

**E-Learning module
SEMESTER-IV
PAPER-GEO-A-DSE-A-06-04-TH
RESOURCE GEOGRAPHY**

**Resource utilization,
conservational, community
based adaptive**

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Resource utilization

- **Natural resource management (NRM)** is the management of natural resources such as land, water, soil, plants and animals, with a particular focus on how management affects the quality of life for both present and future generations.

Approaches of resource utilization

- Maximum Sustainable Yield Approach
- Natural resource scarcity
- Ecological approach
- Resource scarcity hypothesis

Maximum Sustainable Yield Approach

- The maximum sustainable yield approach explains the relationship between the rate of growth and the level of population of a renewable resource.

Natural Resource Scarcity

- According to Malthus, “Population has this constant tendency to increase beyond the means of subsistence, and that it is kept to its necessary level by these causes and thus, humankind, is necessarily confined in room by nature.”
- It means that if pressure of increasing population continues in relation to food supply, human life is destined to be miserable. Hence the pace of economic development will be retarded due to growth in population with limited natural resources.

Ecological approaches

- Ecological economists believe that there are no substitutes for many natural resources such as air, water, fertile soil and bio-diversity. Further, Pearce and Turner hold that economic growth can endure only if it is accompanied by improving and increasing natural capital.
- Thus sustaining economic prosperity in the face of population growth requires investment in not-depreciation natural resources and the environment such as, planting more trees, enhancing soil quality, protecting water supplies, and so forth.

Resource scarcity hypothesis

- Barnett and Morse has examined contemporary views of ecology and economics on natural resources availability. Conclusions of their studies are as follows: First, as particular resources become scarce,
- Second, the price increase stimulates the search for new deposits of the original resources and encourage recycling and reuse.
- Third, where lower grade sources are still abundant, technological advances may decrease extraction and processing costs both for currently utilized deposits and such lower grade deposits.
- Finally, technology also facilitates changes in the production and composition of goods.

Resource utilization, ultimately, helps you make the most of your available resources

- Proper utilization of resources is important for maintaining productivity, because it prevents staff from underperforming or being overburdened by workloads and burning out.
- Projects can be managed with better visibility, reducing the risk of oversights.
- Maximum utilization of resources gives you a better ROI.
- It ensures that specific resources aren't being over or under-utilized.
- It allows PMs to be agile and reschedule resources as quickly as possible to avoid problems surfacing or becoming worse.

Utilitarian

- **Utilitarianism** is a family of normative ethical theories that prescribe actions that maximize happiness and well-being for all affected individuals. Although different varieties of utilitarianism admit different characterizations, the basic idea behind all of them is to in some sense maximize utility,

Resource conservation

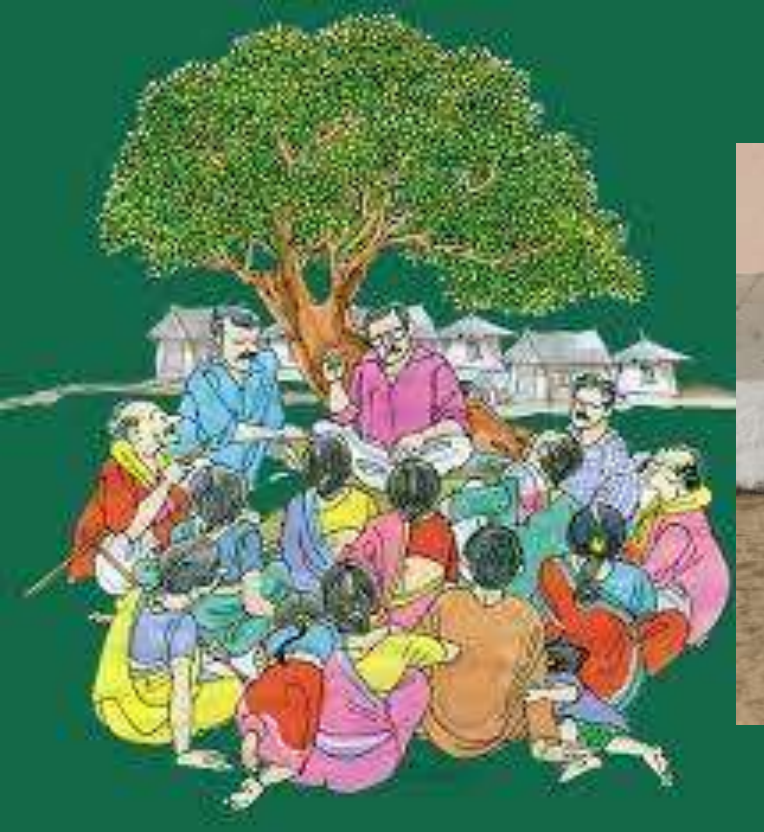
- **Resource conservation** is management of the use of natural **resources** to provide the maximum benefit to current generation while maintaining capacity to meet the needs of future generations.
- **Conservation** includes both the protection and rational use of natural **resources**.

- **Conservation of resources** can help to take care of our heritage. We can care for and protected for the benefit, use and enjoyment of the public today and for generations to come.
- **Our Natural Resources** should be conserved because it is the main source of our daily needs and is limited only.
- **The most obvious reason** for conservation is to protect wildlife and promote **biodiversity**. Protecting wildlife and preserving it for future generations also means that the animals we love don't become a distant **memory**. And we can maintain a healthy and functional ecosystem.

Community-Based Natural Resources Management

Community-Based Natural Resources Management (CBNRM) is viewed as a decentralized, self-regulated, and localized system that is supposed to address the issues of centralized resource management.

Community-based natural resource management (CBNRM) has become an **important** tool in promoting **environmental** and ecological sustainability as well as improving **community** access to eco-system services.



Community based natural resources management (CBNRM) involves the management of land and natural resources such as pastures, forests, fish, wildlife and water by groups of rural people through their local institutions. It has been popularized as a mechanism for the management of natural resources to safeguard livelihoods of local communities.

Objectives

- i. Conservation, development and sustainable management of natural resources including their use
- ii. Enhancement of agricultural productivity and production in sustainable manner
- iii. Restoration of ecological balance in the degraded and fragile eco-system by trees and grasses
- iv. Reduction in regional disparity between irrigated and rainfed areas
- v. Creation of sustained employment opportunities for the rural community including the landless

Top-Down Responsibilities



Resource Capacity

- Generic Roles
- Bottleneck Resources
- Supply and Demand
- Sequenced Delivery

Step 1

Resource Allocation

- Availability
- Skills
- Named Resource Assignment

Step 2

Resource Work Management

- Competencies
- Task Assignment
- Performance Monitoring

Step 3

Team Work Management

- Collaboration
- Knowledge Sharing
- Team Cohesion

Step 4

Personal Work Management

- Production Capacity
- Motivation
- Mastery

Step 5

REFERENCES

- <https://redox-college.s3.ap-south-1.amazonaws.com/kmc/2020/Mar/22/3aj2X6RQ4QKoU4FRTyxQ.pdf>
- <https://www.nationalgeographic.org/standards/national-geography-standards/16/>
- BOOKS
- RESOURCE GEOGRAPHY- AJIT KR. SHIL
- RESOURCE GEOGRAPHY- ANISH CHATTERJEE

**E-Learning module
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PAPER-GEO-A-CC-06-14-TH
RESOURCE GEOGRAPHY**

**Biological Hazard
causes, consequences and management**

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- A biological hazard, or **biohazard**, is a biological substance that poses a threat to the health of living organisms, primarily humans. This could include a sample of a microorganism, virus or toxin that can adversely affect human health. A **biohazard** could also be a substance harmful to other animals.



