

CHAPTER - I
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1.1 INTRODUCTION :

Sound mind in sound body. 'Health is the real wealth of human being.' Individual's health relates closely to the various geographical factors. There are various sub-fields which study the health of an individual and of society. Geography is one of them. Many of the geographical factors influence and determine the health of the individual and that of society.

The concepts and theories in sciences and other subjects are rapidly changing due to the advance techniques and knowledge. Now-a-days Geography has not remained only one and unique subject. It has various branches and sub-fields. Medical Geography is the recently developed field of Geography which is one of the systematic branches of Geography. Medical Geography is a science which studies the relationship between pathological and geographical factors. In Pathology the disease, it's causes and symptoms are studied. Some diseases are the results of the geographical conditions of specific areas. It means that not only pathological factors but geographical factors are also referred while studying the disease distribution. For example the pathological factors are causative agents, vectors, intermediate hosts and reservoirs while the geographical factors are physical, human, social and biological factors.

It is important for a medical geographer to study geography in respect of pathogenes. In this connection, the main aim of medical geography is to study and analyse the geographical factors which are responsible for the areal distribution of diseases and for health conditions.

1.2 AN OVERALL STUDY OF MEDICAL GEOGRAPHY :

The term medical geography applies various meanings to different people. Medical Geography, Geography of Health, Geography of Diseases, Geography of Life and Death are the synonymous. Here the concept of health and disease is a very important aspect of human life.

Medical Geography is a study of the relationship between pathological factors which causes the diseases and the geographical factors which give rise to these pathological factors. These factors are causative agents, vectors, intermediate hosts and reservoirs, while geographical factors are physical, biological, human and social factors.

Medical Geography considers disease as a 'Maladjustment to the environment to which numerous factors contribute. Disease, therefore, becomes an anthropological phenomenon with geographical distribution' (Park and Park, 1986).

World Health Organisation (WHO) expressed the definition of health as 'Health is a state of complete physical, mental and

social well being and not merely the absence of disease or infirmity.' It represents a relationship of the body and mind and complete adjustment to the total environment.

Disease has been defined as " A state which limits life in its power, duration or enjoyment." Disease is a departure from the state of health. It makes the changes in the living tissues which are essential for living beings in particular condition of environment and hence disease is nothing but a temporary maladjustment between man and his environment (Pandurkar R.G.,1981).

But scientists in the medical field have not taken much cognisance of the relationship between medicine and geography. It is only because of this medical geographers who have concentrated their attention on the geographical factors which are responsible for the distribution of diseases and health conditions. Thus, the studies in Medical Geography are related with environment and distribution of different diseases of individuals and of society.

1.3 RESEARCH IN MEDICAL GEOGRAPHY :

The Commission of International Geographical Union has declared the separate recognition to the branche of Medical Geography in Geography discipline in December,1968. Medical Geography is recently a developing branch of Geography.

districtwise) 1974-87.

(Figures in '000)

District	1979			1980			
	T	R	U	T	R	U	T
Aurangabad	2270	1925	386	2311	1870	532	2402
Beed	1481	1333	175	1508	1240	229	1469
Jalna	-	-	-	-	-	-	-
Nanded	1610	1317	321	1638	1395	324	1719
Osmanabad	2185	1946	278	2224	1861	341	2202
Latur	-	-	-	-	-	-	-
Parbhani	1736	1483	284	1767	1461	340	1801
Divisional Total	9282	8004	1444	9448	7827	1766	9593

District	1986			1987			
	T	R	U	T	R	U	T
Aurangabad	5 1741	1315	462	1777	1333	479	1812
Beed	3 1500	1260	261	1521	1272	268	1540
Jalna	1 1087	831	269	1100	836	277	1113
Nanded	1 1901	1555	381	1936	1580	391	1971
Osmanabad	3 1074	902	182	1084	908	186	1094
Latur	3 1394	1182	235	1417	1198	241	1439
Parbhani	9 1775	1447	358	1805	1468	367	1835
Divisional Total	5 10472	8492	2148	10640	8595	2209	10804

Table 1.2 : Estimated population of major cities (1974-89).

