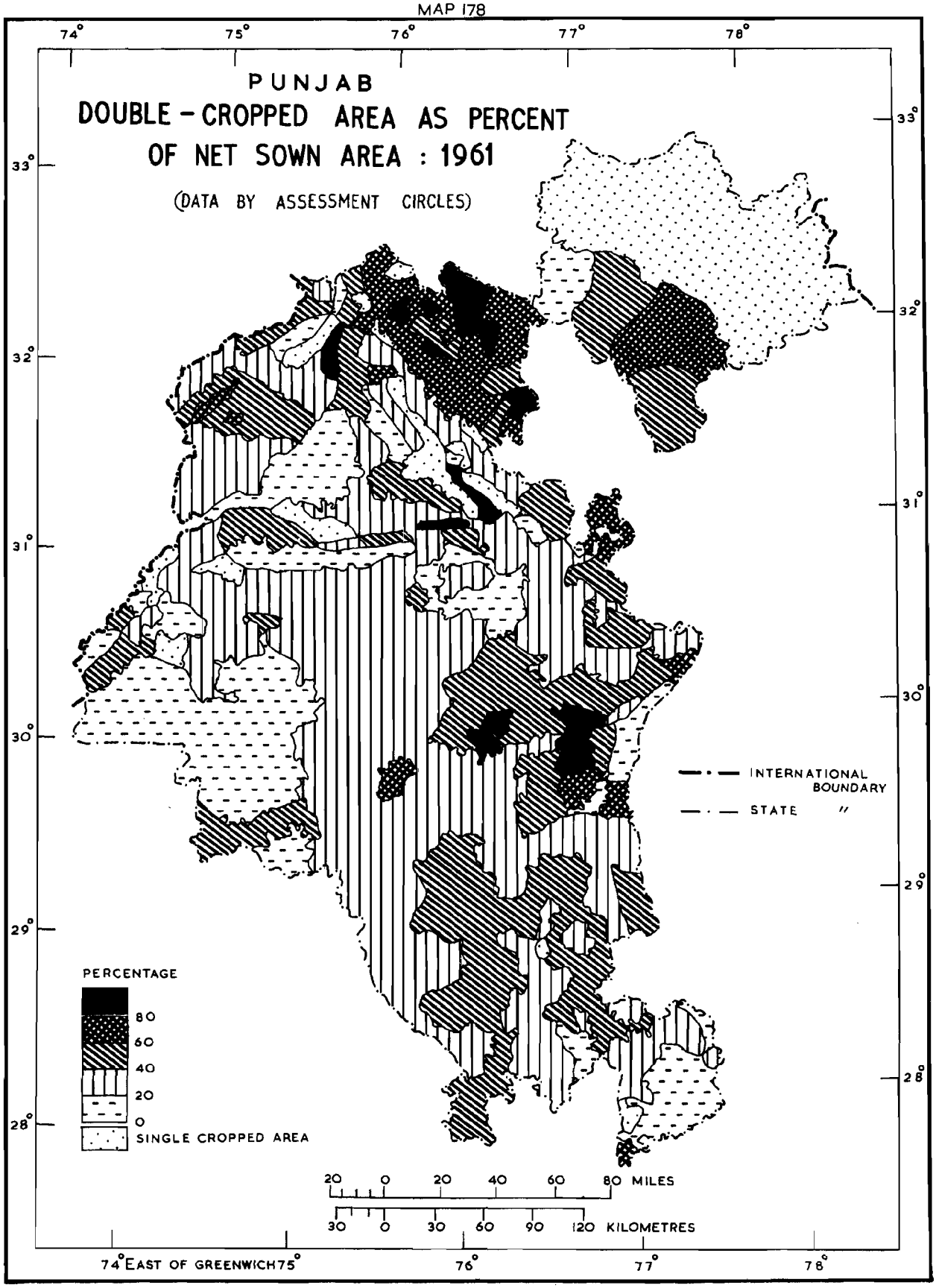
MAP 176


PUNJAB
IRRIGATION – WORKS
(EXISTING & PROPOSED)
1961
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
R. RAVI
R. BEAS
R. SUTLEJ
DOAB
UPPER BARI DOAB BR.
U.B.D.C. CIRCLE
KASUR BRANCH
SABRAON BRANCH
DY. TANDA BR.
JULLUNDUR BR.
NANGAL CIRCLE
NAWANSHEHAR BR.
FEROZEPUR FEEDER
ABOHAR BR.
EASTERN CANAL
BIKANER CANAL
RAJASTHAN FEEDER
RHIND FEEDER
SIRHIND CANAL CIRCLE
BHATINDA BRANCH
KOTLA BRANCH
MAIN LINE
NARWANA BR.
PATIALA CIRCLE
BHARRA BR.
GHAGGAR BRANCH
BHAKRA MAIN
2nd BML CIRCLE
SIRSA BR.
FATEHABAD BRANCH
1st BML CIRCLE
WESTERN JUMNA C.
PROPOSED WJC FEEDER PROJECT
EASTERN JUMNA CANAL
DELHI BR.
DELHI CIRCLE
W.J.C.(E) CIRCLE
MANSI BRANCH
SUNDER BRANCH
W.J.C.(W) CIRCLE
DADRI IRRIGATION SCHEME
PROPOSED GURGAON CANAL
UPPER BARI DOAB CANAL PERENNIAL AREA
UPPER BARI DOAB CANAL NON-PERENNIAL AREA
BHAKRA CANALS PERENNIAL AREA
BHAKRA CANALS RESTRICTED PERENNIAL AREA
BHAKRA CANALS NON-PERENNIAL AREA
SHAH NAHAR CANAL PERENNIAL AREA
SIRHIND CANAL PERENNIAL AREA
WATER ALLOWANCE TO BE INCREASED PERENNIAL AREA OF SIRHIND CANAL
SIRHIND CANAL NON-PERENNIAL AREA
SIRHIND FEEDER CANAL PERENNIAL AREA
EASTERN CANAL PERENNIAL AREA
WESTERN JAMUNA CANAL PERENNIAL AREA
DADRI IRRIGATION SCHEME PERENNIAL AREA
TUBEWELL AREA
PROPOSED GURGAON CANAL PERENNIAL AREA
INTERNATIONAL BOUNDARY
STATE " "
CIRCLE BOUNDARIES
MAIN CANALS
BRANCH CANALS
DISTRIBUTARIES AND MINORS
HEAD WORKS
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75°
76°
77°
78°

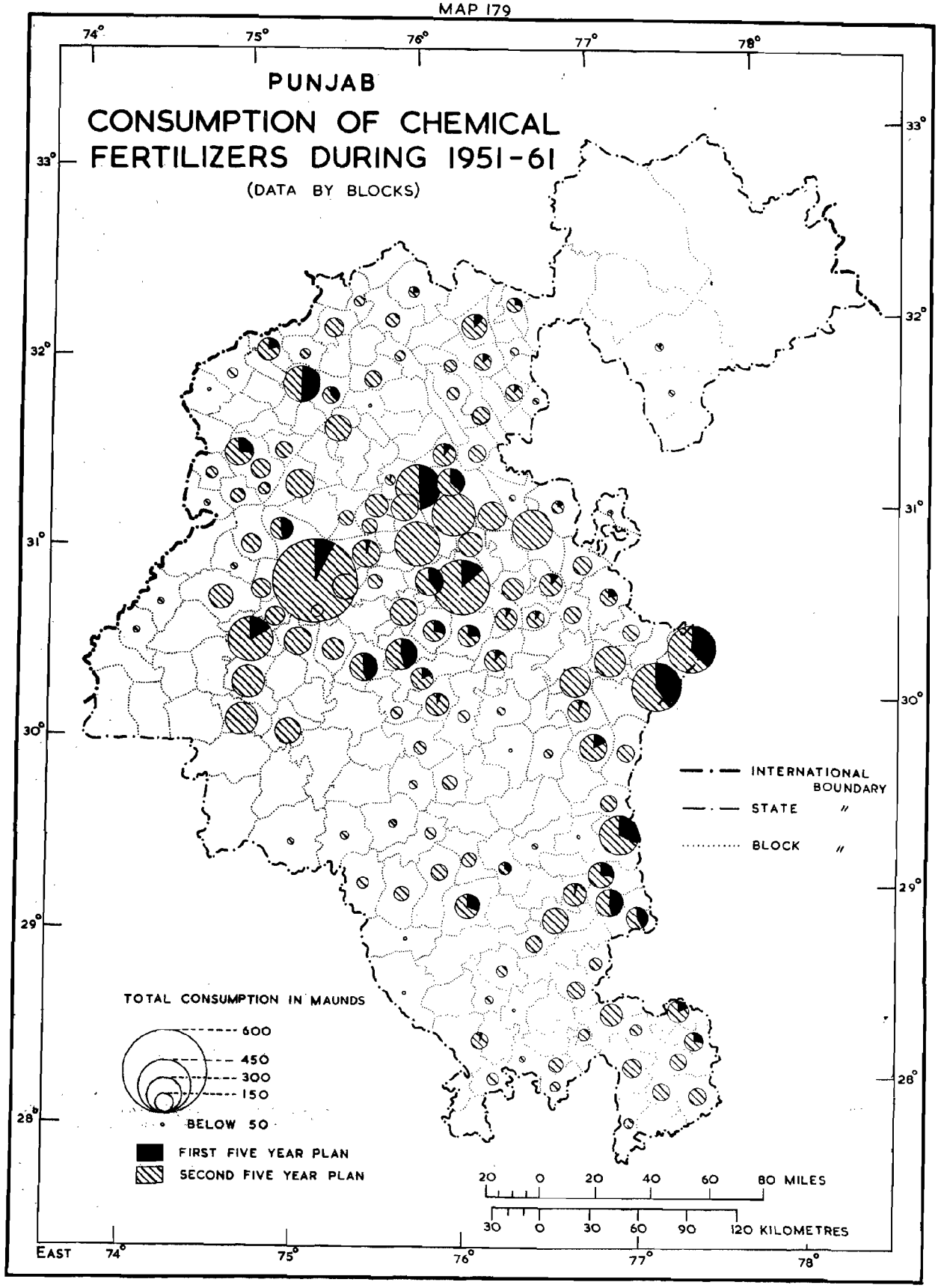
MAP 177


PUNJAB
DOUBLE CROPPED AREA AS PERCENTAGE OF NET SOWN AREA : 1951
(DATA BY ASSESSMENT CIRCLES)
N.A.
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
80
60
40
20
0
SINGLE CROPPED AREA
N.A. DATA NOT AVAILABLE.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

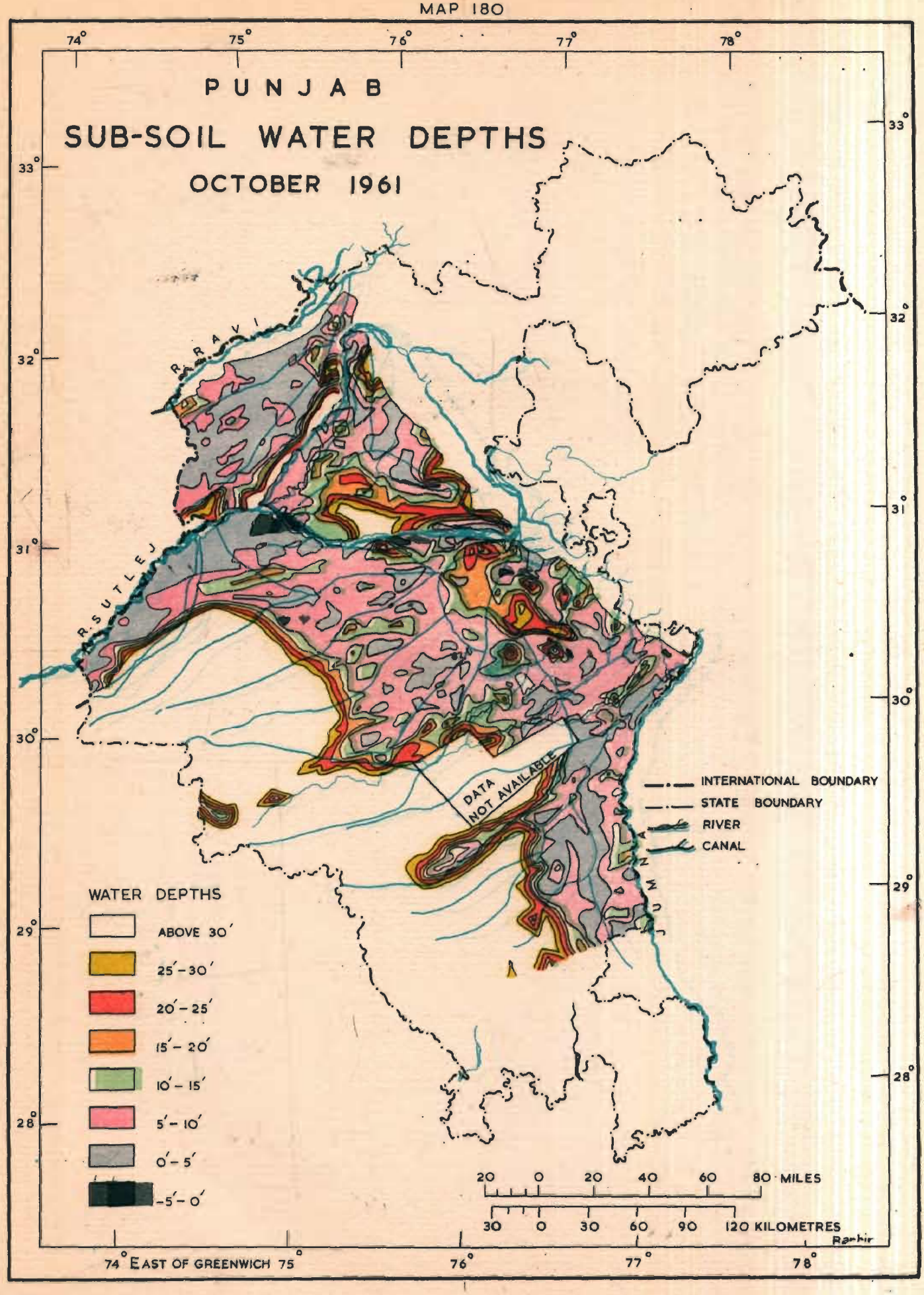
MAP 178


PUNJAB
DOUBLE - CROPPED AREA AS PERCENT OF NET SOWN AREA : 1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
80
60
40
20
0
SINGLE CROPPED AREA
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

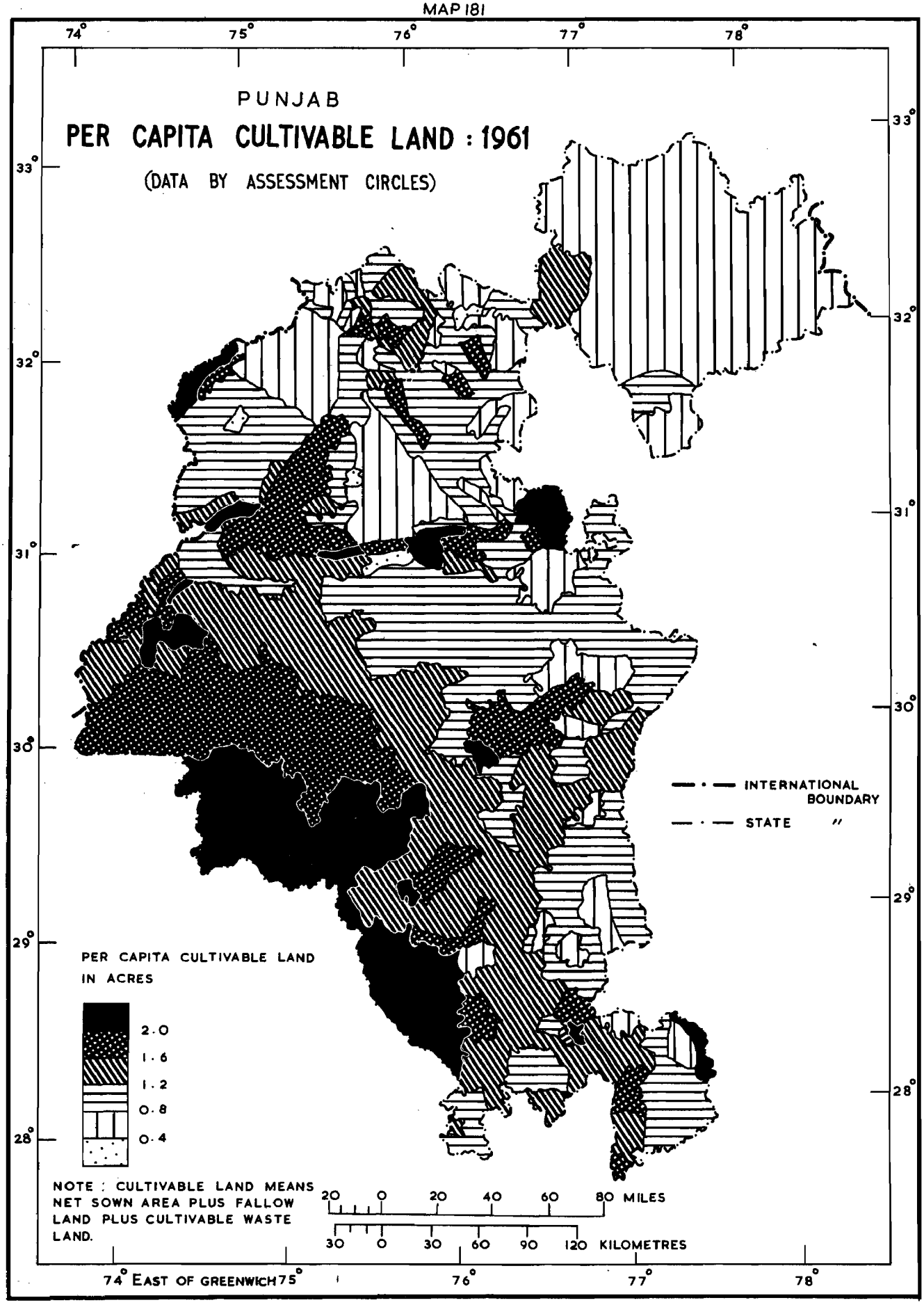
MAP 179


PUNJAB
CONSUMPTION OF CHEMICAL FERTILIZERS DURING 1951-61
(DATA BY BLOCKS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
BLOCK "
TOTAL CONSUMPTION IN MAUNDS
600
450
300
150
BELOW 50
FIRST FIVE YEAR PLAN
SECOND FIVE YEAR PLAN
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

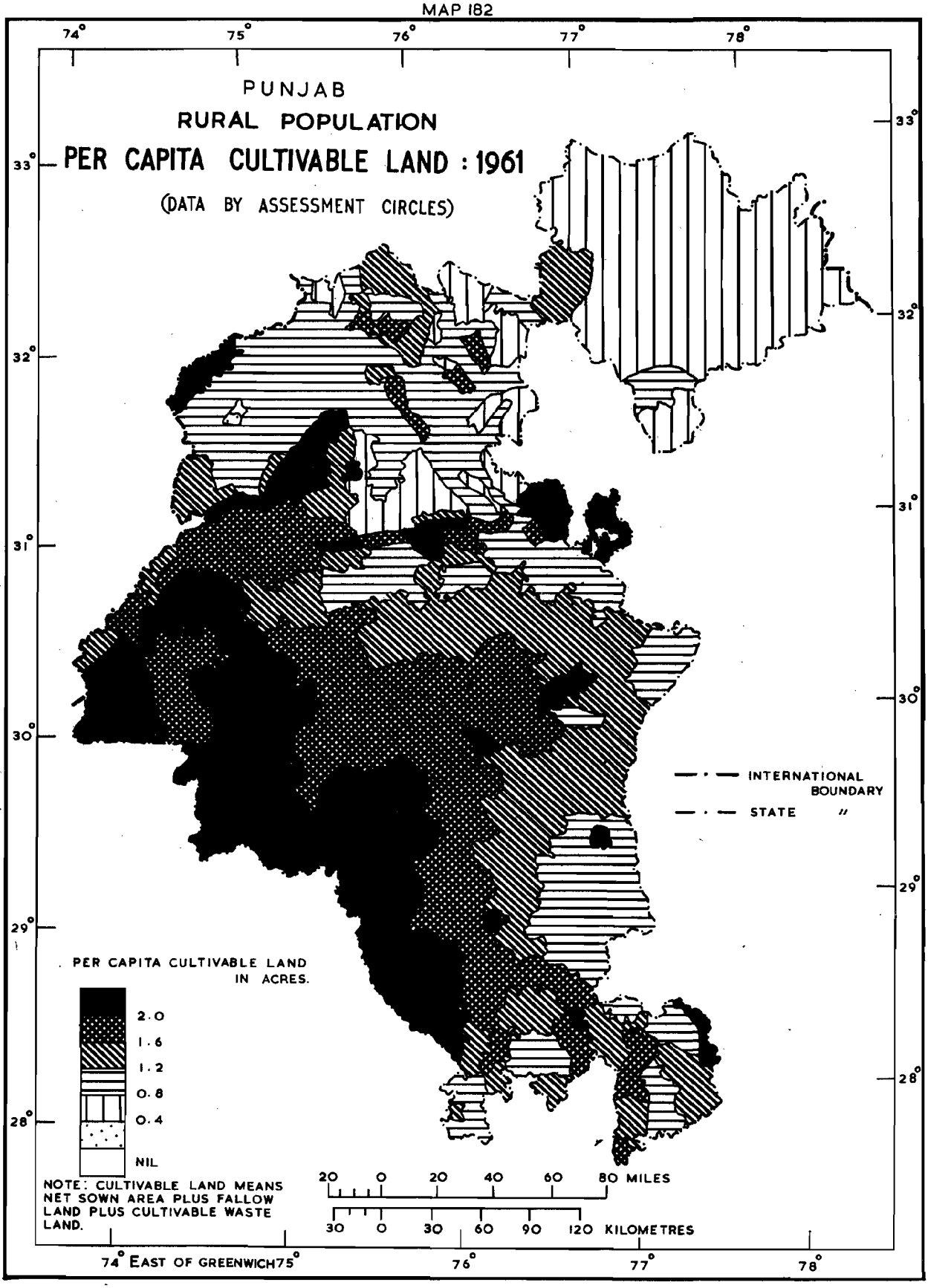
MAP 180


PUNJAB
SUB-SOIL WATER DEPTHS
OCTOBER 1961
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
R. RAVI
R. SUTLEJ
DATA NOT AVAILABLE
INTERNATIONAL BOUNDARY
STATE BOUNDARY
RIVER
CANAL
WATER DEPTHS
ABOVE 30′
25′-30′
20′-25′
15′-20′
10′-15′
5′-10′
0′-5′
-5′-0′
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
Ranbir
74° EAST OF GREENWICH 75°

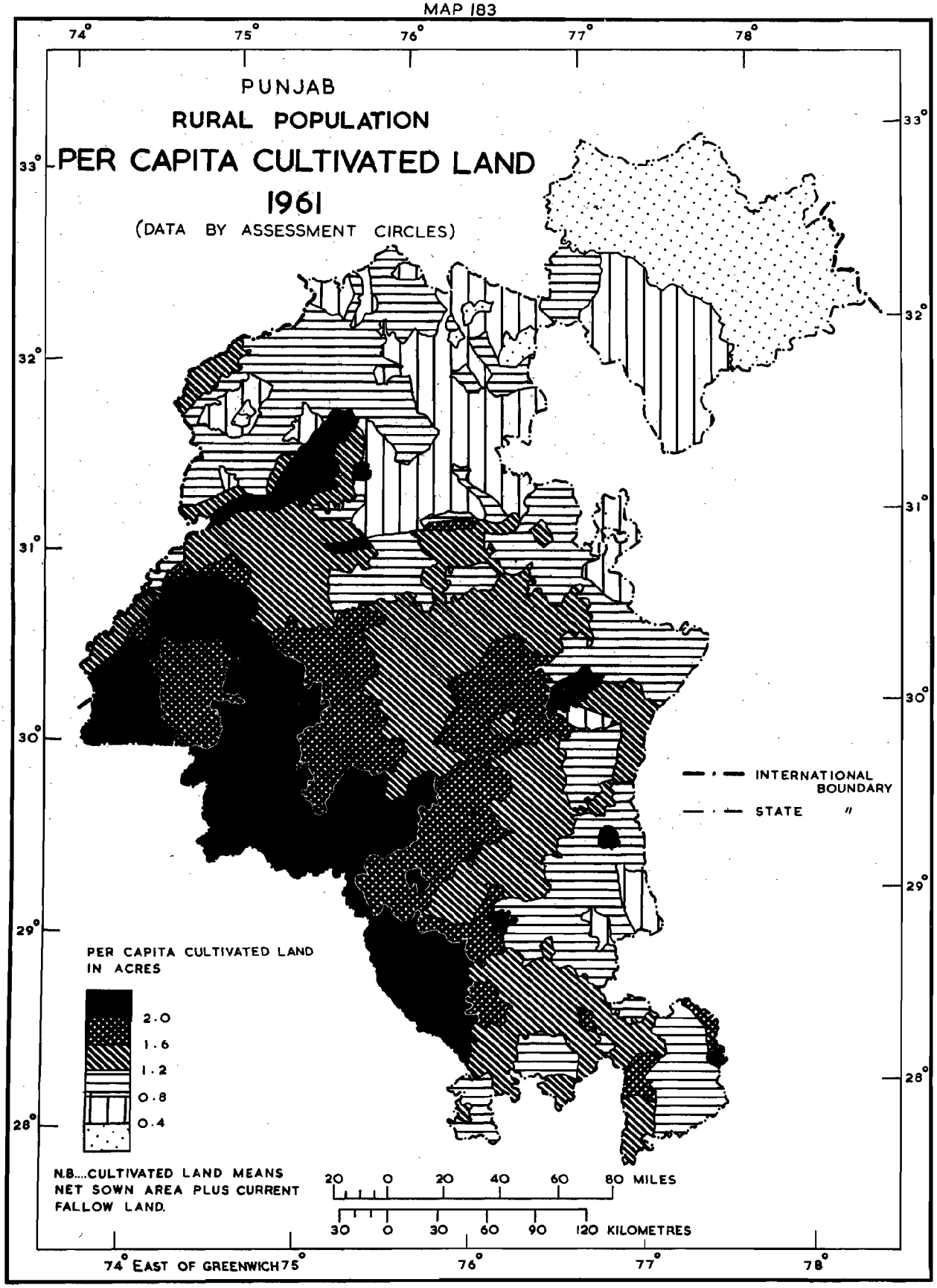
MAP 181


PUNJAB
PER CAPITA CULTIVABLE LAND : 1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PER CAPITA CULTIVABLE LAND IN ACRES
2.0
1.6
1.2
0.8
0.4
NOTE : CULTIVABLE LAND MEANS NET SOWN AREA PLUS FALLOW LAND PLUS CULTIVABLE WASTE LAND.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

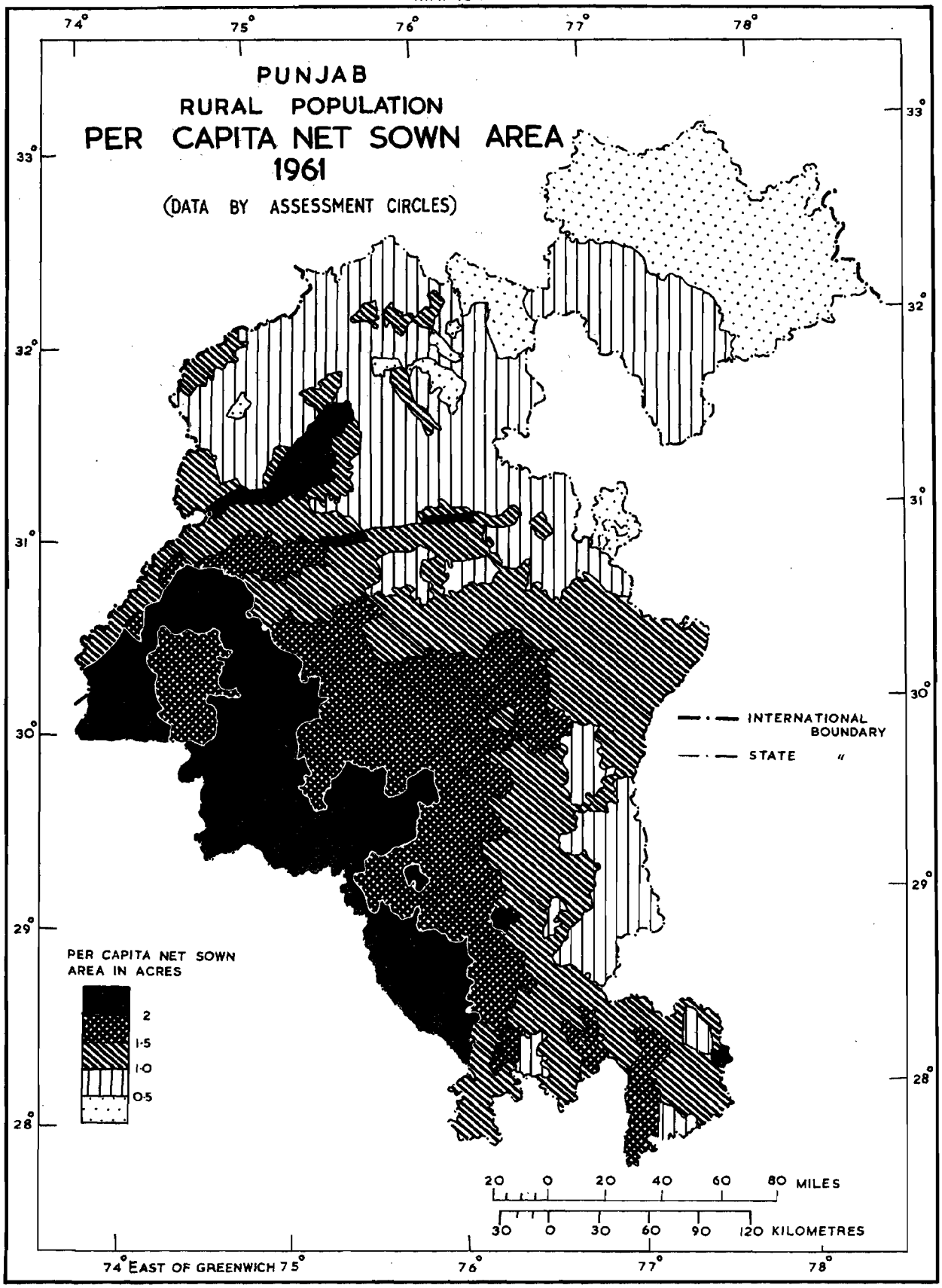
MAP 182


PUNJAB
RURAL POPULATION
PER CAPITA CULTIVABLE LAND : 1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PER CAPITA CULTIVABLE LAND IN ACRES.
2.0
1.6
1.2
0.8
0.4
NIL
NOTE: CULTIVABLE LAND MEANS NET SOWN AREA PLUS FALLOW LAND PLUS CULTIVABLE WASTE LAND.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

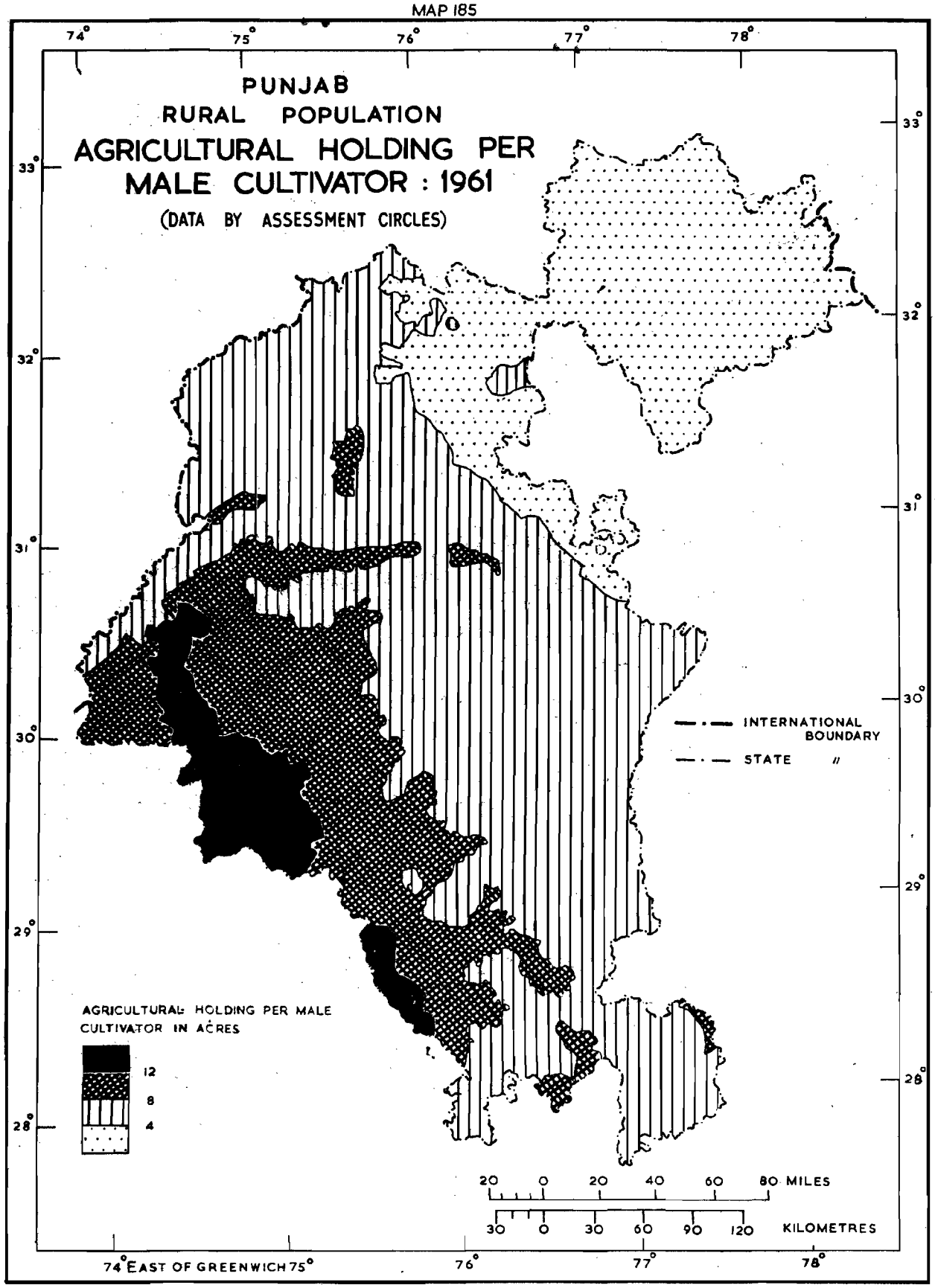
MAP 183


PUNJAB
RURAL POPULATION
PER CAPITA CULTIVATED LAND
1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PER CAPITA CULTIVATED LAND IN ACRES
2.0
1.6
1.2
0.8
0.4
N.B....CULTIVATED LAND MEANS NET SOWN AREA PLUS CURRENT FALLOW LAND.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

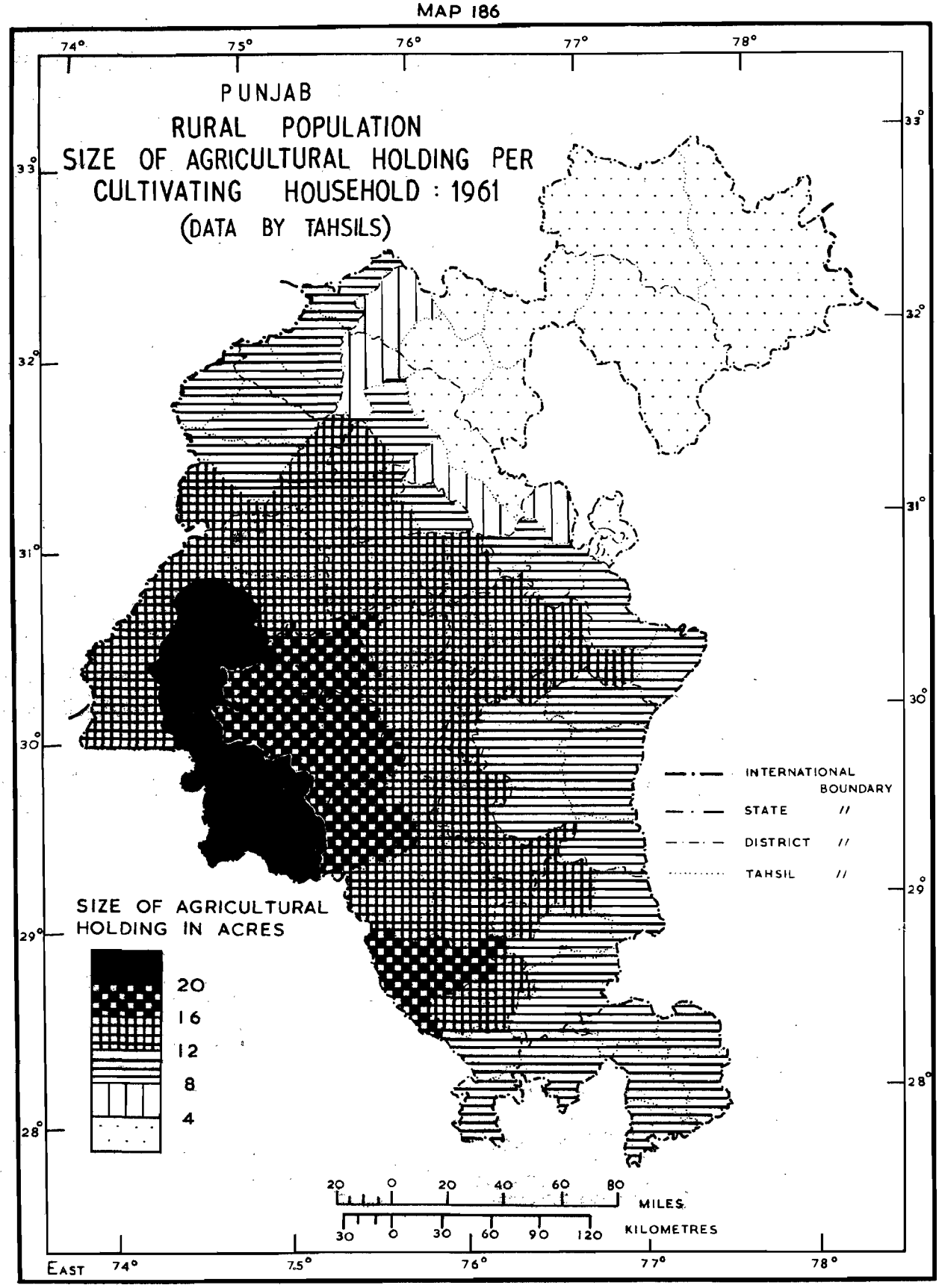
MAP 184


PUNJAB
RURAL POPULATION
PER CAPITA NET SOWN AREA
1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PER CAPITA NET SOWN AREA IN ACRES
2
1·5
1·0
0·5
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75° 76° 77° 78°

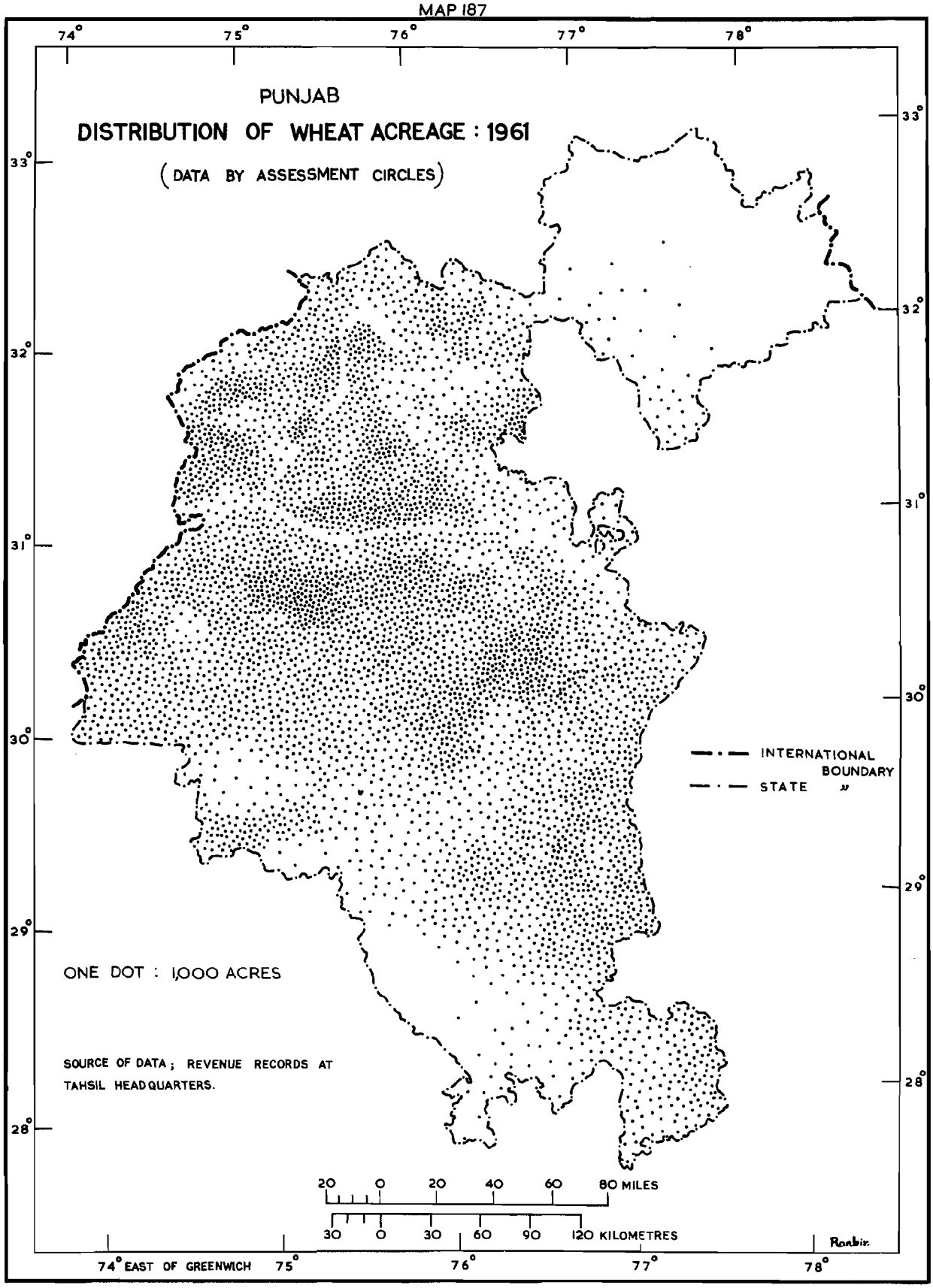
MAP 185


PUNJAB
RURAL POPULATION
AGRICULTURAL HOLDING PER MALE CULTIVATOR : 1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
AGRICULTURAL HOLDING PER MALE CULTIVATOR IN ACRES
12
8
4
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75°
76°
77°
78°

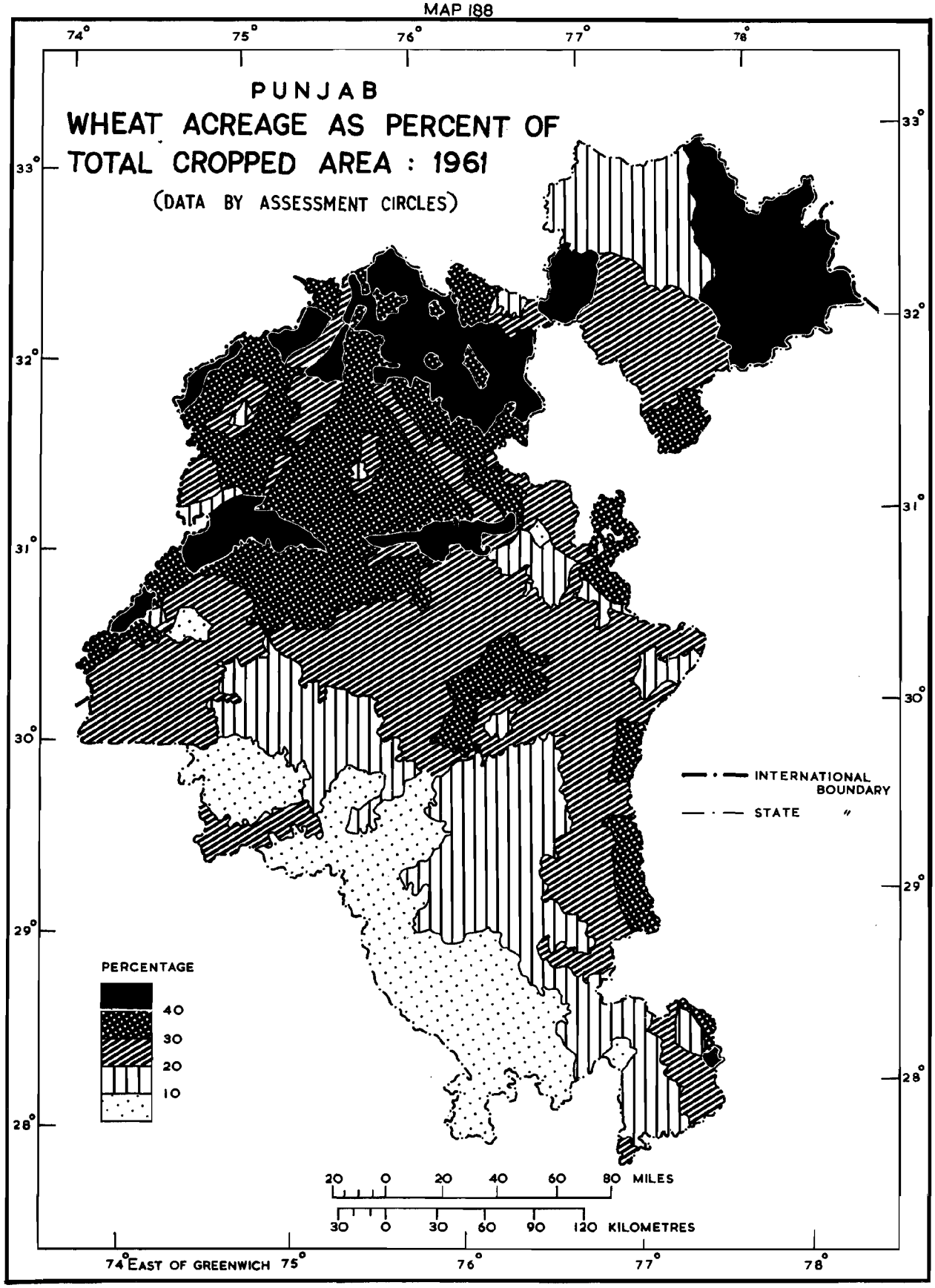
MAP 186


PUNJAB
RURAL POPULATION
SIZE OF AGRICULTURAL HOLDING PER CULTIVATING HOUSEHOLD : 1961
(DATA BY TAHSILS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE //
DISTRICT //
TAHSIL //
SIZE OF AGRICULTURAL HOLDING IN ACRES
20
16
12
8
4
20 0 20 40 60 80
MILES
30 0 30 60 90 120
KILOMETRES
EAST

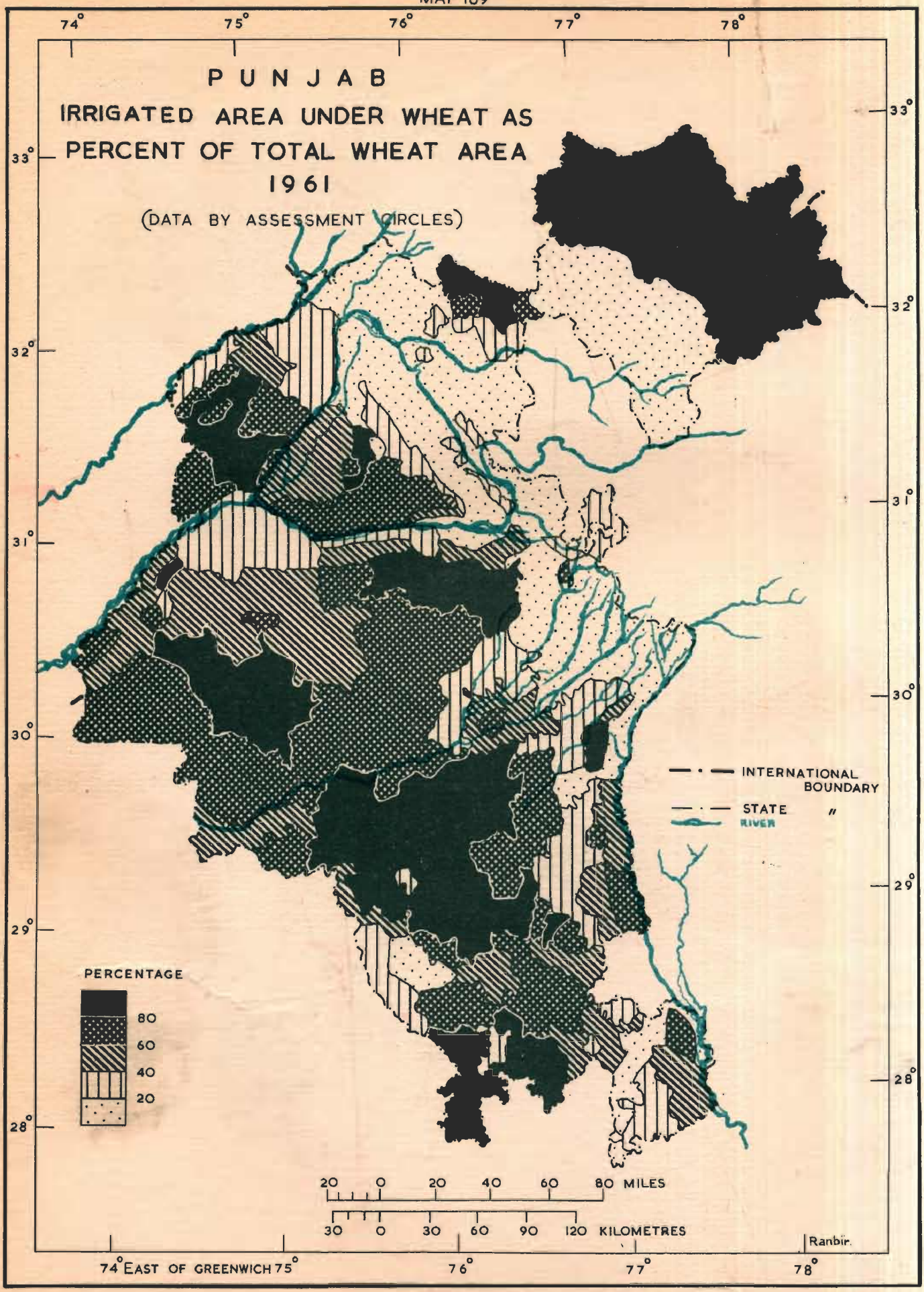
MAP 187


PUNJAB
DISTRIBUTION OF WHEAT ACREAGE : 1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
ONE DOT : 1,000 ACRES
SOURCE OF DATA ; REVENUE RECORDS AT TAHSIL HEADQUARTERS.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
Ranbir
74° EAST OF GREENWICH

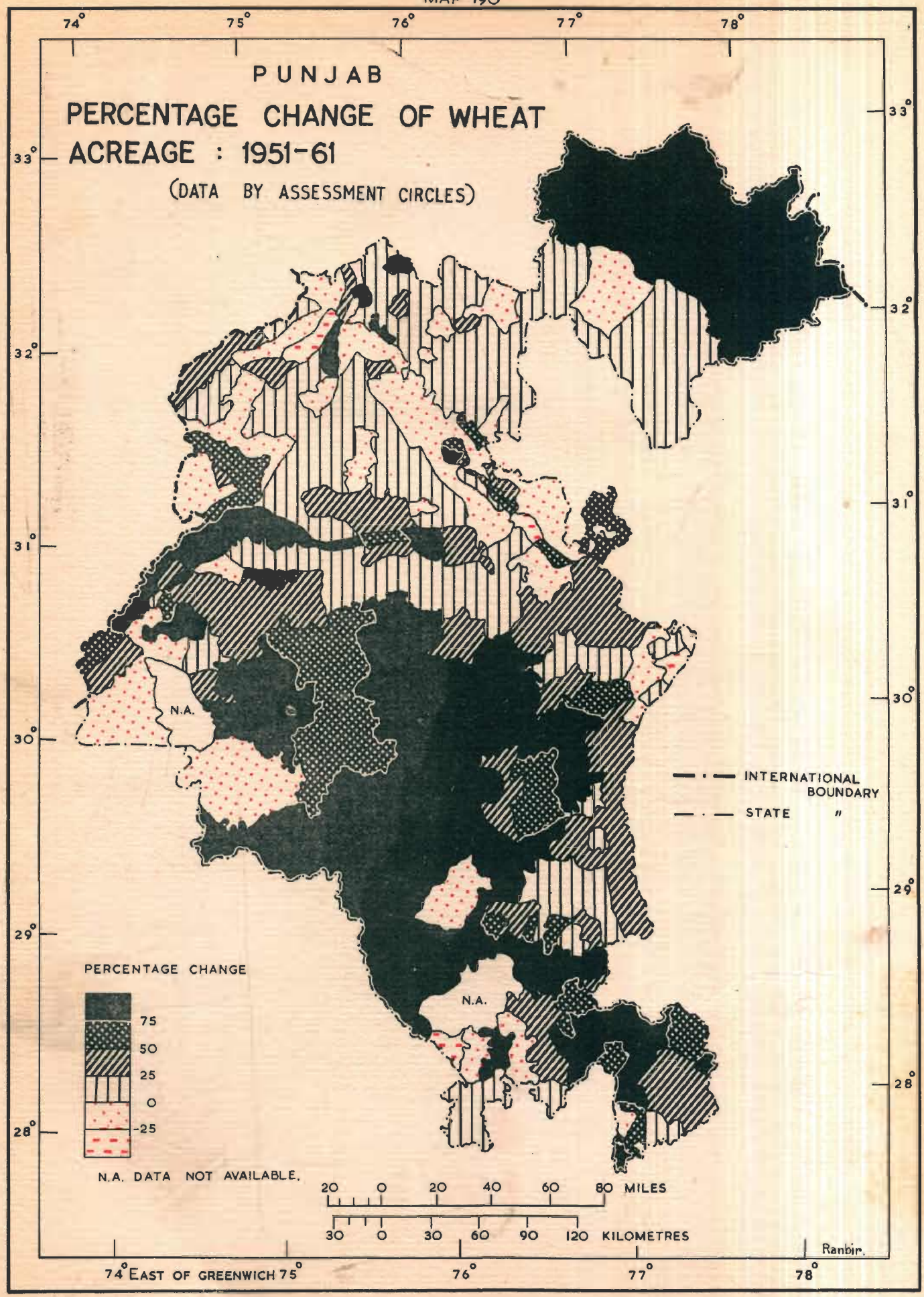
MAP 188


PUNJAB
WHEAT ACREAGE AS PERCENT OF TOTAL CROPPED AREA : 1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
40
30
20
10
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

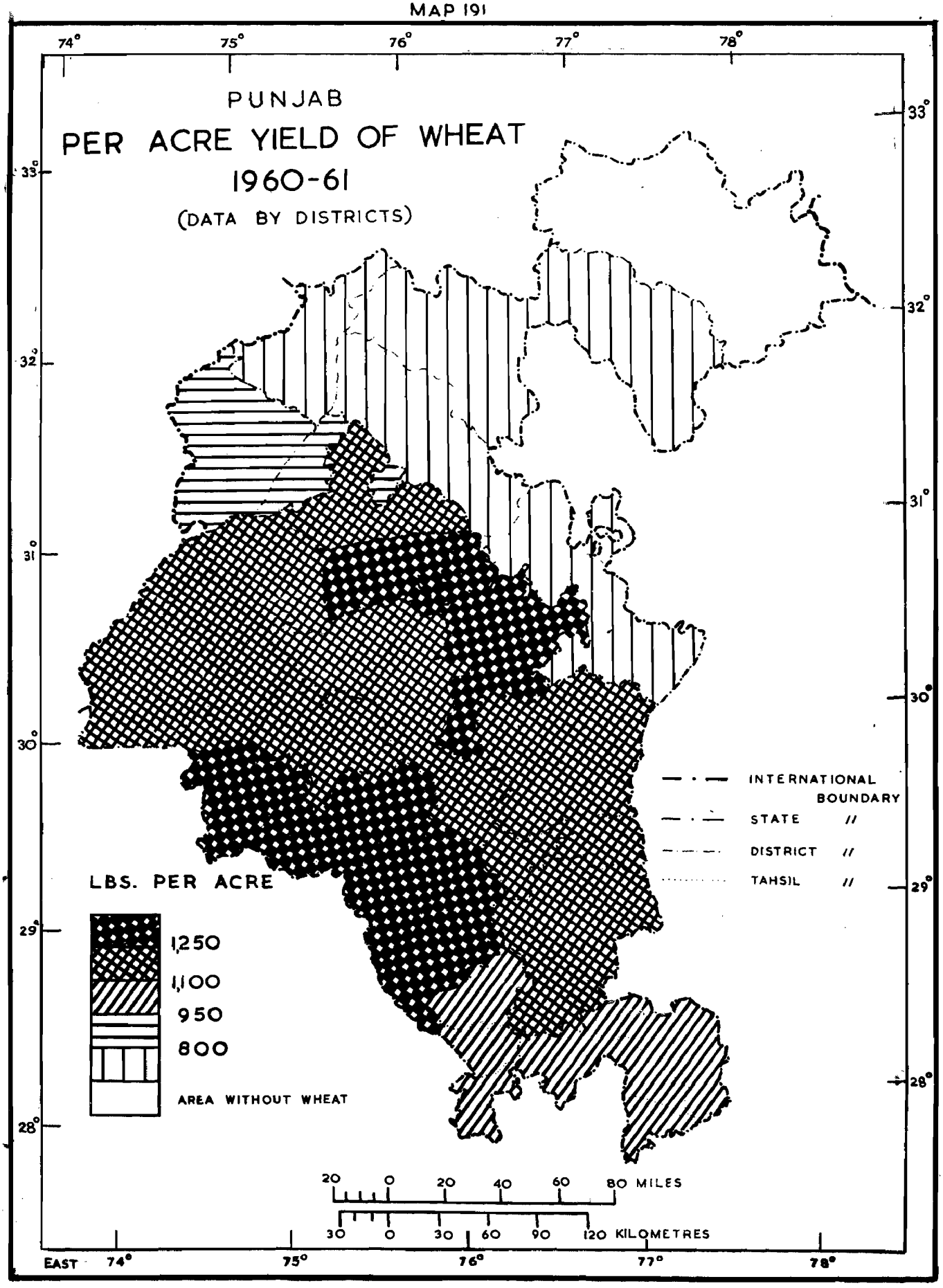
MAP 189


PUNJAB
IRRIGATED AREA UNDER WHEAT AS PERCENT OF TOTAL WHEAT AREA 1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
RIVER
PERCENTAGE
80
60
40
20
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
Ranbir.
74° EAST OF GREENWICH

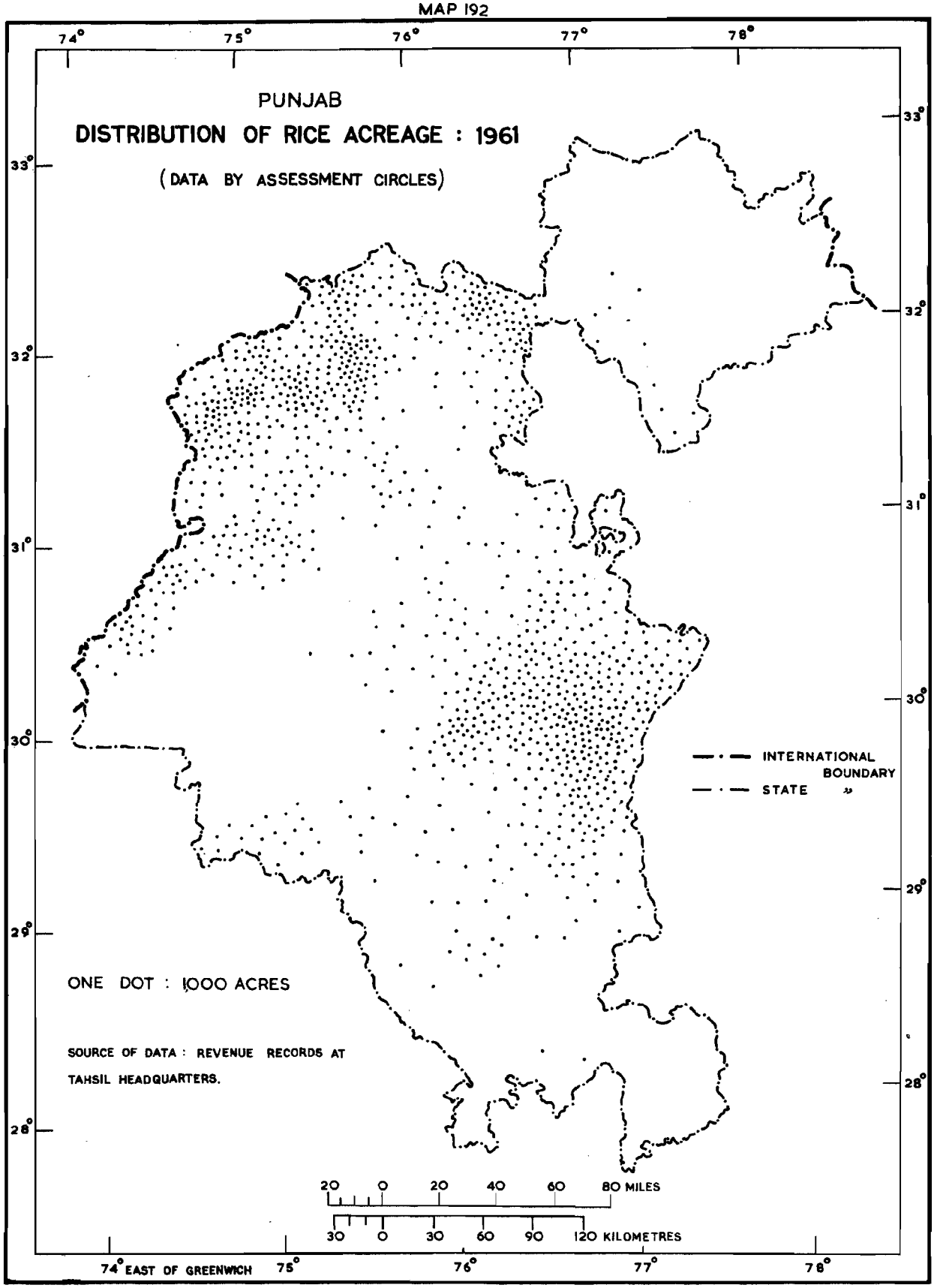
MAP 190


PUNJAB
PERCENTAGE CHANGE OF WHEAT ACREAGE : 1951-61
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
N.A.
N.A.
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE CHANGE
75
50
25
0
-25
N.A. DATA NOT AVAILABLE.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
Ranbir.
74° EAST OF GREENWICH

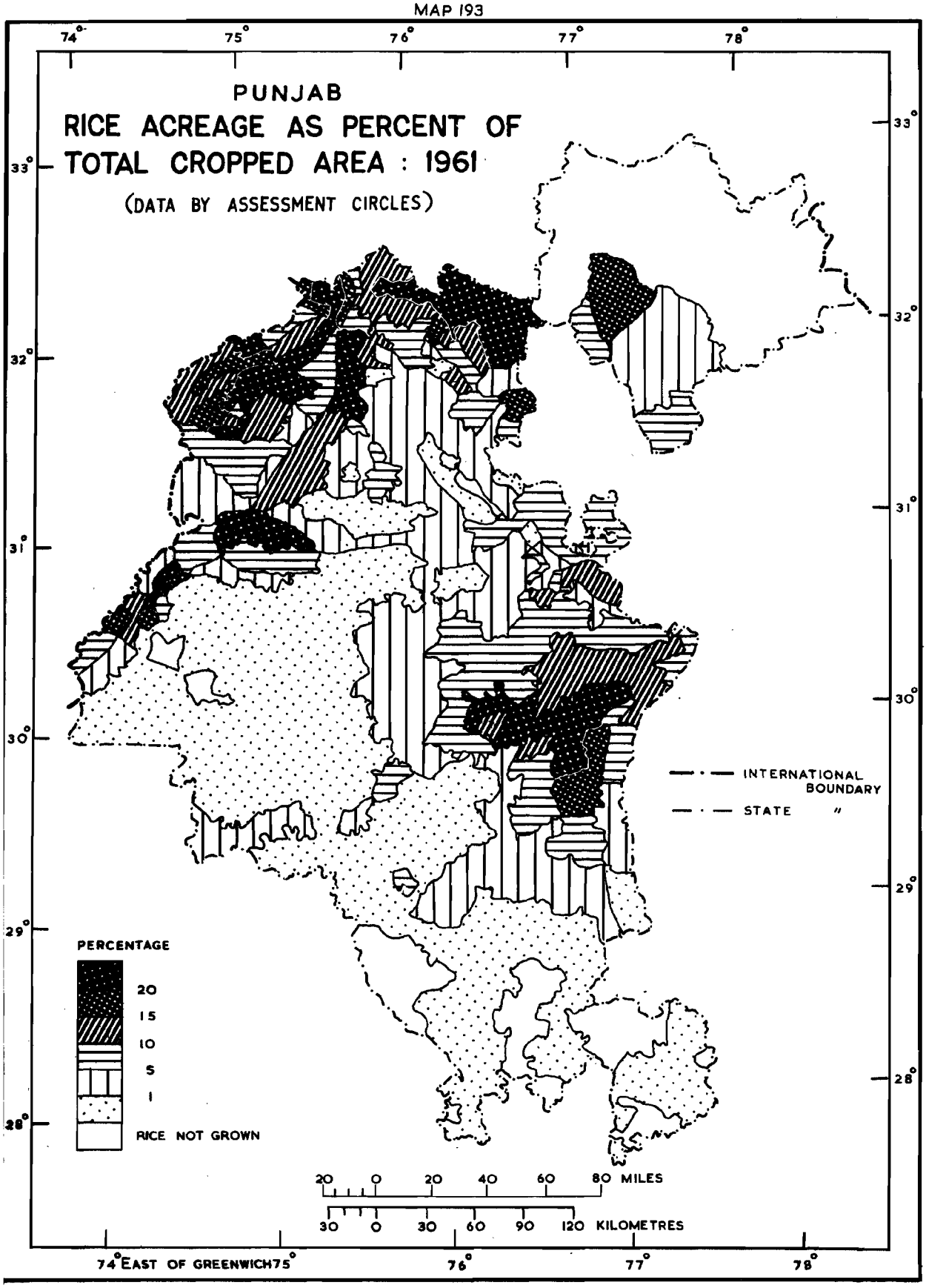
MAP 191


PUNJAB
PER ACRE YIELD OF WHEAT
1960-61
(DATA BY DISTRICTS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE //
DISTRICT //
TAHSIL //
LBS. PER ACRE
1,250
1,100
950
800
AREA WITHOUT WHEAT
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

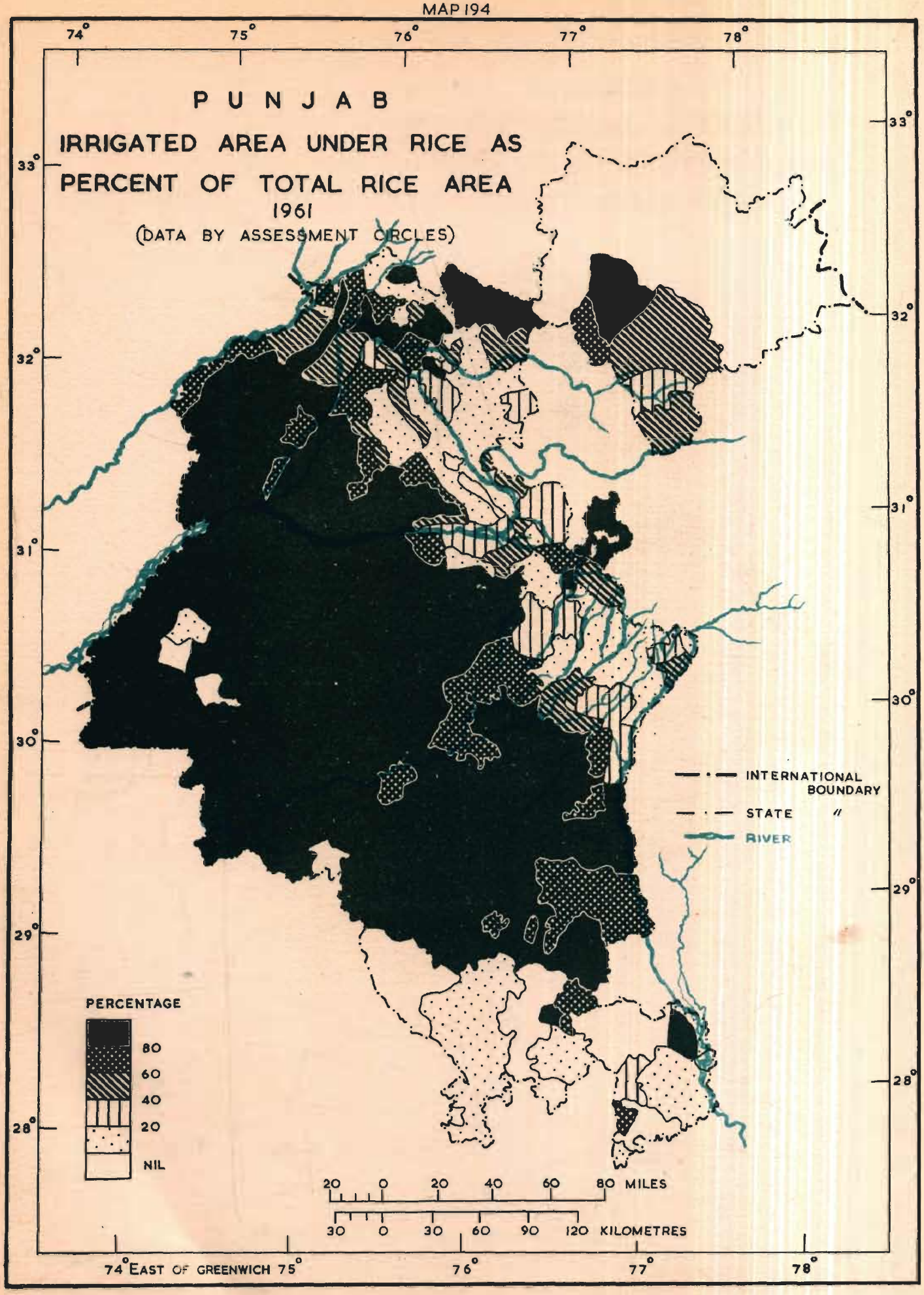
MAP 192


PUNJAB
DISTRIBUTION OF RICE ACREAGE : 1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
ONE DOT : 1000 ACRES
SOURCE OF DATA : REVENUE RECORDS AT TAHSIL HEADQUARTERS.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

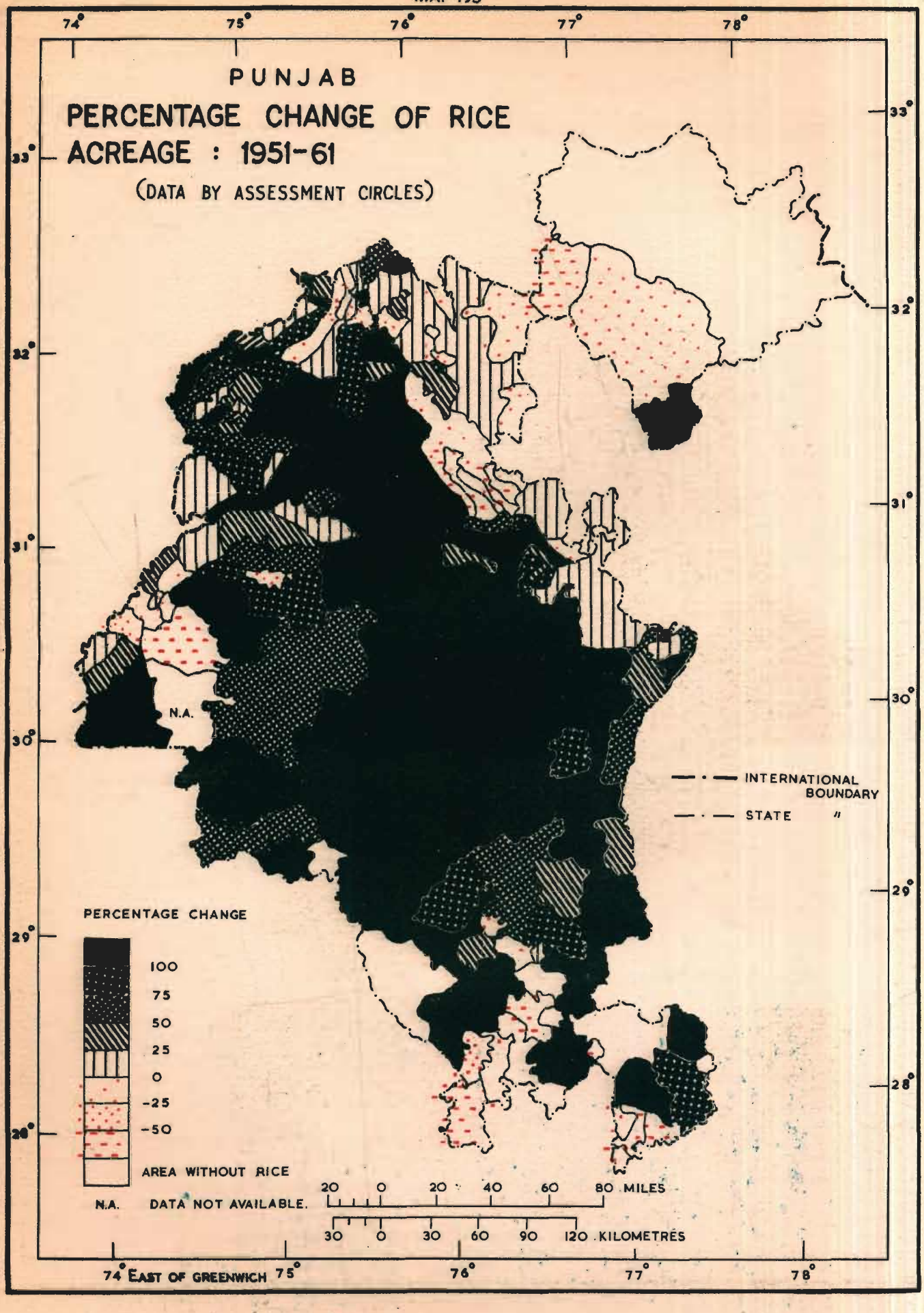
MAP 193


PUNJAB
RICE ACREAGE AS PERCENT OF TOTAL CROPPED AREA : 1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
20
15
10
5
1
RICE NOT GROWN
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

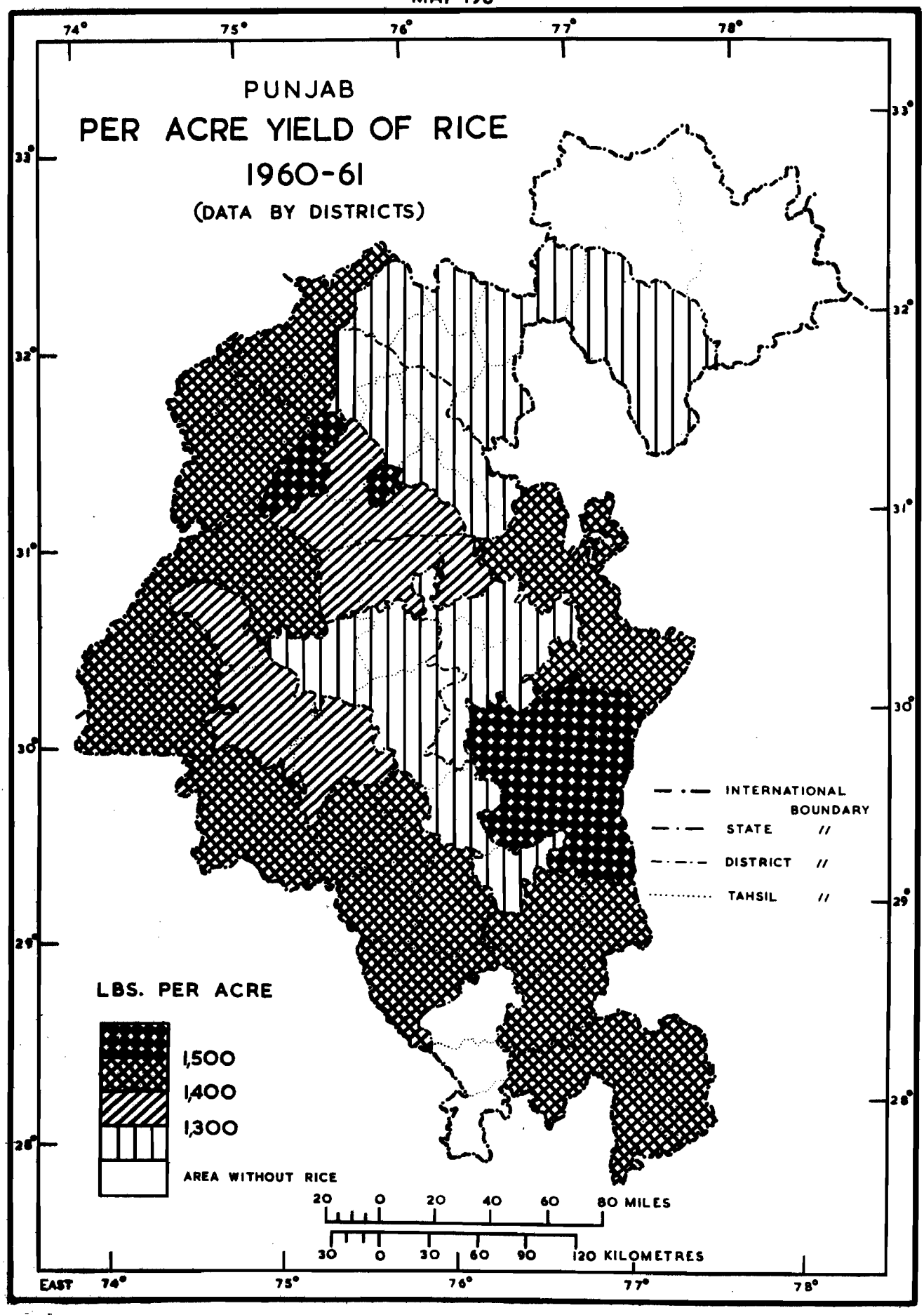
MAP 194


PUNJAB
IRRIGATED AREA UNDER RICE AS PERCENT OF TOTAL RICE AREA
1961
(DATA BY ASSESSMENT CIRCLES)
INTERNATIONAL BOUNDARY
STATE "
RIVER
PERCENTAGE
80
60
40
20
NIL
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

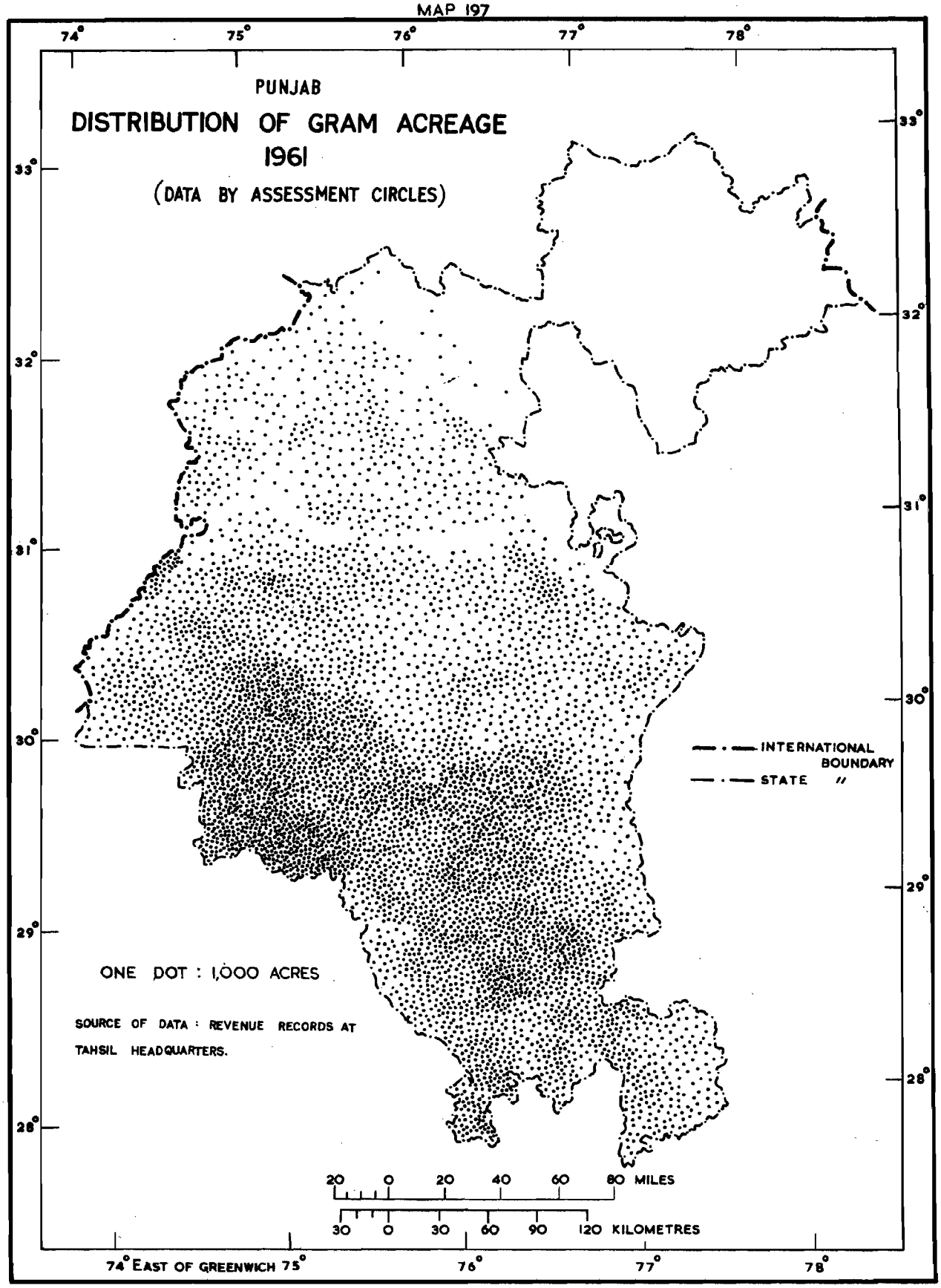
MAP 195


PUNJAB
PERCENTAGE CHANGE OF RICE ACREAGE : 1951-61
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
N.A.
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE CHANGE
100
75
50
25
0
-25
-50
AREA WITHOUT RICE
N.A. DATA NOT AVAILABLE.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

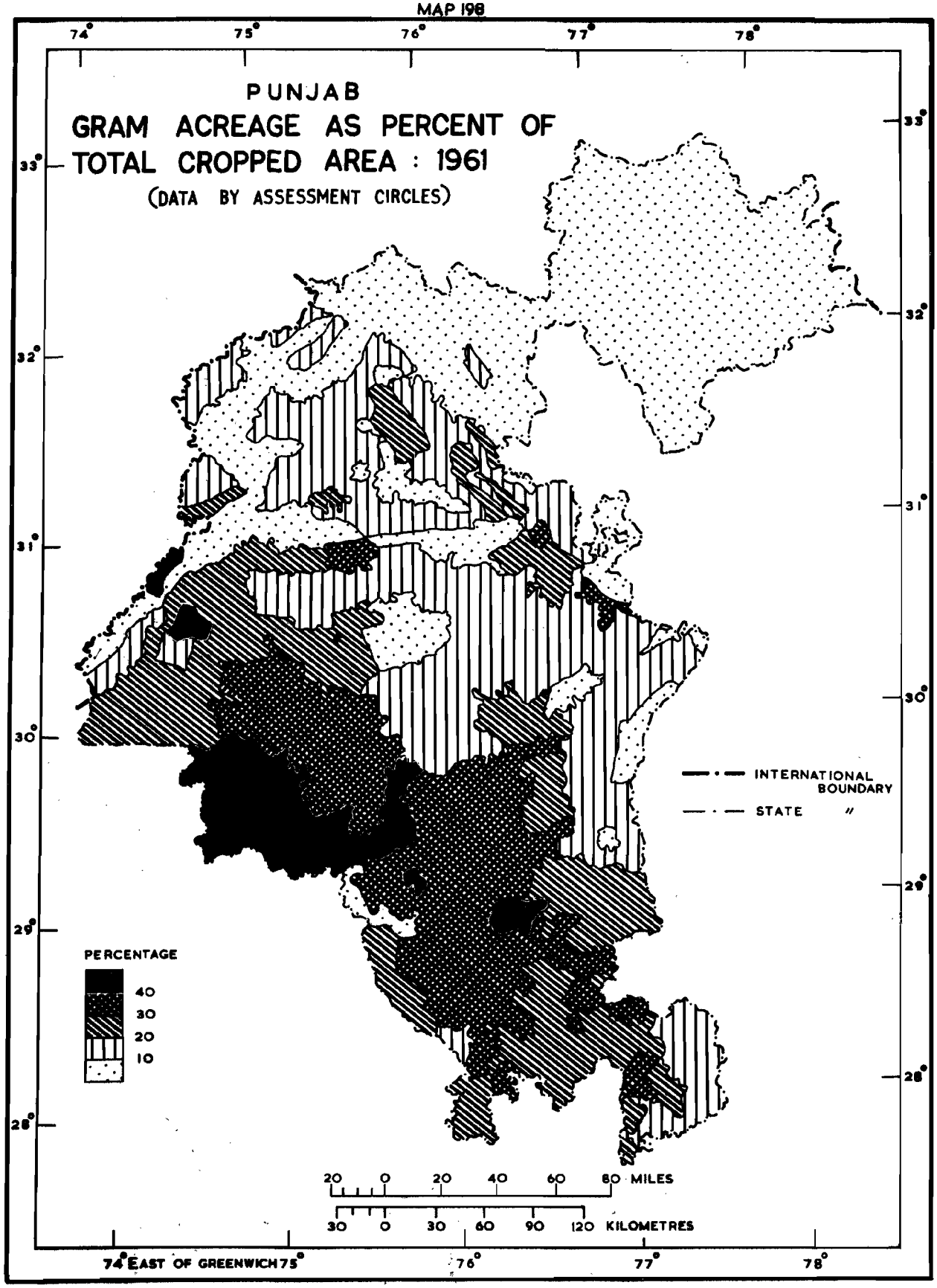
MAP 196


PUNJAB
PER ACRE YIELD OF RICE
1960-61
(DATA BY DISTRICTS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE //
DISTRICT //
TAHSIL //
LBS. PER ACRE
1,500
1,400
1,300
AREA WITHOUT RICE
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

