CHAPTER - III

SPATIAL ANALYSIS OF DISEASES
(DISTRICTWISE)

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3.1 INTRODUCTION :

Spatio-temporal analysis of diseases of any region is multifunctional phenomenon. Mainly it depends on physical, social, biological and economic conditions of a particular region. The certain diseases are found to be concentrated in certain specific region, hence the study of spatial analysis in relation to changing environmental factors become the important study of Medical Geography.

The researcher proposed to study the spatial distribution of major diseases in relation to the environmental factors in Marathwada division. The researcher has collected the data about mortality of certain diseases occuring at different districts and cities of Marathwada division. The data so collected for the period of fourteen (14) years (1974-87) are studied districtwise. An attempt is also made to corelate the dependant factors wherever possible.

The collected data have been shown with the help of Choropleth maps. The data of 14 years have been classified into three groups, these are i) 1974-78 ii) 1979-83 iii) 1984-87. These are shown in figures 3.1 to 3.9. The diseases selected for the study are ten in numbers whose mortality data were made available from annual vital statistical reports of Maharashtra State. The following major diseases are discussed at different level - 1. Cholera 2. Malaria 3. Diarrhoea 4. Dysentery 5. Tuberculosis 6. Leprosy 7. Tetanus 8. Measle 9. Cancer and 10. Pneumonia.

3.2 CHOLERA :

Cholera is a disease which manifests itself in an accute diarrhoea. It is characterised by watery nonfaecal stool, causing loss of salt in the body. Death is common and it results from dehydration. An attack of cholera being with uncomfortableness; fatigue and diarrhoea. The water of stool soon become colourless like rice water. A little later profuse vomiting of the same rice water variety appears with excuraciating cramps in the abdomen and the calf-muscles of legs. The victim soon collapses. His pulse rate becomes weak and erratic, his body becomes cold; temperature sinks below the normal but rises in the rectum to 105° F, the victim is unable to pass urine, feels thirsty and the thirst is never quenched.

Generally speaking, cholera is more common within the winter because of rainfall and temperature but rainfall and temperature alone cannot thus account for its epidemicity. The disease has to be considered in relation to local relief and soil types. In mountain and hilly terrain, rainfall flushes the sources of contamination and thus the epidemic comes to an end. But in plain areas water stagnates and creates a favourable environment for this epidemics to intensity and spreads further. Also cholera in endemic and epidemic forms is present in all those areas which are crowded permanently or temporarily where cultural values

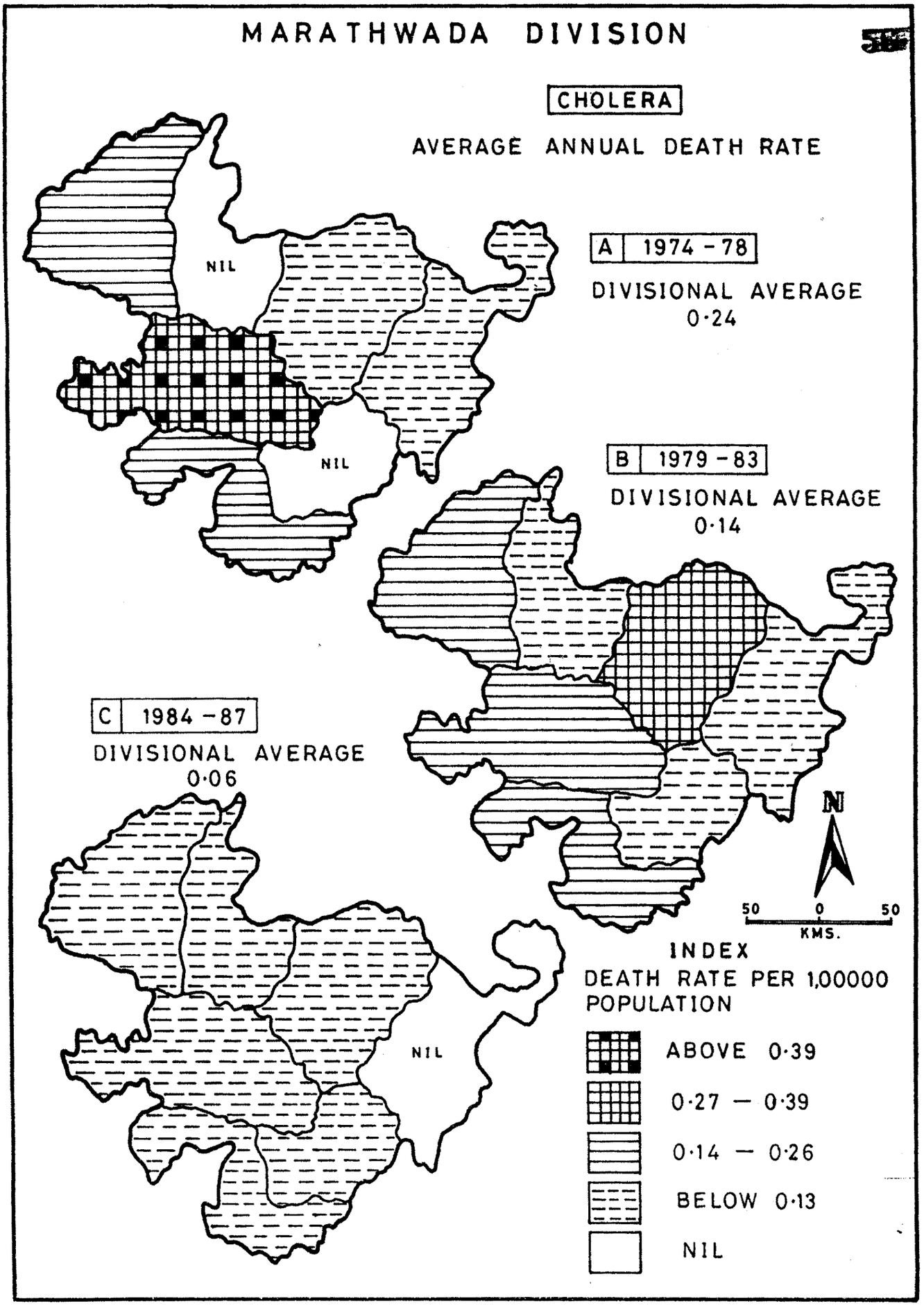
MARATHWADA DIVISION
CHOLERA
AVERAGE ANNUAL DEATH RATE
A 1974 - 78
DIVISIONAL AVERAGE
0·24
NIL
NIL
B 1979 - 83
DIVISIONAL AVERAGE
0·14
C 1984 - 87
DIVISIONAL AVERAGE
0·06
NIL
N
50 0 50
KMS.
INDEX
DEATH RATE PER 1,00000 POPULATION
ABOVE 0·39
0·27 — 0·39
0·14 — 0·26
BELOW 0·13
NIL

Fig. 3·1

do not give emphasis to environmental sanitations and where the standard of living of the people is low.

3.2.1 Analysis of Cholera mortality in Marathwada division (1974-87) :

The data have been collected districtwise for the span of 14 years of the Marathwada division. The data have been analysed for three successive periods of a) 1974-78 b) 1979-83 c) 1984-87 (Fig.3.1). The choropleth map shows that cholera in the first period particularly in 1974-78 was of high intensity in Beed district. The districts like Aurangabad and Osmanabad have moderate intensity and in Parbhani and Nanded it was low. The divisional average rate during the said period was 0.24/100,000 estimated population. The cholera deaths were not noticed in Jalna and Latur districts. The average annual death rate was very high in Beed district (higher than the divisional average) i.e. 1.09/100,000 estimated population.

The rate of mortality has decreased in the second period (1979-83) but comparatively the rate of mortality was high in Parbhani districts than in other districts of Marathwada division. The rate of mortality has been decreased in the second period as it has gone down from 0.24 to 0.14. The mortality rate was moderate in Aurangabad, Beed and Osmanabad districts. The rate of mortality was lowest in Jalna, Latur and Nanded districts (0.18, 0.25 and 0.14 respectively).

In the last period (1984-87) the mortality rates have rapidly decreased throughout the whole Marathwada division. The cholera deaths seems to be not dominant in the particular districts. The cholera mortality was very low which was less than 0.13. The cholera deaths have not occurred in Nanded district.

3.3 DIARRHOEA :

Diarrhoea is a common disease of infants and children of all ages. It is more common amongst infants, who are breast fed. The disease is also divided into two groups - 1) Non-infective diarrhoea and 2) Infective diarrhoea.

1) Non-infective diarrhoea :

It occurs due to digestive disturbances caused by milk, food or allergy, to children. It can occur due to insufficient digestive juice such as saliva, gastric juice and intenstinal juices.

2) Infective diarrhoea :

Infection occurs through contaminated water and food with bacteria such as B. coli, Shigella bacilli and Salmonella group (Mahajan B.K.,1972). Acute diarrhoea is set by irritating the intenstine by these germs.