(Fig. in '000)

Sr. No.	Name of City	Y E A R S														
		1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	
1	Ambejogai	-	-	-	-	-	-	-	-	44	46	47	49	50	52	
2	Aurangabad	186	196	207	170	173	176	279	299	400	434	470	505	539	572	
3	Beed	58	61	63	57	58	59	77	82	84	87	90	93	96	99	
4	Jalna	102	105	108	103	105	107	120	123	126	129	133	136	139	142	
5	Latur	86	91	96	79	81	82	108	114	117	121	126	130	134	138	
6	Nanded	150	157	164	143	146	148	185	193	199	206	213	219	226	232	
7	Osmanabad	37	-	-	-	-	-	-	-	41	42	43	44	45	47	
8	Parbhani	75	79	83	70	71	72	105	111	115	120	125	130	135	140	
9	Parli-Vaijnath	37	39	41	35	36	36	47	50	51	53	55	57	58	60	
10	Udgir	37	39	41	35	36	36	49	51	53	55	57	59	61	63	

SOURCE : Census Reports of Maharashtra State.

Medical Geography is an inter disciplinary branch of medicine and geography.

In the period of fourth century, the influence of environment on the health of man was known to the scientists. Hippocrates has mentioned in his article entitled, 'On airs, water and places' that man's health is directly exposed to the environment and the study of medical geography is closely related with the environment. Hence, we may say that medical geography is as old as Hippocrates.

Geographers have recently paid much attention in the development of this branch. Realising the importance of the study of interdisciplinary nature, many foreign geographers like Learmonth A.T.Z., Howe G.M., Hunter J.M., Audy J.R., Brownlea A.A., Kight R.V., May J.M., McGlashan N.D., Murvay M.A., Pyle G.F., Stamp L.D. and some others have shown much interest in the research in Medical Geography.

In India, Medical Geography is now in it's initial stage. Prof.R.P.Mishra (1970) has published a book 'Medical Geography of India' which helped Indian researchers in understanding general information about Medical Geography. B. Bannerjee and J. Hazra (1974) have worked on the 'Geo-Ecology of cholera in West Bengal'. S.C. Sinha has contributed a paper on the trends of cholera epidemics in Uttar Pradesh at the 23rd International Geographical Congress held at Mascow.

B. Hyma and A. Ramesh have contributed a joint paper on Malaria in Tamilnadu in the 23rd International Geographical Congress.

The research papers have also been published by the Indian Geographers. Akhtar and N. Izahar worked on Environmental factors and cancer distribution in India. Dr. Hyma and A. Ramesh on the 'Geographical distribution and trends in malaria incidence in Tamilnadu'. Dr. R. G. Pandurkar's study on the "Spatial distribution of some diseases in Maharashtra" is a detailed study in a state at district level. Now the present work is an attempt at divisional level in the State of Maharashtra.

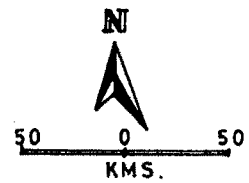
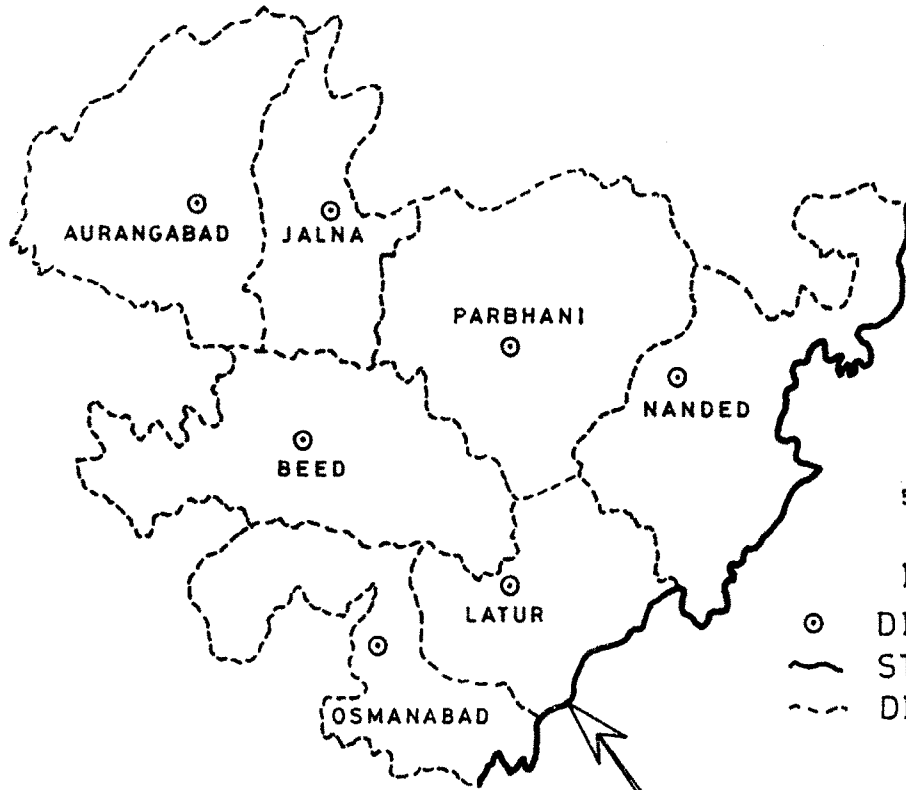
1.4 CHOICE OF REGION AND TOPIC :

