

BASIC GEOMORPHOLOGICAL CONCEPTS

Geomorphology is a systematic and organized description and analysis of the surface landforms, processes and landscape evolution of the Earth.

The basic concepts related to geomorphology are:

A. Continental Drift

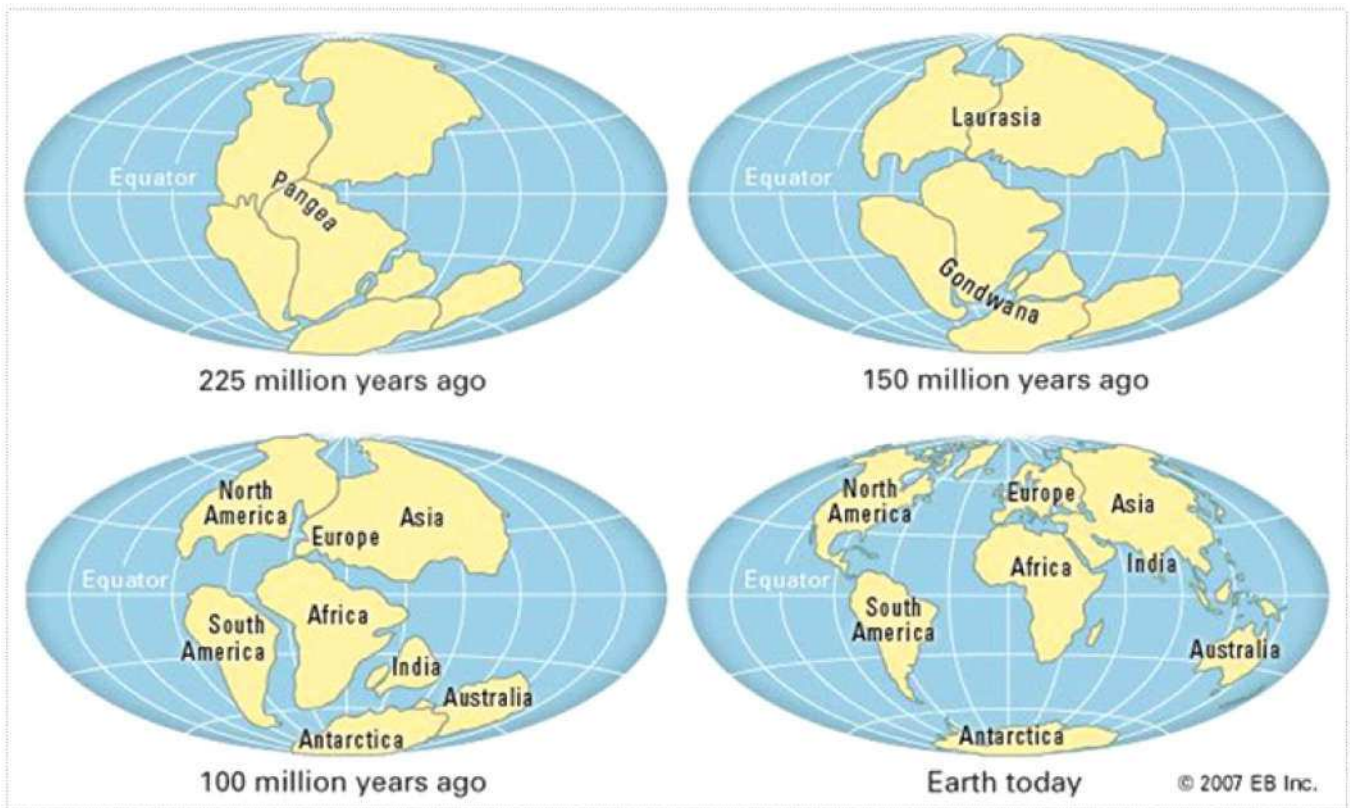
- The theory of Continental Drift is an attempt to explain the present arrangement of continents and ocean basins.
- Alfred Wegener, is regarded as the father of the concept of Continental Drift.
- Wegener hypothesized that the super continent (Pangaea) broke up to form: (i) Laurasia (N. America, Greenland and all Eurasia north of the Indian Subcontinent) and (ii) the Gondwanaland (South America, Africa, Madagascar, India, South West Asia, Australia and Antarctica).
- The Pangaea was surrounded by a huge sea Panthalassa (Pan = all, thalassa = oceans) or the Pacific Ocean.
- He opined that continents are made of SiAl and Ocean basins of SiMa.
- According to Wegener continents drifted in two directions:
 - a) Towards the Equator (due to : gravitational attraction exerted by the earth's equatorial bulge). As a result of this drift, the Himalayas and Alps etc, came into existence. The Peninsular Indian and Africa were separated from the Antarctica and Australia.
 - b) The Second drift was towards the west (due to tidal force of the Moon and the Sun). North and South America got separated from Europe and Africa and the Andes and Rockies Mountains came into existence.