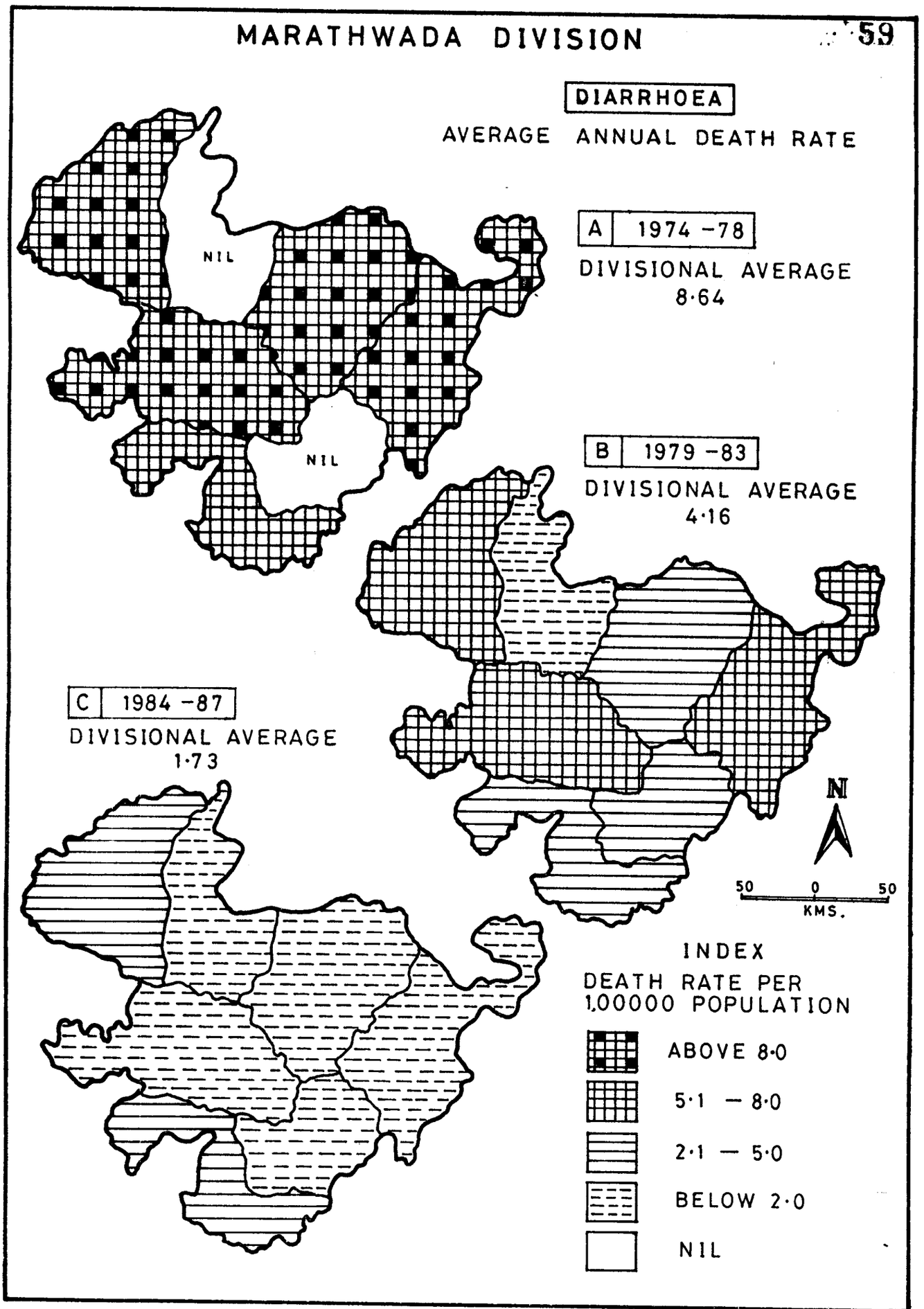
MARATHWADA DIVISION
DIARRHOEA
AVERAGE ANNUAL DEATH RATE
A 1974 -78
DIVISIONAL AVERAGE
8·64
NIL
NIL
B 1979 -83
DIVISIONAL AVERAGE
4·16
C 1984 -87
DIVISIONAL AVERAGE
1·73
N
50 0 50
KMS.
INDEX
DEATH RATE PER
1,00000 POPULATION
ABOVE 8·0
5·1 — 8·0
2·1 — 5·0
BELOW 2·0
NIL

Fig. 3·2

It is generally stated that the effect of climate is less obvious in the non-infectious diarrhoea, but in the case of infectious one, the climatic factors do affect. Use of contaminated water is directly related with its spread. Water from rivers and streams is in general potentially dangerous.

3.3.1 Analysis of Diarrhoea mortality in Marathwada division (1974-87) :

Diarrhoea mortality in Marathwada division varies in consistantly in the district. Diarrhoea is the most common disease found all over the Maharashtra state. The choropleth map No.3.2 shows the successive variations through the span of 14 years. In the first period (1974-78), mortality rate of diarrhoea was high in the districts of Aurangabad, Beed, Nanded and Parbhani. Possibility of water contamination in the Marathwada division i.e. Aurangabad, Beed, Nanded and Parbhani and higher density of population in above districts might be the major reasons behind the spread of this diseases. Moderate mortality rate was found in Osmanabad district. The divisional average has 8.64/100,000 estimated population. The deaths of diarrhoea were not noticed in Jalna and Latur districts.

In the second period, mortality rate of the Marathwada division has decreased from 8.64 to 4.16/100,000 estimated

population. The mortality rate has decreased but as compaired to first period Aurangabad, Beed and Nanded districts the mortality rate was high. The moderate mortality in Osmanabad, Latur and Parbhani districts has noticed the low rate of mortality was found in Jalna districts.

In the third period (1984-87) the average mortality rate of Marathwada districts has declined sharply. It has decreased from 4.16 to 1.73/100,000 estimated population. During last period (1984-87), in Marathwada division diarrhoea mortality rate was high in Aurangabad and Osmanabad districts. Generally Aurangabad is the only district where mortality rate was higher than other districts.

3.4 DYSENTERY :

Dysentery is the water borne chronic disease. Dysentery is the most common disease all over India. It is more frequent and in violent form in the tropical areas. It consists of passage of frequent stools and mucus and blood. It is accompanied by diarrhoea, abdominal pain, fever and tenesmus. Dysentery is mainly of two types i) Bacillary dysentery and ii) Amoebic dysentery.

i) Bacillary dysentery :

It is an infectious disease caused by the dysentery bacilli. It occurs predominantly in tropics, but can be prevalent in any part of the world. It is common in summer and

and in rainy season. Dysentery is characterised by frequency of loose motions with blood mucus and pus.

Bacillary dysentery is caused by Sh.stigiga. The Shillega sonnet is mild and found in cold countries where children are infected in more quantity through latrine seats. Susceptibility is more in children though no age is immune to. Incubation period of Dysentery is of 1 to 7 days.

ii) Amoebic dysentery/Protozonal :

Amoebic dysentery results from the invasion of human intenstines by an organism known as Entemoeba hystolytica, Entamoeba coli, Indoamoeba butschli, Endolimaxnana and Dietamoeba fragilis. Motions are not frequent as compared to Bacillary dysentery. No frequent stool is observed in the case of amoebic dysentery but stool is accompanied with blood and mucus.

Due to polluted water, lack of water facilities in villages, poor sanitation, improper disposal of human excreta and house flies, the disease is spreaded in any area (Mishra R.P.,1970).

3.4.1 Analysis of Dysentery mortality in Marathwada division (1974-87) :

Dysentery mortality rates in Marathwada division varies unevenly districtwise. The choropleth map (Fig.3.3)

