CHAPTER X

CONCLUSION
Among the several disciplines, which study the various ill health condition (health hazard) of the people is one form or the other, Geography is one. Various environmental conditions and nutritional status of human being play a vital role in the incidence of different health hazard. It is a well known fact that biological processes are directly controlled by the natural environment, while resistance power of the human body is directly governed by the nutritional intake.

The vicious circle of diseases that comprises of low production, low income, poor health services, more desires and more poverty, not only poses a problem of health and sanitation but also of social welfare and social justice. The type and the amount of food available for human consumption is dependent to a great extent on the physical and economic geographic conditions. Poor food supply means poor health resulting from malnutrition. In this way the main factors which determines the frequency of various health hazards can be grouped into two.
1. Physical determinants
2. Socio-cultural determinants

PHYSICAL DETERMINANTS

Physical determinants include non-living phenomena, i.e. physiography, geology, climate, soil and vegetation etc.
Soil affects the agriculture and vegetation. Climate is the main component which influences the diseases in one or the other way. Temperature and fresh air provide better condition for human life. Moreover, three seasons of climate in India, viz. summer, winter and rainy provide different climatic conditions. Generally winter season is known as healthy season, while summer and rainy season have very close relation with frequency of respective health hazards. In every inter-related period, a few specific diseases are generally reported. The general disorder of each season is also very specific. Temperature, humidity and rainfall are the main components of climate which influence the frequency of diseases directly or indirectly.

ENVIRONMENT AND DISEASES

The term environment indicates all the surrounding factors which affect the survival of living organism. It comprises of all physical and cultural phenomena, especially air, water, micro organism (germs) and man-made environment. In this sense, the whole of the living conditions represents a complex of regulatory factors which also affect the possibilities of utilization of the building and energy supplying factors. As far as human health is concerned environmental sanitation plays a vital role in preventing health hazards, prolonging life and promoting health and efficiency.
Human beings have tried to change his physical as well as cultural environment for their better use. Man himself has been polluting his own environment which has frequently led to the occurrence of endemic and epidemic diseases.

POLLUTION AND HEALTH

Pollution is that which contributes making worse the environment and it is mainly due to increasing industrialization, multiplying population, ever growing cities, motorization etc. Polluted air and unsafe drinking water are the main affecting factor for the number of health problems.

Pollution of air by dust, smoke, toxic gases and chemical vapours has resulted in to various health hazards. Dust is one of the major components of environment, particularly in summer season mixed with the air in the season it serves as a pollutant in the natural air and causes many diseases. In Diamond Cement Factory, Narsinghpur (Damoh) it is observed that throughout the year living environment is dusty. The dust flow over an area of at least ten kilometres radius. There are layers of dust lying on green trees and crops. The little pond in the area is no exception to such exposure to dust the water used both for bathing and drinking purpose by inhabitants is harmful to the health, particularly it damages the lungs and affects eye irritation and is also responsible for impured pulmonary function. In Straw Board Works Isharwara (Sagar) the
accumulation of raw materials in the adjoining open space mill is kept for the process of decomposition for manufacturing purpose, cause stinking smell which is directly inhaled by men and animals of the affected area and cause various respiratory troubles. In the Diamond Mining Industry (Majhgawan (Panna)) the stone cutting process is on a large scale. As a result dust is caused and spreads to a long distance. It affects the people who fall prey to lung damage, gall bladder, renal stone etc.

Living surrounding environment is also polluted by the house smoke, smell, heat, cold, flowing domestic used water, problem of solid waste disposal, dust of small scale cottage and household industries. Bidi-making is one of the sources of earning in the study region particularly in Sagar town. People use to sit at a place for long time till late night for bidi making. Each member of the family including children participate in it. Scheduled caste and lower class families are generally engaged in this work due to poverty. Waste of the tendu leaves are burnt or thrown on roadside or near the houses. In this way the whole family can be affected from ill health condition. Smoke of tendu leaves and smell of tobacco are harmful to lungs and may develop tuberculosis and other respiratory troubles.

Contaminated water is responsible for the occurrence of various health hazards directly as well as indirectly. Usually water pollution takes place by the people of nearby
surrounding where it is used for drinking and other purposes like bathing of cattle, washing the clothes and utensils etc. Wells, rivers and small rivulets are the main sources of drinking water. Both the people of urban and rural areas take polluted water particularly in summer season when the wells, tanks, river and other sources of water dry up. It is found in rural places that often people take brakish which is not potable. Some villages have water sources containing excess iron, musty colour and muddy. Even in urban places where tap water facilities are available people are bound to store water in unsanitary containers due to irregular water supply which creates the possibilities for contamination. Due to unsafe drinking water frequency of water-borne diseases are more in the entire study area. Mostly the places, where water supply is available during summer season people get water in alternate days, which creates the possibilities of contamination. If the water is stored for long period, aerobic bacteria will be present in the water. This may also develop vegetable growth, bad smell and colour of water.

