PART-III
SYNTHESIS
Summary

Incidence and spread of human diseases display distinctive areal patterns. Medical Geography endeavours to unravel these intricate patterns on the basis of the study of man-environment relationship. Man's activities and well-being depend on the entire gamut of influences cast on him by the physical, biological and socio-cultural environment.

The deplorable health condition borne out of undernourishment and substandard living is rampant throughout the State of Assam.

The elements of physical environment, such as climate, relief, soil, drainage, etc. play a very important role in respect of their effect upon the general health of the inhabitants. The climate of the Brahmaputra Valley is characterised by hot and moist summer (which begins in early June and continues until late September) and cool and dry winter (confined to the months of December, January and February) conditions with two transitional periods sandwiched in between them. High temperature accompanied by high humidity during the summer months makes the atmosphere sultry.
and life trying, thereby making the people suffer from
languor of mind and body, depression of spirit and inability
to undergo exertion, during this season.

The period between relatively dry winter and wet
summer is characterised by a rapid rise in temperature and
dust storms from March. 'Poxes' (Basanta), conjunctivities
and many other diseases follow the dust storms that blow in
February and March especially in Lower Assam along the
neighbouring areas of the Brahmaputra. The hot and dry
spells of April and May is the time for diarrhoea, dysentery
and cholera.

The direct effects of unfavourable climates are
greatly accentuated by the indirect socio-economic conditions
such as unhygienic living, insufficient clothing, poor diet,
etc. The diet of the inhabitants of Assam is bulky, i.e. it
just fills the belly but lacks in protein and other nutrients
and therefore unbalanced. They are, therefore, not properly
nourished.

Soil and water are potent elements in the promotion
of the life cycle of human parasites, and they also play a
very important role in the diffusion of diseases.

Moreover, herbs and grasses especially those growing
on damp soil become the breeding ground of germs, worms,
flies and insects. Such areas are particularly malarial.
Furthermore, swamps and floating vegetation obstructing putrefaction, give out foul gases, and thereby make the air polluted.

Though agriculture is the mainstay of the economy of Assam, a large proportion (81 per cent) of the total operational holdings with 43 per cent of the total operational area, are very small and uneconomic. The peasant with such small holdings have to live in object poverty and perpetual debt.

Moreover, a micro-level study on rural development shows that 67 per cent of the cultivated land is held by only 29 per cent of the households, while 14.5 per cent of the households are landless. The per capita availability of operational land is only 0.12 hectare. As shown in chapter two, 83 per cent of the total population of the area lie below the poverty line.

This shows the absolute poverty in which the rural population lives and who fall an easy prey to several diseases, due to malnutrition and sub-standard living conditions.

The socio-cultural environment comprises a complex interplay of factors, and conditions such as cultural values, customs, habits, beliefs, economic status, occupation, religion, diet, housing etc.
The culture of the Brahmaputra Valley is essentially a rural culture, and vast majority of the people live in rural areas, while only a small proportion is urban dwellers. Even a substantial proportion of the urban dwellers are those who migrated to the town only recently hence they continue to be ruralites in values, mores, habits and actions.

The distribution of population in the valley varies widely due to various physical, economic and demographic factors. The density of population in their actual habitats gives a clue to the understanding of the state of health of the people. For, in reality within the villages and slums of the towns density is very high while large tracts under forests and extensive swamps in the valley remain uninhabited. Moreover, vast areas where settlement would have otherwise been possible, are normally used for agricultural purposes. Thus people infact huddle together in limited spots with higher density than is normally imagined.

Influx of immigrants is a contributing factor to the phenomenal increase in the State's population. To add to it there has been improvement in public health service, which has lowered the death rate and infant mortality rate.

The sex-ratio in the valley is 890 as against 930 in the country. Still lower sex-ratio in the urban areas
is due to the presence of a considerable number of working and institutional male population, a large part of which is unmarried while another part leave their families back at home in the villages.