- **What are some biohazard examples?**
- **Human** blood and blood products. This includes items that have been contaminated with blood and other body fluids or tissues that contain visible blood.
- Animal waste. ...
- **Human** body fluids. ...
- Microbiological wastes. ...
- Pathological waste. ...
- Sharps waste.

Types of Biological Hazards

- **Biological hazards can be put into different categories:-**
 - **Bacteria :-** microscopic organisms that live in soil, water or the bodies of plants and animals and are characterized by lack of distinct nucleus and the inability to photosynthesize. Examples are E Coli, TB, and Tetanus.
 - **Viruses :-** are a group of pathogens that consist mostly of nucleic acids and that lack cellular structure. Viruses are totally dependent on their hosts for replication. Examples are common cold, influenza, measles, SARS, Hantavirus, and rabies
 - **Fungi :-** any major group of lower plants that lack chlorophyll and live on dead or other living organisms. Examples are mould, rust, mildew, smut, yeast, and mushrooms.



- Category A– Infectious substance, affecting humans: An infectious substance in a form capable of causing permanent disability or life-threatening or fatal disease in otherwise healthy humans or animals when exposure to it occurs.
- Category B – Infectious substance, affecting animals (only): An infectious substance that is not in a form generally capable of causing permanent disability or life-threatening or fatal disease in otherwise healthy humans and animals when exposure to themselves occurs.
- Category C – Biological substance transported for diagnostic or investigative purposes.
- Regulated Medical Waste, UN 3291 – Waste or reusable material derived from medical treatment of an animal or human, or from biomedical research, which includes the production and testing.

Medical Waste Disposal



All used sharps need to be placed in a marked, hard-plastic bin

Sharps Containers



Biohazardous or potentially infectious medical waste

Red Bags



Hazardous pharmaceutical waste on the RCRA's P and U lists

Blue Containers



Trace chemotherapy waste that's considered "RCRA empty"

Yellow Containers



Bulk chemotherapy waste items that are not "RCRA empty"

Black Containers





Levels of biohazard

- The United States Centers for Disease Control and Prevention (CDC) categorizes various diseases in levels of biohazard, Level 1 being minimum risk and Level 4 being extreme risk.
- **Biohazard Level 1:**
- Bacteria and viruses including *Bacillus subtilis*, canine hepatitis, *Escherichia coli*, and varicella (chickenpox), as well as some cell cultures and non-infectious bacteria. At this level precautions against the biohazardous materials in question are minimal, most likely involving gloves and some sort of facial protection.

- **Biohazard Level 2:** Bacteria and viruses that cause only mild disease to humans, or are difficult to contract via aerosol in a lab setting, such as hepatitis [A](#), [B](#), and [C](#), some influenza A strains, salmonella, mumps, measles, , dengue fever, and HIV.
- **Biohazard Level 3:** Bacteria and viruses that can cause severe to fatal disease in humans, but for which vaccines or other treatments exist, such as [anthrax](#), [West Nile virus](#), [Venezuelan equine encephalitis](#), [SARS coronavirus](#), [MERS coronavirus](#), [SARS-CoV-2](#), Influenza A [H5N1](#), [hantaviruses](#), [tuberculosis](#), [typhus](#), [Rift Valley fever](#), [Rocky Mountain spotted fever](#), [yellow fever](#), and [malaria](#).

- **Biohazard Level 4:** Viruses that cause severe to fatal disease in humans, and for which vaccines or other treatments are *not* available, such as [Bolivian hemorrhagic fever](#), [Marburg virus](#), [Ebola virus](#), [Lassa fever virus](#), [Crimean–Congo hemorrhagic fever](#), and other [hemorrhagic](#) diseases, as well as [Nipah virus](#).

Consequences

- **Biological health hazards** include bacteria, viruses, parasites and moulds or fungi. They can pose a threat to human health when they are inhaled, eaten or come in contact with skin. They can cause illness such as food poisoning, tetanus, respiratory infections or parasite infection.
- Because they carry and have the potential of spreading disease and bacteria that can not only cause one to become sick, but can become life-threatening.
- One does not have to come into contact with any contaminated ***biohazardous*** material to become infected.

- People who work with live animals or animal products, such as blood, tissue, milk and eggs, are exposed **to** animal diseases and infections. Some of these **can** infect people, like avian flu or Hendra virus, or cause serious allergy from being sensitized.

