# (GG-N-123): GEOGRAPHY OF HEALTH

(With effect from June 2023)

**Objective:**

- To introduce Geography of Health
- To make able the student to understand an influence of different physical and cultural factors on human health
- To spread knowledge about epidemiology of various communicable and non – communicable diseases among the students
- To provide information about various health organizations

| Unit No | Unit | Sub Unit | Period |
|---|---|---|---|
| 1 | **Introduction to Geography of Health** | A) Meaning and Definition of Health | 5 |
| | | B) Human health and Geography | |
| | | C) Definition of Geography of Health | |
| | | D) Nature of Geography of Health | |
| | | E) Scope of Geography of Health | |
| | | F) Significance of Geography of Health | |
| | | G) Approaches to study of Geography of Health | |
| 2 | **Factors Influencing on Human Health** | **A) Physical** | 10 |
| | | Relief, Climate, Soils, Vegetation, Drainage | |
| | | **B) Social** | |
| | | Population, Literacy, Poverty, Social conditions, Dietary System, Rural and Tribal life | |
| | | **C) Economic** | |
| | | Crops & food culture, Occupations, Standard of living, Industrialization, Transportation, Livestock | |
| | | **D) Environmental** | |
| | | Urbanization, water, air, noise & Solid waste pollution | |
| 3 | **Epidemiology of Communicable and Non – Communicable Diseases** | **A) Meaning and Classification of Communicable disease** | 10 |
| | | Geo-ecology, types, transmission, symptoms, causes, distribution, prevention and eradication programmes of – Malaria, Hepatitis, Tuberculosis, HIV - AIDS | |
| | | **B) Meaning and Classification of Non - Communicable disease** | |
| | | Geo-ecology, types, transmission, symptoms, causes, distribution, prevention and eradication programmes of – Malnutrition, Anemia, Hypertension, Cancer | |
| 4 | Health Organizations | A) WHO | 5 |
| | | B) UNICEF | |
| | | C) Indian Red Cross Society | |
| | | D) Other voluntary health agencies of India | |

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## Unit 1: Introduction to Geography of Health

### A) Meaning and Definition of Health

Health means the overall well-being of a person. It includes physical fitness of the body, soundness of mind and good relations with society. According to the World Health Organization, health is not only the absence of disease but a state of complete physical, mental and social well-being. For example, a student who eats proper food, plays regularly and feels mentally relaxed is considered healthy, whereas a person without fever but under continuous stress cannot be called completely healthy. Good health helps a person to work efficiently, study properly and live a happy life.

### B) Human Health and Geography

1. Human health is closely related to the place where people live because natural and human conditions differ from region to region.
2. Climate, relief, water availability and food habits affect health; for example, hot and humid climate of Konkan supports mosquito-borne diseases like malaria.
3. Some diseases are found more in specific regions, such as respiratory problems in polluted cities like Mumbai.
4. Rural and urban areas show different health problems; malnutrition is common in rural areas while stress-related diseases are common in cities.
5. Availability of hospitals and doctors is not the same everywhere, which affects treatment.
6. Therefore, geography plays an important role in understanding human health.

### C) Definition of Geography of Health

Geography of Health is a branch of geography that studies the relationship between human health and geographical environment. It explains the distribution of diseases and health facilities in different regions. It also studies how factors like climate, water, housing and occupation influence health, such as polluted water causing cholera.

### D) Nature of Geography of Health

1. Geography of Health is an applied branch of geography because it deals with real-life health problems, such as malaria in tribal areas.
2. It studies the spatial distribution of diseases and health facilities; for example, some districts have more hospitals while some have very few.
3. It explains the relationship between environment and health, like humid climate supporting mosquito breeding.
4. Maps and simple data are used to explain health patterns clearly, such as disease maps showing malaria-prone areas.
5. It is socially useful as it helps planners and administrators to improve public health conditions.