The sex-ratio has some relationship with the general health of the people. Women in general, are less exposed to the hazards of life than men. Yet, we see a steady decrease in the ratio of women in Assam, as in the other parts of the country. It could be because women still suffer from far too many social and economic disabilities which ultimately tell upon their health, and also because a heavy toll of female lives is taken in the earlier period of their reproductive age, especially between the ages of 15 and 24. Furthermore the prevalent desire to have male offspring, is a powerful factor in sustained high birth rates and general weakness of the females.

The age composition in the valley is such that there is a large number of children than old people. Such population structure has important implications for the spread of diseases. Certain diseases affect some age groups more severely than others. As is seen in this study that children below 25 years suffer more from tuberculosis. Thus it is obvious, when the age structure is such that a large proportion is children, the population has many more
susceptible individuals in it.

The fact that majority of the people in the Brahmaputra Valley live in the far flung rural areas, has an impact on the health of the inhabitants. This is because the number of doctors per 1000 population is low, and moreover the basic health and sanitation facilities like purified water, sanitary latrines, etc. are almost absent. In the towns again, there is huddling of persons who come from the villages is different parts of India in search of livelihood. This migration to the urban areas usually involves younger people who along with their young children increases susceptibility to various diseases. Furthermore, migrants from rural areas are not able to shed all those habits and customs which they followed in their rural homes.

The level of education determines, at least to a certain extent, the attitude of the people towards disease and health. The uneducated know very little about scientific progress in the cure of diseases and are often traditionalist, having staunch faith in everything old and an ignorance to scientific explanations of causes and effects of diseases.

Moreover, lack of education among the females is a drawback to the society as a whole. They have neither knowledge about diseases nor basic needs for proper care
sanitation and hygiene.

The standard of living of the people in general is very low, as reflected in their income, housing, diet, sanitation, etc. It is only the individuals in the upper socioeconomic classes who seem to have a better health and nutritional status, while those from lower income group can hardly spend on food-stuffs. Whatever little the latter spend is normally on very cheap stuffs. Thus we find different diseases at different social levels. The people of the lower income group suffer more from skin, eye and ear diseases and diarrhoea and dysentery, whereas the higher income group suffer more from heart disease, hypertension, etc.

Housing does not mean just the physical structure, but also the immediate surrounding and have environment, which are important for the physical and mental health and the social well-being of the individuals of a family. But most of the village-houses do not have the minimum standard even. We find most of them without latrines, they throw rubbish and spit indiscriminately, making the environment dirty and foul.

Water which has a direct influence on the health of the people is rarely purified. A large number of the people drink water straight from the tube well, open well, tank or river without realizing the fact that shallow wells are
liable to pollution from neighbouring sources of contamination such as latrins, urinals, drains, swamps, etc. Some people even believe that the sacred rivers, lakes or ponds cannot be physically contaminated or polluted. So we find people bathing, washing their clothes and drinking from the same source of water.

Food which is the chief source of nourishment for the body, is determined by a complex system of attitudes, ideas and assumptions that form the local culture, including religious restrictions, taboos and ideas. Adequate nutrition is not just eating enough food, but the diet must be balanced, and this balance is lacking in Assam. The deficiencies in the diets are both qualitative and quantitative. The intake of proteins is marginal while the intake of vitamins and minerals falls far short of the desirable levels. Moreover, the people do not have a healthy and desirable way of cooking and eating.

Religious customs and superstitions are important attributes of the individual which have tremendous bearing on the health of the people. Moreover, in religious fairs and festivals of regional and local importance people congregate in large numbers, sometimes even for a week, with little amenities for hygiene, sanitation and health.

It is not only that customs, traditions, fairs and festivals as related above affect the health of the masses
but also lack of proper treatment and care at the initial stage of an ailment often results in the incidence of sustained and fatal diseases.

Diseases both transmissible and nontransmissible, appears as a 'complex': a two factor complex when only agent and host are involved, a three factor complex when host, agent and vector are needed, a four factor complex when in addition to the primary host, an intermediate host or a reservoir is involved, and so on. Diseases arise with the convergence of two sets of factors at a certain point in time and space, firstly, factors that take the form of an environmental stimulus, and secondly, factors that condition the response of the tissues.