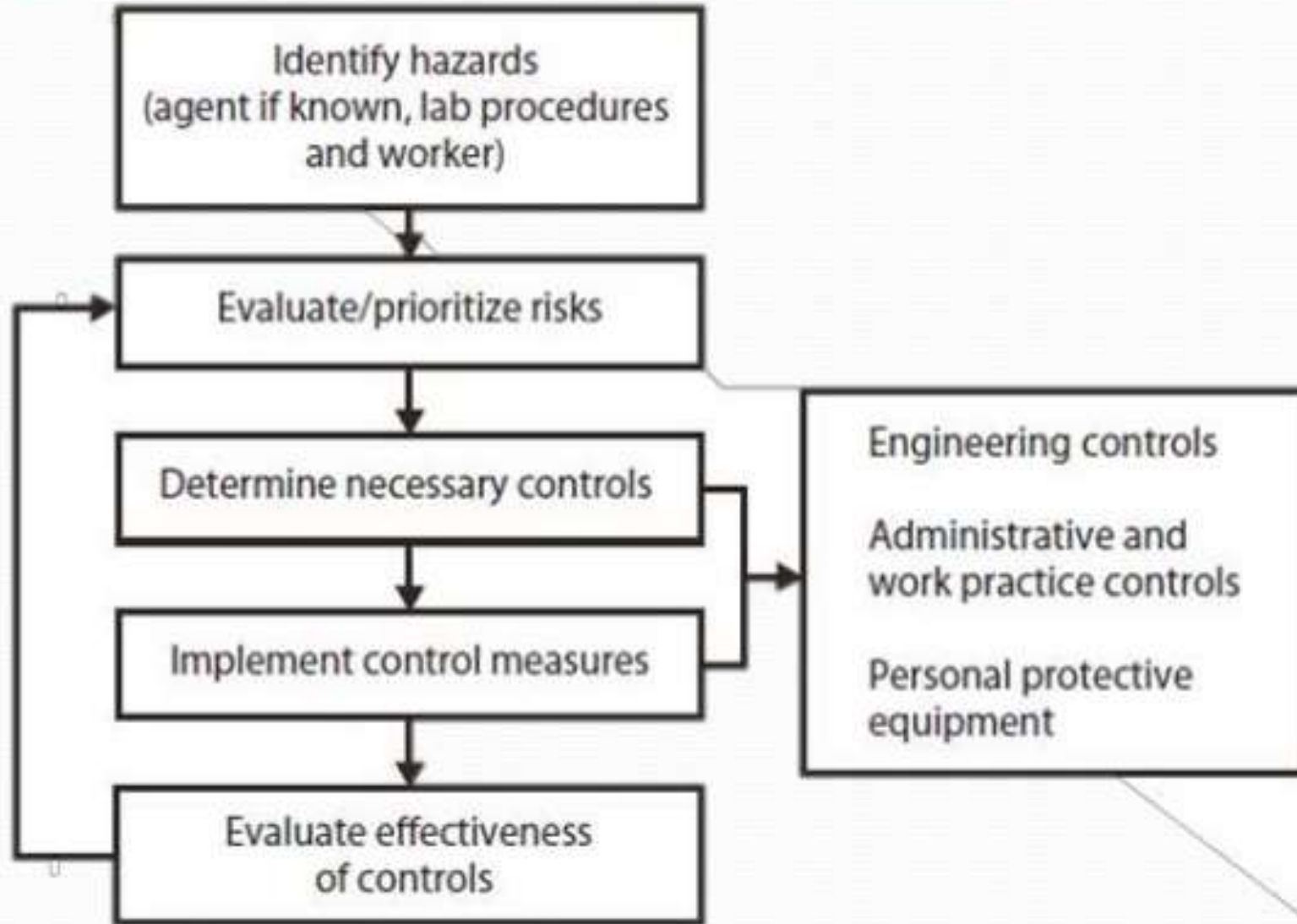
Hazard Management

- **Identification**

- A biological hazard stems from plants, animals, humans or natural components. When it comes to the workplace, these hazards can consist of the common cold, viruses, insect infestations, animal illnesses, fluids from other animals or people and fungus of any kind. Depending on the type of work environment, some professions may be more exposed to biological hazards than others.



Potential Hazard	Engineering control	Administrative control	Personal Protective Equipment
Exposure to blood-borne pathogens through contact with contaminated items and surfaces	Vaccines	Compliance with all infection prevention and control (IPC) practices. Immunization program. Worker education	Gloves, protective clothing, eye and face protection.
Exposure to airborne biological agents through contact with secretions from infectious clients (coughing, sneezing, etc.) or air contaminated with infectious biological agents	Early detection of infection status. Isolation. Vaccines	Compliance with all infection prevention and control practices. Immunization program. Worker education	PPE based on the risk assessment may include eye protection, respiratory protection and other protective clothing



Hazard Management

- When a **biological hazard** is present in the workplace, it is imperative that management staff initiate protocol and institute policies for protecting employees. This could be as simple as distributing literature on the hazard, or it could involve removing the threat altogether. For example, **if the threat is exposure to viruses due to sick employees**, institute a policy barring employees sick with a virus from coming to work. If the nature of the threat is an insect infestation, hire an ***exterminator***(*a person whose job is to kill a particular type of animal that is not wanted in a place*) to take care of the issue.

4.5 Biological hazard control and prevention strategies

Three approaches to control biological hazard :

Where reasonably practicable, employer must use engineering controls

Employer must use administrative controls that control exposure to the hazard to a level as low as reasonably achievable

Employer must ensure that appropriate personal protective equipment is used

Employer may use a combination of above mentioned approaches.

- Ventilation systems and seals to create negative pressure room.
- Bio-safety hoods
- Disposal containers

- Worker training,
- Policies (regular hand washing)
- Specific work schedule to limited the times of exposures

- Most common PPE are; latex gloves, proper mask and eye protection.



REFERENCES/SOURCES

- <https://en.wikipedia.org/wiki/Biologicalhazard>
- <https://biosafety.utk.edu/biosafety-program/waste/>
- https://en.wikipedia.org/wiki/Biological_hazar
- <https://www.comcare.gov.au/safe-healthy-work/prevent-harm/biological-hazards#:~:text=Biological%20hazards%20are%20organic%20substances,people%20and%20other%20living%20organisms.>

**E-Learning module
SEMESTER-IV
PAPER-GEO-A-CC4-08-TH
ECONOMIC GEOGRAPHY**

Fire: factors, vulnerability, consequences and management

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- Fire hazard is the most common hazard, which is present in all areas of life. Most explosive materials are stored in a normal atmosphere, which contains oxygen, and so the risk of fire is then due to the possibility of an ignition source.



Factors, Vulnerability

How Fire Burns

- Fire requires three elements to both ignite and continue burning.
- Heat: Common heat sources include a hot stovetop burner, a spark from a worn electrical wire or a burning cigarette.
- Fuel: Just about everything in your home can fuel a fire. As a fire burns, the heat created warms nearby items, making it easier for them to start burning.
- Oxygen: The oxygen in the air around us fuels a fire.

The most common causes of house fires

- Cooking equipment. Pots and pans can overheat and cause a fire very easily if the person cooking gets distracted and leaves cooking unattended. ...
- Heating. ...
- Smoking in bedrooms. ...
- **Electrical equipment.** ...
- Candles. ...
- Curious children. ...
- Faulty wiring. ...
- Barbeques.

types of Fire Hazards

- **Combustible Materials.**
Combustible **materials** such as old rags, paper, and wood products can become a fire hazard as they begin to pile up and collect in the work place.
- Combustible Dust.
- Electrical Hazards. ...
- Flammable Liquids and Chemicals. ...
- Hot Work, Equipment, and Machinery.

What causes natural fires?

- **Natural fires** are generally started by lightning, with a very small percentage started by spontaneous combustion of dry fuel such as sawdust and leaves. **Human-caused fires** constitute the greater percentage of **forest fires** in our forests, but **natural fires** constitute the great majority of the total area burned.

- The side **effects** of a **fire** also represent a **hazard**. Firstly the **fire** will deplete oxygen from the surrounding atmosphere. Most casualties from a **fire** die from the smoke and lack of oxygen. Secondly, especially where plastics are being burnt, the fumes could be toxic, and anyone exposed could die.