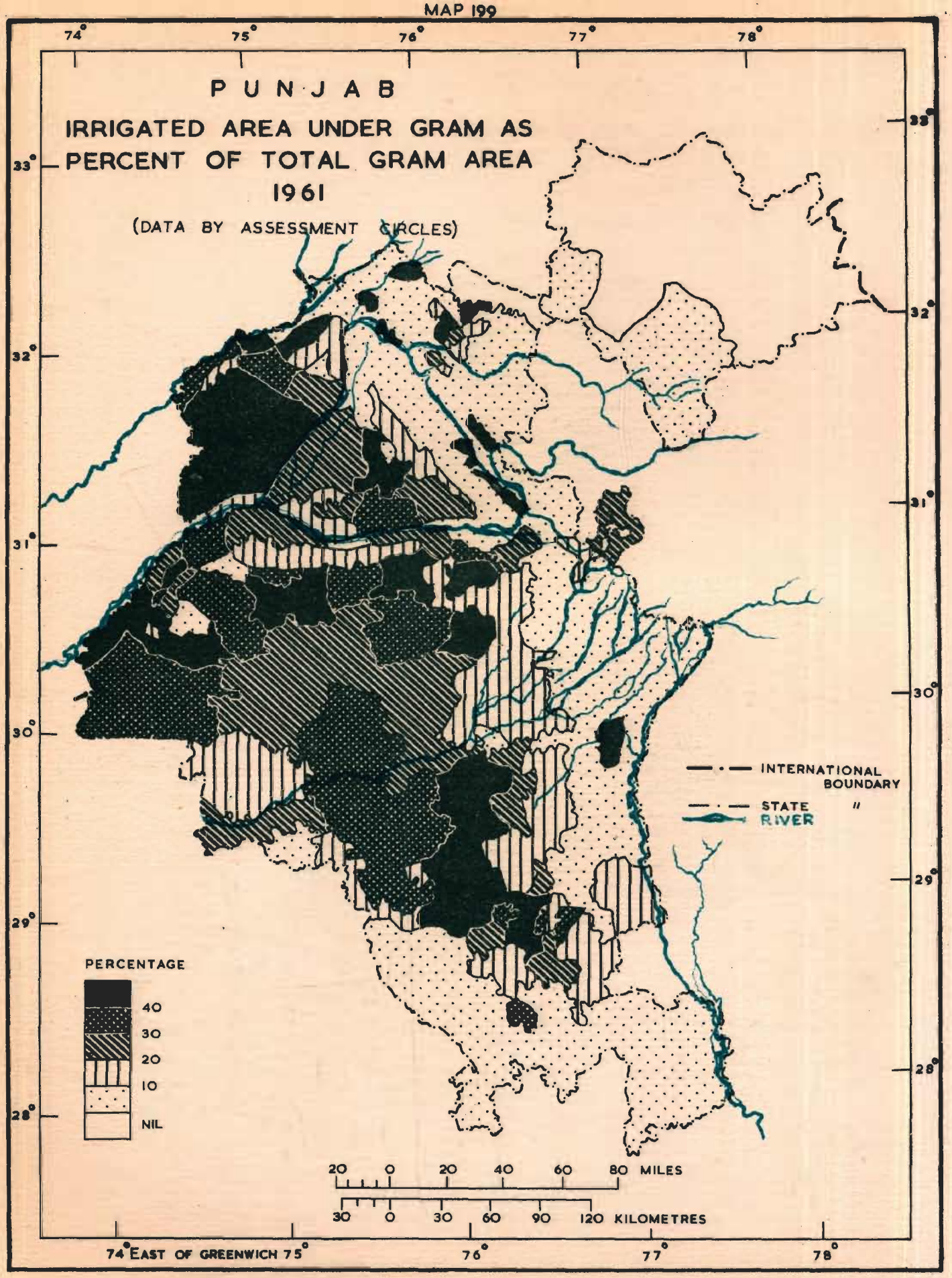
MAP 197


PUNJAB
DISTRIBUTION OF GRAM ACREAGE
1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
ONE DOT : 1,000 ACRES
SOURCE OF DATA : REVENUE RECORDS AT TAHSIL HEADQUARTERS.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75°

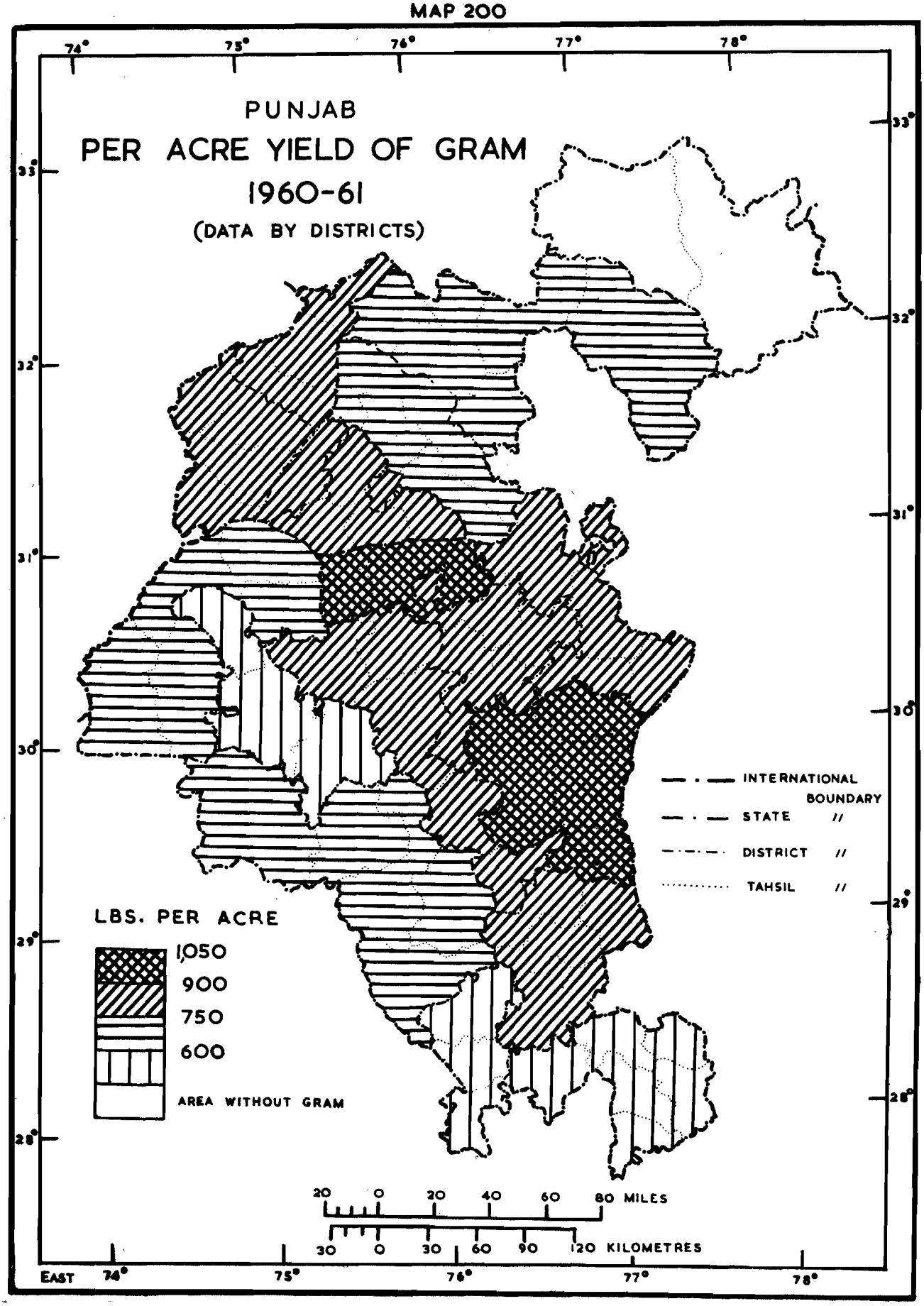
MAP 198


PUNJAB
GRAM ACREAGE AS PERCENT OF TOTAL CROPPED AREA : 1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE //
PERCENTAGE
40
30
20
10
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

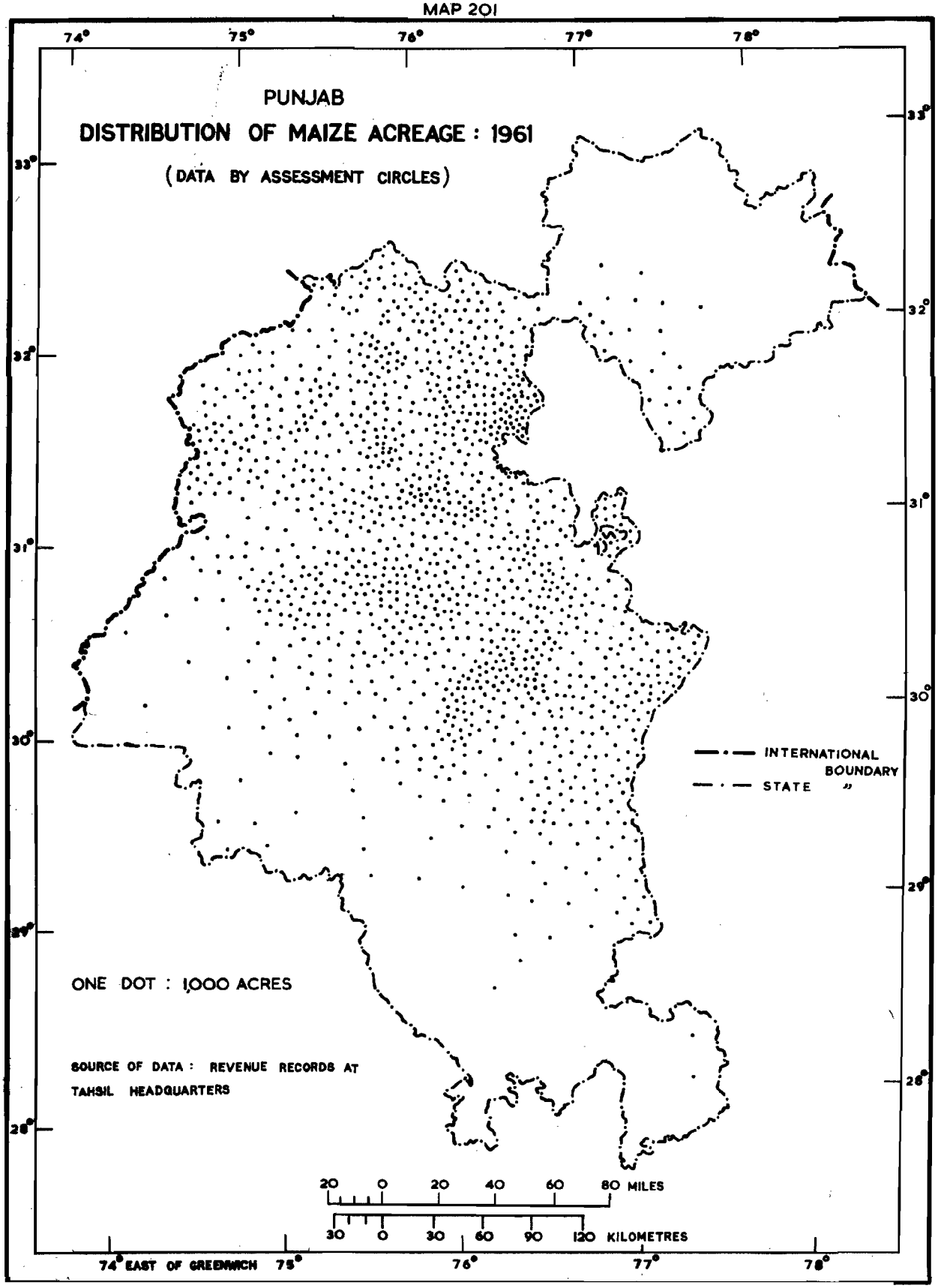
MAP 199


PUNJAB
IRRIGATED AREA UNDER GRAM AS PERCENT OF TOTAL GRAM AREA 1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
RIVER
PERCENTAGE
40
30
20
10
NIL
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75°
76°
77°
78°

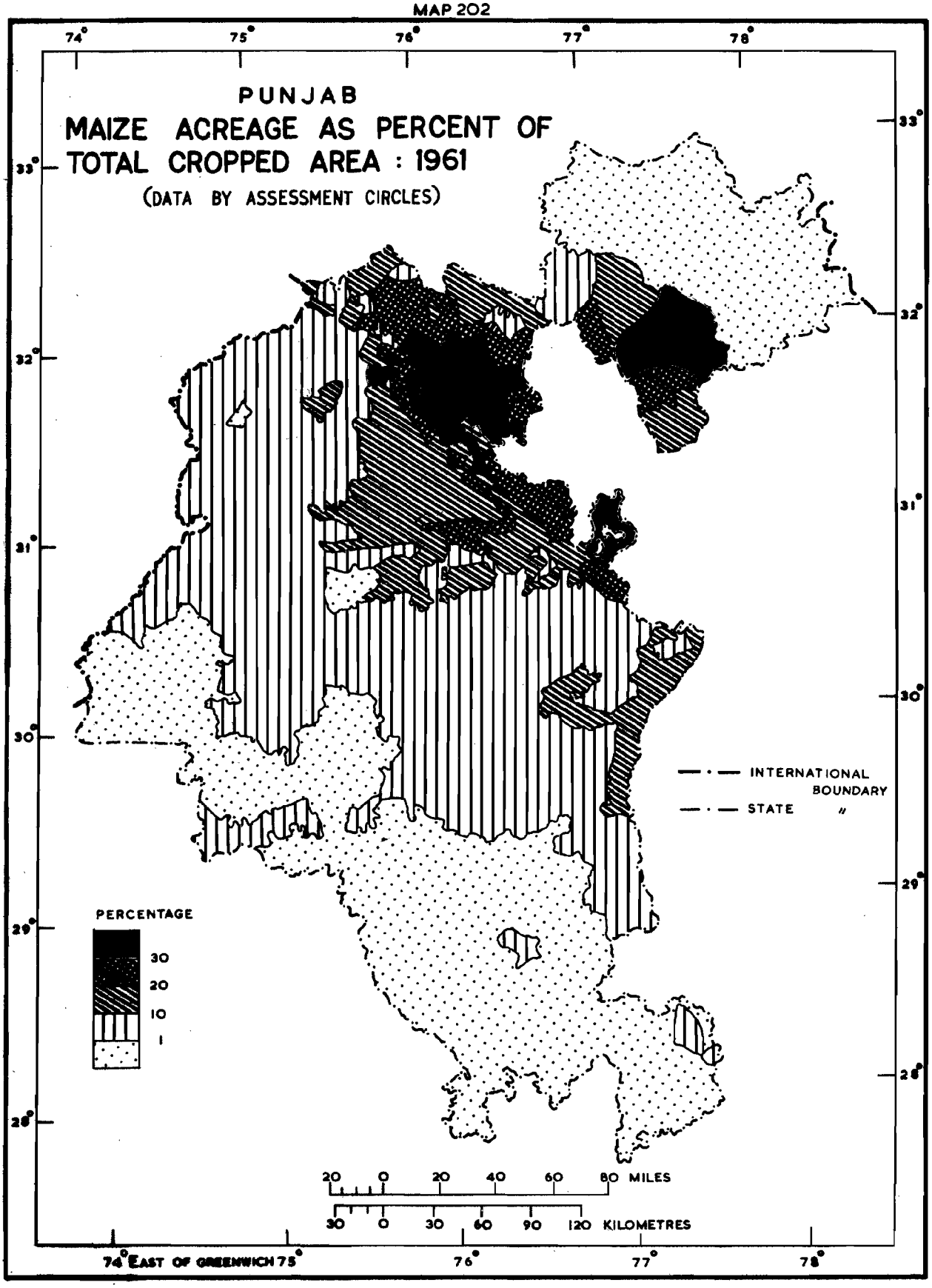
MAP 200


PUNJAB
PER ACRE YIELD OF GRAM
1960-61
(DATA BY DISTRICTS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE //
DISTRICT //
TAHSIL //
LBS. PER ACRE
1,050
900
750
600
AREA WITHOUT GRAM
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

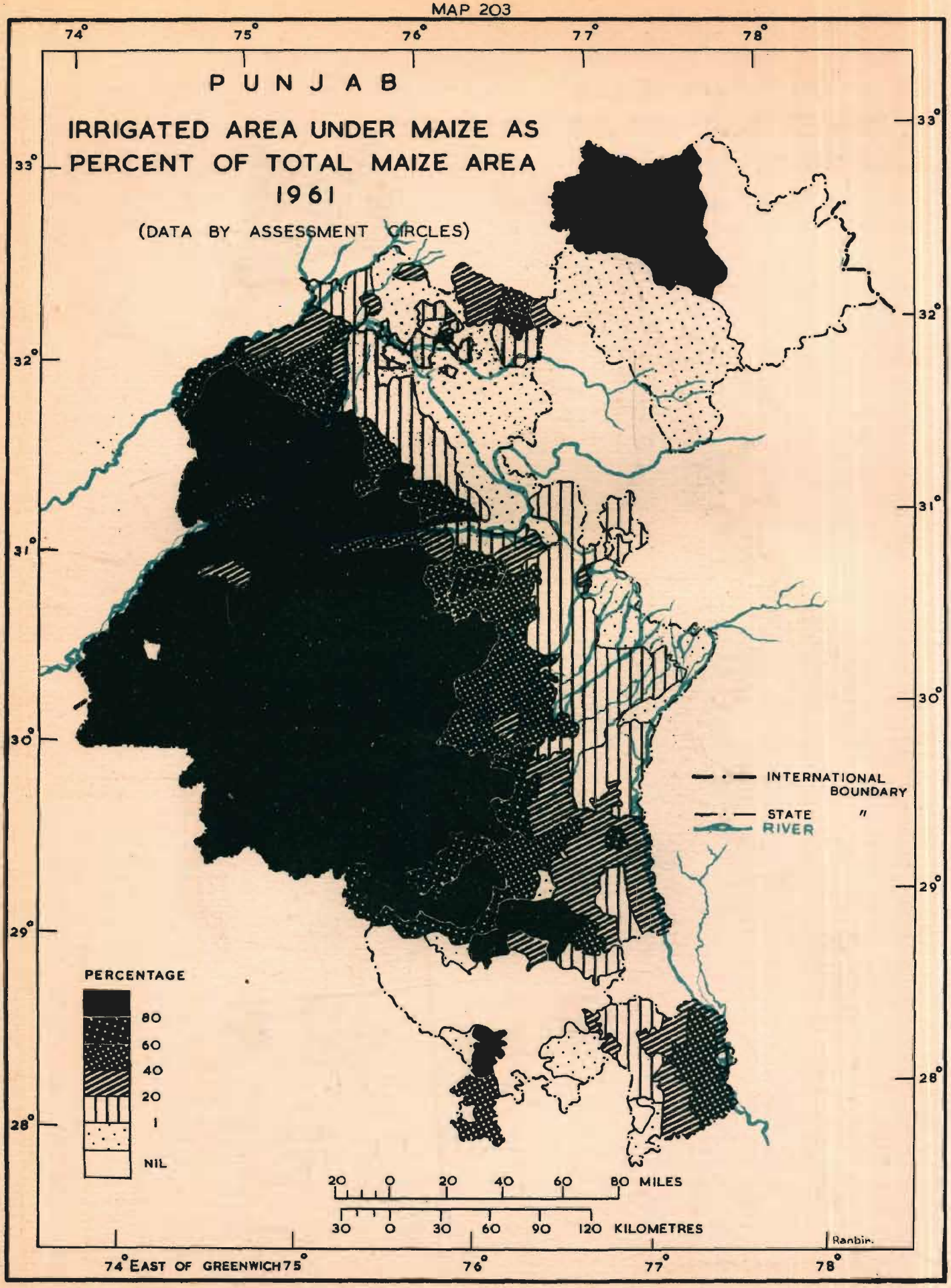
MAP 201


PUNJAB
DISTRIBUTION OF MAIZE ACREAGE : 1961
(DATA BY ASSESSMENT CIRCLES)
INTERNATIONAL BOUNDARY
STATE "
ONE DOT : 1,000 ACRES
SOURCE OF DATA : REVENUE RECORDS AT TAHSIL HEADQUARTERS
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
74° 75° 76° 77° 78°
33° 32° 31° 30° 29° 28°

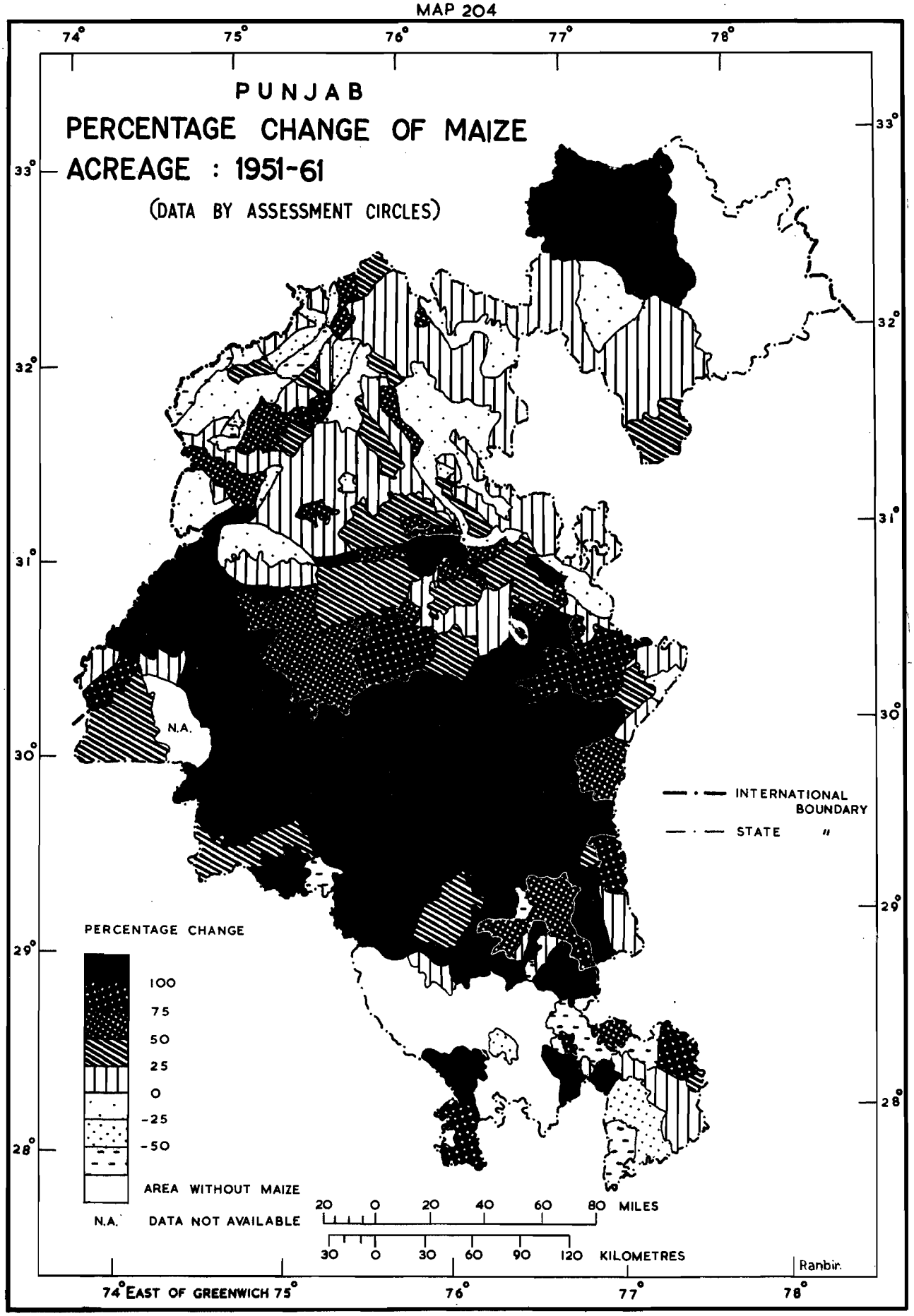
MAP 202


PUNJAB
MAIZE ACREAGE AS PERCENT OF TOTAL CROPPED AREA : 1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
30
20
10
1
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75° 76° 77° 78°

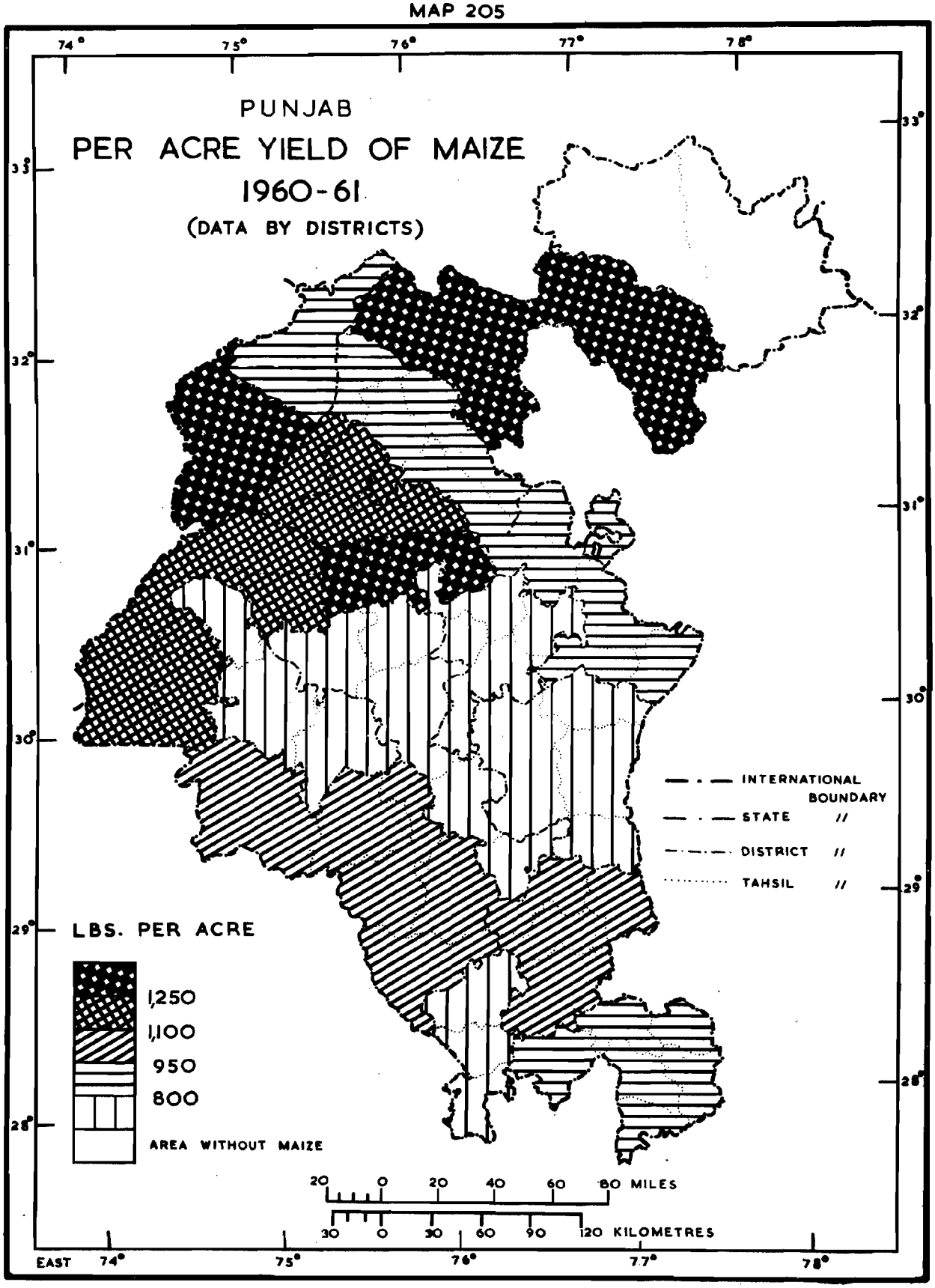
MAP 203


PUNJAB
IRRIGATED AREA UNDER MAIZE AS PERCENT OF TOTAL MAIZE AREA 1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
RIVER
PERCENTAGE
80
60
40
20
1
NIL
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
Ranbir.
74° EAST OF GREENWICH

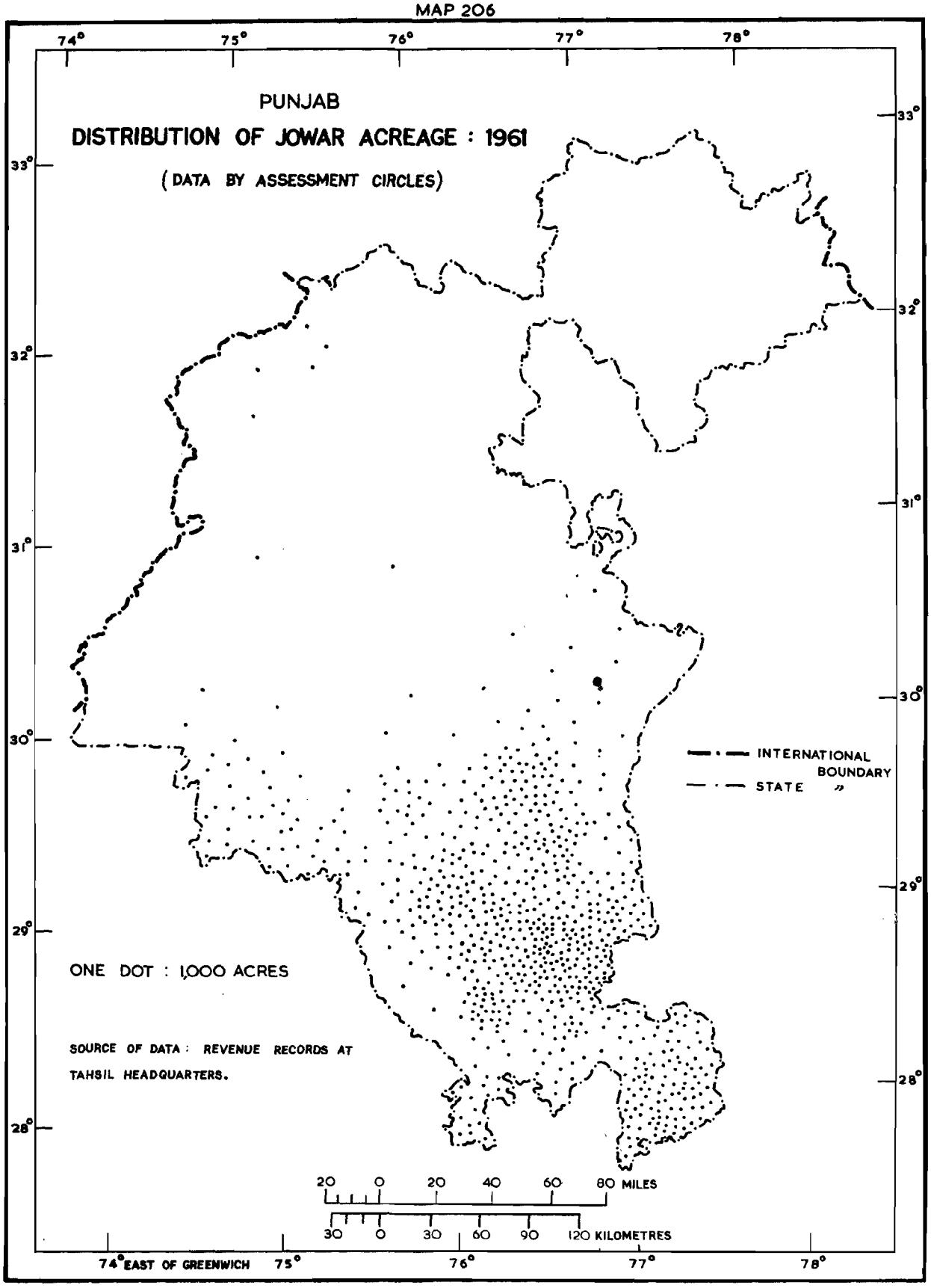
MAP 204


PUNJAB
PERCENTAGE CHANGE OF MAIZE ACREAGE : 1951-61
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
N.A.
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE CHANGE
100
75
50
25
0
-25
-50
AREA WITHOUT MAIZE
N.A. DATA NOT AVAILABLE
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
Ranbir.
74° EAST OF GREENWICH 75°
76°
77°
78°

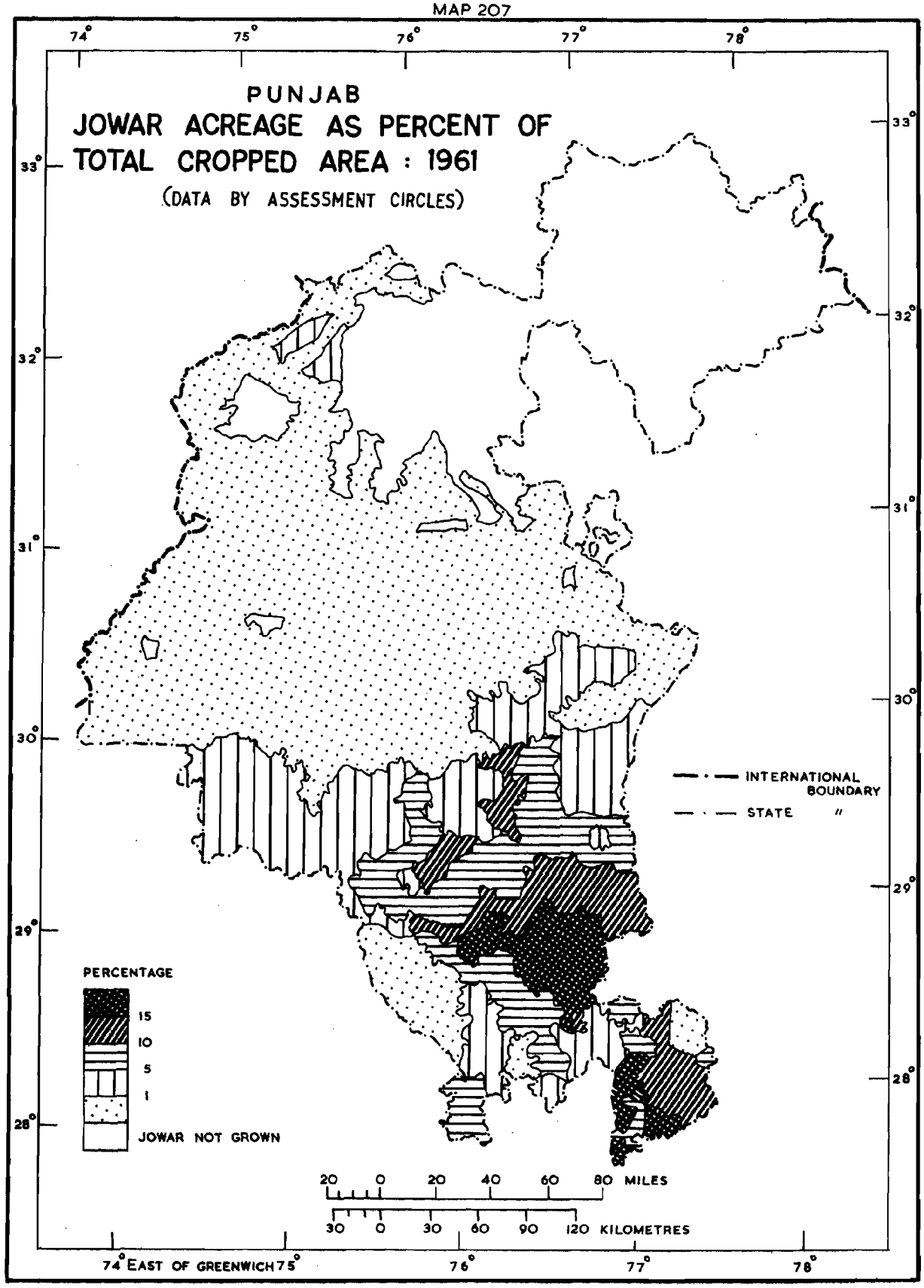
MAP 205


PUNJAB
PER ACRE YIELD OF MAIZE
1960-61
(DATA BY DISTRICTS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE //
DISTRICT //
TAHSIL //
LBS. PER ACRE
1,250
1,100
950
800
AREA WITHOUT MAIZE
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

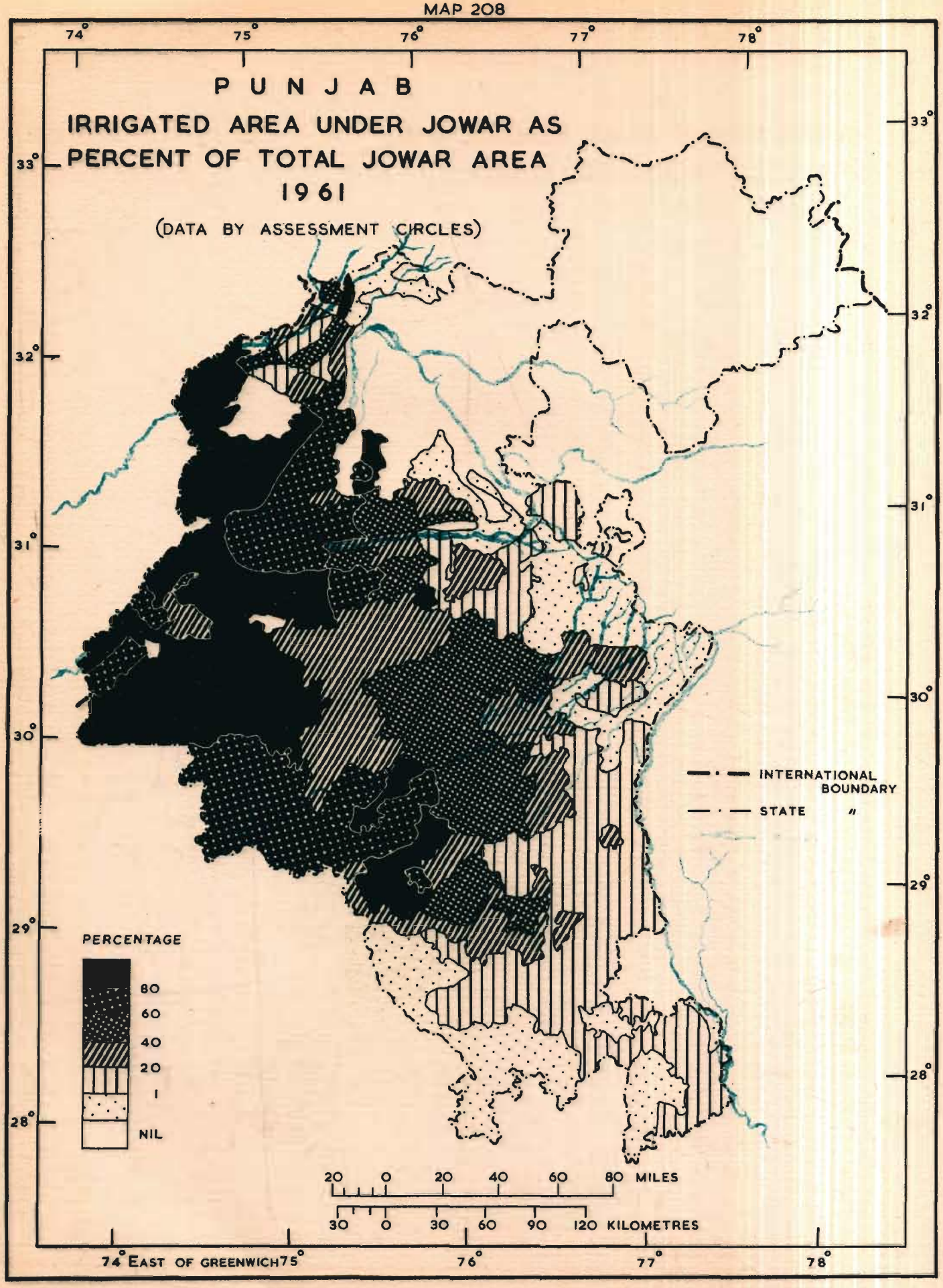
MAP 206


PUNJAB
DISTRIBUTION OF JOWAR ACREAGE : 1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
ONE DOT : 1,000 ACRES
SOURCE OF DATA : REVENUE RECORDS AT TAHSIL HEADQUARTERS.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

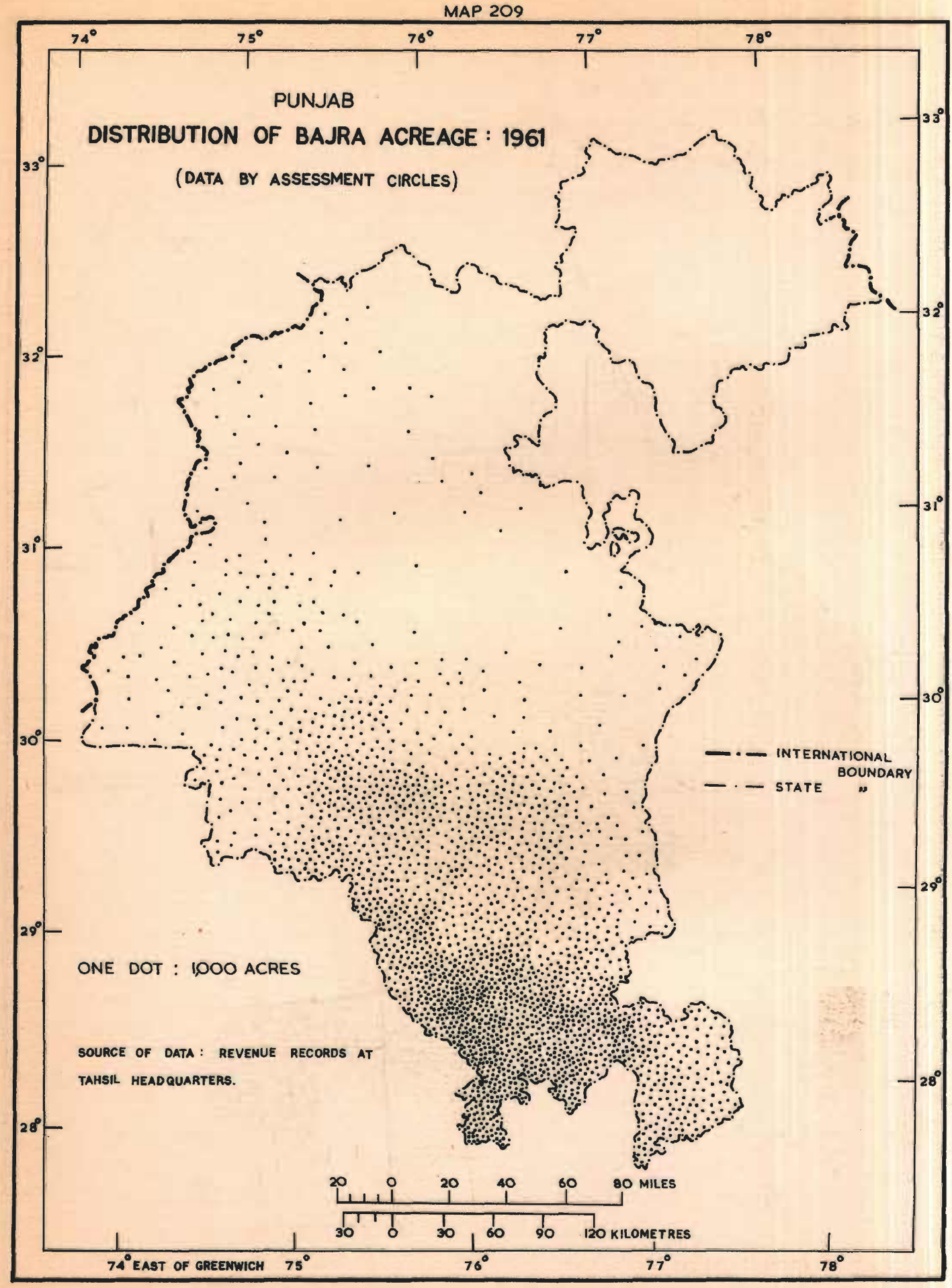
MAP 207


PUNJAB
JOWAR ACREAGE AS PERCENT OF TOTAL CROPPED AREA : 1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
15
10
5
1
JOWAR NOT GROWN
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75°

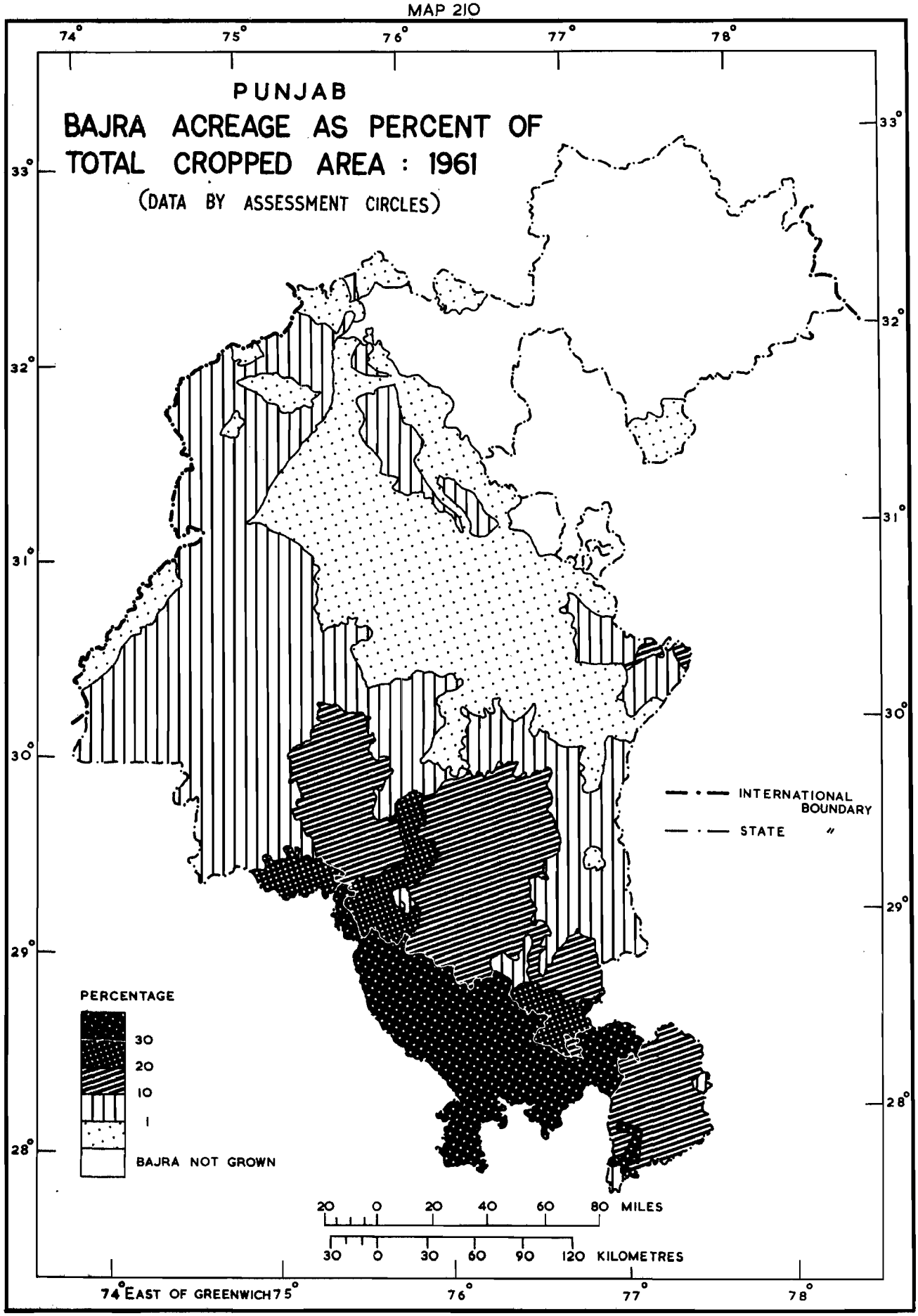
MAP 208


PUNJAB
IRRIGATED AREA UNDER JOWAR AS PERCENT OF TOTAL JOWAR AREA
1961
(DATA BY ASSESSMENT CIRCLES)
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
80
60
40
20
1
NIL
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

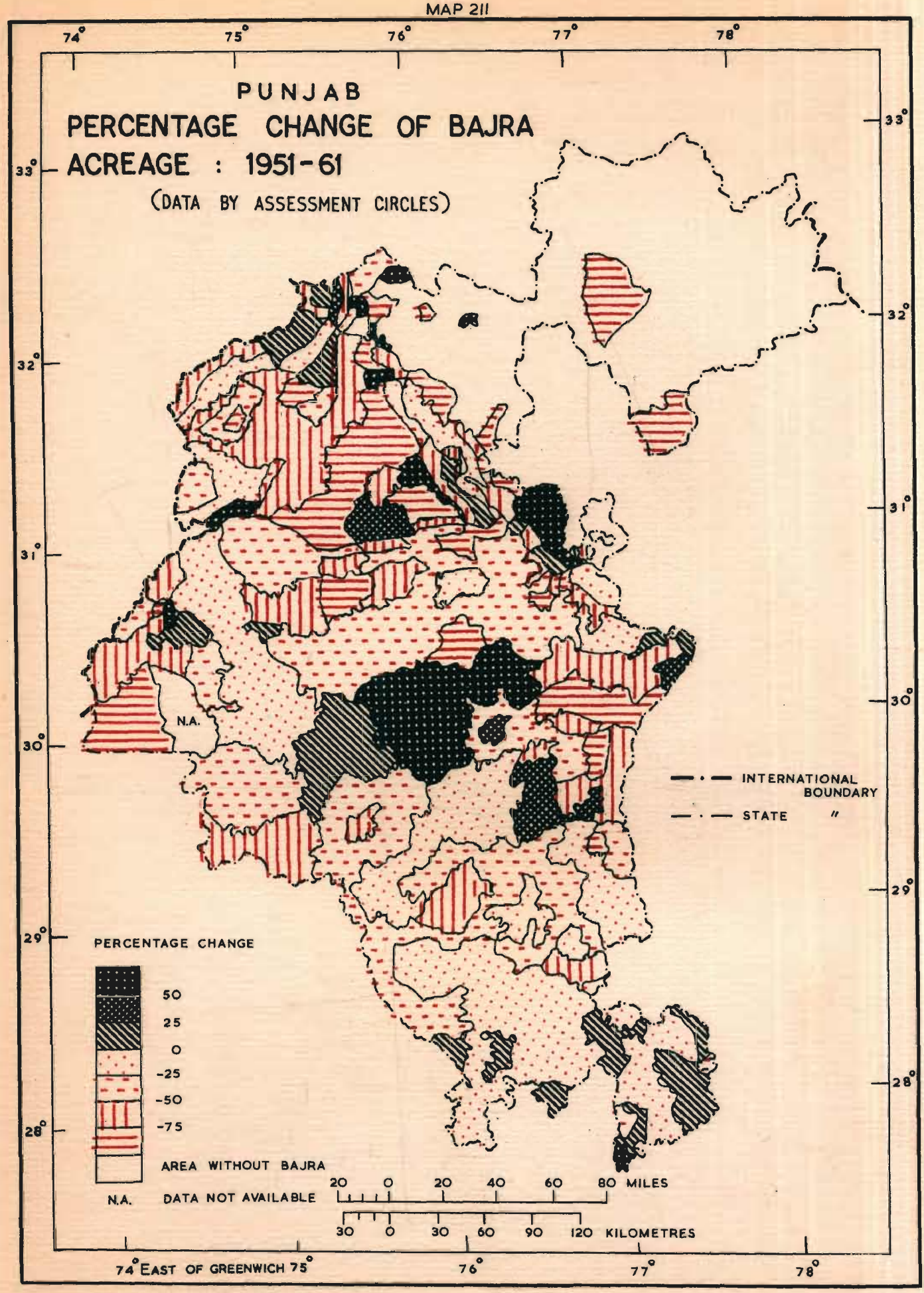
MAP 209


PUNJAB
DISTRIBUTION OF BAJRA ACREAGE : 1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
ONE DOT : 1,000 ACRES
SOURCE OF DATA : REVENUE RECORDS AT TAHSIL HEADQUARTERS.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

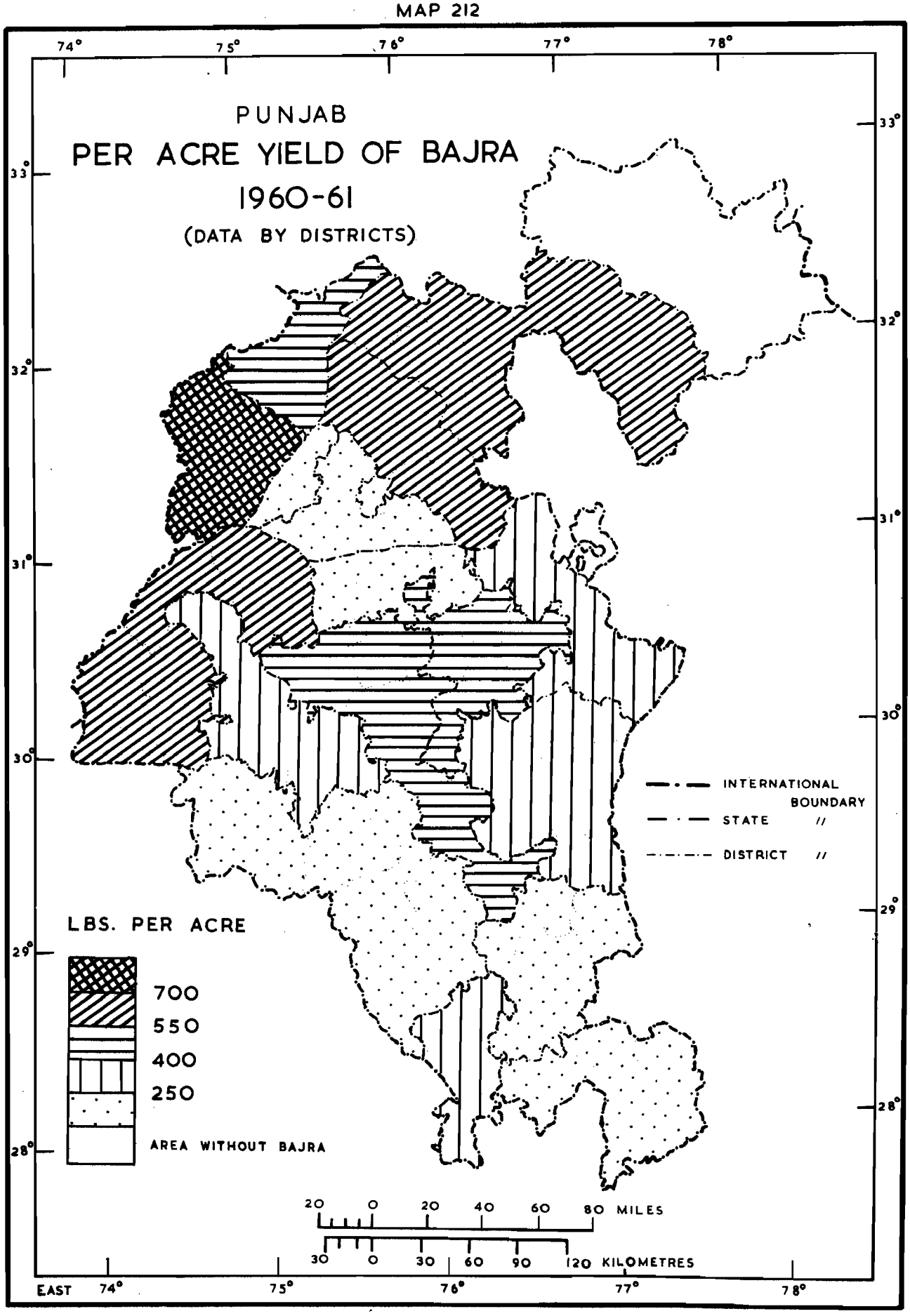
MAP 210


PUNJAB
BAJRA ACREAGE AS PERCENT OF TOTAL CROPPED AREA : 1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
30
20
10
1
BAJRA NOT GROWN
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75° 76° 77° 78°

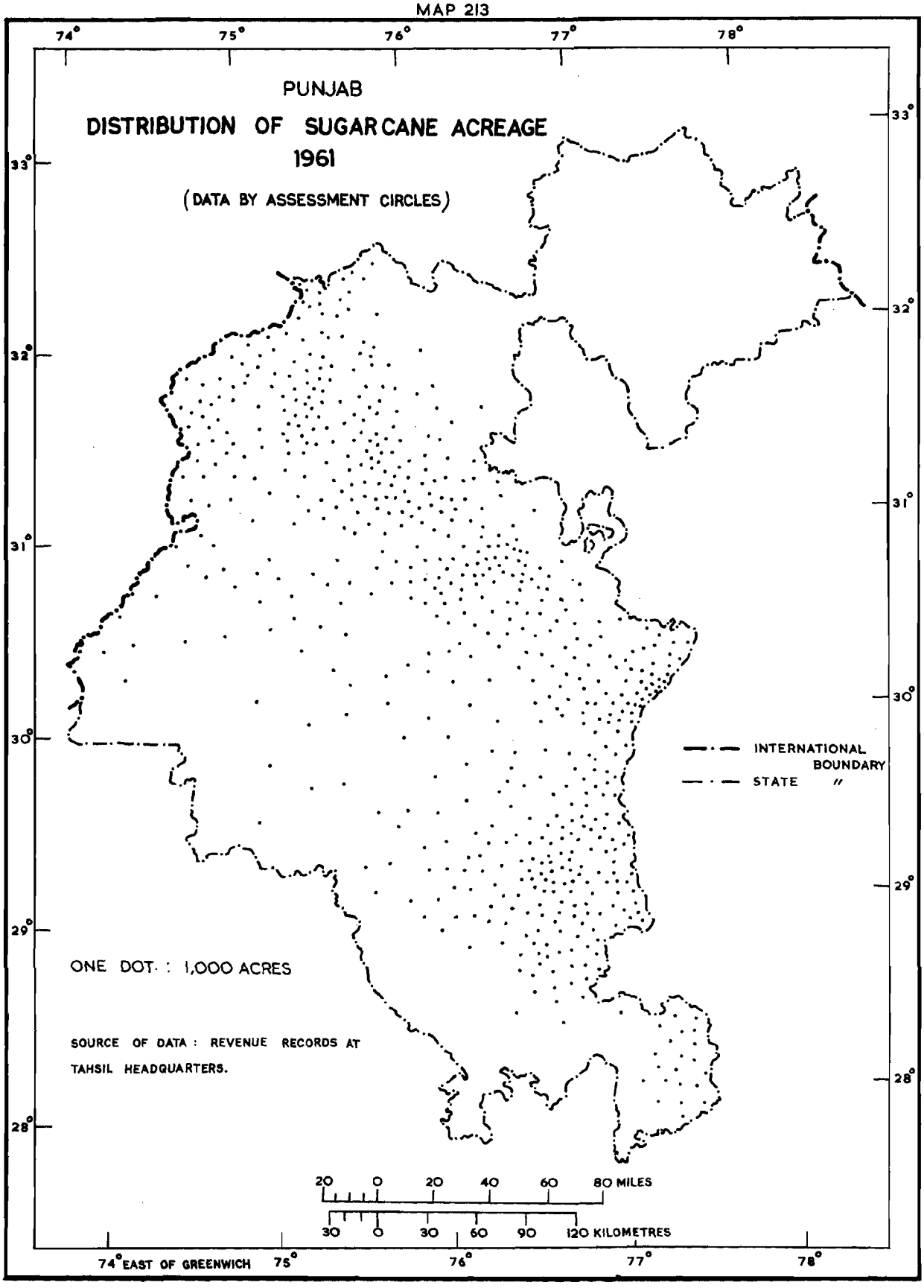
MAP 211


PUNJAB
PERCENTAGE CHANGE OF BAJRA ACREAGE : 1951-61
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
N.A.
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE CHANGE
50
25
0
-25
-50
-75
AREA WITHOUT BAJRA
N.A. DATA NOT AVAILABLE
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75°

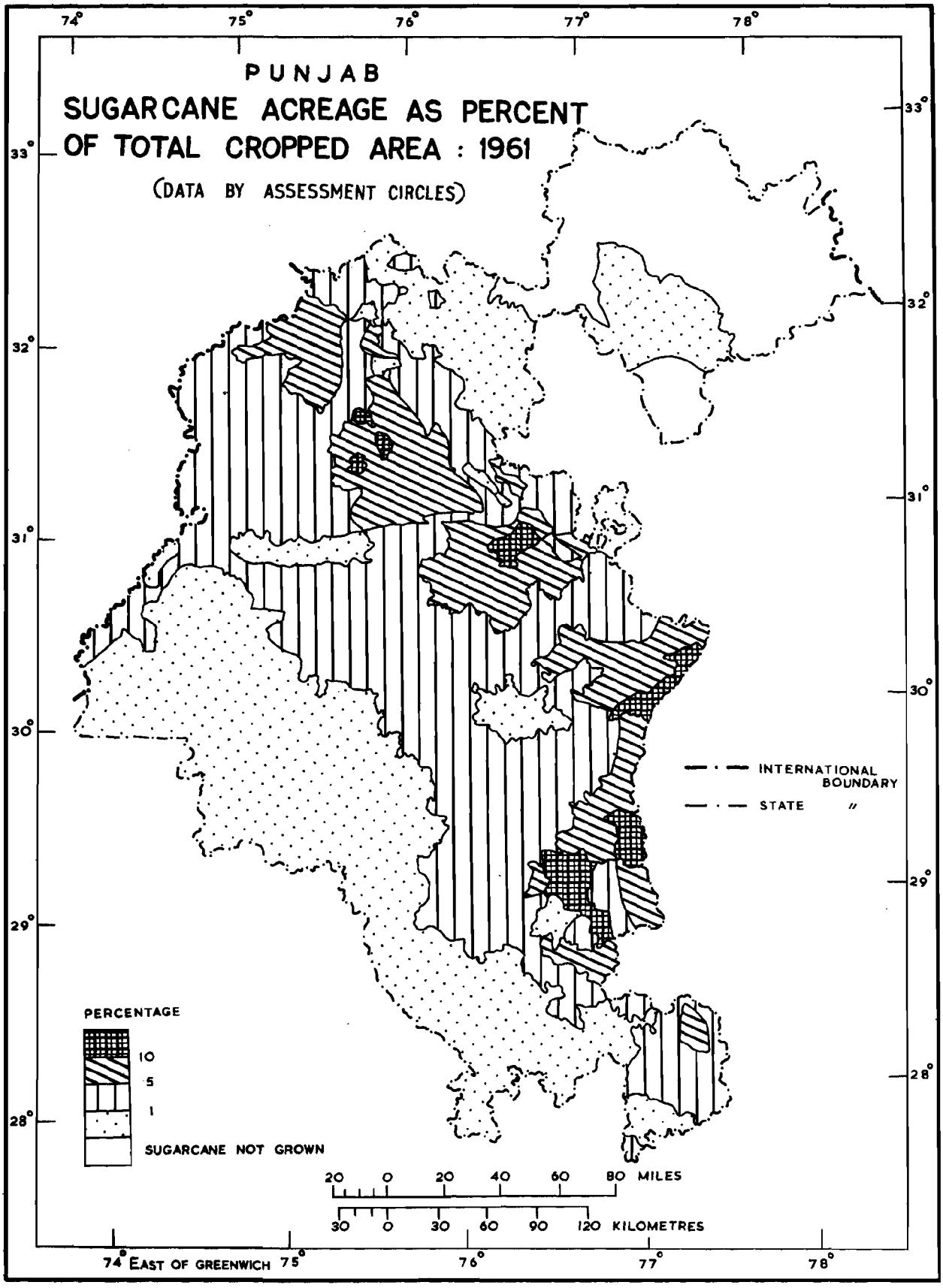
MAP 212


PUNJAB
PER ACRE YIELD OF BAJRA
1960-61
(DATA BY DISTRICTS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE //
DISTRICT //
LBS. PER ACRE
700
550
400
250
AREA WITHOUT BAJRA
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

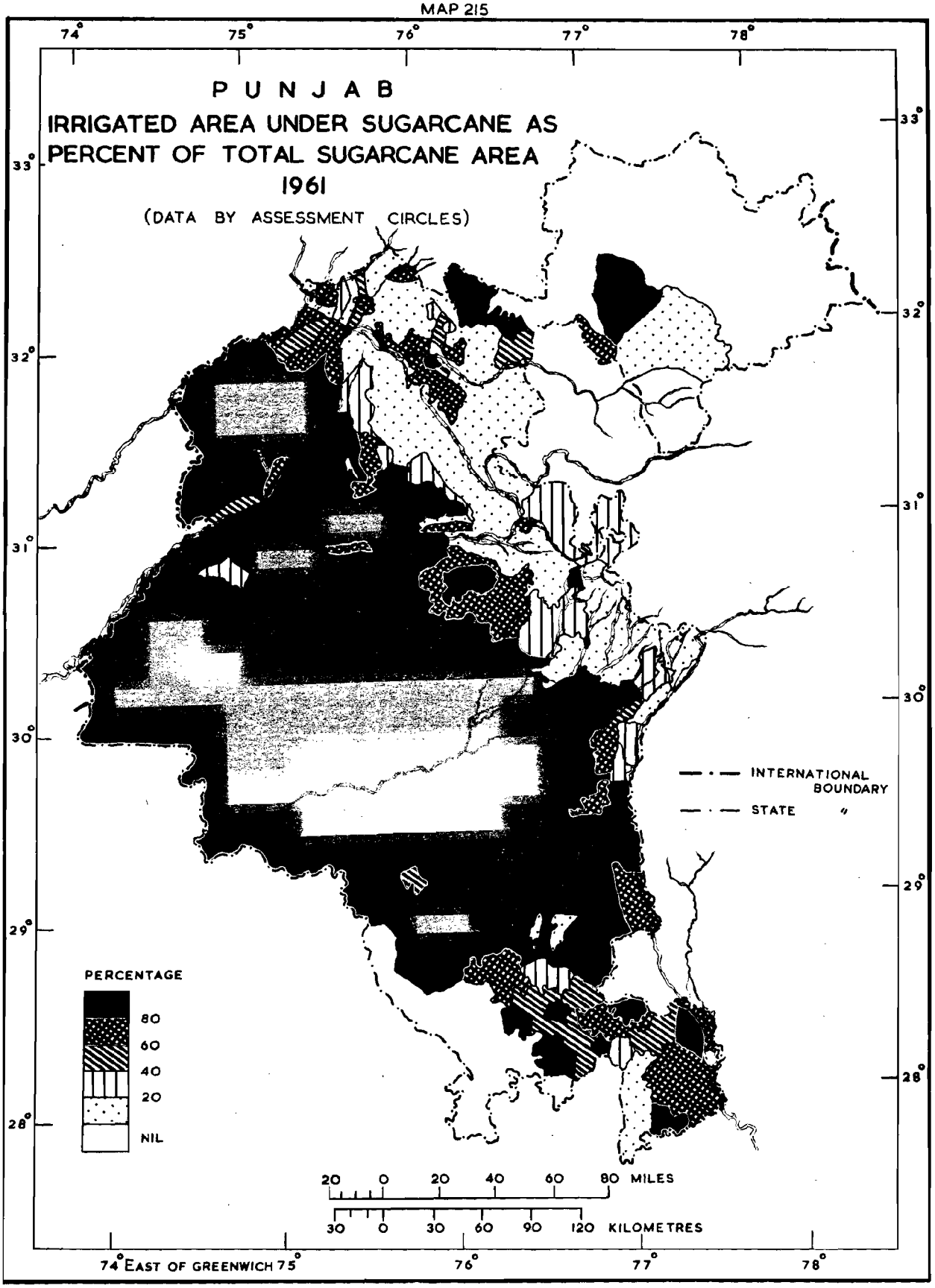
MAP 213


PUNJAB
DISTRIBUTION OF SUGARCANE ACREAGE
1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
ONE DOT : 1,000 ACRES
SOURCE OF DATA : REVENUE RECORDS AT TAHSIL HEADQUARTERS.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

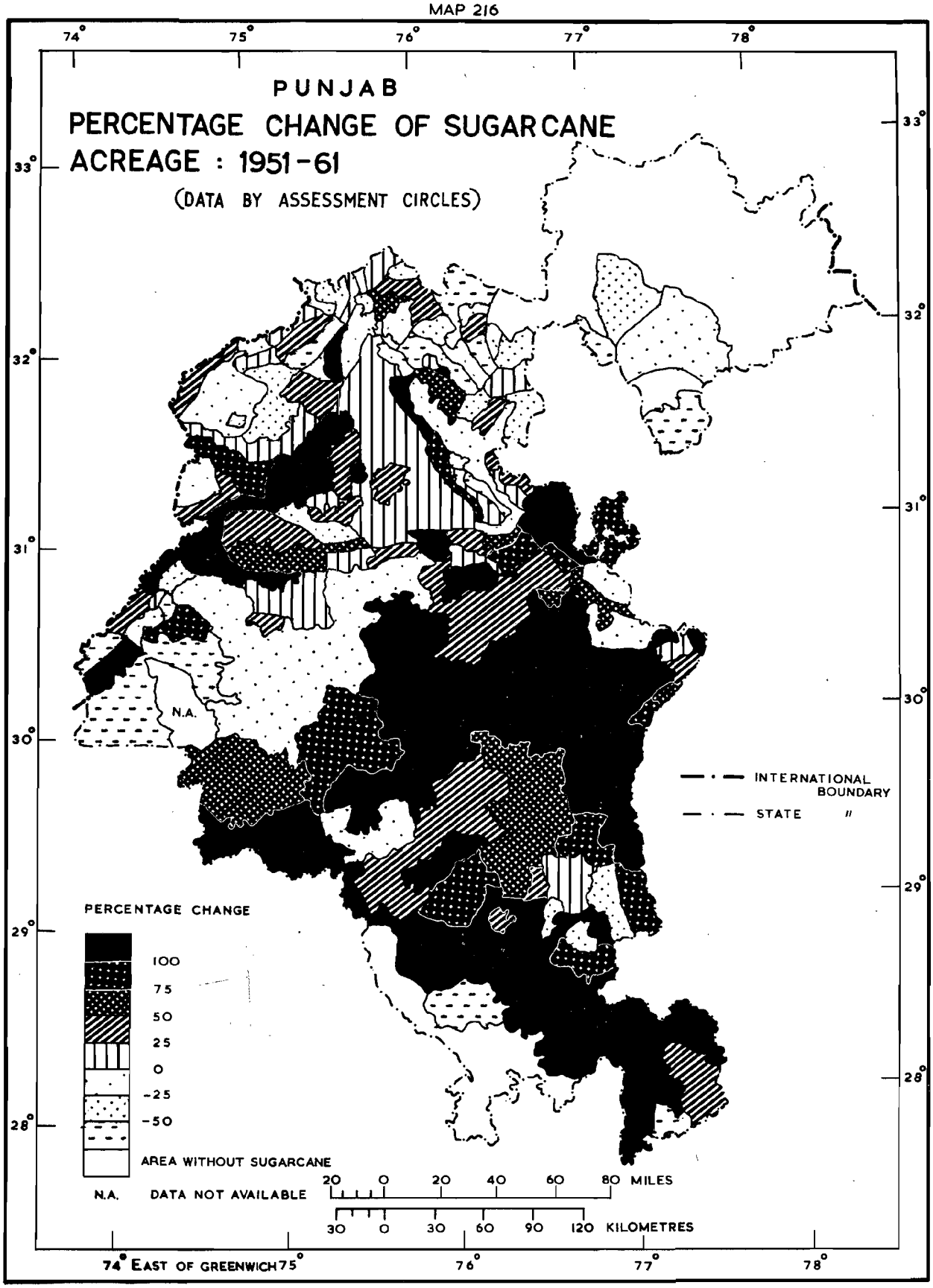
MAP 214


PUNJAB
SUGARCANE ACREAGE AS PERCENT OF TOTAL CROPPED AREA : 1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
10
5
1
SUGARCANE NOT GROWN
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

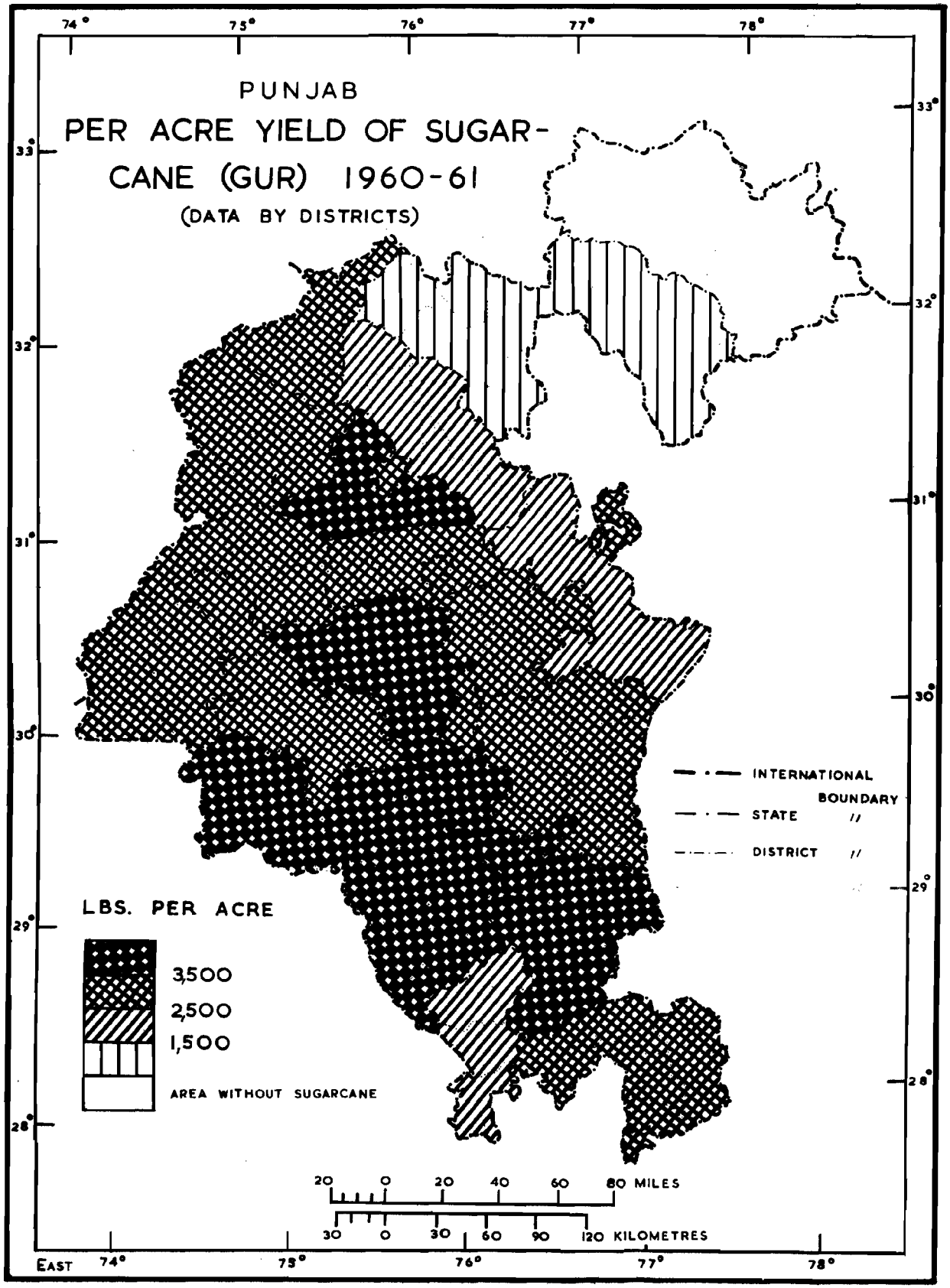
MAP 215


PUNJAB
IRRIGATED AREA UNDER SUGARCANE AS PERCENT OF TOTAL SUGARCANE AREA
1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE
80
60
40
20
NIL
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75°

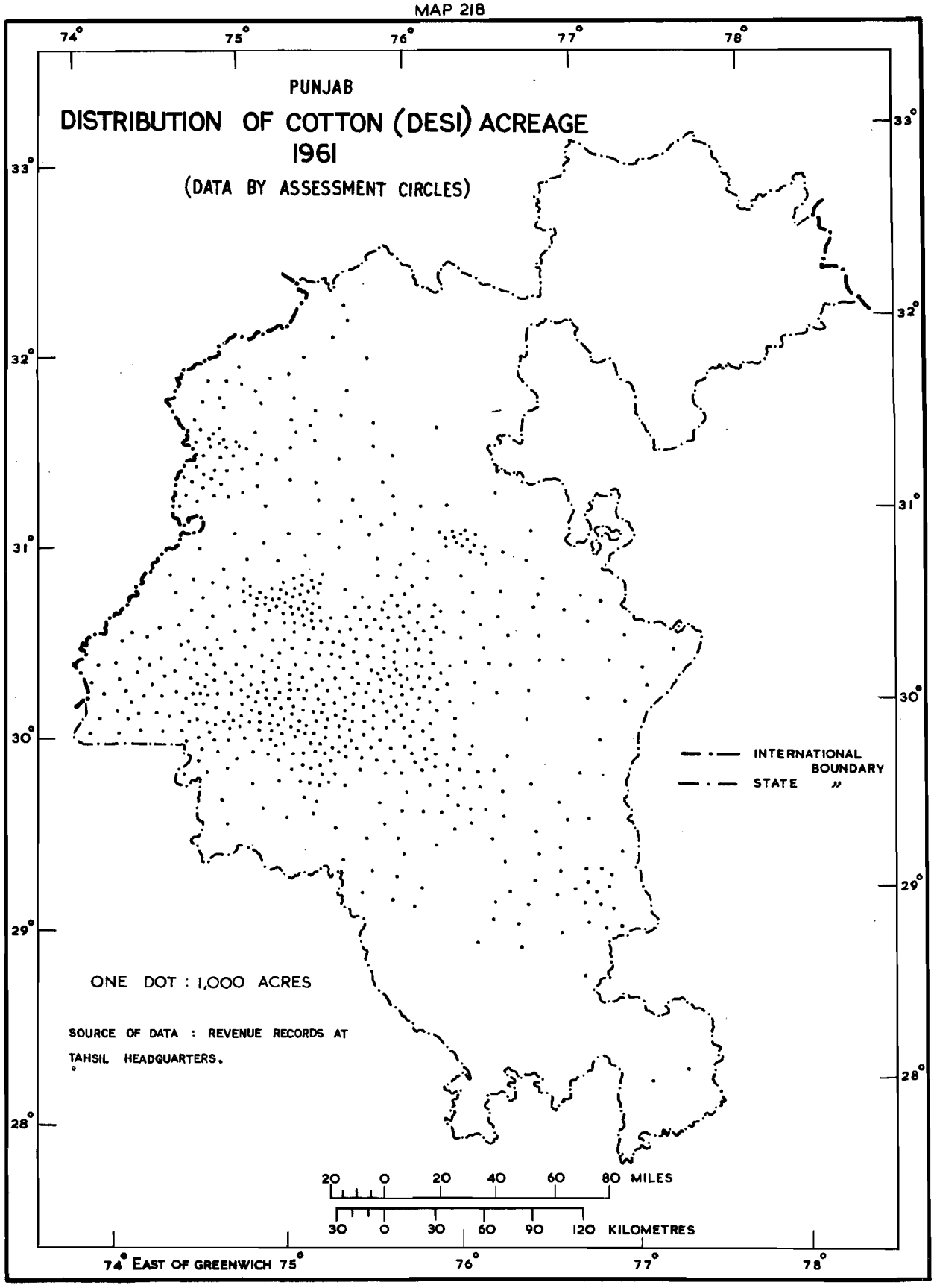
MAP 216


PUNJAB
PERCENTAGE CHANGE OF SUGARCANE ACREAGE : 1951-61
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
N.A.
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE CHANGE
100
75
50
25
0
-25
-50
AREA WITHOUT SUGARCANE
N.A. DATA NOT AVAILABLE
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

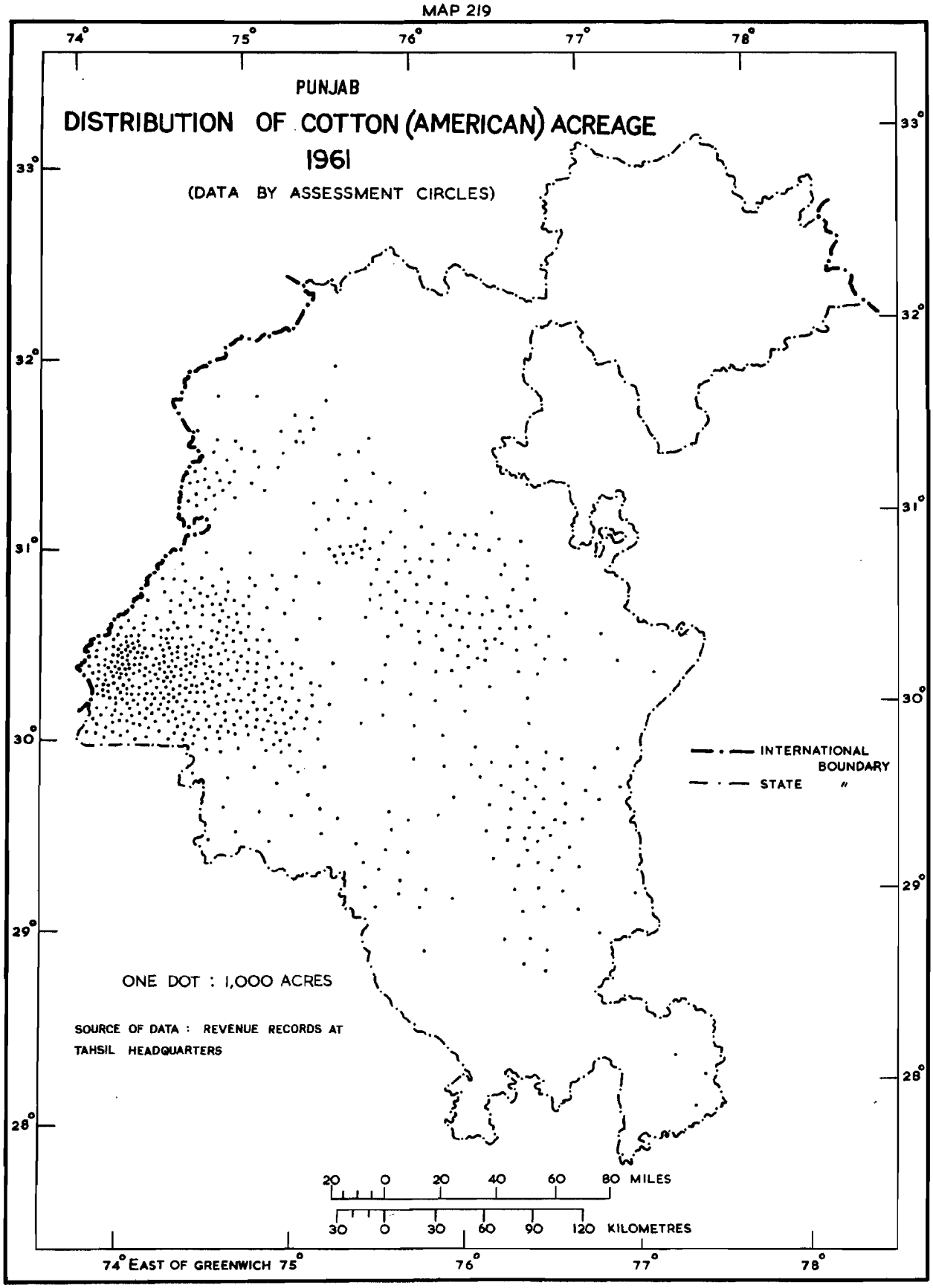
MAP 217


PUNJAB
PER ACRE YIELD OF SUGAR-CANE (GUR) 1960-61
(DATA BY DISTRICTS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE //
DISTRICT //
LBS. PER ACRE
3,500
2,500
1,500
AREA WITHOUT SUGARCANE
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

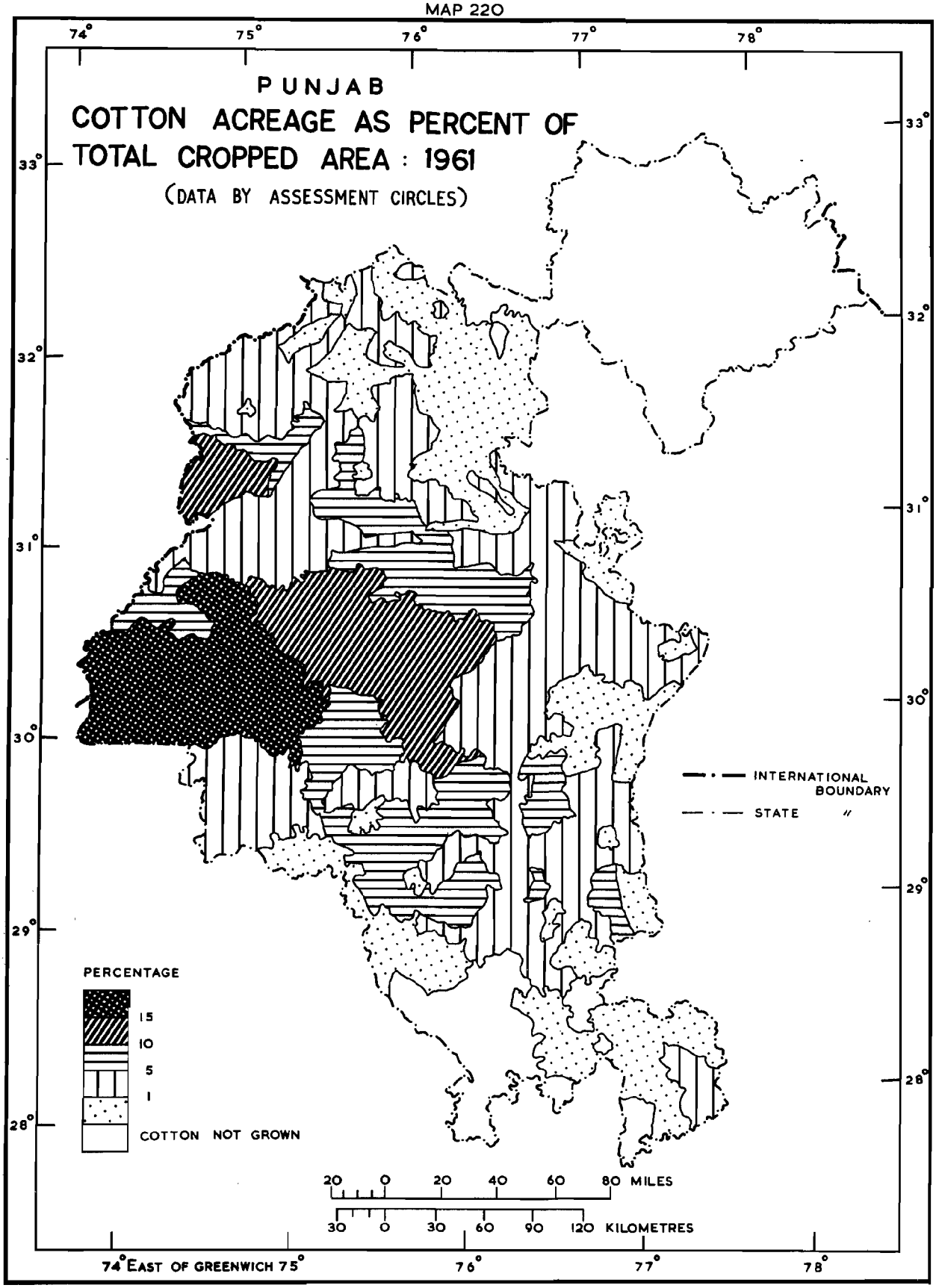
MAP 218


PUNJAB
DISTRIBUTION OF COTTON (DESI) ACREAGE
1961
(DATA BY ASSESSMENT CIRCLES)
INTERNATIONAL BOUNDARY
STATE "
ONE DOT : 1,000 ACRES
SOURCE OF DATA : REVENUE RECORDS AT TAHSIL HEADQUARTERS.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
74° 75° 76° 77° 78°
33° 32° 31° 30° 29° 28°