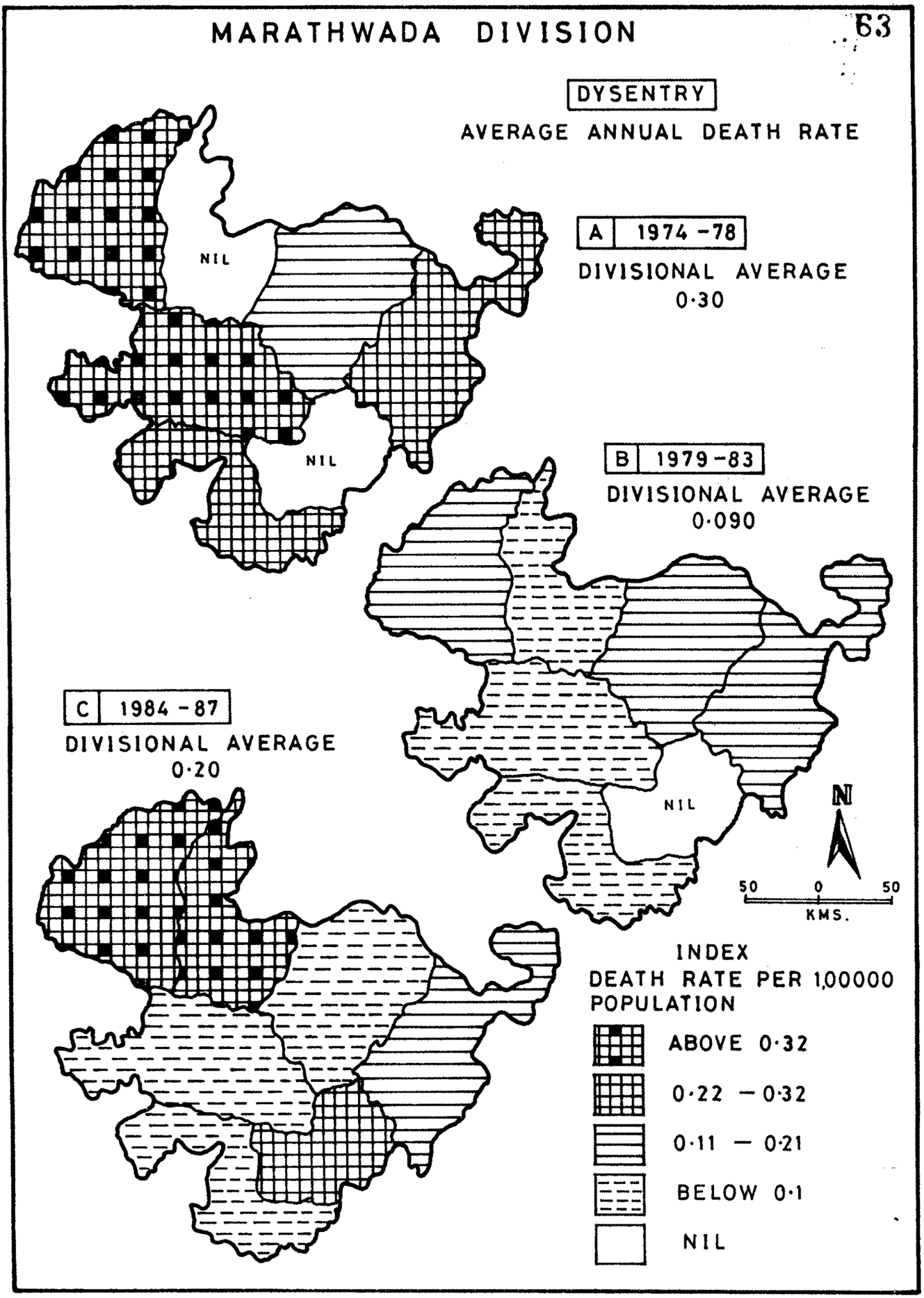
MARATHWADA DIVISION
DYSENTRY
AVERAGE ANNUAL DEATH RATE
A 1974 -78
DIVISIONAL AVERAGE
0·30
NIL
NIL
B 1979 -83
DIVISIONAL AVERAGE
0·090
NIL
C 1984 - 87
DIVISIONAL AVERAGE
0·20
N
50 0 50
KMS.
INDEX
DEATH RATE PER 1,00000 POPULATION
ABOVE 0·32
0·22 — 0·32
0·11 — 0·21
BELOW 0·1
NIL

Fig. 3·3

shows the successive variations in the death rates through the span of 14 years. In the first period (1974-78) the mortality of this disease was high in Aurangabad and Beed districts. The divisional average during the said period was 0.30/100,000 estimated population. Mortality rate of Osmanabad and Nanded district seems to be moderate. In Parbhani district, the annual average death rate was below 0.22/100,000 estimated population. In remaining two districts namely Jalna and Latur the deaths were not recorded.

In the second period of time (1979-83) mortality of Aurangabad, Nanded and Parbhani has remained of moderate intensity. The divisional average during the said period was 0.90/100,000 estimated population. In this period the mortality rate has sharply declined. In Jalna, Beed and Osmanabad districts the low mortality rates were observed. Only in Latur district no deaths were noted by this disease.

In the last period (1984-87) the dysentery mortality rates again have gone up in Aurangabad and Jalna districts. As compared to the second period, the divisional average death rate has increased and was 0.20/100,000 estimated population. The death rate of Beed, Osmanabad and Parbhani remained the same. The district Latur has moderate death rate while the lowest intensity of mortality was found in Nanded district.

3.5 TUBERCULOSIS :

Tuberculosis generally known as 'Rajrog' or 'Kshayarog' is a specific communible disease caused by micro bacterium tuberculosis. Tuberculosis is of considerable social and economic importance in countries where it is common, because of its particular impact on men and women of working and reproductive ages. The disease may be acute or chronic, general or local. Tuberculosis is as much prevalent in the rural as in urban population (Park and Park, 1979).

Tuberculosis has proved to be most disastrous infectious disease over the world. Roughly, over 20 million cases of open tuberculosis are recorded world wide. It is gradually coming under control in socio-economically advanced countries, but in developing countries like India it is major rather the most serious public health problem (B.K.Mahajan,1972). This disease is commonly known as Rajrog. It is infective, parasitic and the chronic disease of long duration. It affects the cream of population i.e. adults in age group of 21-40 and especially male rather than female in that age group.

The human type of Tuberculosis is more frequently found in lung while bovine type in intestines, lymph-node and bones. The real cause behind the spread of T.B. is not fully understand but it is said that physical factors such

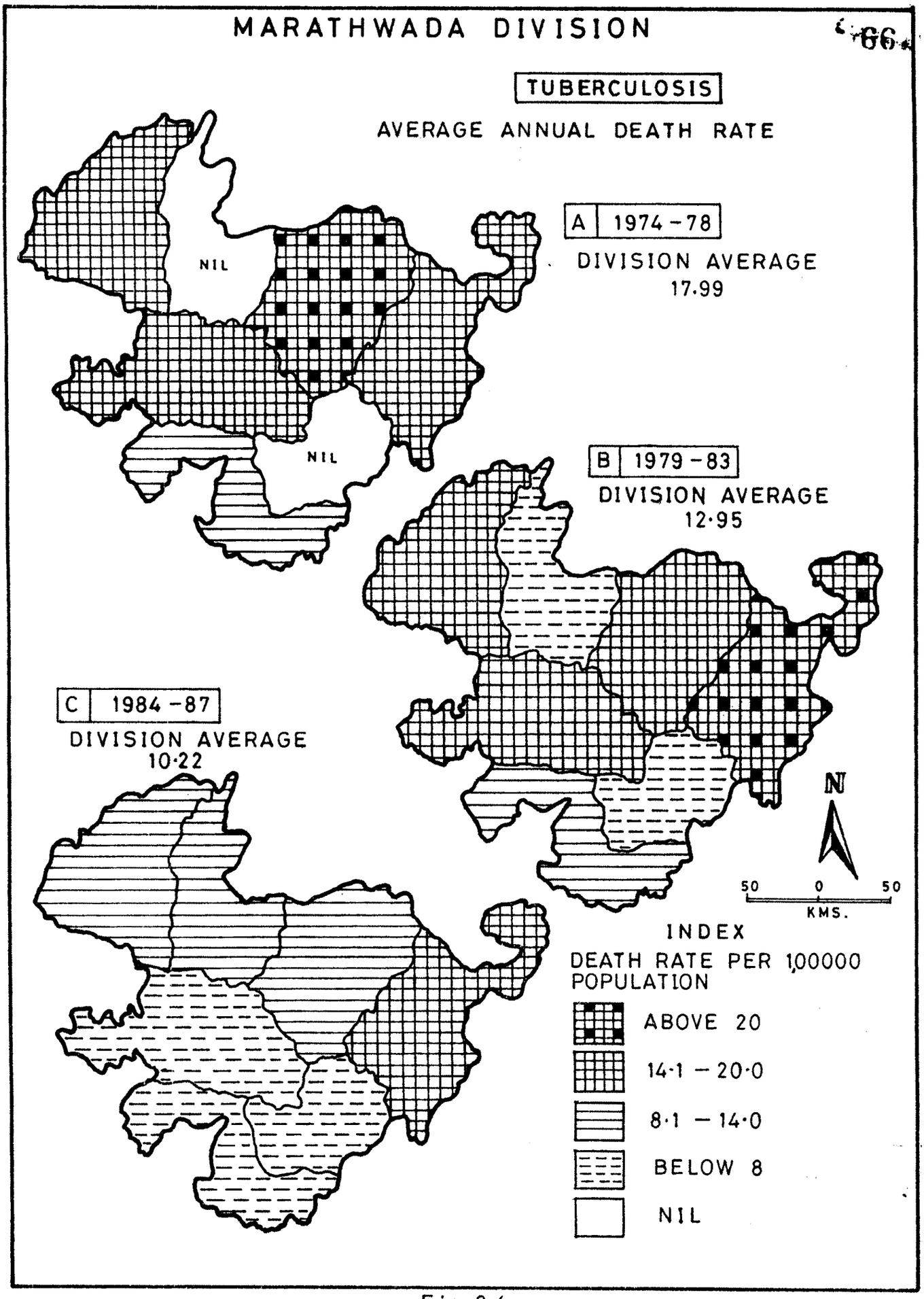
MARATHWADA DIVISION
TUBERCULOSIS
AVERAGE ANNUAL DEATH RATE
A 1974-78
DIVISION AVERAGE
17.99
NIL
NIL
B 1979-83
DIVISION AVERAGE
12·95
C 1984-87
DIVISION AVERAGE
10·22
N
50 0 50
KMS.
INDEX
DEATH RATE PER 1,00000 POPULATION
ABOVE 20
14·1 - 20·0
8·1 - 14·0
BELOW 8
NIL

Fig. 3·4

as climate play a minor role but the socio-cultural factors like housing, diet, economic conditions and attitudes towards the communicable diseases and in particular impact can be demarcated on man and women of working and reproductive ages.