Environmental factors that may place human tissues in jeopardy can be studied under three headings: inorganic, organic and socio-cultural. Inorganic factors, such as soil, climatic, etc. have an influence on man's health directly or indirectly. Chemicals, vitamins, etc. needed by the human being are made available through plants and animals which in turn depend upon the climatic conditions, which vary from place to place. Plants found in Assam do not have a high nutritive value, unlike the vegetables found in northern India. Therefore, the vitamin intake of the people of Assam becomes poor.
When all the living beings in a particular environment exist in a balance, the condition may be said to be in mutual harmony. An upsetting factor like a sudden change in temperature can favour a form which is barely existing, and thereby changes the dominance among competitors, establishing a new ecosystem. This social pattern exists everywhere in nature and it plays a direct role in the epidemiology of especially transmissible diseases like malaria and an indirect one in the that of other maladies.

The social and cultural elements provide a wide range of stimuli that play an important role in causing human diseases, for, man's life is regulated by socio-cultural laws, restrictions, frustrations which in turn, create tension and stress, facilitating heart diseases and neurosis.

Climate, food, air, disease agents and their vectors, intermediate hosts, reservoirs and cultural situations can be conceived as stimuli that combine to challenge man's ability to survive. But responses towards environmental challenges differ from person to person. This is due to the variation of the genes carried by the cells of an individual as inherited from his or her parents. The genes even determine the blood-group of an individual. They have two aspects - one fixed and the other plastic. The fixed characters are called the genotype and the plastic ones the phenotype. Plasticity can
also be thought of as the ability to cope with stress. It represents the range within which stress does not produce lethal consequences. Hence, survival of the individual depends on the plasticity which is controlled by the genotype. Mutation is a casual phenomenon in the genetic material of a living organism. Most mutant genes are believed to be harmful, but there are instances where a mutant gene could be beneficial. The example is sickle cell anaemia, the heterozygotes of which were found to be resistant to falciparum malaria.

Due to all these factors, diseases differ from country to country, decade to decade and community to community, resulting in each group of people having its own pattern of diseases.

The common maladies prevalent in India during the past, were gastrointestinal diseases (diarrhoea, dysentery, cholera, amoebiosis) helminthiasis, small-pox, plague, kala-azar, trachoma and goitre.

There has been a definite change now in the disease pattern and we notice an increasing trend in viral infections like poliomyelitis, diphtheria, rheumatic fever, peptic ulcer, cancer, hypertention, heart disease and allergic disorders.
In Assam certain diseases have increased. Malaria, for example, is back again all over the State. The incidence of peptic ulcer is on the increase and so is malignancy. Therefore the study of malaria, tuberculosis, peptic ulcer, and throat cancer in Assam has been taken up by the researcher.

In the case of malaria, protozoal parasite, a unicellular organism is the agent and the anopheline mosquito is the vector whose intermediate host is man. These vectors are inescapably bound up with the factors of geographical environment. Different species of anopheline mosquitoes require different breeding habitats. Malarial mosquitoes have various habits of life and flight, and their peculiarities influence the overall complex pattern of disease occurrence. In Assam they are recorded as 'domestic', for they inhabit dark rooms near earthen floors, under bamboo bedsteads and tables.

Different factors influence the hosts' susceptibility irrespective of ages. Males seem to be more affected by it. Again incidence found to be low in the families and social areas which have better economic condition and consequently better residential provision.

Habit of sleeping outside the house and not using mosquito nets, by some people help propagate malaria.
Humidity and temperature play a direct role on the life span of the mosquito, although humidity has no effect on the parasite that it carries.

Malaria is seasonal and found more during the rainy months with high temperature.

The geographical pattern of tuberculosis is rendered complicated by a large number of strains and variants of the agents and a large number of hosts to which the tubercle bacilli are adapted. The reasons as to why a certain host develop skin tuberculosis rather than that of the lungs, are by no means clear. Therefore, the portal of entry of the agent into the host is only a partial and not a complete explanation to such a problem.