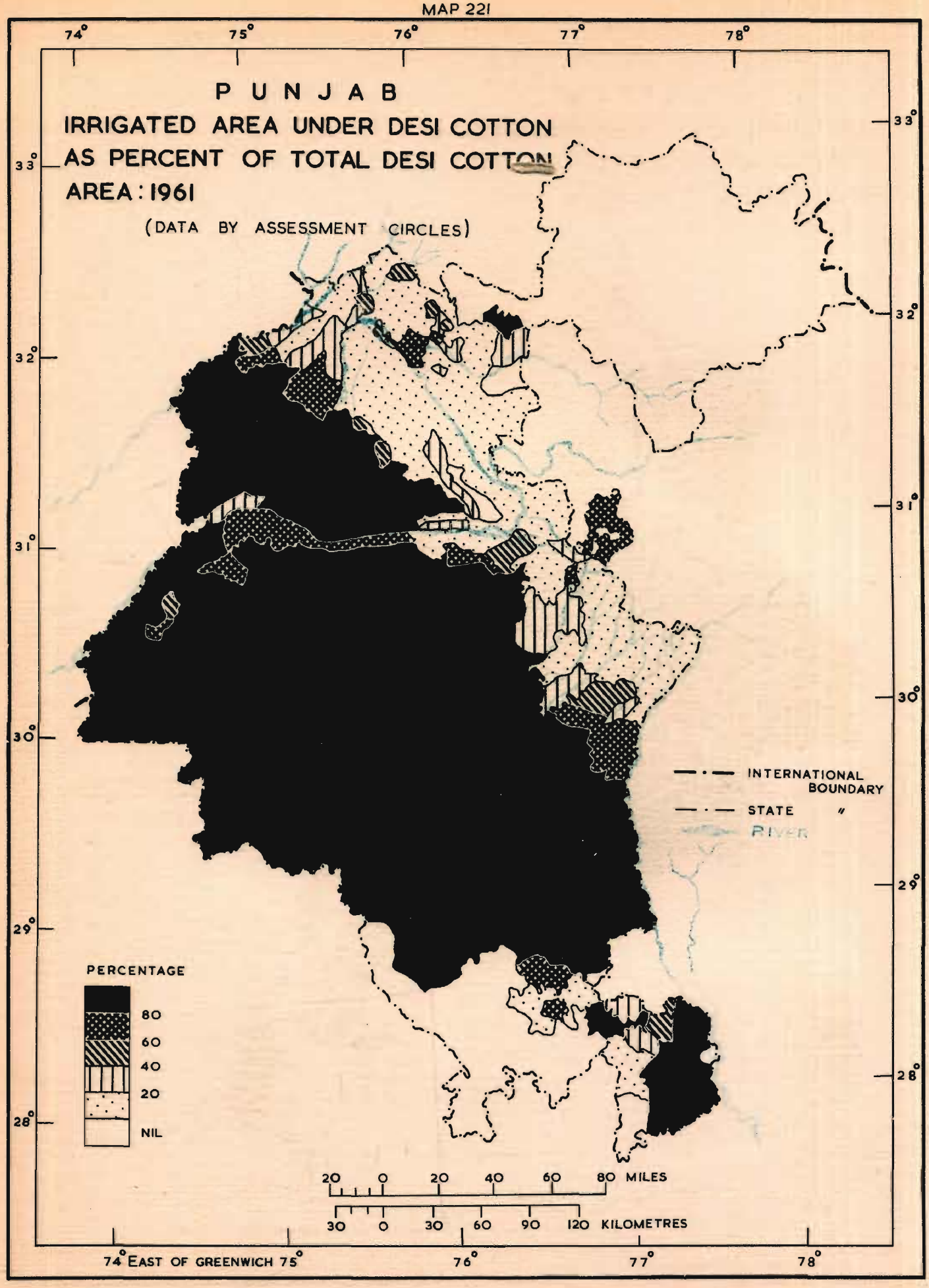
MAP 219


PUNJAB
DISTRIBUTION OF COTTON (AMERICAN) ACREAGE
1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
ONE DOT : 1,000 ACRES
SOURCE OF DATA : REVENUE RECORDS AT TAHSIL HEADQUARTERS
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

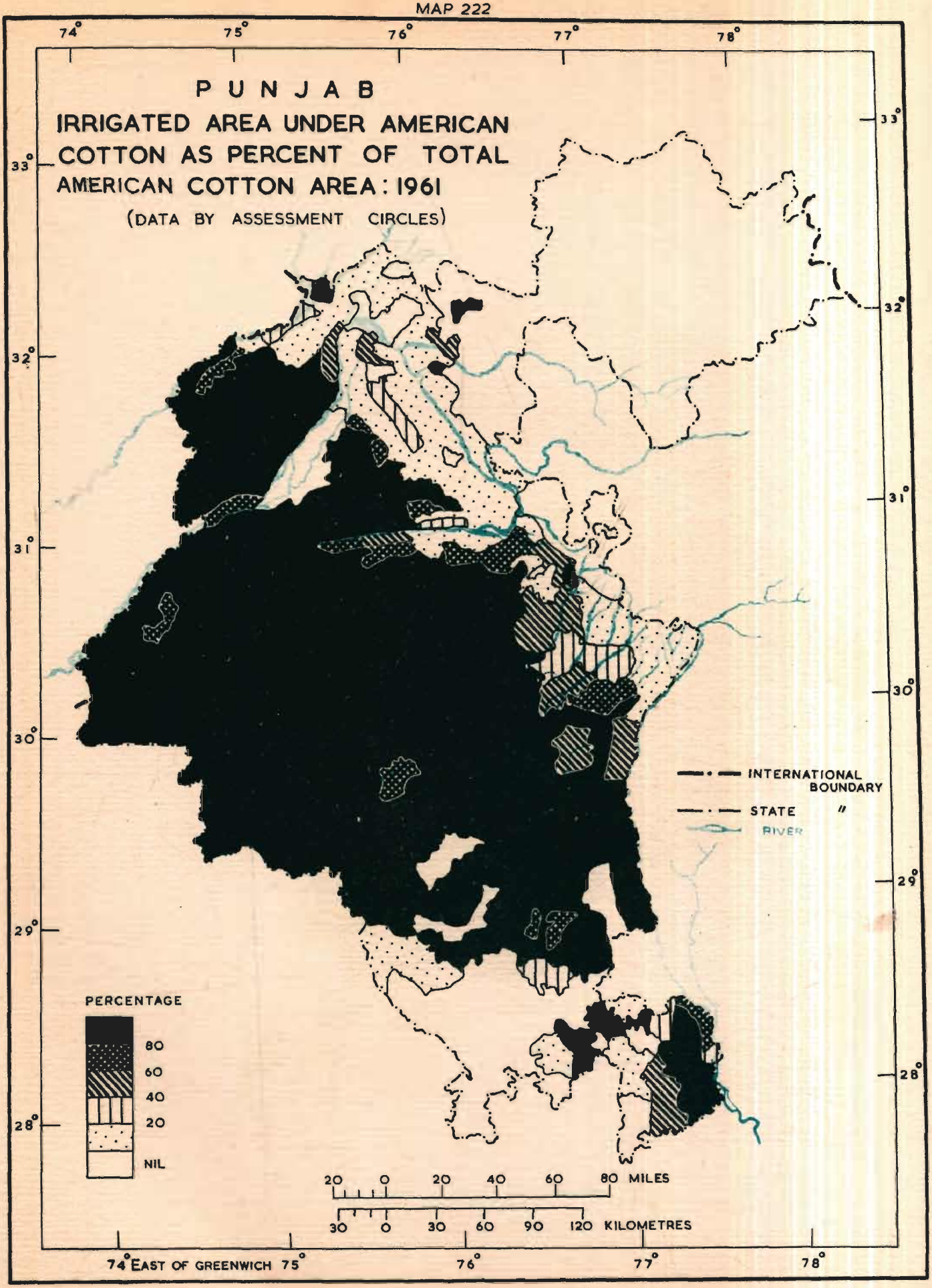
MAP 220


PUNJAB
COTTON ACREAGE AS PERCENT OF TOTAL CROPPED AREA : 1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE
PERCENTAGE
15
10
5
1
COTTON NOT GROWN
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

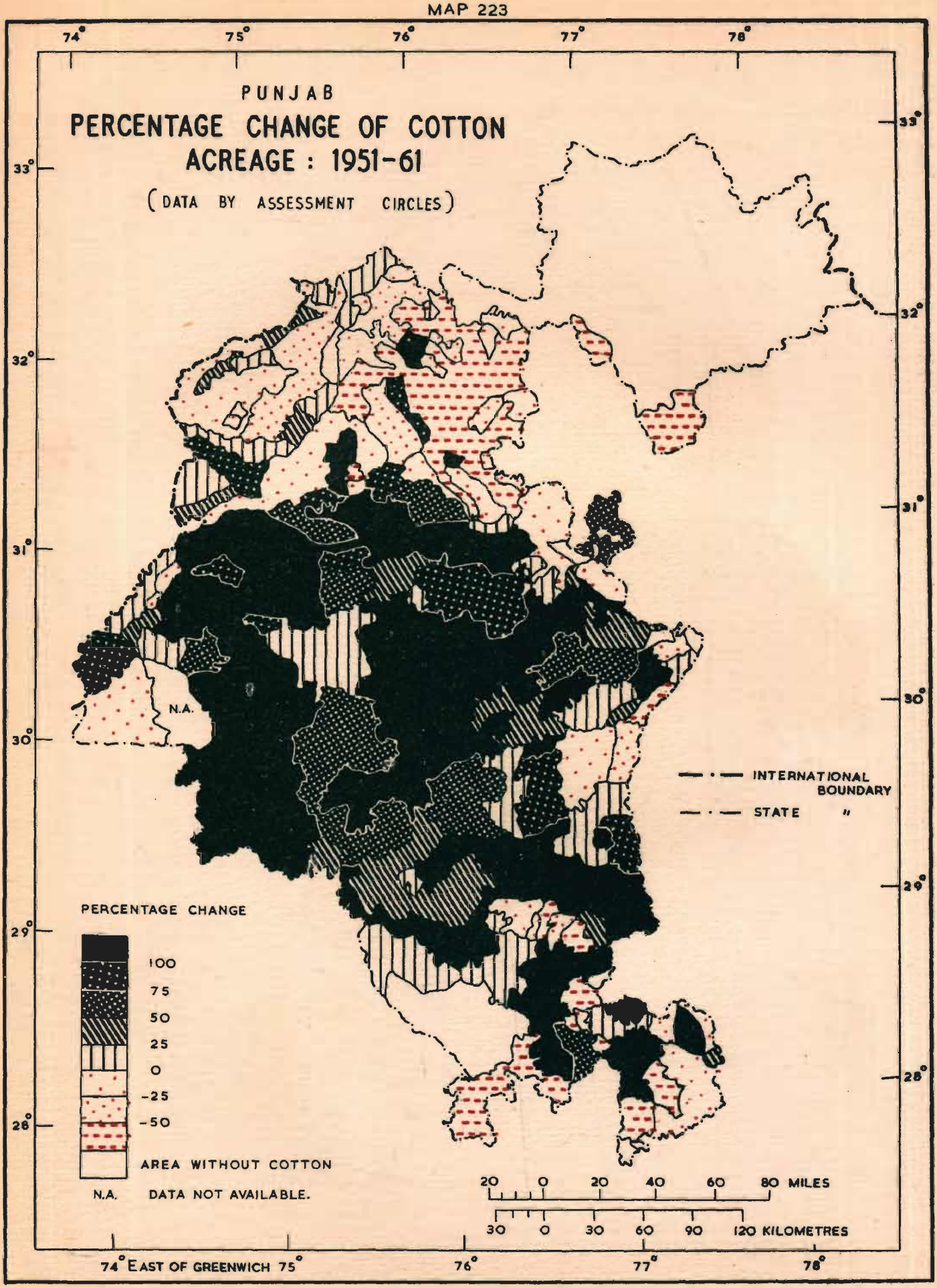
MAP 221


PUNJAB
IRRIGATED AREA UNDER DESI COTTON
AS PERCENT OF TOTAL DESI COTTON
AREA : 1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
RIVER
PERCENTAGE
80
60
40
20
NIL
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75°

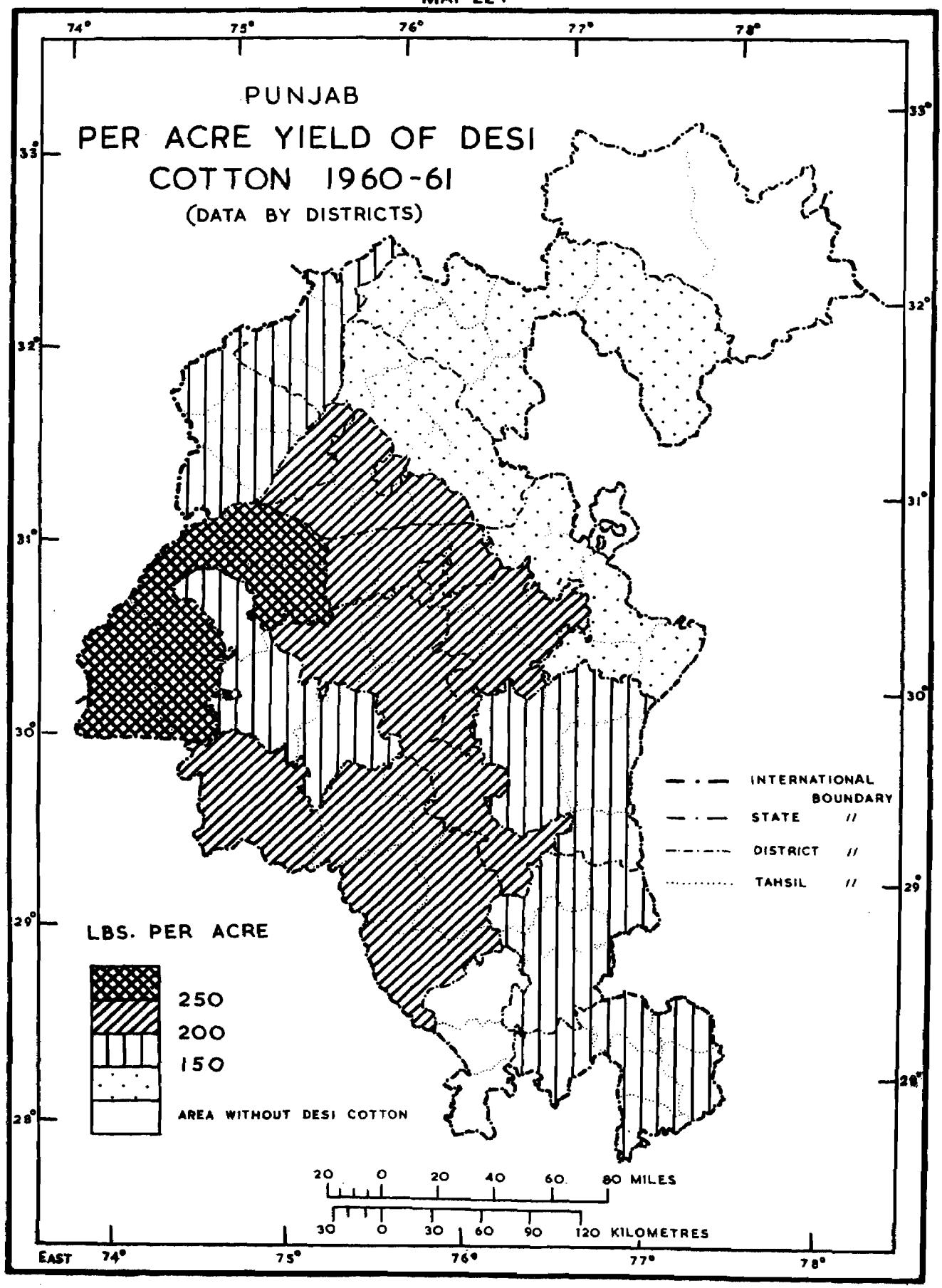
MAP 222


PUNJAB
IRRIGATED AREA UNDER AMERICAN COTTON AS PERCENT OF TOTAL AMERICAN COTTON AREA : 1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
RIVER
PERCENTAGE
80
60
40
20
NIL
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75°

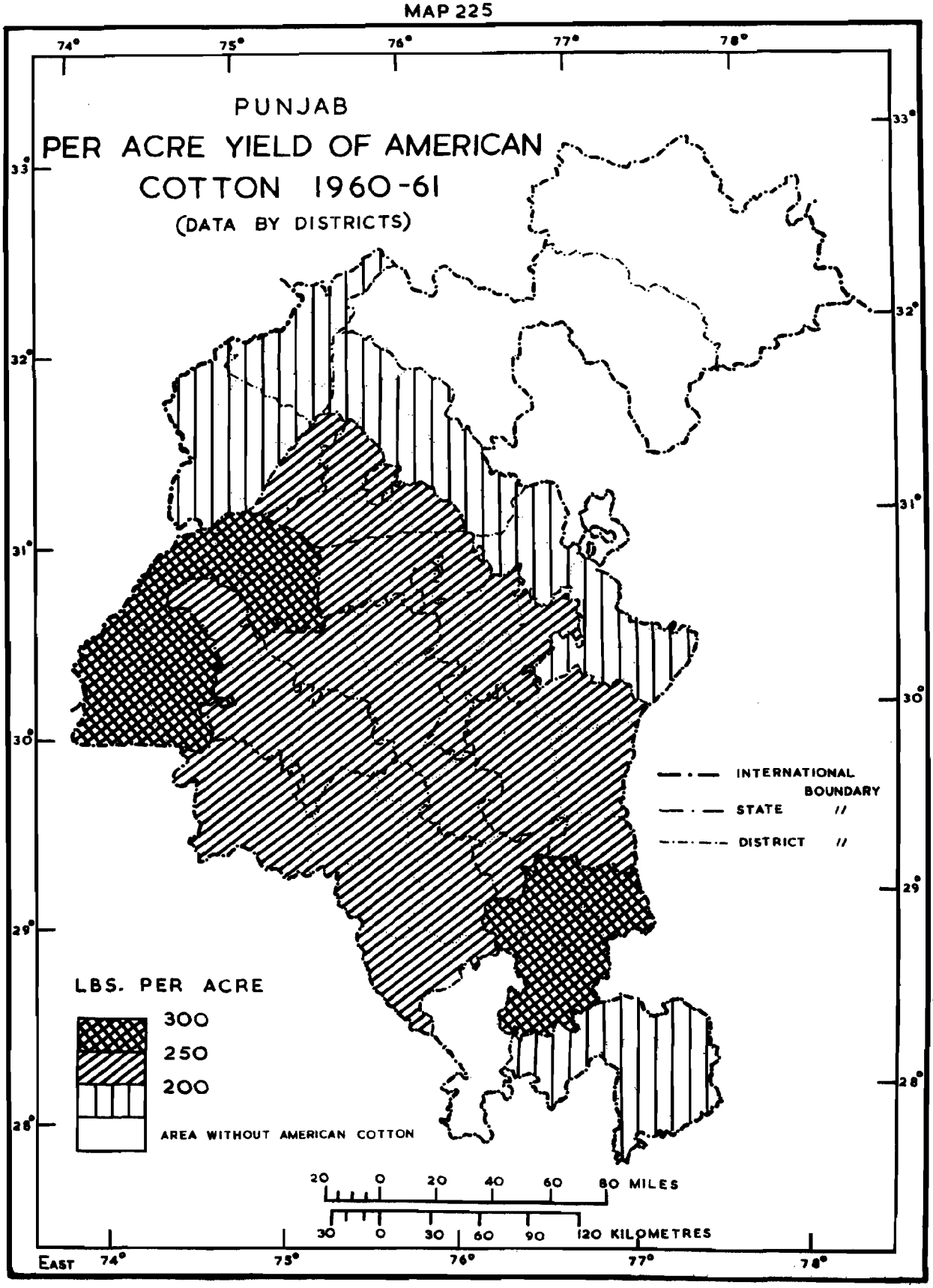
MAP 223


PUNJAB
PERCENTAGE CHANGE OF COTTON ACREAGE : 1951-61
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
N.A.
INTERNATIONAL BOUNDARY
STATE "
PERCENTAGE CHANGE
100
75
50
25
0
-25
-50
AREA WITHOUT COTTON
N.A. DATA NOT AVAILABLE.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75°

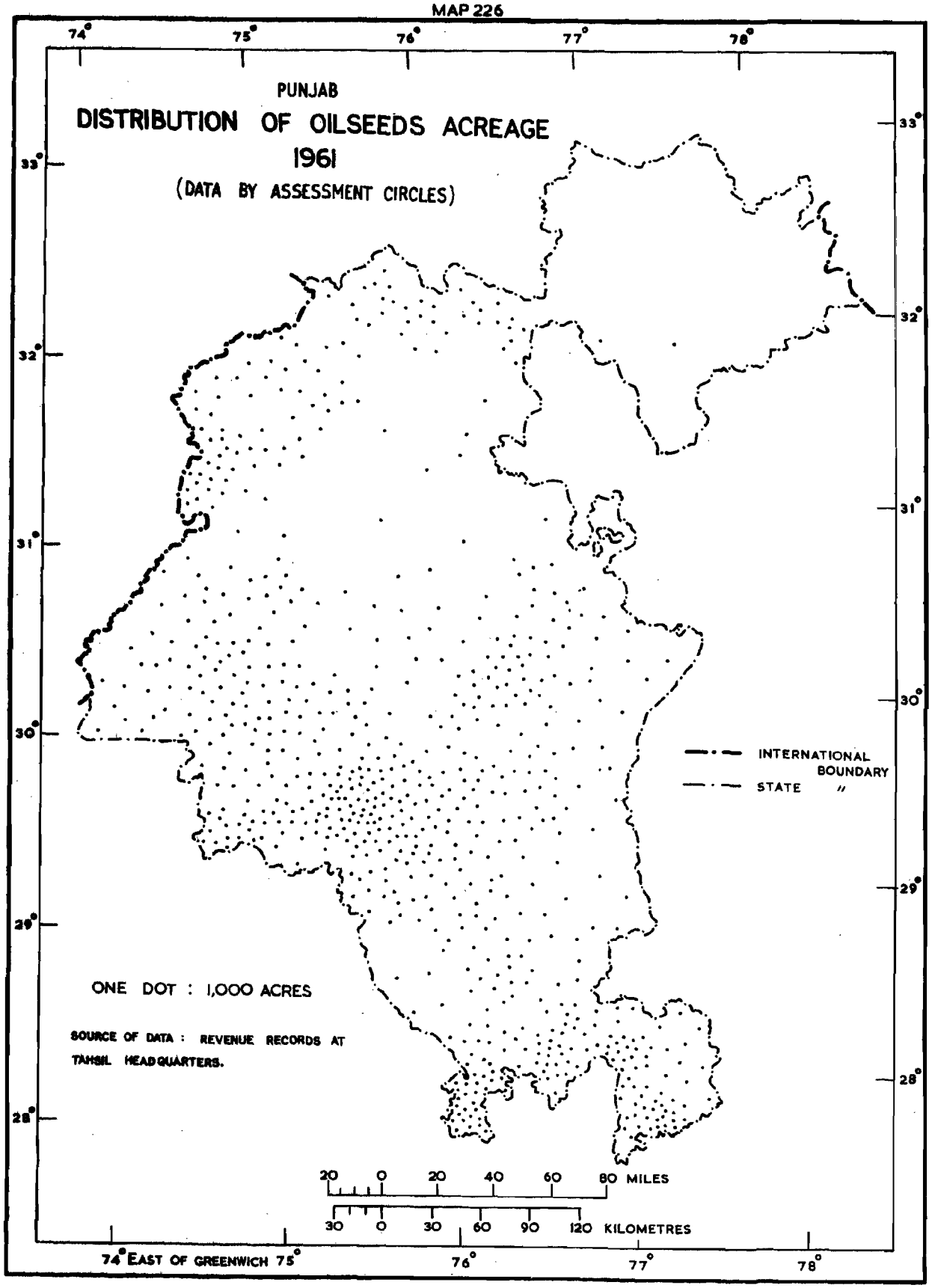
MAP 224


PUNJAB
PER ACRE YIELD OF DESI COTTON 1960-61
(DATA BY DISTRICTS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE //
DISTRICT //
TAHSIL //
LBS. PER ACRE
250
200
150
AREA WITHOUT DESI COTTON
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

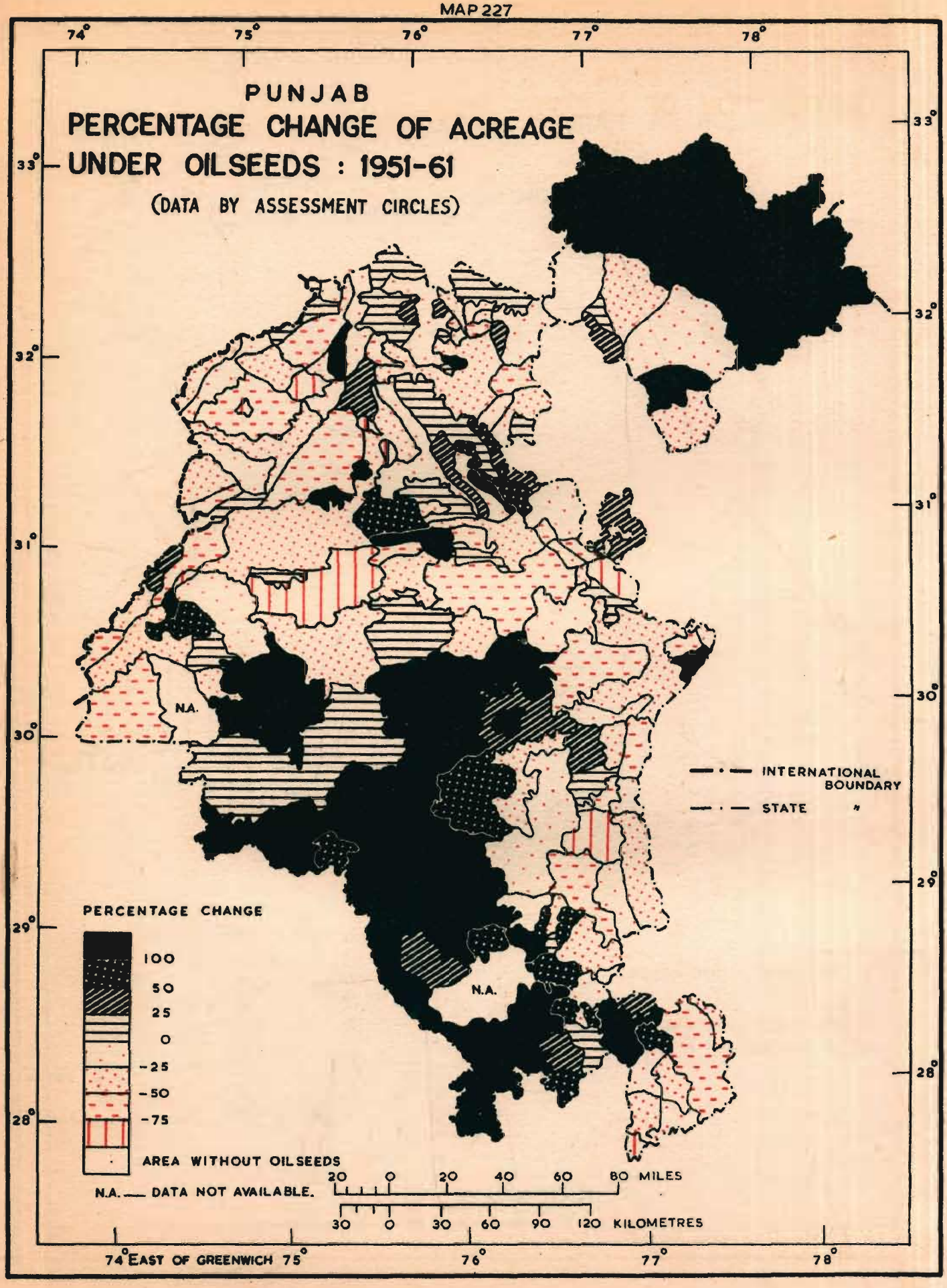
MAP 225


PUNJAB
PER ACRE YIELD OF AMERICAN COTTON 1960-61
(DATA BY DISTRICTS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE //
DISTRICT //
LBS. PER ACRE
300
250
200
AREA WITHOUT AMERICAN COTTON
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

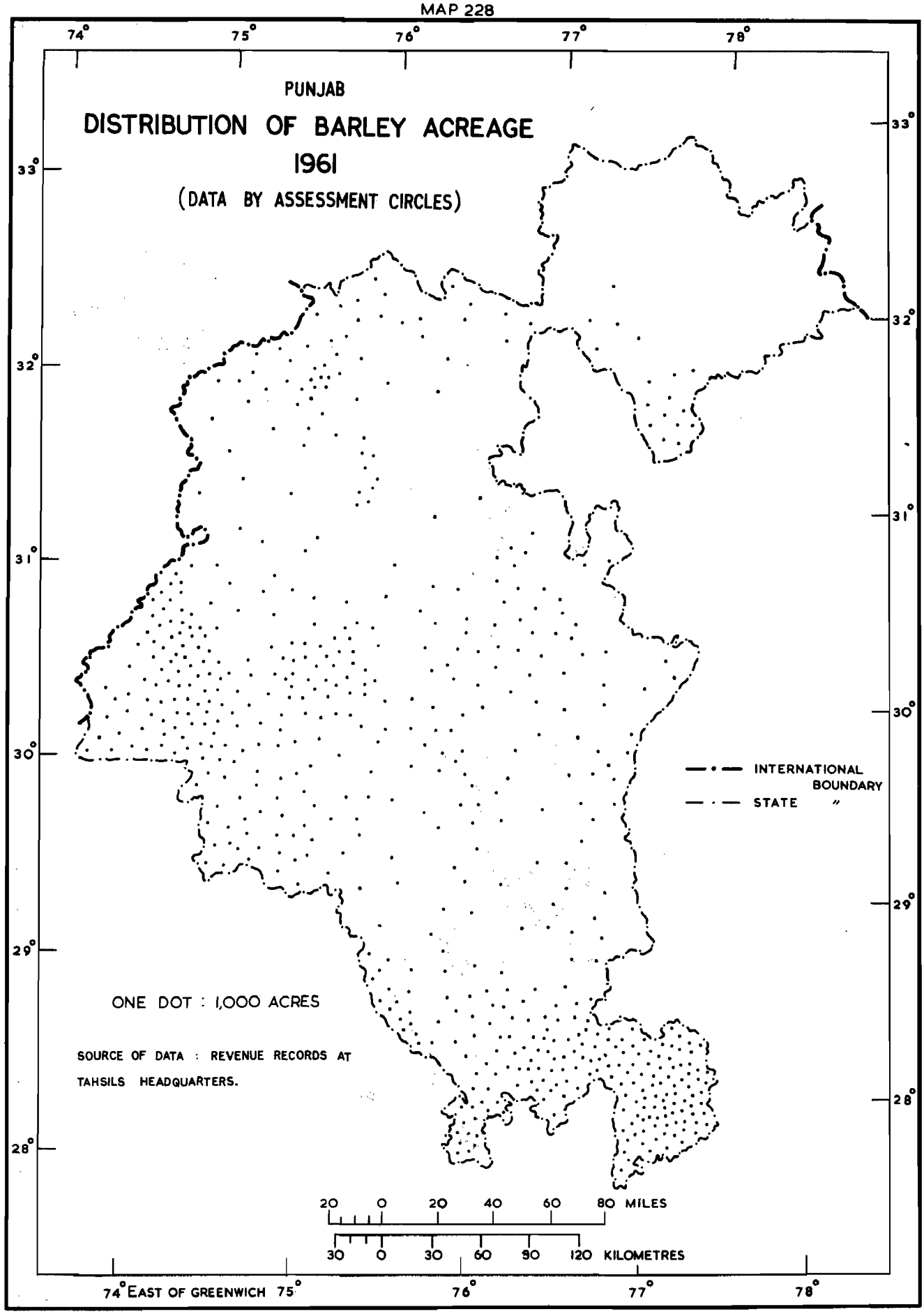
MAP 226


PUNJAB
DISTRIBUTION OF OILSEEDS ACREAGE
1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
ONE DOT : 1,000 ACRES
SOURCE OF DATA : REVENUE RECORDS AT TAHSIL HEADQUARTERS.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75°
76°
77°
78°

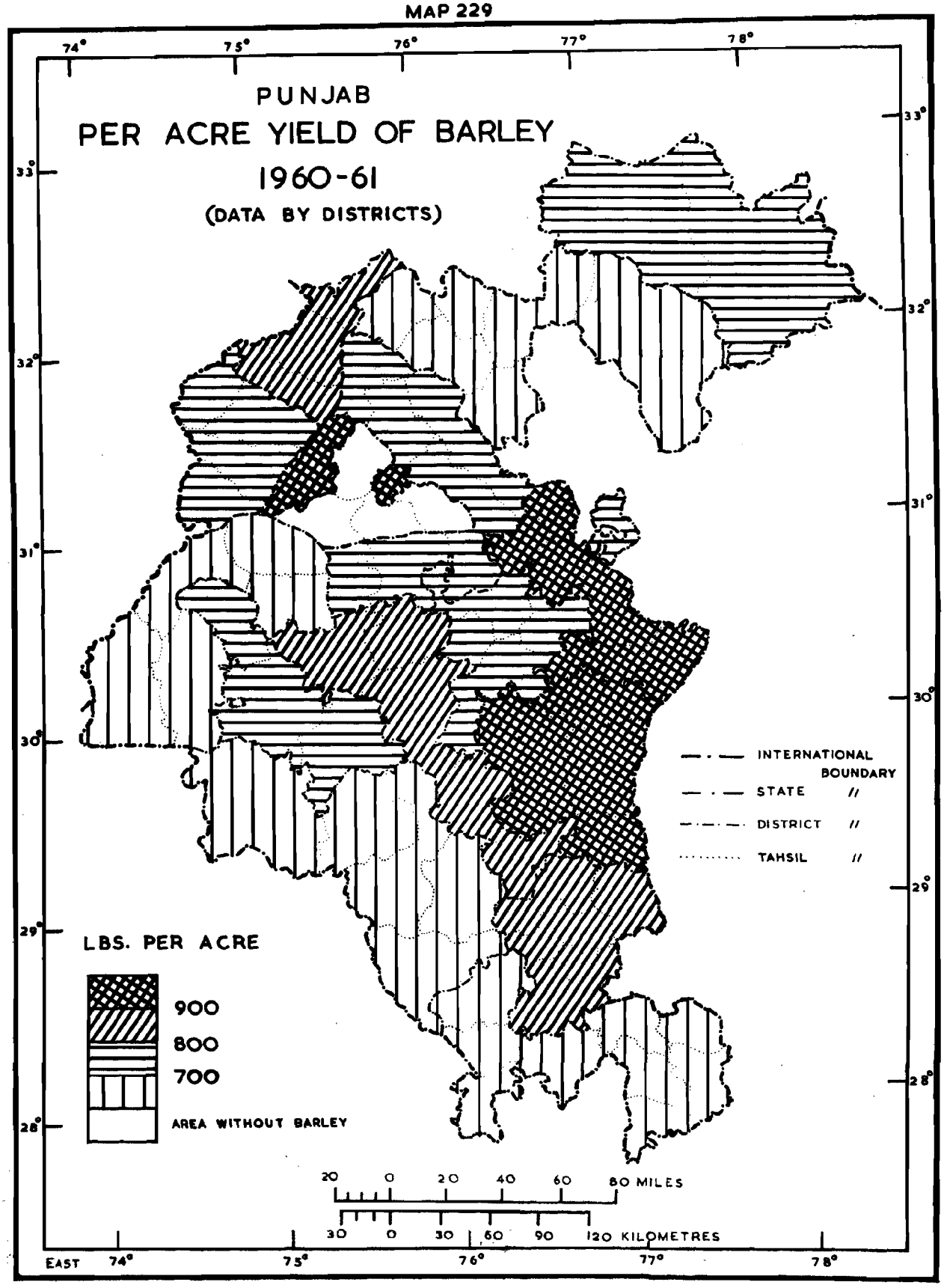
MAP 227


PUNJAB
PERCENTAGE CHANGE OF ACREAGE UNDER OILSEEDS : 1951-61
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
N.A.
N.A.
INTERNATIONAL BOUNDARY
STATE
PERCENTAGE CHANGE
100
50
25
0
-25
-50
-75
AREA WITHOUT OILSEEDS
N.A. — DATA NOT AVAILABLE.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75° 76° 77° 78°

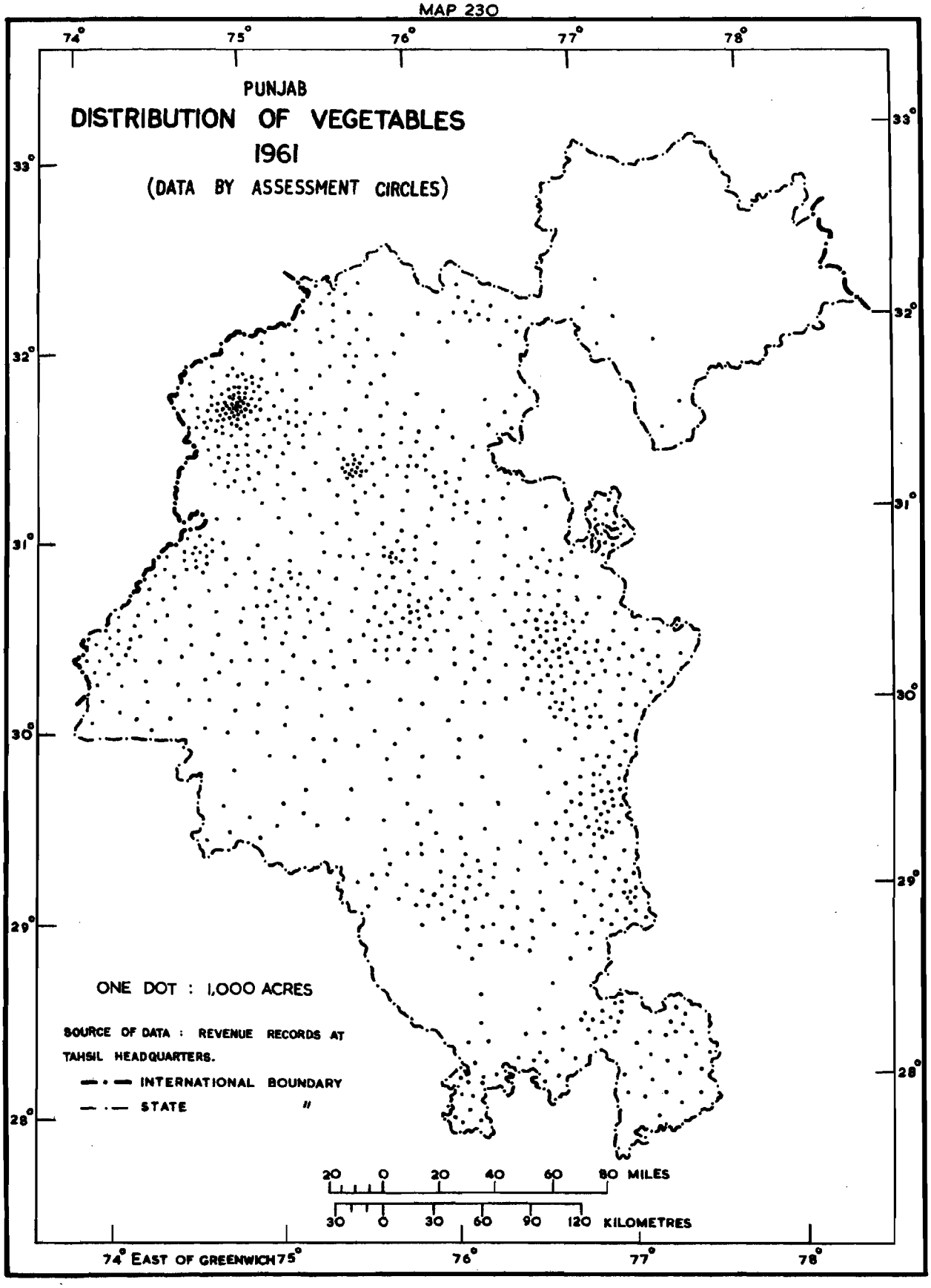
MAP 228


PUNJAB
DISTRIBUTION OF BARLEY ACREAGE
1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
ONE DOT : 1,000 ACRES
SOURCE OF DATA : REVENUE RECORDS AT TAHSILS HEADQUARTERS.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

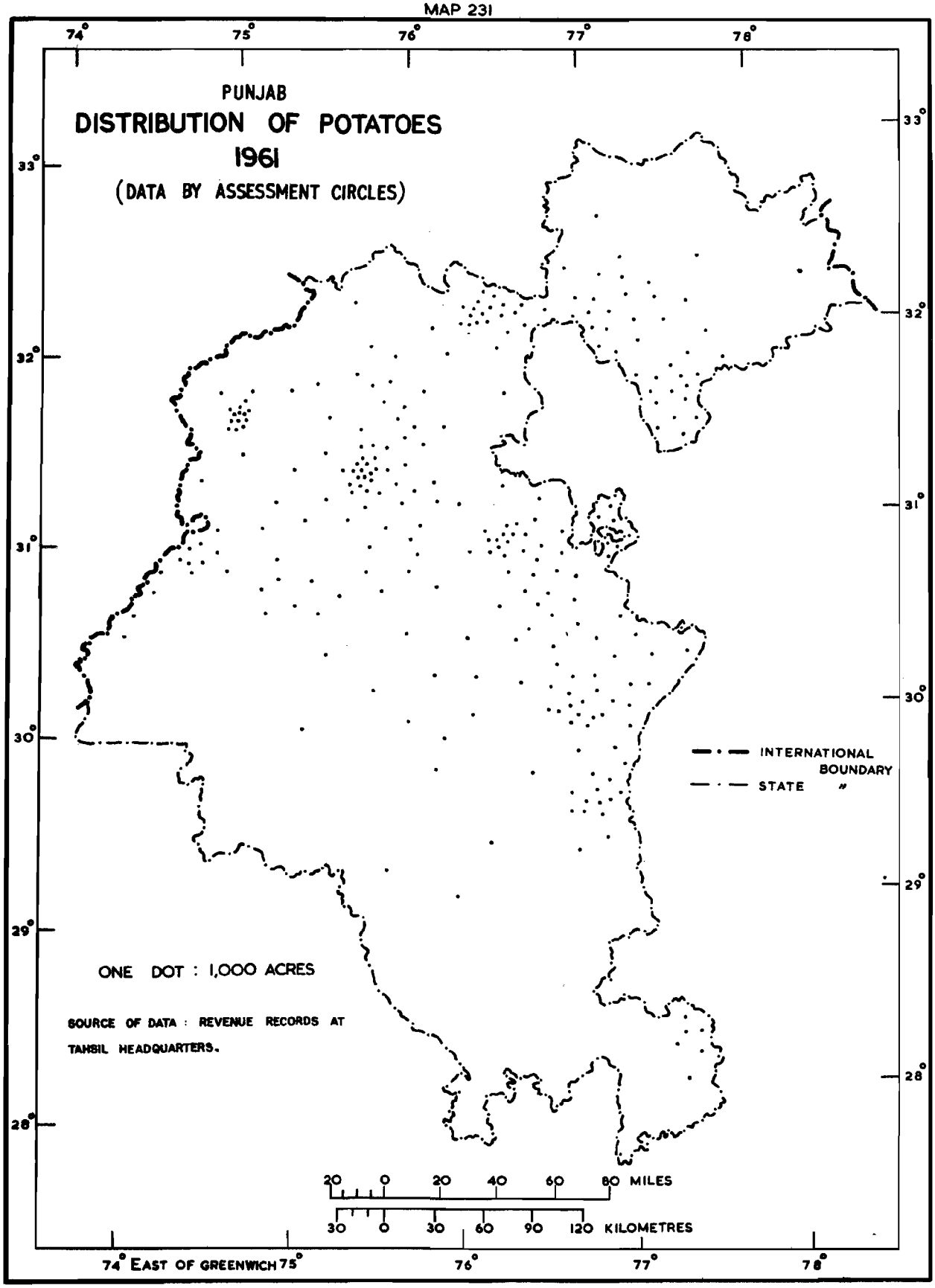
MAP 229


PUNJAB
PER ACRE YIELD OF BARLEY
1960-61
(DATA BY DISTRICTS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE //
DISTRICT //
TAHSIL //
LBS. PER ACRE
900
800
700
AREA WITHOUT BARLEY
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

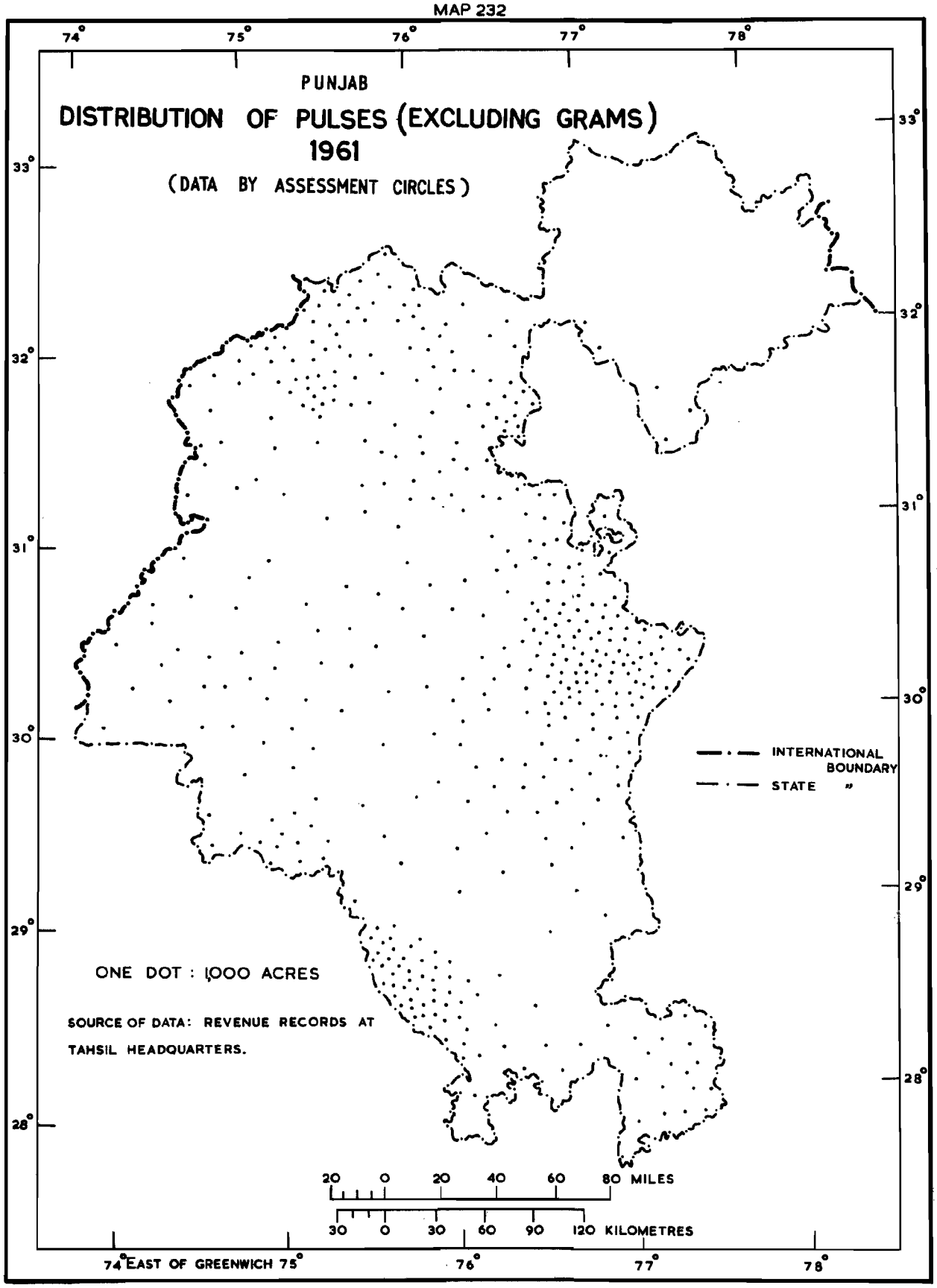
MAP 230


PUNJAB
DISTRIBUTION OF VEGETABLES
1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
ONE DOT : 1,000 ACRES
SOURCE OF DATA : REVENUE RECORDS AT TAHSIL HEADQUARTERS.
INTERNATIONAL BOUNDARY
STATE "
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

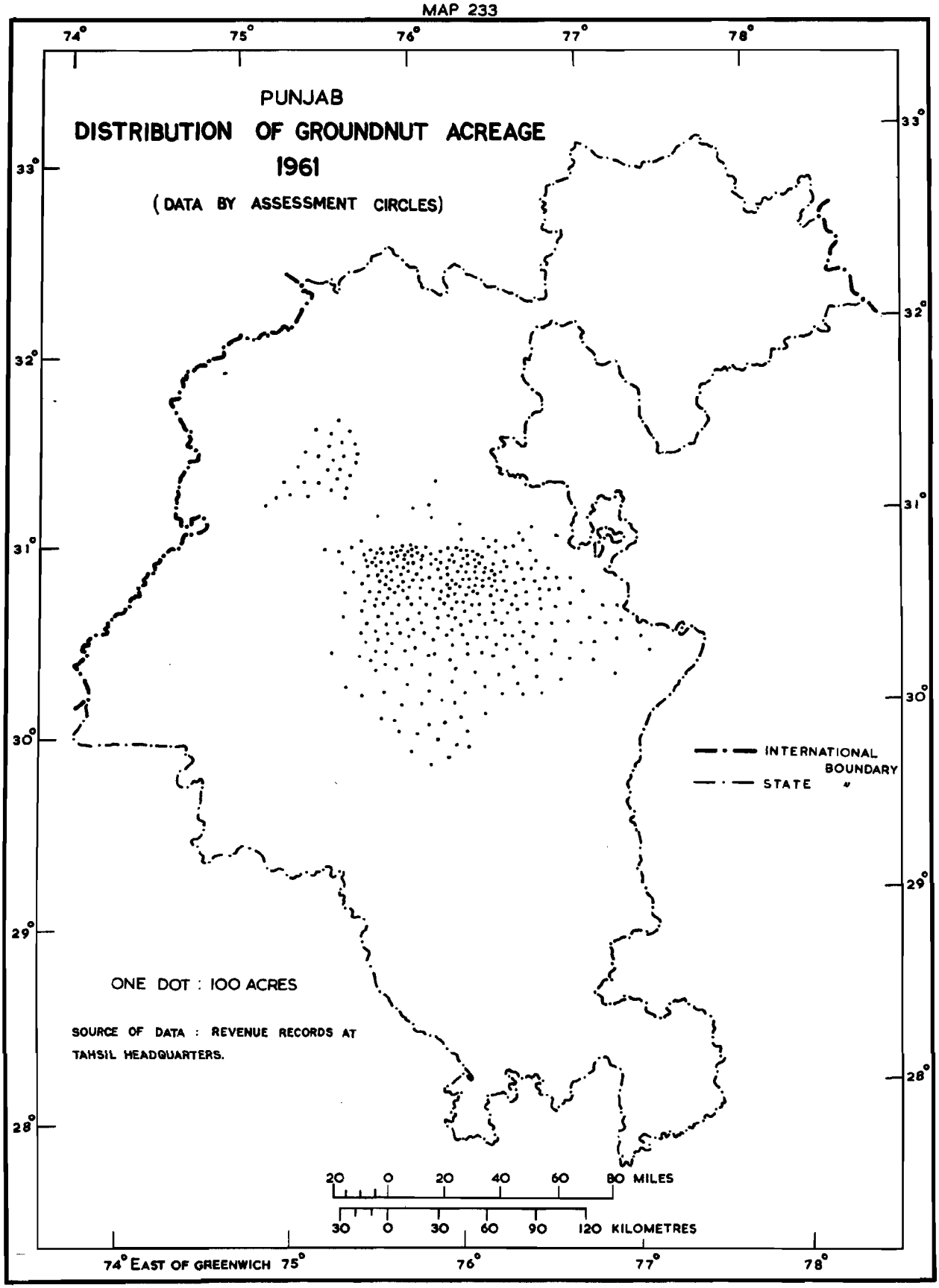
MAP 231


PUNJAB
DISTRIBUTION OF POTATOES
1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
ONE DOT : 1,000 ACRES
SOURCE OF DATA : REVENUE RECORDS AT TAHSIL HEADQUARTERS.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

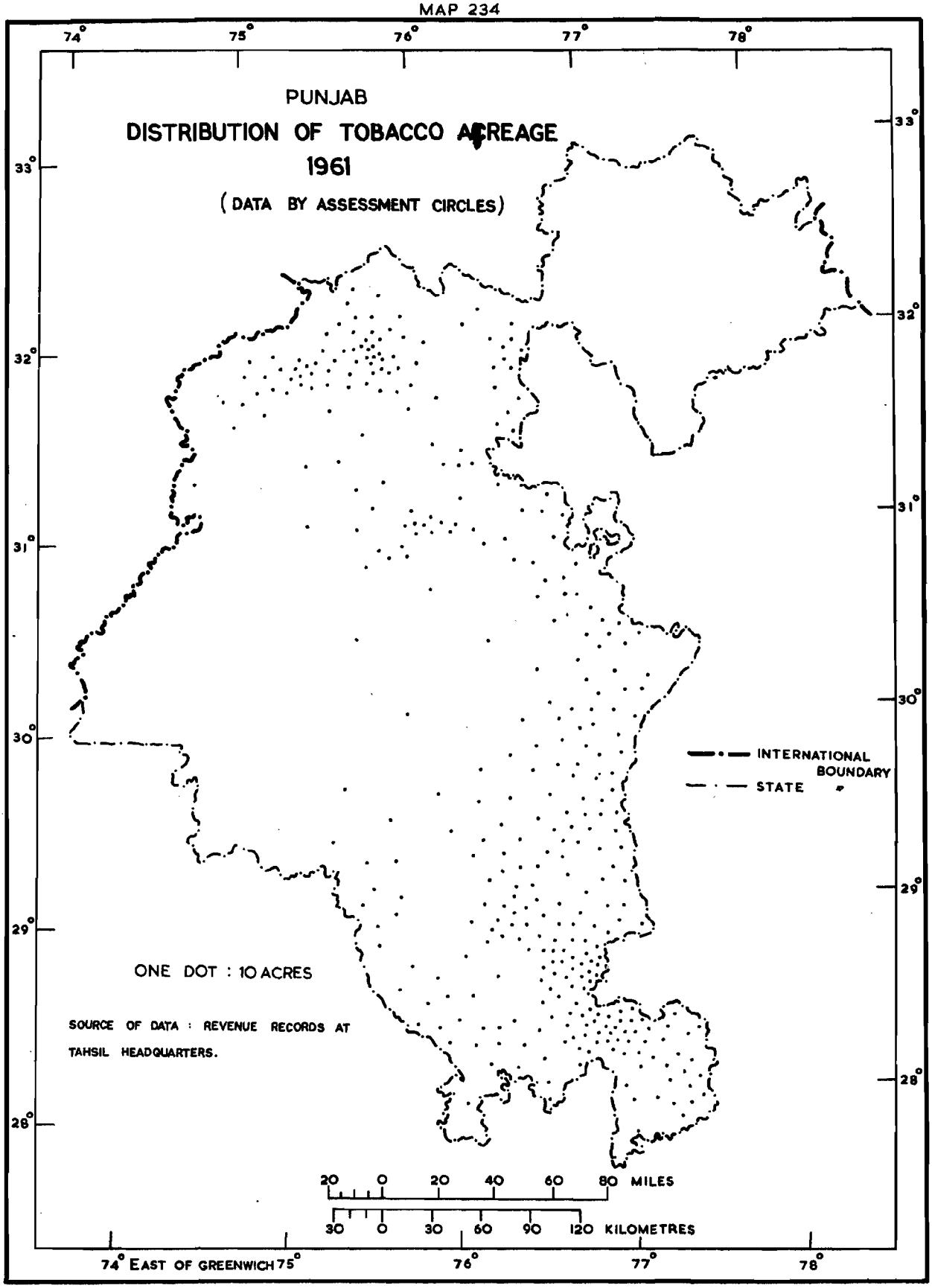
MAP 232


PUNJAB
DISTRIBUTION OF PULSES (EXCLUDING GRAMS)
1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
ONE DOT : 1,000 ACRES
SOURCE OF DATA: REVENUE RECORDS AT TAHSIL HEADQUARTERS.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75° 76° 77° 78°

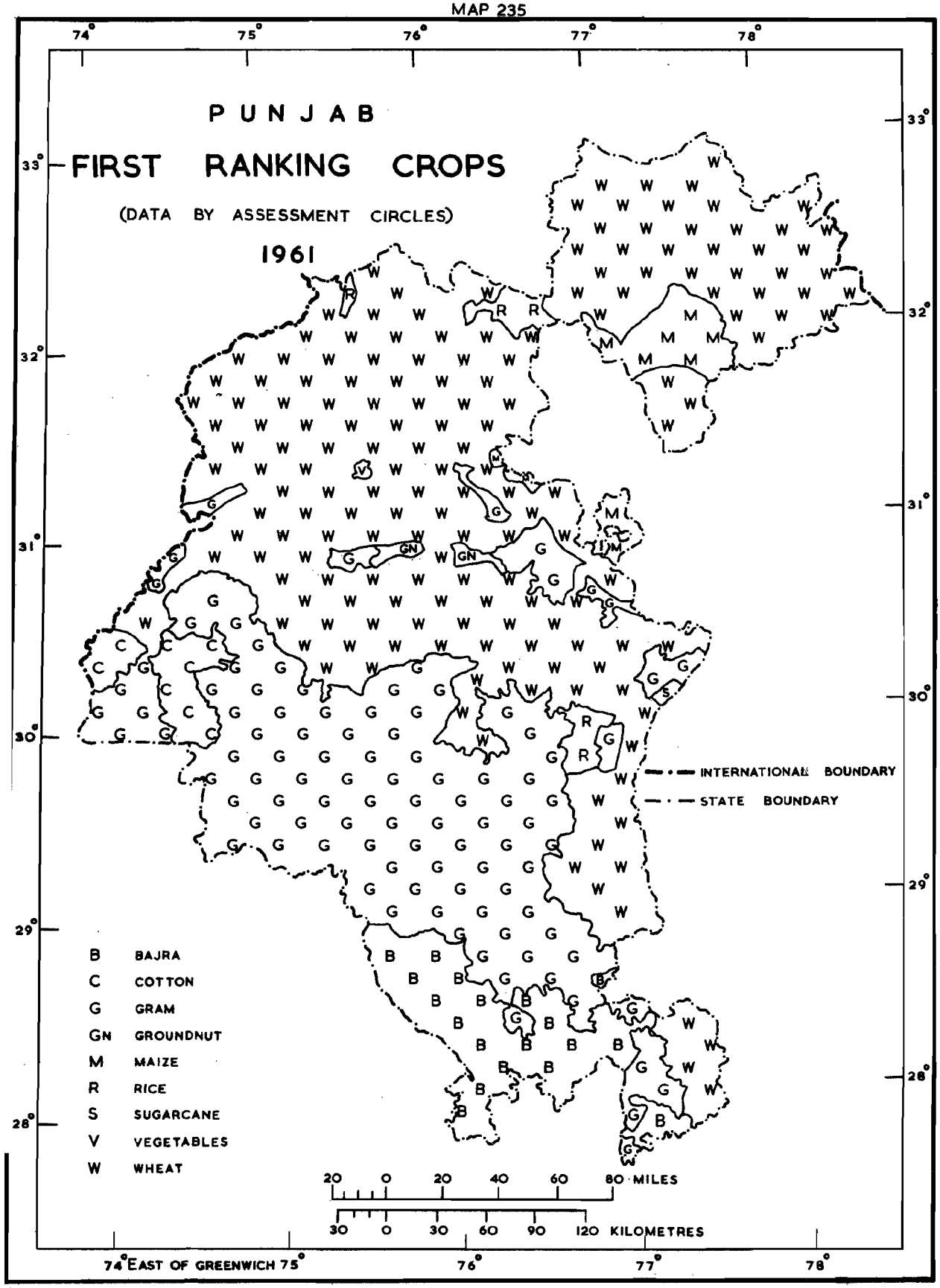
MAP 233


PUNJAB
DISTRIBUTION OF GROUNDNUT ACREAGE
1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE
ONE DOT : 100 ACRES
SOURCE OF DATA : REVENUE RECORDS AT TAHSIL HEADQUARTERS.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75°
76°
77°
78°

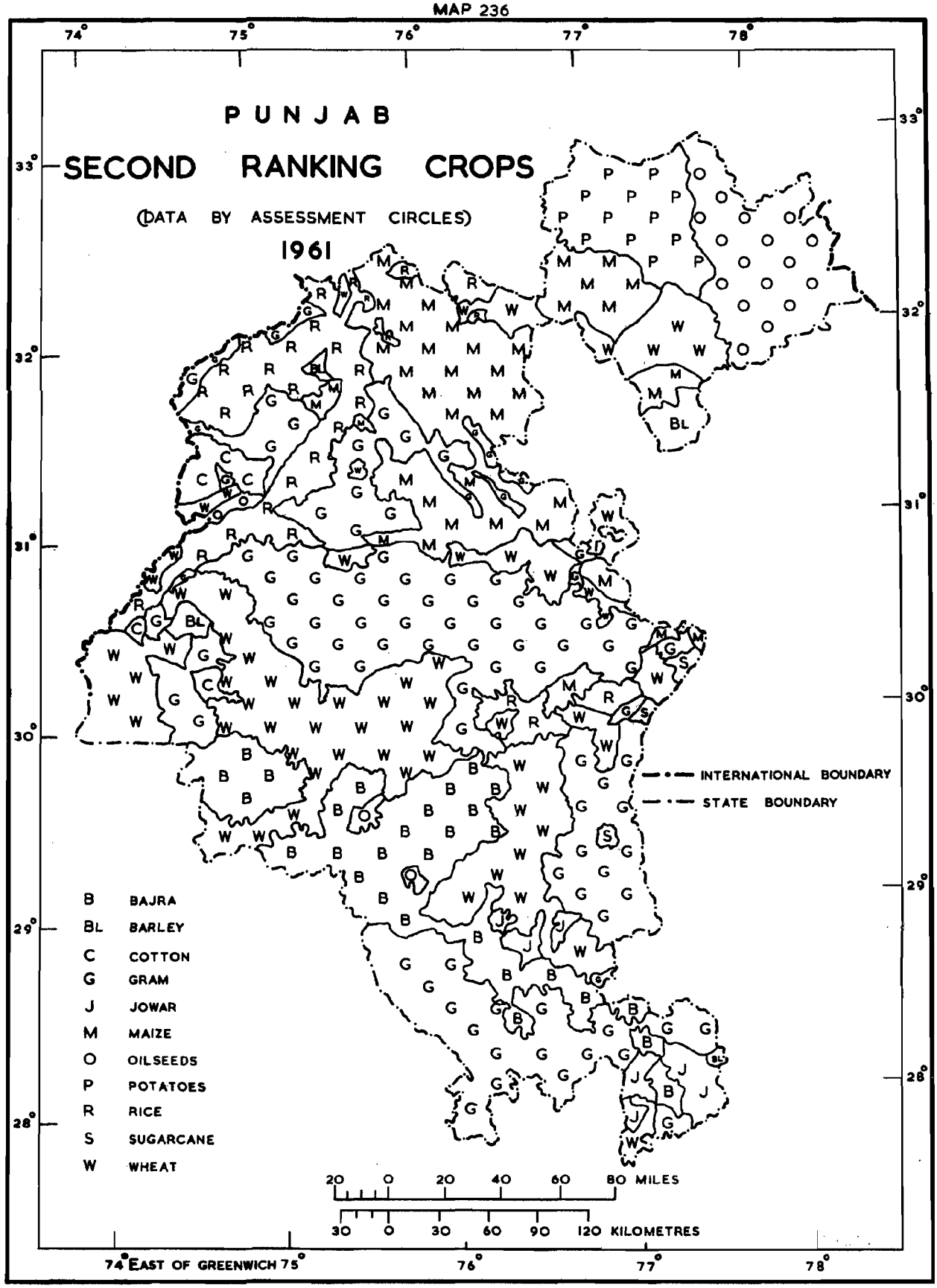
MAP 234


PUNJAB
DISTRIBUTION OF TOBACCO ACREAGE
1961
(DATA BY ASSESSMENT CIRCLES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE
ONE DOT : 10 ACRES
SOURCE OF DATA : REVENUE RECORDS AT TAHSIL HEADQUARTERS.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

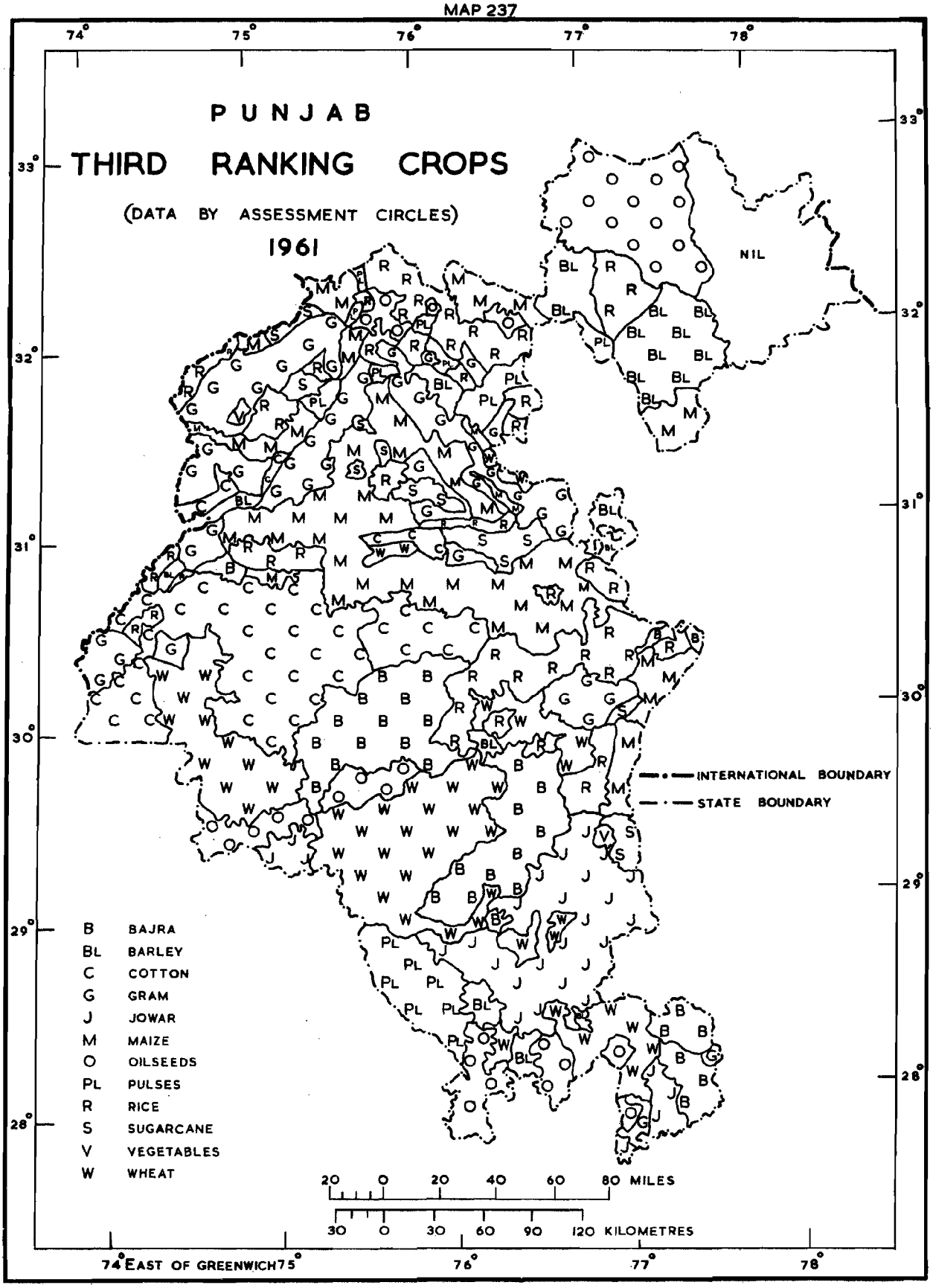
MAP 235


PUNJAB
FIRST RANKING CROPS
(DATA BY ASSESSMENT CIRCLES)
1961
INTERNATIONAL BOUNDARY
STATE BOUNDARY
B BAJRA
C COTTON
G GRAM
GN GROUNDNUT
M MAIZE
R RICE
S SUGARCANE
V VEGETABLES
W WHEAT
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75° 76° 77° 78°
33° 32° 31° 30° 29° 28°

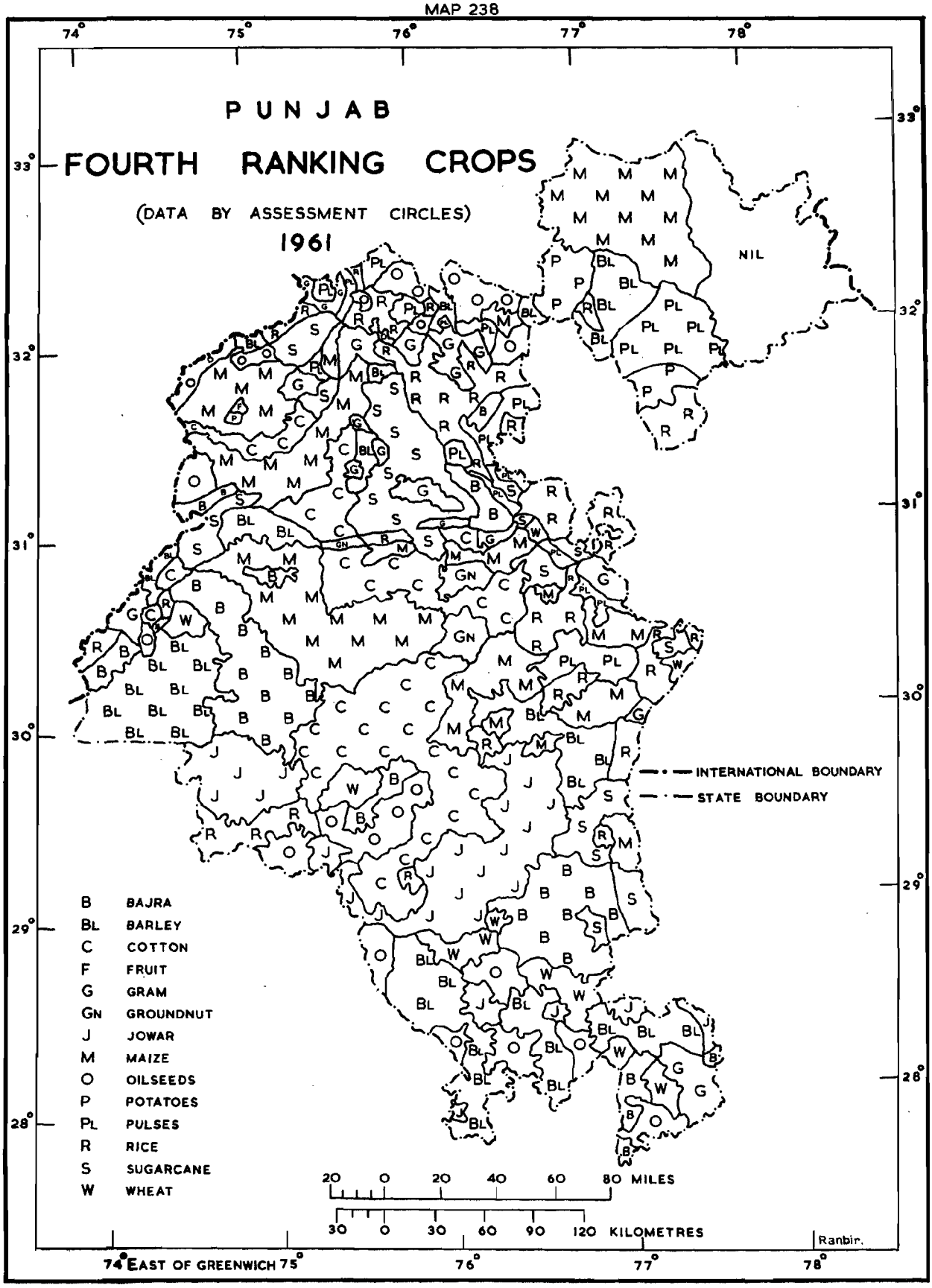
MAP 236


PUNJAB
SECOND RANKING CROPS
(DATA BY ASSESSMENT CIRCLES)
1961
B BAJRA
BL BARLEY
C COTTON
G GRAM
J JOWAR
M MAIZE
O OILSEEDS
P POTATOES
R RICE
S SUGARCANE
W WHEAT
INTERNATIONAL BOUNDARY
STATE BOUNDARY
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
74° 75° 76° 77° 78°
33° 32° 31° 30° 29° 28°

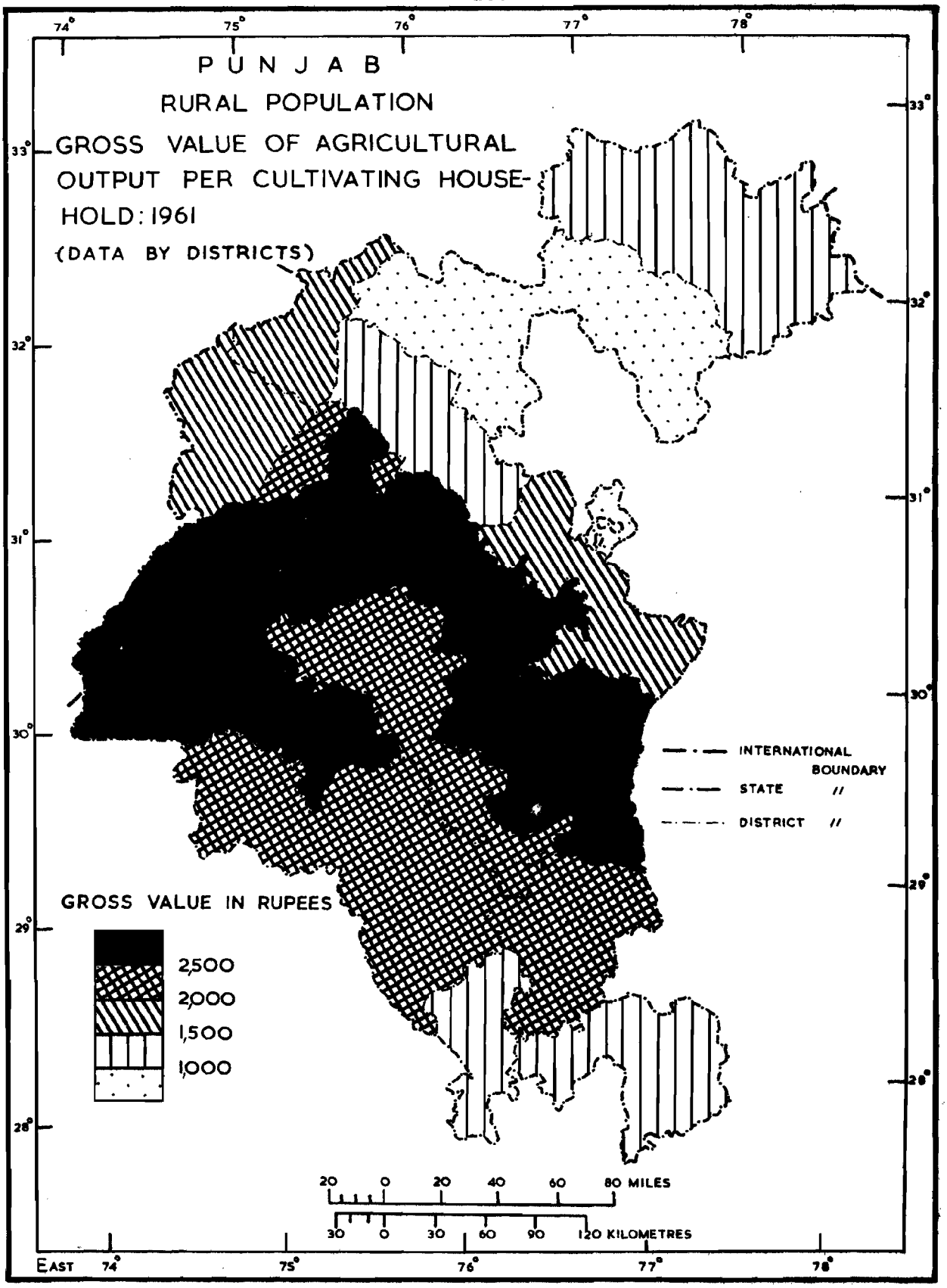
MAP 237


PUNJAB
THIRD RANKING CROPS
(DATA BY ASSESSMENT CIRCLES)
1961
NIL
INTERNATIONAL BOUNDARY
STATE BOUNDARY
B BAJRA
BL BARLEY
C COTTON
G GRAM
J JOWAR
M MAIZE
O OILSEEDS
PL PULSES
R RICE
S SUGARCANE
V VEGETABLES
W WHEAT
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75° 76° 77° 78°
33° 32° 31° 30° 29° 28°

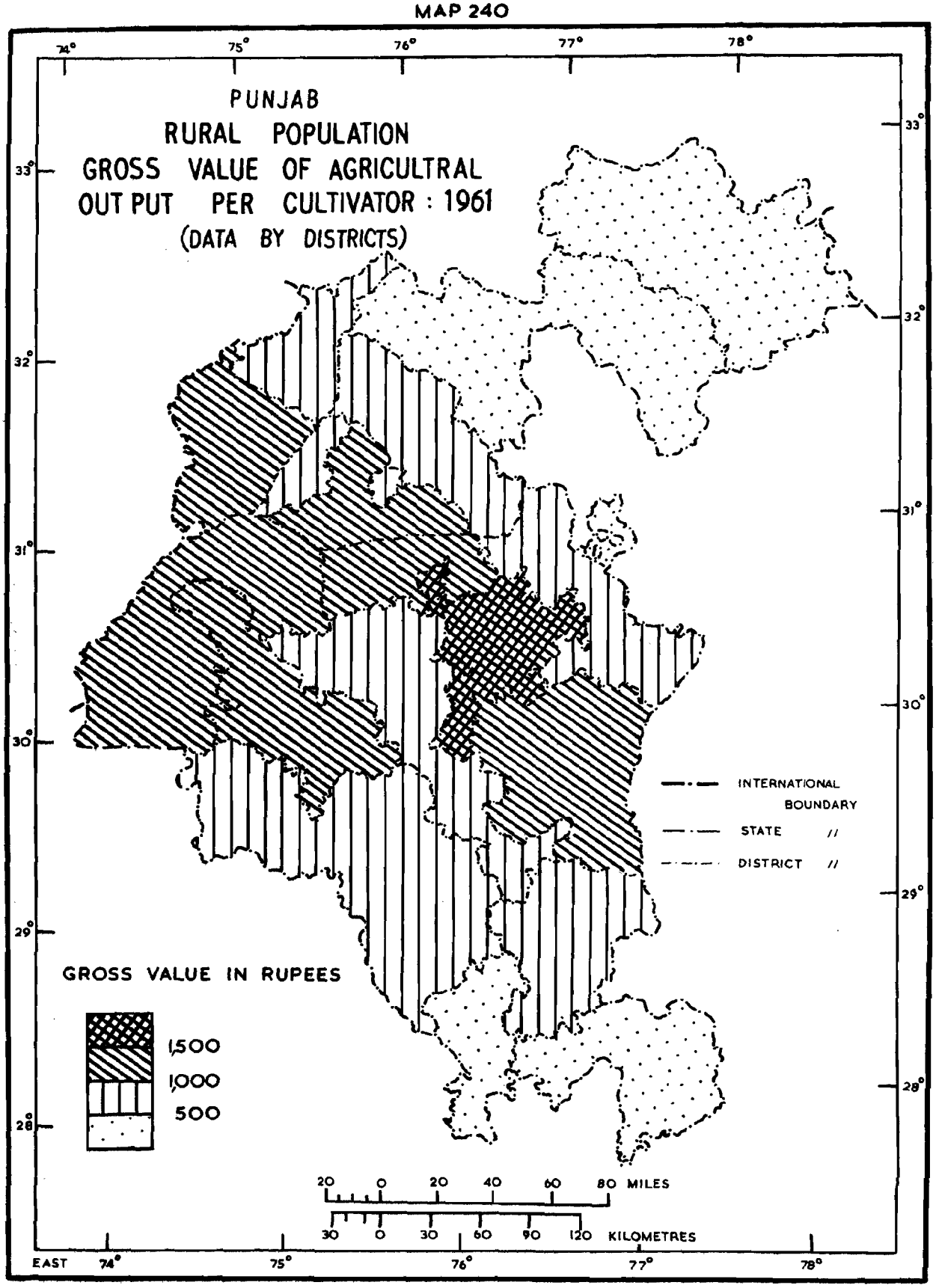
MAP 238


PUNJAB
FOURTH RANKING CROPS
(DATA BY ASSESSMENT CIRCLES)
1961
NIL
INTERNATIONAL BOUNDARY
STATE BOUNDARY
B BAJRA
BL BARLEY
C COTTON
F FRUIT
G GRAM
GN GROUNDNUT
J JOWAR
M MAIZE
O OILSEEDS
P POTATOES
PL PULSES
R RICE
S SUGARCANE
W WHEAT
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
Ranbir.
74° EAST OF GREENWICH 75° 76° 77° 78°
33° 32° 31° 30° 29° 28°

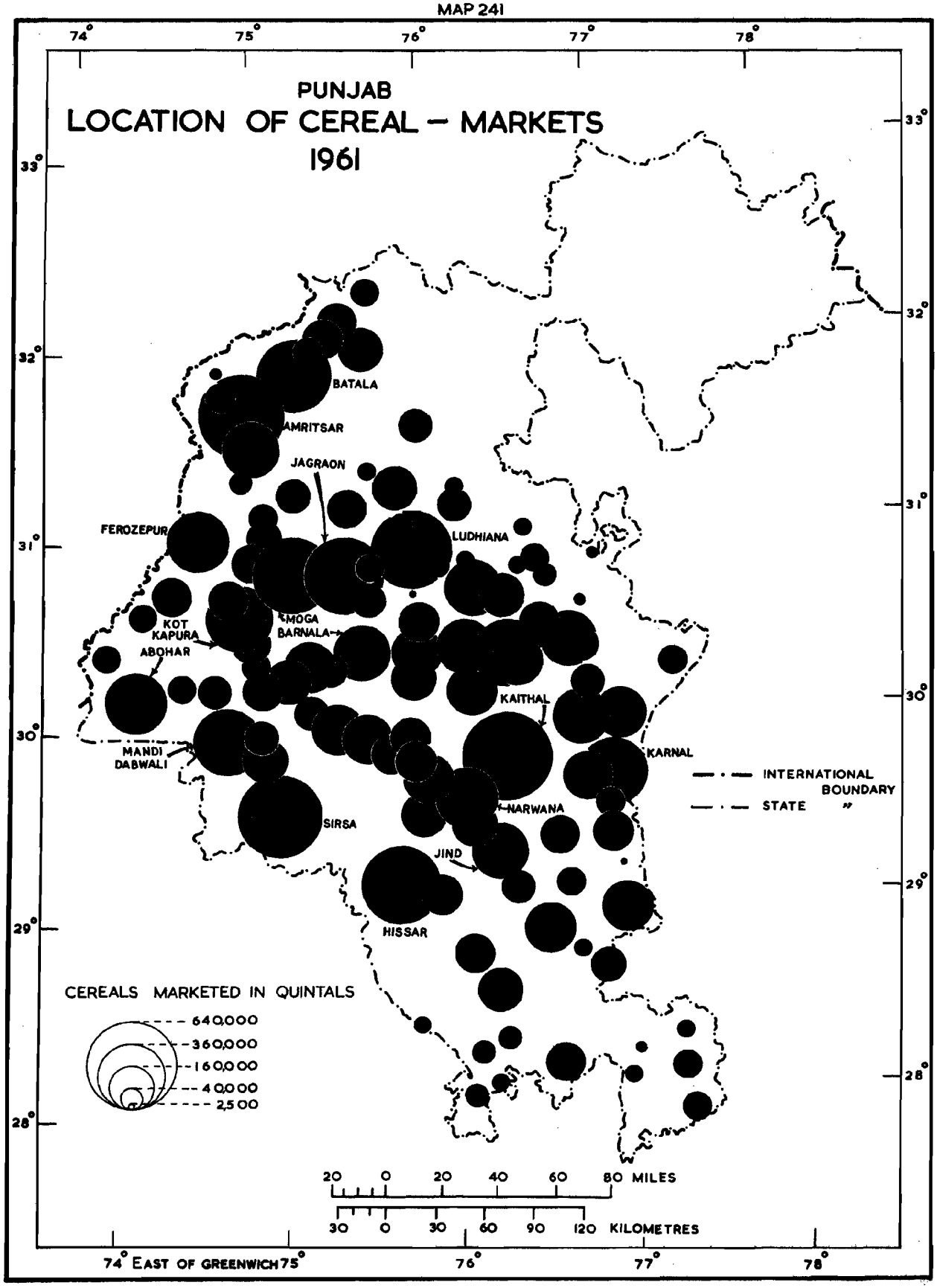
MAP 239


PUNJAB
RURAL POPULATION
GROSS VALUE OF AGRICULTURAL OUTPUT PER CULTIVATING HOUSE-HOLD: 1961
(DATA BY DISTRICTS)
INTERNATIONAL BOUNDARY
STATE //
DISTRICT //
GROSS VALUE IN RUPEES
2,500
2,000
1,500
1,000
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

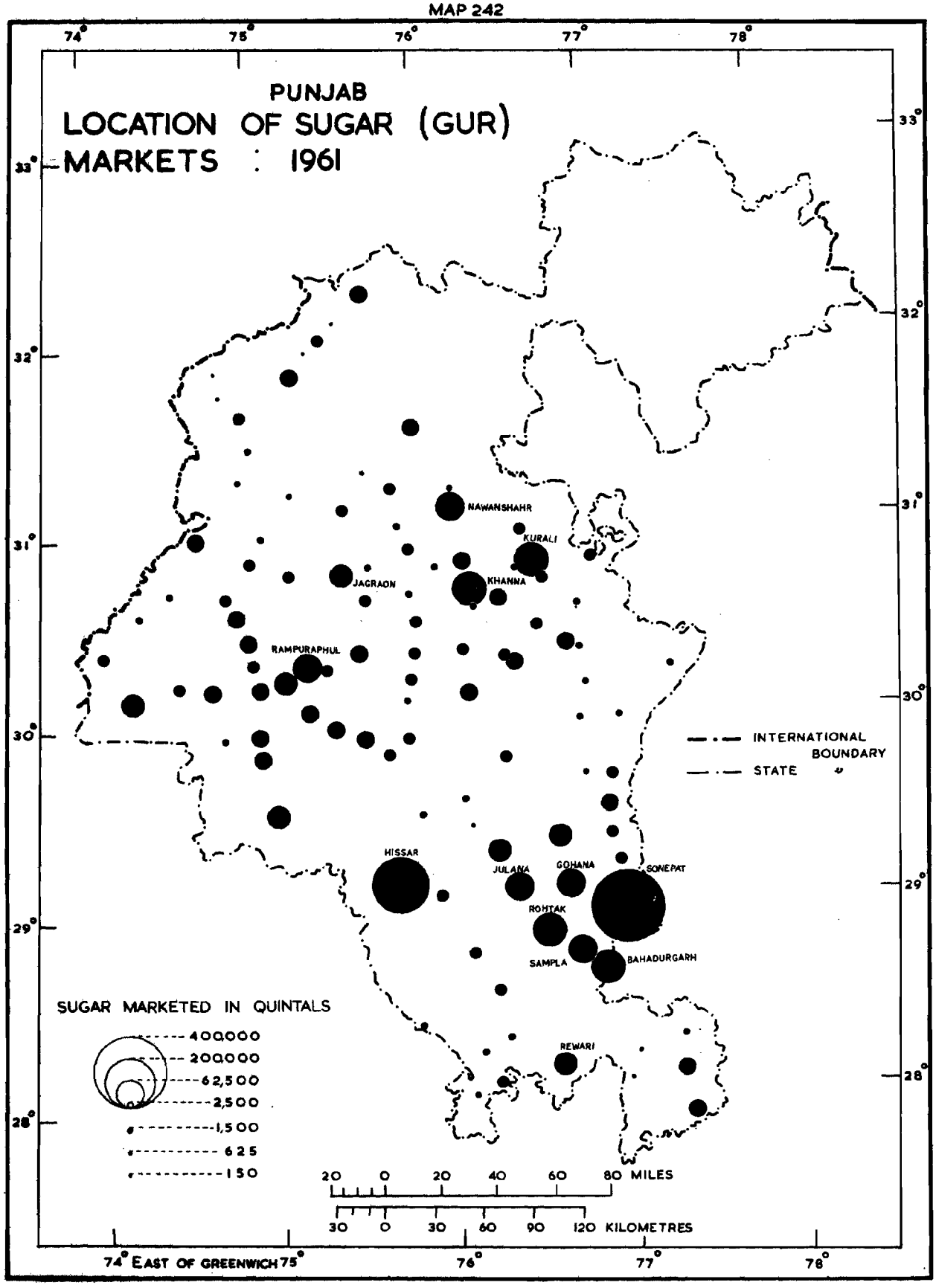
MAP 240


PUNJAB
RURAL POPULATION
GROSS VALUE OF AGRICULTRAL
OUT PUT PER CULTIVATOR : 1961
(DATA BY DISTRICTS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE //
DISTRICT //
GROSS VALUE IN RUPEES
1,500
1,000
500
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
EAST