### E) Scope of Geography of Health

1. It studies the distribution of diseases in different regions, such as malaria in tropical regions and cold-related diseases in hilly areas.
2. It studies the availability of health facilities like hospitals, clinics and doctors, helping to identify backward areas.
3. It studies environmental factors like air, water and sanitation, for example polluted water leading to cholera.
4. It studies rural and urban health problems, such as lack of facilities in villages and pollution problems in cities.
5. It helps the government in planning health services according to regional needs.

### F) Significance of Geography of Health

1. It helps to understand regional health problems like anemia among tribal women.
2. It helps in proper planning of hospitals and health centres.
3. It helps in prevention and control of diseases by identifying disease-prone areas.

### G) Approaches to Study of Geography of Health

1. Regional approach studies health problems of a specific region, such as health issues in the Konkan region.
2. Disease approach studies one disease in detail, for example tuberculosis.
3. Environmental approach studies the effect of climate and pollution, such as air pollution causing asthma.
4. Social approach studies social factors like poverty, literacy and housing affecting health.
5. Map-based approach uses maps to show disease distribution and health facilities.

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### Unit 2: Factors Influencing Human Health

### A) Physical Factors

**Relief:** Relief affects accessibility and living conditions. Hilly and mountainous areas face difficulty in transport and medical services, while plains provide better facilities, as seen in tribal hilly regions having fewer hospitals.

**Climate:** Climate influences occurrence of diseases. Hot climate causes heat stroke as seen in Vidarbha region, while cold climate increases respiratory problems in hilly areas.

**Soils:** Soil fertility affects food production. Fertile soils provide nutritious food, while poor soils may lead to malnutrition and anemia.

**Vegetation:** Vegetation provides clean air and medicinal plants, but dense forests may support insects like mosquitoes, increasing malaria cases.

**Drainage:** Good drainage prevents waterlogging and diseases, whereas poor drainage causes stagnation of water leading to mosquito breeding after monsoon rains.

## B) Social Factors

**Population:** High population density increases the spread of diseases, as seen in overcrowded slum areas.

**Literacy:** Literate people understand health information better and follow hygiene practices, reducing diseases.

**Poverty:** Poverty leads to poor nutrition, unhygienic living conditions and limited access to medical care, resulting in diseases like malnutrition.

**Social Conditions:** Good housing, sanitation and social support improve health, while poor housing increases illness.

**Dietary System:** Balanced diet maintains good health, while poor diet causes nutritional deficiencies like anemia.

**Rural and Tribal Life:** Rural and tribal areas often lack medical facilities and depend on traditional methods, which delays treatment.

## C) Economic Factors

**Crops and Food Culture:** Types of crops influence food habits; for example, mono-cropping areas often have poor nutrition.

**Occupations:** Nature of work affects health; industrial workers may suffer from pollution-related diseases, while farmers face physical strain.

**Standard of Living:** Higher standard of living ensures better nutrition, housing and medical care.

**Industrialization:** Industrialization provides employment but also creates pollution, causing respiratory problems.

**Transportation:** Good transport facilities improve access to hospitals, while poor transport delays emergency treatment.

**Livestock:** Livestock provides nutrition like milk and meat but may spread zoonotic diseases if hygiene is poor.

## D) Environmental Factors

**Urbanization:** Urbanization causes pollution and stress but provides better medical facilities.

**Water Pollution:** Polluted water causes diseases like cholera and dysentery.

**Air Pollution:** Air pollution leads to asthma and heart diseases, especially in cities.

**Noise Pollution:** Noise pollution causes stress, headache and sleep disturbance.

**Solid Waste Pollution:** Improper waste disposal spreads insects and diseases.

## Unit 3: Epidemiology of Communicable and Non-Communicable Diseases

## A) Communicable Diseases

Communicable diseases are diseases that spread from one person to another through air, water, contact or insects, such as flu spreading among school children.