The agent of tuberculosis is a Mycobacterium and the disease is caused by Mycobacterium tuberculosis. The agent is of three types: human, bovine, and avian. Both the bovine and human types are capable of infecting human and animal hosts. The avian type has very rarely been proved to adapt itself to the human body though it does infect other mammalian hosts. The type that attacks human is most frequently found in lung, while the type that attacks bovine population is more commonly found in the intestine, lymph node and bone. This differentiation is due to the portal of entry and the route followed by the agent.
once in the host.

Importance to man is the human and bovine strains of the bacillus. The human strain is responsible for the vast majority of tuberculosis cases in India. The human type is commonly disseminated through the droplets of sputum, and enters our body chiefly by inhalation. The reservoir of bovine tuberculosis is usually infected milk, milk products, meat and sputum. There is, however, less possibility of bovine tuberculosis being a problem in the Brahmaputra Valley because of the practice of boiling milk before consumption.

The host range of the bacilli is practically unlimited. However, as already said, not all hosts are affected by every type of them. If we limit our descriptions of host receptivity to man, we find that when a virgin host encounters the agent, the defence may be adequate and the invading agent may be sealed off by the defence of the tissue. On the other hand, if defence is inadequate, the agent multiplies inside the human tissues, thereby creating new foci in many places and eventually the patient dies. Between these two - intermediate types of responses may occur, where the host is immunized to a certain degree. In such a case reinfection does occur, either because the agent erupts in his own system or because contacts a new source of external infection.

Various factors help the host in fighting with the
attack. Diet is one of them, for a balanced diet will always have a higher degree of resistance to any disease. Apart from diet, there are other factors like income, housing, standard of living, etc. which affect resistance to tuberculosis. Chapter IV of this thesis has been devoted to analyse the influence of these factors in the spread of the disease.

Peptic ulcer which is on the increase in recent years has aroused much interest among doctors. But despite great progress in medical sciences, the exact agent that causes peptic ulcer has so far not been identified. It is however, widely believed that this disease is a psycho-somatic one.

There are various factors that help in the growth of this disease. Emotional, economic, and other environmental factors present in the family situation must be considered while analysing the family susceptibility to peptic ulcer. Although it is evident that this disease is not strictly limited to certain types of persons alone, it has been observed that some personality factors are more closely associated with some disease conditions. Usually highly emotional and tension worn persons living in anxiety, hostility and depression are found to be more susceptible to peptic ulcer. The worries, fears, conflicts and anxieties of daily life can produce gastro-intestinal disorders ranging from the 'nervous stomach' to the painful and often disabling ulcers which are commonly
found in those engaged in trade and commerce.

Fatigue, emotional conflict, and infection may be responsible in determining recurrence of this disease. Frequent emotional conflict in the mind of a person may result from the occupation he pursues and he may have little or no control over it.

Peptic ulcer in the past was more common among women, but now it is found to be increasing among the males. The cause for increasing susceptibility of male has so far not been determined.

Apart from socio-economic status affecting one's health and mind, food and eating habits are also important in influencing ulceration in human stomach. Peptic ulcer may not be responsible for a high rate of mortality, but once it occurs and develops unchecked, the ulcer is likely to last a lifetime, disabling the normal life of a person and causing painful complications. Peptic ulcers have become more common these days as the disease is closely associated with the mental and physical tensions which are mounting in the context of the stress and strain of modern life, particularly in the urban areas.

There is an association between blood group O and peptic ulcer. It is found to be common among heavy smokers. The people between the ages of 30 - 40 years seem to suffer
Cancer is in essence a change in cell metabolism.

There is no proof to believe that cancer is caused by one single factor. It is perhaps justifiable at the present time to speak of exogenous and endogenous carcinogenic agents as the root cause of the malady.

Physical agents, which are carcinogenic, are ultraviolet rays, ionizing radiation, solar radiation and continuing heat.

The list of chemical agents for cancer is a long one, and mention may be made of tars and dyes, aromatic amines, various metals and minerals. Persons in constant contact with these materials are more liable to develop skin cancer.