WASTE DISPOSAL

Waste disposal is another serious problem of the society. People throw it on road as well as near their own houses which creates unfavourable environment for living. Cow-dung and human excreta can be seen easily on the roads of the villages and even in cities in morning hours. Besides
human being, animal are also create the unfavourable environment for living.

CULTURAL DETERMINANTS

Every society has its own cultural traits by which respective way of life is regulated. Dietary pattern, consumption of food stuffs, living pattern, cultural tradition, treatment system etc. are mostly determined by the cultural pattern of the society. It is also observed that traits of various health hazards and health of the people are influenced by the cultural traits.

Literacy influences the nature of work as well as food habits, cooking method, efficiency of work particularly its quality and living standard and health care. Sex ratio and density of population have close relation with disease incidence.

To have a shelter is the prime necessity of man. Well maintained houses have fresh air, and control diseases. Poor or defective houses have many health troubles such as skin infection, diphtheria and other mosquitos infections. Large size of family is reported to be in the low standard of living, and therefore, their health condition may also be registered as unhygienic. There are many mouths to feed but the income is quite insufficient to cater their needs. The family is often the playground also for such communicable diseases. Early marriage and frequency of pregnancy are
dangers of life and create many health problems like deficiency of blood, general weakness, low resistance power etc. They get immunized and seasonal and long term health hazards.

Besides, purchasing power is also a main factor determining the income of a man. It limits his expenditure and influences the food intake, their food habits, standard of living etc. All these factors are responsible for environmental and deficiency diseases.

DIET AND DISEASES

Diet is a combination of different kinds of food which are available for consumption. It is required to supply the body building materials and wear and tear of tissues. An adequate quantities and a proper proportion of nutrients keep the structure and functions of the body in a sound state. Abnormal diet leads to a large number of diseases of the body. Our health, work, energy etc. are directly related with the intake of food.

FOOD HABITS

The diet of the people is influenced by local conditions, e.g. religions, customs, beliefs and availability. It varies from place to place according to one's purchasing power. A majority of population of the study region is vegetarian. They consume cereals and millets; and vegetables according to local availability. Fruits are also consumed according to
seasonal availability. Generally each and every farmer keeps a cow or a buffalo that helps in meeting out the demand of milk. The urban people are determined by their purchasing power of the family. Non-vegetarian food is consumed by specific communities but there are very few families who consume it daily.

The foodstuffs commonly consumed in the study unit are wheat, jowar, rice, pulses, seasonal vegetables, seasonal fruits, milk, sugar or gur, nut and oil seeds etc.

DIETARY HABITS

Rural dietary habits are generally controlled by their local environmental conditions and availability. Normally people take food three times a day. Most of the people take previous day left meal in the morning as breakfast. Lunch comprises of dal, chapati, rice, vegetables or pulses and supper (night food) is fairly rich. On the eve of festivals or on the arrival of guest special meal is prepared like sweet dishes. Urban people have their own habits of taking meals twice a day. Only a few families who go for duty in the morning take breakfast. There is a great variation in upper class and lower class families both in the quality and quantity mainly due to the purchasing power.

The consumption of various food stuffs are quite different in rural and urban areas. In rural places the consumption pattern of various foodstuffs mainly depend on
local production while urban areas are mainly influenced by the purchasing power of the family.

The diet of the study area is classified into two groups:

RURAL DIET

It has been analysed communitywise because each community has its own dietary habits and is controlled by cultural traits. The average intake of rural families are 2490 calories, 56.8 gm protein, 815 mg calcium, 18.0 mg iron, 3742 IU vitamin A, 0.83 mg thiamine and 1.66 mg riboflavin. Out of them Thakur community consume more calories. Patel consumes more protein, calcium, iron, vitamin A, B₁, and B₂ among all the respective class while Scheduled caste class consumes lowest amount of nutrients in rural areas. Thus Patel community occupies first rank, Thakur second, and Soni third rank. Backward classes occupy the lowest eighth rank.