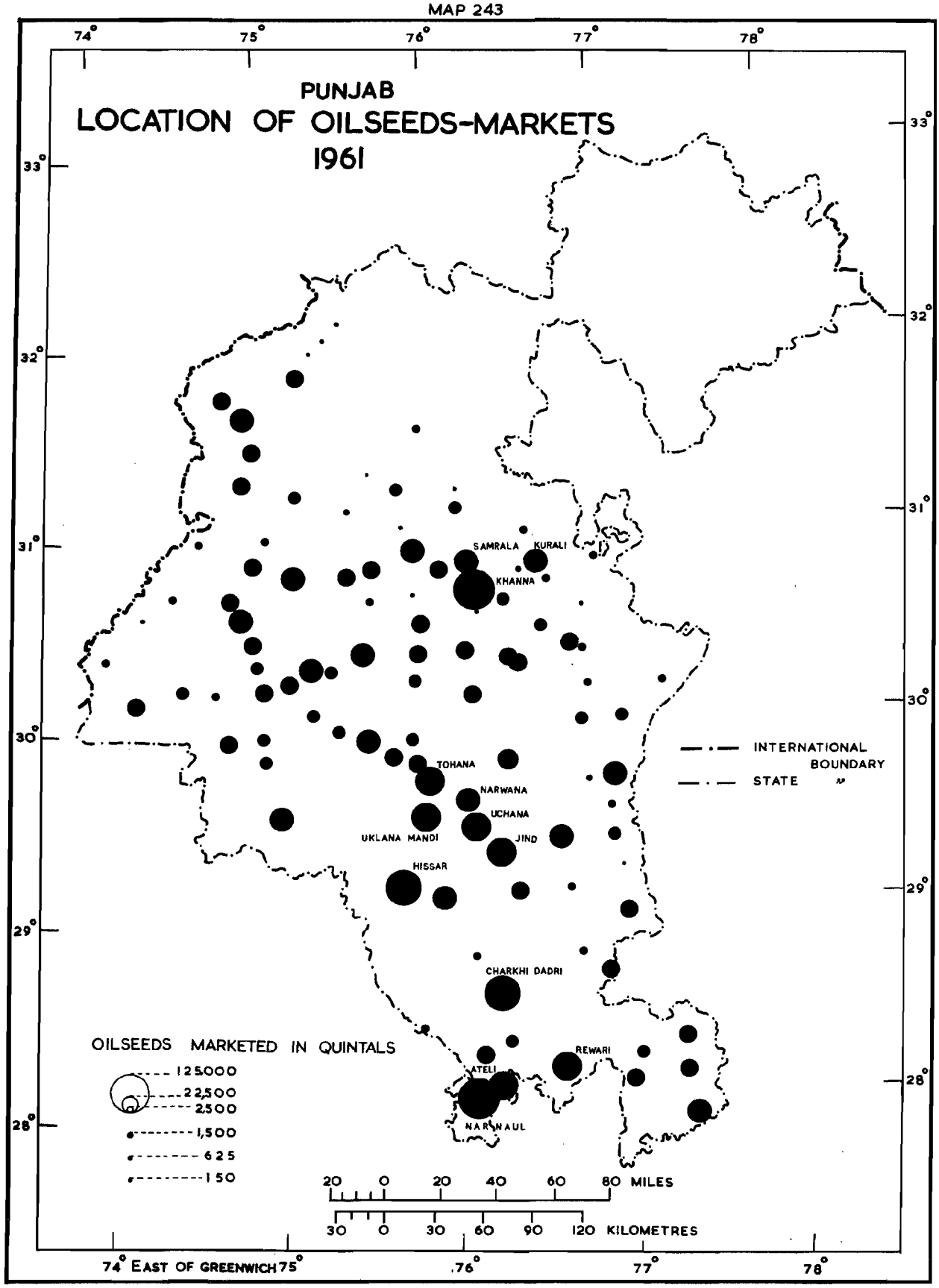
MAP 241


PUNJAB
LOCATION OF CEREAL – MARKETS
1961
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
BATALA
AMRITSAR
JAGRAON
FEROZEPUR
LUDHIANA
MOGA
BARNALA
KOT KAPURA
ABOHAR
KAITHAL
KARNAL
MANDI DABWALI
NARWANA
SIRSA
JIND
HISSAR
INTERNATIONAL BOUNDARY
STATE "
CEREALS MARKETED IN QUINTALS
640,000
360,000
160,000
40,000
2,500
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

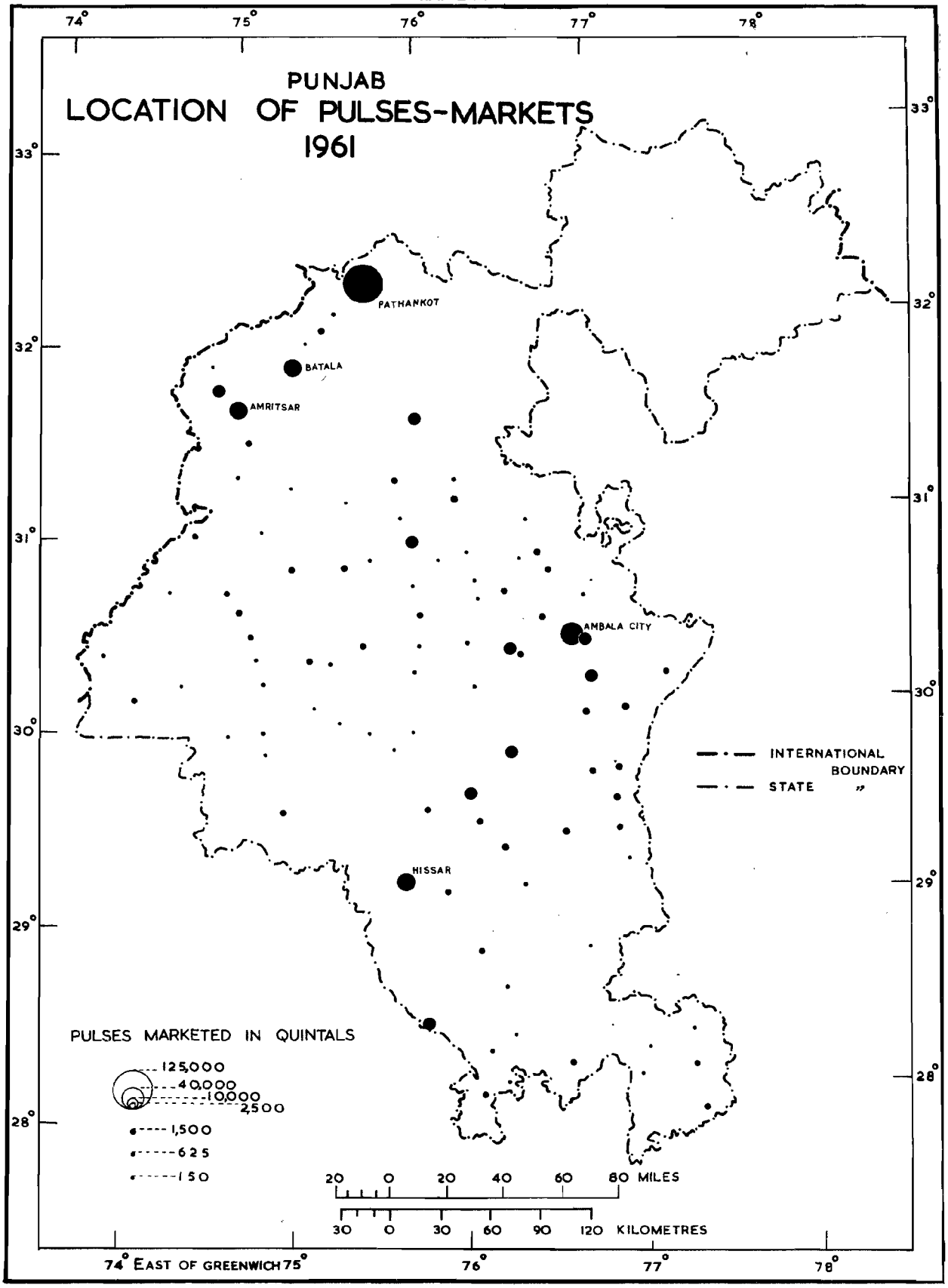
MAP 242


PUNJAB
LOCATION OF SUGAR (GUR) MARKETS : 1961
NAWANSHAHR
KURALI
KHANNA
JAGRAON
RAMPURAPHUL
HISSAR
JULANA
GOHANA
SONEPAT
ROHTAK
SAMPLA
BAHADURGARH
REWARI
INTERNATIONAL BOUNDARY
STATE
SUGAR MARKETED IN QUINTALS
400,000
200,000
62,500
2,500
1,500
625
150
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

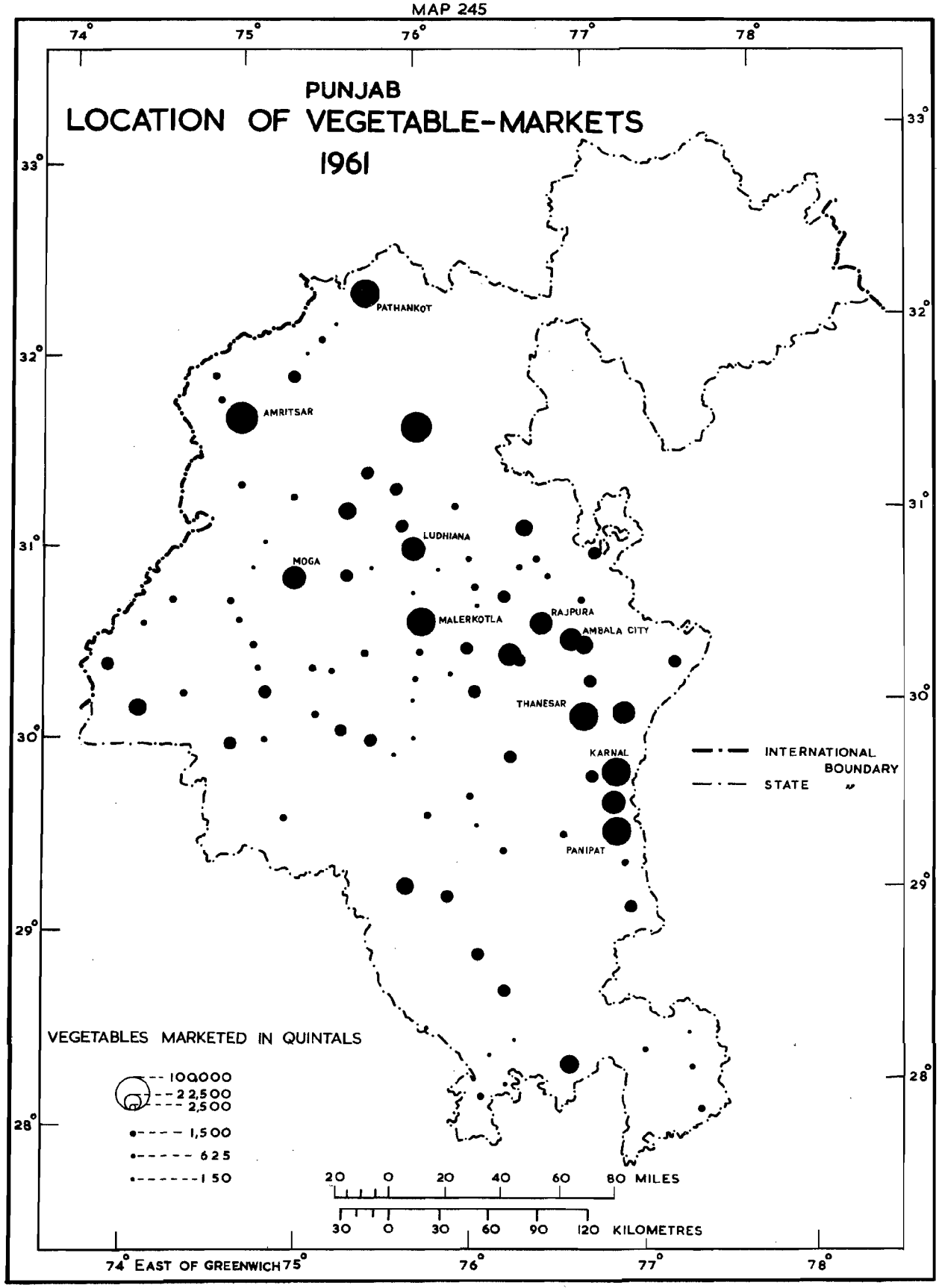
MAP 243


PUNJAB
LOCATION OF OILSEEDS-MARKETS
1961
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
SAMRALA
KURALI
KHANNA
TOHANA
NARWANA
UCHANA
UKLANA MANDI
JIND
HISSAR
CHARKHI DADRI
REWARI
ATELI
NARNAUL
INTERNATIONAL BOUNDARY
STATE "
OILSEEDS MARKETED IN QUINTALS
125000
22,500
2500
1,500
625
150
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

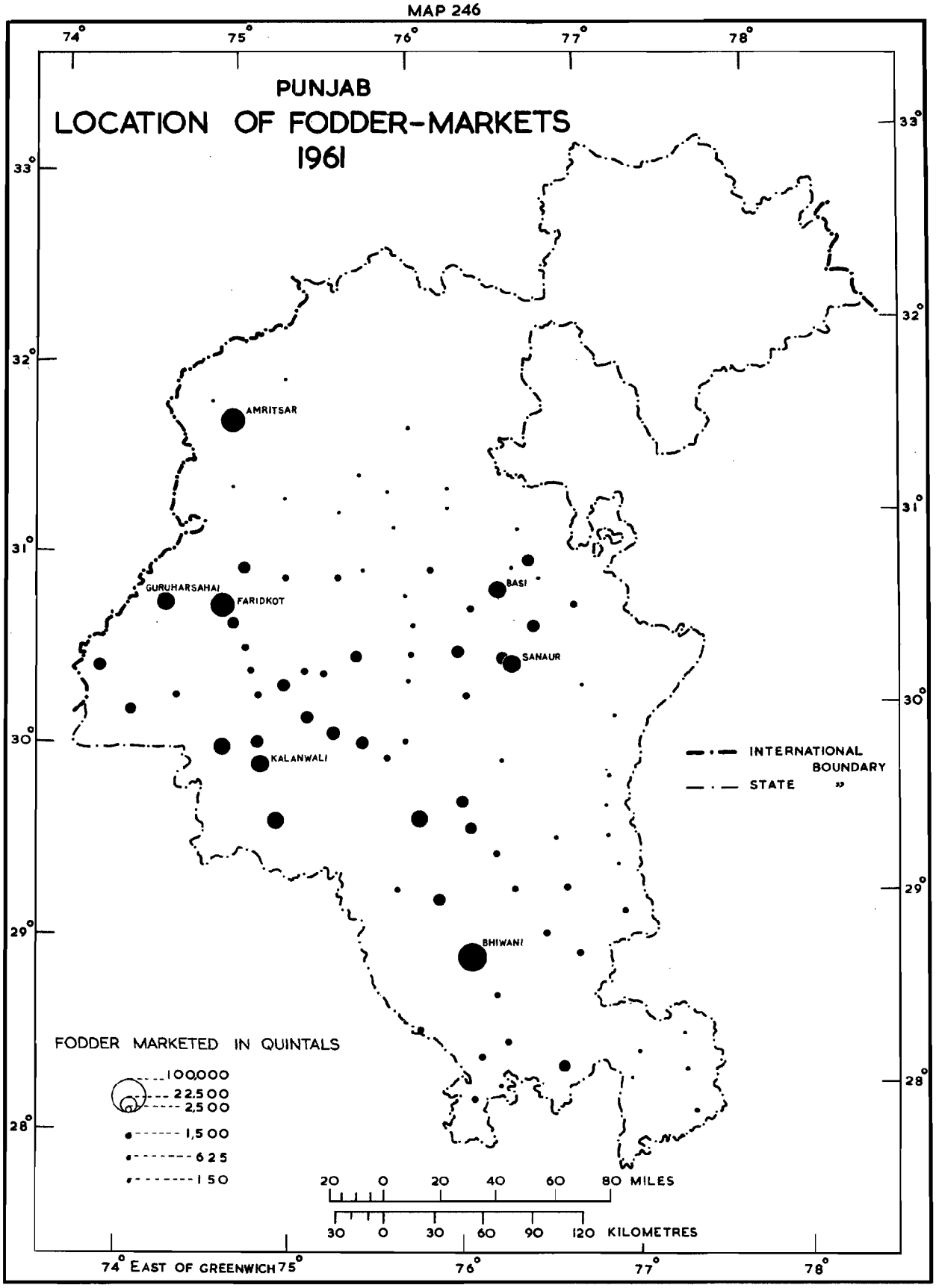
MAP 244


PUNJAB
LOCATION OF PULSES-MARKETS
1961
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
PATHANKOT
BATALA
AMRITSAR
AMBALA CITY
HISSAR
INTERNATIONAL BOUNDARY
STATE "
PULSES MARKETED IN QUINTALS
125,000
40,000
10,000
2,500
1,500
625
150
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

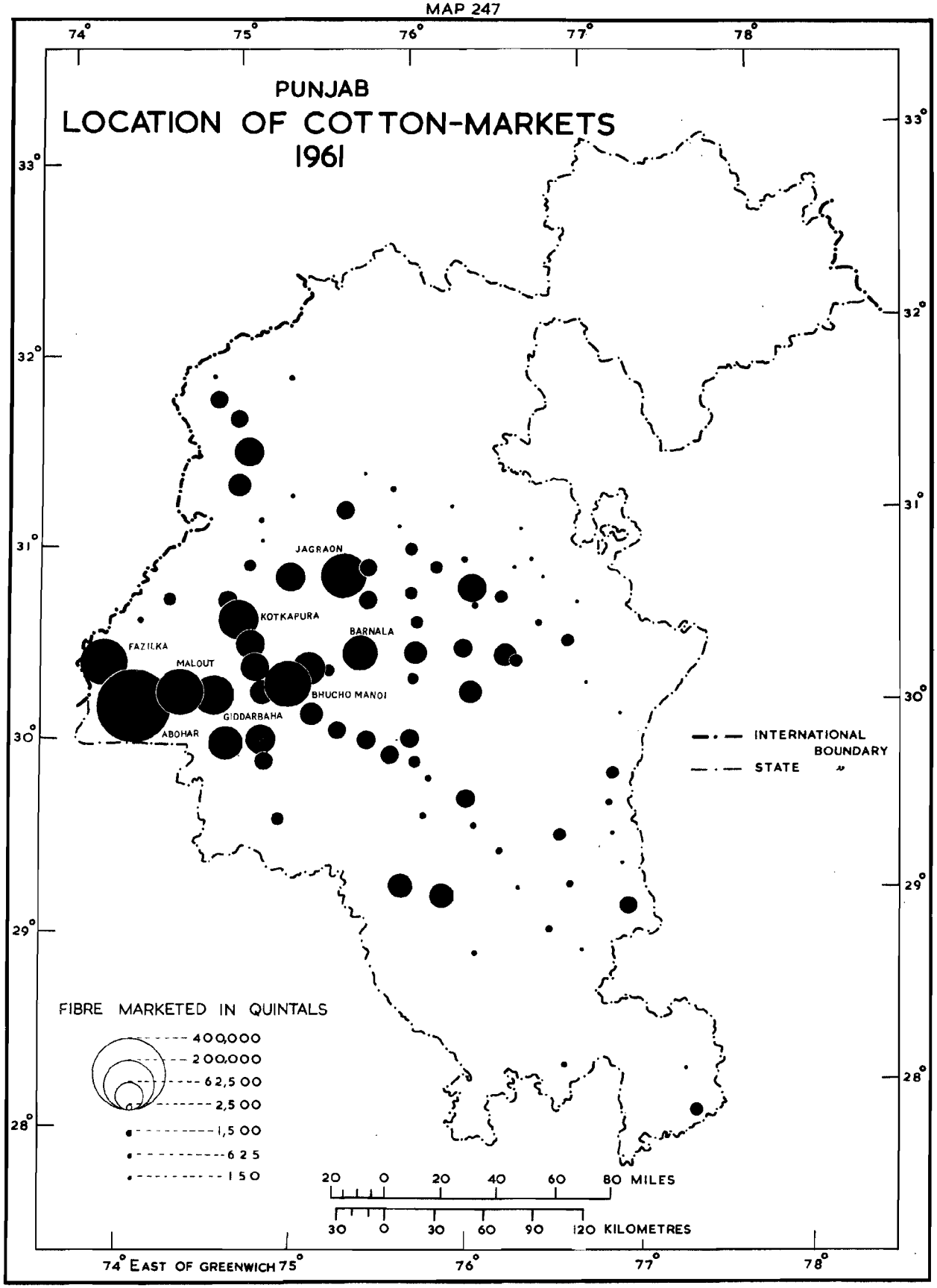
MAP 245


PUNJAB
LOCATION OF VEGETABLE-MARKETS
1961
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
PATHANKOT
AMRITSAR
LUDHIANA
MOGA
MALERKOTLA
RAJPURA
AMBALA CITY
THANESAR
KARNAL
PANIPAT
INTERNATIONAL BOUNDARY
STATE
VEGETABLES MARKETED IN QUINTALS
100000
22,500
2,500
1,500
625
150
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

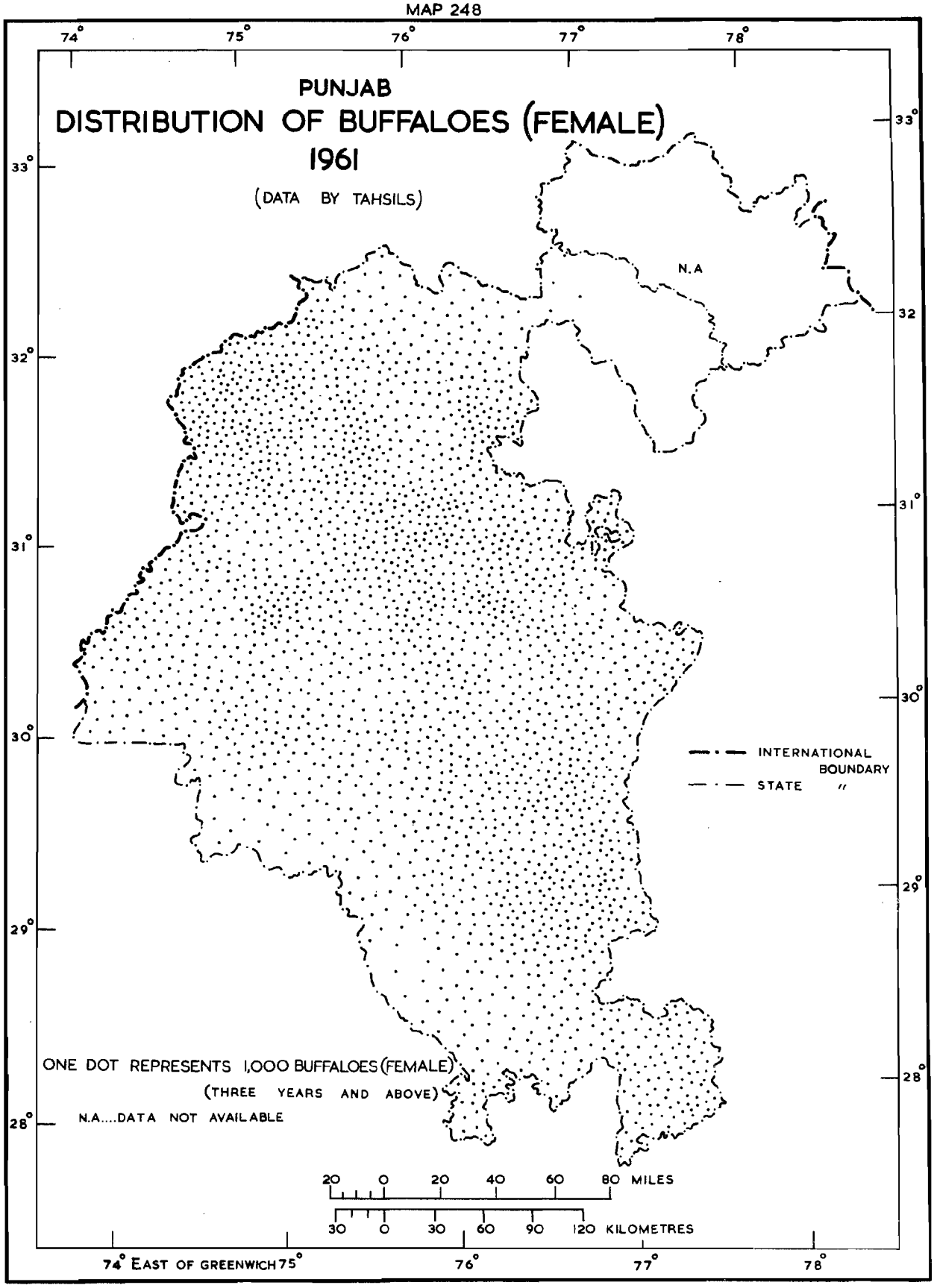
MAP 246


PUNJAB
LOCATION OF FODDER-MARKETS
1961
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
AMRITSAR
GURUHARSAHAI
FARIDKOT
BASI
SANAUR
KALANWALI
BHIWANI
INTERNATIONAL BOUNDARY
STATE »
FODDER MARKETED IN QUINTALS
100,000
22,500
2,500
1,500
625
150
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

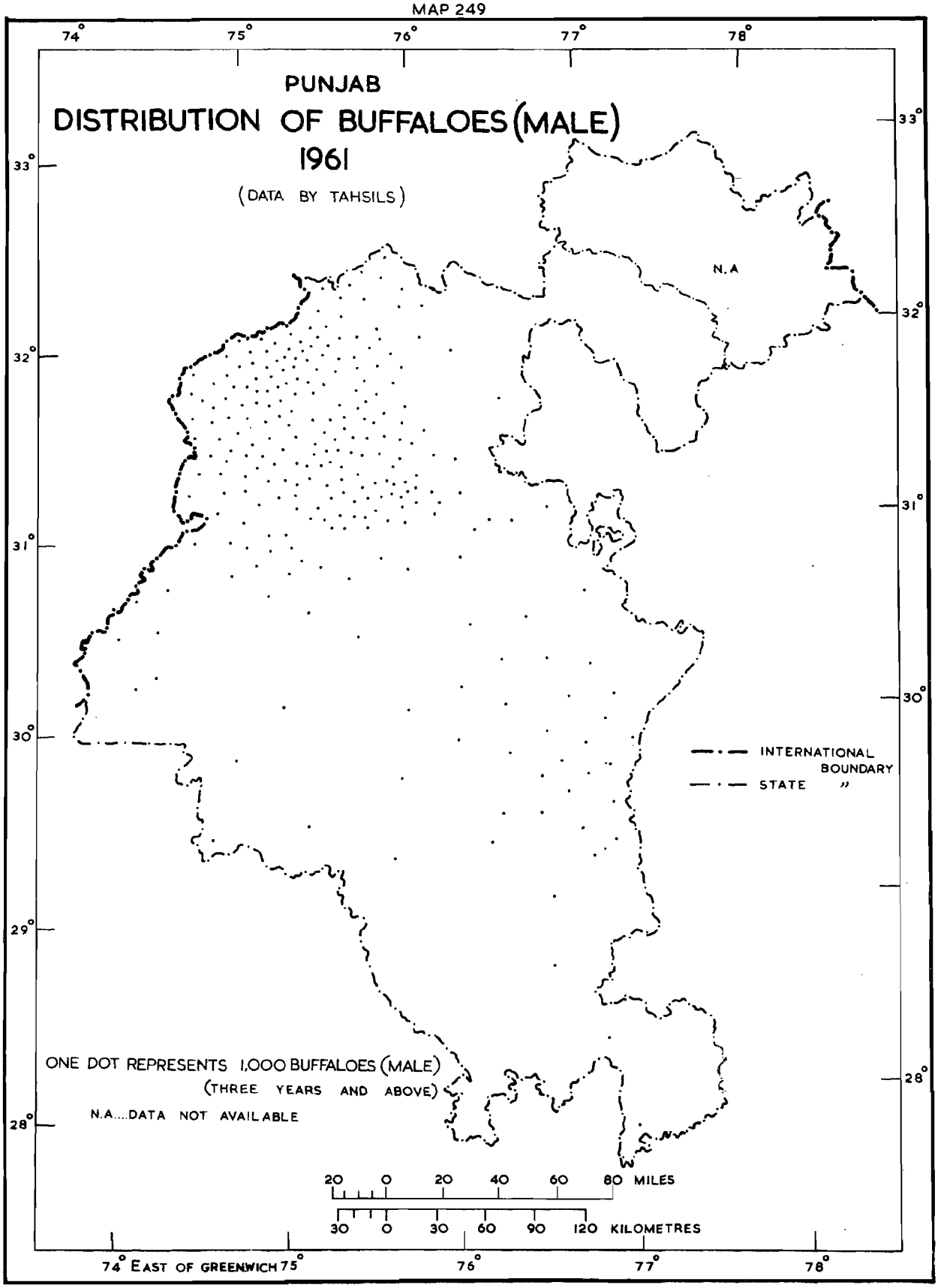
MAP 247


PUNJAB
LOCATION OF COTTON-MARKETS
1961
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
JAGRAON
KOTKAPURA
BARNALA
FAZILKA
MALOUT
BHUCHO MANDI
GIDDARBAHA
ABOHAR
INTERNATIONAL BOUNDARY
STATE "
FIBRE MARKETED IN QUINTALS
400,000
200,000
62,500
2,500
1,500
625
150
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

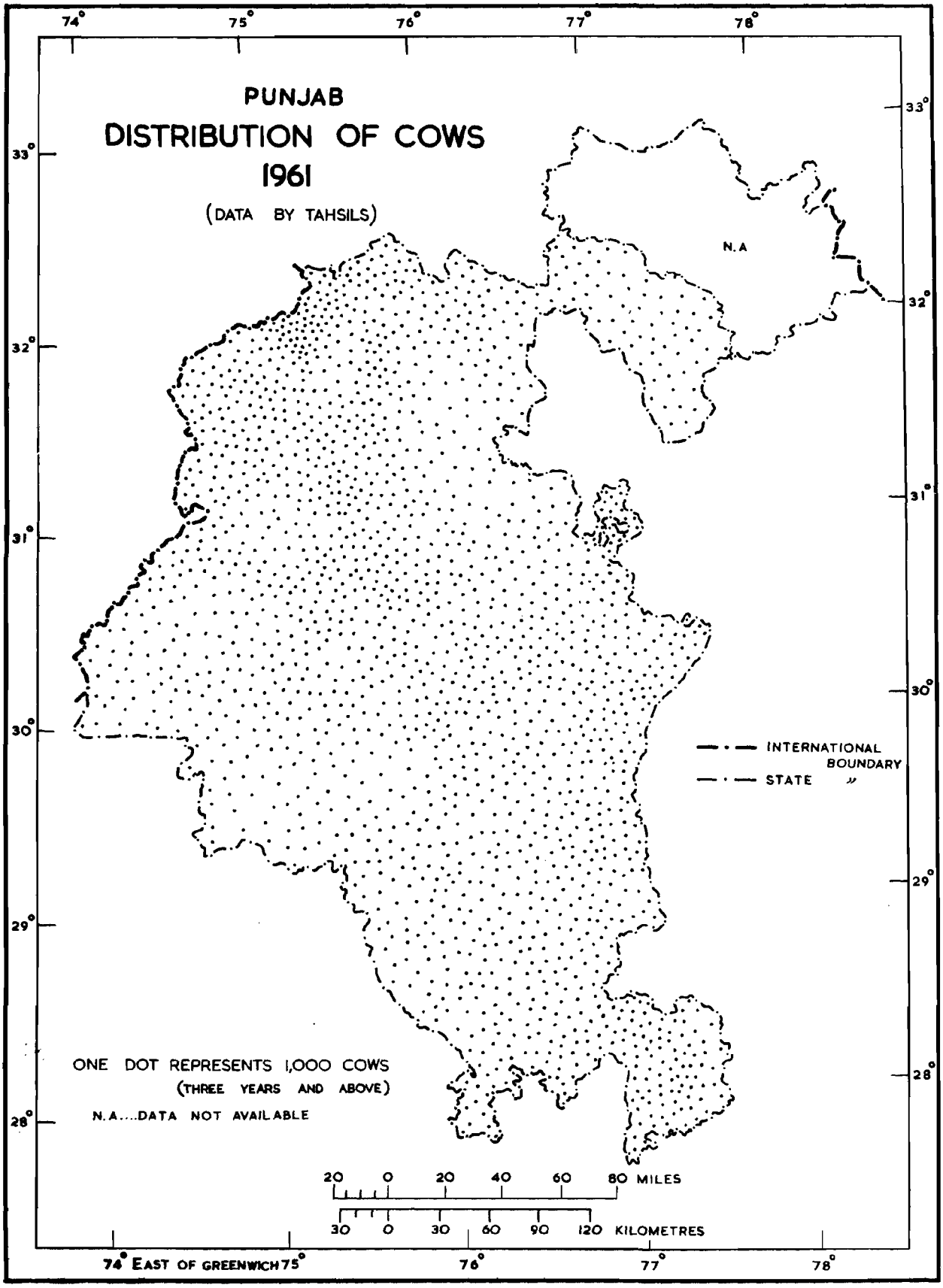
MAP 248


PUNJAB
DISTRIBUTION OF BUFFALOES (FEMALE)
1961
(DATA BY TAHSILS)
N.A
INTERNATIONAL BOUNDARY
STATE "
ONE DOT REPRESENTS 1,000 BUFFALOES (FEMALE)
(THREE YEARS AND ABOVE)
N.A....DATA NOT AVAILABLE
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
74° 75° 76° 77° 78°
33° 32° 31° 30° 29° 28°

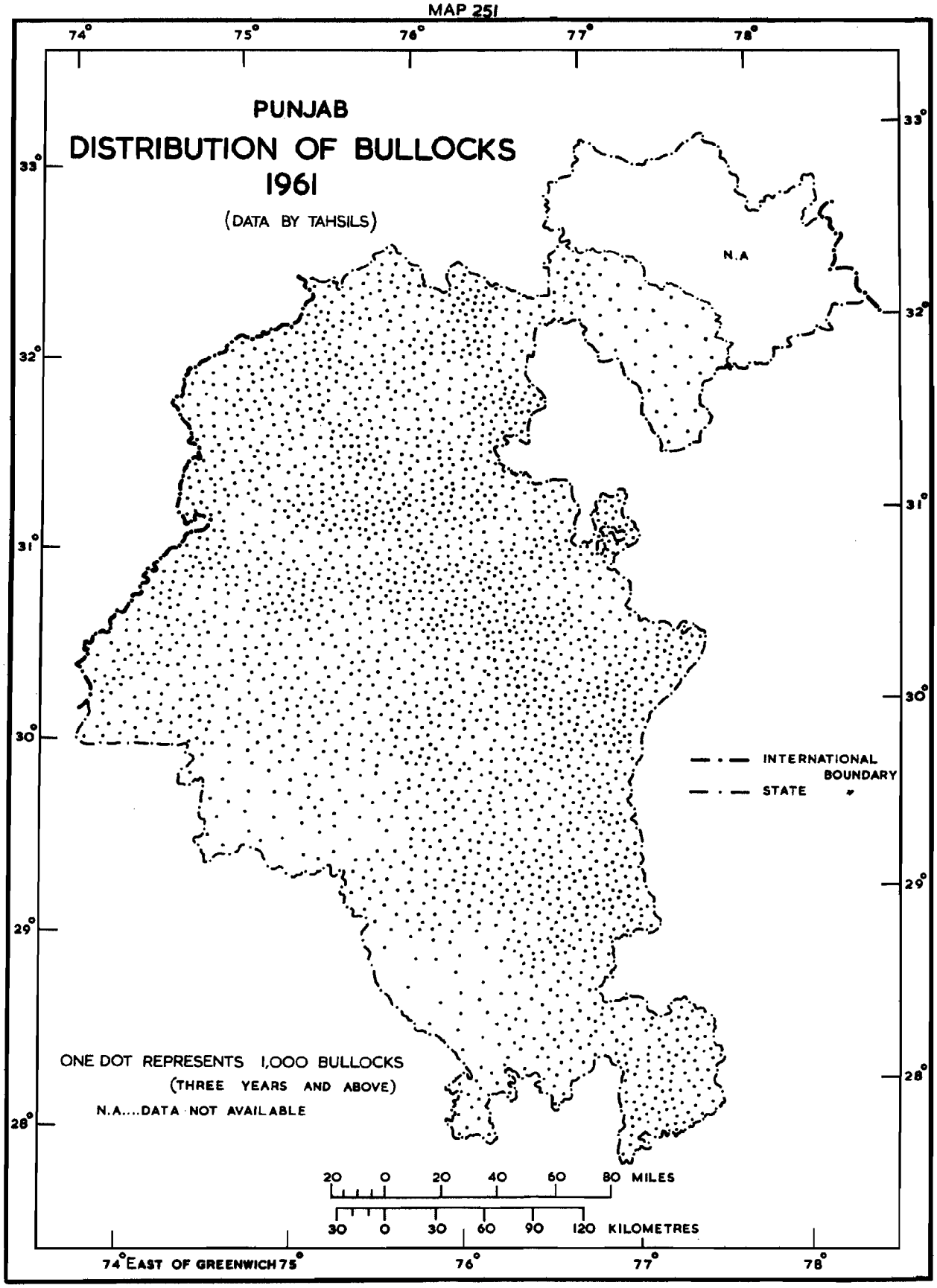
MAP 249


PUNJAB
DISTRIBUTION OF BUFFALOES (MALE)
1961
(DATA BY TAHSILS)
N.A
INTERNATIONAL BOUNDARY
STATE "
ONE DOT REPRESENTS 1,000 BUFFALOES (MALE)
(THREE YEARS AND ABOVE)
N.A....DATA NOT AVAILABLE
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

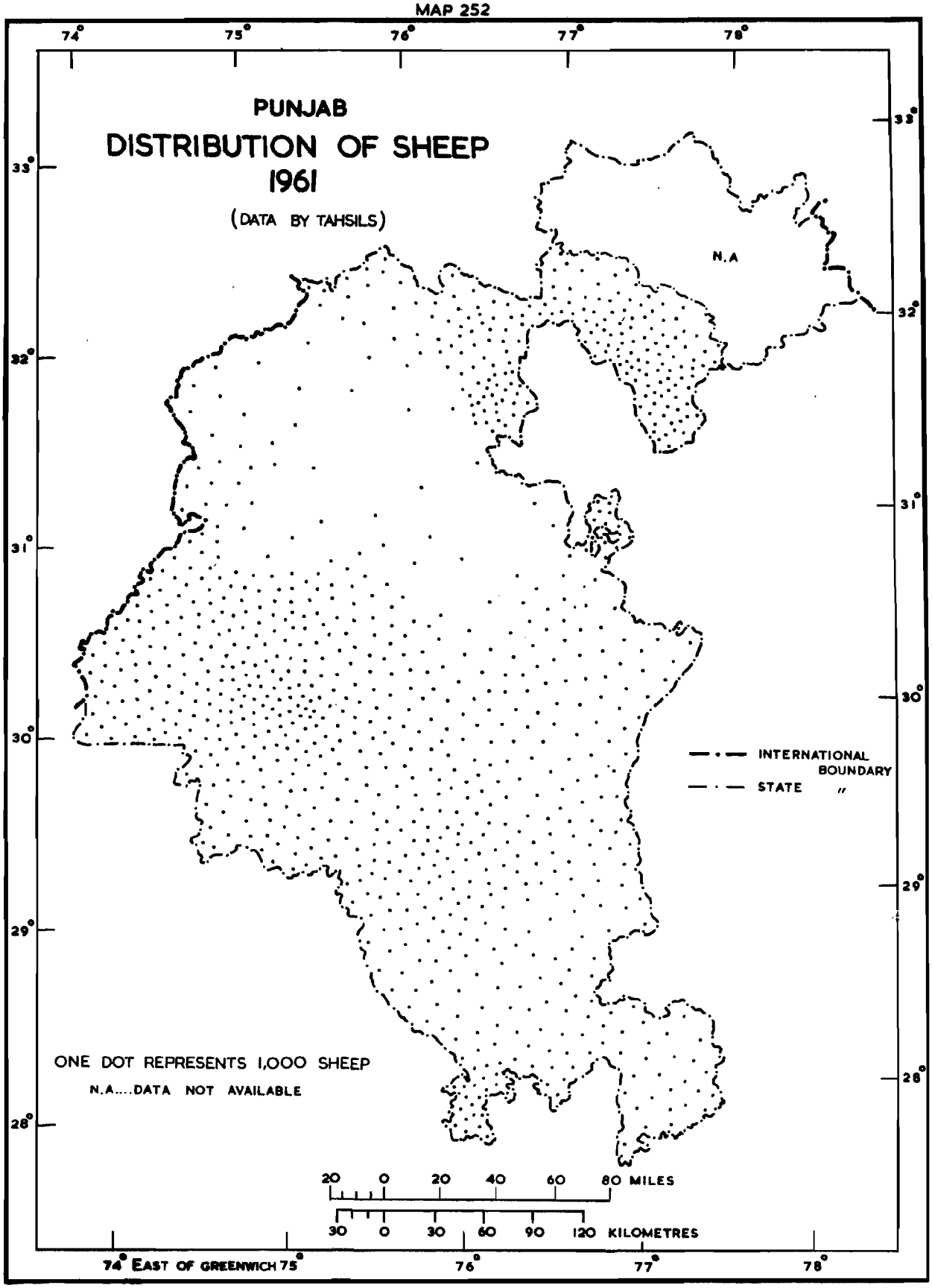
MAP 250


PUNJAB
DISTRIBUTION OF COWS
1961
(DATA BY TAHSILS)
N.A
INTERNATIONAL BOUNDARY
STATE "
ONE DOT REPRESENTS 1,000 COWS
(THREE YEARS AND ABOVE)
N.A....DATA NOT AVAILABLE
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
74° 75° 76° 77° 78°
33° 32° 31° 30° 29° 28°

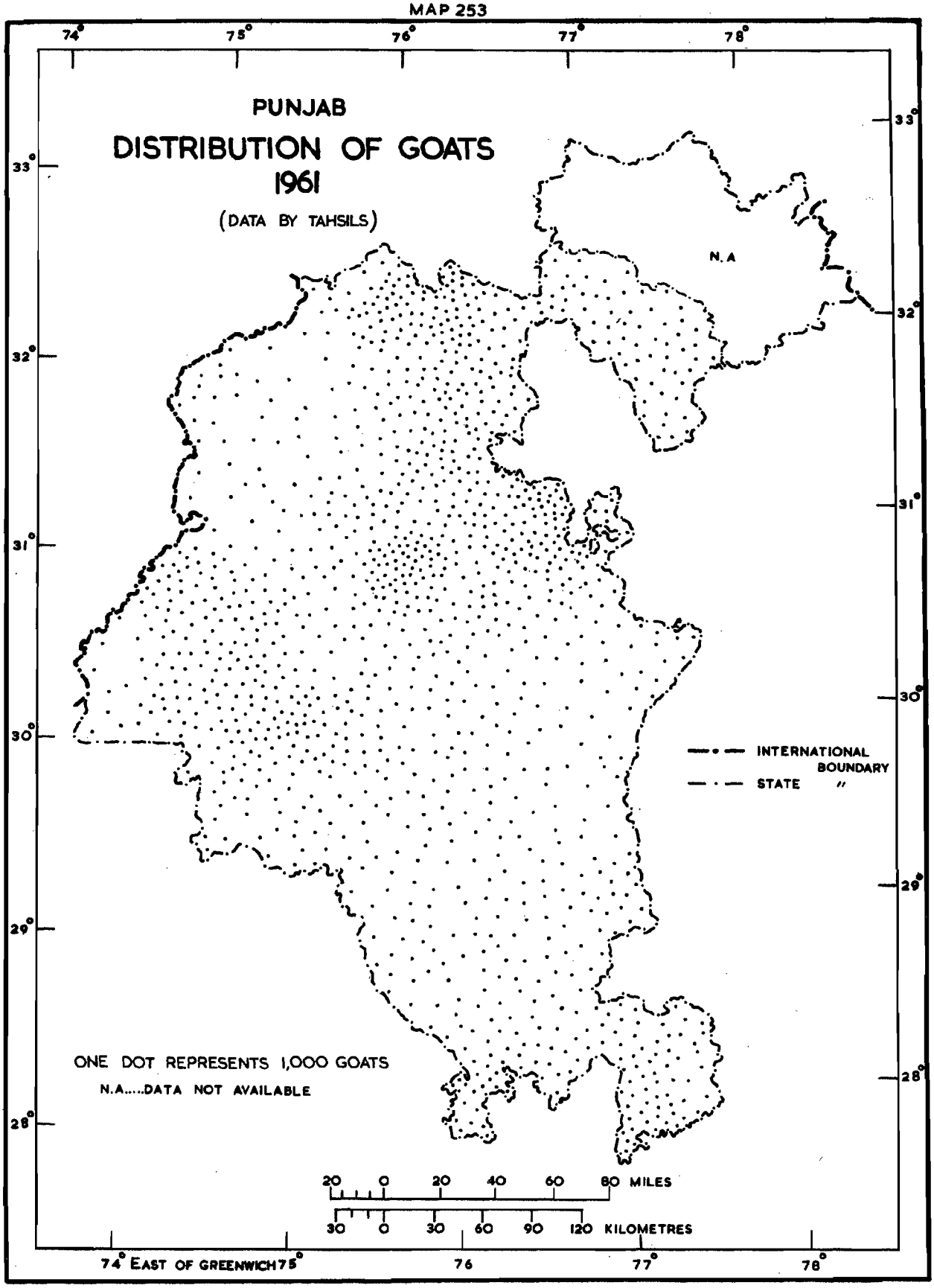
MAP 251


PUNJAB
DISTRIBUTION OF BULLOCKS
1961
(DATA BY TAHSILS)
N.A
INTERNATIONAL BOUNDARY
STATE
ONE DOT REPRESENTS 1,000 BULLOCKS
(THREE YEARS AND ABOVE)
N.A....DATA NOT AVAILABLE
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

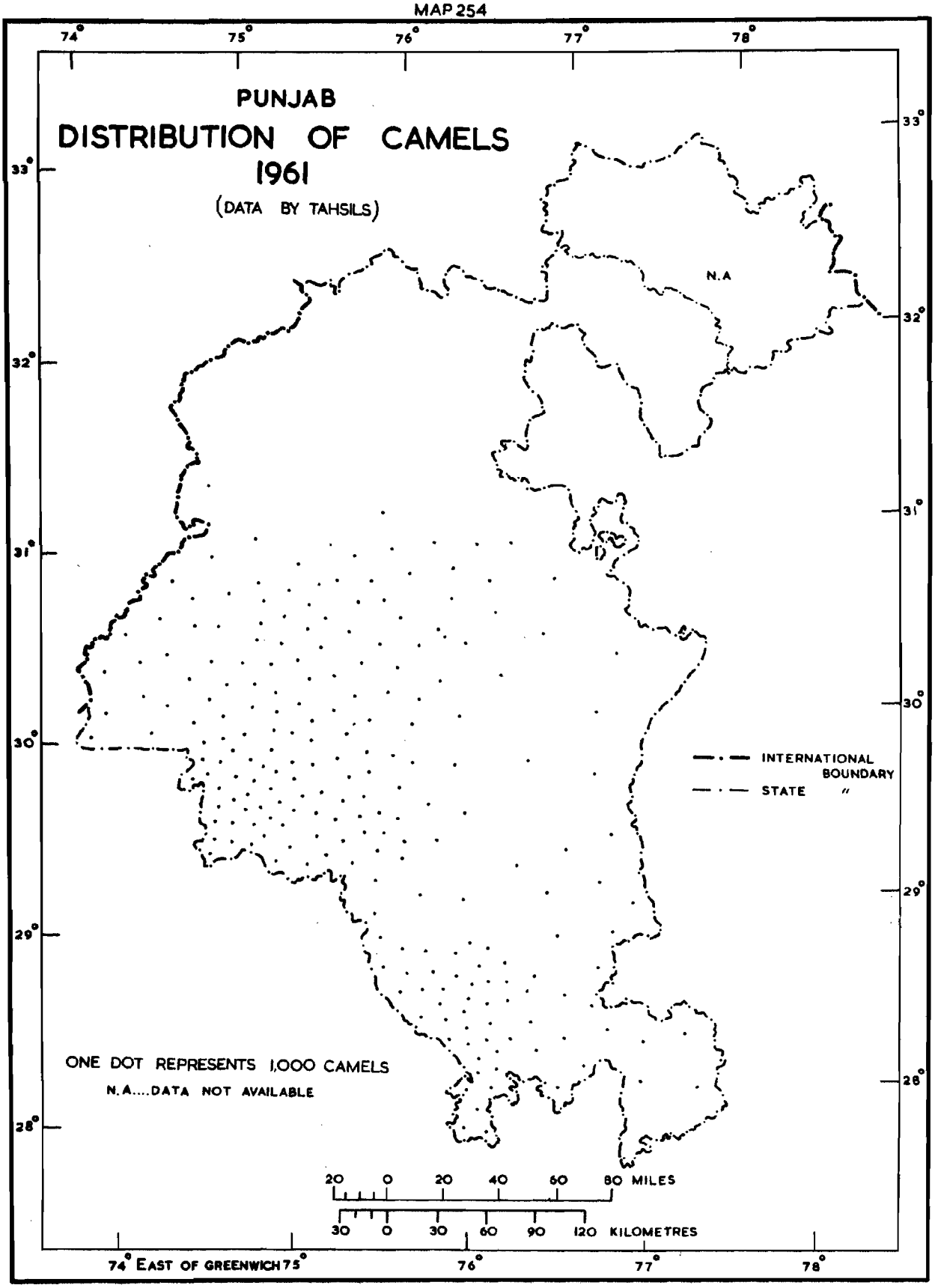
MAP 252


PUNJAB
DISTRIBUTION OF SHEEP
1961
(DATA BY TAHSILS)
N.A
INTERNATIONAL BOUNDARY
STATE "
ONE DOT REPRESENTS 1,000 SHEEP
N.A....DATA NOT AVAILABLE
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

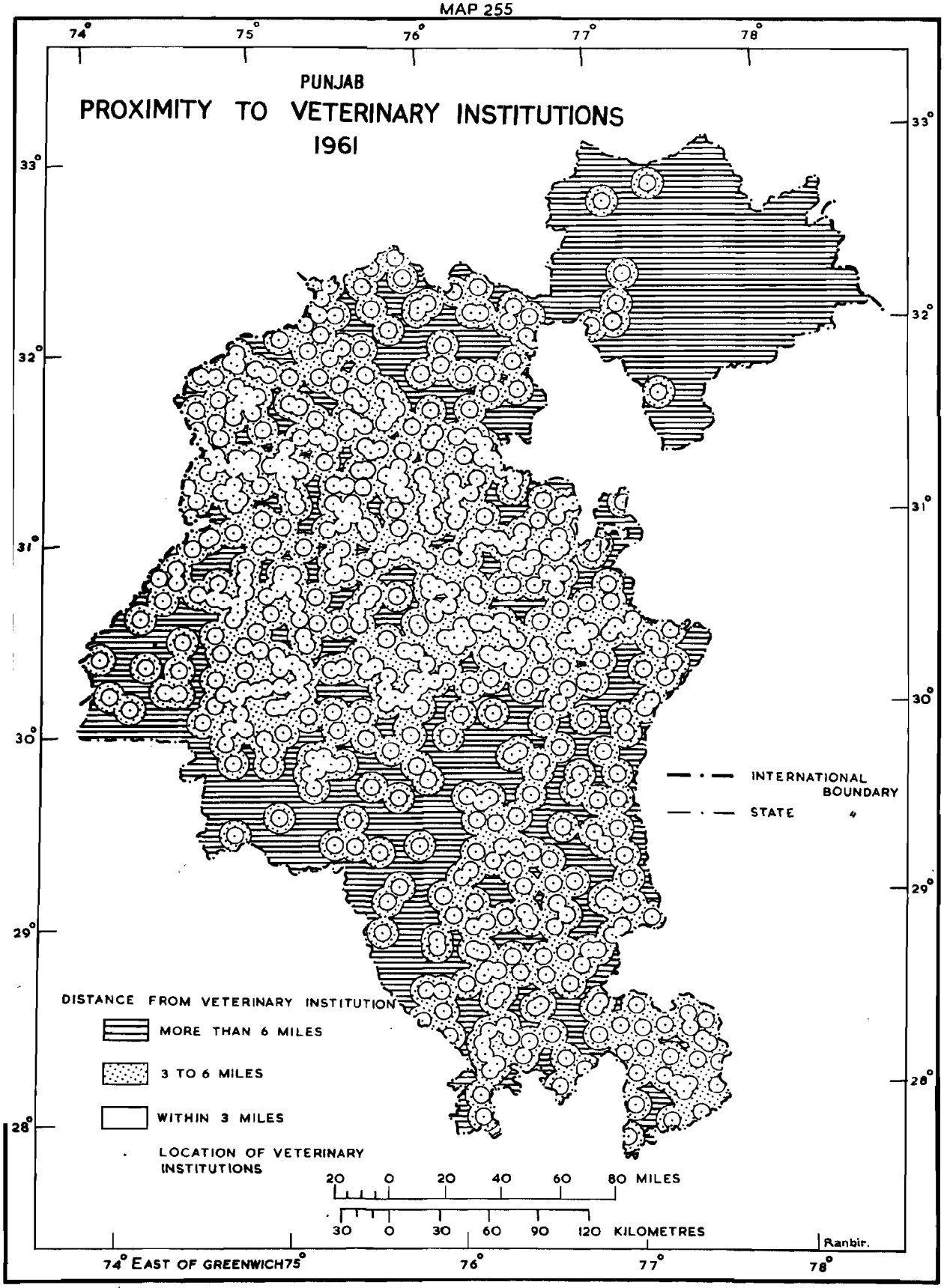
MAP 253


PUNJAB
DISTRIBUTION OF GOATS
1961
(DATA BY TAHSILS)
N.A
INTERNATIONAL BOUNDARY
STATE "
ONE DOT REPRESENTS 1,000 GOATS
N.A.....DATA NOT AVAILABLE
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
75°
76
77°
78°
33°
32°
31°
30°
29°
28°

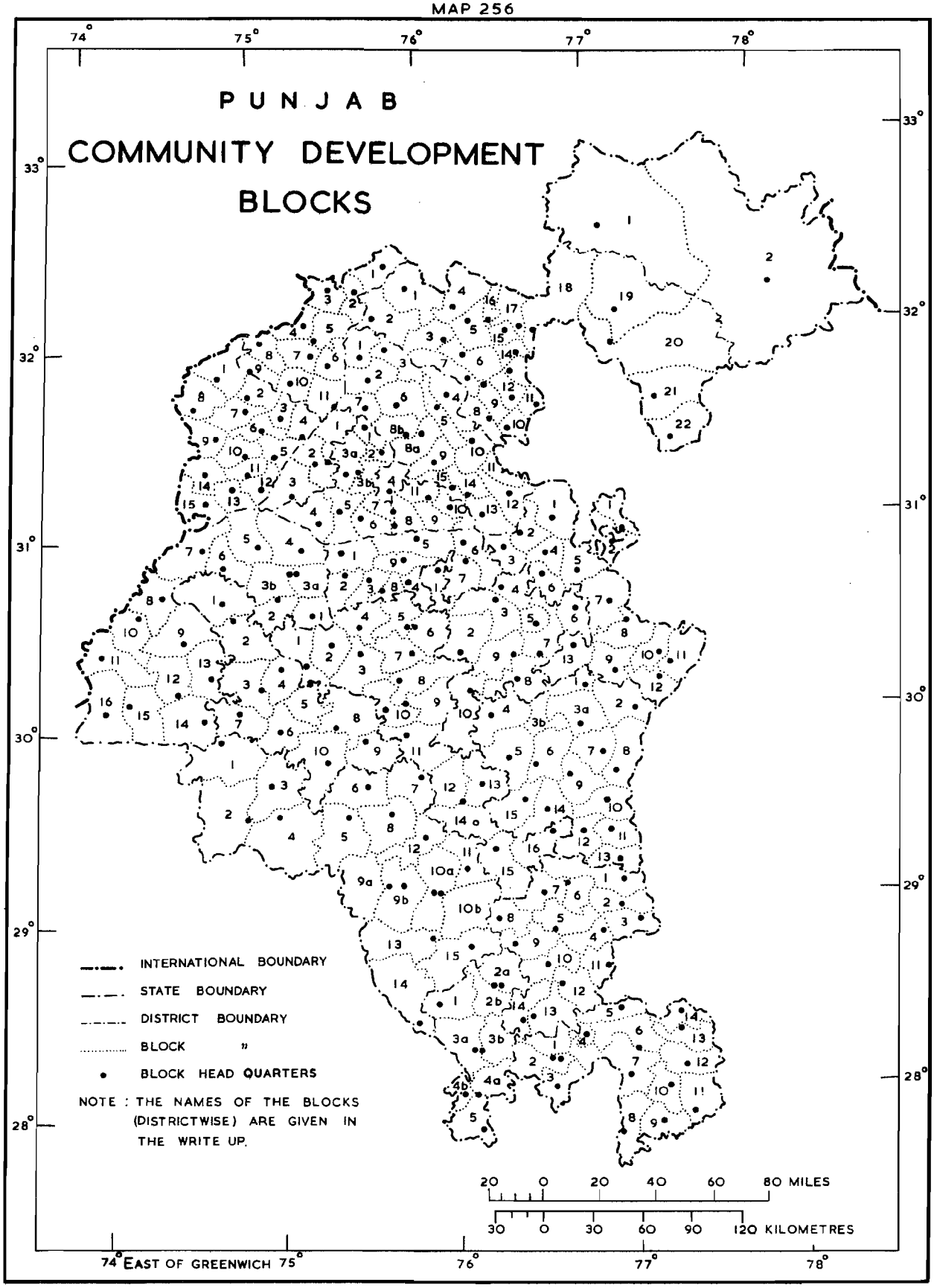
MAP 254


PUNJAB
DISTRIBUTION OF CAMELS
1961
(DATA BY TAHSILS)
N.A
INTERNATIONAL BOUNDARY
STATE "
ONE DOT REPRESENTS 1,000 CAMELS
N.A....DATA NOT AVAILABLE
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

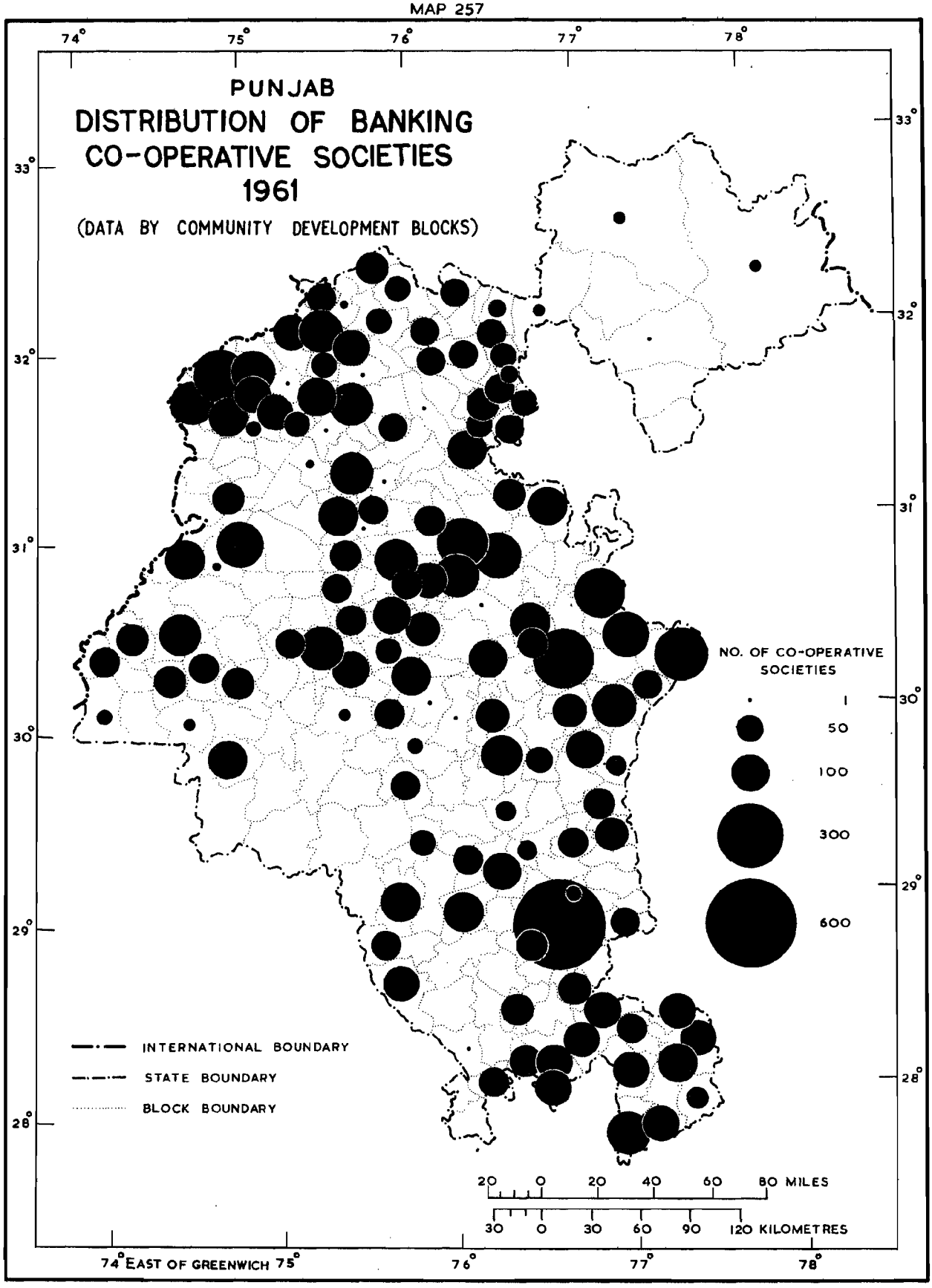
MAP 255


PUNJAB
PROXIMITY TO VETERINARY INSTITUTIONS
1961
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE
DISTANCE FROM VETERINARY INSTITUTION
MORE THAN 6 MILES
3 TO 6 MILES
WITHIN 3 MILES
LOCATION OF VETERINARY INSTITUTIONS
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
Ranbir.
74° EAST OF GREENWICH

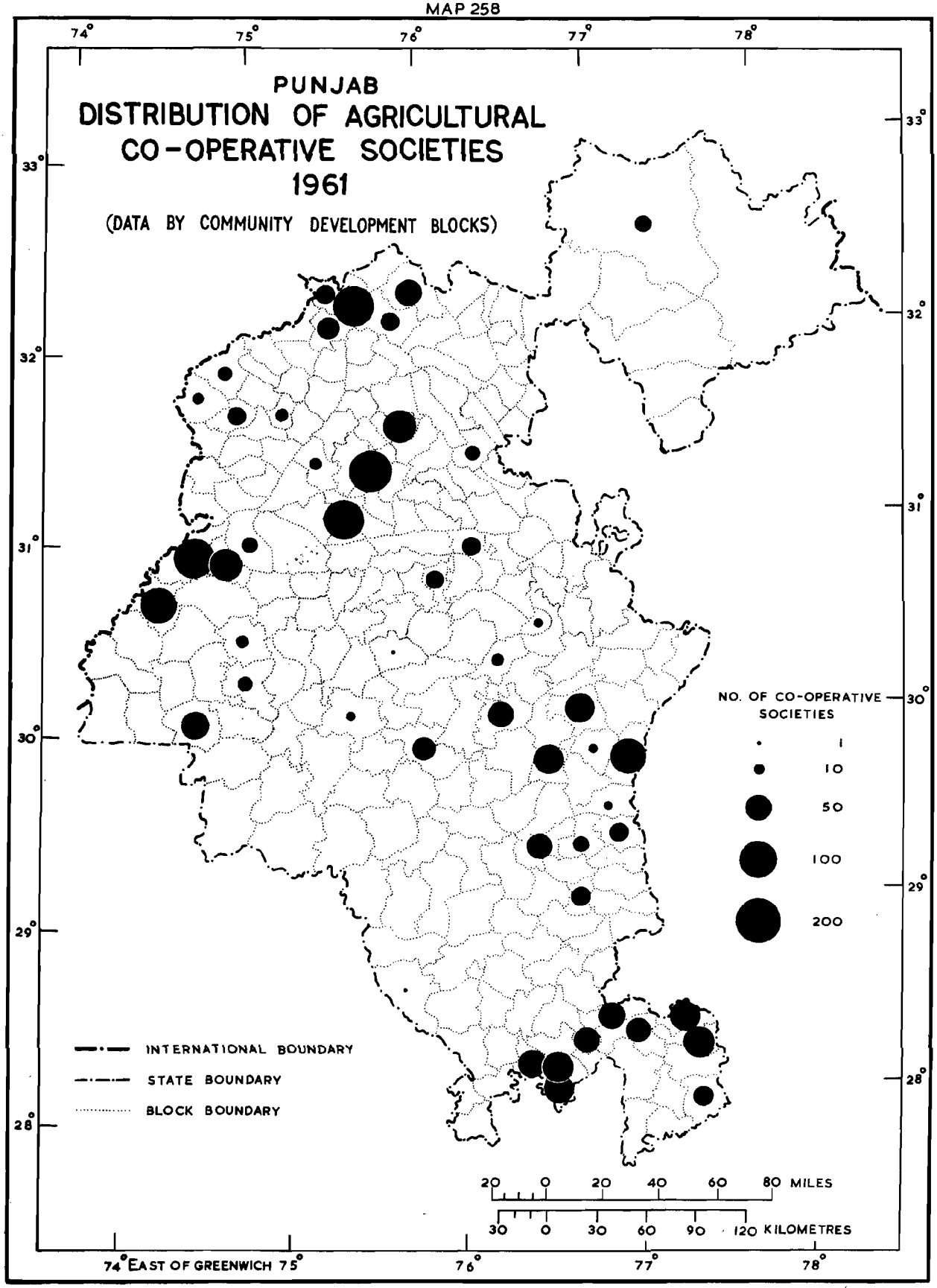
MAP 256


PUNJAB
COMMUNITY DEVELOPMENT BLOCKS
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE BOUNDARY
DISTRICT BOUNDARY
BLOCK "
BLOCK HEAD QUARTERS
NOTE : THE NAMES OF THE BLOCKS (DISTRICTWISE) ARE GIVEN IN THE WRITE UP.
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75° 76° 77° 78°

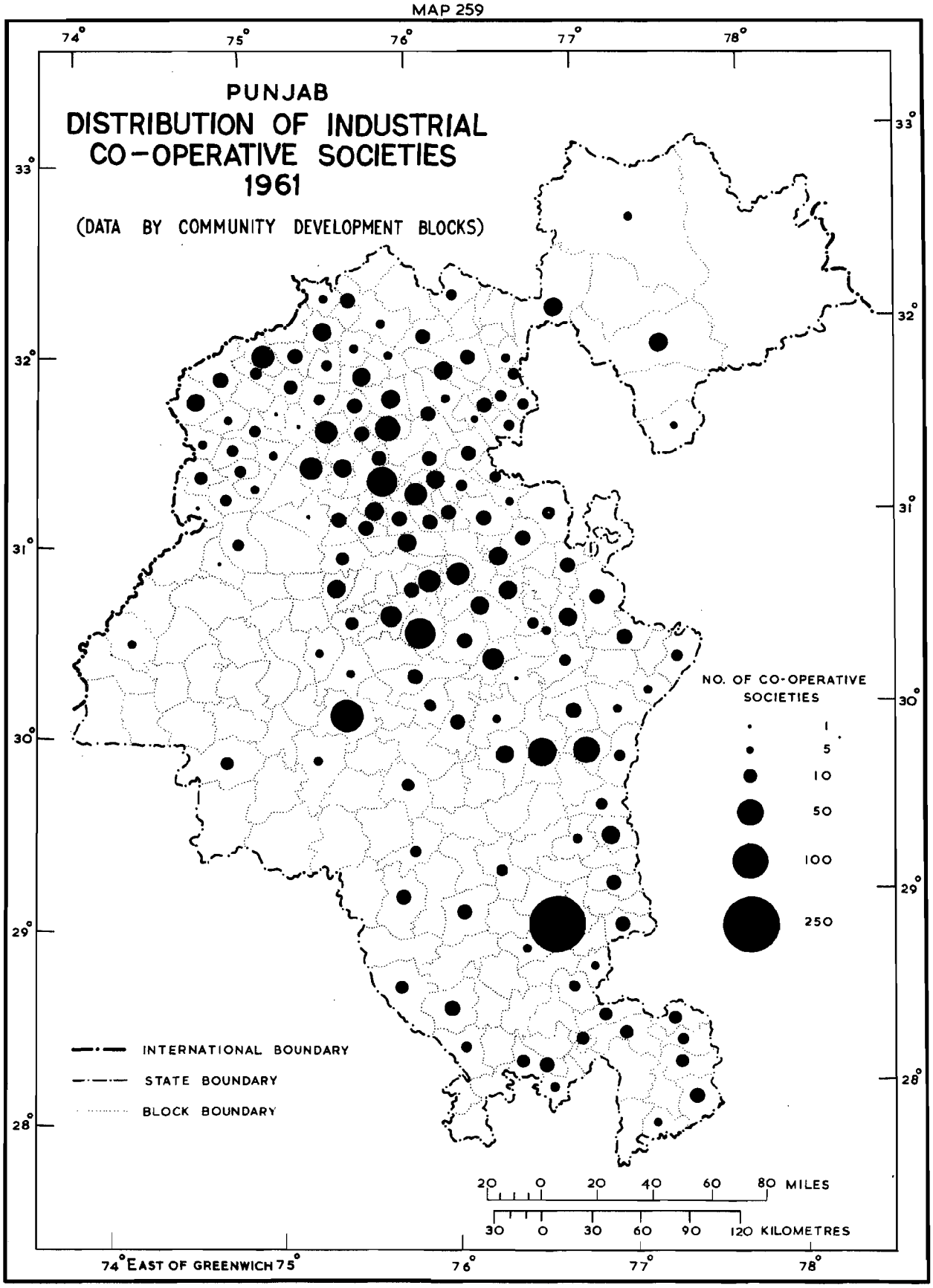
MAP 257


PUNJAB
DISTRIBUTION OF BANKING CO-OPERATIVE SOCIETIES 1961
(DATA BY COMMUNITY DEVELOPMENT BLOCKS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
NO. OF CO-OPERATIVE SOCIETIES
1
50
100
300
600
INTERNATIONAL BOUNDARY
STATE BOUNDARY
BLOCK BOUNDARY
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

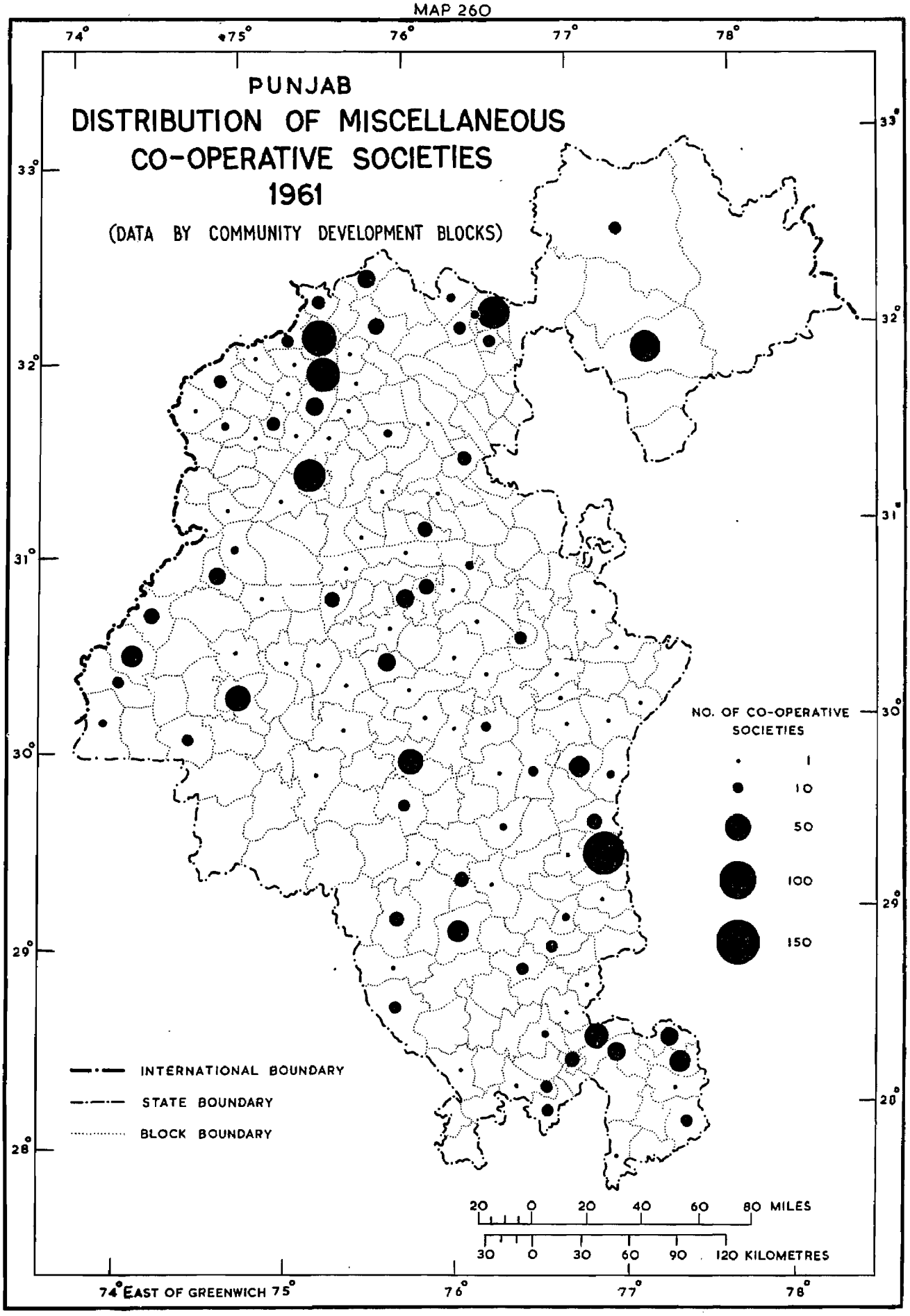
MAP 258


PUNJAB
DISTRIBUTION OF AGRICULTURAL CO-OPERATIVE SOCIETIES 1961
(DATA BY COMMUNITY DEVELOPMENT BLOCKS)
NO. OF CO-OPERATIVE SOCIETIES
1
10
50
100
200
INTERNATIONAL BOUNDARY
STATE BOUNDARY
BLOCK BOUNDARY
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

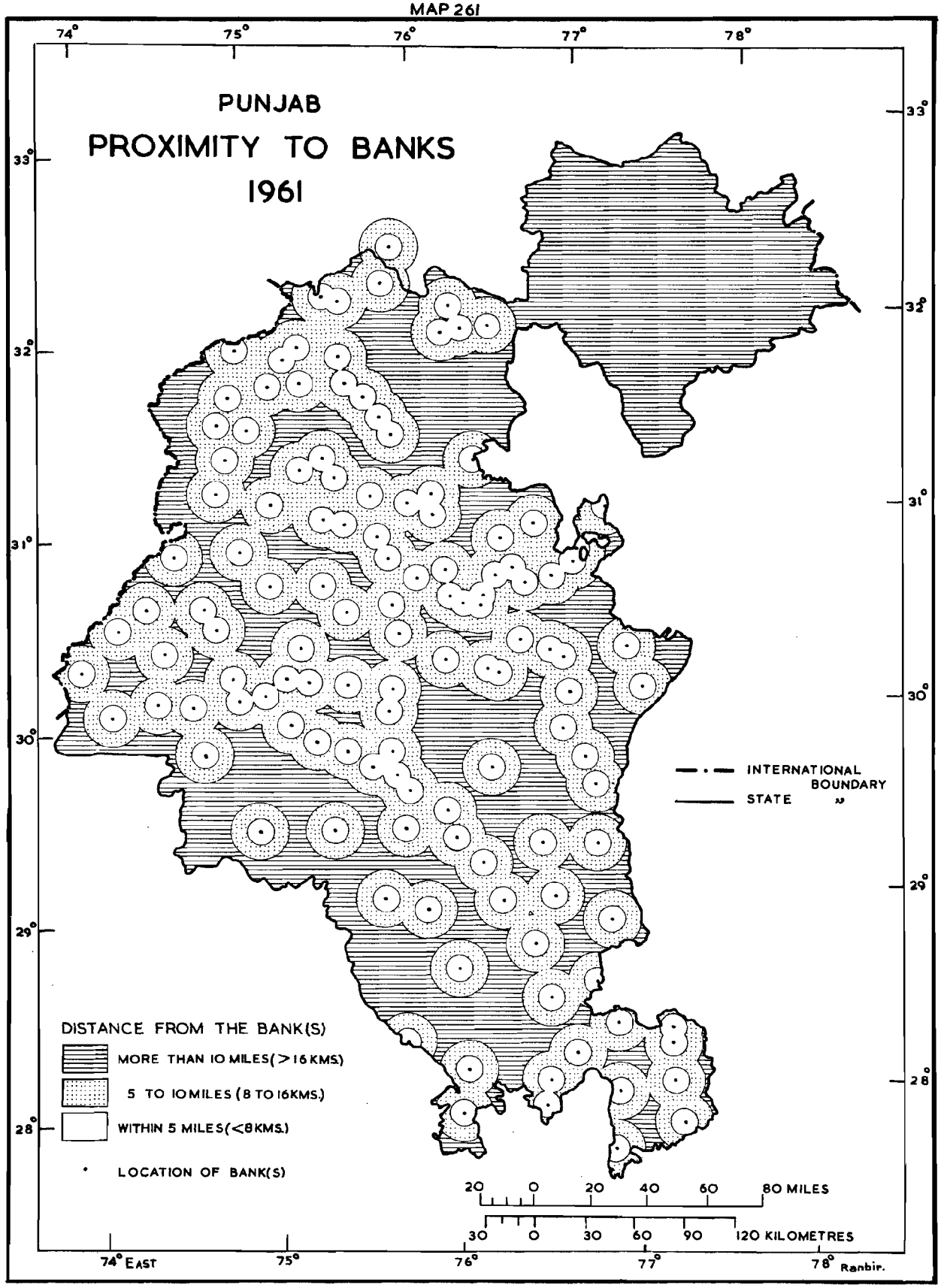
MAP 259


PUNJAB
DISTRIBUTION OF INDUSTRIAL CO-OPERATIVE SOCIETIES 1961
(DATA BY COMMUNITY DEVELOPMENT BLOCKS)
NO. OF CO-OPERATIVE SOCIETIES
1
5
10
50
100
250
INTERNATIONAL BOUNDARY
STATE BOUNDARY
BLOCK BOUNDARY
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

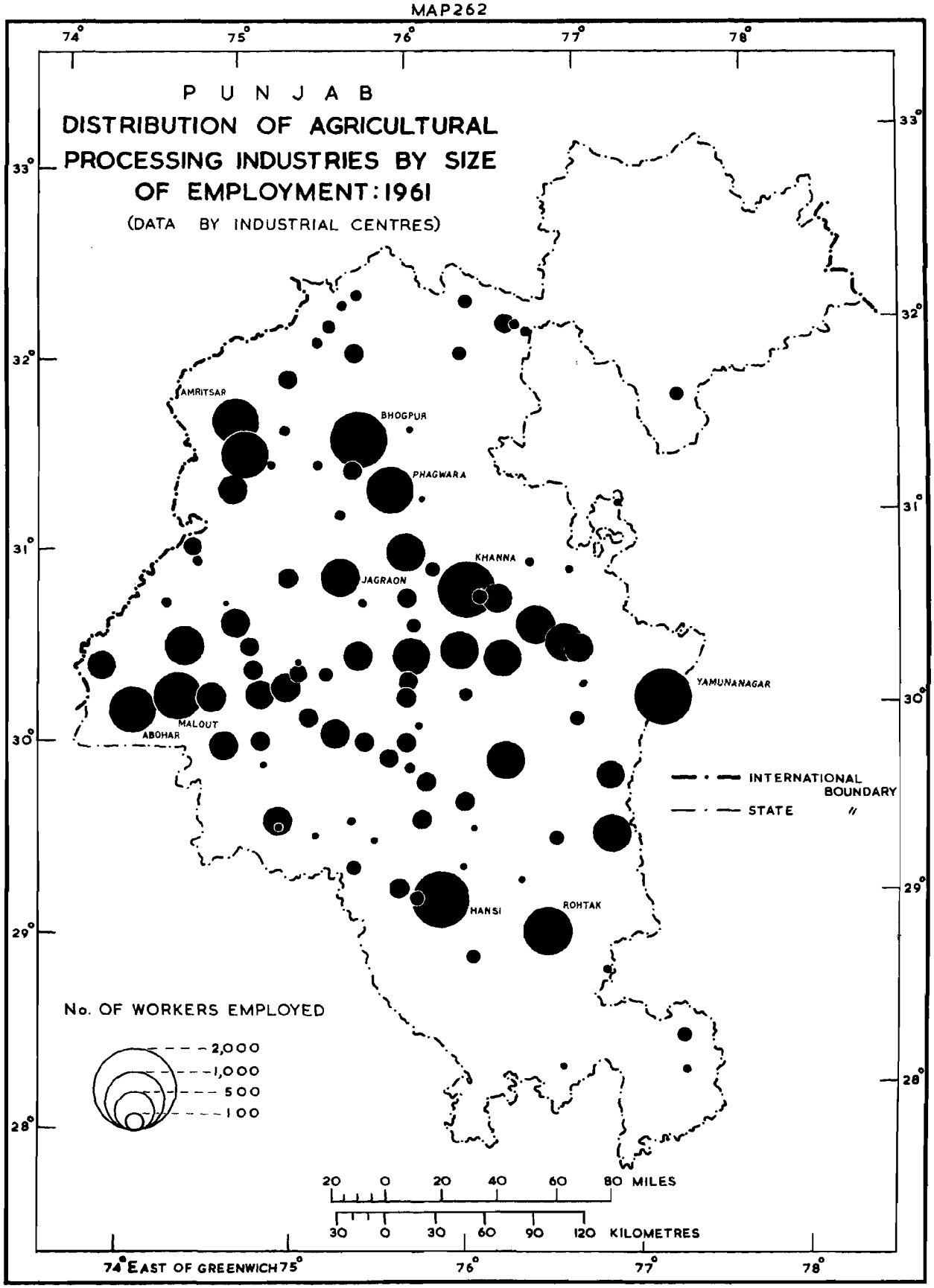
MAP 260


PUNJAB
DISTRIBUTION OF MISCELLANEOUS CO-OPERATIVE SOCIETIES 1961
(DATA BY COMMUNITY DEVELOPMENT BLOCKS)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
NO. OF CO-OPERATIVE SOCIETIES
1
10
50
100
150
INTERNATIONAL BOUNDARY
STATE BOUNDARY
BLOCK BOUNDARY
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

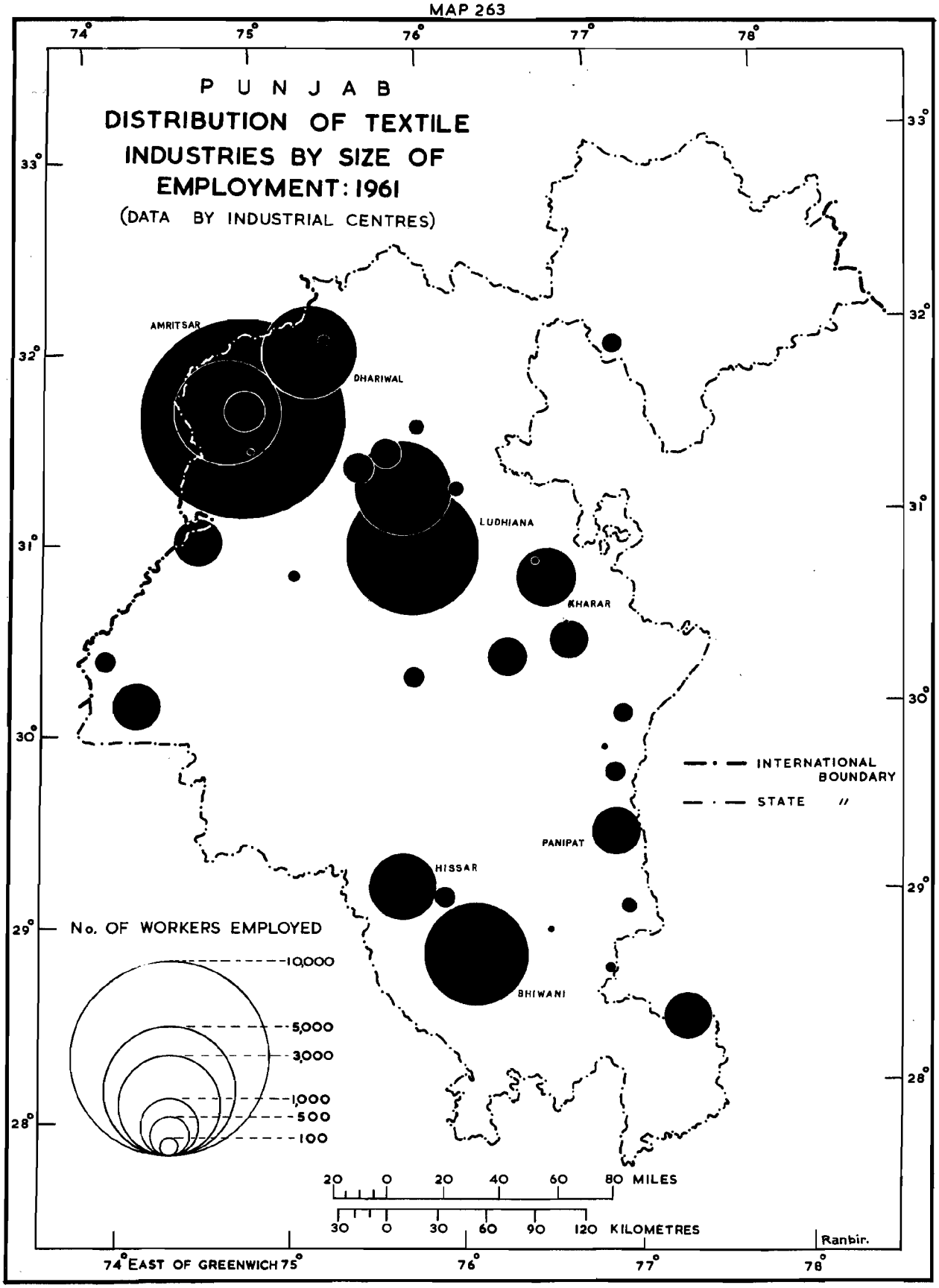
MAP 261


PUNJAB
PROXIMITY TO BANKS
1961
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
INTERNATIONAL BOUNDARY
STATE "
DISTANCE FROM THE BANK(S)
MORE THAN 10 MILES(>16 KMS.)
5 TO 10 MILES (8 TO 16 KMS.)
WITHIN 5 MILES(<8 KMS.)
LOCATION OF BANK(S)
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST
Ranbir.