Apart from other causes deficiency of proteins, vitamins and iodine, food contaminants and alcohol are also implicated in the pathogenesis of cancer. Mechanical agents also help in the growth of cancer: For example, the 'Dhoti Cancer' found among Maharashtrian men and women, is attributed to the habit of wearing tight clothes around their waist. The other mechanical and chemical agents are the 'Chotta' and the 'Mangri'. The chotta is smoked in southern India with the lighted side inside the mouth and the kangri is used by the inhabitants of Kashmir covered by their clothes above the belly to keep themselves warm.
Other factors that help in the susceptibility of this disease are socio-economic status, customs and habits like betel-nut chewing and cigarette smoking. All of which have been dealt broadly in the Fourth Chapter.

Conclusion

On the basis of the investigations and analysis of facts and figures as incorporated in the foregoing chapters, following conclusions are drawn.

Humidity does have a direct effect on the life of the mosquito. For it has been found that wherever humidity is high incidence of malaria is high too. This is not only the atmospheric humidity as such, but also the presence of open pools, pits and buildings which interfere with the natural surface drainage, cause an increase in the number of breeding grounds of malaria. Physico-cultural environments like inadequate water supply, lack of drainage and sewerage facilities and other social habits and customs are generally the outcomes of the level of human operations. These sometime create ideal conditions for the propagation of the disease.

It has been found that Lakhimpur has the highest proportion of swamps and marshes per 10,000 hectares followed by Goalpara and Nowgong. Regions having more swampy areas tend to be more malarious because the swamps and marshes, infact, all inland stagnant water bodies provide ideal abode
and shelter to mosquitoes, snails and a host of other microorganisms, which are the vectors of parasites of the diseases such as malaria. The recent rise in the incidence of malaria may be due to the increasing ecological imbalance arising out of reckless destruction of swamps fishes such as Dorikona (Rasbora), Kholia (Colisa), Cheniputhi (Puntius), etc. which feed on mosquito larvae, thereby keeping a check on the mosquito population. But in most areas the pressure of human population has been increasing, leading to two-pronged destruction of the fish fauna, firstly by destructing their habitat and secondly by killing them recklessly for consumption. This has created an ecological imbalance. Moreover, the mosquitoes have gained resistance towards D.D.T. This is said to be another reason why malaria incidence has risen again despite of the implementation of Malaria Eradication Programme in Assam.

Incidence of malaria is high among the East Bengal Immigrants. There could be a number of reasons for it. But perhaps the most important reason is that they live in the 'charlands' which are marshy and remain water-logged for about eight months a year. Their houses are kucha and rooms are dark. The surroundings of their houses are generally found to be unhygienic. Many of them also do not use any mosquito nets.

An assessment of the hospital records show that of
the malaria patients, 80 per cent are male suffers while only 20 per cent are females. Males have greater susceptibility perhaps because of their greater exposure to mosquito bites. An age-sex analysis reveals that about two-thirds of the male patients belong to 10 – 30 years age-group. This definitely represents a greater exposure of the male workers to Anophe-line mosquito bites because of work situations. The male children below 10 years of age have a lesser percentage of malaria patients as compared to the girls of the same age-group.

The analysis makes clear that exposure is the main cause of malaria in case of both males and females.

Tuberculosis is a disease which is influenced by the physico-social environment. There seems to exist a correlation between swampy surrounding and this disease. This could be because in such a surrounding due to the dampness of the ground, the tubercle bacillus thrives best, and lives longer.

Samples taken by this researcher shows that among the immigrants Nepalese form a greater percentage of tuberculosis patients. Of the total tuberculosis patients sampled 57.79 per cent were found to be immigrants and 42.21 indigenous to Assam. This finding is in variance with the Government data which does not show any relationship between the tuberculosis patients and the immigrant population.
Males seem to be worse suffers of this disease, and could be because they are required to do hard work and lead an outdoor life. Of the male patients two-thirds (64.25 per cent) belong to the working age-group. Unlike malaria its incidence does not suddenly record a fall after 50 years of age.

The age-wise incidence in case of females has a slightly different pattern: females are attacked more at their early age. In fact, about a fifth (18.15 per cent) of the total female samples become a prey to this disease in the 10 - 20 years age-group. In most cases it has been found that the prey is a young mother. There is a sharp decline in the incidence of this disease among females in the age-group of 50 years and above.