Evidence in support of Continental Drift

- a) Similarities are found in the opposing coasts of the Atlantic Ocean. Jig saw of the opposing coasts of Atlantic Ocean.
 - b) Fossils of glossopteris (a fern - like plant) have been found in rocks of the same age from S. America, S. Africa, India and Australia.
 - c) Folded mountain ranges at Cape of Good Hope and rocks of Buenos Aires (Argentina) resemble.
 - d) Major lava plateaus of South America, W. Africa, Madagascar, India and Antarctica have the same geological structures.
 - e) Evidence from Glaciations as about 300 million years back (Paleozoic Era) glaciers covered the Southern Hemisphere including South America, Africa, India, Australia.
 - f) Great coal deposits in the tundra and cold climatic regions of Antarctica, Siberia, North Europe.
 - g) According to Wegener, Poles have changed their position, e.g. during the Carboniferous Period, the South Pole was near Natal and the North Pole was in the Pacific Ocean.
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Criticism

- Wegener was criticized for failing to explain the forces that would permit continents to plough through the ocean of rocks.
- He was declared as a crank who carefully selected only those data which supported his hypothesis, ignoring contrary evidences.
- Wegener died on an expedition in Greenland in 1930. His theory was already eclipsed.



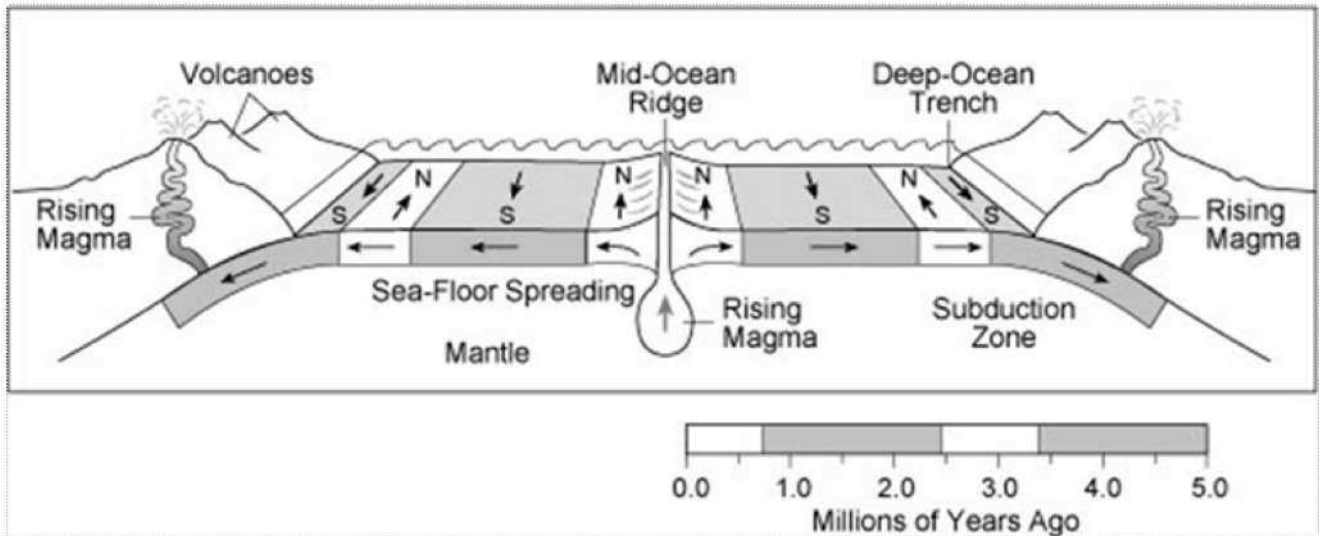
B. Sea-floor Spreading

- The hypothesis of 'Sea-Floor Spreading' which proves the theory of Continental drift was put forward jointly by Harry H. Hess and Robert Deitz in 1960.
- According to Hess, the submarine mountain ranges (Mid-Ocean Ridges) were direct results of upwelling flows of magma from the Asthenosphere.
- When magma rises from below, the earth's crust is fractured. The magma spills out and cools to form new sea floor, building the ridges and spreading laterally.
- The following three important facts were established by Hess:
 - (i) The crust below the ocean floor was found to be only 6 to 7 km thick, whereas below the continental surface it was 30 to 40 km.
 - (ii) Mid-Oceanic Ridges were present in all the oceans.
 - (iii) The ocean floors, nowhere, were found to be older than 135 million years, though the oceans are 3.9 billion (3900 million) years old.

- Ocean floor is constantly regenerated at the mid-ocean ridges and subjected to continents lateral spreading until it is destroyed in the trenches.

Following are the Evidence for Sea-Flooring Spreading:

- Occurrence of earthquakes along the crust of Mid-Ocean Ridges.
- The dearth of sediments at the crest of Mid-Ocean Ridges and active volcanic islands like Iceland and Canary Islands.
- Thickness of the sedimentary deposits increases away from the Mid-Oceanic Ridges.



- There is reversal, in the main magnetic field of the earth known as 'magnetic di-pole' (magnetic field).
- The normal and reverse magnetic anomalies are found in alternate manner on either side of the Mid-Ocean Ridges.

Following Inferences can be down from the evidence:

- (a) There is continuous spreading of sea floor.
- (b) The basaltic crust (igneous) is continuously formed along the Mid-Oceanic Ridges.
- (c) The newly formed basaltic layer is divided into two equal halves and thus displaced away from the Mid-Oceanic Ridge.
- (d) Alternate stripes of positive and negative magnetic anomalies are found on either side of the Mid-Oceanic ridges.

C. Plate Tectonics

- It assumes that the lithosphere is broken into a series of separate plates which move in response to convection in the upper mantle (Asthenosphere).

Major Plates

1. African Plate, 2. American Plate, 3. Antarctica Plate, 4. Australian Plate, 5. Eurasian Plate, 6. Pacific Plate.

Minor Plates

1. Arabian Plate, 2. Bismark Plate, 3. Caribbean Plate, 4. Carolina Plate, 5. Coos Plate, 6. Nazca or East Pacific Plate, 7. Juan De Fuca Plate, 8. Philippines Plate, 9. Scotia Plate.