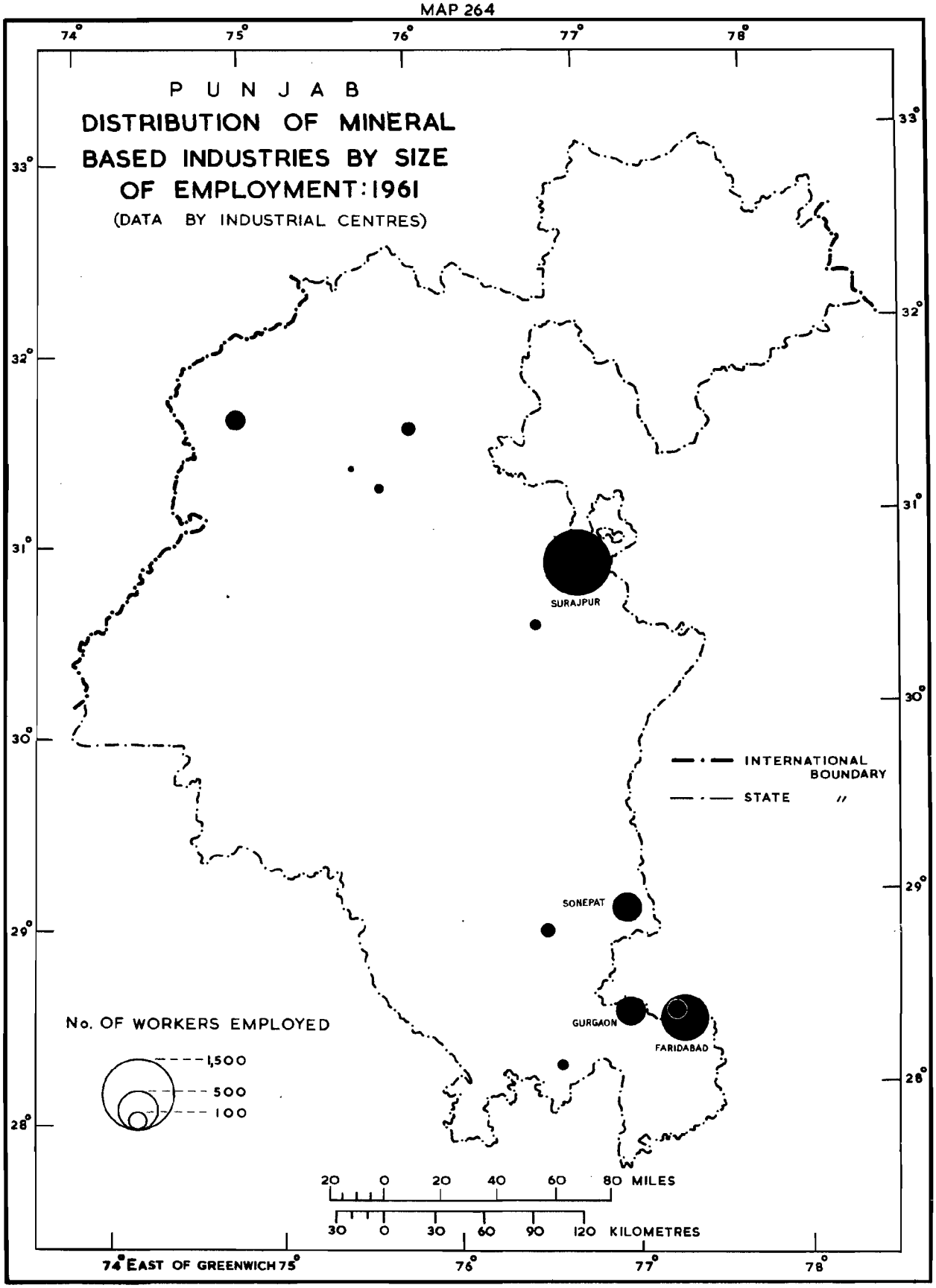
MAP 262


PUNJAB
DISTRIBUTION OF AGRICULTURAL PROCESSING INDUSTRIES BY SIZE OF EMPLOYMENT: 1961
(DATA BY INDUSTRIAL CENTRES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
AMRITSAR
BHOGPUR
PHAGWARA
KHANNA
JAGRAON
YAMUNANAGAR
MALOUT
ABOHAR
HANSI
ROHTAK
INTERNATIONAL BOUNDARY
STATE
No. OF WORKERS EMPLOYED
2,000
1,000
500
100
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

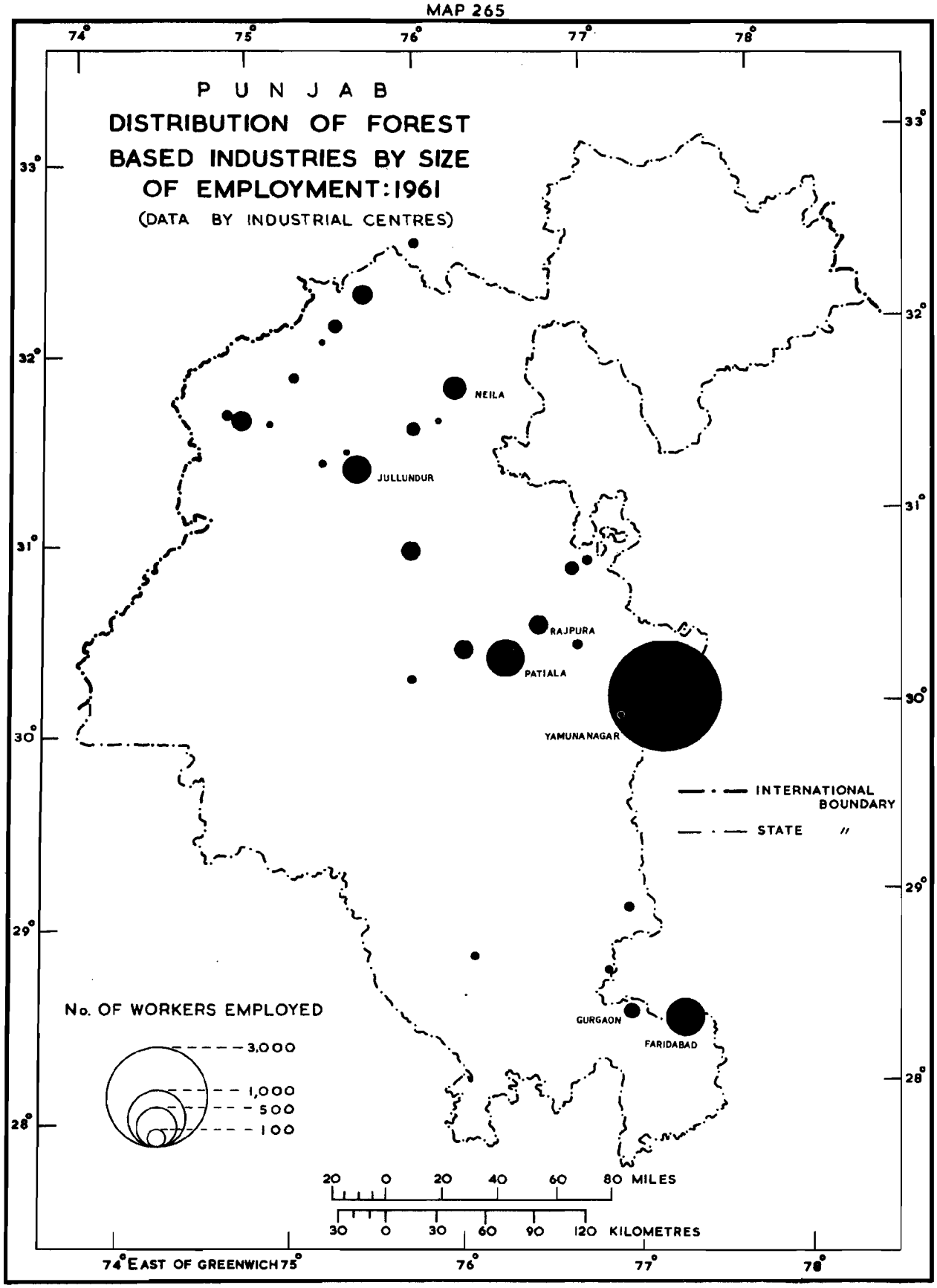
MAP 263


PUNJAB
DISTRIBUTION OF TEXTILE INDUSTRIES BY SIZE OF EMPLOYMENT: 1961
(DATA BY INDUSTRIAL CENTRES)
AMRITSAR
DHARIWAL
LUDHIANA
KHARAR
PANIPAT
HISSAR
BHIWANI
INTERNATIONAL BOUNDARY
STATE //
No. OF WORKERS EMPLOYED
10,000
5,000
3,000
1,000
500
100
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
Ranbir.
74° EAST OF GREENWICH
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

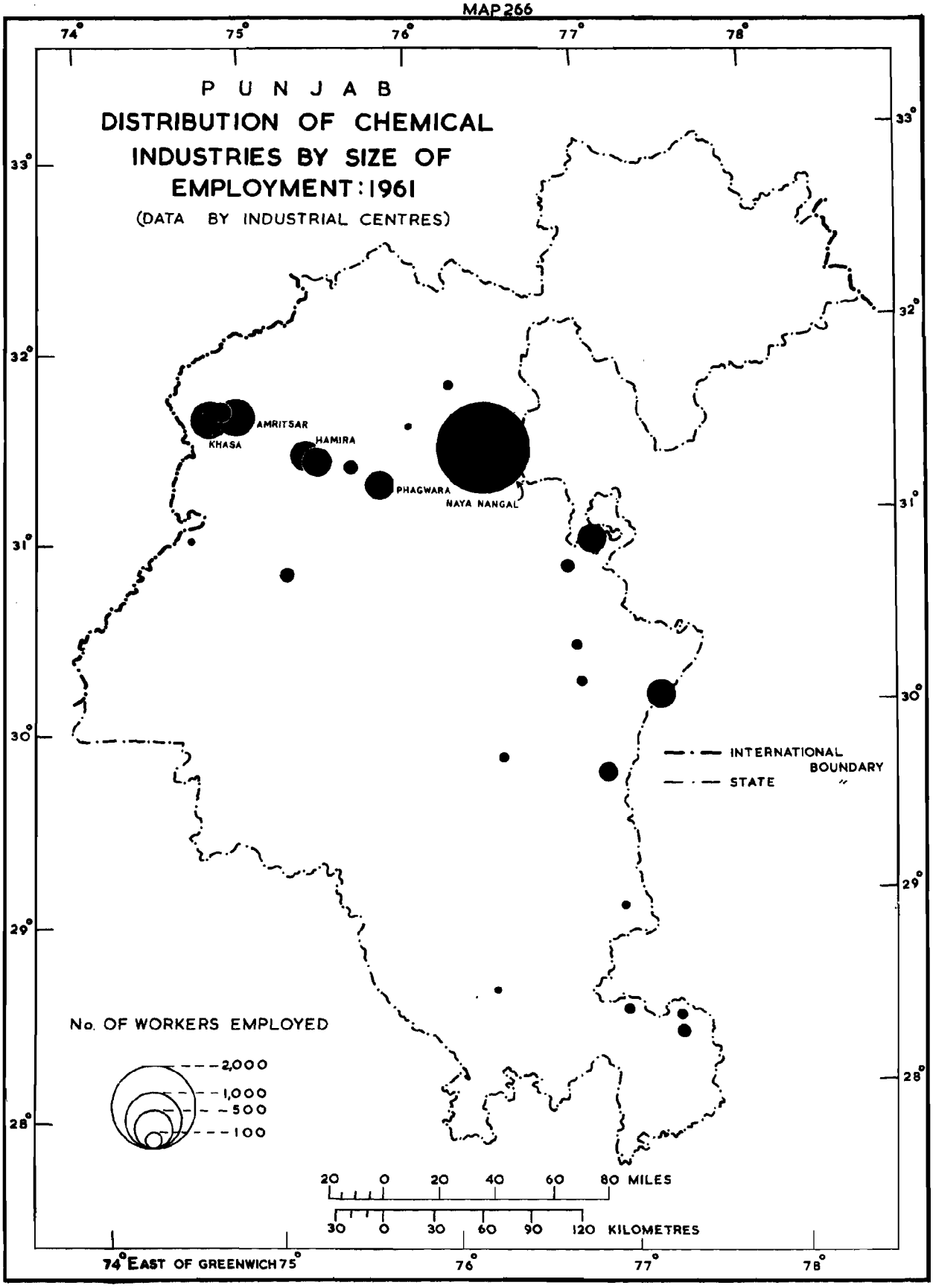
MAP 264


PUNJAB
DISTRIBUTION OF MINERAL BASED INDUSTRIES BY SIZE OF EMPLOYMENT: 1961
(DATA BY INDUSTRIAL CENTRES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
SURAJPUR
SONEPAT
GURGAON
FARIDABAD
INTERNATIONAL BOUNDARY
STATE "
No. OF WORKERS EMPLOYED
1,500
500
100
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75° 76° 77° 78°

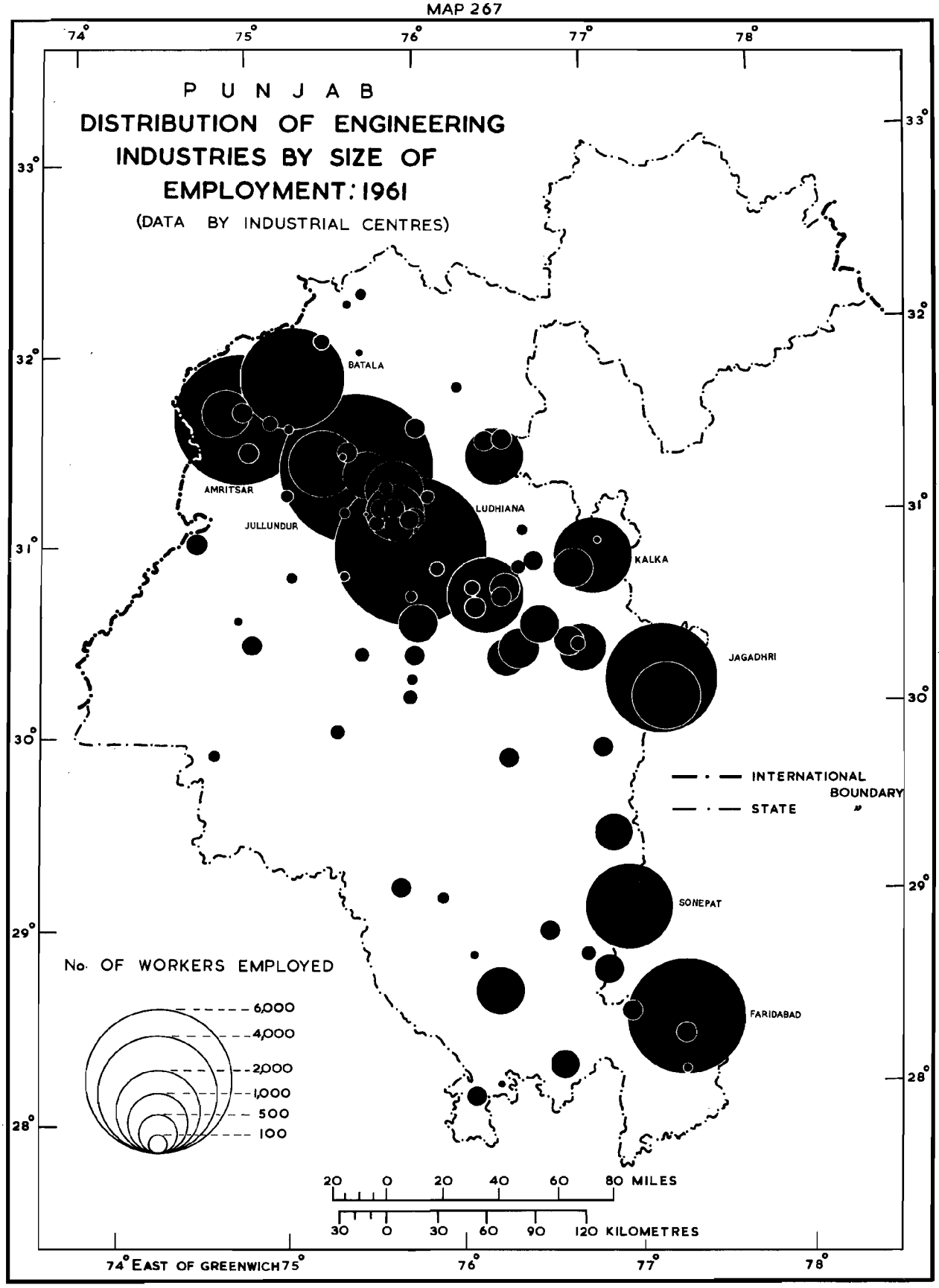
MAP 265


PUNJAB
DISTRIBUTION OF FOREST BASED INDUSTRIES BY SIZE OF EMPLOYMENT: 1961
(DATA BY INDUSTRIAL CENTRES)
NEILA
JULLUNDUR
RAJPURA
PATIALA
YAMUNANAGAR
GURGAON
FARIDABAD
INTERNATIONAL BOUNDARY
STATE //
No. OF WORKERS EMPLOYED
3,000
1,000
500
100
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75° 76° 77° 78°
33° 32° 31° 30° 29° 28°

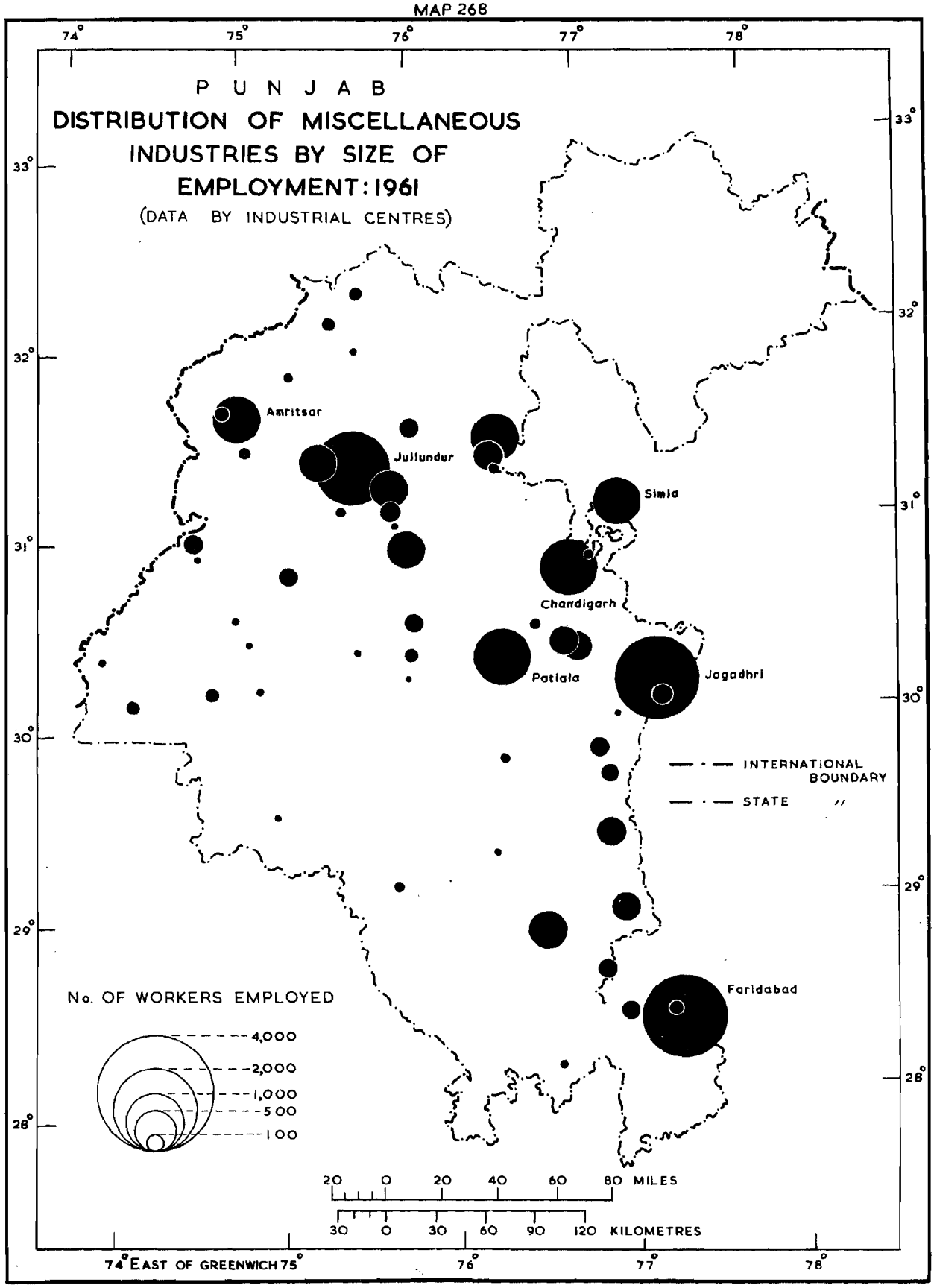
MAP 266

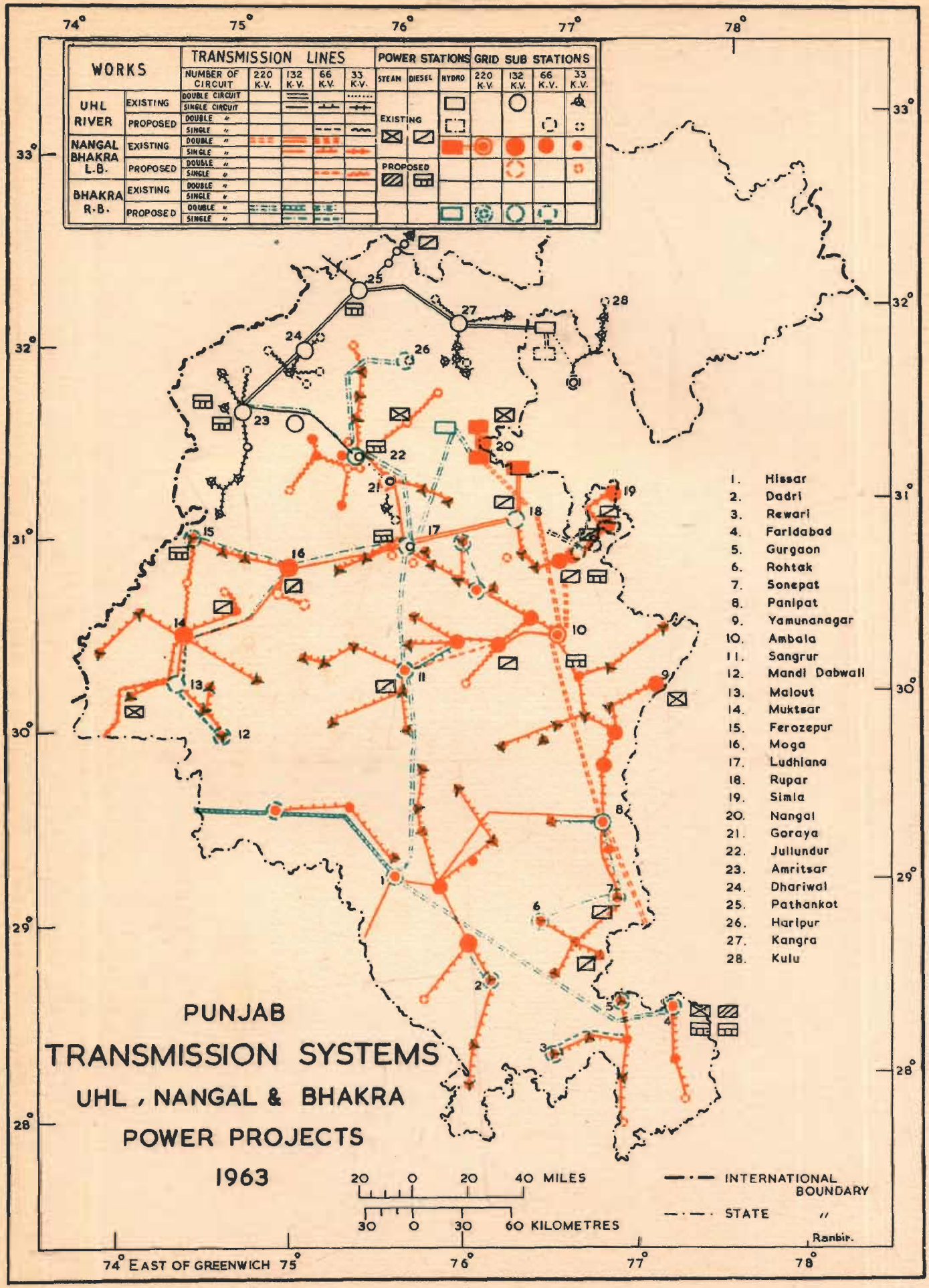

PUNJAB
DISTRIBUTION OF CHEMICAL INDUSTRIES BY SIZE OF EMPLOYMENT: 1961
(DATA BY INDUSTRIAL CENTRES)
AMRITSAR
KHASA
HAMIRA
PHAGWARA
NAYA NANGAL
INTERNATIONAL BOUNDARY
STATE
No. OF WORKERS EMPLOYED
2,000
1,000
500
100
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

MAP 267

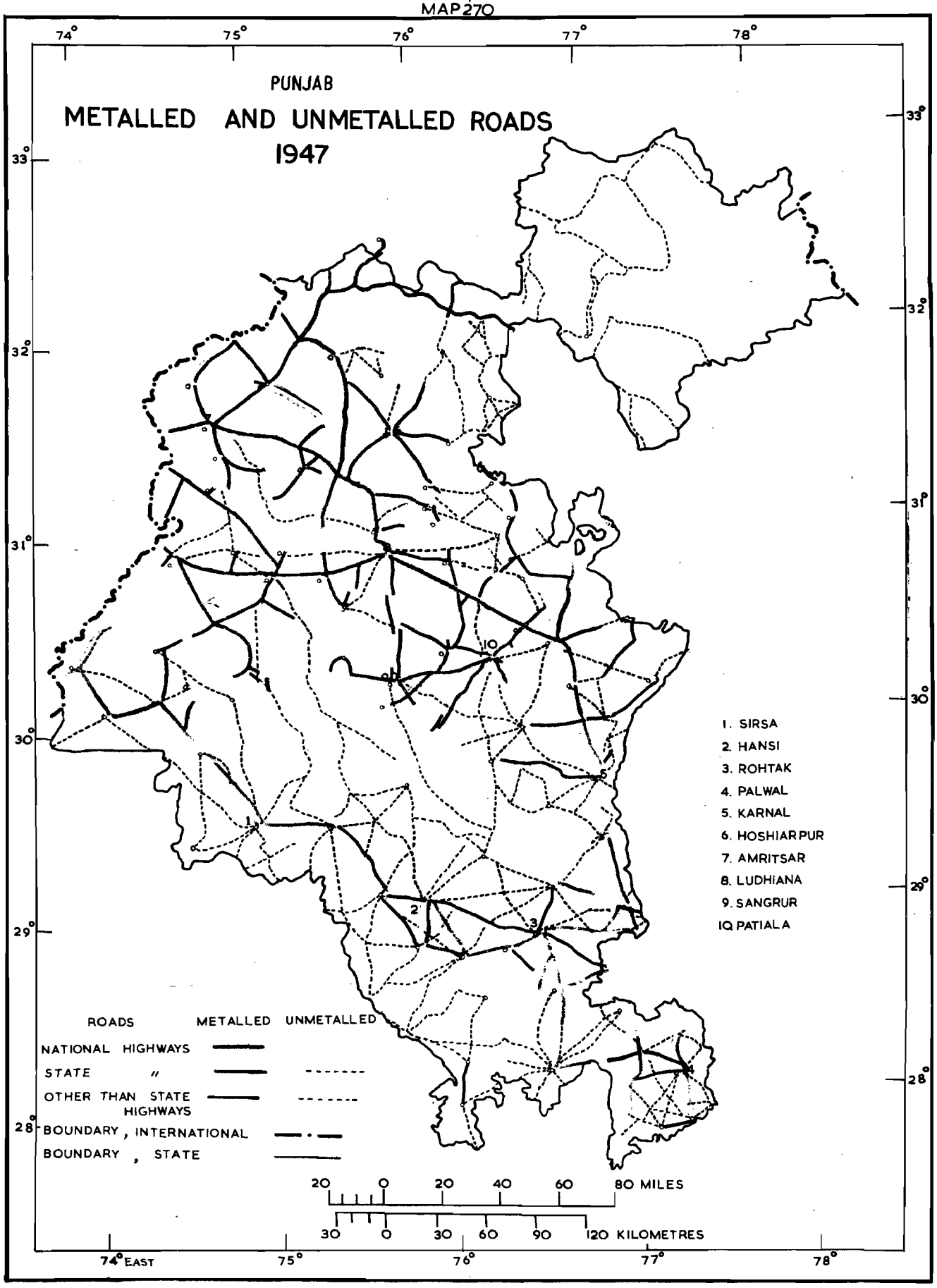

PUNJAB
DISTRIBUTION OF ENGINEERING INDUSTRIES BY SIZE OF EMPLOYMENT: 1961
(DATA BY INDUSTRIAL CENTRES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
BATALA
AMRITSAR
JULLUNDUR
LUDHIANA
KALKA
JAGADHRI
SONEPAT
FARIDABAD
INTERNATIONAL BOUNDARY
STATE "
No. OF WORKERS EMPLOYED
6,000
4,000
2,000
1,000
500
100
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH

MAP 268

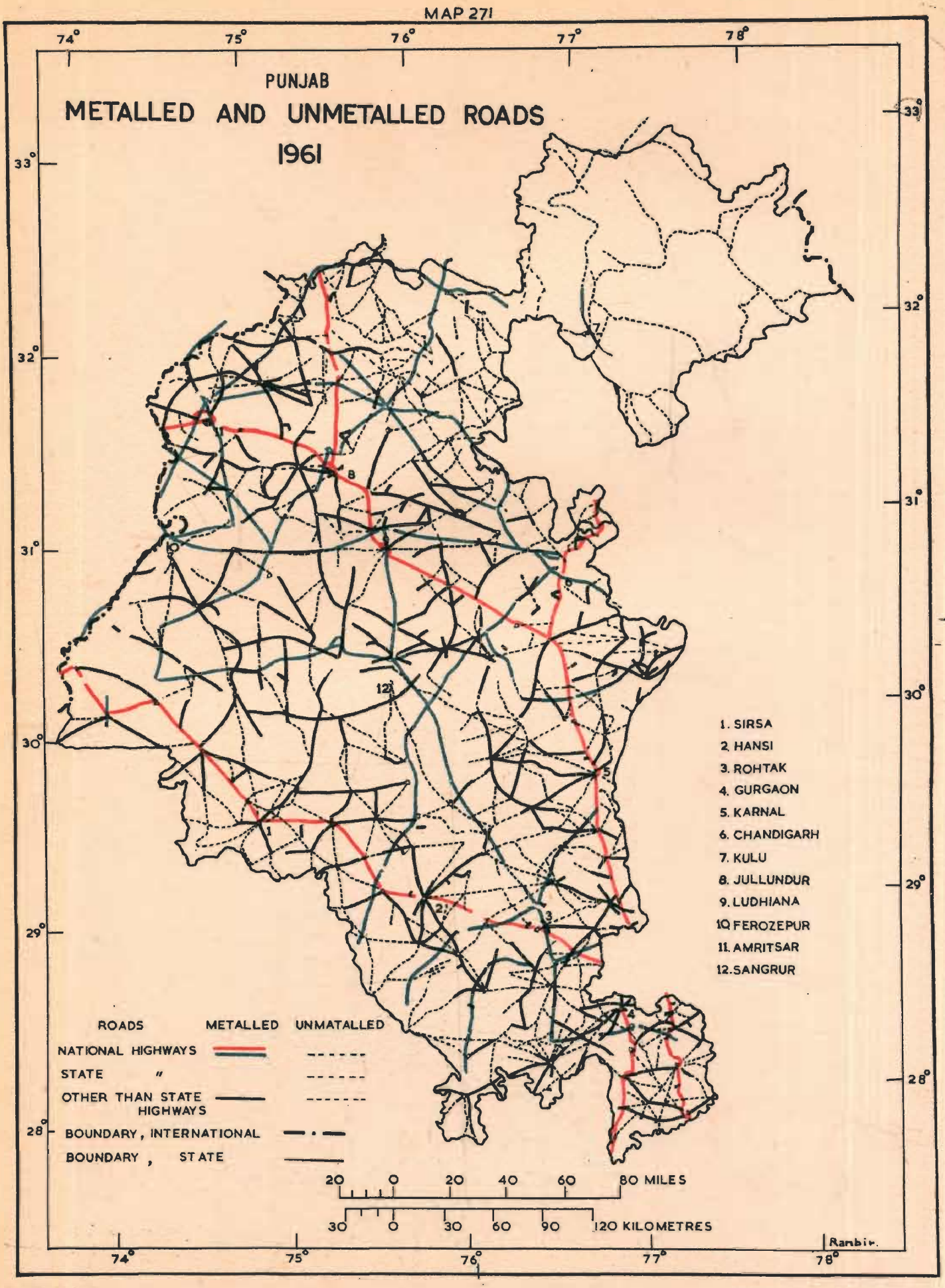

PUNJAB
DISTRIBUTION OF MISCELLANEOUS INDUSTRIES BY SIZE OF EMPLOYMENT: 1961
(DATA BY INDUSTRIAL CENTRES)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
Amritsar
Jullundur
Simla
Chandigarh
Patiala
Jagadhri
Faridabad
INTERNATIONAL BOUNDARY
STATE "
No. OF WORKERS EMPLOYED
4,000
2,000
1,000
500
100
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75° 76° 77° 78°

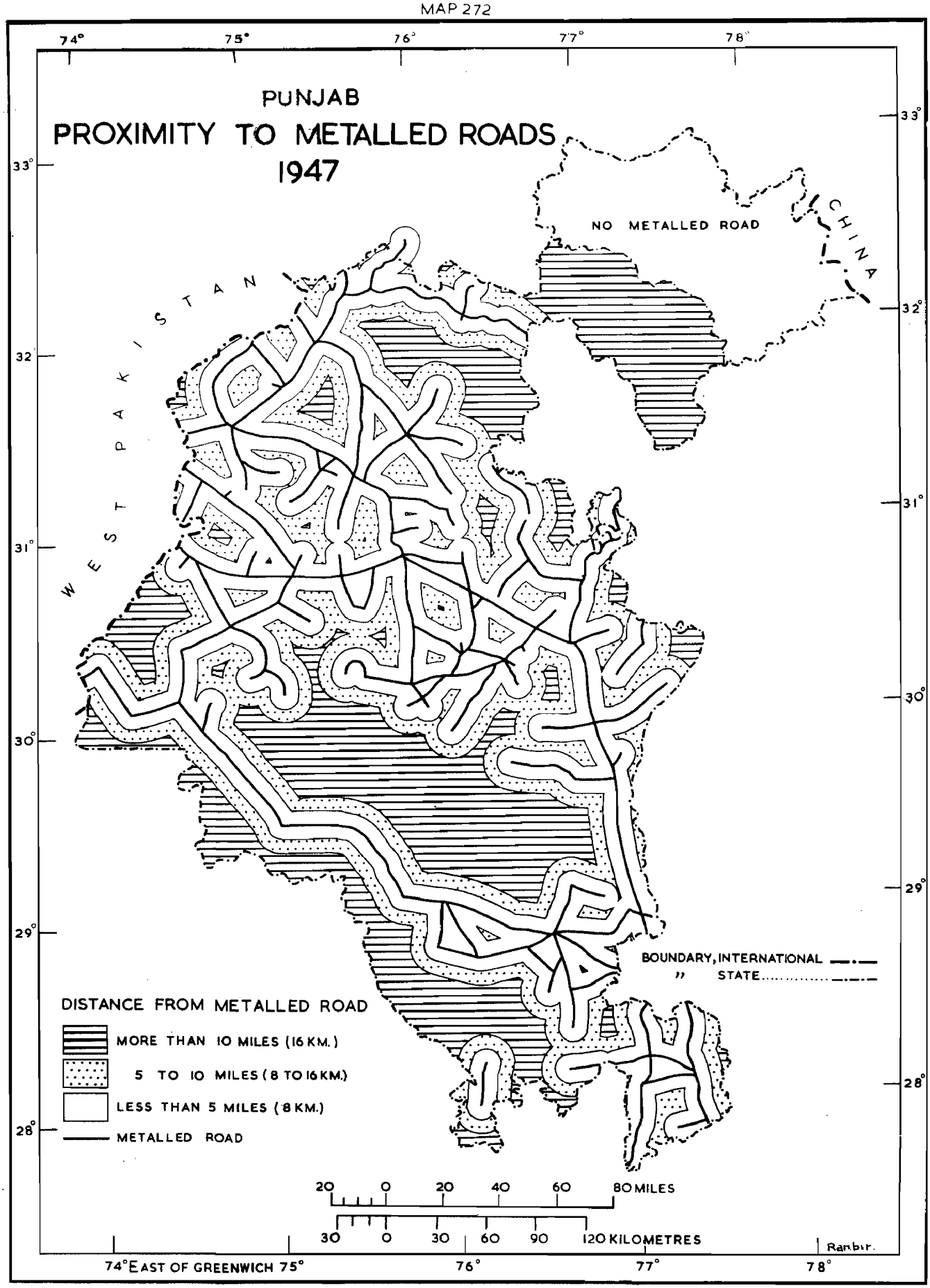

WORKS
TRANSMISSION LINES
NUMBER OF CIRCUIT
220 K.V.
132 K.V.
66 K.V.
33 K.V.
POWER STATIONS
STEAM
DIESEL
HYDRO
GRID SUB STATIONS
UHL RIVER
NANGAL BHAKRA L.B.
BHAKRA R.B.
EXISTING
PROPOSED
DOUBLE CIRCUIT
SINGLE CIRCUIT
1. Hissar
2. Dadri
3. Rewari
4. Faridabad
5. Gurgaon
6. Rohtak
7. Sonepat
8. Panipat
9. Yamunanagar
10. Ambala
11. Sangrur
12. Mandi Dabwali
13. Malout
14. Muktsar
15. Ferozepur
16. Moga
17. Ludhiana
18. Rupar
19. Simla
20. Nangal
21. Goraya
22. Jullundur
23. Amritsar
24. Dhariwal
25. Pathankot
26. Haripur
27. Kangra
28. Kulu
PUNJAB
TRANSMISSION SYSTEMS
UHL , NANGAL & BHAKRA
POWER PROJECTS
1963
20 0 20 40 MILES
30 0 30 60 KILOMETRES
INTERNATIONAL BOUNDARY
STATE "
Ranbir.
74° EAST OF GREENWICH
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°

MAP 270

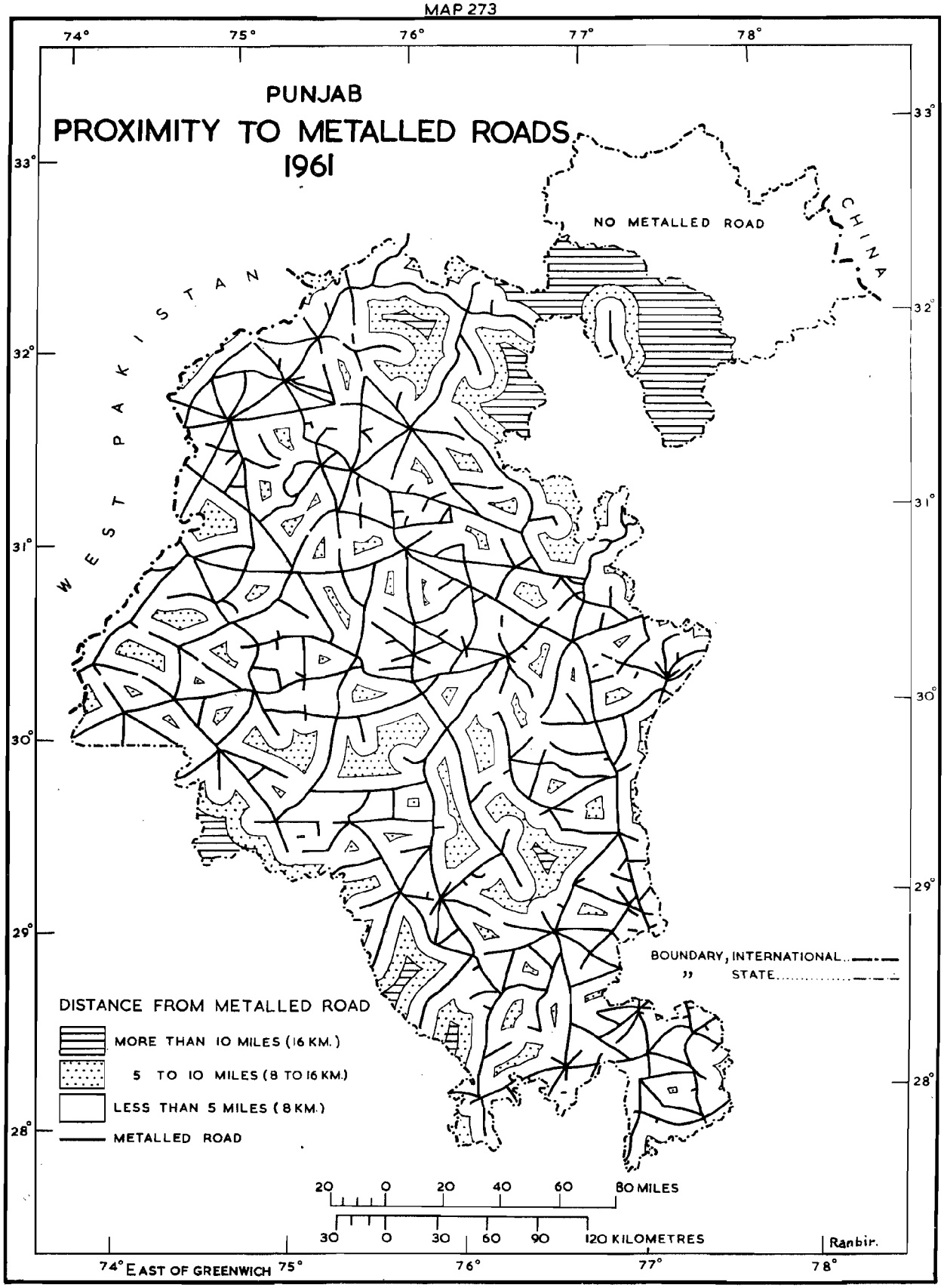

PUNJAB
METALLED AND UNMETALLED ROADS
1947
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
1. SIRSA
2. HANSI
3. ROHTAK
4. PALWAL
5. KARNAL
6. HOSHIARPUR
7. AMRITSAR
8. LUDHIANA
9. SANGRUR
IQ PATIALA
ROADS
METALLED
UNMETALLED
NATIONAL HIGHWAYS
STATE "
OTHER THAN STATE HIGHWAYS
BOUNDARY, INTERNATIONAL
BOUNDARY, STATE
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST

MAP 271

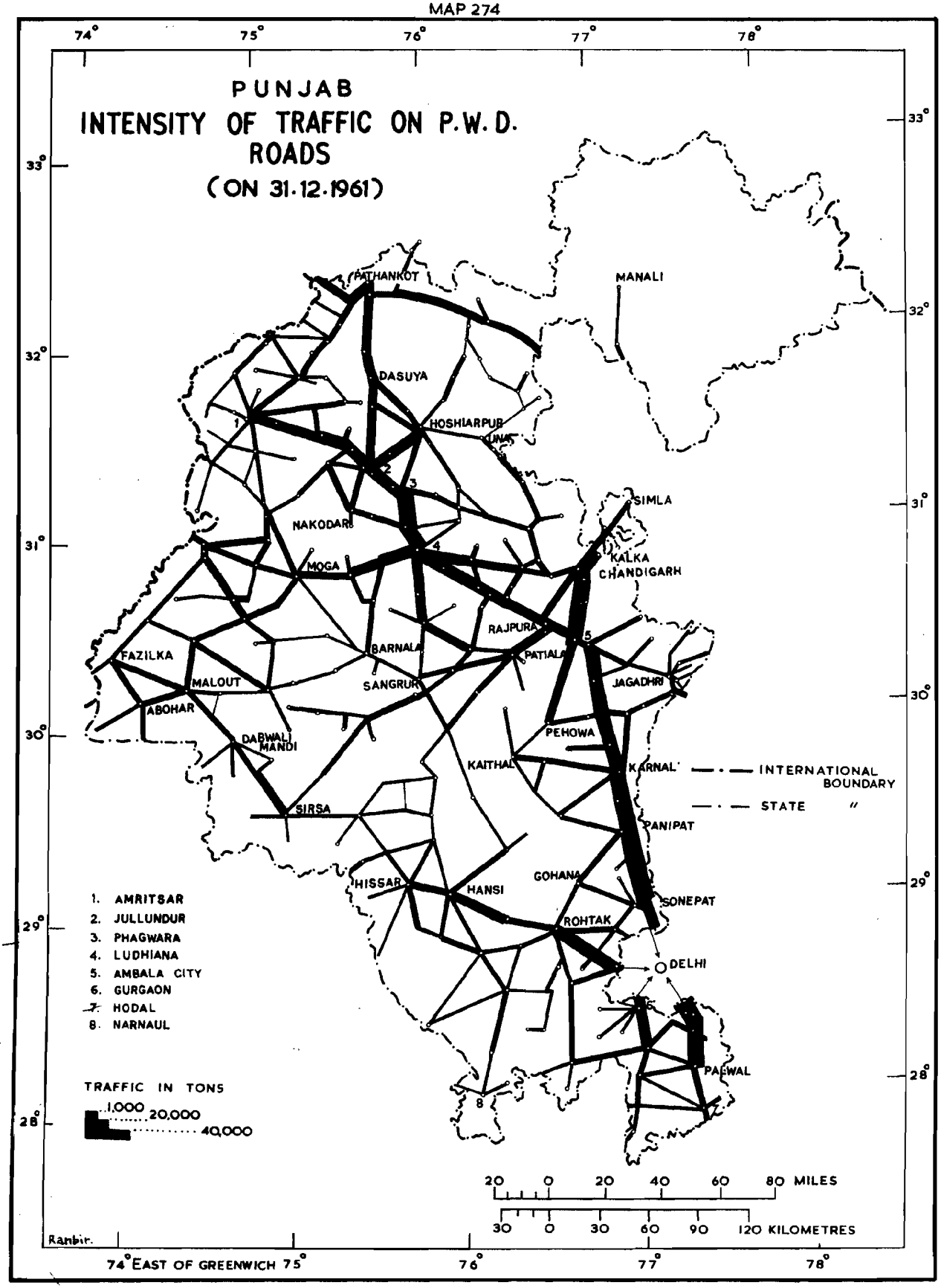

PUNJAB
METALLED AND UNMETALLED ROADS
1961
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
1. SIRSA
2. HANSI
3. ROHTAK
4. GURGAON
5. KARNAL
6. CHANDIGARH
7. KULU
8. JULLUNDUR
9. LUDHIANA
10 FEROZEPUR
11. AMRITSAR
12. SANGRUR
ROADS METALLED UNMATALLED
NATIONAL HIGHWAYS
STATE "
OTHER THAN STATE HIGHWAYS
BOUNDARY, INTERNATIONAL
BOUNDARY, STATE
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
Rambir.


PUNJAB
PROXIMITY TO METALLED ROADS
1947
NO METALLED ROAD
CHINA
WEST PAKISTAN
BOUNDARY, INTERNATIONAL
" STATE
DISTANCE FROM METALLED ROAD
MORE THAN 10 MILES (16 KM.)
5 TO 10 MILES (8 TO 16 KM.)
LESS THAN 5 MILES (8 KM.)
METALLED ROAD
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
Ranbir.
74° EAST OF GREENWICH 75° 76° 77° 78°
74° 75° 76° 77° 78°
33° 32° 31° 30° 29° 28°

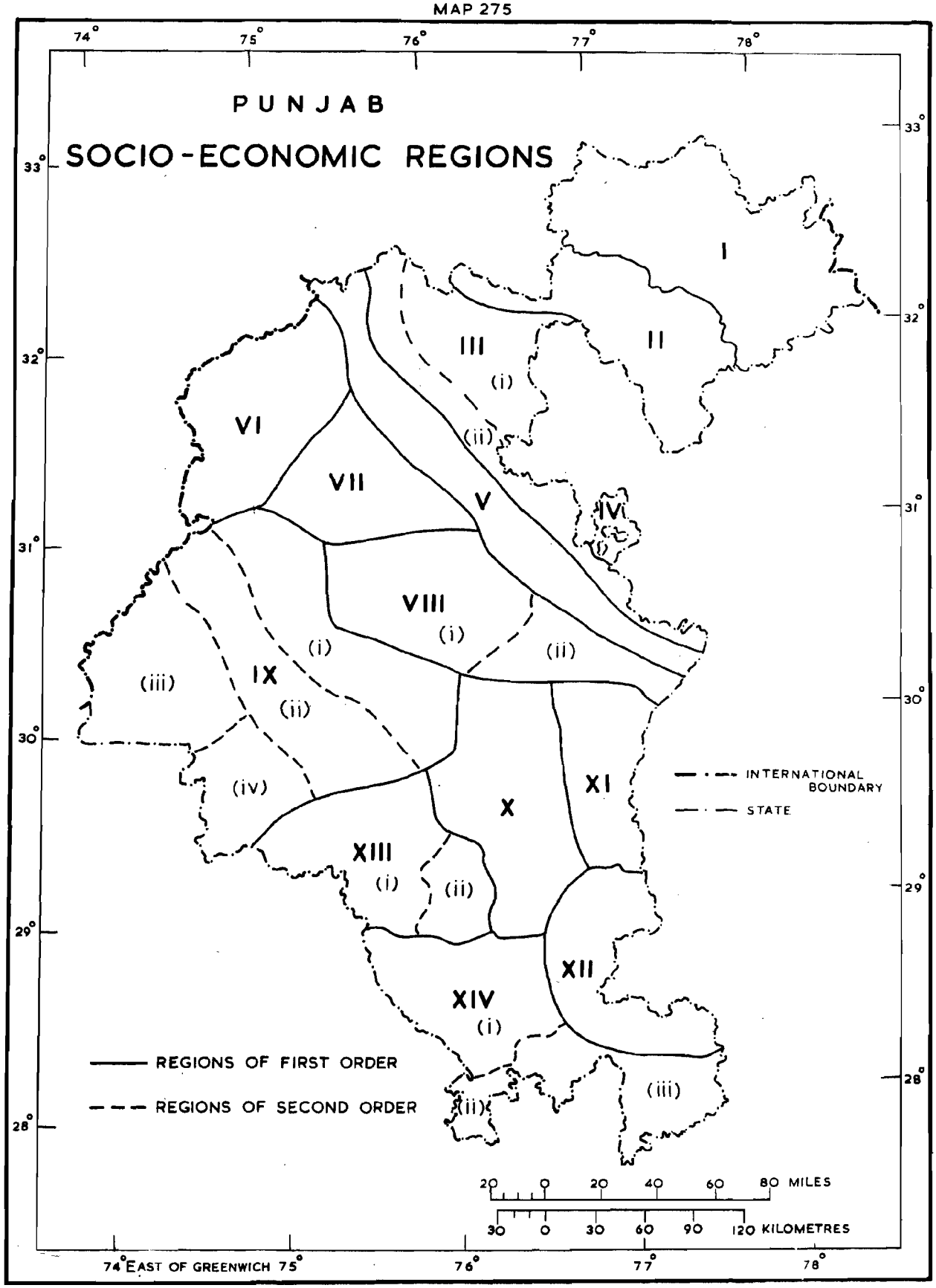
MAP 273


PUNJAB
PROXIMITY TO METALLED ROADS
1961
NO METALLED ROAD
CHINA
WEST PAKISTAN
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
DISTANCE FROM METALLED ROAD
MORE THAN 10 MILES (16 KM.)
5 TO 10 MILES (8 TO 16 KM.)
LESS THAN 5 MILES (8 KM.)
METALLED ROAD
BOUNDARY, INTERNATIONAL
" STATE
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
Ranbir.
74° EAST OF GREENWICH

MAP 274


PUNJAB
INTENSITY OF TRAFFIC ON P.W.D. ROADS
(ON 31.12.1961)
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
PATHANKOT
MANALI
DASUYA
HOSHIARPUR
UNA
SIMLA
NAKODAR
MOGA
KALKA
CHANDIGARH
RAJPURA
FAZILKA
BARNALA
PATIALA
MALOUT
SANGRUR
JAGADHRI
ABOHAR
DABWALI MANDI
PEHOWA
KAITHAL
KARNAL
SIRSA
PANIPAT
HISSAR
HANSI
GOHANA
SONEPAT
ROHTAK
DELHI
PALWAL
1. AMRITSAR
2. JULLUNDUR
3. PHAGWARA
4. LUDHIANA
5. AMBALA CITY
6. GURGAON
7. HODAL
8. NARNAUL
TRAFFIC IN TONS
1,000
20,000
40,000
INTERNATIONAL BOUNDARY
STATE "
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
Ranbir.
74° EAST OF GREENWICH 75° 76° 77° 78°

MAP 275


PUNJAB
SOCIO-ECONOMIC REGIONS
74°
75°
76°
77°
78°
33°
32°
31°
30°
29°
28°
I
II
III
(i)
(ii)
IV
V
VI
VII
VIII
(i)
(ii)
IX
(i)
(ii)
(iii)
(iv)
X
XI
XII
XIII
(i)
(ii)
XIV
(i)
(ii)
(iii)
INTERNATIONAL BOUNDARY
STATE
REGIONS OF FIRST ORDER
REGIONS OF SECOND ORDER
20 0 20 40 60 80 MILES
30 0 30 60 90 120 KILOMETRES
74° EAST OF GREENWICH 75° 76° 77° 78°

NOTES

NOTES ON THE MAPS

For cartographic representation of most of the demographic and economic data dot method and choropleth and isopleth methods have been employed. The dot method has been used to portray the locational pattern of demographic and economic phenomena whereas the choropleth method shows ratios of one type or the other, and isopleths for showing regions of identical demographic features.

While determining the size and value of dots the scale of the map, the variations in values, and the absolute numbers to be plotted, are taken into consideration. In the choropleth maps the criteria used for determining the categories include State average, median value, and critical breaks shown by the frequency graph prepared from the data to be mapped. In isopleth maps the regions are delineated by lines of equal values.

In maps where other cartographic techniques have been employed the legends make clear the method of mapping and the interpretation of the map.

LAND

MAP 1

India: Location of Punjab State: 1961

With a population of 20,306,812 and an area of 47,106 square miles, Punjab is one of the north-western States of India, bordering with West Pakistan. In area and population Punjab compares with other States as shown below.

State	*Area (sq. miles)*	*Population*
Andhra Pradesh	106,286	35,983,447
Assam	47,091	11,872,772
Bihar	67,196	46,455,610
Gujarat	72,245	20,633,350
Jammu & Kashmir	53,665	3,560,976
Kerala	15,002	16,903,715
Madhya Pradesh	171,217	32,372,408
Madras	50,331	33,686,953
Maharashtra	118,717	39,553,718
Mysore	74,210	23,586,772
Orissa	60,164	17,548,846
Punjab	**47,106**	**20,306,812**
Rajasthan	132,152	20,155,602
Uttar Pradesh	113,654	73,746,401
West Bengal	33,829	34,926,279
India	*1,232,561*	*439,234,771*

MAP 2

Punjab: Administrative Divisions: 1961

This map shows the administrative divisions of Punjab, both at District and Tahsil levels. In 1961, Punjab had 19 Districts: Hissar, Rohtak, Gurgaon, Karnal, Ambala, Simla, Kangra, Lahaul & Spiti, Hoshiarpur, Jullundur, Ludhiana, Ferozepur, Amritsar, Gurdaspur, Kapurthala, Bhatinda, Sangrur, Patiala and Mahendragarh. These Districts are further divided into tahsils. The total number of tahsils in Punjab is 75. All the 19 Districts are grouped into three Commissioners' Divisions with headquarters at Ambala, Jullundur and Patiala.

MAP 3

Changes in Administrative Divisions: 1951—61

This map shows the changes in administrative divisions during 1951-61. On the District and Tahsil boundaries as in 1961, are superimposed the boundaries as in 1951, wherever changes were effected during the decade.

MAP 4

Physiography

This map shows the broad physiographic divisions of Punjab. The physiographic divisions are based on altitude, surface configuration, and surface materials. For a major part Punjab is a flat alluvial plain with altitude less than 300 metres. On the north the Punjab plain is bordered by low hills the altitude of which ranges between 300 and 900 metres. In the Kangra District north-east of the low hills, is a zone of high hills with altitude ranging from 900 to 1,800 metres. To the north of these high hills are the mountainous areas where the altitude generally exceeds 1,800 metres. The Kulu Valley is a narrow, fairly level area bordered by high mountains. In Lahaul & Spiti District, which is separated from Kangra District by high mountain ranges, the altitude is very high.

In the southern and south-western parts of the Punjab plain there are extensive areas covered with sand dunes. The local relief in some of the sand dune areas is as high as 50 feet. In some parts of Mahendragarh and Gurgaon Districts there are low north to south extending hills which are the extension of the Aravalli ranges.

Along the major rivers there are low flood plains locally called *khaddar* or *bet*. The flood plains are separated from the upland plains often by a steep slope of 5 to 10 feet. The *bets* are subject to flooding during rainy season. In between the major rivers are extensive upland plains which are generally monotonously flat.

MAP 5

Drainage System

There are four perennial rivers bordering with or traversing through Punjab. From east to west these are the Jumna, the Sutlej, the Beas and the Ravi. The Jumna and the Ravi border Punjab on the east and the west, respectively,

and the Sutlej and Beas traverse through the northern half of the State. And whereas the net work of the drainage lines in the mountainous areas is very dense, a large part of the plain area is without any drainage lines. Apart from these perennial rivers there are some important seasonal streams such as the Ghaggar, white *Bein* and black *Bein*. In the foot-hill zone of Ambala, Hoshiarpur and Gurdaspur Districts there are very closely spaced rivulets flowing from the Siwalik hills. Some of these drain into the Jumna, the Ghaggar, the Sutlej, the Beas and the Ravi but some terminate without joining any other stream. The hill torrents in Hoshiarpur known as *chos* have a very baneful effect on land, since in their flow which is restricted to the rainy season, they bring down sand to deposit on their shifting course, and lay waste fertile lands. The Ghaggar river is an important inland drainage system. In the past it is said to have been a large independent drainage system, with the Jumna and Sutlej as its tributaries. Because of the uplift of the Jumna-Sutlej divide in the recent past the Jumna drifted to the east and the Sutlej to the west, leaving the Ghaggar as a mis-fit stream. It is said that the old Ghaggar river system used to flow through the old Hakra Bed towards Rann of Kutch. Much of this old abandoned bed has been obliterated by the deposition of sand blown from the Indian desert.

Some of the rivers have been tapped for the development of hydro-electric power and canal irrigation. The Bhakra Nangal Project of the Sutlej river should irrigate ultimately some six million acres of land in the dry and semi-dry areas of the central and south-western Punjab. A dam is also proposed to be constructed across the Ghaggar river to collect water of some of its tributaries for irrigating some areas in Ambala District. The Pong Dam is already under construction to tap water from the Beas river.

In the Mahendragarh and Gurgaon Districts, the drainage lines come mostly from the south-west and are, therefore, following a reverse direction in contrast to the main drainage lines of the State. These streams come from the Aravalli hills and disappear in the Gurgaon and Mahendragarh Districts in the dry sandy areas. They represent inland drainage. They flow mainly during the rainy season. In view of the small volume of water carried by them, they lack in potentialities for utilisation on an extensive scale.

MAP 6

Normal Temperature Conditions

This map shows the variations in normal temperature from month to month. The maximum and minimum temperatures are also plotted on the map so as to show their monthly range. It may be seen from the map that in the Punjab plains even the lowest temperatures during the winter months are more than 10°C. Thus the growing season in the area extends over the entire year and temperature is not a very critical factor in agricultural land use. The gap between the maximum and the minimum temperatures is the widest during April to June, and the narrowest during July to September. Obviously, during the latter months the temperatures fall with the onset of rains and the range of temperature becomes small.

In the mountainous areas which are represented by Simla and Dalhousie on this map, the mean January temperature is generally below 5° C. During December and January, the temperature may go below freezing point on certain days. Consequently the growing season in the high mountainous areas is much shorter than in the plains. Whereas in the plains with adequate water-supply two crops a year is a common practice, it is uncommon in the mountainous areas because of cold conditions.

The highest temperatures are recorded in May and June when they are generally well above 30°C. With the onset of monsoons in July the temperatures start declining throughout the State. Thus, slight variations in the shape of curves notwithstanding, there is a hump characterising the middle portion of each curve.

MAP 7

Wind Roses

This map brings out two things: (i) the prevailing directions of the wind at Simla are very different from those at Ludhiana, Ambala and Hissar which represent conditions of the plains; and (ii) there is generally a reversal of wind direction from morning to evening. In the plains the most prevalent directions of the winds are north-west and south-east. Invariably the prevailing direction of winds in the evening is north-westerly, whereas in the morning the south-easterly winds and the north-westerly winds are of equal frequency. There is greater resemblance between the wind roses of Ambala and Ludhiana. But Hissar shows a greater variation of the wind direction than both Ambala and Ludhiana. At Hissar although the prevailing winds are north-westerly and south-easterly yet those coming from the south-west, the west and the north are no less important.

At Simla the prevailing wind direction is generally southerly, both in morning and evening. The northerly winds, though far less important than the southerly winds, are of greater frequency than in the plains. The north-easterly winds in the morning and south-westerly winds in the evening are also quite common at Simla. Winds from the east and the west are of the lowest frequency.

MAP 8

Mean Annual Rainfall

The most important feature emerging from this map is a low rainfall in the southern and south-western Punjab and its gradual increase towards the north-east. In south-western Punjab the rainfall is generally less than 15 inches. In the south-western section of Ferozepur District it declines to even less than 10 inches. With such inadequate rainfall agriculture is bound to be precarious. The southern and south-western half of the Punjab plain is bounded on its north by a 20 inch isohyet. Even this amount of rainfall is not adequate for successful farming. Hence irrigation is necessary. In the northern half of the Punjab rainfall gradually increases towards the Siwalik hills where it approaches 40 inches. In the foothill districts of Ambala, Hoshiarpur and Gurdaspur where rainfall is between 30 and 40 inches, farming without the help of irrigation is a common feature. Further north the rainfall

increases in accordance with topography and aspect. The effect of orography on rainfall comes out very clearly in Kangra District where rainfall varies between 40 and over 120 inches. The Lahaul & Spiti District which is separated from Kangra by high mountain ranges suffers from rain shadow effect. As a result the annual rainfall of Lahaul & Spiti District is less than 10 inches.

MAPS 9-A to 9-L

Mean Monthly Rainfall

A close study of these maps indicates that a large part of the annual rainfall throughout Punjab occurs during July to September. Although far less in quantity, the other period of rainfall is the winter months from December to February. April and May have very little rain. June has occasional showers. In October when the monsoons have retreated, the rainfall is again negligible, and November is dry.

Whereas the rainfall during July to September is from the summer monsoons, that during the winter season is from the north-westerly cyclones. The winter showers though light, are very significant for the *rabi* crops.

In all the 12 maps portraying the distribution of rainfall in each month separately, one trend is common: rainfall is the lowest in the south-western parts of the State and it increases gradually towards the north-east. In the mountainous areas of Kangra particularly orography exercises great influence. The high mountain ranges which effectively check the rain-bearing winds receive heavy rainfall. The Lahaul & Spiti District, which suffers from a rain shadow effect because of its being shut off by high mountain ranges, receives the lowest amount of rainfall in the year.

MAP 10

Rainfall Reliability

The most important feature revealed by this map is the inverse correlation between rainfall and its variability. In the south-western parts of the Punjab plain where the annual rainfall is below 15 inches the variability index exceeds 40. The 20 inch isohyet roughly corresponds to the 35 equivariable. As the rainfall increases towards the hills variability of rainfall decreases so that in the foothill districts the variability index comes down to 25. In the comparatively rainy parts of the Simla and Kangra Districts it is as low as 20.

MAP 11

Rainfall regions by extent of precipitation and reliability (related to irrigational necds)

This map shows the regions formed on the basis of annual rainfall and variability of rainfall. The combined effect of the two reflects the irrigational needs.

In southern and south-western Punjab where the rainfall is generally below 15 inches and variability index exceeds 40, irrigation is most necessary. Similarly, in the south-east to north-west extending zone of central Punjab where the rainfall ranges between 15 and 25 inches and the variability index varies between 30 and 40, irrigation is necessary for ensuring the success of crops. Further northward there is another zone bounded between 35 and 25 inch isohyets where the variability index ranges between 25 and 30. Here several crops depend mainly on rainfall but supplemental irrigation can certainly help in raising the yields. In the foothill zone where rainfall is between 35 and 45 inches the variability varies from 32·5 to 25·0, even sugarcane is grown without the help of irrigation. In parts of Simla and Kangra Districts which receive between 45 and more than 60 inches of rain, and the variability index is less than 22·5, normal rains are enough for leading the crops to maturity, but certain crops may need occasional watering which is done from the local *kuhls*.

MAP 12

Distribution of Minerals

Punjab is lacking in important minerals. This fact is related to its geology and structure. In the hilly zone of Hoshiarpur District some natural gas is anticipated. In Kangra District small reserves of a variety of minerals exist. such as lead, copper, silver, limestone, gypsum and dolomite. Some oil is also expected in the lower sections of Kangra District. In Simla District and the adjoining Siwaliks of Ambala District, gypsum, pyrite, etc. are reported. In the Siwalik areas of Ambala District, limestone bands are common and this limestone is being utilised in the cement factory at Surajpur. Mahendragarh District has some mineral resources, and is probably the only District in the State which has exploitable iron ore reserves which lie close to a marble band. Other minerals found in this District are felspar, calcite, copper, kynite, mica, pagmatite. There is also a band of limestone in the southern part of the District. In the Gurgaon District slate bands are found in Rewari Tahsil.

MAP 13

Vegetation Types

In southern and south-western Punjab where arid and semi-arid conditions prevail, thorny xerophytic vegetation is typical, consisting mostly of thorny bushes and *babul* trees. In the remaining Punjab plain a dry tropical deciduous type of vegetation is most prevalent. In this zone, however, in certain parts of the Karnal and Patiala Districts where the soil tends to be clayey, *dhak* is a common tree. Otherwise *sheesham*, *babul*, *neem*, *peepal*, and *bur*, are the commonly found trees. Because of the extension of cultivation over most of the land, the trees are generally confined to roads, railways, common lands of villages and on irrigation wells.

To the north of the dry tropical deciduous belt there is a narrow Semi-humid Deciduous Forest Zone, where the common trees are *sheesham*, *mango*, *babul*, *jaman*, *jamoa*, *peepal* and *bur*. This is followed to the north by sub-tropical broad-leaved hill forests. In the lower hills *sal* is a very useful tree. It may be noted that up to this stage the variations in rainfall are the chief

determining factor in vegetation types. In the high mountainous region, however, temperature, rainfall, aspect and slope, also exercise great influence. The mountain ranges separating the Kangra District from the Lahaul & Spiti District provide a significant divide in the types of vegetation. In the Lahaul & Spiti District where the rainfall is only about seven inches in a year, vegetation is scarce, confined to river valleys; elsewhere it is bare rock.

In conclusion, rain is the chief determining factor of vegetation types in the plains, while in the mountainous areas temperature, altitude, aspect and slope are additional influencing factors.

MAP 14

Soils

In the southern and south-western fringe of the State desert soils predominate. Parallel to this belt is a wide zone of black pedocal of alluvial origin. Its northern limit generally coincides with 500 mm isohyet. On the north of this zone there is another equally broad belt of pedocal brown colour soil, the northern boundary of which coincides roughly with 800 mm isohyet. In the sub-hilly, hilly and mountainous areas of Ambala, Hoshiarpur, Gurdaspur, Simla and Kangra Districts chestnut colour soils are predominant. They are generally associated with areas receiving about 1,000 mm of rainfall annually. In the mountainous areas lithology and climate influence soil types.

MAP 15

Archaeology

In the mountainous District of Kangra, temples, rock inscriptions and forts are the common archaeological monuments. Along the Grand Trunk Road *kos minars* are to be seen at many places. In the Nakodar area of Jullundur District, *sarais, kos minars,* and mounds are important. At Rupar also there is a big mound of archaeological significance. At Pinjore there is an old garden which has now become an important tourist centre. In the Karnal District there are very important archaeological features, including mounds, tombs, mosques, gates, and battlefields. In the Hissar District on the other hand mounds, mosques, forts, gates and *lats* are conspicuous. These archaeological features give valuable indications about the past history of the State but they need to be carefully examined and interpretted.

MAN

MAP 16

Distribution of Rural population: 1961

Sparsely populated mountainous and hilly areas stand in marked contrast to the plains where concentration of population is heavy. The economy of the State being predominantly agricultural the factors explaining the distributional pattern of population relate mostly to the productivity of soil. In the mountain-locked District of Lahaul & Spiti the population is strung only along river-valleys where small patches of cultivable land and water are available. Elsewhere in the District the slopes are too steep, the growing season too short and water-supply too scarce to permit cultivation. The surface is rocky and devoid of vegetation.

In the Kangra and Simla Districts where slopes are less steep, growing season longer and rainfall far heavier than in the Lahaul & Spiti District, population is fairly widely distributed in small hamlets. Nonetheless, river-valleys and gently sloping areas provide more favourable locations for settlements. The distributional pattern of population like that of the drainage is dendritic.

Siwalik hills in Ambala, Hoshiarpur and Gurdaspur Districts constitute another zone of rather sparse population.

In the Punjab plain the population is heavy all over the land. A closer examination of the map, however, would reveal that the northern half of the plain which receives more rain and where soils are better, has denser population than the southern and south-western parts where semi-arid conditions and predominantly sandy soils combine to impede settlements and cultivation. Even within the northern plain there are local differences in the concentration of population. In the *bet* areas of the Jumna, Sutlej, Beas and Ravi rivers population is sparse in marked contrast to the upland plains lying above the flood level of rivers where concentration of population is heavy. Again, within the southern and south-western areas of the State, those bordering on arid Rajasthan have very sparse population. In the areas comprising the erstwhile princely States in central Punjab where land holdings were comparatively large, the concentration of population was not commensurate with the productivity of soil. However, now with the imposition of a ceiling on the size of land holdings considerable redistribution of population is taking place, affecting thereby the degree of concentration of population in different parts of the State.

MAP 17

Distribution of Urban population: 1961

Punjab's urban popu'ation (4,088,595) is asymmetrically distributed. If a line were drawn through Yamunanagar in the east and Mandi Dabwali in the west the Punjab p'ain would get clearly divided into two contrasting regions with respect to urbanisation—54 urban centres lying to the south of the line and 135 to the north. The urban centres in the southern zone count about 28 per cent of the total and have a still smaller proportion of total urban population. The northern plain has a disproportionately larger share of the urban population of the State. Here the towns are large, numerous and more closely spaced. All the five cities, each with more than 100,000 persons—Amritsar, Jullundur, Ludhiana, Patiala and Ambala Cantonment—lie in this region.

An overwhelming majority of the towns are strung along the railway lines. Four of the five cities are on the main rail-route connecting Delhi with Amritsar. The pattern of distribution of towns elsewhere also coincides with that of the branch railway lines. Bhatinda which is the convergence point for a number of local rail-routes, provides a good illustration of the relationship between rail transport and urbanisation. Within the northern region urbanisation

is causally related with the development of industry, commerce, and various other services. In the Ferozepur-Bhatinda region where canal irrigation makes for prosperous farming economy the towns are primarily agricultural markets. Some of them are also centres of processing industries based on cash crops, particularly cotton and oilseeds. In the absence of large-scale manufacturing industry towns in this area are of small or medium size. Along the main rail routes paralleling with the Grand Trunk Road, on the other hand, urban centres are large because of large-scale manufacturing industry such as at Yamunanagar, Ludhiana, Phagwara, Jullundur and Amritsar. In the foothill zone of the Ambala, Hoshiarpur and Gurdaspur Districts urban development has been stunted by economic backwardness.

In the southern half of the Punjab plain the urban population is much smaller and towns fewer and far more widely spaced. Most of the important towns in this area are situated along the main rail routes connecting Delhi with Amritsar and Ferozepur, respectively. Industrial activity is still largely confined to the towns around the Union Territory of Delhi. Probably it is the spill-over of the industrial activity from the national capital where the price of land is high. The overall low degree of urbanisation in this region is explained by the lack of industry and commerce.

Except the town of Simla proper the mountainous Districts of Simla and Kangra are also very meagrely urbanised; and in Lahaul & Spiti District no place was entered as a town at the 1961-census.

MAP 18

Density of population: 1961

With 429 persons per square mile (as against 358 in India) Punjab ranks sixth among the States of India with respect to density of population. Within Punjab there are striking regional variations in density. Three areas which stand out in marked contrast to each other are:

(i) the hilly and mountainous areas of Lahaul & Spiti, Kangra and Simla Districts having fewer than 200 persons per square mile;

(ii) the southern and south-western zone of the Punjab plain with density ranging between 200 to 400 persons per square mile; and

(iii) the eastern and northern zones of the Punjab plain with density exceeding 400 persons per square mile.

Among mountainous areas Lahaul & Spiti District has only 6 persons per square mile. Population in this District is confined almost exclusively to the river valleys where flat patches of cultivable land are available. Kulu Tahsil in the Kangra District, supporting 41 persons per square mile, is another area of very low density of population. In the remaining hilly areas of Kangra and Simla Districts the density ranges between 300 and 400 persons per square mile. The gently sloping hills have been terraced for cultivation so that population is distributed all over the hilly areas in small hamlets. This is particularly true of low altitudes and southern slopes, where temperatures are higher, and rainfall is heavier. In the areas marginal to the hills in Hoshiarpur and Kangra Districts it is amazing that the density ranges between 400 and 600. Little wonder that there has been considerable out-migration from these areas.

Another large contiguous area of low to medium density of population is in the south and south-west of Punjab, comprising parts of Mahendragarh, Hissar, Bhatinda and Ferozepur Districts. These areas suffer from arid and semi-arid conditions, rendering farming without irrigation uncertain. However, in the areas where canal irrigation has been introduced in recent years population has been piling up at unprecedented rates, and before long Ferozepur, Bhatinda and parts of Hissar Districts should be fairly densely populated.

In the eastern and northern parts of the Punjab plains the density exceeds 400 persons per square mile everywhere. In the Ballabgarh Tahsil in the Gurgaon District, Rohtak and Sonepat Tahsils in Rohtak District, Panipat Tahsil in the Karnal District, Jagadhri Tahsil in the Ambala District, Samrala Tahsil in the Ludhiana District, Tarn Taran Tahsil in the Amritsar District, the entire Gurdaspur District and Malerkotla Tahsil of the Sangrur District, the arithmetic density is variously between 600 and 800, and in some highly urbanised tahsils it exceeds even 800. Such tahsils are Ambala and Kharar in Ambala District, Jullundur, Nawashahar and Phillaur in Jullundur District, Ludhiana in Ludhiana District, Phagwara in the Kapurthala District and Amritsar in the Amritsar District. In the Amritsar and Jullundur Tahsils the densities are the highest *viz.*, 1,473 and 1,458, respectively. The high density of population throughout the eastern and northern parts of the Punjab plain is correlated with high agricultural productivity resulting from fairly adequate rainfall and extensive irrigational facilities. In addition to these factors the high degree of urbanisation in some tahsils has augmented the general density. As the economy becomes more and more diversified, the density will be influenced more and more by factors stimulating urbanisation.

MAP 19

Density of Rural population: 1961

Broadly speaking, the pattern of density of rural population as emerging in this map is similar to that of density of general population (Map 18), though the rural density figures are lower. In the dry Sirsa Tahsil of Hissar District where irrigational facilities are still inadequate the rural density is less than 200 persons per square mile. This is despite the 73 per cent increase in its population during 1951-61. As canal irrigation further extends more people are bound to migrate to this area. Similarly, in Kapurthala Tahsil where land along the Bein rivulet is water-logged the density is only 376 in contrast to higher densities all around. In the eastern and northern zones of the Punjab plains the density ranges between 400 and 600. In Sonepat and Rohtak Tahsils of Rohtak District, Jullundur, Nawashahr, Phillaur Tahsils of Jullundur District, Amritsar Tahsil of Amritsar District, Gurdaspur and Batala Tahsils of Gurdaspur District, and Phagwara Tahsil of Kapurthala

District the density ranges between 600 and 800 persons per square mile. By and large, the high rural densities in these areas are associated with fairly adequate rainfall and extensive irrigational facilities.

MAP 20

Nutritional Density of population: 1961

Nutritional density is expressed as number of human beings per square mile of cultivated area.

The mountainous areas of Lahaul & Spiti, Kangra and Simla Districts which fall in the lowest category of arithmetic density emerge as those of the highest nutritional density. This is so because only a small fraction of the total area in these Districts is under cultivation. In Lahaul & Spiti District where the arithmetic density is 6, the nutritional density exceeds 1,200 persons per square mile of cultivated area. Similarly, in the Simla and parts of the Kangra Districts the nutritional density exceeds 1,200. In other hilly areas it ranges between 800 and 1,200. In the northern and eastern parts of the Punjab plain the nutritional density is generally more than 600. Throughout the Bist Doab and large parts of the Amritsar and Gurdaspur Districts it exceeds 800. The *bet* areas along the Sutlej, Beas and Ravi rivers where large tracts of land are still awaiting reclamation the nutritional density ranges between 400 and 600 only, and in the Markanda *bet* it is below 400. In the eastern parts of the Punjab plain there are small tracts in the Karnal and Rohtak Districts where the nutritional density exceeds 1,200.

Nutritional density decreases to the south-west gradually so that in the south-east to north-west lying central belt it ranges between 400 and 600. In the south-western zone it falls to 200-400, with some Assessment Circles adjoining the arid Rajasthan State supporting even fewer than 200 persons per square mile of cultivated area. Within the Punjab plain there is a fair degree of correspondence between nutritional density on the one hand, and agricultural productivity and degree of urbanisation on the other.

MAP 21

Nutritional Density of Rural population: 1961

Punjab being a predominantly rural State the pattern of nutritional density of rural population is very similar to that of total population. The pressure of rural population is the heaviest in the mountainous Districts of Lahaul & Spiti, Kangra and Simla where the nutritional density exceeds 1,000 in most areas. Another area of high nutritional density is the Trans-Sutlej plain where the density is generally between 600 and 1,000. In the *bet* areas along the Ravi, Beas and the Sutlej rivers the density is far lower ranging between 200 and 400 in Kapurthala Tahsil. Another area of high rural nutritional density comprises the eastern districts of Karnal, Rohtak and Gurgaon where the ratio ranges between 600 and 1,000. Away from these areas to the south-west it decreases gradually, declining to below 200 in the strip of Hissar District peripheral to Rajasthan.

The nutritional density maps give a far more refined picture of the pressure of population than those based on arithmetic density.

MAP 22

Growth of population: 1951—61

With a population increase of 25·9 per cent during 1951—61 (as against 21·5 per cent in India as a whole) Punjab has entered the explosive state of the demographic cycle. Only Assam, West Bengal, Gujarat and Rajasthan have recorded higher growth rates than Punjab.

There are wide regional disparities in population growth in Punjab. The densely populated Districts of Hoshiarpur, Jullundur, Kapurthala, Gurdaspur and Amritsar experienced low rates of increase, mostly below 20 per cent. In Garhshankar Tahsil in Hoshiarpur District, Nawashahr Tahsil in Jullundur District, Tarn Taran and Patti Tahsils in Amritsar District, and Batala Tahsil in Gurdaspur District the increase was less than even 10 per cent. Assuming a rate of natural increase of about 28 per cent, these areas have evidently been important sources of out-migration to other parts of Punjab, other States of India and abroad. The size of land holdings is generally small and the nutritional density of population high in this region. Also the economy is predominantly agricultural. The problem of water-logging is assuming alarming proportions in some of these areas. In Kangra and Simla Districts also the increase has been below average—15·33 and 6·10, respectively.

By contrast, the north-east to south-west lying central zones experienced very high rates of population increase, ranging between 30 and above 50 per cent. In Sirsa and Fatehabad Tahsils of Hissar District population increased by 67 and 60 per cent, respectively. In Jagadhri Tahsil of Ambala District, Thanesar and Kaithal Tahsils of Karnal District, Patiala Tahsil and the Hissar Tahsil, population increased by 40 to 50 per cent during 1951—61. This big increase is associated with the extension of irrigation and reclamation of waste lands in these areas, which have attracted migrants from the densely populated areas of the State. The percentage increase of population in the Lahaul & Spiti District has been very high, but increase in actual numbers is small.

Parts of the southern Punjab including Panipat Tahsil of the Karnal District, Rohtak District, Bhiwani Tahsil of the Hissar District, Mahendragarh District and a large part of the Gurgaon District fall in between the two extremes discussed above. Here population increased by 20 to 30 per cent, and was mostly natural.

MAP 23

Change in Density of population: 1951—61

During the decennium under review the average density of population in Punjab increased by 88 persons per square mile, from 341 in 1951 to 429 in 1961. It is pertinent to mention that this increase is almost 1½ times the increase which took place during the preceding 50 years put together. Also, it may be noted that this increase in density during as short a period as 10 years is almost 1¼ times the general density of population in the United States of America. This is the result of a high rate of growth applied to a heavy base of population. In future similar rates of growth will result in still greater actual increase.

Changes in density vary from area to area following the varying patterns of density and growth rates of population. There are several areas in eastern and northern Punjab where the change exceeds 150 persons per square mile. In the Amritsar, Jullundur, Phagwara and Ludhiana Tahsils even low to moderate rates of growth have caused tremendous increase in density, in each case more than 150 persons per square mile, due mainly to an existing heavy base of population. In Jagadhri, Thanesar, Patiala, Kharar, Sonepat, Rohtak and Ballabgarh Tahsils high rates of growth applied to moderate densities have also caused large increases in density, exceeding 150. In Samrala, Rajpura, Karnal, Kaithal, Jind, Gurgaon and Palwal Tahsils the increase ranges between 120 and 150. In the thinly populated mountainous and hilly areas the increase seldom exceeds 60 persons per square mile. In the Trans-Sutlej areas where population growth was very slow during 1951—61 the increase in density in most Tahsils ranges between 30 and 120. The large absolute increase is because of the existing high density of population. In the remaining sections of the Punjab plain where the rate of population growth was moderate to very high the actual increase in density ranges between 90 and 120.

The significance of these tremendous changes in density would become apparent from the fact that they are several times larger than the total densities of many of the advanced countries of the western hemisphere.

MAP 24

Growth of Rural population: 1951—61

The regional pattern of population growth, as emerging in this map, is very much similar to that in map 22. This is so because 80 per cent of the Punjab's population lives in rural areas. Here again three types of areas can be recognised at once *viz.*, areas of low, high and medium increase. In the Trans-Sutlej plain and the adjoining areas of Ambala and Ludhiana Districts the population growth is generally less than 20 per cent. However, in Una and Garhshankar Tahsils of Hoshiarpur District, Nawashahr Tahsil of Jullundur District and Tarn Taran Tahsil of Amritsar District the population increase was less than 10 per cent. The inverse correlation between density of population and population growth established in map 22 holds good in the present case also. Evidently the small size of landholdings and the high nutritional density of rural population in the predominantly agricultural areas of this region. have provided a push to these people to migrate to outside areas in the State, in other States of India and abroad in search of livelihood and better prospects. In the mountainous districts of Kangra and Simla also the population growth was low—below 20 per cent.

In the north-east to south-west extending central zone of Punjab, by contrast the population increase ranged between 30 and 73 per cent. In Sirsa and Fatehabad Tahsils of the Hissar District, and Patiala Tahsil, the rural population increased by 73, 55 and 59 per cent, respectively. In Rajpura Tahsil of Patiala District, Thanesar and Kaithal Tahsils of Karnal District, Jind Tahsil of Sangrur District, and Hissar Tahsil, the rural population increased by 40 to 50 per cent. Elsewhere in the central zone the growth rate ranged between 30 and 40 per cent. The high rate of population growth throughout the central zone is intimately connected with extension in irrigation which has facilitated reclamation and settlement of waste lands during the decade. These areas have been absorbing migrants in very large number from the densely populated areas in recent years. Although percentage-wise the growth of rural population was very high in the Lahaul & Spiti District, yet it was small in actual numbers. and that too due to the new road building activity attracting labourers from outside.

Both in the south and north of the central zone there are transitional areas with respect to rural population growth—the rate of increase here ranging between 20 and 30 per cent which is very close to the rate of natural increase.

MAP 25

Change in Density of Rural population: 1951—61

A comparison of this map with map 23 reveals that the regional pattern of change in density of rural population is similar to that of total population. This is expected in a state where 80 per cent of the total population is rural. However, the actual change is some what less in this case. In the central Punjab where high growth rate was unusually high during the decade the increase in density was between 60 and over 120.

Despite low growth rates in the rural population of Amritsar and Jullundur Tahsils the increase in density was as much as 90 to 120 persons per square mile. This is a frightening increase on a land which is already groaning under acute pressure of population.

MAP 26

Rural and Urban population: 1961

In Punjab 20·1 per cent of the population is urban. Despite this figure exceeding the national average, Punjab is predominantly a rural State. In no District is the urban population half of the total population. The northern Punjab plain is more urbanised than its southern counterpart. In most of the districts more than half of the urban population is in towns having more than 20,000 inhabitants each. Mahendragarh, Hoshiarpur and Kangra Districts are the only exceptions. In Lahaul & Spiti no place has been adopted as a town. In the State as a whole there is a fairly strong correlation between the degree of urbanisation and the development of industry and commerce. In the southern Punjab and most of the mountainous areas which have a predominantly agricultural economy the degree of urbanisation is comparatively low. Only in the Simla District the proportion of urban population is high because of Simla Town which is primarily an administrative centre.

MAP 27

Urban population as percentage of total population: 1961

In Punjab 20·1 per cent of the total population is urban as against about 18 per cent in India. However, within Punjab there are important regional variations. In the northern Punjab

plain the proportion of urban population to total population is much higher than in the southern half. In the mountainous areas urban development is very insignificant with the exception of the Simla Tahsil. An important feature of urban development in Punjab is that a large majority of the urban population is confined to areas along the main rail-routes. All the four tahsils with more than 40 per cent of the total population as urban are along the Delhi-Amritsar rail-route. Higher degree of urbanisation in the northern plain is associated with the development of industry, commerce and miscellaneous services. The meagre urban development in the southern half of the Punjab plain, on the other hand, is related to its predominantly agricultural character. In the mountainous areas also where the economy is overwhelmingly subsistence, urban development has been slow.

However, in view of the development of a dense net-work of roads and the extension of the grid of hydro-electric power all over the State, the regional disparities in urban development are narrowing down and towns are growing in most areas of the State.

MAP 28

Rural population as percentage of total population: 1961

This map is just the reverse of map 27. Instead of urban population it focuses attention on the rural population as per cent of the total population.

MAPS 29-A to 34

Distribution of Urban Centres: 1901—1951

This series of maps depicts the distributional pattern of urban population, separately in 1901, 1911, 1921, 1931, 1941 and 1951. Map 29-A shows location of urban Centres.

The pattern of distribution of urban population in each census year has been discussed in the notes relating to maps 35 to 40.

MAP 35

Intercensal Change of population in Urban Centres: 1901—11

In 1901 only about 11 per cent of the people in Punjab lived in towns. An examination of map 29-B shows that the distribution of towns was far from uniform in 1901. If a line is drawn passing through Ladwa in Karnal District and Abohar in Ferozepur District the plain area of the State is divided into nearly two halves which are sharply contrasted to each other with respect to urban development. The northern half of the Punjab plain stands out conspicuously for its having a very large proportion of the total urban population of the State, whereas the southern half is little urbanised. There were extensive areas in the southern Punjab plain which were without any town. On the other hand, in the northern Punjab plain the towns are numerous and fairly well-spread over the region. The higher degree of urbanisation in the northern half is associated with greater economic development in the area in marked contrast to the general backwardness of the southern half. The relative absence of towns is particularly evident in such areas as were under the princely States. This is partly so because much of the industrial, commercial, educational and other similar activities were concentrated, to a great degree, in the capital towns whereas the remaining parts of the States remained less developed.

During 1901—11, the urban population in the State suffered a net decrease of 16·5 per cent—from 1,559,013 in 1901 to 1,302,361 in 1911. Excepting Ferozepur-Bhatinda area, urban population decreased practically everywhere in the State. There were only a few towns in which there was marginal increase. Plague and malaria vigorously attacked the urban and rural places alike and caused very heavy mortality. Only in the dry areas of Ferozepur and Bhatinda Districts the ravages of plague and malaria were less severe. In addition, the development of canal irrigation in these districts stimulated cash crop farming which in turn gave rise to quite a few agricultural markets particularly at Muktsar, Abohar and Jaitumandi. Fazilka flourished chiefly from the development of trade in wool and the establishment of woollen presses in this town.

Due to small decrease in the population of most of the towns and marginal increase in the population of the others, the number of towns in the various size categories remained unaffected to a great degree. Some small places which were recorded as towns at the 1901-census dropped out of the category of urban places in 1911. The pattern of distribution of towns in 1911 was practically the same as in 1901.

MAP 36

Intercensal Change of population in Urban Centres: 1911—21

The distribution of urban population in 1921 was not very much different from that in 1911, or for that matter in 1901. During 1911—21 the urban population in the State increased by 7 per cent only—from 1,302,361 in 1911 to 1,396,110 in 1921. However, there were considerable regional disparities in the growth of towns. In the foothill Districts of Ambala, Hoshiarpur and Gurdaspur, and the adjoining areas of Jullundur most of the towns again experienced decrease in population. Similarly, in the southern districts of Gurgaon and Mahendragarh practically all the towns showed decline. By contrast, in the south-western districts of Ferozepur, Bhatinda and Hissar urban growth was considerable. In the remaining areas of Punjab there was marginal increase in the population of towns. These regional disparities in urban growth reflect (i) regional differences in the severity of the various epidemic diseases, and (ii) areal variations in economic development. Plague and malaria attacked vigorously the more rainy areas of the foothill Districts. The dry Districts of Ferozepur, Bhatinda and Hissar escaped the disaster from these epidemics to a considerable extent. Similarly influenza which broke out in 1918, caused very heavy mortality in the southern Districts of Gurgaon and Mahendragarh and in the foothill Districts.