The high incidence among the female children and young mothers, could be because of the fact that mothers suffering from tuberculosis often sleep with their children who are below 15 years and thus the latter are attacked. Had they been segregated, probably the incidence among the children would have been less.

Socio-economic conditions and their influence on the incidence of the diseases reveals that 44 per cent were male agricultural workers and cultivators followed by housewives, who have to toil day and night in the dark smoky cooksheds,
laboures engaged in industry and service holders of the lower ranks.

Income seems to have a direct bearing on the incidence of this disease, for 62 per cent of the patients sampled belonged to a monthly income of Rs. 300 only, whereas 7.3 per cent belonged to the Rs. 500 - 1,000 income group.

Living conditions seem to have a direct bearing on the occurrence of tuberculosis. For, two-thirds of the patients came from thatched houses and had cooking arrangements inside the living room itself or in a room attached to it and thereby facilitating a full access of smoke into the living room. People fall on easy prey to tuberculosis because of ill ventilation as revealed by the fact that about two-thirds of the patients came from houses with little proper arrangement for ventilation.

It is seen that the overall economic conditions of the people are poor. For, even the standard of environmental sanitation, especially disposal of human and animal refuse, affects human health, and most of the patients are found to use open fields in response to natural calls.

Poverty and ignorance have been playing a very important role in the spread and propagation of the diseases. Two-thirds of the patients were seen to have only two meagre meals a day and that too without much protein containing
substances. Moreover, they were ill clad and could not protect themselves from the cold or heat, and thus they fall an easy prey, for, they do not have the required power of resistance.

Although it is difficult to find a definite cause for peptic ulcer, without a thorough epidemiological study, certain relationships between the disease on the one hand and physical and mental stress and strain on the other, can, however, be easily established. People engaged in physical labour especially cultivators seem to have a high incidence of peptic ulcer apart from the businessmen. Physical labour, is always bereft with strain and tension. The businessmen on the other hand, has irregular meal timings. And it has been noticed that temperamentally, persons suffering from peptic ulcerations are restless, anxiety worn, ambitious and compulsive.

Urban dwellers who live more densely tend to suffer more, because barring a few, most of the urban dwellers have to pass their life through economic hardship. Many of them are under-employed and unemployed. Thus poverty, lack of adequate employment and absence of social security coupled with din and bustle of urban life generate tension in the minds of them.
People engaged in trade and commerce have a high incidence of peptic ulcer. This relationship is significantly relevant because samples taken by this researcher do show that persons engaged in trade and commerce have a higher percentage of incidence. Regions with a higher degree of urbanization also have a larger percentage of commercial population. Those having trade and commerce as their primary occupation tend to live in urban areas a busy and irregular life with strain and tension hanging over them all the time.

From samples it has been found that males suffer more than females from peptic ulcer. It is absent among the children below 10 years of age. Three-fourths of the patients belong to the active age-group of 20 - 50 years. This obviously renders many people incapable of hard labour. Males and females suffer equally, probably because the economy having been changed, both sexes have to struggle equally for a meagre living and are subjected to similar stress and strain.

Samples taken show that 54 per cent of the patients came from urban areas and the rest from villages. There is no variation in the incidence of this disease in respect to religion, food habits and social customs. It is found more among the poorer section of people whose monthly income is
less than 3.500 a month.

Irregular meal timing perhaps is a cause for this disease, for, both cultivators and those engaged in trade and commerce tend to be unpunctual in their meals, and have to pass through physical and mental strain.

Addiction to narcotics and beverages does seem to have a relation with peptic ulcer, for 97 per cent of the patients were tea and coffee drinkers, 80 per cent were smokers and 70 per cent had the habit of chewing betel-nut.

Throat cancer, which is on the increase these days seems to bear a positive relation with the number of the immigrants. This could be because they are not used to the climatic conditions and the type of water, etc. of this region. Out of the various immigrant groups, Nepalese seem to suffer more from throat cancer, whereas the Bengalee population suffer less. Since the exact cause for cancer is unknown, the reason why it is less among the Bengalee immigrants, is difficult to state, but all the same, the incidence is less among them. One reason that can be attributed to the prevalence of cancer among the Nepalese is their addiction to country liquor and smoking, apart from their unhygienic and sub-standard living with cows and buffaloes.