**Classification of Communicable Diseases:**
Communicable diseases can be classified in various ways based on different criteria. Here are common classifications:

**Air-borne diseases** spread through air like tuberculosis;

**Water-borne diseases** spread through contaminated water like cholera and hepatitis;

**Vector-borne diseases** spread through insects like malaria and dengue;

**Contact diseases** spread through direct contact like skin infections.

## Some Major Communicable Diseases and Their Geo - Ecology

**<u>Geo-Ecology of Malaria:</u>**
Malaria is prevalent in tropical and subtropical regions where Anopheles mosquitoes thrive, creating a geo-ecological niche for the transmission of the Plasmodium parasite.

**Transmission and Symptoms:**
Malaria spreads through the bite of infected female mosquitoes, causing symptoms like fever, chills, and flu-like illness. Severe cases can lead to complications affecting vital organs.

**Causes and Distribution:**
The disease is caused by Plasmodium parasites, with P. falciparum being the most lethal. Malaria has a global distribution, with high incidence in sub-Saharan Africa, Southeast Asia, and parts of South America.

**Prevention and Eradication Programs:**
Preventive measures include bed nets, insecticide spraying, and antimalarial medications. Eradication efforts involve research on vaccines, community engagement, and healthcare infrastructure development in endemic regions.

**<u>Geo-Ecology of Hepatitis:</u>**
Hepatitis, inflammation of the liver, has diverse types (A, B, C, D, E) with varying global distributions. Environmental factors and sanitation practices influence its prevalence.

**Transmission and Symptoms:**
Transmission occurs through contaminated food, water (Hepatitis A and E), or blood and body fluids (Hepatitis B, C, D). Symptoms range from mild flu-like illness to severe liver damage.

**Causes and Distribution:**
Caused by hepatitis viruses, the types exhibit different transmission patterns. Hepatitis B and C are globally distributed, with higher prevalence in certain regions due to risk factors like unsafe injections and lack of healthcare infrastructure.

**Prevention and Eradication Programs:**
Preventive measures include vaccination (Hepatitis A and B), safe injection practices, and improved sanitation. Eradication efforts focus on widespread vaccination campaigns, blood screening, and public health education.

## Geo-Ecology of Tuberculosis:

Tuberculosis (TB) exhibits a geo-ecological association with factors like overcrowding, poverty, and weakened immune systems, contributing to its prevalence.

### Transmission and Symptoms:

TB primarily spreads through airborne droplets. Symptoms include persistent cough, weight loss, and fatigue, with latent infections remaining asymptomatic.

### Causes and Distribution:

Caused by Mycobacterium tuberculosis, TB has a global distribution. High burden in certain regions is linked to socio-economic factors, HIV co-infection, and inadequate healthcare infrastructure.

### Prevention and Eradication Programs:

Prevention involves vaccination (BCG), prompt diagnosis, and antibiotic treatment. Eradication efforts focus on improved healthcare access, drug-resistant TB management, and public health awareness.

## Geo-Ecology of HIV/AIDS:

HIV/AIDS prevalence is influenced by socio-economic factors, healthcare access, and cultural practices, contributing to its varied geo-ecological distribution.

### Transmission and Symptoms:

HIV spreads through unprotected sex, contaminated needles, and mother-to-child transmission. Symptoms include flu-like illness, progressing to AIDS with compromised immunity.

### Causes and Distribution:

Caused by the human immunodeficiency virus (HIV), the epidemic is global. High prevalence in sub-Saharan Africa is driven by socio-economic disparities and limited access to healthcare.

### Prevention and Eradication Programs:

Prevention involves safe practices, education, and antiretroviral therapy. Eradication efforts focus on stigma reduction, widespread testing, and access to treatment, especially in high-burden regions.

### B) Non-Communicable Diseases

Non-communicable diseases (NCDs) are medical conditions that are not caused by infectious agents and do not spread from person to person. These chronic diseases typically have a slow onset and persist for a prolonged duration, often leading to long-term health issues.