3.5.1 Analysis of Tuberculosis mortality in Marathwada division (1974-87) :

Tuberculosis is one of the major killer diseases not only in Maharashtra but also all over India. Generally, T.B. occupies 1st or 2nd ranking list of disease in Marathwada division. The average death rate of tuberculosis is 46.0/100,000 estimated population of Maharashtra during 1970-74. While in the villages the rate was 23.0 per 100,000 estimated population (Pandurkar, 1981). In the study region, during the first period T.B. mortality rate was very high in Parbhani district (Fig.3.4). The division average mortality rate of this period has 17.99/ 100,000 est. population. The high intensity of T.B. mortality was found in Aurangabad, Beed and Nanded districts. The death rates were not noticed in Jalna and Latur districts. The low death rate has found in Osmanabad districts.

In the second period the death rate of T.B. has decreased successively. In this period the high mortality rate was noticed in Parbhani district. The districts like Aurangabad, Beed, and Parbhani were of moderate mortality rates. During this period the divisional average death rate was 12.95/100,000 est.population. The low mortality rate of T.B. was found in Jalna and Latur districts.

During the last period (1984-87), the Nanded had experienced high death rate of T.B. than other districts of Marathwada division. The divisional average rate of the said period was 10.22/100,000 estimated population. The Nanded district was of high mortality of T.B. rather than divisional average. The moderate intensity of T.B. was found in Aurangabad, Jalna and Parbhani districts and low mortality in Beed, Latur, and Osmanabad districts.

3.6 LEPROSY :

Leprosy is a significant public health problem of Maharashtra. It is a cronic and contagious disease caused by micro-bactarium laprae. It primary affects the skin, mucous membrane and peripheral nerves. It also affects mucles, the eyes and certain internal organs such as the kidney, liver and the male testicles. The common factors in epidemiology of this disease are direct or indirect contacts and low hygienic standards. Direct contacts mean skin, mucous membrane or sex contacts of healthy person with the sufferer i.e. rubbing with each other etc. Indirect contact is brought out through fomites like clothes, shaving brushes, towels and kajal sticks (Mahajan B.K.,1972).

It is still a great social as well as public health problem of Maharashtra. It is very chronic and contagious in nature. It's morbidity in India is second only to T.B.

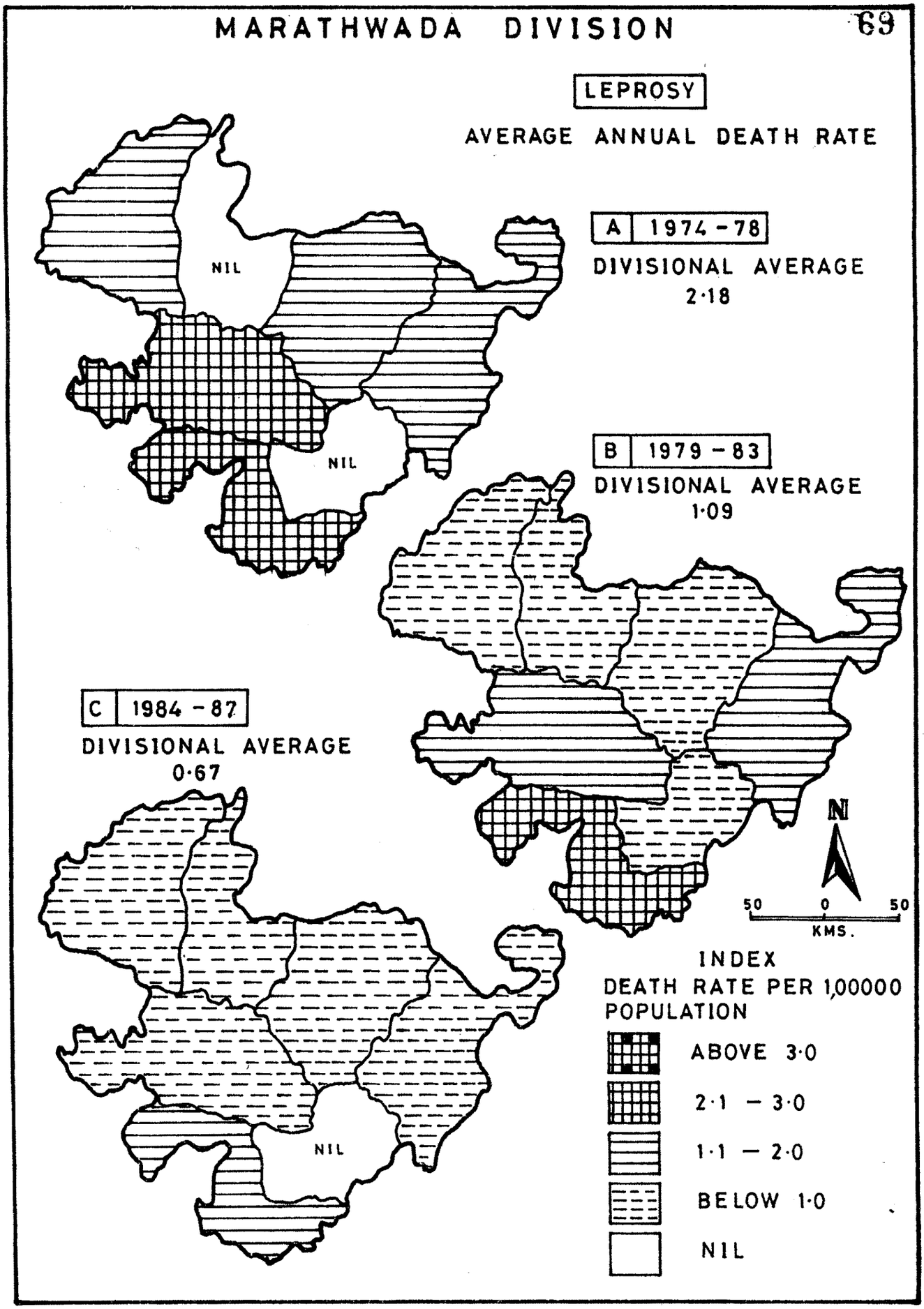
MARATHWADA DIVISION
LEPROSY
AVERAGE ANNUAL DEATH RATE
A 1974 - 78
DIVISIONAL AVERAGE
2·18
NIL
NIL
B 1979 - 83
DIVISIONAL AVERAGE
1·09
C 1984 - 87
DIVISIONAL AVERAGE
0·67
NIL
N
50 0 50
KMS.
INDEX
DEATH RATE PER 1,00000 POPULATION
ABOVE 3·0
2·1 — 3·0
1·1 — 2·0
BELOW 1·0
NIL

Fig. 3·5

The disease remains in the hidden form for number of years. It has been originated from Africa and then spread in India and all over the world.

3.6.1 Analysis of Leprosy mortality in Marathwada division (1974-87) :

The death rate of Leprosy as noticed during (1974-87) varies between 0.67 and 2.18 per 100,000 in various districts of Marathwada division. Choropleth map (Fig.3.5) shows that the mortality rate was very high in the first period. The divisional average during this period was 2.18/100,000 estimated population. The Osmanabad district was of very high mortality rate in the first period. The high death rate cf Leprosy was recorded in Beed. The districts Aurangabad, Nanded and Parbhani shows a moderate mortality rate.

In the second period (1979-83) the rate has reduced in Osmanabad districts. As well as in remaining districts of Marathwada division. The divisional average of Leprosy was 1.09/100,000 estimated population. The high death rate was recorded in Osmanabad district. Beed and Nanded districts show a moderate mortality rates. Remaining districts of Marathwada division show the low death rate.

In the last period (1984-87), divisional average death rate has decreased upto 0.67. Leprosy death rate of Osmanabad districts remained high in Marathwada division.

Except Osmanabad the other districts shows a low death rate. Only in Latur district no leprosy deaths were found.

3.7 TETANUS :

Tetanus is a major tropical infectious disease induced by the specific infective agent viz. costridium tetani. This disease mainly spreads through soil and excreta of animals. The bacilli of tetani enter the man's body through cats, wounds and injuries, hence the dust in the atmosphere acts as actiological factor for its spread. Its infection is very rapid, hence quick medical relief is necessary otherwise there is every possibility of death of the infected cases (Vakil,1973).

India is a country of villages and agriculture is the soul of Indian economy. Most of the Indians are engages in agricultural activities and hence the occurance of tetanus is common. In the agrarian region, the incidences are higher in the rural areas. Use of nonsterilized hospital theatres and the rusty instruments at the time of operations may cause the tetanus infection in the new born children and in the mothers. Tetanus infection may be caused by self infection or may be acquired from the environment. Different types of injuries in the agricultural fields, in factories, road and rail accidents, bare foot walking and in the animals proximity especially in the villages are the factors responsible for the occurance of tetanus infection.