MAP 37

Intercensal Change of population in Urban Centres: 1921—31

During this decade the pattern of urban development took a new turn, resulting in 27 per cent increase in the urban population of the State—from 1,396,110 in 1921 to 1,774,384 in 1931. To avoid the recurrence of calamitous diseases and famine conditions a variety of measures were taken. New roads were developed and distributional system of foodgrains was improved. Efforts were made to increase agricultural production. Besides, a number of towns showed initiative in the development of industry and commerce. The net result of all these developments was an overall increase in the urban population throughout the State.

Although the general pattern of distribution of towns in 1931 remained practically the same as in 1921, 1911 and 1901 (Maps 29-B, 30, 31 and 32), they generally increased in size during 1921—31. The northern half of the Punjab plain witnessed a big increase in urban population. In the southern half the increase was mostly of the order of the natural growth.

Ambala City, Ludhiana and Amritsar particularly experienced impressive increases. In the Ferozepur and Bhatinda Districts also the increase was considerable, to the accompaniment of the gradually building up commercial farm economy in the canal irrigated areas. Amritsar grew up as a commercial centre for nearly the whole of undivided Punjab and also developed in the meantime a number of industries.

MAP 38

Intercensal Change of population in Urban Centres: 1931—41

The trend of stimulated urban growth initiated during 1921—31 received further spurt during 1931—41. The urban population of the State increased by 36 per cent—from 1,774,384 in 1931 to 2,414,474 in 1941. The pattern of distribution of towns as emerging in 1941 (Map 33) was not very different from that of 1931 or for that matter 1921, 1911 and 1901. The northern half of the Punjab plain continued to be far more urbanised than its southern counterpart. However, in both the regions a number of new small towns grew up particularly along the main rail routes.

The rate of urban growth was not the same everywhere. In the southern half of the Punjab plain, Karnal, Rohtak, Gurgaon and Faridabad were the only towns where the increase in population during the decade exceeded 30 per cent. In a large number of the remaining towns the growth was not much above the rate of natural increase.

In the northern half of the Punjab plain, many towns grew up rather explosively. In Ludhiana, Jullundur and Amritsar the population increased by 63 per cent, 52 per cent and 48 per cent, respectively. In Tarn Taran, Jullundur Cantt., Banga, Phillaur, Dhariwal and Dharmsala the increase was more than 50 per cent. In Batala, Gurdaspur, Dinanagar, Hoshiarpur, Phagwara, the increase was between 30 and 40 per cent. In the Ferozepur District the population of Moga, Fazilka, Abohar, Giddarbaha, Mandi Guru Harsahai, increased by more than 50 per cent. Mandi Dabwali and Mansa came into the category of towns for the first time. In Muktsar, Jaitu Mandi, Ferozepur Cantt., Rampura Phul, Barnala, Sunam and Samana the rate of growth ranged between 30 and over 40 per cent.

The fast growth of a number of towns and cities along the main rail route between Ambala Cantt. and Amritsar is attributable mainly to the development of industry, commerce and miscellaneous services. It may be noticed from Maps 37 and 38 that the orientation of the fast growing towns during 1921—41 was towards Lahore and Amritsar which were the administrative and commercial capitals of undivided Punjab.

The trend of fast growth of urban population in Ferozepur and Bhatinda Districts developed in earlier decades continued during 1931—41 at a slightly accelerated rate, due to the growing cash crop economy, commercial activity and development of processing industries.

The unusual growth of a number of towns and cities in the northern half of the Punjab plain evidently involved considerable rural-urban migration. In the southern half, excepting a few towns, there was hardly any new activity which could stimulate urban growth. By and large the southern region continued to remain backward, at least with respect to urbanisation.

MAP 39

Intercensal Change of population in Urban Centres: 1941—51

Despite the excess of out-migration over in-migration coming in the wake of the Partition, the urban population in the State increased by 27 per cent—from 2,414,474 in 1941 to 3,066,442 in 1951. Although the northern half of the State maintained its superior position over its southern counterpart with respect to the degree of urbanisation, some different trends showed up during 1941—51 New towns emerged in some of the areas which were without any urban population before. The string of urban places along the Delhi-Ferozepur main railway line became conspicuous

A fairly high rate of increase of urban population in the State notwithstanding, there were very marked regional contrasts in the growth pattern. The orientation of the fast growing towns towards Lahore and Amritsar, emerging in earlier decades was reversed. The towns in the eastern parts of the State grew phenomenally. At Rajpura, Ambala Cantt., Thanesar, Karnal, Sonepat and Gurgaon the population increased by more than 50 per cent. At Jagadhri, Panipat, Rohtak, the increase was between 40 and 50 per cent. In addition, a number of places grew up into towns such as Yamunanagar, Radaur, Ladwa, Nilokheri and Pundri. Simla, which became the new capital of the East Punjab State, experienced an increase of 98 per cent. In the remaining parts of the State the towns in which the population increased by more than 40 per cent were far fewer. In Patiala, Ludhiana and Jullundur Cantt., the increase was 30 to 40 per cent. In Jullundur City the corresponding increase was 52 per cent. The overall orientation of areas of fast growth of urban population to the east reflects, a

general preference among the displaced for settling at places removed from West Pakistan. There was a general decrease in urban population in the border areas of the Gurdaspur, Amritsar, and parts of Ferozepur Districts. Besides, in a number of small towns in other parts of the State where the Muslims accounted for a fairly large proportion of the population earlier and where their exodus was not adequately compensated for by the in-coming displaced persons, there was net decrease.

The fast growth of Bhatinda, and the emergence of new market towns along all the railway lines converging on Bhatinda, indicate the growing importance of this town as the regional centre of the canal irrigated areas of the Ferozepur, Bhatinda, and parts of the Sangrur and Hissar Districts.

MAP 40

Intercensal Change of population in Urban Centres: 1951—61

During 1951—61, the urban population increased by 33·3 per cent—from 3,066,442 in 1951 to 4,088,595 in 1961. The contrast between the northern and the southern parts of the Punjab plain, is greatly reduced during the decade. New towns sprang into existence and the extent of areas without urban development has been greatly reduced.

Like the earlier decades the pattern of urban growth in the State was characterised by distinct regional variations. Throughout the cotton growing areas of Ferozepur, Bhatinda and parts of Sangrur Districts, urban development was phenomenal. A number of market towns grew along the railway lines converging on Bhatinda In many of them the population increased by more than 50 per cent. This urban development is mainly associated with the increasing degree of cash crop farming and the consequent expansion of commercial activities and processing industries based on cotton and oilseeds—the two most important cash crops of the area.

Another area of great urban development is around Delhi. Sonepat, Gurgaon, Faridabad Township, and Palwal added more than 50 per cent to their population. The over-spilling of industrial activity from Delhi and facilities for commuting to Delhi are mainly responsible for this unusual development. Other towns like Faridabad, Bahadurgarh and Jhajjar also recorded 30 to 40 per cent increase. Similarly, Hissar, Fatehabad, Sirsa and Hansi experienced a high rate of growth ranging between 30 and over 50 per cent. Along the main railway route connecting Yamunanagar and Amritsar a large number of towns grew at a fast rate, due presumably to the expansion of industrial and commercial activities. Yamunanagar, Rajpura Township, Gobindgarh, Khanna, Doraha, Ludhiana and Phagwara are worthy of special mention in this respect. In all these urban places the population increased by more than 50 per cent.

Throughout the foothill zone a majority of the towns showed lack of dynamism which is mainly related to the continuing backwardness of this area. The only exceptions, however, were Chandigarh, Manimajra, Nangal Township, Naya Nangal and Pathankot. Whereas Chandigarh, Nangal Township and Naya Nangal are new towns which did not exist in 1951, Manimajra and Pathankot have grown from a village and a small town, respectively. The growth of Chandigarh is because of the establishment of the State Capital at this new place. Nangal Township and Naya Nangal owe their origin and growth to the Bhakra-Nangal Dam Project and the Fertilizer factory, respectively.

Urban growth was very meagre in the zone bordering with West Pakistan, and there the population decreased in a number of towns, and in many others the growth was below the rate of natural increase, indicating out-migration. The lack of urban growth in the bordering areas still reflects a feeling of insecurity in the development of industries and commerce.

MAP 41

Chronological Distribution of Urban Centres: 1901—1961

This map depicts the distribution of towns with reference to the census year since which they have been adopted as such. In addition, indications have been given wherever the towns, (i) regained urban status after a lapse of time, and (ii) lost urban status.

A large majority of the towns have maintained urban status since 1901. Of the towns which emerged later a large majority date back to 1941 and 1951, and are mostly found: (i) along the main rail routes, and (ii) in the Ferozepur-Bhatinda-Sangrur area. With the increasing degree of cash crop farming in the canal irrigated areas of Ferozepur-Bhatinda-Sangrur region numerous market centres have sprung up, chiefly along the Delhi-Ferozepur Railway line, and Branch lines converging at Bhatinda. In 1961 quite a few new towns sprang up, the more important among them being Chandigarh, Nangal Township, Naya Nangal and Rajpura Township.

MAP 42

Proximity to Urban Centres: 1901

That easy proximity to a town was uncommon in 1901 is clearly brought out on the map by extensive shaded areas. However, in the northern half of the Punjab plain the towns were not so widely-spaced, and the areas beyond 10 miles of towns were very few and small. In southern Punjab, on the other hand, extensive areas were without any towns while in others the towns were widely spaced. Only in Gurgaon District they were relatively closely-spaced. Excepting Simla District most of the mountainous areas were without any towns.

To a great degree the locational pattern of towns in 1901 coincided with the railway lines.

MAP 43

Proximity to Urban Centres: 1961

A comparison of this map with map 42 reveals two important features: (i) the spacing of towns all over the State has become much closer in 1961 than in 1901: and (ii) the regional disparities with respect to proximity to urban centres have greatly reduced. Still the northern areas of the Punjab plain continue to be more urbanised

than their southern counterpart. In the northern Punjab areas more than 10 miles distant from towns are far fewer and smaller than in 1901. Many areas are within five miles from the nearest towns. In the southern Punjab plain, fairly large areas are still without towns, though less so than in 1901. Around the Union Territory of Delhi there has been considerable urban development as a result of which accessibility to towns has become easier.

Along the railway lines numerous new towns have sprung up as a result of which zones of easy proximity to towns are coincident with them.

MAP 44

Rural population—Fertility Ratio: 1961

Information on fertility (ratio of children in the age-group 0—4 to women in the age-group 15—44) is very important in itself, and also because of an overwhelming majority of rural people, being illiterate, cannot furnish correct data about age, and registration of births and deaths being not perfect.

There are wide regional disparities in the fertility ratio. In the mountainous areas there are fewer than 700 children per 1000 of women in the reproductive age-group, and in many isolated pockets in the remote Himalayan region the population is static.

The fertility ratio is low also in the Bist Doab and the adjoining areas of Ambala and Ludhiana Districts from where there has been considerable male-selective out-migration. On the other hand in the comparatively thinly populated areas of semi-arid Hissar District where there has been tremendous in-migration with the development of canal irrigation, the fertility ratio exceeds 1000. In most of the Haryana tract this ratio ranges between 900 and 1000.

On the whole, there is a fairly strong correlation between the rate of population increase and fertility ratio in the rural Punjab.

MAP 45

Persons born at place of enumeration in rural areas as per cent of rural population: 1961

In a country like India, where there is very little reliable information on migration, place of birth data provide the only source of information on the mobility of people in response to the play of political, social, economic and cultural factors. In view of the prevailing preference for not marrying within the same village, almost half of the females in villages are such as have come from outside as a result of marriage. The data on persons born at the place of enumeration, therefore, give a somewhat exaggerated view of mobility in this map.

Significant regional disparities with regard to mobility have emerged in this map. In the economically and socially backward Haryana area and a large part of the erstwhile PEPSU the proportion of persons born at the place of enumeration is high—65 to over 75 per cent. Similarly, in the backward zone of the foothills the proportion ranges between 65 and 75. In the Kulu and Spiti Tahsils more than 75 per cent of the population is such as was born at the place of enumeration. By contrast, in Ferozepur, parts of Patiala District and Sirsa and Fatehabad Tahsils of Hissar District where there has been considerable in-migration during recent years the proportion is low—even lower than 55 per cent in some cases. In the northern parts of Punjab, local born persons form 55 to 65 per cent of the population.

MAP 46

Rural population—Males enumerated at place of birth as per cent of Male population: 1961

This map gives a more realistic information on mobility than map 45 since it relates only to the male population which is not affected by migration due to marriage. Almost 80 per cent of the males in rural Punjab were enumerated at their places of birth. Punjab has greater mobility of population than other parts of India, yet it is very low as compared with many western countries. That internal mobility is a good measure of economic development, is very well brought out by this map. In the economically and socially backward areas of Gurgaon, Mahendragarh and parts of the Sangrur Districts more than 90 per cent of the males were born at the places of enumeration, signifying a practical absence of internal redistribution of population in these areas. In Rohtak District, and parts of Hissar, Sangrur and Bhatinda Districts internal mobility is slightly better in this respect, with 80 to 90 per cent of the males enumerated at their places of birth. Patti Tahsil in Amritsar District, hilly districts of Kangra, Hoshiarpur and Ambala fall under this group of stay-at-home areas. By contrast, in large parts of the Karnal, Patiala and Hissar Districts which have experienced considerable in-migration, males enumerated at the place of birth are fewer than 80 per cent of the total males. In many border areas of Gurdaspur, Amritsar, Ferozepur, Kapurthala and Ludhiana Districts also the proportion is rather low, because the locally born Muslims migrating to Pakistan on Partition, were replaced by the non-Muslims migrating from West Pakistan. They were besides the persons who were attracted from other parts of the State to these areas consequent upon economic development in earlier decades. The low proportion of the locally born persons in Lahaul & Spiti District was due chiefly to in-migration of labourers employed in road building activity.

MAP 47

Rural population—Males born elsewhere in the District of enumeration as per cent of total Male population: 1961

This map portrays the degree of intra-district migration of males.

In large parts of the southern Punjab, particularly in parts of the Mahendragarh, Gurgaon, Rohtak and Sangrur Districts, intra-district mobility is very low. In these areas males born elsewhere but within the District of enumeration were fewer than 4 per cent of the total males. In Karnal, Gurgaon, Hissar and Sangrur Districts the ratio varies between 4 and 8 per cent.

In the northern Punjab plain, on the other hand, intra-District mobility is greater, particularly in Hoshiarpur, Jullundur, Ferozepur, Ludhiana, Kangra and parts of Ambala, Patiala and Karnal

Districts. The development of new economic activities in the rural areas is responsible for local shifts in population. In Una Tahsil of Hoshiarpur District and Phillaur Tahsil of the Jullundur District, the proportion of such males is the highest—exceeding 12 per cent. In Amritsar and Kapurthala Districts, on the other hand, intra-district mobility is very low—ranging between 4 and 8 per cent.

MAP 48

Rural population—Males born in other Districts of the State as per cent of the total Male population: 1961

This map portrays the proportion of males born within the State but in Districts other than those where they were enumerated in 1961, signifying inter-district migration of males.

Over extensive areas of the State, inter-district mobility is very low: in Kangra, Gurdaspur, Amritsar, Hoshiarpur, Rohtak, Mahendragarh and Gurgaon Districts, males born in other Districts of the State were fewer than 3 per cent of the total male population. In parts of the Ambala, Karnal, Hissar and Sangrur Districts the corresponding proportion is lower than even 3 per cent. It is very high in Lahaul & Spiti District which is due to the in-migration of labourers engaged in constructional activities. In the Simla District the percentage of males born in other Districts of the State is between 6 and 9 per cent. The areas in which recent introduction or extension of canal irrigation has led to reclamation of waste lands, such as Sirhind and Patiala Tahsils of Patiala District, Kaithal Tahsil of Karnal District, Fatehabad and Sirsa Tahsils of Hissar District, and large parts of the Ferozepur and Bhatinda Districts, have attracted large number of men from other Districts. The Phagwara Tahsil has also attracted migrants from other Districts of the State, presumably because of its increasing industrial activity. In all these areas the proportion of such males ranges between 6 and 9 per cent.

MAP 49

Rural population—Males born in other States of India as per cent of total Male population: 1961

Male migrants from other States of India to rural Punjab form a very small fraction of the total male population, less than 1·5 per cent over large areas. In the peripheral areas of Punjab adjoining other States of India, the proportion is slightly higher—in most cases between 1·5 to 3 per cent. Although technically it is inter-State migration, yet it is essentially local, the migrants having come from the adjoining areas of the neighbouring States to the peripheral areas of Punjab. This is true of the eastern, southern and south-western areas of Punjab where males have come from Uttar Pradesh and Rajasthan, respectively.

The proportion of males born in other States is a bit high also in some interior areas like Phagwara and Ludhiana Tahsils where probably the industrial expansion has attracted migrants from other States. Himachal Pradesh has contributed to this migration to the Simla and Ambala Districts. In Lahaul Tahsil such male in-migrants are more than 3 per cent of the total population but their actual number is small. In Pathankot Tahsil where there are several military camps, the proportion exceeds 3 per cent.

In conclusion, the inter-State mobility is mostly confined, to the peripheral areas of Punjab which adjoin the neighbouring States of Rajasthan, U.P. and Himachal Pradesh.

MAP 50

Rural population—Males born in Pakistan as percentage of Male population: 1961

With the shift of a large population on Partition in 1947, a considerable number of Pakistan-born males have been enumerated in rural Punjab, settling mostly on the lands vacated by the Muslims. Consequently the proportion of Pakistan-born males in the rural population is high in areas where the proportion of Muslims was high before 1947. In large parts of the western zone bordering with West Pakistan the proportion of the Pakistan born males is more than 20 per cent of total rural males. The Tahsils of Pathankot, Gurdaspur, Kapurthala, Zira, Ferozepur and Fazilka are particularly noteworthy. Excepting the Tahsils of Karnal, Thanesar and Fatehabad, the Pakistan-born males are less than 10 per cent of the rural male population throughout the southern Punjab. In the Rohtak, Gurgaon, Mahendragarh, Sangrur and Bhatinda Districts it is less than 5 per cent. Similarly, in the mountainous and sub-hilly areas in the north the proportion is less than 5 per cent.

MAP 51

Pakistan-born persons enumerated in rural areas as percentage of rural population: 1961

The largest proportion of Pakistan-born persons is found in the border Districts of Gurdaspur, Amritsar and Ferozepur, where in most of the tahsils they constitute more than 16 per cent of the total rural population. In Jullundur, Muktsar, Dasuya, Patiala and Karnal Tahsils their proportion ranges between 12 and 16 per cent. The proportion is low in the southern Districts of Rohtak, Gurgaon, Mahendragarh, and also in parts of the Hissar, Sangrur and Bhatinda Districts. Similarly, in the mountainous and hilly Districts of Kangra, Simla and parts of the Hoshiarpur and Ambala Districts, their proportion is lower than 4 per cent. By and large, these varying proportions of Pakistan-born persons correspond to the magnitude of out-migration of Muslims from these areas at the time of Partition. In subsequent years some of them shifted to areas of new canal-irrigation where extensive waste lands were reclaimed, such as in Rajpura and Patiala Tahsils of the Patiala District, and Sirsa and Fatehabad Tahsils of Hissar District.

MAP 52

Male urban population classified according to place of birth: 1961

This map depicts composition of the urban male population according to place of birth. In the southern and south-western areas of the State where the towns are generally small and non-industrial, a large proportion of the population

was born at the place of enumeration, and among such Districts, Mahendragarh District leads. In Districts having large towns, this proportion is generally low. The displaced persons from Pakistan have contributed appreciably to the growth of urban population in Karnal, Ambala, Patiala, Ludhiana, Jullundur, Gurgaon and Rohtak Districts, where they form 20 to 30 per cent of the total males. This percentage is the lowest in Bhatinda, Sangrur, Mahendragarh and Kangra Districts. Males born in Districts other than those of enumeration are about one-fourth of the total male population in the urban areas of most of the Districts in which large towns exist: their proportion is very low in the Hariana region, showing the inattractiveness of the towns of this area. The proportion of males born in other States of India is conspicuous in Districts having large industrial, commercial and cantonment towns, e.g., Ambala, Ludhiana, Ferozepur, Amritsar, Gurdaspur, Simla and Kangra.

MAP 53

In-migration to Punjab from other States: 1961

In 1961, 712,039 persons born in other States were enumerated in Punjab forming 3·5 per cent of its population. Of these, 315,441 were males and 396,598 females. The map suggests three points:

(i) an overwhelming majority of the in-migrants are from the neighbouring States;

(ii) among in-migrants from the neighbouring States the females are in majority, particularly among those from Rajasthan, Delhi, and Himachal Pradesh; and

(iii) among in-migrants from most of the other States the males are in majority.

The main reason for the excess of the females over the males among the in-migrants from the neighbouring States is due to marriage. Migration from other States to Punjab is still male-selective.

MAP 54

Out-migration from Punjab to other States: 1961

In 1961 as many as 1·3 million persons born in Punjab were enumerated in other States of India. Out-migrants from Punjab are almost double the number of in-migrants to Punjab. On the whole the male out-migrants out-number the females. However, in Rajasthan and other neighbouring States the females are in excess of the males among the Punjab-born persons, evidently due to marriage. In other States the males are far in excess of the females among the Punjab-born persons. There is a strong inverse correlation between the number of out-migrants from Punjab and the distance of migration, yet the number of Punjabis in some distant States is fairly large. This suggests the adventurous nature of the Punjabis and their disregard to distance and religious and cultural impediments provided economic opportunities are attractive. The out-migration from Punjab is different from that from other States in that whereas the Punjabis go out for earning better livelihood, the out-migrants from other States move out mainly in search of employment even if it may not be lucrative.

MAP 55

Sex ratio: 1961

With a ratio of 864 females per thousand males, Punjab has one of the lowest sex ratios in the country. There has, however, been a substantial improvement in this ratio since 1921. It is thought by many that epidemics and famines were selective in their mortality impact in favour of females, and there has also been a prejudice against begetting girls. During recent decades control over epidemics and deaths due to famine conditions having been strengthened, the survival rate of females has improved slightly. Simultaneously, the prejudices of which the females have been a victim in the past are disappearing gradually. As a result, the proportion of females has been improving. The subject deserves a deeper study.

There are several regional disparities with respect to sex ratios. Palampur and Hamirpur Tahsils of Kangra District are the only areas in the State where females out-number males, due largely to the male-selective out-migration from these poverty-striken areas. In the other Tahsils of the Kangra District the ratio varies between 900 and 1,000. In the Nalagarh, Garhshankar, Dasuya, Nakodar and Jagraon Tahsils the sex ratio ranges between 900 and 950. To a considerable extent, this is also the result of male-selective out-migration. In parts of Mahendragarh, Gurgaon and Rohtak Districts also the sex ratio is high.

By contrast, the sex ratio is low throughout the north-east to south-west extending belt of the Central Punjab where there are 800 to 850 females per 1,000 males. This is an area into which there has been considerable in-migration in recent years with the introduction of canal irrigation. This in-migration of cultivating families, to begin with, is preponderantly male-selective, so that the proportion of females is low.

Kharar Tahsil has the lowest sex ratio—774 females per thousand males. In Chandigarh, belonging to this Tahsil, the proportion of males is disproportionately high, partly because of inadequacy of residential accommodation for the employees many of whom decide to leave their families in parental homes and live alone in the city. This is a common feature in all new growing towns. Lastly, Lahaul Tahsil also has very low sex ratio because of prevailing polyandry and in-migration of male labourers in recent years.

MAP 56

Changes in sex ratio: 1951—61

The changes in sex ratio reflect a number of things. An improvement in the proportion of females may be due to a reduction in female mortality, an increase in male mortality, male selective out-migration, or in-migration of families. In Punjab as a whole the sex ratio has risen from 858 in 1951 to 864 in 1961. The increase during 1951—61 is a continuation of the trend discerned since 1921.

The over-all improvement in the sex imbalance due to gradual control over epidemics and famine conditions and better regard for the females have been mentioned in a previous note. However, the change in sex ratio has not been uniform all over the State due to other reasons. The increase in sex ratio in the densely populated northern Punjab plain may be attributed to male-selective out-migration. In the Phagwara and Ludhiana Tahsils and in the Una Tahsil with its huge Bhakra-Nangal Project where the industries had attracted migrants from outside, the sex ratio has decreased. The mountainous Districts of Kangra and Simla which continue to send out their males in search of livelihood have witnessed a substantial increase in their female ratio.

By contrast, areas of in-migration have generally experienced decrease in sex ratio, *e.g.*, Una tahsil with its huge Bhakra-Nangal projects; the newly canal irrigated areas; the growing industrial and commercial towns; and Lahaul & Spiti District where extensive constructional and development projects have been launched.

MAP 57

Rural population—Sex ratio: 1961

By and large, it reveals the same pattern as that in Map No. 56. However, in some Tahsils which contain large towns and cities, the general sex ratio is lower than that of the rural population. For example, in the Amritsar, Jullundur and Ludhiana Tahsils the general sex ratio ranges between 800 and 850, whereas the rural sex ratio is between 850 and 900: our towns for various reasons have much lower sex ratios than the villages. The hilly areas of the Kangra, Hoshiarpur and Mahendragarh Districts have sex ratio ranging between 950 and over 1,000. Similarly in the Garhshankar, Una and Dasuya Tahsils of the Hoshiarpur District, Nakodar Tahsil of the Jullundur District and Kapurthala Tahsil from where there has been considerable out-migration of males, the sex ratio ranges between 900 and 950. In other areas of the northern, north-western and southern Punjab, there are 850 to 900 females per thousand males. In the central north-east to south-west extending belt it ranges between 800 and 850. This is the area of considerable in-migration which is highly male-selective.

MAP 58

Urban population—Sex ratio: 1961

In Punjab as a whole there are only 814 females per 1,000 males in the towns as against a corresponding proportion of 878 in the rural areas. The high cost of living and lack of residential accommodation in towns, and economic interests in the ancestral villages, discourage people from moving to towns with their families. Among the low income groups the movement to towns is highly male-selective. As a result, the sex ratio in towns is far lower than in the countryside. Besides, the towns in India do not provide sufficient employment for females. Thus, in this respect they are just the opposite of towns in western countries where, in many cases, the females out-number males.

There are considerable variations in sex-composition from town to town according to their functions. All the hilly towns and the cantonments have low sex ratio. New towns which are growing fast, such as Yamunanagar, Chandigarh, Nangal Township, have even lower sex ratio, generally below 700 females per thousand males. In towns which are static and a source of out-migration, the sex ratio is high—between 900 and 1,000 females. Such towns are in large numbers in the Districts of Mahendragarh, Gurgaon and Rohtak. However, in an overwhelming majority of the towns all over the State the sex ratio ranges between 800 and 900 which approximates to the average for the State. There is only one town in the whole State where the females out-number males and that is Dhilwan in the Kapurthala District. It is a very unusual phenomenon for a town in Punjab. This town, therefore, warrants detailed investigation in the field with regard to the causes of excess of females over males. There is particularly no correlation between size and sex ratio of towns.

MAP 59

Persons below 15 years of age as per cent of total population: 1961

In Punjab 43·5 per cent of the total population is below 15 years of age, slightly higher than corresponding figure of 41·5 per cent for the country as a whole. However, within Punjab there are very contrasting patterns. In the Lahaul & Spiti and Simla Districts and Kulu, Nalagarh and Kharar Tahsils the proportion of such persons is below 40 per cent. In most of these areas, the in-migration of people of working age-group has depressed the proportion of persons below 15 years of age. In the northern Punjab plain, this proportion generally ranges between 40 and 44 per cent. By contrast, in southern Punjab the proportion exceeds 44 per cent almost everywhere. This difference between northern Punjab plain and southern Punjab plain appears to be correlated with a corresponding difference in their birth rates which is slightly higher in southern areas than in the northern. Notwithstanding the relative differences from one region to the other the high percentage of persons below 15 years of age, denoting a comparatively young population, has many social and economic implications.

MAP 60

Proportion of males in the age-group 15—59 to total male population: 1961

Over extensive areas in Punjab the males in the age-group 15—59, denoting the adult group, form less than 50 per cent of the total male population. This is expected in a State where as much as 43·5 per cent of the total population is below 15 years of age. In Amritsar, Jullundur, Ludhiana, Una, Jagadhri, Ambala, and Patiala Tahsils which contain some of the largest towns and cities of the State the proportion is between 50 and 55 per cent. Similarly, large parts of central Punjab, which have been the scene of in-migration consequent upon development of canal irrigation, have a slightly higher proportion of males in the 15—59 age-group. In the Simla District, Kharar Tahsil, Pathankot Tahsil, Kulu Tahsil and the Lahaul & Spiti District, the proportion exceeds even 55 per cent. The impact of Simla and Chandigarh on the age structure of the general population of the Tahsils in which they

lie, is evident. In Lahaul & Spiti also the in-migration of labourers engaged in road building activity has raised the proportion of males in the 15—59 age-group. In conclusion, the highly urbanised areas, and rural areas where the newly introduced canal irrigation has stirred up new agricultural activity, have high percentage of males in the 15—59 age-group.

MAP 61

Proportion of females in the age-group 15—59 *to total female population*: 1961

Over large parts of the Punjab plain females in the age-group 15—59 are fewer than 50 per cent of the total female population. However, in the Kangra, Hoshiarpur, Simla, Lahaul & Spiti, and parts of Jullundur, Ludhiana, Ambala, Ferozepur, Sangrur, Rohtak and Gurgaon Districts, the proportion generally varies between 50 and 55 per cent. It is the highest in the Lahaul & Spiti District and Kulu Tahsil of the Kangra District where females in this age-group number more than 55 per cent of the total female population.

MAP 62

Rural population—percentage of males in the age-group 0—4 *to total male population*: 1961

As is true of all areas with high birth rate Punjab has a high percentage of its male population below 5 years of age. In view of the steeply declining mortality rate during infancy and later, this proportion has been steadily increasing during recent years. However, within the State there are contrasting patterns. In the southern half of the Punjab plain, male children below 5 years of age are as many as 17 to 19 per cent of the total male population. No wonder, the proportion of dependents and non-workers is so high in areas where population is dominated by children and young persons. In the eastern tahsils the corresponding proportion ranges between 15 and 17 per cent. In the entire western zone bordering on West Pakistan also the proportion ranges between 15 and 17 per cent. In the central north-east to south-west extending zone, however, the proportion is lower, ranging betwen 13 and 15 per cent. In parts of the Hoshiarpur, Jullundur and Ludhiana Districts from where there has been considerable out-migration of male workers the birth rate is slightly lower and so is the proportion of children below 5 years of age. The lowest proportion, even below 13 per cent, is found in the Lahaul & Spiti District where birth rate is low, partly due to polyandry. With only small variations in mortality rate, the regional differences in birth-rate correspond fairly well with those in the proportion of males below 5 years.

MAP 63

Rural population—percentage of females in the age-group 0—4 *to total female population*: 1961

To a marked degree the pattern emerging in this Map coincides fairly well with that in Map 62. The reasons for the regional variations in this proportion are the same as those given in the interpretation of the preceding Map.

MAP 64

Rural population—percentage of males in the age-group 0—14 *to total male population*: 1961

With 43·5 per cent of its population aged below 15 years Punjab has one of the youngest populations in the country. The difference in the proportions of males and females in this age group is not large. The distribution of 0—14 age-group reveals three distinct regions in the State. In large parts of the eastern and southern Punjab, more than 45 per cent of the male population is below 15 years. In the western zone, on the other hand, the proportion ranges generally between 42·5 and 45 per cent. In the central zone it is between 40 and 42·5 per cent. It is the lowest in the mountainous areas of Lahaul & Spiti, Kulu Tahsil, Nalagarh Tahsil and Simla District, where it is below 40 per cent. Although these differences on the whole are not very great yet they generally correspond to the small differences that exist in the birth rates. In the mountainous regions where polyandrous conditions exist and also where probably the mortality rate is somewhat higher than in the rest of the State the proportion is below 40.

MAP 65

Rural population—percentage of females in the age-group 0—14 *to total female population*: 1961

Although in the State as a whole the proportion of females is slightly higher than that of the males in this age-group, the regional pattern is practically the same as discussed in Map 64. In a large tract of south-western and central parts of the southern Punjab plain the number of females in 0—14 age-group exceeds even 47·5 per cent of the total female population whereas in other areas within the same region the proportion varies from 45 to 47·5 per cent. In areas marginal to this region on the north and also in the western zone, the females in this age-group are 42·5 to 45 per cent of the total female population. In the central areas comprising Hoshiarpur and Jullundur Districts, and a large part of Ludhiana District, the proportion is between 40 and 42·5 per cent. Again, in the mountainous areas of Lahaul & Spiti District, Kulu Tahsil, Nalagarh Tahsil and the Simla District the proportion is the lowest—below 40 per cent. The reasons for these regional variations are the same as those for the males mentioned in the previous note.

MAP 66

Rural population—percentage of males in the age-group 15—44 *to total male population*: 1961

Males in this age-group constitute a large section of the working population. The proportion of males in this age-group is the highest in the mountainous area of Lahaul & Spiti, Kulu and Simla. In Lahaul & Spiti to which there has been considerable migration of labourers for the road-building activity the proportion is the highest—it exceeds 45 per cent. In other mountainous areas it ranges between 42·5 and 45 per cent. Also in Faridkot Tahsil of the Bhatinda District, Muktsar Tahsil of the Ferozepur District, Fatehabad and Sirsa Tahsils of the Hissar District, there are 37·5 to 40 per cent males in this age-group. Moderately high percentage in these

areas is partly the result of recent in-migration of peasants to the regions to which canal irrigation has been extended in recent years. By contrast, in most of the Punjab plain north of the Sutlej river the proportion ranges between 35 and 37·5 per cent. Evidently this low proportion reflects the impact of out-migration of male workers from this densely populated region. Similarly, in such parts of Rohtak, Mahendragarh and Gurgaon Districts from where there has been out-migration, the proportion is below 37.5 per cent.

MAP 67

Rural population—percentage of females in the age-group 15—44 to total female population: 1961

Since 15—44 age-group represents the reproductive period, the proportion of females in this age group is a strategic figure for persons studying population. There are some important regional disparities in this proportion. In the mountainous areas of Lahaul & Spiti and Kulu for example, more than 45 per cent of the females are in 15—44 age-group. In other hilly areas, their proportion ranges between 42·5 and 45 per cent. The Punjab plain can be divided into two regions: in the south-western and western zone the proportion is less than 40 per cent, whereas in the remaining plain area the proportion ranges between 40 and 42·5 per cent.

MAP 68

Rural population—percentage of males in the age-group 15—59 to total male population: 1961

In Punjab a high proportion of male population belongs to 15—59 age-group. The proportion exceeds 52·5 per cent in the mountainous areas of Lahaul & Spiti, Kulu Tahsil, Nalagarh Tahsil and the Simla District. In parts of the Bhatinda, Amritsar, Sangrur, Gurdaspur, Ambala and Gurgaon Districts the proportion ranges between 50 and 52·5 per cent. By contrast, in the Hoshiarpur, Jullundur and Kapurthala Districts and parts of the Kangra, Mahendragarh, Rohtak and Gurgaon Districts from which there has been some out-migration of males, the proportion is low—generally between 45 and 47·5 per cent. In the large central tract of the State, on the other hand, it ranges between 47·5 and 50 per cent. In-migration and out-migration thus have a strong bearing, among other factors, on the age structure of the population.

MAP 69

Rural population—percentage of females in the age-group 15—59 to total female population: 1961

In the mountainous areas of the Lahaul & Spiti District. Kulu Tahsil, Nalagarh Tahsil and the Simla District the proportion of females in this age group exceeds 52·5 per cent. In large parts of the Kangra, Hoshiarpur, Jullundur and Ludhiana Districts from where there has been appreciable male selective out-migration, the proportion of females is high—between 50 and 52·5 per cent. Similarly, in certain parts of the Sangrur, Bhatinda and Ferozepur Districts it ranges between 50 and 52·5 per cent. Elsewhere, in the Punjab plain the proportion varies between 47·5 and 50 per cent. In some of the Tahsils like Thanesar, Patiala, Hissar and Bhiwani, the proportion is still lower—between 45 and 47·5 per cent.

MAP 70

Rural population—percentage of males over 60 years of age to total male population: 1961

In common with other Indian areas the percentage of rural male population over sixty years of age is very small indeed. This is in marked contrast to what is found in the aging populations of France, Great Britain, Sweden, etc. Large parts of the Hoshiarpur and Jullundur Districts from which there has been considerable out-migration of male workers, have more than 10 per cent of their males aged over sixty years. In parts of central and northern Punjab the corresponding proportion varies between 7·5 and 10 per cent. In the Hariana area and parts of the Ferozepur and Bhatinda Districts the proportion is still less—between 5 and 7·5 per cent. Similarly, in the Lahaul & Spiti District, and in Kulu and Pathankot Tahsils the percentage of the old males to total male population ranges between 5 and 7·5 per cent. It may be noted that in all areas of in-migration this proportion is low although all areas having low proportion of old people are not necessarily those of in-migration.

MAP 71

Rural population—percentage of females over 60 years of age to total female population: 1961

As is true of all areas belonging to the first or early second stage of the demographic cycle, the proportion of old persons to the total population of Punjab is very low. However, in areas of out-migration the proportion is higher than in others. In Simla District and in Hoshiarpur, Garhshankar, Nawashahr, Phillaur, Nakodar, Tarn Taran, Patti and Jagraon Tahsils more than 7·5 per cent of the female population is over 60 years of age. In the Kangra, Ambala, Ferozepur, Bhatinda, Gurdaspur and Kapurthala Districts and parts of the Patiala, Sangrur, Ludhiana, Amritsar, Jullundur and Hoshiarpur Districts this percentage ranges between 5 and 7·5. In Lahaul & Spiti it exceeds 7·5 per cent. On the other hand, in most of the central Punjab consisting of parts of Karnal, Patiala, Sangrur and Hissar Districts, which has been a region of in-migration in recent years, the females over 60 years of age are less than 5 per cent of the total female population. Similarly, in most parts of Rohtak and Gurgaon Districts the proportion is below 5 per cent. In some of the southern parts of Punjab such as Mahendragarh District and the adjoining tahsils of Hissar, Rohtak and Gurgaon Districts 5 to 7·5 per cent of the females are over 60 years of age. Thus regional variations apart, the proportion of old women in the total female population is small all over the State. This is true of all 'young' populations.

MAP 72

Urban population—percentage of males in the age-group 15—59 to total male population: 1961

In the State more than half of the male population belongs to the age-group 15—59. The only areas where this proportion is less than 50 per cent are Pathankot, Ajnala, Patti, Dasuya, Nawashahr, Zira, Jagraon, Naraingarh, Gohana, Jhajjar, Mahendragarh, Nuh and Ferozepur

Jhirka Tahsils. Here the towns are small and *mainly residential. In towns of growing economic* activity the males in 15—59 age-group are in larger proportions. In the Palampur, Kangra, Una, Kharar, Ferozepur, Kandaghat, and Simla Tahsils their proportions exceed 60 per cent, and it ranges between 55 and 60 in the Gurdaspur, Amritsar, Jullundur, Ludhiana, Patiala, Nabha, Ambala, Jagadhri, Hissar, Palampur and Kulu Tahsils. Elsewhere the proportion ranges between 50 and 55 per cent. Thus a majority of the males in towns are in the working age-group.

MAP 73

Urban population—percentage of females in the age-group 15—59 *to total female popoulation*: 1961

Punjab can be divided into two contrasting areas in this regard. In large parts of the southern Punjab females in the working age-group are less than 50 per cent of the total females. This is to be expected where the towns are mainly administrative, residential, or service centres. In the northern Punjab, on the other hand, where household and manufacturing industries are important the females in this age-group are in clear majority everywhere. Their proportion invariably varies between 50 and 55 per cent of the total female population. Only in Kulu Tahsil it exceeds 55 per cent.

MAP 74

Sex and age structure: 1961

The broad base of each pyramid reveals the youthfulness of Punjab's population. From the base upwards the pyramids taper off gradually. This signifies a high birth rate and a high death rate. In the middle age-groups the bands are smaller than half of those for the 0—15 age-groups. That shows how much of human life is lost by the time middle age is reached. Because of high mortality practically in all age-groups the age pyramids become almost pointed toward the end, indicating a small fraction of the total population in the old age-group.

Another feature which comes out in nearly all the pyramids is that the males are more numerous than females in the young, middle and higher age-groups. There is probably higher rate of mortality among females from neglect in the young age-groups and maternal mortality in the middle age-groups. In Simla and Lahaul & Spiti Districts the males are far more numerous than females than anywhere else in the State. Interestingly, the base of the pyramid for Lahaul & Spiti District is much smaller than that of any other District. It is because of low *birth rate partly contributed by the prevalence of* polyandry.

MAP 75

Marital Status: 1961

Because of 44 per cent of the population being below 15 years of age in the State, the proportion of unmarried persons can be expected to be high. Almost all over the State slightly more than 50 per cent of the population is unmarried. Interestingly, the proportion of married and widowed persons is practically similar in all Districts. The married population with a few exceptions constitutes 40 to 45 per cent whereas the widowed persons are generally 4 to 7 per cent of the total population. This near uniformity in marital status in all the districts is explained by the existence of more or less similar social customs and values prevailing throughout the State. With the spread of higher education, industrialisation and urbanisation the pattern of marital status is bound to change in future.

MAP 76

Proportion of workers and non-workers to total population with male and female Divisions: 1961

The term 'worker' has been applied to a person who if in seasonal occupation, has had some regular work of more than one hour a day during a major part of the previous working season; and if in other occupation, was employed during any of the fifteen days prior to his being enumerated.

Only 35 per cent of the total population of Punjab has been classified as workers—28·4 males and 6·6 females. The lack of participation by women in economic activities is attributable to certain prejudices against their joining the economic struggle. However, there are significant variations both with regard to the proportion of working population and its sex composition. The proportion of workers is the highest in Lahaul & Spiti District (70·2 p. c.), followed by Simla and Kangra Districts (in each case 49·7 p. c.) and Hissar District (41·9 p. c.). In the hilly areas, female participation is much higher than in the plains for economic and cultural reasons.

The proportion of workers is below 30 per cent in the Gurdaspur, Amritsar, Kapurthala, Jullundur and Ludhiana Districts. This low figure is due partly to the out-migration of working males and traditional prejudice against women joining the working force: women work only when they have to work. Elsewhere in the State the proportion ranges between 30 and 40 per cent. In the southern districts female participation is higher than in the north. In general, the degree of female participation is inversely correlated with diversification of economy and general economic development.

MAP 77

Percentage of workers to total population: 1961

The overall pattern is practically the same as that emerging in map 76 except that it is a bit more detailed than in the preceding map because here the data used have been tabulated by tahsils instead of districts.

MAP 78

Non-workers as percentage of total population: 1961

In large parts of the Amritsar, Gurdaspur, Jullundur, Kapurthala, Ludhiana, Hoshiarpur Districts the proportion of non-workers exceeds 70 per cent. This is due to two reasons: (i) the proportion of population below 15 years of age and above 60 years is high, and (ii) there has been considerable out-migration of the working males to other areas of economic potentialities. The proportion of non-workers is the lowest in the mountainous districts of Lahaul & Spiti, Kangra and Simla because of the hard struggle for earning livelihood. In these areas of meagre

resources even persons who are otherwise not in the working age-group participate in economic activities. Also, in the arid and semi-arid areas of Hissar, Mahendragarh and Gurgaon Districts the percentage of non-workers is low.

In the remaining areas of Punjab the proportion ranges between 60 and 70 per cent. The proportion of non-workers is high in areas of out-migration. Besides, the proportion is low where female participation is high and *vice versa.*

MAP 79

Male workers per thousand of male population: 1961

In the Punjab 52·9 per cent of the male population is in the working force. However, within Punjab there are striking contrasts in the proportion of male workers. In the mountainous Districts of Lahaul & Spiti and Simla and in the Nalagarh Tahsil of the Ambala District, more than 57·5 per cent of the males are workers. In the Rupar Tahsil of Ambala District, Una of Hoshiarpur District, Kangra of Kangra District, and Pathankot of Gurdaspur District 55 to 57·7 per cent of the males are workers.

In large parts of the Ferozepur, Bhatinda, Sangrur and Hissar Districts, the proportion of male workers is high—generally between 55 and 57·5 per cent. However, in the Fatehabad, Mansa, Sangrur and Narwana Tahsils it exceeds even 57·5 per cent. It may be noted that in all these areas of high proportion of male workers, there has been in-migration of people of the working age group for one economic activity or the other.

By contrast, throughout the northern and eastern Punjab plain, from where there has been considerable out-migration for diverse types of employment, the proportion of male workers is low.

MAP 80

Female workers per thousand of female Population: 1961

In Punjab as a whole only 14·2 per cent of the female population is included in the working force. This may have something to do with the relative prosperity of the Punjabis who think it below their dignity to have the females participate in economic pursuits. The cultural and historical factors have also operated in the same direction.

However, there are contrasting patterns in the proportion of female workers to total female population. There are two types of areas where the proportion of workers among females is high; the mountainous Districts of Lahaul & Spiti, Kangra, Simla and the Una Tahsil of the Hoshiarpur District; and there is the Haryana, area plus the Fazilka Tahsil of Ferozepur District. In both the tracts more than 10·5 per cent of the females are in the working force. The mountainous districts have difficult terrain; they suffer from inaccessibility and are bestowed with only limited resources. As a result, all able-bodied persons, irrespective of sex, have to join hands in earning livelihood. In the Haryana area, the arid and semi-arid conditions make life harder and thus require more hands to work; and culturally also there is less restriction on females participating in economic activities.

By contrast, in the entire northern half of the Punjab plain, less than 6 per cent of the females have been counted in the working force, and in the central part of this region the proportion is even less than 4 per cent. Here the prejudice against women participating in economic activities is comparatively strong. On the whole, it may be concluded that there is a fairly strong inverse correlation between diversification of economy and female participation as also between general prosperity and female participation in occupational work.

MAP 81

Rural population—percentage of workers to total population: 1961

In Punjab 36·2 per cent of the rural population constitutes the working force. However, there are significant differences in this respect from area to area. On the whole the general pattern corresponds to that for total population depicted in map 77. In the mountainous Districts of Lahaul & Spiti, Kangra, Simla and the southern districts of Hissar, Mahendragarh, parts of Gurgaon, Rohtak and Sangrur, the proportion of workers in the rural population exceeds 40 per cent. The main reason for this is the high proportion of female workers in the working force. By contrast, throughout the northern Punjab plain including parts of the Ambala, Patiala, Ludhiana, Jullundur, Kapurthala, Hoshiarpur, Gurdaspur and Amritsar Districts, the corresponding proportion is less than 32 per cent. This is the area from where peasants have out-migrated to other places in the State, other States of India and abroad in search of better economic opportunities. Also female participation is low throughout this region. The central Punjab plain consisting of large parts of the Ferozepur, Bhatinda, Sangrur and Karnal Districts, is in the intermediate category with 32 to 40 per cent of the ruralities belonging to the working force.

MAP 82

Workers as percentage of total population in towns and cities: 1961

The proportion of workers in the urban population varies, among other factors, according to the functions of towns and the availability of residential accommodation for families. In nearly all hill towns there is general scarcity of suitable residential accommodation and many among the workers live without families, the percentage of workers is generally more than 35. Similar conditions obtain also in Chandigarh, Nangal Township, Naya Nangal and Pathankot, where growth of population by in-migration preceded the construction of residential accommodation. By contrast, in residential towns the proportion is comparatively low.

MAP 83

Cultivators as percentage of total working population: 1961

The term 'cultivator' relates to a person engaged in cultivation of land or supervision or direction of cultivation of land, owned or held in any other capacity.

Punjab is a predominantly agricultural State, though less so than several other States of India. Within Punjab 56·3 per cent of the workers are cultivators, but there are sharp areal contrasts. In the mountainous areas of Spiti Tahsil, Kangra District, Una Tahsil, Nalagarh Tahsil and in the Simla District more than 65 per cent of the workers are cultivators. In fact, in the Kulu, Hamirpur, Gopipur, and Nalagarh Tahsils, the *proportion of cultivators exceeds 80 per cent.* Similarly, in the Hissar and Mahendragarh Districts and parts of the Gurgaon, Rohtak, Karnal and Sangrur Districts, more than two-thirds of the workers are cultivators. Most of these areas are still in the stage of subsistence agrarian economy, and lack in industry and commerce. However, as the agricultural economy becomes more commercial in the newly canal irrigated areas of Karnal, Sangrur and Hissar Districts, it will stimulate the development of diverse non-agricultural activities, *e.g.,* trade and processing industries.

By contrast, in the northern Punjab plain the cultivators are less than 50 per cent of the total workers and a fairly large proportion of the workers is engaged in household and manufacturing industries, commerce and miscellaneous services. There is an inverse correlation between general economic development and proportion of cultivators to total workers.

MAP 84

Agricultural Labourers as percentage of Total Working Population: 1961

The term 'agricultural labourer' relates to a person who labours on the land belonging to another person, without exercising any supervision or direction in cultivation, but for wages in cash or kind.

Of the total workers in Punjab, 7·7 per cent. are engaged as agricultural labourers. However, there are notable regional variations in their proportions. In the mountainous areas of Lahaul & Spiti, Kangra and Simla Districts, agricultural labourers are less than 4 per cent of the total working population. Similarly, in the Hoshiarpur District, excepting Dasuya Tahsil, and Nalagarh and Kharar Tahsils of the Ambala District, the agricultural labourers constitute less than 4 per cent of the total working population. Likewise in the Mahendragarh District, Bhiwani Tahsil in the Hissar District, Jhajjar Tahsil in the Rohtak District, and Gurgaon, Nuh and Ferozepur Jhirka Tahsils in the Gurgaon District, agricultural labourers are less than 4 per cent of the working population. The low proportion of agricultural workers in the former areas is associated with the small size of land holdings and predominantly subsistence type of farming. In contrast to this, in the canal irrigated areas of Ferozepur, Patiala, Sangrur, Bhatinda, Hissar, Karnal and Rohtak Districts, the percentage of agricultural labourers ranges between 8 and 12. Generally speaking, a high proportion of agricultural labourers is associated with large size of land holdings and commercial agriculture economy of the canal irrigated areas. Several other areas where the holdings are of medium size, and agricultural economy none-too-prosperous, the proportion of agricultural labourers ranges between 4 and 8 per cent.

In conclusion, the percentage of agricultural labourers is generally correlated with the size of land holdings, intensity of cultivation and nature of agrarian economy.

MAP 85

Agricultural Workers as percentage of Total Workers in the age-group 15—59: 1961

A comparison of this map with map 27 will reveal that a strong inverse correlation exists between urbanisation on the one hand and agricultural workers as percentage of total workers in the age-group 15—59, on the other. In tahsils having large urban centres the proportion of agricultural workers is low. For example, in Ambala, Kharar, Ludhiana, Jullundur, Phagwara, Hoshiarpur, Amritsar and Pathankot Tahsils the agricultural workers are less than 40 per cent of the total workers in the age-group 15—59. In Jagadhri, Patiala and Ferozepur Tahsils the proportion ranges between 40 and 50 per cent. In Batala, Gurdaspur, Kapurthala, Nakodar, Phillaur, Nawashahr, Jagraon, Samrala, Rupar, Sirhind, Nabha, Malerkotla, Faridkot, Bhatinda, Panipat, Gurgaon and Ballabgarh Tahsils the agricultural workers are 50 to 60 per cent of the total workers. In the Lahaul Tahsil where constructional activity engages several hundreds of workers the proportion of agricultural workers ranges between 50 and 60 per cent. By contrast in the meagrely urbanised mountainous areas the agricultural workers are in a highly dominating position. Similarly, in the predominantly agricultural and less urbanised southern and south-western Punjab the agricultural workers exceed 70 per cent of the total workers in the 15—59 age-group. In some tahsils such as Ferozepur Jhirka, Nuh, Mahendragarh, Dadri, Hansi, Fatehabad and Narwana, more than 80 per cent of the workers are engaged in agriculture.

MAP 86

Male Agriclutural Workers as percentage of Total Male Workers in the age-group 15—59: 1961

In the Punjab 58·5 per cent of the male workers in the age-group 15—59 are engaged as agricultural workers. However, within the State there are important variations. In many areas of northern Punjab plain the proportion is low whereas in the south it is very high. In the Pathankot, Amritsar, Jullundur, Phagwara, Ludhiana, Kharar and Ambala Tahsils, which contain large towns, the proportion of agricultural workers to total male workers is very low—below 40 per cent. In the Ballabgarh, Jagadhri, Hoshiarpur and Ferozepur Tahsils it ranges between 40 and 50 per cent. So is the case with Lahaul Tahsil. In many other tahsils of the northern Punjab plain the proportion ranges between 50 and 60 per cent, as in the Gurdaspur, Batala, Phillaur, Nawashahr, Jagraon, Samrala, Rupar, Nabha and Patiala Tahsils. The relatively low proportion of male agricultural workers in the northern Punjab plain is because of the diversification of economy, and out-migration of working peasants. On the other hand, in the southern and central Punjab where the economy is overwhelmingly agricultural the proportion of male agricultural workers is high. In parts of Hissar, Sangrur, Karnal, Mahendragarh and Gurgaon Districts it exceeds 70 per cent. Similarly, in the mountainous areas, excepting Simla District and Lahaul Tahsil, the proportion is very high.

MAP 87

Female Agricultural Workers as percentage of Total Female Workers in the age-group 15—59: 1961

As many as 79·5 per cent of the female workers in the age-group 15—59 in Punjab are engaged in agriculture. However, there is a very significant contrast between the southern Punjab and the mountainous areas on the one hand and northern Punjab plain on the other. In most of the northern Punjab plain less than 40 per cent of the female workers in the age-group 15—59 are engaged in agriculture, because of the general prejudice against the participation of the females in out-door work. In fact the participation of females in all economic activities put together is poor.

Diversification of economy is also responsible for the low proportion of female workers engaged in agriculture in this area. By contrast in the southern Punjab where the economy is overwhelmingly agricultural, not only female participation is significant in absolute terms but it is practically confined to agriculture. In the Gurgaon, Mahendragarh, Rohtak, Hissar, parts of Karnal, Sangrur and Ferozepur Districts more than 80 per cent of the female workers are engaged in agriculture. Similarly, in all the mountainous areas the proportion is equally high.

MAP 88

Landless Cultivators as percentage of Total Agricultural Workers in the age-group 15—59: 1961

In Punjab as a whole 12·0 per cent of the agricultural workers are landless cultivators. However, there are important regional differences in this respect. In the canal irrigated and intensively cultivated areas the proportion of landless cultivators is high, ranging between 15 and more than 20 per cent. For example, in Ferozepur, Bhatinda, Ludhiana, Patiala, Jullundur, Amritsar and parts of Karnal, Ambala and Gurdaspur Districts the proportion exceeds 15 per cent everywhere. In Ferozepur, Bhatinda and Patiala Districts besides irrigation facilities the land holdings are generally of large size demanding additional working hands. Hence agricultural labourers are, numerous. Similarly, in the irrigated areas of the Amritsar, Jullundur and Ludhiana Districts cultivation is highly intensive, thus requiring the help of labourers. In these areas cash crops cover a considerable portion of the crop land. On the other hand, in the dry and semi-dry areas of the Gurgaon, Mahendragarh and Hissar Districts where success in agriculture is marked by vicissitudes, agricultural labourers are employed to a less extent, in many parts even less than 5 per cent of the total agricultural workers. In any case the proportion is less than 15 per cent everywhere except in Sonepat Tahsil where truck farming is important. Similarly, in the Hoshiarpur, Simla, Kangra, Lahaul & Spiti, and parts of Kapurthala and Gurdaspur Districts where the land holdings are generally small and irrigation, less intensively developed the proportion of agricultural labourers is low.

MAP 89

Workers engaged in mining, quarrying etc., as percentage of Total Working Population: 1961

Such workers are employed in mines, quarries, in rearing and keeping of livestock and poultry, in forestry and fishing, growing fruits and vegetables, and correspond to Divisions 0 and 1 of the Indian Industrial Classification.

Engaging only 0.93 per cent of the working population, these activities are insignificant in the employment structure of Punjab. In the Kulu Tahsil of Kangra District, tea plantations and forestry account for more than two per cent of the working population. In Barnala and Sangrur Tahsils of Sangrur District and Mansa Tahsil of Bhatinda District also the proportion is more than two per cent. In Amritsar District the proportion ranges between 1 and 2 per cent. Elsewhere it is below one per cent.

MAP 90

Percentage of Non-agricultural Workers in primary activities to Total Workers: 1961

The primary activities have been listed in the foregoing note. The most important feature emering on this map is that non-agricultural primary activities are totally insignificant in Punjab. Only in the erstwhile PEPSU areas and the Gurdaspur, Amritsar and Simla Districts is the proportion of non-agricultural workers engaged in primary activities more than 1·6 per cent of the working population. In the southern and south-western districts on the other hand it is less than even 0·8 per cent. The Lahaul & Spiti District is also in the same category. The chief reason for the insignificance of the primary activities in Punjab is the lack of mineral resources, extensive grazing lands, extensive forested areas and large water bodies which may be used for fishing. The demand for cultivable land to produce more and more of food to feed the fast growing population is compelling. Of the few people engaged in these primary activities, a majority are associated with livestock industry, particularly grazing. Other primary activities are practically negligible.

MAP 91

Workers engaged in Household Industry as percentage of Total Working Population: 1961

'Household Industry', is any activity relating to the production, processing, servicing or repairing of goods, carried on mainly by the members of a family, and the place of work in rural areas is within the villages and in urban areas, chiefly in the home of the family.

In Punjab 7·6 per cent of the working population is engaged in household industries, such as handloom industry, leather work, and pottery. In most areas in the northern Punjab plain 8 to 12 per cent of the workers are engaged in the household industries; in the mountainous Districts and in the southern and south-western districts their proportion is invariably below 8 per cent; and in the semi-arid areas of Sirsa, Hissar and Bhiwani, it is even less than 4 per cent. These regional variations correspond to a considerable degree to the regional disparities in the distribution of Scheduled Castes population. In areas where the percentage of Scheduled Castes population is high, the proportion of workers in household industries is correspondingly high, and *vice versa.*

MAP 92

Employment structure of Household Industries: 1961

The purpose of this map is to show the composition of household industries in terms of employment. In Punjab the livestock-based industries lead other types of household industries, followed by textiles. The chemical industries are the least important. However, the relative importance of various industries varies from district to district. In the Gurdaspur, Hoshiarpur and Jullundur Districts, textiles are the most important, probably because of the high proportion of the Mazhabis who weave cloth on the handlooms. In most districts of the southern Punjab, on the other hand, where the Chamars are in appreciable number, the livestock-based industries are important, such as tanning of hides and skins and making of shoes and leather ropes. Besides in these districts the large number of cattle and sheep provide the hides and skins.

The textile and livestock-based industries together account for more than two-thirds of the household industries. The mineral-based industries are important only in Gurgaon, Mahendragarh, Hissar, Rohtak and Karnal Districts. The forest industries feature in the mountainous districts of Simla and Kangra abounding in trees. Agro-based and engineering industries are of very minor importance as household industries.

MAP 93

Workers engaged in Manufacturing other than Household Industry as percentage of Total Working Population: 1961

Processing, manufacturing and repairing on a scale larger than the household industry are included in this group: some of them are registered factories.

Manufacturing industries engage 5 per cent of the working force in Punjab. Employment in manufacturing industries is very uneven among the Districts and is most pronounced in the areas along the main rail routes, particularly the one connecting Delhi with Amritsar. The highest percentage of workers in manufacturing industries is found in the tahsils having industrial towns, such as Jagadhri, Ambala and Kharar Tahsils in Ambala District, Ludhiana Tahsil in Ludhiana District, and Phillaur and Jullundur Tahsils in Jullundur District, Phagwara Tahsil in Kapurthala District, Amritsar Tahsil in Amritsar District, and Batala and Gurdaspur Tahsils in Gurdaspur District. In all of these Tahsils more than 6 per cent of the working force is engaged in manufacturing industries. In Bhiwani, Rohtak, Panipat, Karnal, Patiala, Rajpura, Malerkotla, Una, Hoshiarpur and Pathankot Tahsils the workers in manufacturing industries constitute 4·5 to 6 per cent of the working population. These Tahsils also include small industrial centres. Elsewhere there is very little employment in manufacturing industries except in the Ballabgarh Tahsil of Gurgaon District, owing to the Faridabad Township.

MAP 94

Employment Structure of Factory Industries: 1961

This map depicts the composition of factory industries in terms of employment. In Punjab, textile industries, which engage more than 20 per cent of the total factory workers, are the most important among manufacturing industries. Engineering, agro-based and mineral industries follow in that order. Chemical industries are among the least important. However, the employment structure of factory industries varies from district to district. In Amritsar, Kapurthala, Ferozepur, and Hissar Districts the textile industries top all other factory industries in terms of employment. Gurdaspur, Ludhiana, Jullundur, Patiala and Gurgaon Districts on the other hand lead in engineering industries. In Hoshiarpur District, because of the large fertilizer factory, the chemical industries top the list of all industries in terms of employment. Agro-based industries are important in Rohtak, Karnal, Sangrur and Kangra Districts. In mineral-based industries Mahendragarh, Gurgaon, Rohtak, Karnal, Hissar, Bhatinda and Ambala Districts are important.

MAP 95

Industrial Workers as percentage of Total Workers: 1961

The fact that only 12.6 per cent of the workers are engaged in industries, suggests that Punjab, though more industrialised than many other Indian States, has still a long way to go in becoming a predominantly industrial region. It may be pointed out that these industrial workers include those engaged in household industries as well as manufacturing industries. Here again there is a great contrast between the southern Punjab and mountainous areas on the one hand and the northern Punjab plain on the other. In most parts of the southern Punjab and mountainous areas the proportion of industrial workers is less than 10 per cent, whereas in the northern Punjab plain it is usually far more than 10 per cent. Tahsils with highest percentages of industrial workers are generally those in which large industrial towns/cities exist. As for example, in Amritsar, Jullundur, Phagwara, Hoshiarpur, Phillaur, Ludhiana and Jagadhri Tahsils more than 20 per cent of the total working force is engaged in industries. In Batala, Nakodar, Nawashahr, Garhshankar, Jagraon, Malerkotla, Sirhind, Panipat and Ballabgarh Tahsils the proportion ranges between 15 and 20 per cent. These tahsils either contain industrial towns or are important for household industries. Household industries in turn are generally important in areas where the proportion of Scheduled Castes people is high although the reverse is not necessarily true.

MAP 96

Workers engaged in Construction as percentage of Total Working Population: 1961

Workers of this group are engaged in the construction and maintenance of buildings, roads, railways, telegraph and telephone lines, water ways and water-reservoirs.

In Punjab as a whole construction absorbs 2.0 per cent of the total workers. Only in such areas as have considerable developmental activity going on is this category important for employment. In the Lahaul Tahsil where road-building activity is important and Una Tahsil where construction work relating to the Bhakra Dam and other allied projects has been going on, more than 2·25 per cent of the working force was engaged in construction. Similarly, because of the construction

of the Chandigarh town the percentage was equally high in the Kharar Tahsil. The construction of the Rajasthan canal is responsible for high percentage of workers in construction in the Zira, Ferozepur and Muktsar Tahsils. Similarly, it was equally important in the industrial Tahsils of Amritsar, Ludhiana, Ambala, Patiala, Jullundur and Gurgaon. Elsewhere the proportion of workers engaged in construction is mostly below 1.5 per cent. In several of the mountainous and hilly districts and also in the backward areas of the Mahendragarh, Rohtak and Gurgaon Districts the proportion is even below 0.75 per cent.

MAP 97

Workers engaged in Trade and Commerce as percentage of Total Working Population: 1961

Persons employed in retail and wholesale trade of all kinds and other commercial activities such as banking, auctioneering, insurance and money-lending have been included in this category. It corresponds to Division 6 of Indian Industrial Classification.

Commercial activity absorbs 5·4 per cent of the workers. It is high in tahsils which contain cities and industrial towns, such as, Ambala, Patiala, Ludhiana, Phagwara, Jullundur and Amritsar Tahsils where more than 8 per cent of the workers derive livelihood from trade activities. It is also important in the Ferozepur-Bhatinda area where cash crop farming has stimulated the development of agricultural markets handling trade in cotton, oilseeds and wheat. Similarly, in Rohtak, Panipat, Jagadhri, Kharar, Samrala, Jagraon, Malerkotla, Nabha, Patiala Hoshiarpur and Faridkot Tahsils the proportion of trade workers is 6 to 8 per cent of the working population. In areas where agricultural economy is still of subsistence nature and where industrial activity is lacking, commerce engages less than 6 per cent of the workers. The proportion of trade workers is the lowest in the hilly Districts of Lahaul & Spiti, Kangra and Simla as also in Nalagarh Tahsil of the Ambala District, and Dadri Tahsil of the Mahendragarh District. Here less than 2 per cent of the workers derive livelihood from commercial activities.

The percentage of workers engaged in commerce is a fairly useful index of the general economic development of the areas. As the economy diversifies and becomes more and more of commercial nature, trade activities increase.

MAP 98

Workers engaged in Transport, Storage and Communication as percentage of Total Working Population: 1961

These workers accounting for 2.0 per cent of the total workers in the State, are concentrated in large towns and regional centres of transport. The proportion of workers engaged in transport exceeds 2 per cent in the Jagadhri, Ambala, Kharar and Rupar Tahsils of the Ambala District, and in the Patiala, Ludhiana, Phagwara, Jullundur Kapurthala, Hoshiarpur, Amritsar, Batala, Pathankot, Ferozepur, Bhatinda, Rohtak, Gurgaon and Rewari Tahsils. Invariably these tahsils contain important nodes of circulation. In the northern Punjab plain there are extensive areas where the proportion ranges between 1.5 and 2 per cent while in the southern districts there are vast areas where it is less than 1 per cent. In the hilly districts particularly, it is very low except in Simla where it ranges between 1.5 and 2 per cent. It follows from the above that employment opportunities in transport are intimately related to degree of urbanisation.

MAP 99

Workers engaged in Other Services as percentage of Total Working Population: 1961

Persons engaged in services like generation and supply of electricity, water supply and sanitary services, educational services, medical services, legal services, business services, defence services, recreational and personal services, have been grouped under this category.

In Punjab 13.1 per cent of the workers are engaged in these services. This proportion is high in tahsils which contain large administrative towns and cantonments such as the Ambala, Kharar, Jullundur, Hoshiarpur, Amritsar, Gurdaspur, Pathankot and Ferozepur Tahsils where more than 20 per cent of the working population derives livelihood from services. In other tahsils containing large industrial and commercial towns the proportion ranges between 15 and 20 per cent such as the Gurgaon, Patiala, Simla, Rupar, Samrala, Ludhiana, Jagraon, Phagwara, Kapurthala, Tarn Taran and Batala Tahsils. In tahsils where the towns are small and the degree of urbanisation is low, the proportion of workers engaged in services is also low. On the whole, the importance of this category corresponds to the degree of urbanisation.

MAP 100

Rural population—Cultivators as percentage of Total Working Population: 1961

In Punjab 66·6 per cent of the rural workers are engaged as cultivators. In large parts of the northern plain the cultivators are less than 60 per cent of the working population. Here the Scheduled Caste people constitute a sizeable portion of the population, and a majority of the workers of these castes engage themselves in household industries or agricultural labour. By contrast, in the southern and south-western semi-arid areas and in the mountainous areas of the Lahaul & Spiti, Kangra, and Simla Districts and Una and Nalagarh Tahsils of the Hoshiarpur and Ambala Districts, respectively, where the resources are poor and the economy is overwhelmingly of subsistence type, the percentage of workers engaged as cultivators exceeds 76. In the Kulu, Kangra, Dera Gopipur, Hamirpur, Nalagarh, Dadri and Bhiwani Tahsils the proportion exceeds even 84 per cent. In large parts of the central Punjab, on the other hand, the percentage of workers engaged as cultivators ranges between 70 and 76. In the Lahaul Tahsil the developmental activities go for depressing the percentage of cultivators considerably. There is inverse correlation between urbanisation and percentage of rural workers engaged as cultivators

MAP 101

Rural population—Agricultural Labourers as percentage of Total Working Population: 1961

In the State as a whole, 7·7 per cent of the total workers are agricultural labourers. In canal-irrigated areas in the central Punjab the agricultural labourers constitute more than 12 per cent of the working population in rural areas: the intensive type of cultivation in the canal-irrigated areas and the comparative large size of holdings necessitate employment of agricultural labourers besides the family labour of the cultivators. By contrast, in all areas where the size of land holding is small as in the *Bist Doab* and large parts of the Ambala District, the proportion of agricultural labourers is small. The proportion of agricultural labourers is low also in areas where land holdings though not small, have land which is not very productive or lacks in water-supply, as for example, in the Gurgaon, Mahendragarh and parts of the Hissar Districts. In the mountainous Districts where the land holdings are very small, agricultural labourers account for less than 4 per cent of the rural working population.

MAP 102

Agricultural Workers as percentage of Rural population in the age-group 15—59: 1961

In Punjab as a whole, 45·9 per cent of the rural people in 15—59 age-group are agricultural workers, with strong regional contrasts. In the northern Punjab plain, for example, the proportion of agricultural workers in the rural population is low. However, in some of the areas like, the Pathankot, Gurdaspur, Amritsar, Hoshiarpur, Jullundur, Phagwara, Phillaur, Nawashahr, Ludhiana and Kharar Tahsils the proportion is even less than 30 per cent. Generally the proportion of agricultural workers in this area ranges between 30 and 40 per cent, increasing gradually towards the south. This low proportion is attributable to three factors: first, there has been considerable out-migration of the peasants; secondly, the females do not participate in agriculture; thirdly, development of non-agricultural activities tends to depress the proportion of agricultural workers. In the southern Punjab, by contrast, the proportion is over 40 per cent everywhere. In parts of the Hissar, Sangrur, Ferozepur, Mahendragarh, Rohtak and Gurgaon Districts it exceeds 60 per cent. This shows the overwhelming importance of agriculture as a means of livelihood in the southern Punjab. Moreover, here a large proportion of the females participate in economic activities, specially agriculture. In the mountainous areas of the Lahaul & Spiti, Kangra and Simla Districts and also in the Nalagarh Tahsil of the Ambala District the proportion exceeds 60 per cent in most cases.

MAP 103

Rural population—Male Workers in Agriculture as percentage of Total Male Workers: 1961

A consideration of only male workers gives a better measurement of the importance of the various categories in occupational structure. The eastern and northern Punjab plain stand in marked contrast to the southern and the south-western half of the Punjab plain. In the eastern and the northern Punjab plain the male agricultural workers are less than 75 per cent of the total male workers everywhere. However, in the Pathankot, Hoshiarpur and Jullundur Tahsils the proportion is less than 55 per cent. In the Gurdaspur, Amritsar, Phagwara, Phillaur, Ludhiana and Kharar Tahsils it ranges between 55 and 65 per cent. This relatively low proportion of male agricultural workers is associated with two factors: (i) high degree of urbanisation; and (ii) high percentage of scheduled caste people to total population and a majority of the male workers among them engaged in household industries. By contrast, in the less urbanised and less industrialised southern and south-western half of the Punjab plain the proportion of male agricultural workers is high, exceeding 75 per cent everywhere. In Fatehabad and Bhiwani Tahsils the proportion exceeds even 85 per cent. Similarly, in the mountainous areas, the proportion of male agricultural workers is very high except in the Lahaul Tahsil where it is below 55 per cent, due to development activities providing work other than agriculture. Notwithstanding the regional contrasts this map brings into focus the preponderance of agriculture as a source of employment in rural Punjab.

MAP 104

Rural population—Workers engaged in Mining, Quarrying, etc., as percentage of Total Working Population: 1961

In the Punjab one among a hundred workers in the rural areas is engaged in a variety of small activities that are included in this category.

In the plain areas there is practically no forest land; no mining or quarrying and very little of horticultural activity, and a majority of workers in this group tend livestock. In the southern half of Punjab the percentage of such workers is still lower, in many parts less than 0·4 per cent. Only in Rewari and Narnaul Tahsils where some mining activity exists, the proportion exceeds 0·8 per cent. The same is true of the Ballabgarh Tahsil. In the hilly Districts of Kangra and Simla also the proportion exceeds 0·8 per cent.

MAP 105

Rural Population—Workers engaged in Household Industry as percentage of Total Working Population: 1961

In Punjab 8 per cent of the working population is engaged in household industries. These household industries include handloom, leather work, wood work, pottery, etc. By and large, a majority of the workers in these centres are from among the scheduled castes. It is no wonder, therefore, that the pattern of workers engaged in household industries as percentage of total working population fairly corresponds with that of the distribution of scheduled castes. However, whereas it is true that areas of high percentage of wokers in household industries are coincident with those of high percentage of Scheduled Castes, the reverse is not necessarily true. In Pathankot Tahsil of Gurdaspur District, Jullundur, Phillaur, Nawashahr Tahsils of Jullundur District, Phagwara Tahsil of Kapurthala District, Hoshiarpur and Garhshankar

Tahsils of the Hoshiarpur District, Rupar and Naraingarh Tahsils of Ambala District, Jagraon Tahsil of Ludhiana District and Malerkotla Tahsil of Sangrur District, more than 12 per cent of the rural workers are engaged in household industries. Areas adjacent to these Tahsils fall in the intermediate category with 8 to 12 per cent of the rural working population engaged in household industries. Household industries are far less important in the southern Punjab except in the Panipat Tahsil of the Karnal District and the Gohana and Rohtak Tahsils of the Rohtak District where handlooms are important. Hissar District has less than 4 per cent of the working population in household industries. In the mountainous Districts of Lahaul & Spiti, Kangra and Simla and the hilly Tahsils of Una and Nalagarh also the household industries are of little importance.

MAP 106

Rural population—Workers engaged in Manufacturing other than Household Industry as percentage of Total Working Population: 1961

Manufacturing industries hardly exist in rural areas and most of the 2·1 per cent of the workers in rural areas thus engaged actually go for work to towns or suburbs of towns where factories are located. Some factories have however, sprung up in the rural areas along main rail routes where hydro-electric power and other facilities are available. Tahsils with the high percentage of workers engaged in manufacturing industries are those in which large industrial towns are located such as, Amritsar, Jullundur, Phagwara, Phillaur, Ludhiana and Kharar Tahsils. In all of them more than 6 per cent of the rural working force is engaged in manufacturing industries. In the Batala, Gurdaspur, Jagadhri and Ballabgarh Tahsils the corresponding proportion varies between 4 and 6 per cent. In some other Tahsils through which the main rail route from Delhi to Amritsar passes the proportion is between 2 and 4 per cent.

MAP 107

Rural population—Workers engaged in Construction as percentage of Total Working Population: 1961

Only 1·3 per cent of the working population in rural Punjab is engaged in the construction and maintenance of roads and buildings or canals; they are comparatively numerous in those Tahsils in which such developmental activity is going on. In Lahaul, Pathankot, Una, Kharar, Amritsar, Kapurthala, Jullundur, Zira, Moga, Ferozepur and Bhatinda Tahsils, more than 2 per cent of the rural working population is engaged in constructional activities. Whereas in Lahaul it is mainly road-building, in the Kharar and Una Tahsils it is the construction of buildings in connection with Chandigarh, Nangal Township and Naya Nangal, respectively. In parts of the Ferozepur District the work on the canals is the main item. In the more urbanised Districts of Gurdaspur, Amritsar, Jullundur, Ludhiana, Patiala and Karnal, 1 to 2 per cent workers are engaged in this activity, as also in the Ballabgarh, Gurgaon, Rewari and Narnaul Tahsils. Elsewhere it is mostly below 1 per cent.

MAP 108

Rural population—Workers engaged in Trade and Commerce as percentage of Total Working Population: 1961

Only in the Gurdaspur, Amritsar, Ajnala, Phillaur and Nakodar Tahsils do the workers in trade and commerce exceed 4 per cent of the working population. Elsewhere in the northern and eastern Punjab the proportion ranges between 2 and 4 per cent. In the less developed dry areas of the southern and south-western Punjab the proportion is less than 2 per cent, and the same is true of the mountainous and hilly areas in the north. There is a correlation between general prosperity and commercial activities in the rural areas.

MAP 109

Rural population—Workers engaged in Transport, Storage and Communications as percentage of Total Working Population: 1961

Only 0·8 per cent of the working population is engaged in this activity. In certain highly urbanised areas in the northern Punjab the proportion is a bit higher than the average figure. Around cities and large towns some transport workers return to their villages after the day's work. In Pathankot, Amritsar, Jullundur, Ludhiana, Ferozepur, Jagadhri and Gurgaon Tahsils, transport workers are more than 2 per cent of the working population due to this fact. In the remaining areas of the Amritsar, Gurdaspur, Jullundur, Kapurthala, Ambala and Simla Districts, the transport workers account for 1 to 2 per cent of the working population. Elsewhere in the State the proportion is less than 1 per cent.

MAP 110

Rural population—Workers engaged in Other Services as percentage of Total Working Population: 1961

In Punjab 8·9 per cent of the rural working population is engaged in these services. In the northern half of the Punjab plain, the proportion is much higher than the State average. In the Ambala, Jullundur, Hoshiarpur, Gurdaspur and Pathankot Tahsils it exceeds 16 per cent whereas in the Amritsar, Ludhiana and parts of Gurdaspur, Jullundur, Ambala and Patiala Districts it ranges between 12 and 16 per cent. In several of the areas adjoining these Tahsils the ratio ranges between 8 and 12 per cent. In the eastern Punjab 8 to 12 per cent of the workers are engaged in miscellaneous services. Miscellaneous services are generally more important in areas where the economy is somewhat diversified. In predominantly agricultural areas, on the other hand, miscellaneous services are less important, just as in the Hissar, Bhatinda, Mahendragarh and large parts of Ferozepur, Sangrur and Karnal Districts the proportion of workers engaged in services is less than 8 per cent. In some Tahsils the proportion is even less than 4 per cent.

MAP 111

Occupational Structure of Rural Population with Male and Female Divisions: 1961

This map brings out at once two important features regarding the occupational structure

and the working force of rural Punjab: (i) it is primarily an agricultural economy; and (ii) female participation in occupational work is very poor; only about 17 per cent of the females are listed among workers. However, conditions vary from area to area in this respect.

In the northern Punjab plain the economy is more diversified and female participation is insignificant. In the southern Punjab plain, on the other hand, the economy is predominantly agricultural with considerable female participation in the occupational work. Generally there is a fairly strong correlation between degree of urbanisation and diversification of rural economy. In most of the Districts in the northern Punjab plain household and manufacturing industries are quite important. Miscellaneous services also engage quite a significant proportion of the working force. In the southern areas, on the other hand, manufacturing industries and miscellaneous services are far less important. In the canal irrigated Districts of Amritsar, Ferozepur, Bhatinda, Sangrur and Patiala the proportion of agricultural labourers to the total working force is comparatively high. In these Districts the land holdings are relatively large, requiring additional helping hands. Agricultural labourers, by and large, are from among the scheduled castes. Therefore, there is a strong correlation between the proportion of scheduled castes to the total population on the one hand, and the proportion of agricultural labourers to the total working force on the other. In the Bist Doab and Ludhiana and Ambala Districts, where the land holdings are small, the scheduled castes are mostly engaged in household industries. As a result the proportion of workers engaged in household industries is quite high.

MAP 112

Cultivators as percentage of Working Population in Towns and Cities: 1961

In Punjab towns 7·3 per cent of the workers are engaged in cultivation. However, there are significant variations in this respect. There is a fairly strong inverse correlation between the size of town and the proportion of cultivators. In almost all large towns the cultivators are fewer than 7·5 per cent of the working population. In a large majority of the towns along Delhi-Amritsar railway line, cultivation is rather insignificant. They are old towns and have in due course of time shed off part of their agricultural character. In the towns of Ferozepur, Bhatinda, Sangrur and parts of the Hissar Districts the proportion of cultivators is fairly high, in correspondence with the predominantly agricultural economy of this area. Most of the towns in this region have only recently grown from agricultural villages as market centres; hence in several of the small towns more than 30 per cent of the working population is still engaged in cultivation. Even in large towns like Bhatinda, Abohar, Fazilka, Muktsar, Kot Kapura and Moga, the proportion of cultivators is high.

MAP 113

Agricultural Labourers as percentage of Working Population in Towns and Cities: 1961

Only 1·5 per cent of the working population in urban areas of Punjab is engaged as agricultural labourers. In most of the towns on the Yamunanagar-Amritsar railway line the proportion of agricultural labourers is less than 1·5 per cent but in most of the towns between Delhi and Ambala Cantt. it varies between 1·5 and 4·5 per cent. Around many of these towns there is considerable truck-farming, supplying vegetables to Delhi. Truck-farming involves very intensive cultivations: hence additional agricultural labour.

The proportion of agricultural labourers is high in the urban areas of the Ferozepur, Bhatinda and Sangrur Districts where the general economy is predominantly agricultural and also where most of the new towns which are agricultural *mandis* have large farming communities. In this region the size of land holding is generally large and thus requires the help of additional hands. Therefore, the proportion of agricultural labourers to total working population in the towns of this area ranges between 1·5 and 4·5 per cent.

MAP 114

Workers in Mining, Quarrying, etc., as percentage of Working Population in Towns and Cities: 1961

The mining, quarrying, livestock, forestry, fishing, hunting, plantations, orchards and allied activities keep busy 1·2 per cent of the working population in urban areas. Hill towns have some workers in forestry and quarrying; some towns in Mahendragarh District are engaged in digging and processing minerals; in the plains keeping of milch animals is more important. Around many towns in the plains fruit farming is practised.

MAP 115

Workers at Household Industry as percentage of Working Population in Towns and Cities: 1961

Household industry in towns provides work to 6·1 per cent of the working population. There appears to be an inverse correlation between the importance of household industry and the size of urban centre. In Amritsar and Jullundur cities and Ambala Cantt., less than 4 per cent of the workers are engaged in household industries. In Ludhiana and Patiala cities this proportion ranges between 4 and 8. In Patiala household industries are relatively important. Panipat is another large town where household industry holds an important place, engaging more than 16 per cent of the total workers, chiefly in making of bed-covers, bed-sheets, pillow-covers, carpets, etc. In the Gurgaon and Mahendragarh Districts also household industry is fairly significant in a number of towns, particularly in Rewari where the proportion of household industry workers is more than 16 per cent. Ballabgarh and Nuh are also in the same category. In Fazilka, processing of wool is an old industry. Bhatinda, Rampura Phul, Bhucho Mandi and Kot Fateh have 8 to more than 12 per cent of their workers engaged in household industries. In most of the new towns household industry is of little importance.

MAP 116

Workers in Manufacturing other than Household Industry as percentage of Working Population in Towns and Cities: 1961

The map brings out a very contrasting regional pattern with regard to manufacturing. Along the Delhi-Amritsar railway line the concentration of manufacturing towns is maximum, and Sonepat, Rajpura, Gobindgarh, Ludhiana, Phagwara, Jullundur, Kartarpur, Amritsar and Chheharta stand out very conspicuously. Yamunanagar and Jagadhri are two other important centres of manufacturing industries, located on the Ambala-Saharanpur line. In all of these towns as much as 24 to 32 per cent of the working population is engaged in manufacturing industries. Along the Amritsar-Pathankot railway line Batala and Dhariwal are predominantly manufacturing places. In the foot-hill zone manufacturing industries are insignificant except at Naya Nangal where the Fertilizer factory engages a large proportion of the working force of the town. In the south, Faridabad Township is the chief manufacturing centre. In Bhiwani and Hansi also 24 to 32 per cent of the workers are in manufacturing industries. In the Ferozepur District, Malout and Abohar have some manufacturing industry related to cotton. In practically the entire south-western Punjab there is very little of manufacturing industry, and stands in marked contrast to the zone along the Delhi-Amritsar main rail-route.

MAP 117

Workers in Construction as percentage of Working Population in Towns and Cities: 1961

Construction in the context of towns relates to buildings and roads. Of the workers in towns 5·2 per cent are engaged in this activity. The new towns of Chandigarh, Nangal Township and Naya Nangal give employment to 6 per cent of the working population in construction. Simla, Patiala, Karnal, Hissar and Gurgaon have a similar proportion. In Jullundur Cantt., Ambala City, Yamunanagar, Rohtak, Sonepat, Bhiwani, Hansi and Palwal construction workers constitute 4 to 6 per cent of the working population, and in other towns their proportion is 2 to 4 per cent.

MAP 118

Workers in Trade and Commerce as percentage of Working Population in Towns and Cities: 1961

Commercial activity is one of the basic functions of towns and cities. In nearly all towns commerce engages more people than in any other single activity: 19·2 per cent of the working force. Regional contrasts with respect to commerce are far smaller than in manufacturing industries. In new towns such as Chandigarh, Nangal Township and Naya Nangal commercial activity is not glaring, and same is the position in Ferozepur Cantt., Jullundur Cantt. and the hill towns of Dalhousie, Bakloh, Dharmsala, Yol Camp, Palampur, Kasauli, Dagshai and Sabathu.

Among cities, Amritsar is the most commercial with 25 per cent of its working population engaged in trade and commerce. In the cities of Jullundur, Ludhiana and Patiala the corresponding proportion is in the neighbourhood of 20 per cent. Hoshiarpur, Ambala City, Karnal, Panipat, Sonepat, Bhiwani, Hissar, Palwal, Narnaul, Bhatinda, Faridkot, Kotkapura, Ferozepur City, Malerkotla, Sangrur, Sunam are also in the same category (16 to 24 per cent). In many of the small *mandis* in the cotton growing areas of Ferozepur, Bhatinda, Sangrur and Hissar Districts commerce dominates all other activities. In Guruharsahai, Dabwali, Kalanwali, Bhuchho Mandi, Budhlada, Lehragaga, Bareta Mandi, Uklana Mandi and Samana more than 32 per cent of the working population is engaged in trade and commerce. In this region the commercial activity is mainly associated with the disposal of crops.

MAP 119

Workers in Transport, Storage and Communications as percentage of Working Population in Towns and Cities: 1961

Among town workers 8 per cent are engaged in transport, storage and communications. Although persons engaged in transport of one type or the other are found in every town yet they are particularly numerous in the transport nodal centres. Rickshaw pullers, bus drivers, bus conductors, *tonga-wallas* and railway workers are the most important group in this category. An examination of the map brings out clearly that with a few exceptions there is a fairly strong correlation between the size of towns and the proportion of workers engaged in transport and communications. By and large all the smaller towns have only 4 to 8 per cent of their working population engaged in this vocation. The small towns situated at road junctions such as Rajpura, Gobindgarh, Dhuri, Malout, Mandi Dabwali, Jind, Dasuya, Mukerian, Kalka and Morinda have higher percentage of workers in transport, generally between 8 and 12 per cent. However, in Kalka, Rajpura and Jind the proportion exceeds 12 per cent. In all such towns which are away from the main highways and main rail-routes the proportion is low, even in larger towns. A proportion of less than 4 per cent is characteristic of only out-of-the-way and static towns.

In the south-western Punjab, Bhatinda stands out as very important with more than 12 per cent of the working population engaged in transport; and Rewari and Gurgaon in the southern Punjab fall in a similar category. Hissar, Rohtak, Karnal and Sonepat which come next in importance have 8 to 12 per cent of workers engaged in transport and communications. In most of the large towns and cities on the main rail route joining Yamunagar and Amritsar the proportion is high. In Yamunanagar it is more than 12 per cent. Pathankot is a very important centre of civil and military transport. Consequently here more than 12 per cent of the workers are engaged in this activity. Throughout the hilly and sub-hilly zones transport workers are in a very small minority—in many cases they are less than 4 per cent of the working population.

MAP 120

Workers in Other Services as percentage of Working Population in Towns and Cities: 1961

Every town is primarily a service centre, which term includes administrative, educational and numerous other types of services.