The researcher in this dissertation proposes to work on " Geographical study of diseases and health care facilities in Marathwada division." The researcher has selected the Marathwada division with specific purpose. As Medical Geography is concerned with study of areal distribution of diseases and its relationship to the existing environmental, the physico-socio cultural factors are the major aspects which serve to explain the spatial distribution and spread of certain diseases and other conditions of health.

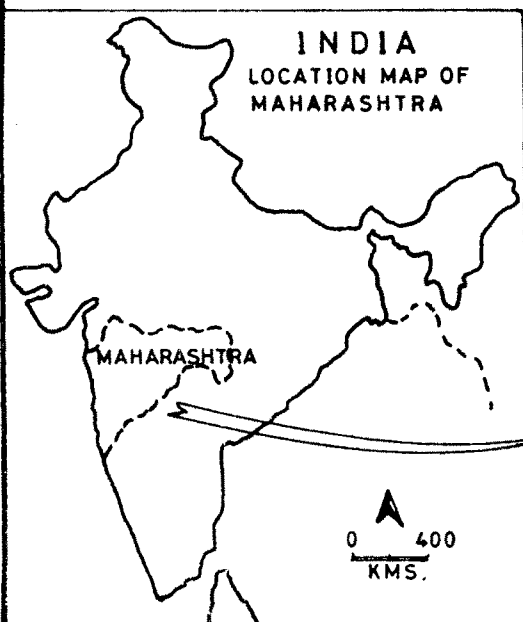
Marathwada division is located in south-east part of Maharashtra state and covers 21.04 percent area and 15.52

MARATHWADA DIVISION

LOCATION MAP

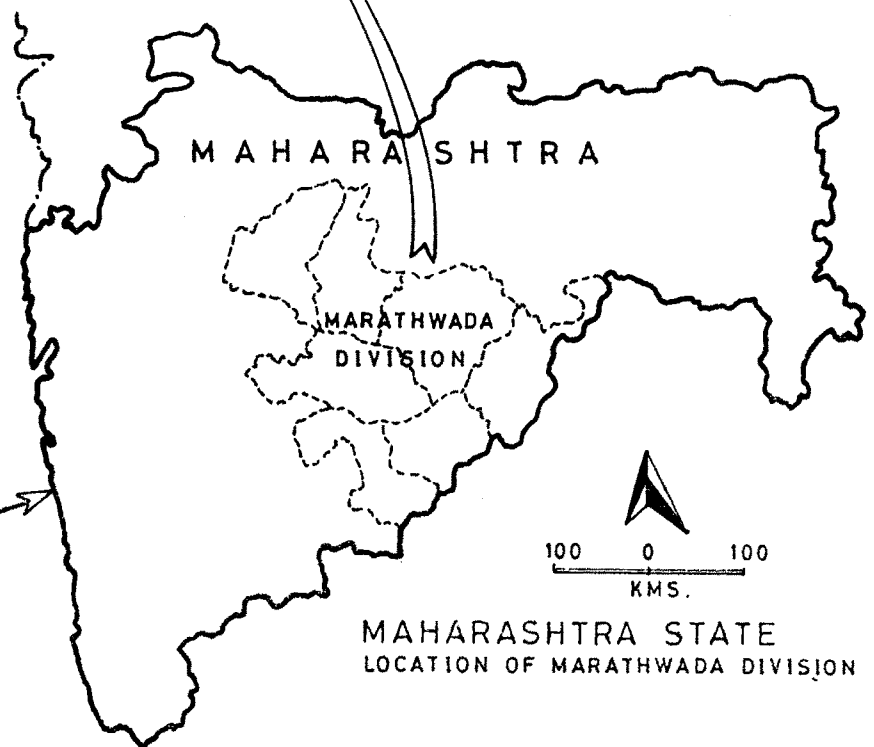


- INDEX
- ⊙ DISTRICT PLACE
 - STATE BOUNDARY
 - - - DISTRICT BOUNDARY



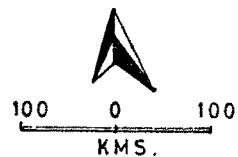
INDIA LOCATION MAP OF MAHARASHTRA

MAHARASHTRA



MAHARASHTRA

MARATHWADA
DIVISION



MAHARASHTRA STATE
LOCATION OF MARATHWADA DIVISION

Fig. 1-1

percent population of Maharashtra state (Fig.1.1).