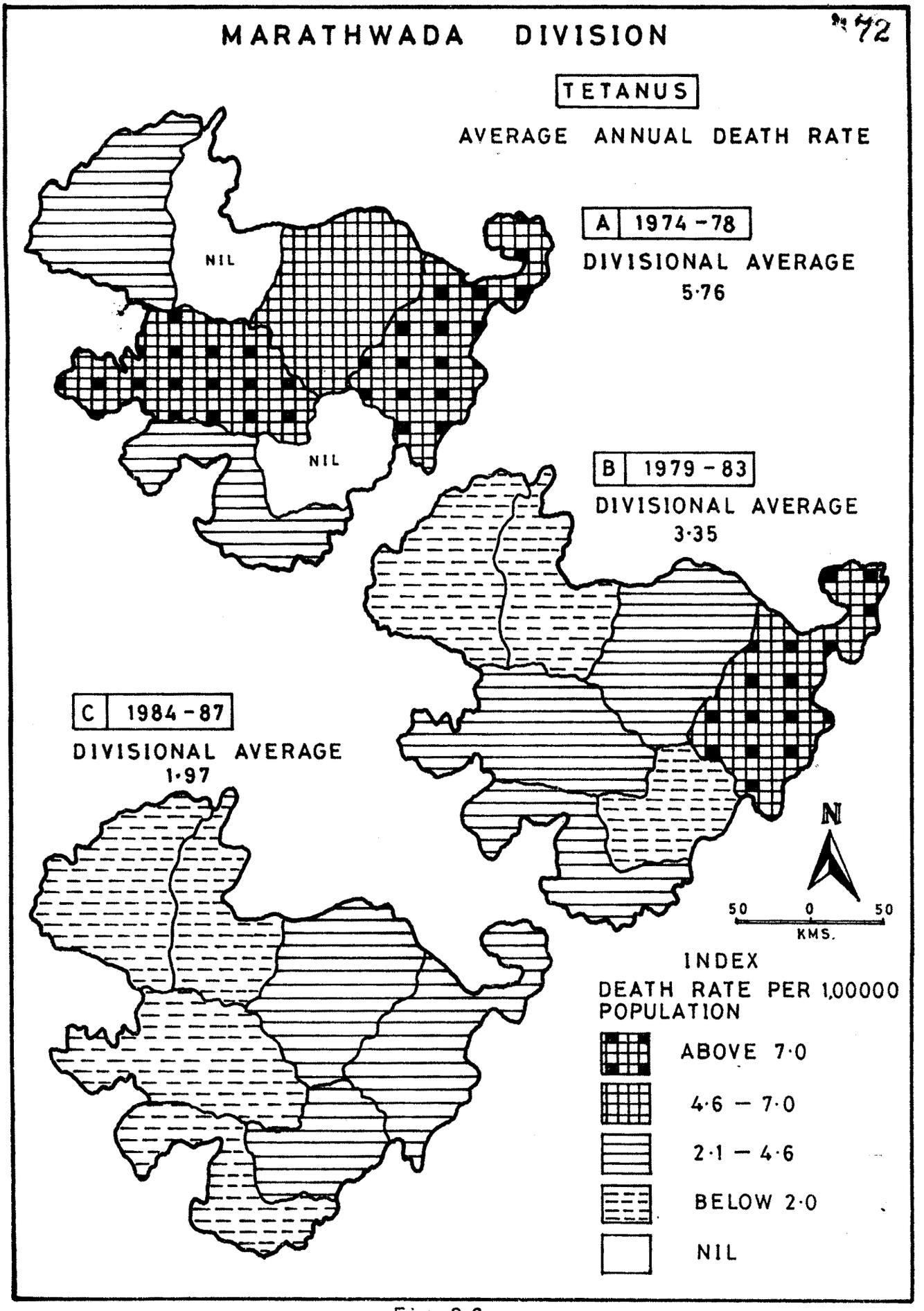
MARATHWADA DIVISION
72
TETANUS
AVERAGE ANNUAL DEATH RATE
A 1974-78
DIVISIONAL AVERAGE
5·76
NIL
NIL
B 1979-83
DIVISIONAL AVERAGE
3·35
C 1984-87
DIVISIONAL AVERAGE
1·97
N
50 0 50
KMS.
INDEX
DEATH RATE PER 1,00000 POPULATION
ABOVE 7·0
4·6 — 7·0
2·1 — 4·6
BELOW 2·0
NIL

Fig. 3·6

3.7.1 Analysis of Tetanus mortality in Marathwada division (1974-87) :

The death rate of tetanus during study period has varied between 1.38 and 8.84/100,000 estimated population. The divisional average death rate of the first period (1974-78) was 5.76 then it has decreased substantially in the next period. In the first period in Beed and Nanded districts the death rate was very high. In Parbhani district it was almost high. Aurangabad and Osmanabad districts death rate was moderate. In Jalna and Latur districts tetanus deaths were not noticed (Fig.3.6).

In the second period (1979-83), death rate has gone down in Beed district but the Nanded district remained of high death rate. The divisional average death rate has decreased upto 3.35 as compared to the first period in Aurangabad, Jalna and Latur districts. The map shows low death rate in Aurangabad, Latur and Jalna districts. The rate was found to be moderate in Beed, Osmanabad and Parbhani districts.

In the last period (1984-87) the divisional average more decreased upto 1.97 as compared to first and second period. In the third period the death rate was almost same in Parbhani district. But in the last period the death rate has increased in Latur district. During this period the rate has highly decreased in Aurangabad, Jalna, Beed and Osmanabad districts.

3.8 MEASLE :

Measle is one of the most prevalent and typical infection disease of childhood. It affects children below the age of five and most common in 2 to 3 years of age. It is caused by virus transmitted by droplet infection due to close association. The disease is of universal nature, but shows serious infection in developing countries.

It is sporadic, epidemic and relatively more severe in rural areas. Mortality rate is higher amongst the poor undernourished and overcrowded population. It is more prevalent in winter and in spring season. It is associated with erruptive fever caused by a specific virus and clinically characterised by fever and catarhal symptoms followed by a typical rash (Park and Park,1979).

3.8.1 Analysis of Measle mortality in Marathwada division (1974-87) :

Measle mortality rate in Marathwada division varies unevenly in the different districts. Districtwise data have been collected for the period of 14 years. The choropleth map (Fig.3.7) shows the variations in the death rate through the span of 14 years.

In the first period (1974-78), the high death rate was observed in almost all Marathwada division. During this period

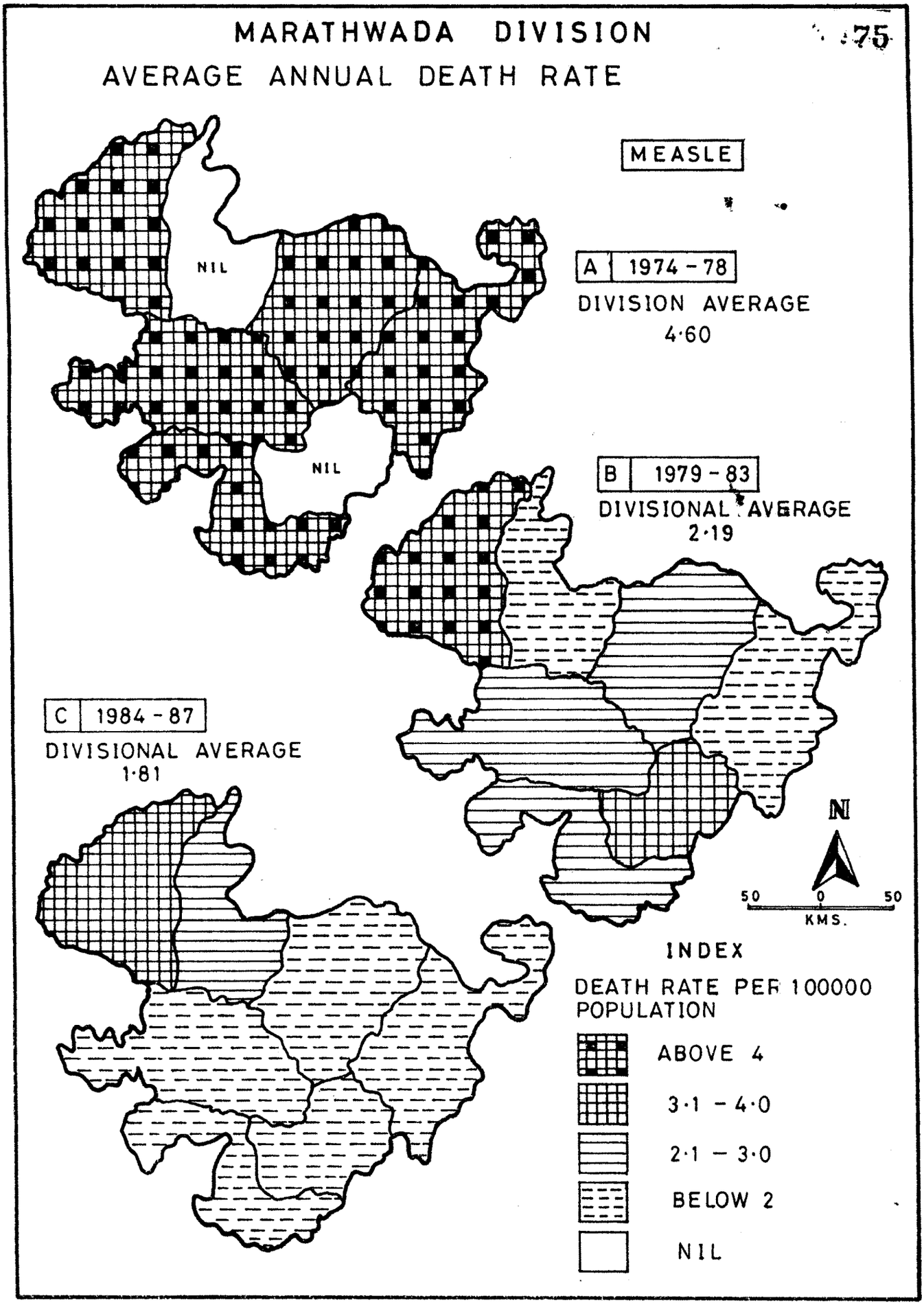
MARATHWADA DIVISION
AVERAGE ANNUAL DEATH RATE
MEASLE
A 1974 - 78
DIVISION AVERAGE
4·60
NIL
NIL
B 1979 - 83
DIVISIONAL AVERAGE
2·19
C 1984 - 87
DIVISIONAL AVERAGE
1·81
N
50 0 50
KMS.
INDEX
DEATH RATE PER 100000 POPULATION
ABOVE 4
3·1 - 4·0
2·1 - 3·0
BELOW 2
NIL