Vulnerability

Vulnerability of fire

- 1) The hazards produced by wildfires affect both the biotic and abiotic components of ecosystems. They occur during active fire as well as afterwards.
- 2) The immediate and most obvious hazard of wildfire is the effect on vegetation. Impacts of wildfire on vegetation vary greatly, not only by vegetation type but also by the severity of the fire.
- 3) Fires have been major hazards for humans for many centuries. With the development of large cities, fire became a significant risk to infrastructure and human life. The lack of organized and trained fire-fighting resources was a big factor in some of the more notorious urban fires.
- 4) Fire create huge Economic losses

Fires are a major cause of forest degradation and have wide ranging adverse ecological, economic and social impacts, including:

- loss of valuable timber resources
- degradation of catchment areas
- loss of biodiversity and extinction of plants and animals
- loss of wildlife habitat and depletion of wildlife
- loss of natural regeneration and reduction in forest cover
- global warming
- loss of carbon sink resource and increase in percentage of CO₂ in atmosphere
- change in the microclimate of the area with unhealthy living conditions
- soil erosion affecting productivity of soils and production
- ozone layer depletion
- health problems leading to diseases
- loss of livelihood for tribal people and the rural poor, as approximately 300 million people are directly dependent upon collection of non-timber forest products from forest areas for their livelihood.

Management system

What is a fire safety management system?

- The primary purpose of a **fire management system** is to design, manage, plan and co-ordinate appropriate **fire safety** procedures to reduce the risks of **fire** and to ensure the **safety** of building occupants. A complete **fire management system** ensures legal compliance and **protection** of lives and assets.

- How does fire affect people's lives?

Wildfires threaten **lives** directly, and **wildfire** smoke can **affect** us all. They spread air pollution not only nearby, but thousands of miles away—causing breathing difficulties in even healthy individuals, not to mention children, older adults and those with heart disease, diabetes, asthma, and other lung diseases.

Box 1 – Five Stages of Fire Risk Management

STAGE 1 Design and Build	Identify and prioritise the key fire risks facing a new building or facility to develop the fire strategy and associated system designs
STAGE 2 Manage	Develop and communicate integrated fire safety management systems to prevent, reduce and control the key fire risks to allow the effective allocation of resources
STAGE 3 Assess	Ongoing identification and assessment of fire risks and implementation of fire risk management 'frameworks' promotes the proactive and systematic management of fire risk
STAGE 4 Respond	Success in responding to a fire event is dependent upon embedding a culture of emergency response preparedness and business continuity management throughout the organisation, so that it is part of day-to-day activities
STAGE 5 Investigate	Fire risk management is a never-ending, continuous process and requires sustained review, auditing and investigation of fire events to drive continuous improvement

FIRE PREVENTION IS IN YOUR HANDS!

PRO-ACTIVE MEASURES



Strategic thinking

Whilst this structured approach can be applied to any project, the unique challenges inherent in large buildings often lead to specific fire safety measures, all as part of an overarching strategy, such as:

Increased fire prevention vigilance housekeeping, maintenance, security, etc.

Local emergency response – internal response, investigation, situational awareness, access, etc.

Intelligent smoke management – local or collective

Zonal evacuation – a zonal strategy harnessing rather than working against human behaviour in fire

Total fire safety management – a holistic and integrated management system

REFERENCES/SOURCES

- <https://en.wikipedia.org/wiki/Fire>
- <https://en.wikipedia.org/wiki/Hazard>
- [https://en.wikipedia.org/wiki/Fire class](https://en.wikipedia.org/wiki/Fire_class)
- <https://www.google.com/search?q=biological+hazard+AND+HUMAN+&sxsrf=AJOqlzWvFaj99lA9j-u0cz6Chtkn>

GEOGRAPHICAL THOUGHT

**E-Learning module
SEMESTER-IV
PAPER-GEO-A-CC-6-13-TH
EVOLUTION OF GEOGRAPHICAL THOUGHT**

**TOPIC: Trend of geography in the
post world war-II period:
Quantitative revolution**

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- The **Quantitative revolution** (QR) was a paradigm shift that sought to develop a more rigorous and systematic methodology for the discipline of **geography**.
- The main claim for the **Quantitative Revolution** is that it led to a shift from a descriptive (idiographic) **Geography** to an empirical law-making **Geography**.
- The term '**Quantitative Revolution**' was **coined** by Burton in 1963. **Definition** – “The application of Statistical and Mathematical techniques, theorems, proofs in the understanding geographical system is called as **Quantitative Revolution** in Geography”

From descriptive geography to
systematic geography

Quantitative Revolution –Related information

- Quantitative Revolution was developed in Geography by B.J.L Berry, Richard Chorley
- **Statistical Methods first introduced in Geography in the 1950s**
- Quantitative Revolution calls for a **change in methodology**, thereby imparting a scientific character to discipline
- The methodology included **Mathematical tools, Statistical Analysis, Laws of Physics, etc** which provided objectivity and Scientific touch, as was desired by some Geographers.

- Quantitative Revolution provided Geography with a sound Philosophical and theoretical base.
- It aims at making the geographical study more useful by making precise generalization identifying the ideal location for economic activities.
- It aims at explaining & interpreting spatial patterns of Geographical phenomenon in a rational and objective manner using physics laws, mathematical tools, statistical analysis, etc.

- **Quantitative Revolution was inspired by the positivistic school of thought**
- **Profound supporters of the Quantitative Revolution were Neil Harvey, Schaeffer, Ackerman, Haggett, Chorley, etc.**

Base of Quantitative Revolution

- Quantitative Revolution was **based on various methods-**
- **Statistical Methods** – Mean (e.g. HDI), Median, Mode, Coefficient of Variability (e.g. Rainfall), Standard Deviation (e.g. Rainfall), Probability, Least Square Method (e.g. Agriculture)
- **Mathematical Methods** – Algebra (e.g. Locational Triangle), Geometry theorems, Triangular Methods, etc – All these led to Spatial Analysis in Geography
- **Laws of Physics** – such as
 - **Gravity Laws** – Gravity model such as Breakpoint theory
 - **Thermodynamic Laws** – in the study of Ecosystem
- **Neoclassical Economics** – Ricardo, Adam Smith, Weber, Keynes, etc.

Approaches in Quantitative Revolution

- **Quantitative Revolution was based on 3 Approaches –**
- **Locational Analysis** – It includes spatial analysis but seeks to find out the optimum location (where profit is maximum and cost is minimum) by applying statistical and mathematical techniques, physics laws, etc
 - e.g. Weber Locational Model, Von Thunen Agricultural Model
 - It was suggested by P. Haggett and Bunge
- **Spatial Analysis** – It is the Study of Earth as a Space Geometry
 - It includes measurements & Divisions of space and man became a point on Surface
 - It means Geometrical analysis, the study of distance, the geometrical shape of CPT
- **System Analysis** – Study of various functional components of a system and their interrelationships
 - e.g. in Central Place Theory, the relationship between various settlements at various hierarchical levels.