The area under study comprises of seven (7) districts of Marathwada division namely Aurangabad, Beed, Jalna, Nanded, Osmanabad, Latur and Parbhani. The latitudinal and longitudinal extent of the area is 17°35' North to 20°40' North and 74°40' East to 78°15' East respectively.

The following ten diseases have been selected for the study of which morbidity and mortality data has been collected for fourteen (14) years from 1974 onwards at district level

- 1) Cholera
- 2) Malaria
- 3) Diarrhoea
- 4) Dysentery
- 5) Tuberculosis
- 6) Leprosy
- 7) Tetanus
- 8) Measle
- 9) Cancer and
- 10) Pneumonia.

The diseases which are easily spread from person to person or from animal to person and are caused by specific organisms are called as communicable diseases. The communicable diseases are studied districtwise and citywise. The disease of Ten (10) cities are studied from Marathwada division. These cities are - 1) Ambejogai 2) Aurangabad 3) Beed 4) Jalna 5) Latur 6) Nanded 7) Osmanabad 8) Parbhani 9) Parli-Vaijnath and 10) Udgir.

1.5 A) OBJECTIVES OF THE STUDY :

The specific objectives of the present study are determined and they are as follows. The attempt has been made to examine the relationship -

- 1) Between spread of major diseases and associated environmental parameters and
- ii) Between spread of diseases and socio-economic factors.

1.5 B) HYPOTHESIS :

- 1) The physical factors such as relief and climate play the dominant role in disease distribution.
- ii) The socio cultural factors affect the disease distribution in the division.
- iii) The health facilities are unevenly distributed in the division.
- iv) The health facilities are deficit as per demands and needs of the population.

1.5 C) METHODOLOGY :

The researcher proposes to analyse the available data at various stages. The collected data have been co-related with different physical and socio-cultural variables. As the data collected for fourteen (14) years of period, has been analysed by Choropleth methods. Disease ranking technique is used for understanding the distributional pattern of diseases. The data has been collected at district level, as well as at selected city level. These collections of data have been processed by calculating the different rates, like death rate,

cause specific death rate etc. and the rates have been classified and are shown by various cartographic techniques like pyramid graphs, triangular graphs etc. At appropriate places, the other suitable cartographic techniques have also been used.

1.6 DATA SOURCES :

The major task of Medical Geographer is to portray the information which is related to space and he has to prepare the distribution maps of morbidity. These maps are to be correlated with the environmental set up. For this correct and reliable data are necessary. The researcher has collected the data from different primary and secondary sources.

Data are collected from numerous sources. The area under study comprises of seven (7) districts of Marathwada division. The researcher has collected the data from different primary and secondary sources. Vital statistics is a most important source.

The data collected so far from vital statistics is as follows. It includes districtwise mid year estimated population, registered live births by district, registered deaths by district, registered infant deaths by district, vital statistical rates districtwise, vital statistical rates

of major cities, registered deaths by ages districtwise, registered deaths by causes, reported deaths by causes, reported attack and deaths by months, registered deaths by months etc.

1.7 PROPOSED OUTLINE OF WORK :

The entire work is divided into six chapters.

Chapter I, deals with introduction, an overall study of medical geography, researches in medical geography, choice of region and topic, objectives, methodology, data sources etc.

Chapter II, 'Environment and its influence on distribution and diseases' comprises the physical and socio-cultural factors which are responsible for the incidence, spread and distribution of communicable diseases in the Marathwada division. Certain physical factors have been co-related with the mortality rates so as to explain the spatial distribution and diffusion of certain diseases and other conditions of health.

The title of Chapter III is 'Spatial analysis of diseases districtwise'. Here the mortality data have been collected districtwise of fourteen (14) years (1974-87) and the same have been co-related with certain environmental factors like rural-urban migration and impact of industrialization and urbanization on the surrounding districts.

Chapter IV, deals with 'Spatial analysis of diseases in different cities of the Marathwada division' viz. -

- 1) Ambejogai
- 2) Aurangabad
- 3) Beed
- 4) Jalna
- 5) Latur
- 6) Nanded
- 7) Osmanabad
- 8) Parbhani
- 9) Parli-Vaijnath and
- 10) Udgir.

Chapter V, deals with the analysis of 'Health care services in Marathwada division' where the researcher has attempted to study the spatial distribution of medical facilities in the Marathwada division.

Chapter VI, deals with the overall findings and the conclusion.

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