Fig. 3·7

Aurangabad and Osmanabad were not bifercated, hence Jalna and Latur have not noted any deaths. The divisional average death rate was 4.60/100,000 estimated population.

In the second period (1979-83), the death rate has gone down in the districts namely Beed, Osmanabad, Latur, Nanded and Parbhani districts. Only Aurangabad district remained of very high mortality. The moderate mortality was observed in Beed, Osmanabad and Parbhani districts. The very low mortality has been found in the Jalna and Nanded districts. The divisional average has reduced upto 2.19/ 100,000 estimated population.

In the last period (1984-87), the divisional average has reduced upto 1.81 than the second period. In this period, high mortality was experienced in Aurangabad district and moderate mortality rate was observed in Jalna district. In the remaining districts of Marathwada division very less mortality of measle was noted.

3.9 CANCER :

Cancer is one of the major killers of the world. A medico geographical study of cancer distribution in any specific region is of vital importance in order to ascertain specific causes of diseases related geography of area. For instance, the general relation such as cigarette smoking and Lung cancer and low economic status and inadequate

genital hygine and incidence of cervix uteri apply widely. However, very little work is being done in field of geography of cancer in India, partly because of lack of interest in such studies and partly due to limitations in the availability of systematic incidence data (Akhatar Rais and A.T.A. Learmonth, 1986).

Cancer ranks fourth amongst the disease which kills Indian population. It is neither preventive nor curable. The study of treatment of this disease has crossed all the boundaries in the medical and scientific fields. It is always stated that, bother yourself about your cancer when and only when it really bother you because medical professionals have regreatfully stated "What is Cancer, we can't treat and what we treat is not cancer" (Kothari,1978).

It affects all types of living beings. There is no orgon in the body in which cancer can not develop. The most obvious features of many cancer is the development of new growth a nodule, or a tumour in the tissues of their origin. Malignant Neoplasm attributes the tendency of a tumour to spread and to invade the surrounding tissues. The disease is highly curable if it is treated at an early state and adequeately before its spread to distance areas of the body.

Cancer makes no distinction of sex, caste, age or social standing. In the beginning of disease, there is

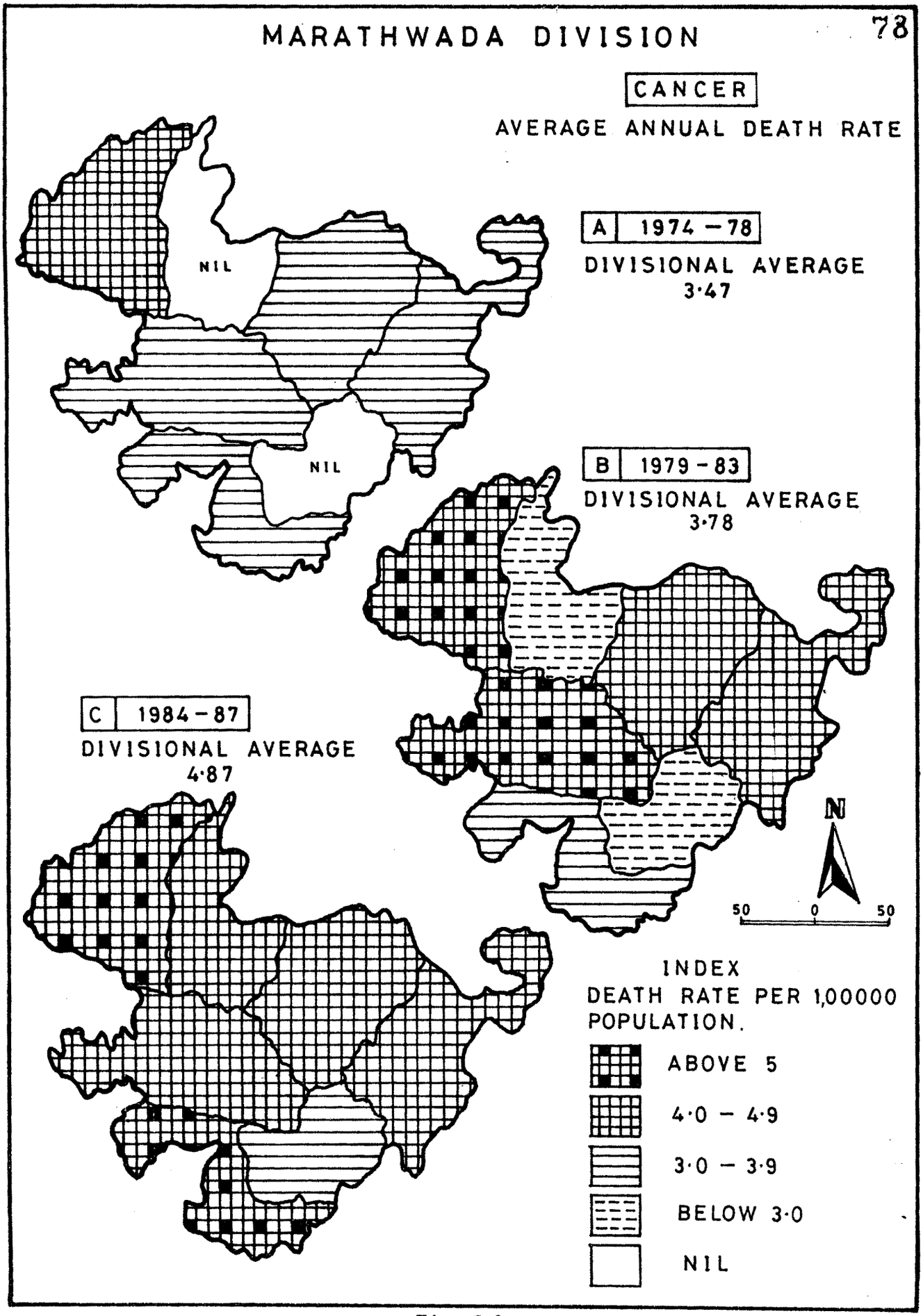
MARATHWADA DIVISION
CANCER
AVERAGE ANNUAL DEATH RATE
A 1974 – 78
DIVISIONAL AVERAGE
3·47
NIL
NIL
B 1979 – 83
DIVISIONAL AVERAGE
3·78
C 1984 – 87
DIVISIONAL AVERAGE
4·87
N
50 0 50
INDEX
DEATH RATE PER 1,00000
POPULATION.
ABOVE 5
4·0 – 4·9
3·0 – 3·9
BELOW 3·0
NIL

Fig. 3·8

process of cell multiplication and partial and complete differentiation, but the newly developed cancer cells are unresponsive to the cell restraining mechanism. It is obvious that tobacco chewing, cigaratte or bidi smoking degenerates more cancer of cheeks, tongue, mouth and of lungs amongst male in Maharashtra, while cancer of uterus and breast area more prevalent in female due to repeated and unsafe deliveries by untrained surgical staff in the rural areas.

3.9.1 Analysis of Cancer mortality in Marathwada division (1974-87) :

It is the reality that in the districts of Marathwada division mortality rates of cancer have increasing every year and death rate was also much higher than the state average. From the districtwise collected data, it has been found out that the cancer death rates vary between 3.47 and 4.87/100,000 estimated population in all districts. Amongst all important diseases, cancer ranks 3rd or 4th rank in order of importance and always shows increasing trend.

The districtwise study of cancer shows that the mortality rate was much higher in Aurangabad district during 1974-78. While in all other districts less mortality is seen. In Jalna and Latur districts during this period the deaths by cancer have not occurred.

In the second period (1979-83), Aurangabad remained of high deaths. The Beed districts death rate has also increased. The divisional average rate of second period was 3.78 which shows increase than the first period. In Parbhani and Nanded districts increased mortality rates were observed and they were above 4.0 to 4.9 than the first period. The Jalna and Latur were less affected (Fig.3.8).