Assumptions

- Models and Theories formulated in this era were based on some common **assumptions as these models follow ideal conditions such as –**
- **Man is economic and rational**
- **Man has infinite knowledge** of his environment and resources
- Space (Environment and Resources) is **isotropic surface**
- There is **no place for normative questions** like cultural values, social values, emotions, etc in Geographical Research
- **Assumed prices to be the same everywhere.**

Philosophy behind the Quantitative Revolution

- **Positivism** – It means reality is what is cognizable. It guides Quantitative Revolution
 - It means the formation of universal laws on the basis of the unification of sciences
 - It is against the normative questions of a man like values, morals, ethics, emotions, etc
 - It considers man as economic and rational
 - It considers reality as what can be defined through laws
- **Functionalism** – It leads to system analysis
 - It studies the various component elements of a phenomenon & its interrelationship
- **Empiricism**– It believes in direct observation.

Advantages of Quantitative Revolution

- The emergence of scientific approach and quantitative tools undisputedly **improved the functional relevance of geography**
- It gave a **new lease of Life to Geography**
- Geography became **well structured & geographical ideas became precise and accurate**
- It developed **objectivity** from being overly descriptive
- It **helped in describing, analyzing, and simplifying Geographical Systems**
- Geographers are now being **able to make use of primary information** and are no more dependent on secondary and tertiary sources (such as other sciences)
- Modern Geography is **capable of developing scientific theories and models.**

Demerits of Quantitative Revolution

- **It rejected man and his normative questions like faith, belief, emotions, customs, desires, prejudices, aesthetic values, etc** but in the real world, **man-environment relations and decision-making processes are affected by normative questions** and social, moral, ethical values, etc
- **Isotopic surface and other idealistic conditions are never found.** Thus, models were mostly normative and lacked universal application
- **The man became a point on the surface**
- Geography became a space geometry where the measurement was the means of understanding a spatial dimension of Geographical phenomenon
- The advocates of Quantitative Revolution focused on 'Locational Analysis' which promotes Capitalism
- Geography has the main task of studying the reciprocal relationship between man and nature. Thus, this task was itself off loaded during the Quantitative Revolution
- The man became mechanistic and models developed with the help of Quantitative techniques reduced people to Passive agents. Such models may be seen as one of economic determinism
- With the development of sophisticated machinery and automation, there is less scope of employment. Thus, it leads to unemployment
- The assumption that man has 'infinite knowledge' of his space or environment has also been criticized as technology is a dynamic concept that keeps changing with resource
- Applications of Quantitative Revolution demand reliable data which is rarely available in developing country like India
- Making reliable models and universal laws in Human Geography with the help of Quantitative techniques is not possible

REFERENCES/SOURCES

- Adhikari, S. (2010) Fundamentals of Geographical Thought.
- Dikshit, R. D (2011) Geographical Thought: A Contextual History of Ideas
- Martin, G. F and James, P. E. (1972) All Possible Worlds: A History of Geographical Ideas.
- <https://en.wikipedia.org/wiki/Quantitative>

**E-Learning module
SEMESTER-IV
PAPER-GEO-A-CC-6-13-TH
Structuralism**

Structuralism in Geography

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Structuralism is defined as:

*“A theoretical approach to human geography which is characterized by a belief that in order to understand the surface patterns of human behavior it is necessary to understand the **structures underlying them which produce or shape human actions.**”*

Structuralism assumes that there are social and cultural structures within society and that those **shape individual acting, thinking and talking** (Lippuner & Werlen, 2009, p. 2).

So structuralism doesn't focus on the individual motive and interpretation of things, but on **material and symbolic structures** which function as a mold for social praxis.

Structures are a crucial part of the social world and are attributed with **generative or causal power.**



The structuration theory, whose **main proponents** are the British sociologist **Anthony Giddens** and the **French sociologist Pierre Bourdieu**, finds its origin in this approach, but differs from it in the sense that it wants to overcome the dichotomy of agency and structure.

According to **Giddens**, structure does not exist at one moment: **structure is a continuous flow, a process reproduced by actions.**

That's why he prefers 'structuration' instead of 'structuralism'. Structuration theory views society not as existing independent of human activity but also not as a product of human activity.



The relation of structure and social practice is dual, meaning **that social practices refer to social structures and that social structures are the result of previously performed practices and social actions.**"

Another structuralist-thinker is **Jean Piaget**. He explained his - more psychological - ideas about structuralism, through his theory of cognitive psychological development of children. He said that the **process of gathering knowledge consists of different phases (or stages), and therefore structures**.

Each stage in the development of knowledge has its own characteristics and systems, but also **knowledge itself consists of structures**, according to Piaget.

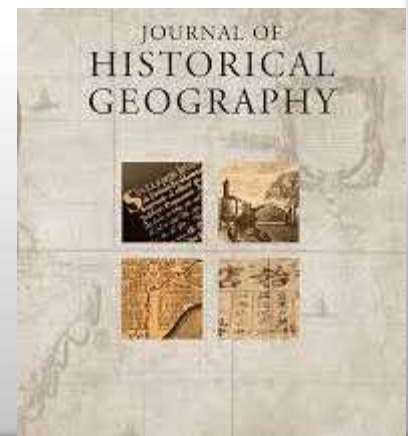
Structuralism is an approach within geography which is **characterised by the fact that the belief that to understand the surface patterns of human behaviour,**

It is necessary to have knowledge about the structures underlying them which produce or shape human actions.

Only if you have that knowledge, you will be able to influence human behaviour.

In the historical geography, structuralist perspective provided a real method to study and interpret the pattern of the past.

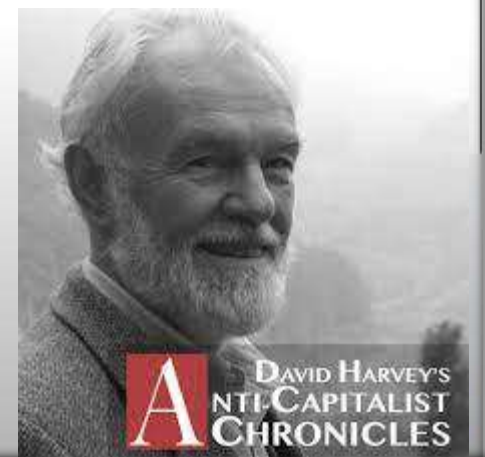
The contribution of Pred (1979) is notable in historical geography as he used the concept of structuration in his analysis.



The most prominent entry of structuralist approach in the geographical researches could be evident through the works of **Marxist geographers during 1970s** when they strongly challenged the spatial science, sometimes represented in the form of cartography.