Here again there seems to exist a relationships with the commercial population. This is because their
Occupation requires them to move around in the commercial hubs, inhaling automobile smoke, various gases and dust prevalent in the atmosphere. It was found in the investigation proportionately more urban people suffer from this disease than the rural ones. Doctors who believe that betel-nut is a helping factor in the incidence of cancer may be true, because samples taken by the researcher shows 76 per cent of the patients as habitual betel-nut chewers, while 75 per cent were heavy smokers and 88 per cent were addicted to tea and coffee.

The incidence of this malady among the children below 10 years of age was not found. Below the age-group of 20 years, males were negligible, though females accounted for 2.17 per cent. Incidence both among males and females increases abruptly after 30 years of age. Patients in the age-group of 30 - 50 years were 55 per cent in case of males and 59 per cent in case of females. Following which there is a sudden decline in case of females but a slow decline in case of males. The high incidence which is found in the active age-group, needs to be thoroughly probed. The present work has limited scope and resource for such an in-depth investigation.

As stated earlier, those occupied in trade and commerce seem to fall a easy prey. This is perhaps because
they are required to move and work in the areas with greater chances of atmospheric pollution. Doctors believe that cultivators suffer more from throat cancer, but samples taken by the researcher shows that it is normally the urban dwellers and business men who suffer more, when each group is compared to their respective total population.

A significant finding here is that about two-thirds of the patients used tube wells. Radioactive elements in the soil and ground water might have, in this case, a part to play.

Lastly, it may be pointed out that the general population must be aware of the 'danger signals' and should consult a doctor for treatment immediately, if any of the following signs are noticed.

(1) Lump or hard area in the breast.

(2) Change in a wart or mole

(3) Persistent change in digestive and bowel habits.

(4) A persistent cough or hoarseness.

(5) Blood loss from any natural orifice.

(6) Swelling or sore that does not real and

(7) Unexplained loss of weight.
Improvement in personal hygiene - oral, skin and genital, will help to reduce the incidence of certain types of cancer.

To sum up, in short, it has been found out that the physical environment does not alone produce ideal conditions for healthy life but the actions and inter-actions of cultural phenomena of a group of people inhabiting an area are in no respect insignificant. That diseases are multiple phenomenon is borne out by this study. The incidence of a particular disease is likely to occur, only when various factors comingle in time and space.

The physical environment, viz., surface topography, climate, soil, drainage, etc. provides ideal conditions for the growth of germs and consequently of high incidence of certain diseases. Its proliferation occurs when the geo-system is disturbed by human actions. Cultural environments like dense and sub-standard living, inadequate water supply, lack of drainage and sewerage facilities, etc., mostly create ideal conditions for the spreading of diseases.

Thus no single factor may be held responsible for the incidence, proliferation and control of diseases. The general public can help themselves in their own way. But this needs a conscious effort from each citizen. The municipal, panchayat and Government authorities, are all willing to join hands and
fight diseases along with the public, but not for them. If they take the line of least resistance and rest in discontent, it will be impossible to solve the problems. People must realise that every action has an equal and opposite reaction. People must wake up before their indifference boomerangs on them.

The present study of geo-medical morphogeny, of certain diseases over the Brahmaputra Valley, has been carried out with various difficulties and limitations, as stated earlier, and, therefore, does not claim to have dealt all aspects of the problem. But it is hoped that this work may inspire the researchers in the disciplines of geography, sociology, anthropology, and medicine to undertake more intensive, in-depth and purposeful studies on a wide range of aspects of the diseases prevalent in this part of the country both at the micro and macro regional levels and in spatio-temporal dimensions. A very useful study that may urgently be undertaken is the verification of the findings of this work at the micro regional level with the help of primary data collection and quantification. Some of the possible topics for research in this line may be as follows:

(1) Distribution of population in relation to medical facilities in the different districts of Assam.
(2) Nutritional deficiency and health hazards in rural areas.

Such a study will help in the formulating a meaningful plan for better health and hygiene for the people of this part of the country.