URBAN DIET

In urban areas various types of communities are living together, their caste, service and ways of living are also quite different. Their diet is influenced by respective communities traits. The average intake of nutrients in selected towns are 2258, 54.7 mg and 794 mg of calories, protein and calcium respectively. Besides this iron 17.5 mg, vitamin A 3791 IU, thiamine 0.70 mg and riboflavin 1.5 mg are
also consumed in their diet. Tikamgarh consumes more food among other towns and occupies first position while Chhatarpur occupies second, Narsinghgarh the lowest and ninth position respectively.

The intake of both the urban and rural population of the area is quite deficient. Undernutrition and malnutrition both are responsible for the frequency of deficiency diseases and other ill health condition due to weak resistance power. A few specific diseases occur due to specific nutrients in the diet of the respective people. Some specific disorders which may occur due to the deficiency of certain nutrients are as follows:

PROTEIN CALORIE MALNUTRITION (PCM)

It is one of the serious problems of the area, particularly among children. PCM affects the growth, loss of weight as well as during this deficiency, susceptibility to infection is more. The consumption of protein in food is not found adequate. Average intake of calories 2372 and proteins 55.7 gms have been reported in the area. During field work it is also observed that food stuffs which are generally consumed by children are not rich in proteins. Retarded growth is one of the serious problems in the study area.

VITAMIN A DEFICIENCY DISEASES

People consume food stuffs rich in vitamin A on the basis of local availability. Average intake of this vitamin
is 3742 IU in rural areas and 3791 IU in urban areas. Night blindness (dim light) xerophthalmia, conjunctival xerosis and biotot spots are the main disorder of this vitamin. Pain in the eye, dry skin, are the main symptoms of this deficiency. Night blindness is very common during old age particularly in rural areas.

IRON DEFICIENCY DISEASES

This condition arises among children and women mainly due to iron deficiency. Anaemia is largely reported in children and women. Loss of weight, constipation, liver trouble, general weakness etc. are the main symptoms. Average intake of the area is 18 mg in rural and 17.5 mg in urban areas. According to private doctors of the study region every second women is anaemic mainly due to poverty early marriage, high birth rate etc.

DISEASES DUE TO DEFICIENCY OF B GROUP VITAMIN

Vitamin B group consists of a group of twelve vitamins of which B₁ and B₂ are very essential for the maintenance of the health of tissues and of red blood cells. Vitamin B₁ (thiamine) deficiency is beri beri which affects breast-fed infants aged 3-5 months. Loss of weight, absence of ankle jerks and presence of calf tenderness etc. are the main symptoms of B₁ deficiency in adults. Riboflavin B₂ deficiency includes angular stomatitis, soreness of the tongue, redness and burning sensation in the eyes and general weakness in the body.
HEALTH FACILITIES

Primary health centre is the smallest unit of the government health care system by which government has been trying to provide the health facilities to the people of the area. Generally PHC is supposed to provide health facilities in more than 300 kilometres radius and having vehicles, male and female doctors with nurses, health visitors, vaccinators and others. PHCs refer the serious cases to the district hospital, and district hospitals also refer complicated or serious cases to the medical college or special hospitals. PHC is the only unit in rural areas where people get medical care provided by the government.

The basic facilities incurred in health care are doctors, hospitals and bed for indoor patients which are studied in reference to the population of the respective area i.e. doctor-population ratio, bed-population ratio and hospital-population ratio. The average ratios of all the three are 13,888, 2,920 and 30,717 respectively.

SPECIAL TREATMENT FACILITIES

In district head quarters there are a few specific specialist hospitals dealing exclusively with a particular type of disease which has been made available in the entire unit. Nowgoan has TB sanitorium, Sagar has eye hospital and Khurai has a special private eye institution. There are equitable distribution of rural urban welfare planning centre,
blood bank, dental clinic, T.B., public health laboratories in each of the five districts of the area, whereas STD (VD) clinics and filaria laboratory are located in Chhatarpur and Panna districts. Besides, private clinics are also working in the area according to the population of the place. But mostly they provide normal and general treatment for the people. For serious or complicated cases they also refer to district hospitals.

RANKING AND INTENSITY OF HEALTH HAZARDS

The frequency of diseases of the area are grouped in nine major classes. One group includes many diseases such as digestive system consists of liver, constipation, jaundice, arrorexia, gas trouble etc. similarly other groups are formed.