According to **Peet (1977)**, the growing interest in the **geographers to adopt Marxist perspectives** was because of the then western society's dissatisfaction to the existing structure and increasing frustration with the **positivist approach** that repeatedly failed to achieve the acceptable solution and changes related to the social problems.

In this context, **David Harvey's work 'Social justice and the city'** acted as the stimuli for geographers to adopt the Marxist approach for the geographical research, because this approach is holistic and stressing more on the interdependence of the both economic and social issues in terms of production, consumption, and distribution.



Structural Analysis or post structuralism

Structuralism ultimately **did not give a satisfactory solution to find out the problems of empiricism**, rather it took several forms of Marxism (like the structural Marxism) to provide a structural analytics of power and social processes .

The engagement of human geographers with structuralism was short-lived and worked as a transition when **geographers took over some other approaches and dealt in more depth.**

Postmodern writers are also hostile to the totalizing ambitions of the conventional social sciences and humanities.

They **reject the notion** that social life displays what could be called a '**global coherence**' or the **structure of a society regulates its everyday life in some automatic, pre-set fashion.**

They opposed the idea of structuralism is sometimes called as '**post-structuralism**'



- The term structuralism has been widely used in different fields of social sciences and humanities. It witnessed multifaceted contribution of several scholars from different subject domains like linguistics and semiotics, cultural anthropology, literary studies, psychoanalysis and others.
- However, the input of the French thinkers and philosophers was found to be dominant in deciding over the discourse line of structuralism. The initial development in the concept of structuralism basically came from the contribution of European scholars during the early twentieth century followed by the thinkers from Prague, Moscow and Copenhagen schools of linguistics.

- Their analytics on the power structure and the process left the imprint of structuralism primarily in the domains of economic, political and urban geography.

Major contexts of structuralism

- The structure is something which is strongly dependent on the relations. There have been some typical forms of structuralism by means of the scholars' contribution at different contexts in revealing the structural underpinning of various phenomena. Such contexts include
- the language, signs and linguistics; culture and structural anthropology; literary theory, literature and mythologies.

Major context

- Such contexts include the language, signs and linguistics; culture and structural anthropology; literary theory, literatures and mythologies; and psychoanalysis.

Language, signs, and linguistics –

- The meaning of structuralism starts with the concept of structure, the linguistic meaning of which is dependent on the mythos and logos that are considered to be the meta-dimensions of language. Ferdinand de Saussure who was first to put forward the structural linguistics suggested conceiving the language as a system.
- The language is expressed in terms of some signs which immediately start with the spoken language. Therefore, signs do not have any relation with the sound. Signs are consisted of two parts- signifier and signified. The first one is the expression and the second one is the content.



Language, Signs and Linguistics

- Ferdinand de Saussure was first to put forward the discourse of structural linguistics
- He suggested to conceive language as a system.
- Signs are consisted of two parts- signifier and signified.
- The first one is the expression and the second one is the content.
- Saussure considers signs to be in the arbitrary
- A sign is constituted based on how it is different from the other sign.
- The meaning depends on such difference of signs from one another.
- Signs are derived from the historical and social convention and the resultant tradition of the communities.
- It is the community of the language who decides over the formation and creation of the signs.



Culture and Structural Anthropology

- Strauss's areas of work mainly include the cultural phenomena like mythology, kinship and food preparation.
- He was strongly influenced by the Prague school of linguistics while deriving the concept of binary contrasts or the binary opposition.
- It briefly states that the meanings are not absolute, and could be understood with the help of structured relationship among the elements of a cultural system.
- For example, to know the meaning of hot, one has to know the meaning of the opposite difference that is cold.
- Strauss argued that grammatics of culture in form of kinship, myth and language is based on the codes and the hidden rules of behavioural pattern.

Psychoanalysis

- Jacques Lacan (1901-1981), basically a French psychoanalyst and a psychiatrist, applied the structuralist approach as his working method of analysis.
- Lacan is well-known for the development of Freudian psychoanalysis approach based on the contemporary theoretical basis.
- According to him, the concept of unconscious is very important component in psychoanalysis.
 - While designing the line of action of psychoanalysis as a generalized theory to study humanity, he was strongly influenced by the domains like linguistics, anthropology, psychology and mathematics.
 - According to him, the relations of human beings with their desires could be seen as a social phenomenon.

Psychoanalysis

- Therefore, it is inevitable that the meaning of social interactions and relationships would certainly reflect the structure of the human desires.

Claude Lévi-Strauss, who has received a wide recognition to be considered as the father of structuralism.

While putting more emphasis on unfolding the underlying pattern of human thought process to develop a culture, he considered that the processes do not determine a culture, rather operate within it. According to the theory of structural anthropology, the meaning is believed to be produced and reproduced within the culture

- Ronald Barthes (1915-1980), who was a professor of literature in France and a literary critique as well, has a significant contribution in the field of literature, literary discourse and the study of myths and mythologies. He adopted the essence of structural linguistics and structuralism approaches to interpreting the science of literature and language, especially in the analysis of writings and signs. His proposition was to unfold the relationship between signs, writings and the reality, particularly in the context of literature, poetry and the discourse of mythology in terms of language. Barthes put more emphasis on studying mythology not only in the fields of anthropology and religion but also in every sphere of the society.

- Jacques Lacan (1901-1981) who was basically a French psychoanalyst and a psychiatrist as well received a wide range of academic recognition in the domain of psychoanalysis as he applied the structuralism approach as his working method of analysis.
- According to him, the concept of the unconscious is a very important component in psychoanalysis and that is why he was strongly influenced by the domains like linguistics, anthropology, psychology, and mathematics while designing the line of action of psychoanalysis as a generalized theory to study about humanity.

Aspects

- They have **two** aspects: signifier and signified, signifier is the 'material' aspect and signified is the conceptual aspect.
- Barthes and Levi-Strauss have extended linguistics to other areas of semiotics. All in all, **structuralism** is a method of identifying the underlying structure or logic of general meanings.

- Apart from the mentioned domains in the previous section, there are several other realms of social sciences and humanities that have widely used the essence of structuralism in their respective lines of discourse. Geography was no exception to this. The way geography was earlier influenced by the positivistic and humanistic approaches, most likely in the same way it was influenced by the domains of social sciences that were either the sources of structuralism analysis or somehow were influenced by the approaches of structuralism earlier than geography.

REFERENCES/SOURCES

- Adhikari, S. (2010) Fundamentals of Geographical Thought.
- Dikshit, R. D (2011) Geographical Thought: A Contextual History of Ideas
- Martin, G. F and James, P. E. (1972) All Possible Worlds: A History of Geographical Ideas.
- <https://en.wikipedia.org/wiki/structuralism>

**E-Learning module
SEMESTER-IV
PAPER-GEO-A-CC-6-13-TH
Systematic Approach**

System approach in geography

**e- module
By
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INTRODUCTON:

- SYSTEM:

The word system has been derived from the *Greek* word “*systema*” which means a set of rules that govern structure and/or behavior.