There are very few towns where workers in services are less than 16 per cent of the working population, and such towns are invariably small in size and mostly out-grown villages serving as markets for agricultural produce, such as Sanaur, Pundri, Dhanaula, Uchana, Longowal, Kot Fateh and Chheharta. Of the remaining towns a large majority have 16 to 32 per cent of their working population engaged in other services. Usually they are either cantonments, such as Ambala Cantt., Julludur Cantt., Ferozepur Cantt., Bakloh, Yol Camp, or hill stations, such as Dalhousie, Kangra, Pa'ampur, Simla, Sabathu, Kasauli and Dagshai, or the capital town of Chandigarh. These are towns of highly specialised functions with a large majority of workers serving the Government in one capacity or the other.

Among cities, Patiala and Jullundur have higher percentage· 46·5 and 33·5, respectively. The District headquarters also have a high percentage of workers engaged in such services. In Karnal, Rohtak, Gurgaon, Ambala City, Ferozepur City, Sangrur and Kapurthala the proportion ranges between 32 and 48 per cent.

MAP 121

Occupational Structure of Urban population with Male and Female Divisions: 1961

Participation of females in the occupational work in the Punjab towns is almost negligible, and they too are found generally in cultivation, household industries and miscellaneous services. In most of the northern Punjab plain in which a majority of the large towns and cities exist agriculture is among the less important occupations in towns. On the other hand in the southern and central Punjab where the towns are generally small and have only recently grown from villages the proportion of agriculture workers to total workers is quite significant. This is particularly true of the Bhatinda, Sangrur, Hissar, Karnal, Rohtak, Mahendragarh and Gurgaon Districts. In nearly all of the southern Districts miscellaneous services dominate the occupational structure of the towns followed generally by commerce. In Gurgaon District, however, manufacturing industry occupies second place to miscellaneous services. This is because of the recent expansion of the industrial activity in towns around the Union Territory of Delhi. By contrast, in the Ludhiana, Kapurthala and Amritsar Districts manufacturing industries come in the first place followed by general services. Very close to the general services come trade and commerce. In the Ferozepur-Bhatinda area, where the towns are primarily agricultural market centres, trade and commerce occupy an important place in the occupational structure of urban places. In the Simla and Kangra Districts administration and miscellaneous services constitute by far the most important function of towns.

MAP 122

Persons of Scheduled Castes and Tribes as percentage of Total Population: 1961

20.4 per cent of the people in Punjab belong to Scheduled Castes and Tribes. This proportion varies from area to area. In the Simla and Jullundur Districts and in the Kulu, Pathankot, Jagraon, Rupar, Garhshankar, Hoshiarpur and Faridkot Tahsils more than 25 per cent of the total population belongs to the Scheduled Castes. In the canal irrigated areas of the Moga, Muktsar, Bhatinda, Mansa, Sirsa, Hissar, Hansi, Sangrur, Barnala, Nabha and Sirhind Tahsils the proportion is quite high, ranging between 20 and 25 per cent. Also in the Dasuya, Tarn Taran, Nalagarh, Jagadhri and Naraingarh Tahsils their percentage falls between 20 and 25. In areas where land holdings are generally large and cultivation intensive, a large number of them work as agricultural labourers, in addition to their usual occupational activities. In the Doab, on the other hand, they are mostly engaged in household industries. In other areas their proportion mostly ranges between 15 and 20. Only in the Kangra and Ferozepur Jhirka Tahsils it is less than 10 per cent. In the Lahaul & Spiti District over 60 per cent of the population belongs to Scheduled Tribes.

In short, the proportion of persons belonging to the Scheduled Castes and Tribes to total population is quite high in Punjab, though varying considerably from area to area. In the canal-irrigated areas they work largely as agricultural labourers, elsewhere they are associated mainly with household industries.

MAP 123

Five numerically strong Scheduled Castes as percentage of total Scheduled Castes population: 1961

'Scheduled Castes' and 'Scheduled Tribes' have been listed in the Ministry of Home Affairs Notification No. 2477-A, dated the 29th October, 1956. There are 33 Castes Scheduled for the Punjab State as a whole and another 4 for certain Districts. There are only three Scheduled Castes and they too in the Lahaul & Spiti and Kangra Districts. The total number of persons belonging to the Scheduled Castes was 4,139,106 at the time of the 1961-census and that of the Scheduled Tribes was 14,132, together forming 20.4 per cent of the total population.

Chamars, Mazhabis, Balmikis and *Ad-Dharmis* are among the numerous Scheduled Castes in the State. Their proportion varies from area to area. In the Amritsar, Bhatinda and Ferozepur Districts, for example, the *Mazhabis* are the most numerous. In the Amritsar District, they account for a'most three-fourth of the total Scheduled Caste population, and in Bhatinda they constitute about half of the Scheduled Caste population. In the Doab Districts of Hoshiarpur and Jullundur the *Ad-Dharmis* constitute the largest group among the Scheduled Caste people. In Kapurthala the *Balmikis* are most numerous. The proportion of *Chamars* is rather low in all the three Districts of Bist Doab. By contrast, in the Ambala, Patiala, Sangrur, Ludhiana, Rohtak, Mahendragarh, and Gurgaon Districts the *Chamars* account for more

than 50 per cent of the Scheduled Caste population. In the Karnal and Hissar Districts they are the largest group and constitute nearly half of the Scheduled Caste population. Similarly in the Kangra District they are the largest group. The *Balmikis* in all these areas constitute about one fourth of the total Scheduled Caste population. Since people belonging to different castes are associated with different types of occupational activities, an analysis of their composition is important for understanding their livelihood pattern.

MAP 124

Religious Composition: 1961

In Punjab, as a whole, the Hindus are the largest religious group accounting for 63.6 per cent of the total population, followed by the Sikhs whose proportion is 33.3 per cent. The Muslims, Buddhists, Christians etc. account for the remaining 3.1 per cent of the people. The religious composition varies from area to area. The Hindus are in a majority in the Kangra, Simla, Hoshiarpur, Jullundur, Ambala, Sangrur, Karnal, Hissar, Rohtak, Gurgaon and Mahendragarh Districts. They are in overwhelming majority in the area east and south of the Ghaggar River, where Sikhs are a very small fraction of the population. However, in west and north of the Ghaggar River the proportion of the Sikhs is quite high. They are in absolute majority in the Ferozepur, Bhatinda, Ludhiana, Amritsar, Patiala and Kapurthala Districts. The Muslims are worth mention only in the Gurgaon District. There is a small number of Christians in most of the southern districts of Punjab. In the Lahaul & Spiti District, the Buddhists are the largest group followed by the Hindus.

MAP 125

Literates as percentage of total population aged 5 and above: 1951

The test for literacy is satisfied if a person can with understanding both read and write. There is a sharp contrast between the southern and central Punjab on the one hand and the northern Punjab on the other in this respect. Whereas in the former the literates are less than 16 per cent of the total population aged 5 and above going down to below 8 per cent in Mahendragarh, in the latter the corresponding proportion exceeds 16 per cent everywhere. In the Amritsar, Jullundur, Ludhiana and Simla Districts the proportion is more than 24 per cent.

The male-female differential in literacy is inversely correlated with the general rate of literacy. The female literacy is very low in the southern and central Punjab.

MAP 126

Literates as percentage of total Population aged 5 and above: 1961

The general regional pattern of literacy in 1961 is similar to that in 1951 despite the big increase during the decade. By 1961 there is not a single District where literates are less than 16 per cent of the population aged 5 years and above.

In the central and southern Punjab the percentage of literates varies between 16 and 32. In Gurgaon, Rohtak, Ferozepur and Patiala Districts it ranges between 24 and 32 per cent. Elsewhere in the southern and central Punjab, it is between 16 and 24 per cent. By contrast, in the northern Punjab it exceeds 3 per cent in most Districts. In the highly urbanised Simla District the literates are more than 48 per cent, in Ludhiana District the literates are between 40 and 48 per cent, and in Ambala, Hoshiarpur, Jullundur, Kapurthala and Amritsar Districts between 32 and 40 per cent.

The male-female differential is narrowed down in the northern Punjab but it is still very great in the southern and central Punjab. Female education has to go a long way before this imbalance is removed. The greater literacy in the northern area of Punjab is in no small measure due to the efforts by private organisations in opening schools. In recent years the Government have intensified their efforts in making literacy universal in the State.

MAP 127

Literate Males as percentage of total Male Population (excluding 0-4 age-group): 1961

Literacy in Punjab, as in India, is to a great extent male literacy. The areal pattern of male literacy is practically similar to that of general literacy. The northern Punjab stands in marked contrast to the southern and central Punjab With more than 56 per cent of males aged 5 and above as literate, Simla District leads all other districts in Punjab, Ludhiana and Jullundur Districts, where the male literates are 48 to 56 per cent of the male population (aged 5 and above) come next. In the Ambala, Hoshiarpur, Kangra and Amritsar Districts the corresponding proportion ranges between 40 and 48 per cent. In Gurdarpur, Ferozepur and Patiala Districts, it is between 32 and 40 per cent. By contrast in the central parts of Punjab including Karnal, Sangrur, Bhatinda and Hissar Districts male literacy is the lowest—less than 32 per cent. However, in the south, in the Rohtak, Gurgaon and Mahendragarh Districts it is between 32 and 40 per cent.

MAP 128

Literate Females as percentage of total Female Population (excluding 0-4 age-group): 1961

Female literacy is low in the State as a whole. It is the lowest in Mahendragarh and Lahaul & Spiti Districts where literate females are less than 8 per cent of the total female population aged 5 and above. In other Districts of the southern and central Punjab the proportion varies between 8 and 16 per cent. Similarly in the Kangra District it is between 8 and 16 per cent. By contrast, in the northern and north-eastern districts of the Punjab plain it is above 16 per cent everywhere. It is the highest in the Ludhiana District (32 per cent). In the Amritsar and Jullundur Districts the proportion ranges between 24 and 32. In the Gurdaspur, Hoshiarpur, Kapurthala, Ambala and Patiala Districts it is between 16 and 24 per cent. Among the mountainous areas Simla District is again unique with more than 32 per cent of the females as literate. On the whole the regional pattern

of female literacy resembles that of general literacy. Like general literacy, the areal variations in female literacy are correlated with (i) degree of urbanisation, (ii) efforts of private organisations in spreading educational facilities, and (iii) diversification of economic activity.

MAP 129

Percentage of Rural Literates to total Rural Population (excluding 0-4 age-group): 1961

Rural literacy is lower than general literacy, but the regional pattern is similar in the two cases. The northern Punjab stands in marked contrast to the southern and central Punjab. In most areas of the northern Punjab the literate persons are more than 25 per cent of the total population aged 5 and above. In Ludhiana, Jagraon, Jullundur, Hoshiarpur, Dasuya and Palampur Tahsils the proportion of literate persons is more than 30 per cent. In the Simla District the proportion ranges between 25 and 30 per cent. In parts of the Amritsar, Gurdaspur and Kangra Districts it is a bit lower—between 20 and 25 per cent. In the backward mountainous areas of the Lahaul & Spiti District, the Kulu Tahsil of the Kangra District and the Nalagarh Tahsil of the Ambala District the proportion of literate persons is below 15 per cent. Similarly in the Ferozepur Jhirka and Nuh Tahsils of the Gurgaon District, Jind, Narwana and Sangrur Tahsils of the Sangrur District, Nabha Tahsil of the Patiala District and Kaithal Tahsil of the Karnal District the literate persons are less than 15 per cent of the population (0—4 age-group excluded). Most of the remaining central and southern Punjab falls in between these two contrasts—having a literacy of 15 to 20 per cent. In some of the Tahsils surrounding the Union Territory of Delhi, however, the proportion is a bit higher, ranging between 20 and 25 per cent.

MAP 130

Percentage of Rural Male Literates to total Rural Male Population (excluding 0-4 age-group): 1961

The general areal pattern emerging in this map is similar to that in map 129. In northern Punjab practically everywhere more than 32 per cent of the rural males (aged 5 and above) are literate. In Simla District and parts of Ambala, Ludhiana, Jullundur, Hoshiarpur and Kangra Districts more than 40 per cent of the rural males can read and write. Similarly in large parts of the southern Districts of Mahendragarh, Gurgaon and Rohtak more than 32 per cent of the males are literate. In the Rewari Tahsil the proportion exceeds 40 per cent. In contrast to these areas of high male literacy the interior parts of Punjab, consisting of parts of Karnal, Patiala, Sangrur and Bhatinda Districts, lag behind in literacy. Here less than 24 per cent of the males can read and write. In other parts of the central Punjab the proportion ranges between 24 and 32 per cent.

MAP 131

Percentage of Rural Female Literates to Total Rural Female Population (excluding 0-4 age-group): 1961

As in several earlier maps on literacy this map also reveals a sharp contrast between the southern and central Punjab on the one hand and the northern Punjab on the other. In the former area less than 8 per cent of the females in rural areas are literate, except in the Rohtak Tahsil where the proportion is slightly in excess of 8 per cent. This is the area which is less urbanised and whose economy is overwhelmingly agricultural. By contrast, in the northern Punjab plain which is more urbanised and where the economy is somewhat diversified female literacy is higher, exceeding 8 per cent everywhere. In Ludhiana and Jagraon Tahsils it is the highest—exceeding 24 per cent. In the Sirhind Tahsil of the Patiala District, the Samrala Tahsil of the Ludhiana District, the Hoshiarpur and Dasuya Tahsils of the Hoshiarpur District, the Palampur Tahsil of the Kangra District, and the Amritsar and Ajnala Tahsils of the Amritsar District, the corresponding proportion is between 16 and 24 per cent. In whole of the Jullundur District also 16 to 24 per cent of the females are literate. Elsewhere in this region the proportion ranges between 8 and 16 per cent. In the backward mountainous areas such as those of the Lahaul & Spiti, Kulu and Nalagarh less than 8 per cent of the females (aged 5 and above) are literate. On the whole rural female literacy is fairly strongly correlated with the degree of urbanisation of rural economy, and the part played by private agencies in developing educational facilities.

MAP 132

Literate persons as percentage of total Population in Towns and Cities: 1961

The general areal pattern of literacy of urban population as emerging in this map is quite similar to that of general literacy of total population. In the northern Punjab the rates are higher than in the central and southern parts of the State. However, even within the northern Punjab, the rates of literacy vary according to the functions and the dynamics of the urban centres. In the large growing industrial, commercial and administrative centres rates of literacy are high. By comparison literacy is much low in small slowly growing towns.

In Chandigarh, Simla, Sabathu, Kasauli, Dagshai, Naya Nangal, Dalhousie, Bakloh and Dharamsala 60 to 70 per cent of the population is literate. In Palampur the proportion even exceeds 70 per cent. In most of the large towns and cities along Yamunanagar-Amritsar railway line the percentage of literate persons varies between 50 and 60. In a few other large and important towns like Hoshiarpur, Gurdaspur and Nangal Township also 50 to 60 per cent of the population is literate. In smaller towns the proportion is generally between 40 and 50 per cent. By contrast, in the central and south-western Punjab where the towns have grown from villages only in recent years to act as market centres for the local agricultural produce only 30 to 40 per cent of the people can read and write. However, in larger towns like Bhatinda, Abohar, Fazilka, Ferozepur, Moga and Sirsa, the proportion is a bit higher—between 40 and 50 per cent. In the southern Punjab literacy is somewhat high in the towns around the Union Territory of Delhi. In smaller towns in this area the literacy rate is generally between 30 and 40 per cent.

MAP 133

Literate Males as Percentage of total Male Population in Towns and Cities: 1961

A comparison of this map with map 132, or earlier maps on literacy for that matter, reveals a similar regional pattern—higher literacy in the northern Punjab than in the central and southern Punjab. Even in towns and cities literacy is male oriented. In most of the hill stations more than 70 per cent of the males can read and write. In other large towns and cities, particularly those along the main railway line this percentage ranges between 60 and 70. In smaller out-of-the way towns it is between 50 and 60 per cent. It may be noted that in Amritsar male literacy is lower than that in Jullundur, Ludhiana, Patiala, Ambala and Chandigarh. In the south-western Punjab, by contrast, where the towns are newly grown from villages to act as agricultural markets, male literacy is generally between 40 and 50 per cent. In larger towns, however, it varies between 50 and 60 per cent—as in Bhatinda, Moga, Ferozepur City, Abohar, Fazilka and Sirsa. In all the large towns in the southern and south-eastern Punjab the rate of male literacy varies between 50 and 60 per cent.

MAP 134

Literate Females as percentage of total Female Population in Towns and Cities: 1961

There is a wide difference between rates of male and female literacy. This is primarily due to the fact that even in urban areas it is the males who are predominantly engaged in active work. Apart from this difference, the areal pattern of female literacy in towns and cities is practically the same as for the males.

MAP 135

Students in Primary Classes as percentage of Children in the age-group 6-11: 1961

Some children start schooling before the age of six and finish their primary education before they are 11 years. The data for this map underrate the position to that extent. The regional pattern emerging from this map is similar to that of the earlier literacy maps—the northern areas standing in marked contrast to areas of the central Punjab. Whereas in the Ludhiana, Jullundur, Hoshiarpur and Gurdaspur Districts more than 32 per cent of the children in the age-group 6-11 are enrolled in primary classes they are less than 16 per cent in the Sangrur and Bhatinda Districts. In the Patiala, Karnal, Mahendragarh, Hissar and Kapurthala Districts the corresponding proportion is between 16 and 24 per cent. On the other hand, in the Kangra, Simla, Ambala, Amritsar, Ferozepur and Gurgaon Districts it ranges between 24 and 32.

MAP 136

Proportion of Boys in Primary Classes to total Boys in the age-group 6-11: 1961

In the Punjab as a whole 36·8 per cent of the boys in the 6—11 age-group are enrolled in Primary classes. The defect in computation of data for this map has been stated in the previous note. In Lahaul & Spiti, Gurdaspur, Hoshiarpur and Rohtak Districts more than 48 per cent of the boys in this age-group are students. The corresponding proportion for Kangra, Simla and Gurgaon Districts ranges between 40 and 48. In most of the remaining northern Districts such as Ambala, Ludhiana, Jullundur and Amritsar the proportion is between 32 and 40 per cent. In the Ferozepur, Patiala and Mahendragarh Districts also the proportions are similar. However, in the central Punjab, including the districts of Karnal, Sangrur and Hissar it is much lower—between 24 and 32. It is the lowest in the Bhatinda District where less than 24 per cent of the boys in the age-group 6—11 are enrolled in Primary classes.

MAP 137

Proportion of Girls in Primary Classes to total Girls in the age-group 6-11: 1961

Only 14·2 per cent of the girls in 6—11 age-group have been recorded as studying in Primary classes. This shows the lack of appreciation for girls' education still persisting among the people.

In the northern Punjab the proportion of girls in Primary classes to total girls in the age-group 6-11 is higher than that in the central and southern Punjab. In the Ludhiana and Jullundur Districts which are quite ahead in general literacy the proportion exceeds 24 per cent. In the Amritsar, Kapurthala, Hoshiarpur and Ambala Districts it ranges between 16 and 24 per cent. In Lahaul & Spiti District also the proportion varies between 16 and 24 per cent. Elsewhere it is less than 16 per cent. In the Patiala, Sangrur, Bhatinda and Mahendragarh Districts it is even less than 8 per cent.

MAP 138

Proximity to High/Higher Secondary Schools: 1950

The location of places of High or Higher Secondary Schools has been shown by dots. A circle has been drawn with the dot as the centre and a radius representing a length of 3 miles. Another circle has been drawn in a similar way with radius representing a length of 5 miles. The areas outside the second circle have been shaded. The selection of 3 miles for the radius of the inner circle has been based on the assumption that it is an easy walking distance. A distance of 3 to 5 miles can be covered without difficulty by cycles. Areas more than 5 miles from the school are, therefore, at a disadvantage.

Although in 1950 facilities for High and Higher Secondary School education were fairly spread throughout the State, there were some significant regional inequalities. In a large part of the Bist Doab and Ludhiana District not only were the schools numerous but they were closely spaced indicating that they were within easy reach of the people. In the Amritsar and Gurdaspur Districts the schools were mostly strung along roads and railways and a little more widely spaced than in the Bist Doab. There were numerous, though small pockets where the nearest High School was more than 5 miles. In the eastern Districts the schools were mostly confined to the zone along the Grand Trunk Road. In Rohtak and parts of the Gurgaon Districts the number was large and spacing closer. By contrast, in large parts of the central and south

western Punjab, High School education facilities were lacking. There were extensive areas where not a single High School existed. Similarly in the mountainous Lahaul & Spiti and parts of the Kangra Districts High School education was practically absent.

MAP 139

Proximity to High/Higher Secondary Schools: 1961

With the expansion of High School education under the First and Second Five-Year Plans not only the number of High Schools increased tremendously but also they became more closely spaced. In large areas of the Bist Doab, Ludhiana, Amritsar, Gurdaspur and Ambala Districts, High Schools became available within 3 miles of distance. As a result, by 1961 there were very few, and those too very small patches of areas where the nearest High Schools were more than five miles. A similar thing developed in the southern Districts of Rohtak, Gurgaon and Mahendragarh. In many parts of the Bhatinda, Ferozepur and Sangrur Districts also numerous new High Schools sprang up. Although areas more than 5 miles from the nearest School were fewer and smaller in 1961 in the central Punjab, as compared to 1950, yet these were the only areas in the Punjab plains where proximity to High Schools was still much less and where there is still a lot of scope for further expansion of High School education. In the mountainous areas of the Kangra District new schools came into existence. Similarly there were still long, though narrow, belts in the foot hill areas where High School education was lacking.

MAP 140

Punjab University Post-Matric Examinations—number of Candidates: 1951

Based on data by individual education centres of post-Matric examinations of the Punjab University this map gives a measure of post-Matric education in the State as in 1951.

Bars proportionate in length to the number of candidates appearing in the post-Matric examinations have been erected at each centre, with further sub-divisions indicating the number of candidates appearing in engineering, medical, arts and science examinations.

A close examination of the map reveals three factors: (i) that a very small fraction of the total population of Punjab receives college education; (ii) that facilities for college education were far greater in the northern half of the Punjab plain than those in the central and southern Punjab and (iii) that the overwhelming proportion of the persons receiving college education were in arts and science colleges and that facilities for professional education (such as medical, engineering, agriculture, etc.) were meagre. The most important centres of education were Amritsar, Jullundur, Hoshiarpur, Ambala Cantt. and Rohtak. In large parts of the central Punjab, either college education was practically non-existent or the number of persons receiving college education was very small.

MAP 141

Punjab University Post-Matric Examinations—number of Candidates: 1961

An examination of this map in comparison with Map 140 reveals three things: (i) that there has been significant progress in college education during the decade 1951-61 nearly all over the State; (ii) that the northern Punjab still has a good lead over the southern and central Punjab; and (iii) general education (Arts and Science) still accounts for a majority of the persons receiving post-Matric education, despite the progress in professional education, particularly in the northern Punjab, and in medical and engineering education. The most important centres of college education, are Amritsar, Jullundur, Ludhiana, Patiala and Chandigarh.

MAP 142

Literacy among adults: 1961

In the southern and central Punjab the literate adults are 20 to 25 per cent of the total adult population. In the Sangrur and Mahendragarh Districts the proportion is even less than 20 per cent. In the Patiala, Ferozepur and Gurdaspur Districts 25 to 30 per cent of the adults can read and write. Adult literacy is the highest in the Simla, Ludhiana and Jullundur Districts where more than 35 per cent of the adults can read and write. The Amritsar, Hoshiarpur and Ambala Districts fall in between the two extremes mentioned above. Here the proportion of literate adults ranges between 30 and 35 per cent. In the mountainous district of Kangra and Lahaul & Spiti again literacy is low. It may be noted that the regional pattern of literacy among adults is similar to that in the general population, discussed earlier.

MAP 143

Adult Male Literates as percentage of Adult Male Population: 1961

As mentioned earlier, literacy in India means largely male literacy. In the Simla, Ambala, Ludhiana and Jullundur Districts the proportion of literate adult males exceeds 45 per cent. In the Hoshiarpur, Kapurthala and Amritsar Districts it is between 40 and 45. In the Kangra, Gurdaspur, Patiala, Ferozepur, Rohtak, and Gurgaon Districts literate adult males are 35 to 40 per cent of the adult male population. In other Districts the proportion is less than 35 per cent everywhere. In the Lahaul & Spiti and Sangrur Districts it is the lowest—even below 30 per cent.

MAP 144

Adult Female Literates as percentage of Adult Female Population: 1961

Literacy among adult females is very low in India. In the Simla, Ambala, Ludhiana, Jullundur and Amritsar Districts more than 20 per cent of the adult females are literate. In the Hoshiarpur, Kapurthala and Patiala Districts their proportion ranges between 15 and 20 per cent. Everywhere else it is less than 15 per cent. The lowest rates of adult female literacy are found in the Lahaul & Spiti and Mahendragarh Districts. In

southern, south-western and central areas the literate adult females are only 5 to 10 per cent of the total adult female population. Same is the case with the Kangra District. There is fairly strong correlation between literacy among female adults on the one hand and degree of urbanisation and diversification of economy on the other.

MAP 145

Rural Population—Adult Male Literates as percentage of Adult Male Population: 1961

In many of the northern Districts the proportion of adult male literates ranges between 30 and over 40 per cent. It is the highest in the Simla District and parts of the Kangra, Jullundur, Hoshiarpur and Ludhiana Districts. In other areas in this region their proportion ranges between 30 and 40 per cent. In the Mahendragarh District and parts of the Rohtak and Gurgaon Districts also 30 to 40 per cent of the adult males are literate. In the remaining areas of the Punjab plain the proportion is less than 30 per cent. It is the lowest in the Kaithal Tahsil of the Karnal District and a large part of the Sangrur District where only 10 to 20 per cent of the adult males can read and write.

MAP 146

Literacy Among Female Adults in Rural Areas: 1961

Adult females who can read and write are uncommon in rural areas. In most of the southern Punjab and in the mountainous areas of the Lahaul & Spiti District and the Kulu and Nalagarh Tahsils they count for 5 per cent of the total adult females. By contrast, female literacy is the highest in parts of the Ludhiana, Jullundur and Hoshiarpur Districts where their proportion exceeds 15 per cent. In the remaining parts of the northren Punjab it is 5 to 15 per cent.

MAP 147

Proportion of Rural Population living in villages with House Groupings 5 and below, 6-15, 16-25, 26-35, 36-50, 51-100, 101-200, 201 *and above*: 1961

Based on data by districts, this map shows the proportion of rural population living in villages of various sizes. The size is measured in terms of number of houses.

The proportion of the rural population living in villages of various sizes is illustrated by bars whose lengths are proportionate to the percentage of the rural population living in each category of house groupings.

The villages are predominantly of small size having less than 50 houses or of medium size having 50 to 200 houses, in the foot-hill districts of Ambala, Hoshiarpur and Gurdaspur, and the proportion of population living in big villages with more than 200 house groupings is low. The general size of villages and the proportion of rural population living in villages, each having more than 200 house groupings, increases towards the south and south-west in correspondence with decrease in rainfall, so that in the Rohtak, Hissar, Bhatinda and Sangrur Districts more than 60 per cent of the rural population lives in large villages. In the Mahendragarh and Gurgaon Districts, however, a majority of the rural population lives in villages of medium size. In the Simla District an overwhelming majority of the rural population lives in small hamlets. In Kangra and Lahaul & Spiti Districts, however, the census villages were taken as 'revenue estates', each consisting of a large number of small and scattered hamlets; as a result of this the villages in these two Districts come out as of large size.

In general, there is an inverse correlation between the predominant size of villages and annual rainfall.

MAP 148

Percentage of Households occupying one room, two rooms, three rooms, etc.: 1961

The percentage of households having more than three rooms is high in the mountainous Districts of Lahaul & Spiti and Kangra: 48 and 28 per hundred households, respectively. In cold and wet areas, the practice of sleeping under the sky for a major portion of the year, so prevalent in the plains, does not obtain; and rooms are used also during the day. In the plains on the other hand about 40 per cent of the households live in one-room tenaments, where among other things the size of rooms is comparatively large. The composition of a household in terms of number of room depends upon (i) climatic conditions, (ii) multiplicity of functions of each room, (iii) size of rooms and (iv) mode of life and standard of living of the people.

MAP 149

Hospital Beds per 100,000 *of Population*: 1961

There are significant regional contrasts in the availability of medical facilities in terms of hospital beds per 100,000 population. The northern Punjab including the mountainous areas stands in marked contrast to the southern Punjab. Simla leads other districts in this respect, followed by Amritsar, Ludhiana, Kangra and Patiala in that order. The lowest figures in the southern and central Punjab are those for Sangrur, Karnal and Bhatinda Districts.

MAP 150

Persons engaged in Medical Occupation as on 26-10-1962

The proportion of persons engaged in medical profession to the total population, gives a fairly reliable measure of the attention being paid to the health of the people. In Punjab as a whole there are 117 persons engaged in medical occupation per 100,000 of population. In the more urbanised sections of the northern Punjab the proportion is much higher than the less urbanised and relatively backward central and southern areas. In the Simla, Ludhiana and Amritsar Districts there are more than 200 persons engaged in medical occupation per 100,000 of population. In Lahaul & Spiti also the proportion exceeds 200 but the size of the population and the number of medical men is small. In

Ambala, Patiala, Jullundur and Gurdaspur Districts the corresponding proportion varies between 150 and 200. The lowest proportion is found in the Mahendragarh and Hissar Districts where the corresponding figure is less than 50. In the remaining Districts the proportion varies between 50 and 100.

MAP 151

Distribution of Medical Facilities in Rural Areas: 1964

Dispensaries in rural areas are few and far between. Jullundur, Ludhiana and Rohtak Districts are comparatively well-served in this respect while Gurdaspur, Amritsar, Hoshiarpur, Kangra, Sangrur, Bhatinda and Patiala Districts are poorly served.

MAP 152

Distribution of Medical Facilities in Urban Areas: 1964

All large towns have hospitals, dispensaries and Family Planning Clinics. The smaller towns usually have dispensaries. Most of the towns have Maternity and Child Welfare Centres and Family Planning Clinics.

MAP 153A

Mileage of metalled roads per 100,000 *of Population*: 1961

To judge the adequacy of road service in an area the road mileage should be interpreted in terms of its population, area, terrain of land and requirements of the community. To judge this with reference to any one factor alone would lead to faulty conclusions.

This map shows road mileage with reference to population. It is apparent from the map that the mileage is the highest in areas where the population is the least dense, just as in Hissar District, and parts of Gurgaon, Kapurthala, Bhatinda and Ferozepur Districts. The densely populated areas of Ludhiana and Trans-Sutlej plain have the lowest mileage despite the close net work of roads. On the other hand in the south-western parts of the State where the net work of the roads is not as dense but where the population is thin the ratio comes out high.

MAP 153B

Length of Metalled Roads per 100 *square miles*: 1961

The map brings out a fairly strong correlation between development of metalled roads per areal unit and degree of urbanisation. Also in such areas which contain focal points of transport the length of metalled roads per 100 square miles is large even though the focal points are only small towns. In the Simla District, Rupar, Jagadhri and Ambala Tahsils of Ambala District, Samrala Tahsil of Ludhiana District, Amritsar Tahsil, Batala Tahsil of Gurdaspur District, Jullundur and Kapurthala Districts, Patiala and Nabha Tahsils of Patiala District, Malerkotla Tahsil of Sangrur District, Sonepat and Rohtak Tahsils of Rohtak District, and Ballabgarh and Gurgaon Tahsils of the Gurgaon District there are more than 20 miles of metalled roads per 100 square miles of area. In a number of tahsils adjoining these areas the proportion is between 15 and 20. Faridkot Tahsil is quite important from the viewpoint of metalled roads, as a result of its erstwhile native ruler paying good attention to roads and education. The smallest length of metalled roads is found in the backward mountainous areas, particularly those of Kulu, Hamirpur and Nalagarh Tahsils where it is less than 5 miles per 100 square miles. Nearly equally backward are parts of Hissar, Bhatinda, Sangrur, and Mahendragarh Districts where the corresponding proportion is only 5 to 10 miles.

MAP 154

Number of Radios per 1,000 *persons as* on 31-12-1960

The map brings out the sharp contrast between northern Punjab on the one hand and central and southern Punjab on the other. This contrast is on the same lines as literacy and degree of urbanisation. With 62 radios per 1,000 population the Simla District leads all Districts. This is so primarily because predominantly elite inhabitants of the Simla town constitute a large part of the population of the District. It is followed by Ludhiana and Jullundur Districts where the number of radios per 1,000 persons exceeds 16. In Amritsar and Ferozepur Districts this ratio ranges between 12 and 16. In the Ambala, Patiala, Hoshiarpur and Gurdaspur Districts it varies between 8 and 12. In the mountainous Districts of Lahaul & Spiti and Kangra it is between 4 and 8. So also is the case with the Hissar, Bhatinda, Sangrur. Rohtak, and Gurgaon Districts. The lowest proportion is in the Mahendragarh and Karnal Districts where there are less than 4 radios per thousand persons.

ECONOMY

MAP 155

Assessment Circles

An 'assessment circle' is a group of estates sufficiently homogenous to admit of a common set of land revenue rates. Their names and *Chak* numbers in each Tahsil are given below.

District	Tahsil	Chak	Chak No.
Hissar	Sirsa	Rohi	1
		Nali	2
		Bagar	3
	Fatehabad	Nehri	1
		Bagar	2
		Barani	3
		Rangoi	4
		Nali	5

District	Tahsil	Chak	Chak No.
	Hissar	Barani	1
		Nali	2
		Nehri	3
		Rangoi	4
		Bagar	5
	Hansi	Nehri	1
		Barani	2 (a & b)
	Bhiwani	Western Hariana	1
		Loharu Bagar	2
		Eastern Hariana	3
		Asrian Bagar	4
		Behal Siwani Bagar	5
Rohtak	Gohana	Southern Nehri	1
		Meham	2
		Western Nehri	3
		Eastern Nehri	4
	Sonepat	Bangar	1
		Khadar	2
	Rohtak	Rajputana	1
		Nehri Som	2 (a & b)
		Nehri Awal	3
		Nehri Dom	4 (a & b)
		Barani	5
	Jhajjar	Nehri	1
		Barani	2
		Southern Dehri	3
		Rausli	4
		Northern Dehri	5
		Budh	6
		Sub Tahsil Nahar	7
Gurgaon	Rewari	Sahibi	1
		Sherir	2
		Pahar	3
		Khari	4
	Gurgaon	Sohna	1
		Sahibi	2
		Gurgaon	3
		Budh	4
		Bohra	5
	Ballabgarh	Dabar	1
		Khadar	2
		Bangar	3
	Palwal	Bangar	1
		Khadar	2
	Nuh	Bangar	1
		Dhar	2
		Taoru	3
	Ferozepur Jhirka	Dehar	1
		Bodher	2
		Chaknot	3
		Bangar	4

District	Tahsil	Chak	Chak No.
Karnal	Kaithal	Bangar Pehowa	1
		Bangar Kaithal	2
		Nardhak	3
		Pwad	4
		Nali	5
		Indrawar	6
	Thanesar	Bangar	1
		Northern Chhachra	2
		Khadar	3
		Southern Chhachra	4
		Bet Markanda	5
	Karnal	Bangar Karnal	1
		Nardak Karnal	2
		Khadar Karnal	3
		Bangar Indri	4
		Khadar Indri	5
		Nardak Indri	6
	Panipat	Panipat	1
		Bangar	2
		Khadar	3
Ambala	Rupar	Bet	1
		Ghar	2
		Dhaya	3
		Ghar Bet	4
	Nalagarh	Nalagarh	1
	Kharar	Ghar (Kandaghat)	1
		Doon	2
		Seoti I	3 (a & b)
		Seoti II	4 (a & b)
		Ghar	5
		Dakar	6
		Charsa	7
		Nali	8
		Pahar	9
	Naraingarh	Seoti	1
		Ghar	2
		Pahar	3
	Ambala	Ambala	1
	Jagadhri	Bangar	1
		Khadar Jamman South	2
		Khadar Soam	3
		Kandi	4 (a & b)
		Khadar Jamman North	5
Simla	Kandaghat	Kandaghat	1
Kangra	Nurpur	Indora	1
		Jamali	2
		Kheran	3 (a & b)
		Chhatar	4
		Lodhwan	5
		Surajpur	6 (a & b)
		Nurpur	7

District	Tahsil	Chak	Chak No.
	Kangra	Bargran	1
		Kangra	2
		Palam	3
		Rehlu	4
		Ramgarh	5
	Palampur	Gadheran	1
		Changer	2
		Bhangar	3
		Kandi	4
		Palam	5
		Rajgir	6
	Kulu	Inner Seraj	1
		Outer Seraj	2
		Lagsari	3
		Lag Maharaja	4
		Parol	5
		Rupi	6
	Dera Gopipur	Mangarh	1
		Chanaur	2
		Gangot	3
		Nagrota	4
		Dhaneta	5
		Kehasan	6
		Changer	7 (a & b)
		Balihar	8
		Jaswan	9
		Haripur	10
		Narhana	11
		Jagir Dadsiba	12
		Jagir Guler	13
	Hamirpur	Mahal Modian	1
		Tira	2
		Rajgir	3
		Nadaun	4
		Nadaunta	5
		Kutrehar	6
Lahaul & Spiti	Lahaul Spiti	Lahaul	1
		Spiti	2
Hoshiarpur	Dasuya	Kandi	1
		Sirwal	2
		Maira	3
		Bet	4
		Pakkar	5
	Hoshiarpur	Kandi	1
		Sirwal	2
		Rakkar	3
	Una	Pahar	1
		Changer	2 (a & b)
		Bet Mansowal	3
		Ghar	4 (a & b)
		Doon	5
		Bet	6
	Garhshankar	Kandi	1
		Mansowal	2
		Sirwal	3
		Bet	4
		Rakkar	5

District	Tahsil	Chak	Chak No.
Jullundur	Nakodar	Dona	1
		Bet	2
		Munjaki	3
	Jullundur	Dona Lenda	1
		Sirwal	2 (a & b)
		Dona Charda	3
		City Circle	4
	Nawashahr	Dhak	1
		Rateli	2
		Bet	3
		Dha Bet	4
	Phillaur	Phillaur	1
Ludhiana	Jagraon	Dhaya Nicha	1
		Dhaya Upper	2
		Bet	3
	Ludhiana	Dhaya Nicha	1
		Dhaya Upper	2
		Eastern Bet	3
		Pohad	4
		Western Bet	5
	Samrala	Dhaya Nicha	1
		Bet	2
		Dhaya Upper	3
Ferozepur	Fazilka	Rohi	1
		Rohi Jallalabad	2
		Hithar	3
		Uttar	4
		Bet Jallalabad	5
		Kot Kapura Hithar	6
		Muktsar Uttar	7
	Ferozepur	Kot Kapura Hithar	1
		Guru Har Sahai	2
		Rohi Jallalabad	3
		Dhora Guru Har Sahai	4
		Bet of Jallalabad	5
		Rohi Mandot	6
		Bet Mandot	7
		Bet of Ferozepur	8
		Dhero	9
		Rohi of Ferozepur	10
	Zira	Bet	1
		Rohi	2
	Moga	Rohi	1
		Bangar	2
		Grey Canal	3
	Muktsar	Uttar Muktsar	1
		Hithar Kot Kapura	2
		Rohi Muktsar	3
		Uttar Kot Kapura	4
		Rohi Malout	5

District	Tahsil	Chak	Chak No.
Amritsar	Ajnala	Hithar	1
		Nehri	2
		Sailab	3
		Uttar	4
	Amritsar	Jhandiala	1
		Sub-urban	2
		Nehri	3
		Urban	4
		Mirankot	5
		Bet Bangar	6
	Tarn Taran	Bet Bangar	1
		Upper Majha	2
		Central Majha	3
	Patti	Mahja Mitha	1
		Central Majha	2
		Hithar	3
		Bet Bangar	4
Gurdaspur	Pathankot	Bet Rani	1
		Kandi	2 (a & b)
		Andher	3
		Pahari	4
		Shah Nehri	5
		Pathanti	6
	Gurdaspur	Bangar	1
		Maira Kiran	2
		Nehri	3
		Bet Beas	4
		Bet Rani	5
	Batala	Bangar	1
		Nehri Garbi	2
		Nehri Shargi	3
		Maira Kiran	4
		Bet Rani	5
Kapurthala	Kapurthala	Kapurthala	1
	Phagwara	Phagwara	2
Bhatinda	Faridkot	Faridkot	1
	Bhatinda	Bhatinda	2
	Mansa	Mansa	3
Sangrur	Barnala	Barnala	1
	Malerkotla	Malerkotla	2
	Sangrur	Sangrur	3
	Narwana	Narwana	4
	Jind	Jind	5
Patiala	Nabha	Nabha	1
	Sirhind	..	2
	Rajpura	..	3
	Patiala	..	4
Mahendra-garh	Dadri	Thal I	1
		Thal II	2
		Tibba	3
	Mahendra-garh	Kanina	1
		Pashako	2
		Tahsil Khas	3
	Narnaul	Nalamati	1
		Tahsil Khas	2
		Kanti	3

MAP 156

Net Sown area as per cent of Total Area: 1951

In the Punjab as a whole less than three-fifths of the total area was classified as net sown in 1951. In the mountainous, hilly and sub-hilly areas less than half of the land was actually under cultivation. In view of the exclusion of the un-surveyed areas in Kulu Tahsil the proportion plotted on the map is high. The reason for this low proportion of net sown area in the mountainous, hilly and sub-hilly regions is the rough terrain, steep slopes and thin soils. Similarly, in the *Bet* areas where presence of too much of water thwarts cultivation, less than half of the total area is under cultivation. In the Karnal and Patiala Districts where considerable areas remained as waste lands because of the peculiarities of land tenure and historical accidents the proportion of net sown Area is rather low—below 52 per cent. Elsewhere 68 to 84 per cent of the land is effectively under the plough. Interestingly, in the semi-dry areas of Chandigarh, Hissar, Bhatinda and Sangrur Districts more than three-fourths of the total area is under cultivation. This is probably to ensure maximum production whenever the crops are successful.

MAP 157

Net Sown area as per cent of Total Area: 1961

The proportion of net sown area to total area in Punjab was 72 per cent in 1961, showing a considerable advance over the position in 1951 as portrayed in map 156. Within the State there are belts with proportion of net sown area: (i) exceeding 76 per cent, (ii) varying between 68—76 per cent *i.e.* around the State average, and (iii) below 68 per cent.

The areas where the proportion exceeds 76 per cent cover a major portion of the State. These areas are chiefly in the *bangar i.e.* the upland plain tracts including the Doabs lying above the flood level. It is a remarkable feature that among these areas the highest proportion is in the semi-dry southern and south-western Punjab where facilities for irrigation are lacking and rainfall is low and unreliable, so that when rains come during the sowing seasons, maximum area is sown to make up for the past lean years and to provide for the dry years which are always apprehended. The proportion of net sown area is high also in such areas where rainfall is adequate, irrigational facilities are extensively available and land is flat and free from hinderances, so that the returns from cultivation are calculable and assured. In a large part of the plains the percentage of sown area is above 72.

The regions where the net sown area is well below the State average, are not very large and they fall under three categories: (i) In the hilly tracts, because of rough terrain, more than half the land is left unploughed; also in the foot of the Siwalik Hills

throughout Punjab the proportion is low because of the dissection of land by the closely spaced *Chos*, (ii) The Khadars of the Jumna Sutlej, Beas and the Ravi where the soil after the monsoon becomes too wet for cultivation due to flooding and where land suffers from water-logging and (iii) The proportion of net sown area is low in areas like parts of the Karnal and the Patiala Districts where considerable land was lying waste and the reclamation so far has not been completed.

The Kangra District does not have as high percentage of net cultivated area in terms of total geographical area as shown in the map. The large mass of cadastrally unsurveyed area here is ignored while making calculations.

MAPS 158 and 159

Land not available for Cultivation as per cent of Total Area: 1951 *and* 1961

Land not available for cultivation is of two categories : (i) that which is totally unfit for cultivation and cannot be reclaimed; and (ii) that which is under use for purposes other than agriculture, such as houses, roads and railways. There is considerable area in the mountainous District of Kangra and also in the foot-hill Districts of Ambala, Hoshiarpur and Gurdaspur which is not available for cultivation, due to rough terrain and land spoiled by hill streams. Also in the *bet* areas of the Sutlej, Beas and Ravi a considerable proportion of the land, often exceeding 24 per cent, is not available for cultivation due to water-logging and heavy floods from the rivers. Another type of areas in which land not available for cultivation is considerable are the highly urbanished districts where the growing towns have encroached upon the cultivable area to a considerable extent. The districts through which the main railway line from Delhi to Amritsar passes have 8 to 16 per cent. of the land not available for cultivation. Similarly, in the Mahendragarh and Gurgaon Districts, the hills account for a considerable part of the land not available for cultivation. In the less urbanised southern and south-western half of the Punjab land not available for cultivation is less than 8 per cent of the total area. Since 1951 whereas the proportion of land not available for cultivation has declined in the *bet* areas and foot-hill districts because of reclamation, it has increased in areas where the process of urbanisation has been quick.

MAP 160

Culturable Waste Land as per cent of Total Area: 1951

With increasing pressure of population the demand on land for producing food and other crops has made big dents on culturable waste lands. It is only under unusual circumstances that waste lands still exist in the plains. Large stretches of culturable waste land are chiefly in Karnal and Patiala Districts and in the *bet* areas of the Sutlej, Beas and Ravi rivers. In the mountainous areas where slope presents a problem in extending cultivation a considerable proportion of the total land is lying waste.

MAP 161

Culturable Waste Land as per cent of Total Area: 1961

By 1961 only about 5 per cent of the total area of Punjab was left as culturable waste land. Waste lands are found chiefly in the *bet* areas of the Jumna, Sutlej, Beas and Ravi rivers affected by floods and waterlogging, in the hilly and sub-hilly tracts laid waste by the shifting hill torrents and on steep slopes. The process of reclaiming such lands will be costly and time-consuming. Waste lands in Karnal, Patiala and Hissar Districts can, however, be brought under cultivation comparatively easily. In the *bangar* area of Thanesar Tahsil the percentage of culturable waste land is as high as 24·32 per cent of the total area. Similarly, in parts of the Hissar and Fatehabad Tahsils the culturable waste land is about one-fifth of the total area. Reclamation in the Karnal District would require extension of tubewell irrigation, and in Hissar District by further spreading the net-work of the Bhakra Canal system.

MAPS 162 and 163

Current Fallow as per cent of Total Area: 1951 *and* 1961

The fallow land forms a very small proportion of the total area in the foot-hill Districts of Ambala, Hoshiarpur, Gurdaspur and the mountainous Districts of Simla and Kangra. The fallows are very minor in the Districts of Amritsar, Ludhiana, eastern parts of Karnal, Rohtak, Gurgaon and Mahendragarh. Large proportions of current fallow land are confined to the *bet* areas of the Sutlej and Beas and the dry and semi-dry areas of central and south-western Punjab.

The current fallow land declined from 8·6 per cent in 1951 to 4·2 per cent in 1961, due largely to extension of irrigation from canals, tubewells and wells. With improved methods of cultivation and the application of dry farming methods the current fallow land can be reduced still further.

MAPS 164 and 165

Land under Forests as per cent of Total Area: 1951 *and* 1961

Natural forests in Punjab are confined to parts of the Kangra, Hoshiarpur, Gurdaspur, Ambala and Simla Districts. The areas recorded as forests in the plains are either regular plantations, or strips of lands along the roads and canal banks, or such other areas the management of which has been entrusted to the Forest Department.

In parts of the Kangra District where precipitation is moderate to heavy and slopes are too steep for cultivation the proportion of forests to total land exceeds 32 per cent.

MAP 166

Percentage Change of Net Sown Area: 1951—61

During 1951-61 the net sown area increased from 15,868,000 acres to 18,340,000 acres. Extension in net sown area has been far from uniform in the State. In the Central Punjab extensive areas, previously lying waste, were reclaimed and brought under cultivation, chiefly in Thanesar and Kaithal Tahsils of Karnal District, Patiala District, parts of Bhatinda District, and Fatehabad and Sirsa Tahsils of Hissar District. Here the increase in net sown area was more than 32 per cent. These are the areas where the introduction of irrigation from the Bhakra canal has brought waste lands for cultivation. In the Thanesar Tahsil of the Karnal District development of tube-well irrigation also

had similar effect. In other parts of the central Punjab there was a significant increase in net sown area, ranging between 16 and 32 per cent. In some of the *bet* areas of the Sutlej and Beas Rivers also reclamation of waste lands made great advances.

There are scattered patches of land where the net sown area suffered actual decrease, such as parts of Amritsar and Gurdaspur Districts, Dasuya Tahsil of the Hoshiarpur District, where water-logging has laid waste extensive areas. Similarly in some localities of Fazilka and Muktsar Tahsils of the Ferozepur District and Rohtak Tahsil of the Rohtak District there has been some decrease in net sown area.

MAP 167

Net Irrigated Area as per cent of Net Sown Area: 1951

In the submontane Ambala, Hoshiarpur and in Kangra Districts less than 12 per cent of the net sown area received irrigation. Plentiful rainfall, and rocky and undulating land explains the restricted application of irrigation from canals or wells. In the south and south-western parts of Punjab also there are extensive areas where irrigation is restricted to less than 12 per cent of the net sown area. In the Mahendragarh and Gurgaon Districts the terrain stands in the way of developing canal irrigation. The water-table in most areas is too deep for well irrigation. In the Hissar District also the canals serve only certain parts. Another area with sparce irrigation is the *bet* along the rivers. The areas important for irrigation are the Amritsar, Gurdaspur, Kapurthala, Jullundur, Patiala, Sangrur, Bhatinda, Ferozepur, Karnal, Rohtak, and parts of Hissar Districts where more than half of the net sown area is irrigated. In many tracts of the Amritsar, Ferozepur, Sangrur and Rohtak Districts the proportion exceeds even 60 per cent. and the source of irrigation is the canals. In parts of Ludhiana and Patiala Districts irrigation is mostly from wells.

MAP 168

Net Irrigated Area as per cent of Net Sown Area: 1961

The years 1951 to 1961 witnessed additions to the already highly irrigated areas. In a large part of the Bist Doab where the irrigated area was less than 60 per cent of the net sown area in 1951 the proportion now exceeds 60 per cent in most parts. Similarly in large parts of the Ferozepur District areas with more than 60 per cent irrigated acreage have expanded considerably. In certain parts of Hissar District the irrigated portion now exceeds 60 per cent. In the southern districts of Gurgaon and Mahendragarh the pattern is practically the same. In the Lahaul & Spiti District the actual area under irrigation is very small and it receives irrigation from the *kuhls* fed from snow.

MAP 169

Total Irrigated Area as per cent of Total Cropped Area: 1951

The map reveals significant regional contrasts in the development of irrigation. In the foothill Districts of Ambala, Hoshiarpur and parts of Kangra the total irrigated area is less than 12 per cent of the total cropped area, since rainfall is more than 35 inches and only supplemental irrigation is required for helping certain crops to mature successfully. In the western District of Amritsar on the other hand nearly irrigation serves more than 60 per cent of the total cropped area. In the Bist Doab, particularly in the Jullundur and Kapurthala Districts, 48 to 60 per cent of the total cropped area is under irrigation. Throughout the south-east to north-west extending central belt one-third to one-half of the total cropped area is under irrigation. However, in certain parts of the Patiala and Sangrur Districts the proportion ranges between 48 per cent and over 60 per cent. A large part of the southern and south-western Punjab is still lacking in irrigational facilities. Only in parts of the Ferozepur District the irrigated area exceeds 60 per cent of the total cropped area. In the Hissar District there are still extensive tracts where the irrigated area is less than 12 per cent of the total cropped area and there is a great scope for the expansion of irrigational facilities.

MAP 170

Total Irrigated Area as per cent of Total Cropped Area: 1961

During 1951—61 the portion of cropped area receiving irrigation improved from 37 to 40 per cent. The foot-hill zone of the Ambala, Hoshiarpur and Gurdaspur Districts, as also the south and south-western fringe of the State, still remain the least irrigated areas in the plain tract and that too from wells. The abundant rainfall does not make the need for irrigation much felt. In the dry and semi-dry southern and south-western fringe of Punjab also irrigation is very limited. In parts of Mahendragarh and Gurgaon Districts canal irrigation is not possible because the land surface is high and the inclination of the land is against the direction in which the canals flow. In parts of Gurgaon District tube-well irrigation has been introduced. In the Bist Doab, particularly in Jullundur and Kapurthala Districts irrigation, particularly from the wells, covers 36 to over 60 per cent of the cropped area. In the Amritsar District generally more than 60 per cent of the total cropped area is irrigated. In the *bet* areas along the Sutlej river where the soils remain wet because of flooding very little of irrigation is practised. In large parts of the Sangrur, Bhatinda and Ferozepur Districts 36 to over 60 per cent of the total cropped area is under irrigation, mainly from the canals. In the Patiala District the irrigation is done from canals, wells and tubewells. In Central Punjab, which includes parts of the Karnal, Sangrur and Hissar Districts, one-fourth to one-third of the total cropped area is irrigated. However, in Rohtak and parts of the southern Hissar, canal irrigation is responsible for irrigating one-third to one-half of the cropped area.

MAP 171

Area under Canal Irrigation as per cent of Total Irrigated Area: 1961

About two-thirds of the net area under irrigation is irrigated by canals in Punjab. A considerable part of the development of canal ir-

rigation took place in the last 80 or 90 years. The pattern of canal irrigation is complementary to that of well irrigation. Excepting a few areas in Amritsar, Gurdaspur and Patiala Districts the northern half of the Punjab plain has very little of canal irrigation. On the other hand, in the southern half of the Punjab plain more than 75 per cent of the irrigation is from canals. In fact, in parts of many districts like Ferozepur, Bhatinda, Hissar and Sangrur the irrigation is exclusively from canals. In the hilly area of Kangra and Lahaul & Spiti Districts irrigation is mainly by *kuhls* which take off from streams, *nullahs*, springs or snow.

MAP 172

Area under Well Irrigation as per cent of Total Irrigated Area: 1961

Well irrigation in Punjab is very old. Almost a third of the net area under irrigation in the State is irrigated by wells. The bullocks and camels provide the main source of power for pulling up water, though in recent years pumping sets run by diesel oil and electricity have been installed in some areas.

If a line is drawn joining Karnal and Ferozepur City it divides the Punjab plain into two contrasting regions with respect to well irrigation. In the area north of this line wells are the main source of irrigation. In the Karnal, Rohtak and Gurgaon Districts also well irrigation is very important. There is very little irrigation in Mahendragarh District and in the hilly areas of Gurgaon. But in the limited area that is irrigated, well is the main source. South of the Karnal-Ferozepur line well irrigation is practically absent.

The prevalence of wells as a source of irrigation in the northern half of the Punjab plain is associated with small depth of water-table and adequate quantities of water in the sub-stratum. Also in these areas the surface is somewhat rolling and above the level of canal water so that irrigation from canals would require pumping of water which is likely to be a costly operation. A well commands 5 to 7 acres of land and its cost is within the means of an individual farmer.

In the southern half of the Punjab plain, on the other hand, rainfall is meagre, ranging between 10 and 20 inches, and highly variable. Here cultivation is mostly dependent on irrigation. Water-table is too deep for well irrigation. The quantity of water in the sub-stratum is inadequate and the water is brackish in many areas. Under the circumstances well irrigation is not possible in this region. In Mahendragarh and Gurgaon Districts wells are generally in the basins between the hills where water table is not so deep and they are the only source of irrigation.

MAP 173

Area under Tank Irrigation as per cent of Total Irrigated area: 1961

Tank irrigation commands some 10,000 acres in the whole State, and is confined to Hoshiarpur, Ambala, Karnal and Gurgaon Districts. The tanks are mostly ponds in which water collects during the rainy season, and the water is scooped out into the fields with buckets or similar devices worked by human labour.

MAP 174

Area under Irrigation by sources other than wells, canals and tanks as per cent of Total Irrigated area: 1961

Based on data by Assessment Circles, this map portrays the area irrigated by methods other than canals, wells and tanks, as per cent of the total irrigated area. These sources include small streams and rivers from which the water is supplied to the adjoining fields.

MAP 175

Percentage Change of Irrigated Area: 1951—61

With most of the canal irrigated areas left in western Punjab, Partition created serious deficit in food production in Punjab (India). In order to make up the deficit serious efforts were made to increase agricultural production, and extension of irrigation has, received top priority among the measures to achieve this target. As a result, the net area under irrigation in Punjab increased from 6,403,000 acres in 1950-51 to 7,636,000 acres in 1960-61. The Bhakra Canal is responsible for a big portion of this increase. Patiala, Karnal, Bhatinda, Sangrur and Hissar Districts recorded sizeable increase in irrigation. Wells and tube-wells contributed to irrigation chiefly in Karnal and Patiala Districts. Tube-well irrigation made a headway in areas where the reserves of water in the sub-stratum are not easily exhaustible. Well irrigation has increased in most of the northern half of the Punjab plain. Consolidation of land-holdings encouraged sinking of wells, especially in areas of small holdings.

MAP 176

Irrigation works—Existing and Proposed: 1961

The area between the Beas and the Ravi rivers is irrigated by the Upper Bari Canal, the important branches of which include the Kasur Branch and the Sabraon Branch. The Bist Doab has till recently been deprived of canal irrigation. However, recently a canal has been taken out from the Sutlej river to irrigate large parts of the Jullundur District. Its important branches are the Jullundur Branch and Nawashahr Branch. The area commanded by this canal is called the Nangal Circle.

The Sirhind Canal which takes off from the Sutlej river at Rupar is also an old canal meant to irrigate parts of Bhatinda and Ferozepur Districts. On the east the Western Jumna Canal taken from the Jumna river at Tajewala is an old irrigation system irrigating parts of the Rohtak and Hissar Districts. The new Bhakra Canal taken from the Sutlej river at Nangal is a very large canal system. It is already in operation in parts of the Patiala, Karnal, Sangrur, Bhatinda and Hissar Districts. In order to conserve water and prevent water-logging the main-

Bhakra Canal has been lined with brick and cement. Moreover, the hydro-electric power produced from the Bhakra scheme has augmented tubewell irrigation. The total irrigation potential of the Bhakra scheme comes to nearly six million acres which is one of the largest areas under a single irrigation scheme.

MAPS 177 and 178

Double-cropped area as percentage of Net Sown Area: 1951 *and* 1961

This term is applied to fields which bear more than one harvest in a year. It is only in the mountainous and hilly areas where the rainfa l is moderate to high double-cropping was a common practice. In a large section of the Kangra District for example more than 60 per cent of the net sown area was double-cropped. In the Simla District and Nalagarh Tahsil the proportion ranged between 40 and 60 per cent. Among the plain areas the practice of double-cropping was of a limited magnitude. In the Amritsar and Gurdaspur Districts 20 to over 40 per cent. of the net sown area was double-cropped, and the same was the position in parts of the Rohtak, Karnal and Hissar Districts and in the central Punjab. In a large section of the plain tract of Punjab the double-cropped area was, however, less than 20 per cent of the net sown area. The concentration of most of the rain during two to three months is hardly conducive to double-cropping, for which a more or less regular supply of water throughout the year is necessary.

Du ing 1951—61 the percentage of double-cropped improved from 18 to 30 chiefly as a result of the extension of irrigation. In the hilly and mountainous areas receiving abundant precipitation, more than half of the net sown area is double-cropped, and in parts of Kangra District the proportion exceeds 80 per cent. Similarly, in the newly reclaimed areas of Karnal and Patiala District 40 to over 60 per cent of the net sown area is double-cropped. In parts of the Amritsar District where facilities for canal irrigation are available 40 to 60 per cent of the net sown area is double cropped. In most of the central Punjab the corresponding proportion varies between 20 and 40 per cent. It is less than 20 per cent in the *bet* areas and in the semi-dry parts of Ferozepur, Hissar and Gurgaon Districts. In contrast to 1951, there are fewer areas now which are single cropped. The Lahaul & Spiti District, where the growing season is short is the main exception.

MAP 179

Consumption of Chemical Fertilizers: 1951—61

Since the consumption of fertilizers is given per block and not per areal unit of farm land the data plotted on this map are not strictly comparable. However, they still give a fairly useful idea about the consumption of fertilizers during the decade 1951—61. It will be noticed that the use of fertilizers is confined mainly to areas receiving well and canal irrigation, and their use increased fast during the Second Five Year Plan.

MAP 180

Subsoil Water Depths: 1961

In the mountainous areas, the foothill zone of the Ambala, Hoshiarpur and Gurdaspur Districts, and the semi-dry southern and south-western belt of Punjab depth to water far exceeds 30 feet. In the areas sand-witched between these two belts it is within 30 feet. Extensive areas between the Ravi and the Beas rivers and the belts along the Sutlej river in the Ferozepur District have very shallow water-table, within 5 feet from the surface. Near the confluence of the Beas and the Sut'ej rivers the water-table reaches the surface. Along the Western Jumna Canal the water-table is within 10 feet. Areas where the water-table is 20 and 30 feet deep are quite limted in extent. On the southern and south-western fringe of the zone there is a steep gradient of water-table.

Areas with less than five feet deep water-table are liable to water-logging.

MAP 181

Per Capita Cultivable Land: 1961

In this map total population has been taken into consideration while the cultivable land connotes net sown area plus fallow land plus cultivable waste land.

Since the entire population has been taken into consideration while calculating the per capita cultivable land, this map does not give a very accurate measure of the per capita cultivable land or for that matter the pressure of population. This is so because a fairly large proportion of Punjab's population earns livelihood from non-agricultural activities and is thus not dependent upon the agricultural land directly for earning a livelihood. Map 183 in which only rural population has been considered gives a more refined picture of per capita cultivable land. However, map 185 in which only cultivators and cultivated land have been taken into consideration gives the most accurate measure of the pressure of population on the farm land. A detailed discussion of the areal variations in the cultivated land per cultivator is, therefore, deferred to map 185.

MAP 182

Rural Population—per Capita Cultivable Land: 1961

This map does not give a complete picture of the pressure of population on farm land as it includes also the non-agricultural rural population. However, since the proportion of rural non-agricultural population is small, it does delineate broadly the regional diffe entials in pressure of farm population.

The map reveals very contrasting patterns of per capita arable land. In the mountainous Districts and the foothill zone of Ambala, Hoshiarpur and Gurdaspur Districts the per capita cultivable land is small, ranging generally between 0.4 and 1.2 acres. In large parts of Kangra and Simla Districts it ranges between 0.4 and 0.8 acre. In the Lahaul & Spiti District where the climate is very dry and very cold the per capita

arable land comes to less than 0·4 acre. From the foothill zone south-westwards there is a gradual increase in per capita cultivable land so that in the areas along the south-western fringe of the State per capita cultivable land exceeds two acres. This trend strikes an inverse correlation with rainfall. Also in some of the *bet* areas where much of the land may go without a crop in a year, the per capita cultivable land is more than in the upland plains.

MAP 183

Rural Population—Per Capita Cultivated Land: 1961

Within the Punjab plain there appears to be a strong inverse correlation between rainfall and per capita cultivated land, and with a few exceptions there is a gradual increase in per capita cultivated land from the foot-hill areas towards the south-west in correspondence with decrease in rainfall. This is expected in a region where water-supply is a critical factor in the agricultural land use. In the *bet* areas the per capita cultivated land is not small because frequent flooding causes severe damage to the crops, necessitating larger land holdings for self-sufficiency. Similarly, in some of the hilly and mountainous areas the per capita cultivated land is large because of considerable waste land on steep slopes. In the semi-arid areas of whole of south-western Punjab the per capita cultivated land exceeds two acres as compared to 0.8 and 1·2 acre in the foot-hill districts. In the old canal irrigated areas also the per capita cultivated land is small because of successive sub-division and fragmentation of holdings. In areas of new irrigation, however, the land holdings are still large.

MAP 184

Rural Population—Per Capita Net Sown Area: 1961

This map depicts the same thing as map 183 except that the fallow land and the cultivable waste land have been excluded from consideration. It is based on the actually sown area.

The overall regional pattern of variations in per capita net sown area is more or less the same as in map 183. However, because of the exclusion of fallow land and cultivable waste land the per capita net sown area shown here is less than that plotted in map 183.

MAP 185

Rural Population—Agricultural Holding per Male Cultivator: 1961

In this map only those workers who are directly and actively enaged in cultivation are considered, and not the entire rural population.

There is a strong inverse correlation between rainfall and agricultural holding per male cultivator because rainfall is a very critical factor in Punjab's agriculture. There is a gradual increase in the size of holding per cultivator from north-east to south-west in correspondence to decrease in rainfall. In the mountainous and sub-hilly areas the per cultivator holding comes to less than 4 acres. In practically half of the south-east to north-west extending belt of the Punjab plain the per cultivator holding varies between 4 and 8 acres. But in the southern and south-western margins it is generally between 8 and 12 acres, with some marginal areas having even more than 12 acres.

MAP 186

Rural Population—Size of Agricultural Holding per Cultivating Household: 1961

There is a gradual increase in the size of agricultural holding per cultivating household from north-east to south-west. In the mountainous areas of the Lahaul and Spiti, Kangra and Simla Districts the cultivated land per cultivating household is less than 4 acres. This reveals how acute the pressure of rural population is upon the limited farm land of these hilly and mountainous areas. In the plains there is a fairly well established inverse correlation between rainfall and agricultural land per cultivating household. In the sub-mountainous areas a cultivating household has on the average 8 to 12 acres of agricultural land. The same is true of the eastern areas of Punjab which include Karnal, Rohtak and Gurgaon Districts. As rainfall decreases to the south-west the size of operational holding increases so that in the central south-east to north-west extending belt every cultivating household has on the average 12 to 16 acres of land. In the arid and semi-arid parts of Hissar, Ferozepur and Bhatinda Districts the size ranges between 16 and over 20 acres where low rainfall is helped by canal irrigation.

MAPS 187 and 188

187. *Distribution of Wheat Acreage*: 1961

188. *Wheat Acreage as per cent of Total Cropped Area*: 1961

Three-year data centred on 1961 have been used for these maps in order to eliminate the effect of year-to-year fluctuations.

Wheat is one of the major food crops in the country. In India as a whole about 9 per cent. of the total cropped area is devoted to wheat. In the vast Indo-Gangetic plain the percentage of area under wheat to total cropped area increases from West Bengal westwards till in the extreme west of the Indo-Gangetic plain where it reaches 22.4. In distribution, wheat and rice are inversely correlated throughout the Indo-Gangetic plain from West Bengal to Punjab.

Wheat is grown practically all over the State with percentage of area under wheat to total cropped area exceeding 10 per cent. except in the south and south-western areas of the Mahendragarh and Hissar Districts. The growth of this crop is intimately dependent upon adequate water-supply during the winter season. However, the water requirements are not heavy. In the entire trans-Sutlej tract, as also in the areas lying immediately to the south of the Sutlej in Ludhiana and Ferozepur Districts, more than one-third of the total cropped area is devoted to wheat highlighting thereby the overwhelming importance of this crop. Here wheat is grown not only as a food crop to meet domestic requirements but also as a cash crop. In many of the *khaddar* areas the acreage devoted to wheat exceeds even 40 per cent. of the total cropped area.

This is due to the fact that whereas no *kharif* sowings are possible due to excessive flooding wheat can be grown in the wet soils of the *bets* as a *rabi* crop. The soils of the *khaddar* do not need irrigation.

Incidentally, the trans-Sutlej tract of the State receives more rainfall during winter from the north-westernly cyclones than the eastern and southern parts of the State. In addition, in all these regions irrigation facilities are available from wells, tube-wells and canals. The coincidence of areal pattern becomes obvious when a comparison of this is made with the map of irrigation.

In the hilly and sub-hilly areas of the Kangra District as also in the Spiti valley more than 40 per cent of the total cropped area is devoted to wheat. In the mountain-locked District of Lahaul & Spiti where the valleys remain under snow from October to early May the wheat crop is grown during the working season June to September. This wheat is known as spring wheat. In the lower parts of the Kangra District the proportion of area under wheat to total cropped area exceeds 40 per cent because of low inter-crop competition and overwhelming emphasis on subsistance economy. Other areas, where the percentage of wheat area is high, are found in the Jumna *khaddar* and in the Ghaggar floodplains for similar reasons as explained in the case of the Sutlej and Ravi *bets*. In the semi-arid southern and south-western parts of Punjab, where the soils are predominantly sandy and irrigation facilities inadequate or lacking, wheat is not so important a crop. However, in certain parts of this belt such as in the Sirsa Sub-Division of the Hissar District and the adjoining areas of Bhatinda District wheat is gradually replacing coarse cereals (such as, gram and *bajra*) with the extension of canal irrigation. In the newly reclaimed areas of Karnal District also wheat has improved its relative position among crops.

MAP 189

Irrigated Area under Wheat as per cent of Wheat Area: 1961

Practically half of the total wheat acreage receives the benefit of irrigation. However, conditions vary considerably from area to area. In the foot-hill districts of Ambala, Hoshiarpur and Gurdaspur and also in parts of Kangra where winter showers are generally adequate to see the wheat crop through, less than 20 per cent of the total wheat area is receiving irrigation. In parts of Patiala and Kangra Districts 20 to 40 per cent of the wheat area is irrigated. In nearly all the *bet* areas, which are sufficiently wet even during the winter season, irrigation is not much needed. However, in the dry and semi-dry areas and south-western Punjab 60 to over 80 per cent of the wheat acreage receives irrigation. In these areas the winter showers are not only lighter than in the north but are also highly variable. Therefore, wheat cultivation can be successfully done only with irrigation.

Even in the north where the rains are generally adequate supplemental irrigation from wells or tube-wells can be highly helpful in guaranteeing success of the crop.

MAP 190

Percentage Change of Wheat Acreage: 1951-61

During 1951—61 wheat acreage increased by 40·8 per cent from 3,885,867 acres in 1951 to 5,472,255 acres in 1961. In the Bist Doab and the Amritsar, Gurdaspur and Ludhiana Districts, where wheat was already an important crop the increase has generally been only up to 25 per cent. In certain parts of the Hoshiarpur, Gurdaspur and Amritsar Districts in fact there has been actual decrease in wheat acreage. In the *bet* areas along the Sutlej River, however, there has been tremendous extension of wheat cultivation.

A very big increase, exceeding 75 per cent has taken place in the central and southern parts of Punjab where new canal irrigation has been extended in recent years, to the replacement of gram and oilseeds. The greatest increases have taken place in the Bhatinda, Sangrur, Karnal, Patiala and Hissar Districts. In all these areas wheat is a cash as well as a food crop. In the Lahaul & Spiti District also the percentage increase in wheat acreage has been very high.

MAP 191

Per acre Yield of Wheat: 1960-61

In the State as a whole the per acre yield of wheat works out to 1077 lbs. This is a low yield when compared with many other countries. In the foot-hill districts of Ambala, Hoshiarpur, and Gurdaspur, and in the mountainous Districts of Simla and Kangra the yields are less than 800 lbs. per acre, because the supplemental sources of irrigation are meagre. However, in the areas receiving irrigation from wells and canals the yields exceed 1250 lbs., as in the Hissar, Patiala and Ludhiana Districts. The differences in yields also reflect the differences in the quality of soil and agricultural practices. In Amritsar and Kapurthala Districts the average yields range between 800 and 950 lbs. in Gurgaon and Mahendragarh Districts they are slightly higher, between 950 and 1100 lbs. per acre.

MAPS 192 and 193

192. *Distribution of Rice Acreage*: 1961

193. *Rice Acreage as per cent of Total Cropped Area*: 1961

Rice cultivation in Punjab is not a major crop, occupying only 4.5 per cent of the total cropped area, in contrast to 24 per cent in India as a whole. The requirements of rice with regard to soils, climatic conditions and land forms being highly specific, it is confined to only a few areas. Within the Punjab plain and the lower hills water-supply, and not temperature, is the determining factor. Rice requires not only abundant water-supply but also a very regular supply of water at closely spaced intervals. Moreover, it requires level land with clayey loams so that the water keeps standing for a sufficient length of time. The crop requires considerable manual labour at the time of transplantation and weeding.

There are two important belts in Punjab where rice occupies an important place in the agricultural economy: (i) the sub-hilly areas of Kangra, Gurdaspur and Amritsar Districts, and the flood plains along the Beas and lower Sutlej river; and (ii) the northern and central parts of the Karnal District comprising primarily Nardak and Naili Assessment Circles and the *Khaddar* of the Markanda.

Cultivation of rice claims a high percentage of the total cropped area in the Kangra District. In the Gurdaspur and Amritsar Districts although the rainfall is not quite sufficient and properly distributed over the *kharif* season, rice cultivation is done with the help of irrigation by canals. A comparison of the maps showing (i) irrigated area as percentage of total cropped area, and (ii) rice acreage as percentage of total cropped area, brings out very clearly the correlation between rice cultivation and irrigation. Rice cultivation in the flood plains along the Beas River does not require the same amount of irrigation. The occasional floods from the river and the rainfall support the crop very well. In the canal irrigated belt of Gurdaspur and Amritsar Districts rice occupies more than 20 per cent of the total cropped area.

In the hilly areas the practices of rice cultivation are some what different from those in the plains. Throughout Simla District and the sub-hilly Tahsils of the Ambala District the slopes are converted into flat terraces for rice cultivation. Here supplemental irrigation from springs and *kuhls* becomes necessary if the rains fail or are delayed. In intensity of cultivation also the hilly areas differ. Here the farming is spade-based and the farming is more like gardening than in the plains.

In the central and northern parts of the Karnal District on the other hand rice cultivation is different in many ways:—

(i) It is a recent development. It started with the reclamation of the waste lands in the Naili and Khaddar Assessment Circles of Kaithal and Thanesar Tahsils and Nardak Assessment Circles of Karnal Tahsil. Here almost a quarter of the cropped area is devoted to rice.

(ii) Its place in the agricultural economy is that of a cash crop.

The extension of canal irrigation from the Bhakra Main Canal and the development of tube-well irrigation, provide an incentive for putting the newly reclaimed area under rice. Rice cultivation in this area is the direct fruit of artificial irrigation as otherwise the inadequate rainfall and the clayey soils under dry conditions do not provide the requisite conditions for growing rice. Another important factor is the human resources. It is not the local people un-accustomed to cultivation of rice that have found this new secret of growing rice as a cash crop, but the enthusiastic in-migrants from the Amritsar and the Gurdaspur Districts and persons who came from the Sialkot District, now in West Pakistan, who knew the necessary know-how of rice cultivation and have previous experience of getting adequate returns.

An examination of the dot map showing distribution of rice acreage brings out the fact that in all such areas where either water-supply (from rains, irrigation, or both) is inadequate and soils are porous, rice cultivation is practically absent or insignificant.

With considerable increase in rice acreage resulting from the reclamation of waste lands in the Karnal and Patiala Districts in particular, Punjab has a surplus of rice to spare for the other rice-eating States of the Country.

MAP 194

Irrigated Area under Rice as per cent of Total Rice Area: 1961

71 per cent. of the total area under rice in Punjab is irrigated, it being necessary to maintain regular supply of water to the rice crop. However, in the foot-hill districts of Ambala, Hoshiarpur and parts of Gurdaspur where rainfall during the rice season is adequate, less than 20 per cent of the rice acreage receives irrigation.

MAP 195

Percentage Change of Rice Acreage: 1951—61

There was an unprecedented rise of 74.5 per cent in rice acreage in the State during 1951-61 from 614,493 acres in 1951 to 1,072,132 acres in 1961. In percentage figures, the maximum increase took place in such areas where rice was not important before. In the sub-hilly Districts the increase was below 25 per cent. In some areas of Hoshiarpur and Kangra Districts, some rice fields have been put to other uses, resulting in a net decrease to the extent of 25 per cent.

The main reasons for the big increase in rice acreage in the State are: (i) extension of irrigation facilities, particularly from the canals and (ii) reclamation of waste lands. In the Karnal District which has now become the rice bowl of Punjab, the rice acreage increased from 92,027 acres in 1951 to 235,478 acres in 1961. In the Patiala District also the increase was un-paralleled—from 22,922 acres in 1951 to 83,698 acres in 1961. In the Ambala District the increase was considerable—from 67,467 acres to 105,717 acres. In Kapurthala, Hissar and Sangrur Districts the percentage increase was spectacular although areas involved are smaller than in the above mentioned Districts. In addition to the extensive waste lands reclaimed with the help of new irrigation, such low lying areas along railway lines and roads which were formerly lying waste, have been brought under rice cultivation wherever water-supply from rain or other sources was sufficient for the crop.

Similarly in the *bet* areas where there is no scarcity of moisture in the land rice cultivation has been extended considerably.

Another important factor which has stimulated rice cultivation is the alarming development of water-logging in certain parts of the State particularly in parts of the Amritsar, Jullundur and Hoshiarpur Districts. The water-logged areas or where near water-logging conditions have developed are fit only for crops like rice and sugarcane.

MAP 196

Per acre Yield of Rice: 1960-61

The yield of rice in Punjab works out to 1,400 lbs. per acre. The yields exceed 1,500 lbs. in the Karnal and Kapurthala Districts. In Karnal rice is a recent introduction and is grown chiefly in the newly reclaimed waste lands in the Kaithal and Thanesar Tahsils. In the Kangra, Hoshiarpur, Patiala and Sangrur Districts the yield is below 1,300 lbs. per acre. In the Jullundur, Ludhiana and Bhatinda Districts it ranges between 1300 and 1400. In other Districts of the State, excepting Lahaul & Spiti and Mahendragarh where no rice cultivation is done, the yield varies between 1400 and 1,500 lbs. per acre.

MAPS 197 and 198

197. *Distribution of Gram Acreage*: 1961

198. *Gram Acreage as per cent of Total Cropped Area*: 1961

With 25 per cent. of the total cropped area devoted to gram, Punjab is one of the leading States in the country in gram production. Gram requires less water than wheat and flourishes where the soils are slightly sandy. Therefore, wherever the conditions are slightly less favourable for wheat cultivation gram steps in as the main foodgrain. A comparison of maps 188 and 198 brings out the complementary patterns of the two crops. Throughout the north and north-western parts of the State, less than 20 per cent of the total cropped area is devoted to gram. In the *bet* areas where the soils are too wet even during the winter season gram cultivation is least important. However, in those pockets within this belt where the water-table is somewhat deep and the soils porous gram cultivation springs up in importance. Quite often gram is grown mixed with wheat in the northern parts of the Punjab plain.

In the southern and south-western half of the State where the annual rainfall is less than 20 inches and also where the winter showers are lighter than in the north gram cultivation takes supremacy over wheat. In large parts of the entire belt, 30 to 40 per cent of the total cropped area is devoted to gram. In the Fatehabad and Sirsa Tahsils of the Hissar District the percentage exceeds even 40. Throughout this belt one-third to half of the gram area receives irrigation. In large parts of the Hariana area gram is a staple food. In other parts of Punjab gram is combined with wheat for making bread for breakfast and evening meals during the summer and rainy seasons.

Punjab is surplus in gram and exports it in large quantities to other parts of India.

MAP 199

Irrigated Area under Gram as per cent of Total Gram Area: 1961

In Punjab about 21 per cent of the total gram area receives irrigation. This is in marked contrast to 51 per cent in the case of wheat. This difference is explained by the shorter requirement by its plant. In the southern, eastern and northern areas of Punjab less than 10 per cent of the area under gram is irrigated. However, in the south-western and western areas where the winter showers are much lighter than in the north some irrigation becomes necessary. As a result, in large parts of the Amritsar, Sangrur and Ferozepur Districts more than 40 per cent of the area under gram is irrigated. Elsewhere in the Hissar, Bhatinda, Ludhiana, Sangrur, Ferozepur and Jullundur Districts 20 to 40 per cent. of the area receives the benefit of irrigation. With increasing facilities for irrigation gram is being gradually replaced by wheat and other more remunerative crops, particularly in the Bhatinda, Ferozepur and Hissar Districts.

MAP 200

Per acre Yield of Gram: 1960-61

In Punjab the average yield of gram comes to nearly 750 lbs. per acre ranging between 900 and 1050 lbs. in Ludhiana and Karnal between 750 and 950 lbs. in Gurdaspur, Amritsar, Kapurthala, Jullundur, Ambala, Patiala and Rohtak Districts, between 600 and 750 lbs. in Hissar, Ferozepur, Hoshiarpur and Kangra Districts, and below 600 lbs. in Bhatinda and Mahendragarh. These figures suggest the scope for improvement in yields.

MAPS 201 and 202

201. *Distribution of Maize Acreage*: 1961

202. *Maize Acreage as per cent of Total Cropped Area*: 1961

Maize is the main food crop of the *kharif* season, occupying 5.8 per cent. of the total cropped area of the State. In the sub-hilly region more than one-fifth of the total cropped area is devoted to this crop. It may not be out of place to mention here that this crop is mostly rain-fed and receives little irrigation in this belt where the rainfall exceeds 30 inches. With decrease of rainfall southwards from the hills the relative importance of maize decreases accordingly. In the Simla and the Kangra Districts there are numerous areas where even more than one-third of the total cropped area is devoted to maize. The maize crop flourishes particularly on the gentle slopes of these hilly districts where the rainfall is heavy and the land is well drained because of the slopes. In the Bist Doab the percentage ranges between 10 and 20. So is the case with the northern *khaddar* area of the Jumna River where the soils are clayey loams and there is seldom scarcity of water during the *kharif* season. Throughout the southern and south-western parts of the State where the rainfall is less than 20 inches and the soils are predominantly sandy, maize acreage is less than one per cent of the total cropped area. In many parts of the Gurgaon, Mahendragarh and Hissar Districts it is not grown at all.

MAP 203

Irrigated Area under Maize as per cent of Total Maize Area: 1961

About 42 per cent. of the maize area in Punjab receives irrigation, which is mainly in the dry and semi-dry south-western, central and western parts of Punjab. In the foot-hill districts of Ambala, Hoshiarpur and Gurdaspur and also in the hilly areas of Kangra and Simla maize is generally an un-irrigated crop. This is so because it is grown mainly during the rainy

season—July to September—when the rains are generally heavy and frequent. In areas where the annual rainfall is less than 25 inches maize is almost exclusively an irrigated crop.

MAP 204

Percentage Change of Maize Acreage: 1951—61

The maize acreage increased by 43 per cent. from 918,832 acres in 1951 to 1,316,239 acres in 1961. Like wheat, the maize acreage also did not show much progress in areas where it was already an important crop. In the sub-hilly districts and the Bist Doab where it was already a substantial crop the variations have been small. In areas affected by water-logging maize acreage has declined.

In the newly reclaimed and irrigated areas maize acreage has more than doubled. The greatest increase took place in the Karnal, Patiala, Sangrur, Bhatinda, Hissar and Ferozepur Districts.

MAP 205

Per acre Yield of Maize: 1960—61

In Punjab the average yield of maize is about 1,000 lbs. per acre. The yield exceeds 1,250 lbs. per acre in Kangra, Amritsar and Ludhiana Districts and ranges between 1,100 and 1,250 acres in Jul undur, Kapurthala and Ferozepur Districts. In the foot-hill districts of Ambala, Hoshiarpur and Gurdaspur and in Simla District it ranges between 800 and 950 lbs. In Rohtak and Hissar Districts it is slightly better, 950 to 1,100 lbs. per acre. The lowest yields, below 800 lbs. obtain in Mahendragarh, Bhatinda, Sangrur, Patiala and Karnal Districts. The gradual replacement of the indigenous seed by the hybrid corn is likely to improve the present yields.

MAPS 206, 207 and 208

206. *Distribution of Jowar Acreage*: 1961

207. *Jowar Acreage as per cent of Total Cropped Area*: 1961

208. *Irrigated Area under Jowar as per cent of Total Jowar Area*: 1961

With 3.2 per cent of the total cropped area of the State, *jowar* is among the less important grain crops. Although it is grown in most parts of Punjab it is chiefly for green fodder. The most important areas of *jowar* cultivation are Rohtak and Gurgaon Districts, in those parts where soils have more content of clay than sand and do not suffer from dry conditions. In Rohtak District, it may be noted, a fairly large proportion of the *jowar* area is under irrigation. In large parts of the Rohtak and in the Ferozepur Jhirka and Nuh Tahsils of the Gurgaon District more than 15 per cent of the total cropped area is devoted to *jowar*. Although in the Hissar District *jowar* acreage ranges between one and five per cent. of the total cropped area it is mostly irrigated. In the Sirsa, Hissar and Fatehabad Tahsils nearly three-fourths of the *jowar* cultivation is done with the help of canal irrigation. Similarly, in the Kaithal Tahsil of the Karnal District practically two-fifths of the *jowar* area is under irrigation.

With the extension of canal, tubewell and well-irrigation *jowar* as a cereal crop is being replaced by cash crops.

MAPS 209 and 210

209. *Distribution of Bajra Acreage*: 1961

210. *Bajra Acreage as per cent of Total Cropped Area*: 1961

Although nutritively as important as wheat, *bajra* is commonly considered an inferior food and is grown only in areas where wheat cannot be grown. About 9 per cent of the total cropped area in the State is devoted to *bajra*. This crop requires much less water-supply and it flourishes in the sandy soils. To a great extent the pattern of *bajra* cultivation is complementary to that of maize cultivation; it is important in the sandy and dry areas of the Gurgaon, Mahendragarh and Hissar Districts in many parts of which as much as over 30 per cent of the total cropped area is devoted to *bajra*. To the north and west the crop becomes progressively less important in inverse relation to the increasing wate -supply either from rains or from irrigation. In the northern sections of the Punjab plains less than one per cent of the total cropped area is devoted to *bajra*. It is a food crop in the southern parts of the State, it is primarily a fodder crop in the north.

MAP 211

Percentage Change of Bajra Acreage: 1951—61

The bajra acreage in the State declined by 22 per cent—from 2,842,801 acres in 1951 to 2,217,168 acres in 1961. Interestingly, the decrease is maximum in such areas where it has been the most important crop, the bajra fields being diverted to wheat with the introduction of canal irrigation, in the dry and semi-dry areas of the southern and south-western Punjab.

MAP 212

Per acre Yield of Bajra: 1960—61

The average per acre yield of *bajra* in Punjab is 284 lbs. It is the highest in the Amritsar District where it exceeds 700 lbs. In the Kangra, Hoshiarpur and Ferozepur Districts it ranges between 550 and 700 lbs. In Gurdaspur, Patiala and Sangrur Districts it varies between 400 and 550 lbs. It is the lowest in the Gurgaon, Rohtak, Hissar, Ludhiana, Jullundur and Kapurthala Districts where it is less than 250 lbs. per acre. In the Ambala, Mahendragarh and Bhatinda Districts it is between 250 and 400 lbs. per acre. Interestingly the yields are low in areas where *bajra* cultivation is concentrated and they are high in areas where *bajra* cultivation is rather unimportant.

MAPS 213 and 214

213. *Distribution of Sugarcane Acreage*: 1961

214. *Sugarcane Acreage as per cent of Total Cropped Area*: 1961

With 2.7 per cent of the total cropped area, sugar-cane is one of the important cash crops in the State, ranking in this respect next to cotton and oilseeds in areal coverage.

Within the State, however, there are great regional contrasts in the cultivation of sugarcane. Throughout the northern plain where the annual rainfall exceeds 30 inches, 5 to 10 per cent of the total cropped area is devoted to sugarcane, and there are pockets in this zone where the percentage exceeds even 10 per cent. Similarly, all along the Jamuna River 5 to 10 per cent. of the total cropped area is devoted to sugarcane. Here also in the Jagadhri, Thanesar and Panipat *Khaddar* the proportion of the total cropped area devoted to this crop is more than 10 per cent. In the Rohtak District, in the Nehri Circles of the Gohana and Rohtak Tahsils, where canal irrigation more than compensates the deficiency of rainfall, more than 10 per cent of the total cropped area is devoted to sugarcane. In the more important cane producing areas sugar mills were set which in turn gave a fillip to its cultivation.

In the south-east to north-west extending central belt of the State the percentage of cropped area under sugarcane declines to one to five per cent in correspondence with the decline in rainfall from 30 to 20 inches.

In the southern and south-western parts of Punjab where arid and semi-arid conditions prevail the place occupied by sugarcane is very insignificant, and even where canal irrigation is available, cotton, which is more remunerative, wins in the competition among cash crops. Sugarcane is the least important in hill areas.

MAP 215

Irrigated Area under Sugarcane as per cent of Total Sugarcane Area: 1961

About three-fourths of the sugarcane area receives irrigation. Its water requirements are heavy. But, in the foot-hill districts of Ambala, Hoshiarpur and Gurdaspur where the rainfall is relatively heavy and reliable and in the *bet* areas which remain fairly wet throughout the year sugarcane is sown even on unirrigated lands. In other areas where the annual rainfall is less than 25 inches, irrigation is absolutely necessary.