During the third period (1984-87), the death rate of cancer mortality has again increased in all districts of Marathwada division. In generally, higher cancer mortality was found where urban population was more and mortality rate was low in the rural areas of the districts. In the urban area due to high industrialization and pollution the cancer mortality has increased tremendously.

3.10 PNEUMONIA :

Pneumonia is one of the general bacterial infectious diseases. It is associated with the pain in chest and serve breathlessness. Causitive organisms most commonly are pneumococcii types I, II, III and IV. Remainings are due to steptococci and other organisms. Source of infection was exogenous or endogeneous when the resistance goes down.

The higher incidences are in winter, there are mainly two types of Pneumonia - i) Broncho Pneumonia- of which incidence is high below 6 years of age and after 65 ii) Lobar

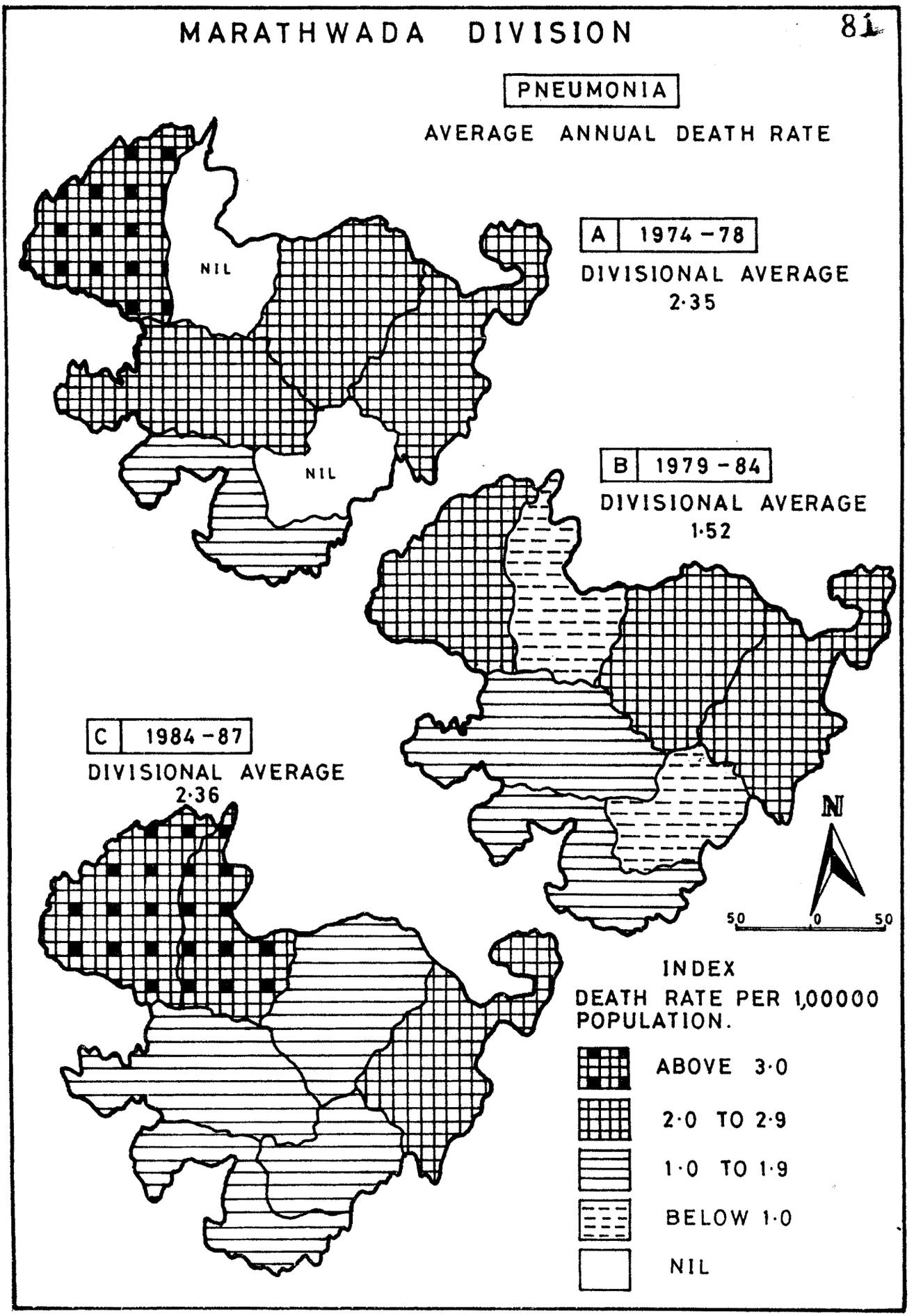
MARATHWADA DIVISION
PNEUMONIA
AVERAGE ANNUAL DEATH RATE
A 1974 - 78
DIVISIONAL AVERAGE
2·35
NIL
NIL
B 1979 - 84
DIVISIONAL AVERAGE
1·52
C 1984 - 87
DIVISIONAL AVERAGE
2·36
N
50 0 50
INDEX
DEATH RATE PER 1,00000 POPULATION.
ABOVE 3·0
2·0 TO 2·9
1·0 TO 1·9
BELOW 1·0
NIL

Fig. 3·9

Pneumonia of which incidences are high after the age of thirteen.

It is usually sporadic disease as the mode of spread being by droplet infection. The clinical diagnosis are more related to environmental disorders especially related to atmospheric pollution (Vakil,1973).

3.10.1 Analysis of Pneumonia mortality in Marathwada division (1974-87) :

In Maharashtra, during 1962-74, the average rural death rate of Pneumonia was 0.06/100,000 estimated population. While in the same period the urban mortality rate has reached upto 0.77/100,000 estimated population. The districts with high urbanization show the higher mortality rates in Maharashtra (Pandurkar R.G. 1981).

As referred earlier, this disease shows its high prevalences in Aurangabad district and moderate mortality in Beed, Nanded and Parbhani districts. The low mortality was found in Osmanabad districts. The divisional average was 35/100,000 estimated population during 1974-78 period. During this period in Jalna and Latur districts the deaths were not noticed.

In the second periof (1979-83), the divisional average has gone down and decreased upto 1.52/100,000

estimated population. During this period high mortality was observed in Aurangabad, Nanded and Parbhani districts. In Beed and Osmanabad districts the moderate mortality of pneumonia was observed. The low rate was noticed in Jalna and Latur districts (Fig.3.9).

During the last period (1984-87), the death rate has increased rapidly. It has gone upto 1.52 to 2.36/ 100,000 estimated population. The very high mortality was noticed again in Aurangabad and Jalna districts. The Nanded districts remained of same mortality during this period. The remaining districts show moderate mortality rates.

3.11 RANKING OF DISEASES :

The study of diseases ranking may be very useful in understanding the distribution in the districts of Marathwada division. The study may provide an idea of relative dominance of different diseases in order of importance.

The ranking techniques used here, are based on mortality rates calculated for particular diseases in particular year and for particular district. For example (Fig.3.10) in 1974 in Aurangabad, Jalna, Nanded, Latur and Parbhani districts the number of deaths due to tuberculosis diseases were highest amongst all, hence this diseases has been given the first rank. While number of deaths by dysentery during the same year were

MARATHWADA DIVISION
DISTRICTWISE RANKING OF DISEASES.