An organized ,purposeful structure that consist of interrelated and interdependent elements. These elements continually influences one another to maintain theirs and the existence of the system.



DEFINATION OF SYSTEMS:

Hall N . Fagan(1956),”American geography- Inventory and prospect” :

A system is a set of objects together with a relation with this objects and their attributes.

Miller 1965 simply stated system is a set of units with relationship with them implying that:

- a. A set of elements identified with some variable attributes of objects.*
- b. A set of relationship between attributes and objects.*
- c. A set of relationship between this objects and the environment.*



What is the system in geography?

- In geography, the system is comprised of all elements connected with a specific link. **The following are the characteristics of the system:**
- The system may be **open or closed**, for examples:
 - **Open system:** Earth, ocean, forest, atmosphere, etc
 - **Closed system:** Culture of Andaman & Nicobar tribes
- System change through time, for example:
 - **Earlier**, the system was dominant by the environment and animals
 - **Nowadays**, the system was dominant by human

SURROUNDINGS

INPUT

OUTPUT

OPEN
SYSTEM

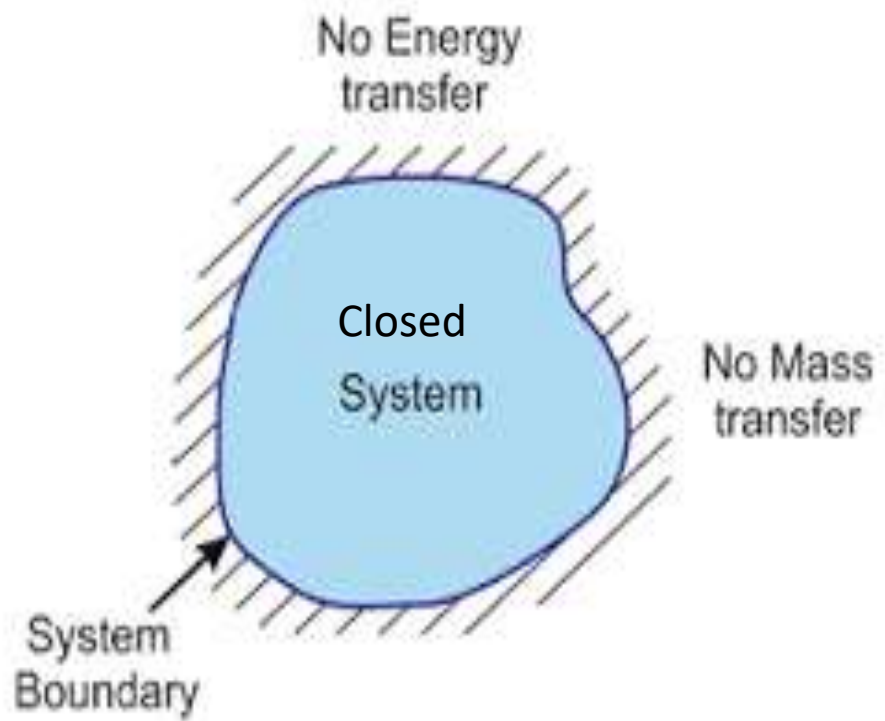
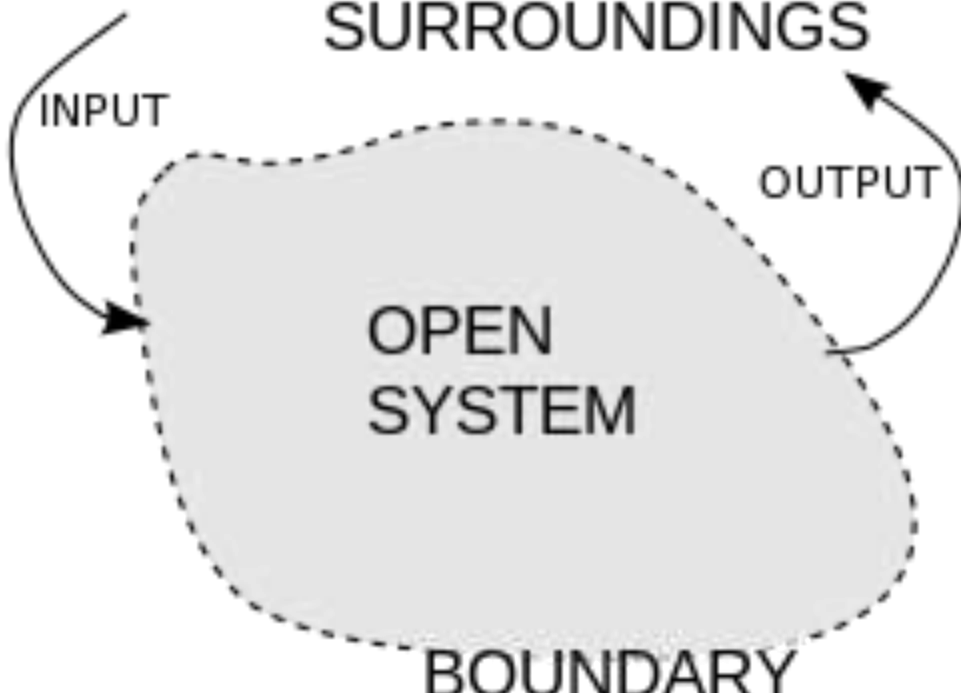
BOUNDARY

No Energy
transfer

Closed
System

No Mass
transfer

System
Boundary



Systematic approach



- ❧ **Systematic geography approach was introduced by German Geographer Alexander Von Humboldt**
- ❧ **It applies specific geographical elements or phenomenon over a defined geographical unit.**

Structure of the system:

- Elements. For example, the element of the **Ocean system** will be water, temperature, vegetation, fishes, salinity, acidity, ice, coastal areas, etc.
- Linkage, for example, **Paddy productivity** is linked with soil, water, moisture, fertilizer, etc.
- Inputs:
 - input will be null if a closed system
 - input varies if an open system
- Output: behavioral change of system:

Systematic vs. Regional Geography

There are two basic approaches to the study of world geography.

1) The regional approach studies all of the characteristics of a place that set it off from and relate it to other places in the world. This is the approach of your textbook and the main approach used in this course.