MAP 216

Percentage Change of Sugarcane Acreage: 1951—61

In spite of increasing pressure of population and urgency to boost food production, the cash crops which fetch better price, have had an attraction for the farmers. There has been 50 per cent increase in sugarcane acreage in the State—from 414,306 acres in 1951 to 621,674 acres in 1961. On the whole the eastern and central parts of Punjab experienced a boost in sugarcane acreage. The western half of the State, with the exception of a few areas, showed either marginal increase or marginal decrease. The *bet* areas of the Sutlej and Beas Rivers stand out conspicuously as areas of considerable increase in sugarcane acreage. In parts of the Amritsar District there was decrease in this crop. Sugarcane acreage also increased considerably in the plain areas of the Hoshiarpur District south of the Shiwalik hills. In the Kangra District this crop generally met decline.

The greatest increase in sugarcane acreage has taken place in those areas where water-supply has been augmented with new irrigation facilities from canals, tube-wells, and wells in the Karnal, Patiala, Sangrur, Rohtak and parts of Hissar Districts. Within these areas the increase is particularly great in such pockets where sugar mills have been set up in recent years.

MAP 217

Per acre Yield of Sugarcane (Gur): 1960-61

The average yield of sugarcane *gur* comes to 3,360 lbs. per acre. However, it is the lowest in the Kangra District followed by the foot-hill Districts of Ambala and Hoshiarpur and also the District of Mahendragarh. In the Jullundur, Sangrur, Rohtak and Hissar Districts the yield is the highest, exceeding 3,500 lbs. per acre. In the remaining districts it generally varies between 2,500 and 3,500 lbs.

Interestingly, the yields are high in areas where sugarcane cultivation is not very significant, and low in some of the areas where it is not an important crop.

MAPS 218, 219 and 220

218. *Distribution of Cotton (Desi) Acreage*: 1961

219. *Distribution of Cotton (American) Acreage*: 1961

220. *Cotton Acreage as per cent of Total Cropped Area*: 1961

Among cash crops in Punjab cotton occupies the highest acreage: 5.7 per cent of the total cropped area is devoted to this crop. Its place as a cash crop is important in certain localities having certain specific conditions favourable for its cultivation. In the humid areas of the northern Districts it is rather insignificant. In the southern Districts of Gurgaon and Mahendragarh also where the soil and water-supply conditions are averse to cotton growing, this crop is either absent or grown very sparingly. Cotton does best where temperature remains fairly high and atmosphere dry throughout the crop season, but water-supply is available at regular intervals.

Whereas in the northern districts and eastern districts only one to five per cent of the total cropped area is devoted to cotton, the proportion exceeds 15 per cent in the south-western parts of the State. In Hissar District in the south and Ludhiana and Patiala Districts on the north 5 to 10 per cent of the cropped area is devoted to cotton. In the Patti Tahsil of the Amritsar District the percentage ranges between 10 and 15. In some parts of the Muktsar and Fazilka Tahsils of the Ferozepur District as much as 25 to 35 per cent of the cropped area is devoted to cotton, making cotton as the first ranking crop in these areas. In recent years the long staple American cotton has been gradually replacing the short staple Desi Cotton. In the Ferozepur District where there is a dense net work of canals a large proportion of the cotton area is under long staple cotton. On the other hand, in parts of the Bhatinda and Sangrur Districts short staple cotton still predominates.

MAP 221

Irrigated Area under Desi Cotton as per cent of Total Desi Cotton Area: 1961

In the State as a whole nearly 90 per cent. of the area under *Desi* cotton receives irrigation. However, there are significant regional variations in this regard. In the foot-hill districts of Ambala, Hoshiarpur and Gurdaspur where the annual rainfall exceeds 30 inches less than 20 per cent of the *Desi* cotton area is irrigated. A large part of the cotton acreage is concentrated in the semi-arid but irrigated area. Throughout the central and south-western Punjab over 90 per cent of the cotton acreage is irrigated. In the *Bet* areas where the soils are generally wet cotton is sown *barani*, but it is not an important crop there.

MAP 222

Irrigated Area under American Cotton as per cent of the Total American Cotton Area: 1961

Since the American cotton requires more water and at regular intervals, the crop is grown on irrigated lands. In the State as a whole over 95 per cent. of the area under American cotton is irrigated. The genera' regional pattern in this case is very similar to that brought about in map 221.

MAP 223

Percentage Change of Cotton Acreage: 1951—61

During the decade 1951—61 the area under cotton increased by more than 100 per cent, with great regional variations. In large parts of the Kangra, Gurdaspur, Amritsar, Ambala and Karnal Districts there was a net decrease in cotton acreage. By contrast, in all areas where canal irrigation was introduced during the decade, the cotton acreage has more than doubled, as in parts of the Ferozepur, Bhatinda, Hissar, Sangrur and Patiala Districts. In some of the other areas where tube-well irrigation has been developed cotton acreage has increased appreciably.

MAP 224

Per acre Yield of Desi Cotton: 1960-61

In Punjab as a whole the per acre yield of *Desi* cotton (in terms of clean lint) works out to 231 lbs. which in comparison with the yield in some of the important cotton growing areas of the world shows that the yield in Punjab is fairly low. The yields in the humid areas of the foot-hill districts are as low as 150 lbs. per acre. They are higher in the irrigated tracts and the highest in the Ferozepur District, exceeding 250 lbs. per acre.

MAP 225

Per acre Yield of American Cotton: 1960-61

The average yield of American cotton in Punjab comes to 238 lbs. (of clean lint) per acre, only slightly higher than that of *Desi* cotton. In the foot-hill districts and the Gurgaon District the yield is less than 200 lbs. per acre. In the central and southern Punjab it ranges between 200 and 250. In the Ferozepur and Rohtak Districts which have a dense net work of irrigation canals the yield is the highest—exceeding 300 lbs. per acre.

MAPS 226 and 227

226. *Distribution of Oilseeds Acreage*: 1961

227. *Percentage Change of Acreage under Oilseeds*: 1951—61

Oilseeds are grown independently or mixed with other crops. Nearly all the oilseeds, including mustard, linseed, etc. are averse to humid conditions and consequently in the southern and south-western parts of the State the concentration of oilseeds is note-worthy. In Hissar and Ferozepur Districts particularly oilseeds are next to cotton among the cash crops. Oilseeds acreage is particularly insignificant in the Bist Doab area, but, in the Gurdaspur and Amritsar Districts there is a fair distribution of oilseeds. In the Lahaul & Spiti District although the actual area under oilseeds is insignificant, yet its importance in relation to the total cropped area in the District cannot be ignored.

The acreage under oilseeds has decreased in large parts of northern and eastern Punjab. By contrast, there has been spectacular increase in nearly all those dry areas where the introduction of canal irrigation has made the reclamation of land possible.

MAPS 228 and 229

228. *Distribution of Barley Acreage*: 1961

229. *Per acre Yield of Barley*: 1960-61

Only about 2 per cent of the total cropped area in Punjab is devoted to barley. It tends to be important in relatively dry areas because of its low water requirement, and in Gurgaon District about 8 per cent of the total cropped area is devoted to barley. Wherever conditions permit, people like to grow wheat which is a major food crop in Punjab.

Barley grown in this District is prized for its malting quality. It is a staple food grain in summer in Hissar and Gurgaon Districts. Small quantities of barley are mixed with wheat by roller flour mills to impart whiteness to flour.

In Punjab the average yield of barley comes to about 690 lbs. per acre, and because of its lower yield and lower price than of wheat, barley is grown in lands not favourable to wheat cultivation. The highest yields are found in the Karnal, Ambala, and Kapurthala Districts where they exceed 900 lbs. per acre. In Gurdaspur, Sangrur and Rohtak Districts the yield ranges between 800 and 900 lbs. In Lahaul & Spiti, Amritsar, Hoshiarpur, Ludhiana, Patiala and Bhatinda District it is between 700 and 800 lbs. It is the lowest in the Kangra, Ferozepur, Hissar, Mahendragarh and Gurgaon Districts.

MAP 230

Distribution of Vegetables: 1961

The area under vegetables is small, since they are perishable and there is lack of adequate facilities for preserving them or for their transport over long distances. They are grown mainly near big towns or cities. The areas from Ambala to

Delhi along the main railway line are becoming increasingly important for truck-farming.

MAP 231

Distribution of Potatoes: 1961

The area under potato cultivation is very small indeed both in absolute and relative terms. However, in some local areas it does appear as a valuable cash crop. Its cultivation is confined to the relatively humid north where rainfall exceeds 30 inches. Secondly, it tends to be concentrated in soils which are not too hard and in which the content of sand is appreciable so that the roots of the crop can extend without difficulty, giving a high yield. The crop requires watering after frequent intervals. There are two crops in a year of potatoes in the plains, and one in the hills, and there is no month when potatoes are not sown or harvested in different parts of India.

In the mountainous areas of Simla and Kangra Districts also potato cultivation is important. Its cultivation is concentrated also around large cities such as Amritsar and Jullundur. There is also extension of potato cultivation in the Karnal District, which caters mainly to the Delhi market.

MAP 232

Distribution of Pulses (excluding Gram): 1961

Some pulse or the other is grown in every part of Punjab. In the State 440,707 acres of land is devoted to pulses other than gram which because of its large acreage is dealt separately in every study of food crops. Other pulses are *moong, mash, masri, moth,* and *arhar* and peas. The pulses and gram combined show a fairly uniform distribution over the State, but pulses excluding gram, tend to be concentrated more in some areas than in others. The greatest concentration is in the foot-hill districts and in the south-western parts of the Hissar District. Elsewhere they are rather thinly distributed.

With the increasing consumption of vegetables both in rural and urban areas and the increasing demand for land for food production, the area under pulses is gradually decreasing. However, in some cases they are grown alongwith other crops by inter-culture methods. In these cases they not only provide a second crop simultaneously with another but also help in maintaining the fertility of the land by adding humus and mixing nitrogen to the soil.

MAP 233

Distribution of Groundnut Acreage: 1961

Groundnut is important only in some local areas. The main area of concentration of groundnut cultivation is in the Samrala and Ludhiana Tahsil of Ludhiana District and adjoining parts of the Patiala and Sangrur Districts. There is another isolated pocket in Kapurthala District where groundnut cultivation is fairly important. In either case the crop is strongly correlated with two factors: (i) sandy loams; and (ii) moderate rainfall—about 30 inches. In the porous sandy loams the roots of the crop can easily spread. Though there are several areas in southern and south-western Punjab where sandy soils predominate but they are ill-suited for groundnut cultivation because of arid conditions. Nearly all root crops need considerable moisture in addition to porous soils.

Groundnut cultivation has made special progress since the second World War, in correspondence with the consistent increase in the price of vegetable oils.

MAP 234

Distribution of Tobacco Acreage: 1961

Tobacco cultivation is generally done with the help of well irrigation and is mainly confined to the eastern and northern zones of the State, where there are no religious prejudices against either smoking or growing tobacco. In the north also its cultivation is confined to the Saini community among whom tobacco cultivation is not a taboo. The Sikh Jats do not grow tobacco in spite of its heavy yield and high prices.

MAPS 235 to 238

235. *First Ranking Crops:* 1961

236. *Second Ranking Crops:* 1961

237. *Third Ranking Crops:* 1961

238. *Fourth Ranking Crops:* 1961

A study of the ranking of the crops is greatly helpful in understanding the relative significance of at least some of the most important crops. The importance in this case refers to not the income but the acreage. In this series, four maps have been prepared to portray crops up to the fourth rank. A perusal of these four maps brings out clearly that the regional pattern is simplified in the case of the first ranking crops. The pattern becomes more and more intricate for the second, third and fourth ranking crops. Another fact which comes out in this series of maps is that the number of crops increases gradually from the first ranking to fourth ranking. Whereas the first ranking crops are nine in number, the fourth ranking crops are fourteen.

First Ranking Crops.—Map 235 reveals that, by and large, wheat is the first ranking crop of the entire northern and eastern Punjab. This includes the Districts of Lahaul & Spiti, Gurdaspur, Amritsar, Jullundur, Kapurthala and parts of Districts of Ambala, Kangra, Hoshiarpur, Ludhiana, Patiala, Karnal, Rohtak and Gurgaon. It has one extensive contiguous region in which wheat tops the list of grown crops. Within this zone there are a few discontinuities. For example, in the Kulu Tahsil of Kangra District and in the Simla District maize is the first crop. Also in two Assessment Circles of Palampur Tahsil rice is the first crop. In Jullundur Assessment Circle Vegetables exceed other crops. In one of the hilly Assessment Circles of Una Tahsil and of Hoshiarpur, in considerable areas of Rupar, Kharar and Jagadhri Tahsils of Ambala District gram occupies the first place. In two Assessment Circles of Ludhiana District groundnut cultivation is of paramount importance. In some newly

reclaimed areas of Karnal rice is the most popular crop.

The prevalence of wheat as the first ranking crop in northern and eastern Punjab is associated with suitable physical conditions (favourable temperature, winter rainfall, and loamy soils) and economically advantageous position of wheat as compared to other crops. In the southern half of Punjab, relatively dry winters and predominantly sandy soils favour gram and bajra cultivation. In certain south-western parts of Ferozepur District where canal irrigation is well developed cotton is the first ranking crop.

Second Ranking Crop: Map 236.—As mentioned earlier the number of crops in lower ranks becomes larger and the regional pattern no longer remains simplified as in the case of first ranking crops. As is revealed by map 236 there are eleven crops holding second rank in different areas of the State. There is fair contiguity in their areal spread. In large parts of the Amritsar, Gurdaspur and Kapurthala Districts and some *bet* areas of Ferozepur District rice is the second crop.

In Gurdaspur and Amritsar Districts rice is generally dependent upon canal irrigation, but in Kapurthala and the *bet* areas of the Ferozepur its cultivation is confined to the flood plains of rivers Sutlej and Beas where during the rainy season floods keep the land wet enough for rice cultivation. In the low lands along the Markanda stream in Karnal District where the soils tend to be clayey and are flooded during the rainy months by the stream rice holds second position.

In a large part of the Kangra District where wheat ranks first maize ranks second and *vice versa*. Also in the sub-hilly zone of the Hoshiarpur District maize is second ranking crop. In Jullundur, Ludhiana, Ambala and parts of Sangrur and Patiala Districts gram is the second ranking crop. In these areas gram follows maize and *jowar* which are *kharif* crops. Gram is also sown in combination with wheat and oilseeds. In the eastern Districts of Punjab, particularly in Rohtak and Karnal Districts, the position of gram is similar.

In the canal irrigated areas of Ferozepur, Bhatinda, and Sangrur Districts in parts of which gram and cotton hold the first position, wheat comes to the second rank, and the lower rank for wheat is primarily the result of the dry conditions in which gram does better than wheat. Wheat is mostly an irrigated crop in these areas.

In Mahendragarh District and parts of Gurgaon and Hissar Districts where because of prevalence of drought conditions *bajra* occupies the first position, gram comes to the second place. In certain parts of Gurgaon District *jowar* follows wheat and gram in rank.

In Lahaul & Spiti Tahsils oilseeds and potatoes are next to wheat respectively.

Third Ranking Crops: Map 237.—The pattern of third ranking crops is highly complicated—much more so than that of the second ranking crops. In Spiti Tahsil oilseeds occupy the third rank. In the Kulu Valley barley and in the sub-hilly areas of the Kangra District rice and pulses are in third position. Throughout Gurdaspur, Amritsar and Kapurthala Districts gram is the third ranking crop whereas in Jullundur, Ludhiana and large parts of Ambala District it is maize. In the eastern sections of the Karnal District also maize occupies third position. In the canal irrigated areas of Ferozepur and Bhatinda Districts cotton is predominantly the third ranking crop. In some areas of the Sangrur and Bhatinda Districts *bajra* comes next to gram and wheat whereas in the drier sections of southern Sangrur and Hissar Districts wheat is the third ranking crop. In large parts of Rohtak District *jowar* is the third ranking crop. In the drought striken areas of southern Hissar pulses which do not require much of water follow *bajra* and gram in importance. In Mahendragarh District, on the other hand, oilseeds occupy the third place. In the Gurgaon District *bajra* and *jowar* are the most important third ranking crops. Interestingly, in those areas of Gurgaon District where *jowar* occupies second rank, *bajra* comes to the third place and *vice versa*.

Fourth Ranking Crops: Map 238.—As is revealed by map 238 the fourth ranking crops present still more complicated pattern. The regional contiguity which is so characteristic of the first and second ranking crops is greatly reduced in the fourth ranking crops.

In the Kulu Valley pulses occupy the fourth place among crops. In Amritsar District maize ranks the fourth whereas sugarcane occupies the fourth position also in parts of Gurdaspur and Hoshiarpur Districts, parts of the Sonepat, Panipat and Rohtak Tahsils, and in one Assessment Circle in the Jagadhri Tahsil.

In parts of Jullundur and Ludhiana Districts and in the canal irrigated areas of Bhatinda and Sangrur Districts cotton comes to the fourth place.

In the low lands along the Ghaggar river in the Naili Circle of Sirsa Tahsil rice is the fourth crop. In parts of the Rohtak District *bajra* occupies fourth place. In a few Assessment Circles in this area, oilseeds occupy the fourth position.

MAP 239

Rural Population: Gross Value of Agricultural Output per Cultivating Household: 1961

The data relating the gross value figures are not very dependable since information both on yields & prices is not free from defects. The data are, however, good enough for making inter-District comparisons.

The map reveals that the mountainous districts of Simla and Kangra have the lowest gross value of agricultural output per cultivating household, lower than even Rs. 1,000. The Lahaul & Spiti, Hoshiarpur, Gurgaon and Mahendragarh Districts which suffer from handicaps either of terrain or semi-arid conditions have a corresponding value ranging between Rs. 1,000 and 1,500. The Ambala, Gurdaspur and Amritsar Districts come next with value ranging between Rs. 1,500 and Rs. 2,000. The gross value of agricultural output per cultivating household is the highest in the Districts of Ferozepur, Ludhiana, Jullundur, Bhatinda, Patiala and Karnal, exceeding Rs. 2,500. These are the areas of intensive cultivation and have adequate irrigational facilities. In the Districts of Kapurthala, Sangrur, Rohtak and Hissar the value ranges between Rs. 2,000 and Rs. 2,500.

MAP 240

Rural Population—Gross Value of Agricultural Output per Cultivator: 1961

In the mountainous areas of the Lahaul & Spiti, Kangra and Simla Districts, the output per cultivator is very low—below Rs. 500—because here cultivation has to face numerous hazards relating to climate and rough terrain. In the Gurgaon and Mahendragarh Districts the value of output is equally low because of lack of irrigation and semi-arid conditions. The value of output ranges between Rs. 1,000 and over 1,500, where water-supply is regular and assured, be it from canals, tube wells or wells. This area consists of Amritsar, Jullundur, Ludhiana, Ferozepur, Bhatinda, Patiala and Karnal Districts. Although the annual rainfall is around 30 inches in the sub-mountainous areas of the Ambala, Hoshiarpur and Gurdaspur Districts, yet its uncertainty and distribution over months stand in the way of getting maximum yield of crops. Therefore, the gross value of agricultural out-put per cultivator in this zone is much lower than in the irrigated areas—between Rs. 500 and Rs. 1,000. The same is true of Hissar, Sangrur and Rohtak Districts.

MAP 241

Location of Cereal Markets: 1961

Two things come out clearly on the map: (i) Cereal markets are fairly distributed over most parts of Punjab—except in the foothill zone, the mountainous Districts, and the semi-arid area along the Rajasthan border; and (ii) A majority of cereal markets are along main rail routes, particularly those connecting Delhi with Bhatinda and Amritsar, respectively. From the point of view of quantity of creals marketed Amritsar, Batala, Moga, Jagraon, Ludhiana, Kot Kapura, Abohar, Mandi Dabwali, Sirsa, Hissar and Kaithal are among the large ones. These are the areas where cereals are grown beyond local requirements.

MAP 242

Location of Sugar (Gur) Markets: 1961

Since market centres for the products of the factory sugar industry are excluded, this map does not give a complete picture of all types of sugar markets. The largest concentration of important *gur* markets is in areas where sugarcane production is important but where sugar mills have not been established. The Rohtak District is the most important in this respect, Sonepat being the largest market. The second largest market in this respect is Hissar followed by Kurali (Ambala), Khanna (Ludhiana), Nawashahr (Jullundur), Rohtak, and Rampura Phul (Bhatinda). Practically all the *gur* markets are located along railway lines.

MAP 243

Location of Oilseed Markets: 1961

The locational pattern of oilseeds markets coincides with the areas of concentration of oilseed crops. In the canal irrigated areas of the Ferozepur, Bhatinda, Hissar and Sangrur Districts where oilseeds are important cash crops, the oilseed markets are strung along the railway lines. The important oilseeds marketed here include mustard, rape and linseed. Another area of importance is around Khanna where groundnut is the most important oilseed. Elsewhere the oilseed markets are small and scattered.

MAP 244

Location of Pulse Markets: 1961

Although the distributional pattern coincides fairly well with the railway lines but the quantity of pulses marketed in most cases is very small indeed. The most important pulse markets, are Pathankot, Ambala City, Batala, Amritsar and Hissar. Smaller markets are found in nearly all parts of the State except the mountainous Districts of Lahaul & Spiti, Kangra and Simla.

MAP 245

Location of Vegetable Markets: 1961

The vegetable markets are centred in areas of truck-farming. Since vegetables are perishable and their production is market-oriented the large urban centres are also the large vegetable markets. There are only a few markets which are not equally important consuming centres. For example, Malerkotla is a very important assembling vegetable market for supply to other towns and cities. Many vegetable markets along Ambala-Delhi railway line cater to the Delhi urban population.

MAP 246

Location of Fodder Markets: 1961

Fodder marketing is confined to towns. The greatest concentration of such markets is in the canal irrigated region of the Ferozepur, Bhatinda, Sangrur and Hissar Districts, located along the main railway line connecting Delhi with Ferozepur. Similarly the fodder market at Sanaur caters to the needs of Patiala. Amritsar and Bhiwani are also large fodder markets. Apart from these, there are small fodder markets in each town and city.

MAP 247

Location of Cotton Markets: 1961

Since Punjab is heavily surplus in cotton, the important cotton markets are in the cotton growing areas. A large majority of these markets are concentrated in the Districts of Ferozepur, Bhatinda and Sangrur. The largest market is that of Abohar, followed by Bhucho Mandi, Malout, Ferozepur and Kot Kapura. All these markets are strung along the railway lines. Jagraon is another important cotton market outside the canal irrigated areas. The foothill Districts, the mountainous Districts and the southern Districts which do not grow cotton do not have cotton markets.

MAP 248

Distribution of Buffaloes (Female): 1961

Like the human population, livestock population of India is one of the largest in the world.

Within India, Punjab holds a special position. Not only the number of livestock is very large but their quality is also superior in comparison with other States of India. There are some 300 heads of livestock per square mile in Punjab and the area under fodder crops as per cent of the total cropped area is the highest in this State.

Buffalo is the main milch animal in Punjab. It yields more milk than the cow and its milk has higher content of fat, and it can stand stall feeding much better than the cow which is another point in its favour considering the fact that grazing is getting scarce with extension and intensification of agriculture. In Lahaul & Spiti and parts of the mountainous Districts of Kangra and Simla buffaloes are very scarce. Their distribution is thin also in some of the sub-hilly areas, and dry and sandy areas of the southern and south-western Punjab. Elsewhere they are found in substantial numbers.

MAP 249

Distribution of Buffaloes (Male): 1961

Male buffaloes are kept as draught animals and also for breeding purposes. It is the difference in their use for draught purposes which largely explains the overall regional differences in their distribution. The male buffalo is generally stronger than the bullock but it is very slow in work and its being put to draft is looked upon with disfavour except in Amritsar District and the adjoining Jullundur and Kapurthala Districts. Elsewhere they are far too few.

MAP 250

Distribution of Cows: 1961

For portraying distribution of cows, the young calves have not been included. In number and density, cows occupy the third place, following bullocks and she-buffaloes.

The cow scores over the buffalo in that its female progeny is useful as milch animal and its male progeny is the chief beast of draught with the farmers in this country. Incidentally the great sanctity attached by the Hindus and Sikhs to the cow is at once an incentive and impediment towards improving its breed.

Cows are fairly uniformly spread all over the State except in the Lahaul & Spiti District. Relatively, their density is low in the mountainous and hilly areas of the Kangra District and Una Tahsil of Hoshiarpur District, because of lack of fodder crops and rough terrain. Also they are less concentrated in Hissar and Sangrur Districts as compared with Amritsar and Ferozepur Districts, and parts of Ludhiana and Jullundur Districts.

MAP 251

Distribution of Bullocks: 1961

Bullock is the main draught animal in Punjab and almost every farmer owns a pair of bullocks. Bullocks are the most numerous among the various types of livestock. There is a fairly dense concentration of bullocks all over the State except in Lahaul & Spiti District where yaks replace them. The distribution of bullocks is thin in the predominantly sandy areas of Mahendragarh and Hissar Districts. Also the concentration is less dense in the Ferozepur, Bhatinda and Sangrur Districts where the camel is an additional draught animal. In all other areas of the Punjab plains the bullocks are numerous and their density is high.

Since every farmer worth the name has a yoke of bullocks, the number of bullocks is larger where holdings are of small size. Besides, the number of bullocks per acre is larger where they are used also for drawing water from the wells. In areas of large land holdings, such as in the Ferozepur, Bhatinda, Sangrur and Hissar Districts the tractor is coming into significance and is gradually replacing bullocks.

MAP 252

Distribution of Sheep: 1961

Sheep are raised for wool and meat. They are more numerous in the hilly Districts of Kangra, Simla and parts of Lahaul & Spiti and also in the dry areas of southern and south-western Punjab. They are particularly concentrated in the Districts of Ferozepur and Bhatinda. Fazilka is a very important centre of trade in wool for more than half a century, though since Partition this trade is shifting to Panipat. Sheep live mainly on grazing and, therefore, are numerous where either there is considerable fallowing of land or there are extensive waste lands. They are the fewest in areas of intensive farming such as the Ludhiana, Jullundur, Hoshiarpur, Amritsar and Gurdaspur Districts.

MAP 253

Distribution of Goats: 1961

Goats are raised for meat and milk, having been described as the poor man's cow. They are found practically all over the State, but tend to be concentrated in areas where grazing facilities exist, such as (i) Kangra District, Una Tahsil of Hoshiarpur District, Nalagarh Tahsil of Ambala District, and Simla District, and (ii) in dry areas of southern and south-western Punjab particularly in Ferozepur, in sandy parts of Ludhiana District, and in Bhatinda, Gurgaon and Mahendragarh Districts.

MAP 254

Distribution of Camels: 1961

Camel is essentially a draught-animal of the dry sandy areas. Accordingly, their concentration is high in dry and semi-dry sandy areas of Ferozepur, Bhatinda, Hissar and Mahendragarh Districts. Here they are used for pulling the plough and other agricultural implements and as a beast of burden. The camel is also found, although in smaller number, in parts of the Ludhiana, Sangrur, Karnal, Rohtak and Gurgaon Districts. In areas where well irrigation is practised a camel is more useful than a pair of bullocks for running the Persian Wheel. That is why its distribution, apart from the dry sandy areas of southern and south-western Punjab, also coincides with areas of well irrigation. However, the Bist Doab, in parts of which well irrigation is important, has few camels. Similarly, the Districts of Amritsar and Gurdaspur, where canal irrigation is prevalent, are conspicuous by the absence of camels. The hilly Districts of Lahaul & Spiti, Kangra, Simla and the Nalagarh Tahsil of the Ambala District also do not have any camels because of rough terrain, stony surface, and small and scattered landholdings.

MAP 255

Proximity to Veterinary Institutions: 1961

The mountainous districts still have inadequate facilities in this regard. Also the semi-arid areas along the south-western fringe of the State have relatively few veterinary institutions. Certain parts of the erstwhile PEPSU State are also lacking in this facility. Elsewhere they are equitably distributed. It is strange that veterinary institutions are widely spaced precisely in the areas where animal husbandry is important. This map reveals the areas which demand attention with regard to the opening of veterinary institutions.

MAP 256

Community Development Blocks

The map shows the delimitation of Community Development Blocks into which the entire area of the State stands divided.

The Community Development Blocks have been numbered on the map and their names are listed below.

Block No.	Name of Block
	HISSAR DISTRICT
1.	Dabwali.
2.	Rania.
3.	Bare Gudha.
4.	Sirsa.
5.	Fatehabad.
6.	Ratia.
7.	Tohana.
8.	Maham.
9a.	Hissar.
9b.	Hissar.
10a.	Hansi.
10b.	Hansi.
11.	Narnaud.
12.	Barwala.
13.	Tosham.
14.	Loharu.
15.	Bhiwani.
	ROHTAK DISTRICT
1.	Ganaur.
2.	Sonepat.
3.	Rai (Khar Khauda).
4.	Khar Khauda (Sampla).
5.	Rohtak.
6.	Gohana.
7.	Kathura.
8.	Maham.
9.	Kalanaur.
10.	Beri.
11.	Bahadurgarh.
12.	Jhajjar.
13.	Salhwas.
14.	Nahar.
	GURGAON DISTRICT
1.	Rewari.
2.	Khol.
3.	Bawal.
4.	Pataudi.
5.	Gurgaon.
6.	Sohna.
7.	Nuh.
8.	Ferozepur Jhirka.
9.	Punahara.
10.	Hathin.
11.	Hodal.
12.	Palwal.
13.	Ballabgarh.
14.	Faridabad.
	KARNAL DISTRICT
1.	Shahbad.
2.	Ladwa.
3a.	Thanesar.
3b.	Thanesar.
4.	Guhla.
5.	Kaithal.
6.	Pundri.
7.	Nilokheri.
8.	Karnal.
9.	Nissang.
10.	Gharaunda.
11.	Panipat.
12.	Madlanda.
13.	Samalkha.
14.	Assand.
15.	Rajaund.
	AMBALA DISTRCT
1.	Nalagarh.
2.	Rupar.
3.	Chamkaur Sahib.
4.	Sialba Majri.
5.	Mani Majra.
6.	Kharar.
7.	Raipur Rani (N. Garh).
8.	Naraingarh (Sadhaura).
9.	Barara.
10.	Bilaspur.
11.	Chhachhrauli.
12.	Jagadhri.
13.	Ambala.
	SIMLA DISTRICT
1.	Kandaghat.
2.	Dharampur.

Block No.	Name of Block
	KANGRA DISTRICT
1.	Nurpur.
2.	Indora.
3.	Mangowal.
4.	Rait (Shahpur).
5.	Kangra.
6.	Dera Gopipur.
7.	Pragpur.
8.	Dhundla.
9.	Nadaun.
10.	Bani.
11.	Bhoranj.
12.	Hamirpur.
13.	Sujanpur.
14.	Lamba Gaon.
15.	Bhawarna (Palampur).
16.	Nagrota.
17.	Panch Rukhi.
18.	Baijnath.
19.	Nagar.
20.	Kulu.
21.	Banjar.
22.	Outer Seraj.
	LAHAUL & SPITI DISTRICT
1.	Lahaul.
2.	Spiti.
	HOSHIARPUR DISTRICT
1.	Mukerian.
2.	Dasuya.
3.	Hajipur.
4.	Amb.
5.	Gagret.
6.	Bhunga.
7.	Tanda.
8a.	Hoshiarpur.
8b.	Hoshiarpur.
9.	Mahilpur.
10.	Una.
11.	Anandpur.
12.	Nurpur Bedi.
13.	Balachaur.
14.	Saroya.
15.	Garhshankar.
	JULLUNDUR DISTRICT
1.	Bhogpur.
2.	Adampur.
3a.	Jullundur West.
3b.	Jullundur East.
4.	Shahkot.
5.	Nakodar.
6.	Nurmahal.
7.	Goraya.
8.	Phillaur.
9.	Mukandpur.
10.	Nawashahr.
11.	Banga.
	LUDHIANA DISTRICT
1.	Sidhwan Bet.
2.	Jagraon.
3.	Sudhar.
4.	Dehlon.
5.	Mangat.
6.	Machhiwara.
7.	Samrala.
8.	Pakhowal.
9.	Ludhiana.
	FEROZEPUR DISTRICT
1.	Nihal Singhwala.
2.	Bagha Purana.
3a.	Moga.
3b.	Moga.
4.	Dharamkot.
5.	Zira.
6.	Ghal Khurd.
7.	Ferozepur.
8.	Guruharsahai.
9.	Muktsar.
10.	Jalalabad.
11.	Fazilka.
12.	Malout.
13.	Kot Bhai.
14.	Lambi.
15.	Abohar.
16.	Khaian Sarwar.
	AMRITSAR DISTRICT
1.	Ajnala.
2.	Majitha.
3.	Tarsika.
4.	Rayya.
5.	Khadur Sahib.
6.	Jandiala Guru.
7.	Verka.
8.	Lopoke.
9.	Kassel.
10.	Tarn Taran.
11.	Naushera (Pannuwan).
12.	Chola Sahib.
13.	Patti.
14.	Bhikhiwind.
15.	Valtoha.

Block No.	Name of Block
	GURDASPUR DISTRICT
1.	Dhar Kalan.
2.	Pathankot.
3.	Narot Jaimal Singh.
4.	Dorangla.
5.	Gurdaspur.
6.	Kahnuwan.
7.	Dhariwal.
8.	Dera Baba Nanak.
9.	Fatehgarh Churian.
10.	Sri Hargobindpur.
	KAPURTHALA DISTRICT
1.	Bhaolath.
2.	Kapurthala.
3.	Sultanpur.
4.	Phagwara.
	BHATINDA DISTRICT
1.	Faridkot.
2.	Kot Kapura.
3.	Bhatinda.
4.	Nathana.
5.	Rampura Phul.
6.	Talwandi Sabu.
7.	Sangat.
8.	Mansa.
9.	Budhlada.
10.	Jhunir.
	SANGRUR DISTRICT
1.	Phul.
2.	Sehna.
3.	Barnala.
4.	Mahl Kalan.
5.	Ahmedgarh.
6.	Malerkotla.
7.	Dhuri.
8.	Sangrur.
9.	Sunam.
10.	Cheema (Longowal).
11.	Lehragaga.
12.	Narwana.
13.	Kalayat.
14.	Uchana.
15.	Jind.
16.	Safidon.
	PATIALA DISTRICT
1.	Doraha.
2.	Nabha.
3.	Sirhind.
4.	Basi Pathana.
5.	Rajpura.
6.	Dera Basi.
7.	Ghanaur.
8.	Bhuner Heri.
9.	Patiala.
10.	Samana.
	MAHENDRAGARH DISTRICT
1.	Badra.
2a.	Dadri.
2b.	Dadri.
3a.	Mahendragarh.
3b.	Mahendragarh.
4a.	Narnaul.
4b.	Narnaul.

MAP 257

Distribution of Banking Co-operative Societies: 1961

There are serious regional inequalities in the distribution of banking co-operative societies in Punjab. In a very large number of C.D. Blocks there are no banking co-operative societies at all. The Rohtak Block has the largest number of these societies. Gurgaon, Karnal, Ludhiana, Amritsar and the lower parts of the Kangra Districts have a fair share. They are lacking in large parts of the Hissar, Sangrur, Bhatinda, Hoshiarpur, Kangra and Simla Districts.

MAP 258

Distribution of Agricultural Co-operative Societies: 1961

Agricultural co-operative societies have not yet made a headway in Punjab. They are found in a few C.D. Blocks of the Gurdaspur, Jullundur, Ferozepur, Amritsar, Karnal and Gurgaon Districts. Vast areas are without any such co-operative societies. To improve the well-being of the farming communities the formation of agricultural co-operative societies everywhere in Punjab is an urgent need. It is through such societies that better implements, better seeds and fertilizers can be distributed properly among the cultivators, and agricultural produce can be profitably marketed.

MAP 259

Distribution of Industrial Co-operative Societies: 1961

The Industrial Co-operative Societies to a large degree are concerned to a large extent with cottage industries and small scale manufacturing industries. The northern and eastern Punjab plain stands in marked contrast to the southern and south-western half of the Punjab plain in the matter of industrial co-operative societies. The northern half has a fair distribution of such societies, and there are very few C.D. Blocks which do not have any. These industrial co-operative societies are found both in rural and urban areas. Whereas they are widely scattered in the northern half of the Punjab plain, they seem to be confined to the zone along the main railway line in the eastern Punjab. In the

northern Punjab plain the greatest concentration is in the Bist Doab. Rohtak Block in southern Punjab has the largest number of industrial co-operative societies. By contrast, the entire south-western Punjab, including the District of Ferozepur, Bhatinda, Hissar and Sangrur lacks in such societies.

MAP 260

Distribution of Miscellaneous Co-operative Societies: 1961

There are very few co-operative societies performing functions other than banking, and agricultural and industrial production. Their distribution is fairly scattered but the larger ones are found in the Karnal, Gurdaspur, Kangra and Gurgaon Districts. Apart from the major economic sectors, co-operation can be extended to several social and cultural spheres to the benefit of the people.

MAP 261

Proximity to Banks: 1961

Close spacing and easy proximity to banks is correlated with economic development and urbanisation. A vast majority of banks are found in places located along the main rail routes connecting Delhi with Ferozepur and Amritsar, respectively, and along other important branch railway lines. In the eastern, central and south-western Punjab there are vast areas where the nearest bank is more than ten miles away. Similarly, in the foothill zone which is economically backward, banking facilities are lacking, and in the mountainous areas of the Kangra and Lahaul & Spiti Districts banks are almost absent.

MAP 262

Distribution of Agricultural Processing Industries by Size of Employment: 1961

As compared to engineering and textile industries, the agricultural processing industries are more widely scattered. In Punjab, agricultural processing industries relate mainly to grinding of foodgrains, *gur* making, cotton ginning, and oilseed crushing.

Flour-mills are the most numerous among agricultural processing industries. Their distribution is more widely spread than that of any other type. There is fair concentration of agricultural processing industries along the main railway line between Ambala and Amritsar. Batala which is on the Amritsar-Pathankot railway line is the largest centre of such industries. Another region important for agricultural processing industries is the south-western part of the State consisting of the Ferozepur, Bhatinda, Sangrur and Hissar Districts. In the canal irrigated areas of these districts cotton and oilseeds are most important cash crops. Practically every town has cotton ginning and oil-crushing units. In addition, this area is also important for wheat which is partly a cash crop. The locational pattern of agricultural processing industries coincides with the railway lines converging on Bhatinda as the regional centre. Abohar, which is known for cotton ginning industries, is the most important in terms of employment. Outside this region, Hansi, Rohtak and Panipat are important. Hansi's importance is mainly associated with cotton whereas that of Rohtak and Panipat is mainly because of the sugarcane mills.

MAP 263

Distribution of Textile Industries by Size of Employment: 1961

The textile industries include cotton, silk and woollen textiles. Their distributional pattern, like that of the engineering industries, is mainly oriented to the main rail routes. With only a few exceptions most of the textile industry is concentrated along the main rail route between Yamunanagar and Amritsar. Dhariwal which is an important woollen textile industry centre is situated along the Amritsar-Pathankot railway line. Bhiwani and Hissar are the only two important textile centres which are not on the main rail route. Amritsar, which is a centre of cotton, silk and woollen textile industries, is by far the most important, employing as many as 10,543 workers. Chheharta which is a suburban town of Amritsar also employs 3,027 persons in the textile industries. Ludhiana which is second only to Amritsar in textile industries employs 4,858 workers. Phagwara, Yamunanagar and Kharar are other important centres in the northern part of Punjab. Kharar is known mainly for the woollen mill with 1,110 workers engaged in it. Between Delhi and Ambala Cantt., Panipat is the most important textile centre. Apart from these, Bhiwani and Hissar, which give employment to 3,113 and 1,122 persons, respectively, are the other textile industry centres. Interestingly, there is no textile industry in the interior areas of the State.

MAP 264

Distribution of Mineral-Based Industries by Size of Employment: 1961

Punjab, being mostly an alluvial plain, is poorly endowed with mineral resources. There are very few industries based on local mineral resources, and among them the cement factory at Surajpur is the most important. Faridabad, Gurgaon and Sonepat are other important though still small centres of mineral-based industries. Rewari's industry is mainly related to the locally-mined slate, and that at Mahendragarh relates to processing of marble. Amritsar and Hoshiarpur also have a few workers engaged in mineral-based industries.

MAP 265

Distribution of Forest-Based Industries by Size of Employment: 1961

There are practically no forests in the Punjab plain. The only areas where forests are commercially important are in the mountainous region. As a result, there are very few centres developing industries based on forest products. Yamunanagar is by far the most important. This is because of the large paper mill which draws its raw material—*bhabhar* grass—from the adjoining Siwalik hills. Faridabad has also recently developed as a small centre of such industries. Other small centres of forest-based industries include Hoshiarpur, Amritsar, Chheharta, Rajpura, Patiala and Gurgaon.

However, in view of the non-availability of data for some centres, the picture of the distributional pattern of forest-based industries as depicted in the map is incomplete.

MAP 266

Distribution of Chemical Industries by Size of Employment: 1961

Chemical industries are very un-important in Punjab. Naya Nangal which is known for the fertilizer factory, is the most important chemical industry centre. Kapurthala, Hamira, Amritsar, Chheharta, Chandigarh, Ambala City, Ambala Cantt., Sonepat and Faridabad are small centres of chemical industries.

MAP 267

Distribution of Engineering Industries by Size of Employment: 1961

Engineering industries are the most important of all the industries from the point of view of employment. Of the 120,495 persons engaged in all industries, 38,478 persons belong to the engineering group. These industries deal mainly with the fabrication of steel and the manufacture of parts, machinery, and similar articles. Apart from the raw materials, they require cheap power. Steel which is the raw material for these industries is imported from the Chhota Nagpur plateau, by rail. It is heavy and, therefore, its cost of transport is considerable. Also some of the engineering industries require coal for power. In view of the bulky nature of the steel and coal and the long distance from which they are brought, it is no wonder that engineering industries are strung along the main rail routes, particularly the one connecting Delhi with Amritsar. Their greatest concentration is in the northern part of the State between Yamunanagar and Amritsar. Yamunanagar, Jagadhri, Ambala Cantt., Ambala City, Rajpura, Gobindgarh, Ludhiana, Phagwara, Jullundur, Amritsar and Chheharta, are the more important centres of engineering industries along the northern main rail route. Kalka, Nangal Township and Batala are other centres which lie on the branch railway lines connected with the main rail route. In areas south of the main railway line Bahadurgarh, Patiala and Malerkotla are also centres of moderate size. Similarly, Sonepat, Panipat and Nilokheri lie on the main rail route between Delhi and Ambala Cantt. Faridabad and Faridabad Township are two other centres of engineering industries. Besides these, Bhiwani is the only centre of any considerable size.

Ludhiana is by far the most important centre of engineering industries in the State. Here machine parts, sewing machines, cycles and a variety of other engineering industries have developed. Second in size of employment is Jagadhri, followed by Amritsar and Jullundur. Jagadhri is known mainly for making utensils and has also a big railway workshop whereas in Amritsar and Jullundur there is diversity in the engineering industries. Batala is important mainly for producing agricultural implements. Kalka has a railway workshop. Sonepat is known for cycles whereas Faridabad has developed as a centre of machine parts, motor-cycles and other important engineering industries.

MAP 268

Distribution of Miscellaneous Industries by Size of Employment: 1961

This map shows the distribution of miscellaneous industries not covered by the types of industries discussed previously. Most of these industries are on the main rail route connecting Delhi with Amritsar, but there are some at Chandigarh, Patiala, Batala, Rohtak and Gurgaon. The interior areas are practically devoid of industries included in this group.

MAP 269

Transmission Systems: Uhl, Nangal, and Bhakra Power Projects: 1963

Although the electric transmission systems have now covered nearly whole of Punjab, supplying electric power not only to all the towns but also to a part of the countryside, yet a large part of the rural area of the State is still uncovered. To spread rural industrialisation to all parts of the State and to develop tube-well irrigation it is necessary to extend the availability of electric power to even the remote areas of the State.

MAP 270

Metalled and Unmetalled Roads: 1947

The net work of metalled roads in 1947 was confined largely to the northern half of the Punjab plain. The most important road in this section is the Grand Trunk Road which connects Amritsar with Delhi *via* Ambala Cantt. All the important towns in the State are points of convergence of roads serving local areas, for example Amritsar, Hoshiarpur, Ludhiana, Patiala, Sangrur and Ambala. In the southern half there is one metalled road which traverses the entire area, and connects Delhi with Fazilka *via* Rohtak, Hissar, Sirsa, Malout, etc. In the Gurgaon District, there are a few metalled roads which provide access to Delhi. The south-east north-west extending central belt is characteristically without metalled roads. Much of this area was formerly part of the native princely States where roads did not receive due attention. Similarly the Lahaul & Spiti and Kangra Districts were generally without metalled roads.

MAP 271

Metalled and Unmetalled Roads: 1961

There are two important features which this map reveals when compared with map 270. First, the net work of metalled roads has become far denser all over the State during the past fourteen years (1947—61). Secondly, the regional disparities in road development have greatly disappeared. Nodal centres of transport at local as well as regional levels have appeared nearly in all areas of Punjab. Most of the roads which were unmetalled in 1947 have since been metalled. The southern half of the Punjab plain which lagged in road development in 1947 has now a fairly dense net work of roads. The mountainous Districts of Lahaul & Spiti and Kangra have much better road connections now than in 1947, but still a majority of the roads are unmetalled.

MAP 272

Proximity to Metalled Roads: 1947

As noted in the note relating to map 270, the main net work of the metalled roads in 1947 was confined to the northern half of the Punjab plain. Except in the low-lying areas of the Kangra District, there were very few areas which were more than ten miles from the nearest metalled road. However, areas five to ten miles distant from metalled roads were quite extensive and numerous. In the mountainous District of Kangra extensive areas were more than ten miles away from the nearest metalled road. In the southern Punjab, there was only one major road route connecting Delhi with Fazilka. Both on the south and north of this route there were vast areas without any metalled roads.

MAP 273

Proximity to Metalled Roads: 1961

The most important feature which this map reveals, when compared with map 272, is that throughout the northern half of the Punjab plain there are hardly any areas left which are more than five miles distant from metalled roads. Apparently the net-work of roads here has grown far denser than what it was in 1947. There is no area which is more than ten miles distant from the nearest metalled road. Similarly, in the southern Punjab most areas now have better proximity to metalled roads than before. Except in a few peripheral areas there are practically no areas which are more than ten miles from the nearest metalled road. However, areas five to ten miles from the metalled roads still exist. In the Kangra District, development of roads has made good progress but still there are extensive areas which are still far away from the metalled roads.

MAP 274

Intensity of Traffic on P.W.D. Roads: 1961

This map portrays the tonnage of traffic on the P.W.D. roads as on 31st December, 1961.

The maximum traffic moves on the G.T. Road connecting Delhi with Amritsar, and also on such branch roads as are connecting important outstations with important centres of trade on the G.T. Road. Among the branch roads having heavy traffic, those between Kalka and Ambala, Malerkotla and Ludhiana, Jullundur and Pathankot, Rohtak and Delhi, and Palwal and Delhi are particularly noteworthy. The maximum traffic on the G.T. Road and some of the branch roads connected with it is because of the fact that most of the industrial centres and also trade centres are situated along the G.T. Road. The interior areas which do not contribute significantly to this traffic are connected only by thin flow lines. There are flow lines of moderate thickness in the canal irrigated south-western Punjab where cotton, wheat, and gram are the important cash crops which are sent out to other areas. Similarly, there is considerable traffic between Hissar and Delhi. In all cases Delhi seems to be the focal point. However, there are a number of important places in Punjab between which considerable local traffic goes on. With diversification of economy and development of a dense net work of roads the traffic is likely to become diffused instead of remaining concentrated along a single major highway.

MAP 275

Punjab: Socio-Economic Regions

Based on demographic and economic criteria such as density of population, trend of population growth, occupational structure, rate of literacy, degree of urbanisation and industrialisation, Punjab can be divided into fourteen regions of first order. Some of these regions have been divided into second order regions shown by dotted lines. The chief characteristics of first order regions and of the second order regions are indicated below.

I. *Lahaul-Spiti Region.*—

Scanty population strung along river valleys for the most part; population growing fast mainly because of in-migration stimulated by road development activity; economy overwhelmingly agricultural and of subsistence type; no urbanisation; population mostly Buddhist; primitive society of Scheduled Tribes.

II. *Kulu and the adjoining mountainous area.*—

A region of subsistence agricultural economy with spotty development of fruit farming; tourist industry in initial stage of development; household industries quite important; low density of population with low rate of growth; urban development negligible; participation of females in the economic activities quite significant.

III. *Kangra and the Siwalik Region.*—

A region of subsistence agricultural economy; nutritional density very high, almost reaching the saturation level; out-migration quite strong; high sex ratio; slow growth of population; low degree of urbanisation. The region can be divided into two sub-regions:

(i) Kangra area with intensive subsistence agriculture; and

(ii) Siwalik Hills with hill pastures and general farming.

IV. *Simla District.*—

A region of relatively advanced economic development—far more developed than any other similar mountainous area; economy predominantly agricultural but with a significant proportion of working population engaged in household industries and miscellaneous services; density quite high for a mountainous area; population growing slowly; fairly high degree of urban influence; literacy moderately high.

V. *Dissected foot-hill.*—

A region of deteriorating agricultural economy; arable land badly dissected by seasonal streams which are closely spaced; agriculture and household industries the main basis of economy; pressure of population severe; low rate of population growth; growth of towns sluggish for the most part; proportion of

Scheduled Castes population quite high; out-migration strong.

VI. *Bari Doab.*—

A region with a sensitive international border on the west; agriculture, miscellaneous services, household and manufacturing industries occupy important place in occupational structure; density of population very high; rate of population growth low; out-migration taking place at an accelerating rate; proportion of urban population to total population quite high; urban population growing very slowly or decreasing in parts; moderately high rate of literacy.

VII. *Bist Doab.*—

A region of accelerating out-migration and emigration; very high density of population with low rates of growth; area of severe population pressure; proportion of non-agricultural population in rural areas fairly high; proportion of Scheduled Castes population to total population fairly high; agricultural, household and manufacturing industries and miscellaneous services important in occupational structure; proportion of urban population to total population quite high; literacy among both males and females very high.

VIII. *Upper Jamuna-Sutlej Divide.*—

A region of intensive agriculture and rapid industrialisation; diversified occupational structure; manufacturing, miscellaneous services and household industries are major non-agricultural activities; density of population high; degree of urbanisation high. The region can be divided into two sub-regions:

(i) Ludhiana area—dominated by the industrial city of Ludhiana; very high density of population; moderate growth of population; literacy particularly among the females the highest in the State; and

(ii) Ambala area—density of population quite high and population growth rapid; literacy moderately high.

IX. *South-Western Punjab.*—

A region of commercial farm economy: irrigation from canals, both new and old, extensively available; area under cash crops, particularly cotton and oilseeds, increasing fast; agriculture still the most dominant activity; processing industries and commercial activity based on cash crops increasing rapidly, giving rise to market towns which are generally strung along the rail routes; density of population medium.

The region can be sub-divided into four sub-regions, differentiated on the basis of growth of both rural and urban population; whereas the second zone is a zone of fast growing towns, the fourth sub-region is known for the explosive growth of its rural population due mainly to the new settlement taking place with the introduction of canal irrigation from the Bhakra Scheme.

X. *Central part of Northern Hariana Region.*—

A region of meagre urban development but increasing rural population; economy predominantly agricultural; importance of cash crops increasing with increasing facilities for irrigation; very little of industry; towns only a few; literacy low, particularly among the females; density of population medium.

XI. *Karnal area.*—

An area of growing and diversifying economy; population density moderate; rate of population growth moderately high; farm economy becoming more and more commercial; truck farming important around the towns; degree of urbanisation medium; manufacturing industries coming up along the G.T. Road or the main railway line connecting Delhi with Amritsar.

XII. *Zone peripheral to the Union Territory of Delhi.*—

A region of economic and social dynamism; occupational structure diversifying rapidly; urban development fast; impact of urbanisation in land use tremendous; industrial development taking place at fast rate; considerable commuting to Delhi; density and growth rate of population high; degree of urbanisation high; proportion of agricultural workers quite large; literacy increasing rapidly.

XIII. *The Hissar area.*—

A region in transitional stage of development; the Hansi area in the region where canal irrigation is old already well developed agriculturally; the remaining Hissar—Fatehabad area in the process of agricultural development and experiencing high rate of population growth; economy overwhelmingly agricultural; literacy low; degree of urbanisation low, but showing signs of dynamism.

XIV. *The Southern Punjab Region.*—

An area of medium density of population, growing around the rate of natural increase; meagre urban development; lacking in irrigational facilities; very little of manufacturing industry; economy overwhelmingly agricultural and of subsistence type; literacy very low; socially and economically backward; divisible into three sub-divisions as marked on the map.

GMGIPND—M—39 CP—3939—4-2-66—1,000.

LIST OF AGENTS FOR THE SALE OF GOVERNMENT OF INDIA PUBLICATIONS

(as on 17th February, 1964)

AGARTALA—Laxmi Bhandar Books & Scientific Sales . . (Rest.)

AGRA—

1 National Book House, Jeoni Mandi . . . . . (Reg.)
2 Wadhawa & Co., 45, Civil Lines . . . . . (Reg.)
3 Banwari Lal Jain, Publishers, Moti Katra . . . . (Rest.)
4 English Book Depot, Sadar Bazar, Agra Cantt. . . . (Rest.)

AHMADNAGAR—V.T. Jorakar, Prop., Rama General Stores, Navi Path . . . . . (Rest.)

AHMEDABAD—

1 Balgovind Kuber Dass & Co., Gandhi Road . . . (Reg.)
2 Chandra Kant Chiman Lal Vora, Gandhi Road . . . (Reg.)
3 New Order Book Co., Ellis Bridge . . . . . (Reg.)
4 Mahajan Bros., Opp. Khadia Police Gate . . . . (Rest.)
5 Sastu Kitab Ghar, Near Relief Talkies, Patthar Kuva, Relief Road . . . . . (Reg.)

AJMER—

1 Book-Land, 603, Madar Gate . . . . . (Reg.)
2 Rajputana Book House, Station Road . . . . (Reg.)
3 Law Book House, 271, Hathi Bhata . . . . . (Reg.)
4 Vijay Bros., Kutchery Road . . . . . (Rest.)
5 Krishna Bros., Kutchery Road . . . . . (Rest.)

ALIGARH—Friends' Book House, Muslim University Market . (Reg.)

ALLAHABAD—

1 Superintendent, Printing & Stationery, U.P.
2 Kitabistan, 17-A, Kamla Nehru Road . . . . . (Reg.)
3. Law Book Co., Sardar Patel Marg, P. Box 4. . . . Reg.)
4 Ram Narain Lal Beni Madho, 2-A, Katra Road . . (Reg.)
5 Universal Book Co., 20, M.G. Road . . . . (Reg.)
6 The University Book Agency (of Lahore), Elgin Road . . (Reg.)
7 Wadhwa & Co., 23, M.G. Marg . . . . . (Rest.)
8 Bharat Law House, 15, Mahatma Gandhi Marg . . . (Rest.)
9 Ram Narain Lal Beni Prashad, 2-A, Katra Road . . . (Rest.)

AMBALA—

1 English Book Depot, Ambala Cantt. . . . . (Reg.)
2 Seth Law House, 8719, Railway Road, Ambala Cantt. . . (Rest.)

AMRITSAR—

1 The Law Book Agency, G.T. Road, Putligarh . . . . (Reg.)
2 S. Gupta, Agent, Government Publications, Near P.O. Majith Mandi . . . . . (Reg.)
3 Amar Nath & Sons, Near P.O. Majith Mandi . . . (Reg.)

ANAND—

1 Vijaya Stores, Station Road . . . . . (Rest.)
2 Charto Book Stall, Tulsi Sadan, Stn. Road . . . . (Rest.)

ASANSOL—D.N. Roy & R.K. Roy, Booksellers, Atwal Building . (Rest.)

BANGALORE—

1 The Bangalore Legal Practitioner Co-op. Society Ltd., Bar Association Building . . . . . (Reg.)
2 S.S. Book Emporium, 118, Mount Joy Road . . . . (Reg.)
3 The Bangalore Press, Lake View, Mysore Road, P.O. Box 507 (Reg.)
4 The Standard Book Depot, Avenue Road . . . . (Reg.)
5 Vichara Sahitya Private Ltd., Balepet . . . . . (Reg.)
6 Makkala Pustaka Press, Balamandira, Gandhinagar . . (Reg.)
7 Maruthi Book Depot, Avenue Road . . . . . (Rest.)
8 International Book House, P. Ltd., 4-F, Mahatma Gandhi Road . . . . . (Reg.)
9 Navakarnataka Pubns. Private Ltd., Majestic Circle . . (Rest.)

BAREILLY—Agarwal Brothers, Bara Bazar . . . . . (Reg.)

BARODA—

1 Shri Chandrakant Mohan Lal Shah, Raopura . . . (Rest.)
2 Good Companions Booksellers, Publishers & Sub-Agent . (Rest.)
3 New Medical Book House, 540, Madan Zampa Road . (Rest.)

BEAWAR—The Secretary, S.D. College, Co-operative Stores Ltd. (Rest.)

BELGHARIA—Granthlok, Antiquarian Booksellers & Publishers (24-Parganas), 5/1, Amlica Mukherjee Road . . . (Reg.)

BHAGALPUR—Paper Stationery Stores, D. N. Singh Road . (Reg.)

BHOPAL—

1 Superintendent, State Government Press
2 Lyall Book Depot, Mohd. Din Building, Sultania Road . (Reg.)
3 Delite Books, Opp. Bhopal Talkies . . . . . (Rest.)

BHUBANESWAR—Ekamra Vidyabhaban, Eastern Tower, Room No. 3 . . . . . (Rest.)

BIJAPUR—Shri D.V. Deshpande, Recognised Law Booksellers, Prop. Vinod Book Depot, Near Shirashetti Chowk . . . (Rest.)

BEKANER—Bhandani Bros. . . . . (Rest.)

BILASPUR—Sharma Book Stall, Sadar Bazar . . . . . (Rest.)

BOMBAY—

1 Supdt. Printing and Stationery, Queens Road
2 Charles Lambert and Co., 101, Mahatma Gandhi Road . (Reg.)
3 Co-operator's Book Depot, 5/32 Ahmed Sailor Bldg., Dadar . (Reg.)
4 Current Book House, Maruti Lane, Raghunath Dadaji St. . (Reg.)
5 Current Technical Literature Co. P. Ltd., India House, 1st Floor . . . . . (Reg.)
6. International Book House Ltd., 9, Ash Lane, M.G. Road . (Reg.)
7 Lakkani Book Depot, Girgaum . . . . . (Reg.)
8 Elpees Agencies, 24, Bhangwadi, Kalbadevi . . . . (Reg.)
9 P.P.H. Book Stall, 190-B, Khetwadi Main Road . . . (Reg.)
10 New Book Co., 188-190, Dr. Dadabhai Naoroji Road . . (Reg.)
11 Popular Book Depot, Lamington Road . . . . (Reg.)
12 Sunder Das Gian Chand, 601, Girgaum Road, Near Princess Street . . . . . (Reg.)
13 D.B. Taraporewala Sons and Co. (P) Ltd., 210, Dr. Dadabhai Naoroji Road . . . . . (Reg.)
14 Thacker and Co., Rampart Row . . . . . (Reg.)
15 N.M. Tripathi Private Ltd., Princess Street . . . (Reg.)
16 The Kothari Book Depot, King Edward Road . . . (Reg.)
17 P.H. Rama Krishna and Sons, 147, Rajaram Bhuvan, Shivaji Park Road, No. 5 . . . . . (Rest.)
18 C. Jamnadas and Co., Booksellers, 146-C, Princess St. . (Reg.)
19 Indo Nath and Co., A-6, Daulat Nagar Borivli . . . (Reg.)
20 Minerva Book Shop, Shop No. 180, N. Subhas Road . . (Reg.)
21 Academic Book Co., Association Building, Girgaum Road . (Rest.)
22 Dominion Publishers, 23, Bell Building, Sir P.M. Road . (Rest.)
23 Bombay National History Society, 91 Walkeshwar Road . (Rest.)
24 Dowamadeo and Co. 16, Naziria Building, Ballard Estate . (Rest.)
25 Asian Trading Co., 310, the Miraball, P.B. 1505 . . (Rest.)

CALCUTTA—

1 Chatterjee and Co., 3/1, Bacharam Chatterjee Lane . (Reg.)
2 Dass Gupta and Co. Ltd., 54/3, College Street . . (Reg.)
3 Hindu Library, 69-A, Bolaram De Street . . . . (Reg.)
4 S.K. Lahiri and Co. Private Ltd., College Street . . (Reg.)
5 M.C. Sarkar and Sons Private Ltd., 14, Bankim Chatterjee Street (Reg.)
6 W. Newman and Co. Ltd., 3, Old Court House Street . . (Reg.)
7 Oxford Book and Stationery Co., 17, Park Street . . (Reg.)
8 R. Chambray and Co. Ltd., Kent House, P,33, Mission Road Extension . . . . . (Reg.)
9 S.C. Sarkar and Sons Private Ltd., I.C, College Square . . (Reg.)
10 Thacker Spink and Co. (1933) P. Ltd., 3, Esplanade East . (Reg.)
11 Firma K.L. Mukhopadhaya, 6/IA, Bancha Ram Akrar Lane. (Reg.)
12 K.K. Roy, P. Box No. 10210, Calcutta-19 . . . . (Rest.)
13 Sm. P.D. Upadhyay, 77, Muktaram Babu Street . . . (Rest.)
14 Universal Book Dist., 8/2, Hastings Street . . . . (Rest.)
15 Modern Book Depot, 9, Chowringhee Centre . . . (Rest.)
16 Soor and Co., 125, Canning Street . . . . . (Reg.)
17 S. Bhattacharjee, 49 Dharamtala Street . . . . (Rest.)
18 Mukherjee Library, 10 Sarba Khan Road . . . . (Reg.)
19 Current Literature Co. 208, Mahatma Gandhi Road . . (Reg.)
20 The Book Depository, 4/1, Madan Street (1st Floor) . . (Rest.)
21 Scientific Book Agency, Netaji Subhas Road . . . (Rest.)
22 Reliance Tranding Co., 17/1 Banku Bihari Ghose Lane, District Howrah . . . . . (Rest.)
23 Indian Book Dist. Co., 6512 Mahatma Gandhi Road . . (Rest.)

CALICUT—Touring Book Stall . . . . . (Rest.)

CHANDIGARH—
1 Supdt. Govt. Printing and Stationery, Punjab
2 Jain Law Agency, Flat No. 8, Sector No. 22 . . . . (Reg.)
3 Rama News Agency, Bookseller, Sector No. 22 . . . (Reg.)
4 Universal Book Store, Booth 25, Sector 22D . . . (Reg.)
5 English Book Shop, 34, Sector 22D . . . . . (Rest.)
6 Mehta Bros, 15-Z, Sector 22B . . . . . (Rest.)
7 Tandan Book Depot, Shopping Centre, Sector 16 . . . (Rest.)
8 Kailash Law Publishers, Sector 22B . . . . . Rest.)

CHHINDWARA—The Verma Book Depot . . . . . (Rest.)

COCHIN—Saraswat Corporation Ltd. ,Palliarakav Road . . (Reg.)

CUTTACK—
1 Press Officer, Orissa Sectt.
2 Cuttack Law Times . . . . . (Reg.)
3 Prabhat K. Mahapatra, Mangalabag, P.B. 35 . . . (Reg.)
4 D. P. Sur & Sons, Mangalabag . . . . . (Rest.)
5 Utkal Stores, Balu Bazar . . . . . (Rest.)

DEHRA DUN—
1 Jugal Kishore & Co., Rajpur Road . . . . . (Reg.)
2 National News Agency, Paltan Bazar . . . . . (Reg.)
3 Bishan Singh and Mahendra Pal Singh, 318, Chukhuwala . (Reg.)
4 Utam Pustak Bhandar, Paltan Bazar . . . . . (Rest.)

DELHI—
1 J.M. Jaina & Brothers, Mori Gate . . . . . (Reg.)
2 Atma Ram & Sons, Kashmere Gate . . . . . (Reg.)
3 Federal Law Book Depot, Kashmere Gate . . . . (Reg.)
4 Bahri Bros., 188, Lajpat Rai Market . . . . . (Reg.)
5 Bawa Harkishan Dass Bedi (Vijaya General Agencies) P.B. 2027, Ahata Kedara, Chamalian Road . . . . (Reg.)
6 Book-Well, 4, Sant Narankari Colony, P.B. 1565 . . . (Reg.)
7 Imperial Publishing Co., 3, Faiz Bazar, Daryaganj . . (Reg.)
8 Metropolitan Book Co., 1, Faiz Bazar . . . . (Reg.)
9 Publication Centre, Subzimandi . . . . . (Reg.)
10 Youngman & Co., Nai Sarak . . . . . (Reg.)
11 Indian Army Book Depot, 3, Daryaganj . . . . (Reg.)
12 All India Educational Supply Co., Shri Ram Buildings, Jawahar Nagar . . . . . (Rest.)
13 Dhanwant Medical & Law Book House, 1522, Lajpat Rai Market . . . . . (Rest.)
14 University Book House, 15, U.B., Bangalore Road, Jawahar Nagar . . . . . (Rest.)
15 Law Literature House 2646, Balimaran . . . . (Rest.)
16 Summer Brothers, P.O. Birla Lines . . . . . Rest.)
17 Universal Book & Stationery Co., 16 Netaji Subhash Marg . (Reg.)
18 B. Nath & Bros., 3808, Charkhawalan (Chowri Bazar) . (Rest.)
19 Rajkamal Prakashan P. Ltd., 8, Faiz Bazar . . . . (Reg.)
20 Premier Book Co., Printers, Publishers & Booksellers, Nai Sarak . . . . . (Rest.)
21 Universal Book Traders, 80, Gokhale Market . . . (Reg.)
22 Tech. & Commercial Book Coy., 75, Gokhale Market . . (Rest.)
23 Saini Law Publishing Co., 1416, Chabiganj, Kashmere Gate . (Rest.)
24 G.M. Ahuja, Booksellers & Stationers, 309, Nehru Bazar . (Rest.)
25 Sat Narain & Sons, 3141, Mohd. Ali Bazar, Mori Gate . . (Rest.)
26 Kitab Mahal (Wholesale Div.) P. Ltd., 28, Faiz Bazar . . (Reg.)
27 Hindu Sahitya Sansar, Nai Sarak . . . . . (Rest.)
28 Munshi Ram Manohar Lal Oriental Booksellers & Publishers, P. B. 1165, Nai Sarak . . . . . (Rest.)
29 K. L. Seth, Suppliers of Law, Commercial, Tech. Books, Shanti Nager, Ganeshpura . . . . . (Rest.)
30 Adarsh Publishing Service, 5A/10, Ansari Road . . . (Rest.)

DHANBAD—
1 Ismag Co-operative Stores Ltd., P.O. Indian School of Mines (Reg.)
2 New Sketch Press, Post Box 26 . . . . . (Rest.)

DHARWAR—
1 The Agricultural College Consumers Co-op. Society . . (Rest.)
2 Rameshraya Book Depot, Subash Road . . . . (Rest.)
3 Karnatakaya Sahitya Mandir of Publishers and Booksellers

ERNAKULAM—
1 Pai & Co., Cloth Bazar Road . . . . . (Rest.)
2 South India Trader s C/o, Constitutional Journal . . . (Reg.)

FEROZEPUR—English Book Depot, 78, Jhoke Road . . . (Reg.)
GAUHATI—Mokshada Pustakalaya . . . . . (Reg.)
GAYA—Sahitya Sadan, Gautam Budha Marg . . . . (Reg.)
GHAZIABAD—Jayana Book Agency . . . . . (Rest.)
GORAKHPUR—Vishwa Vidyalaya Prakashan, Nakhes Road . (Reg.)
GUDUR—The General Manager, The N.D.C. Publishing & Ptg. Society Ltd. . . . . (Rest.)
GUNTUR—Book Lovers Private Ltd., Kadriguda, Chowrasta . (Reg.)

GWALIOR—
1 Supdt., Printing & Stationery, M.B.
2 Loyal Book Depot, Patankar Bazar, Lashkar . . . (Reg.)
3 M. C. Daftari, Prop. M.B. Jain & Bros., Booksellers, Sarafa Lashkar . . . . . (Rest.)

HUBLI—Pervaje's Book House, Koppikar Road . . . . (Reg.)

HYDERABAD—
1 Director, Govt. Press
2 The Swaraj Book Depot, Lakdikapul . . . . . (Reg.)
3 Book Lovers Private Ltd. . . . . (Rest.)
4 Labour Law Publications, 873, Sultan Bazar . . . (Rest.)

IMPHAL—Tikendra & Sons Booksellers . . . . . (Rest.)

INDORE—
1 Wadhawa & Co., 56, M.G. Road . . . . . (Reg.)
2 Swarup Brothers, Khajuri Bazar . . . . . (Rest.)
3 Madhya Pradesh Book Centre, 14, Ahilya Pura . . . (Rest.)
4 Modern Book House, Shiv Vilas Palace . . . . (Rest.)
5 Navyug Sahitya Sadan ,Publishers & Booksellers, 10, Khajuri Bazar . . . . . (Reg)

JABALPUR—
1 Modern Book House, 286, Jawaharganj . . . . . (Reg.)
2 National Book House, 135, Jai Parkash Narain Marg . (Rest.)

JAIPUR—
1 Government Printing and Stationery Department, Rajasthan
2 Bharat Law House, Booksellers & Publishers, Opp. Prem Prakash Cinema . . . . . (Reg)
3 Garg Book Co., Tripolia Bazar . . . . . (Reg.)
4 Vani Mandir, Sawai Mansingh Highway . . . . (Reg.)
5 Kalyan Mal & Sons, Tripolia Bazar . . . . (Rest.)
6 Popular Book Depot, Chaura Rasta . . . . . (Reg.)
7 Krishna Book Depot, Chaura Rasta . . . . . (Rest.)
8 Dominion Law Depot, Shah Building, P.B. No. 23 . . (Rest.)

JAMNAGAR—Swadeshi Vastu Bhandar . . . . . (Reg.)

JAMSHEDPUR—
1 Amar Kitab Ghar, Diagonal Road, P.B. 78 . . . . (Reg.)
2 Gupta Stores, Dhatkidih . . . . . (Reg.)
3 Sanyal Bros, Booksellers & News Agents, Bistapur Market . (Rest.)

JAWALAPUR—Sahyog Book Depot . . . . . (Rest.)

JHUNJHUNU—
1 Shashi Kumar Sarat Chand . . . . . (Rest.)
2 Kapram Prakashan Prasaran, 1/90, Namdha Niwas Azad Marg (Reg.)

JODHPUR—
1 Dwarka Das Rathi, Wholesale Books and News Agents . (Reg.)
2 Kitab-Ghar, Sojati Gate . . . . . (Reg.)
3 Choppra Brothers, Tripolia Bazar . . . . . (Reg.)

JULLUNDUR—
1 Hazooria Bros., Mai Hiran Gate . . . . . (Rest.)
2 Jain General House, Bazar Bansanwala . . . . (Reg.)
3 University Publishers, Railway Road . . . . . (Rest.)

KANPUR—
1 Advani & Co., P. Box. 100, The Mall . . . . . (Reg.)
2 Sahitya Niketan, Shradhanand Park . . . . . (Reg.)
3 The Universal Book Stall, The Mall . . . . . (Reg.)
4 Raj Corporation, Raj House, P.B. 200 , Chowk . . . (Rest.)

V. Nagaraja Rao, 26, Srinivasapuram . . . (Rest.)

KODARMA—The Bhagwati Press, P.O. Jhumri Tilaiya, Dt. Hazaribagh . . . . . (Reg.)

KOLHAPUR—Maharashtra Granth Bhandar, Mahadwar Road . (Rest.)

KOTA—Kota Book Depot . . . . . (Rest.)

KUMTA—S.V. Kamat, Booksellers & Stationers (N. Kanara) . (Reg.)

LUCKNOW—
1 Soochna Sahitya Depot (State Book Depot)
2 Balkrishna Book Co. Ltd., Hazratganj . . . . (Reg.)
3 British Book Depot, 84, Hazratganj . . . . . (Reg.)
4 Ram Advani, Hazratganj, P.B. 154 . . . . . (Reg.)
5 Universal Publishers (P) Ltd., Hazratganj . . . . (Reg.)
6 Eastern Book Co., Lalbagh Road . . . . . (Reg.)
7 Civil & Military Educational Stores, 106/B, Sadar Bazar . . (Rest.)
8 Acquarium Supply Co., 213, Faizabad Road . . (Rest.)
9 Law Book Mart, Amin-Ud-Daula Park . . . . . (Rest.)

LUDHIANA—
1 Lyall Book Depot, Chaura Bazar . . . . (Reg.)
2 Mohindra Brothers, Katcheri Road . . . . . (Rest.)
3 Nanda Stationery Bhandar, Pustak Bazar . . . . (Rest.)
4 The Pharmacy News, Pindi Street . . . . . (Rest.)

MADRAS—
1 Supdt., Govt. Press, Mount Road
2 Account Test Institute, P.O. 760, Emgore . . . (Reg.)
3 C. Subbiah Chetty & Co., Triplicane . . . . . (Reg.)
4 K. Krishnamurty, Post Box 384 . . . . . (Reg.)
5 Presidency Book Supplies, 8, Pycrofts Road, Triplicane . (Reg.)
6 P. Vardhachary & Co., 8, Linghi Chetty Street . . . (Reg.)
7 Palani Parchuram, 3, Pycrofts Road, Triplicane . . . (Reg.)
8 NCBH Private Ltd., 199, Mount Road . . . . (Rest.)
9 V. Sadanand, The Personal Bookshop, 10, Congress Building, 111, Mount Road . . . . . (Rest.)

MADURAI—
1 Oriental Book House, 258, West Masi Street . . . (Reg.)
2 Vivekananda Press, 48, West Masi Street . . . . (Reg.)

MANDYA SUGAR TOWN—K.N. Narimhe Gowda & Sons . (Rest.)

MANGALORE—U.R. Shenoye Sons, Car Street, P. Box. 128 . (Reg.)

MANJESHWAR—Mukenda Krishna Nayak . . . (Rest.)

MATHURA—Rath & Co., Tilohi Building, Bengali Ghat . . (Rest.)

MEERUT—
1 Prakash Educational Stores, Subhas Bazar . . . . (Reg.)
2 Hind Chitra Press, West Kutchery Road . . . . (Reg.)
3 Loyal Book Depot, Chhippi Tank . . . . . (Reg.)
4 Bharat Educational Stores, Chhippi Tank . . . . (Rest.)
5 Universal Book Depot, Booksellers & News Agents . . (Rest.)

MONGHYR—Anusandhan, Minerva Press Building . . . (Rest.

MUSSOORIE—
1 Cambridge Book Depot, The Mall . . . . . (Rest.)
2 Hind Traders . . . . . (Rest.)

MUZAFFARNAGAR—
1 Mittal & Co., 85-C, New Mandi . . . . . (Rest.)
2 B.S. Jain & Co., 71, Abupura . . . . (Rest.)

MUZAFFARPUR—
1 Scientific & Educational Supply Syndicate . . . . (Reg.)
2 Legal Corner, Tikmanio House, Amgola Road . . . (Rest.)
3 Tirhut Book Depot . . . . . (Rest.)

MYSORE—
1 H. Venkataramiah & Sons, New Statue Circle . . . (Reg.)
2 Peoples Book House, Opp. Jagan Mohan Palace . . . (Reg.)
3 Geeta Book House, Booksellers & Publishers, Krishnamurthipuram . . . . . (Rest.)
4 News Paper House, Lansdowne Building . . . . (Rest.)
5 Indian Mercantile Corporation, Toy Palace Ramvilas . . (Rest.)

NADIAD —R.S. Desay, Station Road . . . . . (Rest.)

NAGPUR—
1 Supdt., Govt. Press & Book Depot
2 Western Book Depot, Residency Road . . . . . (Reg.)
3 The Asstt. Secretary, Mineral Industry Association, Mineral House . . . . . (Rest.)

NAINI TAL—Coural Book Depot, Bara Bazar . . . . (Rest.

NANDED—
1 Book Centre, College Law General Books, Station Road . (Rest.)
2 Hindustan General Stores, Paper & Stationery Merchants, P.B. No. 51 . . . . . (Rest.)
3 Sanjoy Book Agency, Vazirabad . . . . . (Rest.)

NEW DELHI—
1 Amrit Book Co., Connaught Circus . . . . . (Reg.)
2 Bhawani & Sons, 8F, Connaught Place . . . . (Reg.)
3 Central News Agency, 23/90, Connaught Circus . . . (Reg.)
4 Empire Book Depot, 278, Aliganj . . . . . (Reg.)
5 English Book Stores, 7-L, Connaught Circus, P.O.B. 328 . (Reg.)
6 Faqir Chand & Sons, 15-A, Khan Market . . . . (Reg.)
7 Jain Book Agency, C-9, Prem House, Connaught Place . . (Reg.)
8 Oxford Book & Stationery Co., Scindia House . . . (Reg.)
9 Ram Krishna & Sons (of Lahore), 16/B, Connaught Place . (Reg.)
10 Sikh Publishing House, 7-C, Connaught Place . . . (Reg.)
11 Suneja Book Centre, 24/90, Connaught Circus . . . (Reg.)
12 United Book Agency, 31, Municipal Market, Connaught Circus (Reg.)
13 Jayana Book Depot, Chhaparwala Kuan, Karol Bagh . . (Reg.)
14 Navayug Traders, Desh Bandhu Gupta Road, Dev Nagar . (Reg.)
15 Saraswati Book Depot, 15, Lady Harding Road . . . (Reg.)
16 The Secretary, Indian Met. Society, Lodi Road . . . (Reg.)
17 New Book Depot, Latest Books, Periodicals, Sty. & Novelles P.B. 96, Connaught Place . . . . . (Reg.)
18 Mehra Brothers, 50-G, Kalkaji . . . . . (Reg.)
19 Luxmi Book Stores, 42, Janpath . . . . . (Rest.)
20 Hindi Book House, 82, Janpath . . . . . (Rest.)
21 People Publishing House (P) Ltd., Rani Jhansi Road . . (Reg.)
22 R.K. Publishers, 23, Beadon Pura, Karol Bagh . . . (Rest.)
23 Sharma Bros., 17, New Market, Moti Nagar . . . (Reg.)
24 Aapki Dukan, 5/5777, Dev Nagar . . . . . (Rest.)
25 Sarvodaya Service, 66A-1, Rohtak Road, P.B. 2521 . . (Rest.)
26 H. Chandson, P.B. No. 3034 . . . . . (Rest.)
27 The Secretary, Federation of Association of Small Industry of India, 23-B/2, Rohtak Road . . . . . (Rest)
28 Standard Booksellers & Stationers, Palam Enclave . . (Rest.)
29 Lakshmi Book Depot, 57, Regarpura . . . . . (Rest.)
30 Sant Ram Booksellers, 16, New Municipal Market, Lody Colony (Rest.)

PANJIM—
1 Singhals Book House, P.O.B. 70, Near the Church . . (Rest.)
2 Sagoon Gaydev Dhoud, Booksellers, 5-7 Rua 3 Ide Jameria . (Rest.)

PATHANKOT—The Krishna Book Depot, Main Bazar . . (Rest.)

PATIALA—
1 Supdt., Bhupendra State Press
2 Jain & Co., 17, Shah Nashin Bazar . . . . . (Reg.)

PATNA—
1 Supdt., Govt. Printing (Bihar)
2 J.N.P. Agarwal & Co., Padri-Ki-Haveli, Raghunath Bhawan . (Reg.)
3 Luxmi Trading Co., Padri-Ki-Haveli . . . . . (Reg.)
4 Moti Lal Banarsi Dass, Bankipore . . . . . (Reg.)
5 Bengal Law House, Chowhatta . . . . . (Rest.)

PITHORAGARH—Maniram Punetha & Sons . . . . (Rest.)

PONDICHERRY—M/s. Honesty Book House, 9 Rue Duplix (Rest.)

POONA—
1 Deccan Book Stall, Deccan Gymkhana . . . . (Reg.)
2 Imperial Book Depot, 266, M.G. Road . . . . (Reg.)
3 International Book Service, Deccan Gymkhana . . . (Reg.)
4 Raka Book Agency, Opp. Natu's Chawl, Near Appa Balwant Chowk . . . . . (Reg.)
5 Utility Book Depot, 1339, Shivaji Nagar . . . (Rest.)

PUDUKOTTAI—Shri P.N. Swaminathan Sivam & Co., East Main Road . . . . . (Rest.)

RAJKOT—Mohan Lal Dossabhai Shah, Booksellers and Sub-Agents (Reg.)

RANCHI—
1 Crown Book Depot, Upper Bazar . . . . . (Reg.)
2 Pustak Mahal, Upper Bazar . . . . . (Rest.)

REWA - Supdt., Govt. State Emporium V.P.
ROURKELA—The Rourkela Review . . . . . (Rest.)
SAHARANPUR—Chandra Bharata Pustak Bhandar, Court Road (Rest.)
SECUNDERABAD—Hindustan Diary Publishers, Market Street (Reg.)
SILCHAR—Shri Nishitto Sen Nazirpatti . . . . . (Rest.)

SIMLA—
1 Supdt., Himachal Pradesh Govt.
2 Minerva Book Shop, The Mall . . . . . (Reg.)
3 The New Book Depot, 79, The Mall . . . . . (Reg.)

SINNAR—Shri N.N. Jakhadi, Agent, Times of India, Sinnar (Nasik) (Rest.)

SHILLONG—
1 The Officer-in-Charge, Assam Govt. B.D.
2 Chapla Bookstall, P.B. No. 1 . . . . . (Rest.)

SONEPAT—United Book Agency . . . . . (Reg.)

SRINAGAR—The Kashmir Bookshop, Residency Road . (Reg.)
SURAT—Shri Gajanan Pustakalaya, Tower Road . . . (Reg.)

TIRUCHIRAPALLI—
1 Kalpana Publishers, Woriur . . . . . (Reg.)
2 S. Krishnaswami & Co., 35, Subhash Chander Bose Road . (Reg.)
3 Palamiappa Bros. . . . . (Rest.)

TRIVANDRUM—
1 International Book Depot, Main Road . . . . (Reg.)
2 Reddear Press & Book Depot, P.B. No. 4 . . . . (Rest.)
TUTICORIN—Shri K. Thiagarajan, 10-C, French Chapal Road (Rest.)

UDAIPUR—
1 Jagdish & Co., Inside Surajapole . . . . . (Rest.)
2 Book Centre, Maharana, Bhopal Consumers' Co-op. Society Ltd. (Rest)

UJJAIN—Manak Chand Book Depot, Sati Gate . . . (Rest.)

VARANASI—
1 Students, Friends & Co., Lanka . . . . . (Rest.)
2 Chowkhamba Sanskrit Series Office, Gopal Mandir Road, P.B.8 (Reg.)
3 Globe Book Centre . . . . . (Rest.)
4 Kohinoor Stores, University Road, Lanka . . . . (Reg.)
5 B.H.U. Book Depot . . . . . (Rest.)

VELLORE—A. Venkatasubhan, Law Booksellers . . . (Reg.)
VIJAYAWADA—The Book & Review Centre, Elnru Road, Governpet . . . . . (Rest.)

VISAKHAPATNAM—
1 Gupta Brothers, Vizia Building . . . . . (Reg.)
2 Book Centre, 11/97, Main Road. . . . . (Reg.)
3 The Secy., Andhra University, General Co-op. Stores Ltd. . (Rest.)
VIZIANAGARAM—Sarda & Co. . . . . (Rest.)

WARDHA—Swarajeya Bhandar, Bhorji Market . . . (Reg.)

For Local Sale

Govt. of India, Kitab Mahal, Janpath, Opp. India Coffee House, New Delhi.
Govt. of India Book Depot, 8, Hastings Street, Calcutta
High Commissioner for India in London, India House, London, W.C. 2.

Railway Bookstall Holders

1 S/S. A.H. Wheeler & Co., 15, Elgin Road, Allahabad
2 Gahlot Bros., K. E. M. Road, Bikaner
3 Higginbothams & Co. Ltd., Mount Road, Madras
4 M. Gulab Singh & Sons Private Ltd., Mathura Road, New Delhi

Foreign

1 S/S Education Enterprise Private Ltd., Kathumandu (Nepal)
2 S/S. Aktie Bologat, C.E. Frizes Kungl, Hovobokhandel, Fredsgation-2 Box 1656, Stockholm-16 (Sweden).
3 Reise-und Verkehraverlag Stuttgart, Post 730, Gutenbergstra 21, Stuttgart No. 11245, Stuttgart den (Germany West).
4 Shri Iswar Subramanyam 452, Reversite Driv Apt. 6, New York, 27 NWY
5 The Proprietor, Book Centre, Lakshmi Mansons, 49, The Mall, Lahore (Pakistan).

On S. and R. Basis

1 The Head Clerk, Govt. Book Depot, Ahmedabad.
2 The Asstt. Director, Extension Centre, Kapileswar Road, Belgaum.
3 The Employment Officer, Employment Exchange, Dhar.
4 The Asstt. Director, Footwear Extension, Centre, Polo Ground No. 1, Jodhpur.
5 The O.I/C., Extension Centre, Club Road, Muzaffarpur.
6 The Director, Indian Bureau of Mines, Govt. of India, Ministry of Mines and Fuel, Nagpur.
7 The Asstt. Director, Industrial Extension Centre, Nadiad (Gujarat)
8 The Head Clerk, Photozincographic Press, 5, Finance Road, Poona.
9 Govt. Printing & Stationery, Rajkot.
10 The O. I/C. Extension Centre, Industrial Estate, Kokar, Ranchi.
11 The Director, S.I.S. Industrial Extension Centre, Udhna, Surat.
12 The Registrar of Companies, Narayani Building, 27, Erabourne Road Calcutta-1.
13 The Registrar of Companies, Kerala, 350, Feet Road, Ernakulam.
14 The Registrar of Companies, H. No. 3-5-83, Hyderguda, Hyderabad.
15 The Registrar of Companies, Assam, Manipur and Tripura, Shillong.
16 The Registrar of Companies, Sunlight Insurance Building, Ajmeri Gate. Extension, New Delhi.
17 The Registrar of Companies Punjab and Himachal Pradesh, Link Road, Jullundur City.
18 The Registrar of Companies, Bihar, Jamal Road, Patna-1.
19 The Registrar of Companies, Raj & Ajmer; Sri Kamta Prasad House, 1st Floor 'C' Scheme, Ashok Marg, Jaipur.
20 The Registrar of Companies, Andhra Bank Building, 6, Linghi Chetty Street, P.B. 1530, Madras.
21 The Registrar of Companies, Mahatma Gandhi Road, West Cott. Bldg. P.B. No. 334, Kanpur.
22 The Registrar of Companies, Everest 100, Marine Drive, Bombay.
23 The Registrar of Companies, 162, Brigade Road, Bangalore.
24 The Registrar of Companies, Gwalior.
25 The Asstt. Director, Extension Centre, Bhuli Road, Dhanbad.
26 The Registrar of Companies, Orissa, Cuttack Chandi, Cuttack.
27 The Registrar of Companies, Gujarat State, Gujarat Samachar Building, Ahmedabad.
28 Publication Division, Sale Depot, North Block, New Delhi.
29 The Development Commissioner, Small Scale Industries, New Delhi.
30 The O. I/C., University Employment Bureau, Lucknow.
31 O. I/C. S.I.S.I. Extension Centre, Malda.
32 O. I/C. S.I.S.I. Extension Centre, Habra, Tabaluria, 24-Parganas.
33 O. I/C., S.I.S.I. Model Carpentry Workshop, Piyali Nagar, P.O. Burnipur.
34 O. I/C., S.I.S.I. Chrontanning Extension Centre Tangra 33, North Topsia Road, Calcutta-46.
35 O. I/C., S.I.S.I. Extension Centre (Footwear), Calcutta,
36 Asstt. Director, Extension Centre, Hyderabad
37 Asstt. Director, Extension, Centre, Krishna Distt. (A.P.)
38 Employment Officer, Employment Exchange, Jhabua.
39 Dy. Director Incharge, S.I.S.I., C/o Chief Civil Admn. Goa, Panjim
40 The Registrar of Trade Unions, Kanpur.
41 The Employment Officer, Employment Exchange, Gopal Bhavan, Mornia
42 The O. I/C. State Information Centre, Hyderabad
43 The Registrar of Companies, Pondicherry.
44 The Asstt. Director of Publicity and Information, Vidhana Saubha, (P.B. 271) Bangalore.