**Classification of Non-Communicable Diseases:**
**1. Cardiovascular Diseases (CVDs):**
**Examples:** - coronary artery disease, stroke, heart failure
**Characteristics:** - Disorders affecting the heart and blood vessels, often linked to lifestyle factors like diet, physical inactivity and tobacco use.

**2. Cancer:**
**Examples:** Breast cancer, lung cancer, prostate cancer.
**Characteristics:** - Uncontrolled growth and spread of abnormal cells, influenced by genetic, environmental and lifestyle factors.

### 3. Respiratory Diseases :
**Examples: -** Chronic obstructive pulmonary disease (COPD), asthma.
**Characteristics:** Conditions affecting the lungs, often associated with tobacco smoke, air pollution, and occupational exposures.

### 4. Diabetes:
**Examples: -** Type 2 diabetes, gestational diabetes.
**Characteristics:** - Inability of the body to regulate blood glucose levels adequately, influenced by genetic and lifestyle factors.

### 5.  Musculoskeletal Diseases:
**Examples:** Osteoarthritis, rheumatoid arthritis.
**Characteristics:** - Disorders affecting the bones, joints and connective tissues, often associated with aging and lifestyle factors.

### 6. Neurological Diseases:
**Examples:** Alzheimer's disease, Parkinson's disease.
**Characteristics:** Disorders affecting the nervous system, leading to cognitive and motor impairments.

### 7. Mental Health Disorders:
**Examples:** Depression, anxiety disorders.
**Characteristics:** Conditions affecting emotional well-being and cognitive function, influenced by genetic, environmental and social factors.

### 8. Digestive Diseases:
**Examples:** Irritable bowel syndrome (IBS), gastroesophageal reflux disease (GERD).
**Characteristics:** - Disorders affecting the digestive system, often related to diet and lifestyle.

### 9. Genitourinary Diseases:
**Examples:** Chronic kidney disease, urinary incontinence.
**Characteristics:** Disorders affecting the urinary and reproductive systems, influenced by genetic and lifestyle factors.

### 10. Endocrine Diseases :
**Examples:** Thyroid disorders, hormonal imbalances.
**Characteristics:** Disorders affecting the endocrine system, leading to hormonal dysregulation.

### Risk Factors for NCDs:
**Behavioral:** Tobacco use, unhealthy diet, physical inactivity, excessive alcohol consumption.

**Metabolic:** High blood pressure, high cholesterol, obesity.

**Environmental:** Air pollution, exposure to toxins, occupational hazards.

**Genetic:** Family history of certain diseases.

**Classification:** Nutritional diseases like malnutrition and anemia; heart-related diseases like hypertension; lifestyle diseases like diabetes; and cancer.

**Malnutrition:** Geo-ecology: Common in poor and drought-prone regions.

**Anemia:** Geo-ecology: Common where diet lacks iron-rich food.

**Hypertension:** Geo-ecology: Common in urban and industrial areas due to stress.

**Cancer:** Geo-ecology: Higher in industrial and polluted areas.

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## Unit 4: Health Organizations

### A) World Health Organization (WHO)

The World Health Organization was established in 1948 under the United Nations. It works for improvement of global health by providing guidelines, conducting research and helping countries control diseases like malaria and tuberculosis. WHO also supports vaccination programmes, as seen during COVID-19.

### B) UNICEF

The United Nations International Children's Emergency Fund (UNICEF) is a UN agency dedicated to promoting the well-being and rights of children globally. Established in 1946, UNICEF operates in over 190 countries, working tirelessly to address the diverse needs of children, particularly in the areas of health, education, nutrition, and protection. UNICEF works mainly for the health and development of children and mothers. It provides nutrition, vaccination, clean drinking water and education facilities, especially in developing countries.

### C) Indian Red Cross Society

The Indian Red Cross Society was established in 1920. It provides help during natural disasters like floods and earthquakes. It also runs blood banks and gives first-aid training to people.

### D) Other Voluntary Health Agencies of India

Voluntary health agencies work at local and national levels. They support government health programmes and help poor and needy people in areas like nutrition, sanitation and rural health.

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