2) Systematic geography, on the other hand, studies one issue at a time and looks at its variations in all parts of the globe. College courses in systematic geography include: physical geography, geomorphology, analysis of soils, climatology, environmental studies, human geography,

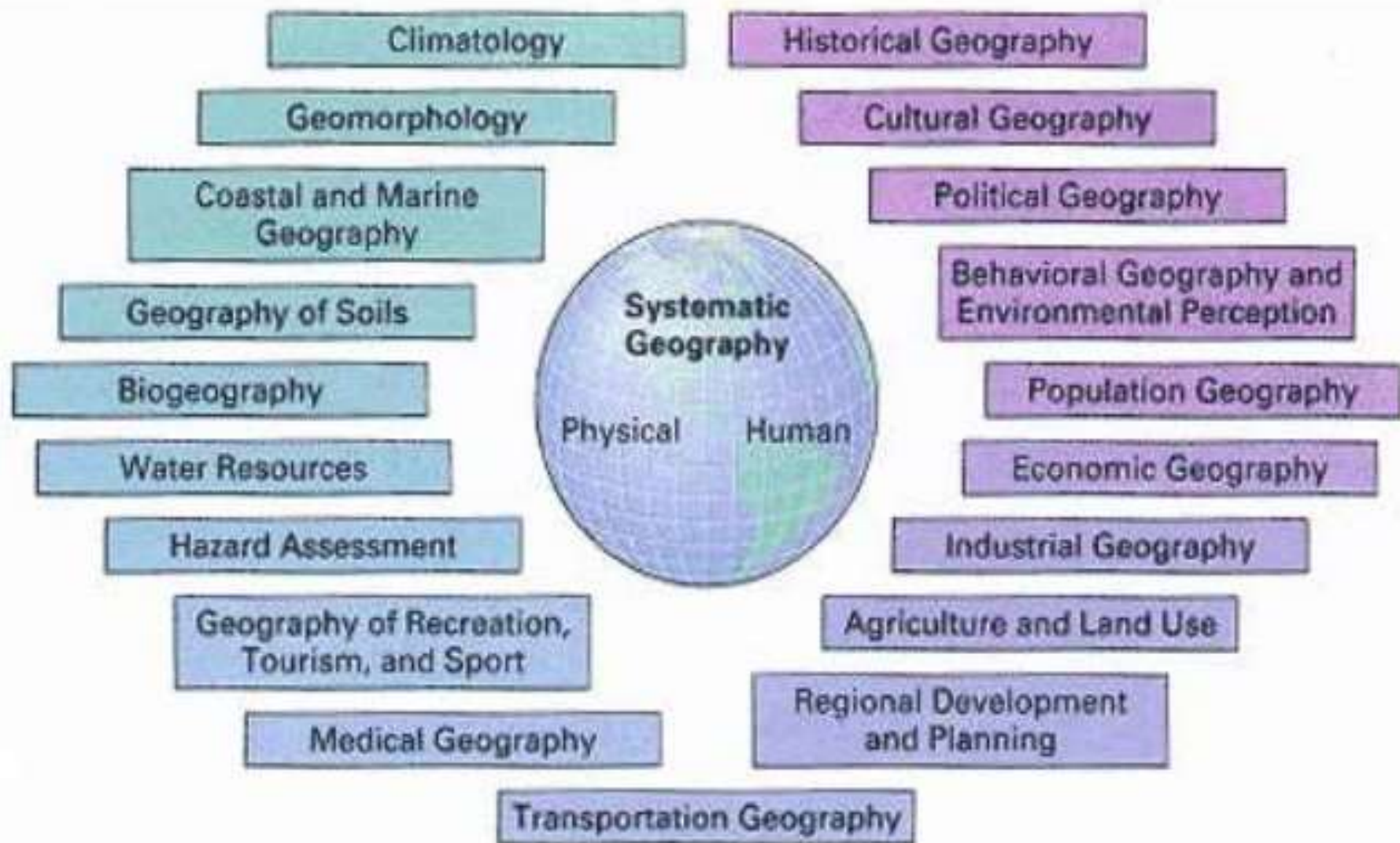


Figure :- Fields of systematic geography

- Each element is interlinked by other elements. The change in one element or link, the effect can be seen in the whole system, **for example:**
 - the whole earth affects if the percentage of CO2 changes in the atmosphere.
 - no lives in the ocean without vegetation
 - animal and vegetation are interdependent
 - In the governance system, the public and politicians, officers, all are interdependent.
- The system has many subsystems, **for example**, the subsystem of ocean systems are:
 - Coastal subsystem
 - Deep ocean system
 - Coldwater & Warm water subsystem, etc

Principles of General system :

- Study of the subsystem is needed to understand the complex system
- Some geographical system is naturally controlled and regulated, example **changes of the season** due to earth revolution around the sun and rotation around own axis.
- But when human is involved in the general system, then it increases the complexity and hampers the autoregulation. **For example** , now the global temperature is rising due to climate change is happening because of human-induced greenhouse gas emissions.

Challenges in System Analysis:

- Very complex to analyze the open system because of many component and linkages
- Demarcation of the boundary of the system and identification of the components of the system is challenging. For example, **it is hard to demarcate the boundary of the Tata Salt market**
- Anthropogenic actions are adding complexity to the geographical system.

- In geography, the **system approach** is one approach used to find **out the causes and function** of the geographical phenomenon, by studying all the interlinked components as a whole.
- System analysis is the **tool to analyze the system** and its components to understanding the complex phenomenon. **For example, why migration happening?** under system analysis, the following component will be included in the study:

The population of the concerned region

- Growth of population
- Economic activities and availability for livelihood
- Law and order situation
- Freedom
- Education and health facilities
- City size, distance, etc
- Types of migration

Challenges in System Analysis:

Very complex to analyze the open system because of many component and linkages

- Demarcation of the boundary of the system and identification of the components of the system is challenging. For example, **it is hard to demarcate the boundary of the Tata Salt market**
- Anthropogenic actions are adding complexity to the geographical system.

Easy to analysis complex system through system analysis

- Many outgoing problems can be **well analyzed and can be predicted** by system analysis, such as:
 - Environment degradation
 - Climate change
 - Migration
 - Naxalism problems
 - Poverty
 - Unemployment
 - Quantitative revolution is based on System analysis

Merits and Demerits of System Analysis

- **Merits –**
- Theorization and Model building has been supported by system analysis, so it provided a systematic analysis of the discipline.
- Geography became structured science.
- From descriptive geog. to objective for rational interpretation, description, and understanding the true nature, system analysis was used.

- **Demerits –**

- It made geog. as spatial science or space geometry where measurement of space collection of data & surveys became important.
- Geog. learning became mechanistic and confined to certain objectives.
- System analysis was based on generalization & positivism which suggest that reality is one that is cognizable. Thus unseen variables were discarded.
- Thus unseen variables were discarded.

- **In System analysis, Humanism and welfare approach was rejected** because it is impossible to quantify human emotions and his decisions making process.

References/sources

- For more studies
- <https://lotusarise.com/system-analysis-in-human-geography/>
- Books
- Adhikari, S. (2010) Fundamentals of Geographical Thought.
- Dikshit, R. D (2011) Geographical Thought: A Contextual History of Ideas
- Martin, G. F and James, P. E. (1972) All Possible Worlds: A History of Geographical Ideas.