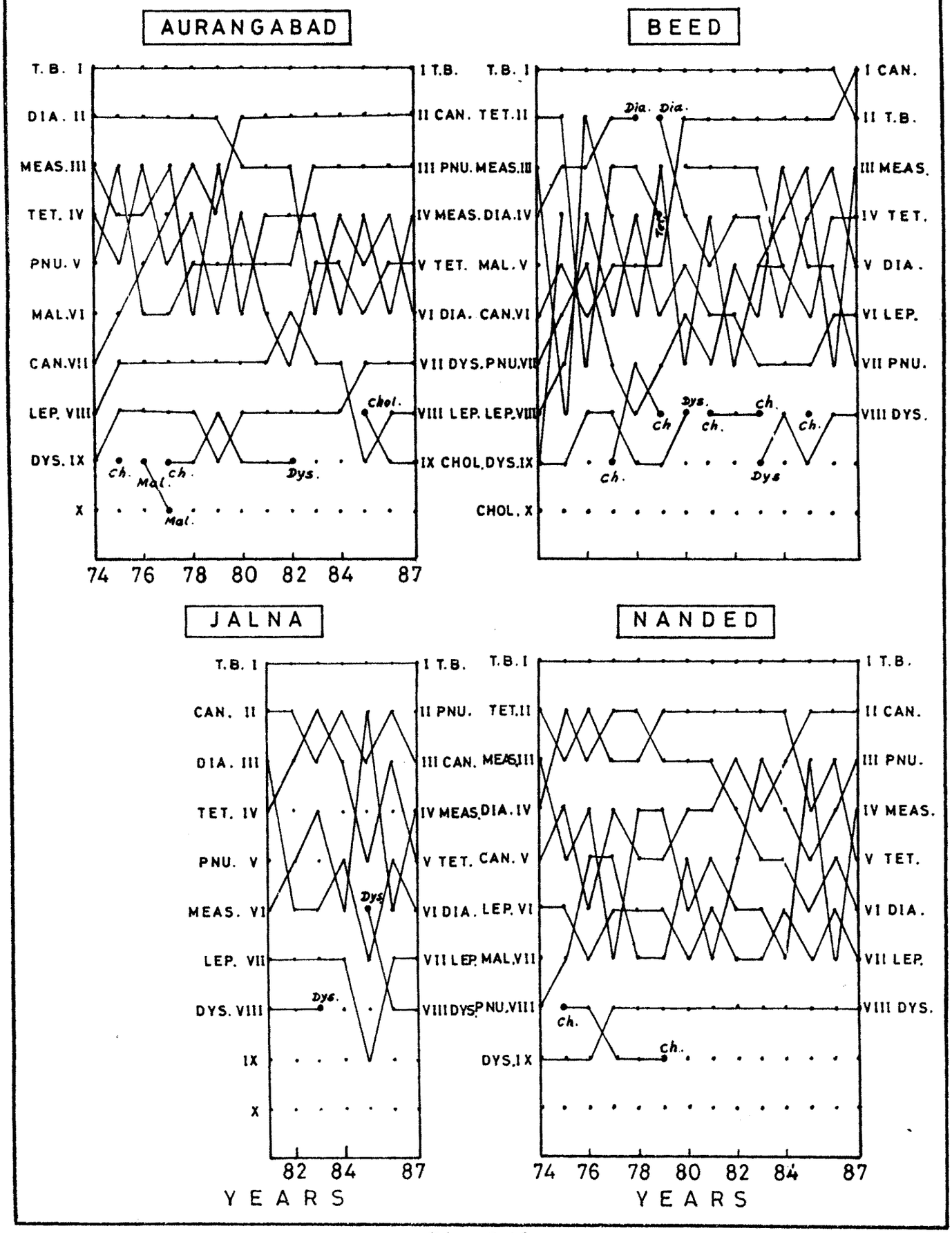

Fig. 3·10

MARATHWADA DIVISION
DISTRICTWISE RANKING OF DISEASES.

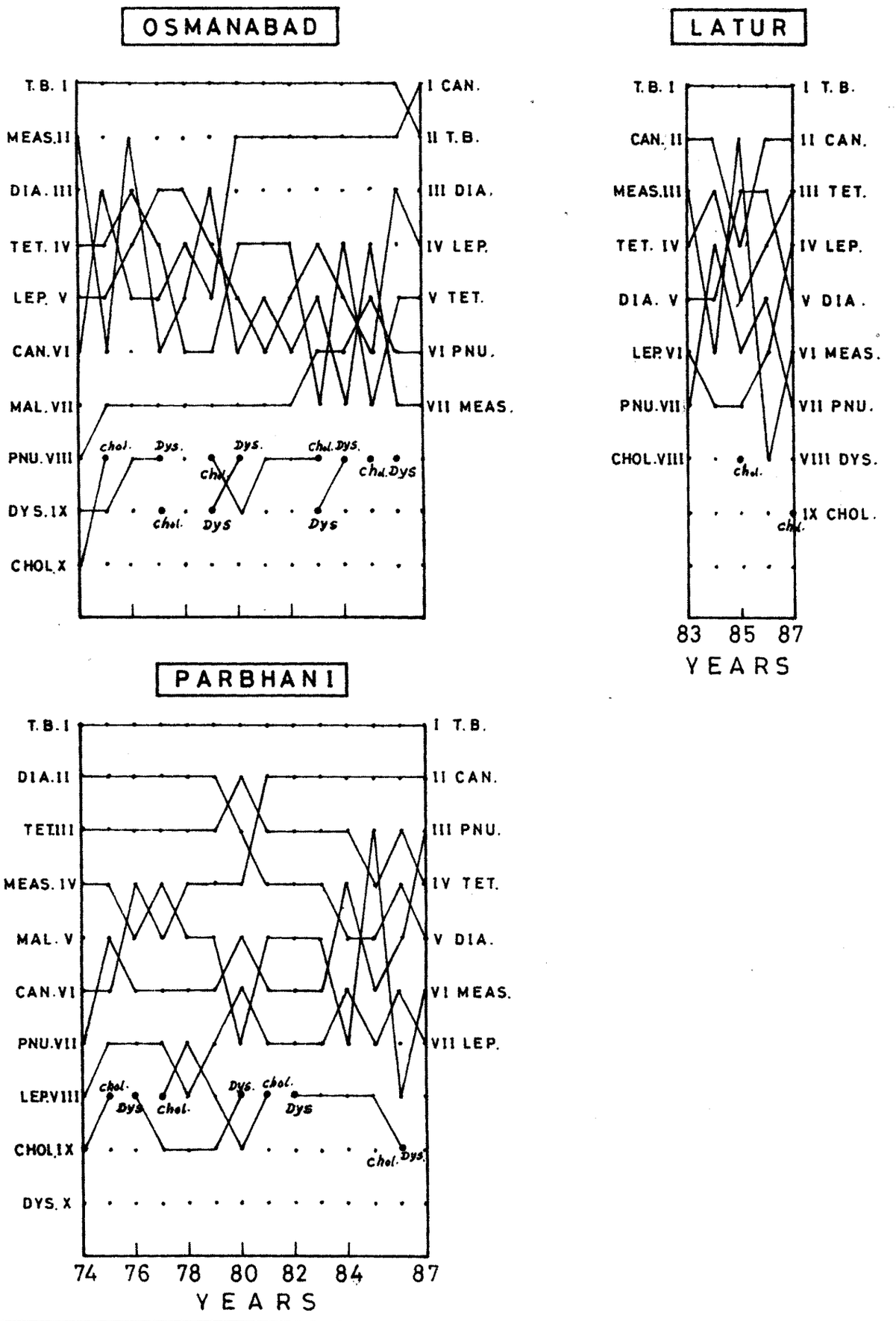

Fig. 3·11

lowest amongst all, hence dysentery was alloted last rank i.e. VIII or IX or Xth. Accordingly, for each disease yearwise ranks have been calculated and are shown in Fig. 3.10 and 3.11.

The districtwise technique shows that cancer whose death rates were remarkably high stands 2nd in the rank order. The eradication of Malaria and Cholera has been noticed in Marathwada division since 1976.

The districtwise technique shown here depicts that T.B., cancer, and pneumonia are the dominant diseases of the Marathwada division. Amongst them, T.B. was of serious nature which remained first in its rank in the district of Aurançabad, Jalna, Nanded and Latur districts. Pneumonia was shown its remarkable influence in this region, particularly in Jalna, Aurangabad, Nanded and Parbhani districts. It remained IInd in Jalana and IIIrd in Aurangabad, Nanded and Parbhani districts. The eradication of cholera has been noted in the Marathwada division since 1975.

Considering the average ranking order during 1974-87, the following three groups of diseases with varying intensity can be brought out.

A) Diseases of higher ranking order (Ist to IIIrd rank)

i) Tuberculosis

ii) Cancer

iii) Pneumonia

B) Diseases of moderate ranking order (IVth to VIth rank)

iv) Diarrhoea

v) Tetanus

vi) Measle

C) Diseases of low ranking order (VIIth to VIIIth)

vii) Leprosy

viii) Dysentery

D) Diseases which have been eradication (since 1975)

ix) Cholera

x) Malaria

3.12 CONCLUSION :

The study of spatio temporal analysis of selected diseases of Marathwada division reveals the positive corelation between physico-socio-cultural factors and spatial distribution of diseases. The physiography mainly determines the spread of cholera in the Godawari basin. Low-lying areas of Godavari basin with the gentle slope ultimately results in water stagnation due to which the spread of cholera is more in Beed, Parbhani, Latur and Nanded districts. Water borne diseases like cholera, dysentery and diarrhoea are dominant in the lowlying areas where the people use unsafe and contaminated water. The socio-cultural factors are more effective in disease proliferation rather than physical factors in the study region. The modified environment due to high degree of urbanisation, industrialisation are responsible for the spread

of cancer, T.B., Pneumonia and other respiratory diseases in the area. Majority of people of Marathwada are engaged in agricultural activities where there is every possibility of getting injuries. Tetanus infection is the result of it and remarkable high rate of tetanus mortality is observed in Marathwada. Parbhani and Nanded districts show high death rate by Tuberculosis (above 20 per 100,000 population). The cancer is mainly observed in Aurangabad and Bid district with more than 5/100,000 death rate. Both diseases show the increasing tendency. In Marathwada division, Tuberculosis, Cancer and Pneumonia are the diseases of higher ranking order. Deaths due to leprosy are also more as compared to other parts of Maharashtra and are mainly found in the districts of Osmanabad and Beed. The diseases like cholera and malaria are disappearing fastly. While the respiratory disorders like pneumonia and T.B. are rapidly spreading in the urban areas. While considering the list of higher ranking diseases, it seems that socio-cultural factors are highly responsible for spread of respiratory diseases and hence planning of this region be made in such away to check the rate of spread of the respiratory diseases and be brought to their minimum level.

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