Ranking of diseases is the easiest way to understand the distributional pattern of diseases in an area because it provides an idea of the relative dominance of different diseases in order of importance. Diseases have been ranked primary health-centre-wise on the basis of their relative position which is occupied by each disease in respective PHCs. In the study area dysentery and diarrhoea, skin and venereal diseases, digestive disorder, deficiency diseases and eye troubles are reported in a large number and therefore occupy first position among other incidence cases in one or more PHCs.
Besides ranking of diseases intensity has also been worked out as to know the incidence of diseases at one place at a glance. The intensity of diseases has been grouped in five categories. The disease ranking coefficient values which vary from 3.6 to 5.0 in Rahatgarh, Nowgaon, Deori, Banda and Rehli to more than 13.0 in Ishanagar, Laundi, Gorihar and Niwari Primary Health Centres.

CONCLUSION

To sum up the observations collected from the field study, the following environmental and man made factors responsible for the frequency of diseases (health hazards) in the entire study unit, have been traced out:

1. Micro environment has a direct impact on the physical and mental well-being of living persons by which more than fifty per cent health troubles are prone to emerge due to air, temperature etc.

2. Contaminated drinking water is the major health problem in the entire area and it is responsible for many water borne diseases. Only a few towns have sufficient drinking water supply so the majority of the people are bound to use unsafe water from polluted sources.

3. Food is needed for satisfying the energy needs of the body. Due to deficient diet the body becomes weak and wastes away its energy and it becomes an easy prey to diseases.
4. Faulty dietary habits, selection of food stuffs, cooking methods etc. are influenced by the tradition and customs and determine the undernutrition and malnutrition.

5. Over crowded population in towns, drainage and waste disposal system create unfavourable environment for living.

6. The area under crops are not well distributed according to their soil and nutrients wise so the availability of nutrients are not found according to standard requirements.

7. Personal bad habits like smoking, chewing tobacco and drinking local wine, very common in rural areas are harmful to ill-health conditions.

8. Unhygienic condition, insufficient space, lack of ventilation in the houses and faulty cooking methods, dietary habits, etc. are also responsible for the distribution of various health hazards.

9. Vehicles like buses, taxies, trucks etc. are the main sources of air pollution in towns and cities which affect human health.

10. People, who are engaged in bidi-making work, are living in insanitary environmental condition and are affected by respiratory diseases.

11. Early marriage and high birth rate are also important social evils.
12. Diet of the people, food habits, standard of living, dress, use of utensils all these are influenced by customs and beliefs, people have faith in their own tradition.

13. Most of the government doctors refuse to join the rural PHCs and a number of doctors are attached to district hospitals, many rural hospitals are run by paramedical staff which affect available health facilities adversely.

In view of the existing frequency of various health hazards present in the area, it is very essential to take immediate steps to provide facilities for safe drinking water, sanitary disposal of wastes and community sanitation. Per capita income, dietary intake and personal habits should also be improved.

It has been made clear in previous chapter and discussions that frequency of some health hazards has very close relationship with prevalent environmental conditions of the area, while on the other hand nutritional deficiency health hazards have very close relation with the present dietary habits. Malnutrition is mainly responsible for the frequency of many health hazards. It also determines the resistance power of the body against diseases.

In this study an effort has been made to correlate the frequency of various health hazards with the natural and cultural environmental factors and prevalent dietary pattern with social
which background are indispensable in the present context. These include the nutritional intake, environmental conditions, socio-economic status, drinking water, poverty, personal habits, prevalent religious beliefs, lack of medical facilities; all these determine the frequency of various health hazards in the geomedical unit.

SUGGESTIONS

To root out the various types of diseases of the study area, the following suggestions may be implemented so as to improve the condition of people's health:

1. Provision of uncontaminated drinking water to the people; it is an essential need and will be helpful in making healthy living environment.

2. Introduction of nutritional and health education oriented programme in the area as to educate people in nutrition and health. But the local environment should be kept in view.

3. Ideal facilities for drainage and sewage system.

4. Provision of irrigation facilities to increase the production of nutrients, food-stuffs, and, change in cropping pattern.

5. Extra or additional privilege and facilities for the doctors working in rural primary health centres, and incentive to other doctors to attract them to work in
such areas.

6. Training facility for local dai and other interested local people in the area.

7. Preservation of water resources from pollutants.

8. Improvement of sanitation in the region.


10. Improvement of solid waste disposal facilities.

SCOPE FOR FURTHER RESEARCH

1. Important nutritional deficiency diseases may be studied separately.

2. Micro-environmental causes may be detected and correlated with specific health hazards.

3. Major health hazards like tuberculosis, cancer etc. may be studied separately and effort be made to find out the main causative agents of the environment which are responsible for it.

4. Water borne diseases should be studied separately.