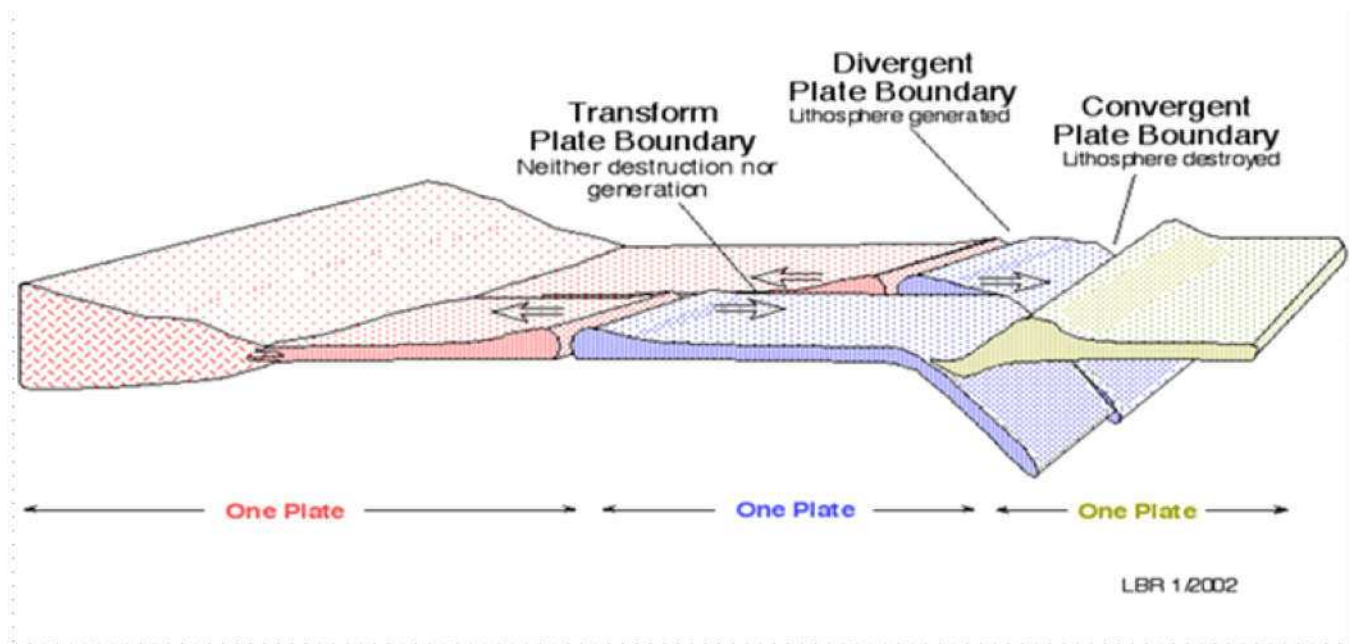
Different types of plate movements:

- **Constructive Plate Margins or Divergent Plate Boundaries (Ocean Ridges)**

The Plates diverge and move along mid-oceanic ridges and thus, new lithosphere is formed. The oceanic ridges stand high because their material is low in density.

The mid-oceanic ridges and rift valleys of East Africa are the constructive plates.

- **Destructive Plate Margins or Convergent Plate Boundaries (Ocean Trenches)**



At Ocean trenches, one plate slips under the margins of other at an angle of 45° (the Pacific and Nazca Plates). The volcanoes of the Andes and Pacific, and the earthquake of these regions are the results of destructive Plates (Mt. St. Helens).

- **Conservative or Passive Plate margins**

In this case the plates simply slip past each other. The crust is neither created nor destroyed. Example California's San Andreas Fault.

Criticism

1. Plate tectonics theory is unable to explain why subduction is limited to the Pacific coast while spreading is found in all the ocean. The length of spreading (ocean ridges) is far greatest than the subduction zone. The rate of construction is more than the rate of destruction.
2. The Benioff Zone (Ring of Fire) is not present equally in all probable places. For example, the intermediate and deep focus earthquakes are absent in North America.
3. There are certain mountain ranges, such as the Eastern highlands of Australia, Drekenburg mountain of South Africa and Sierra-Dalmar of Brazil which can not be related to plate tectonics.

Despite all these omissions and commissions plate tectonic is a revolutionary and comprehensive theory which scientifically explains the present distribution and arrangement of the continents and ocean basin. It also provides a satisfactory explanation of the distribution of volcanoes and earthquakes. It has also confirmed the theory of Continental Drift.

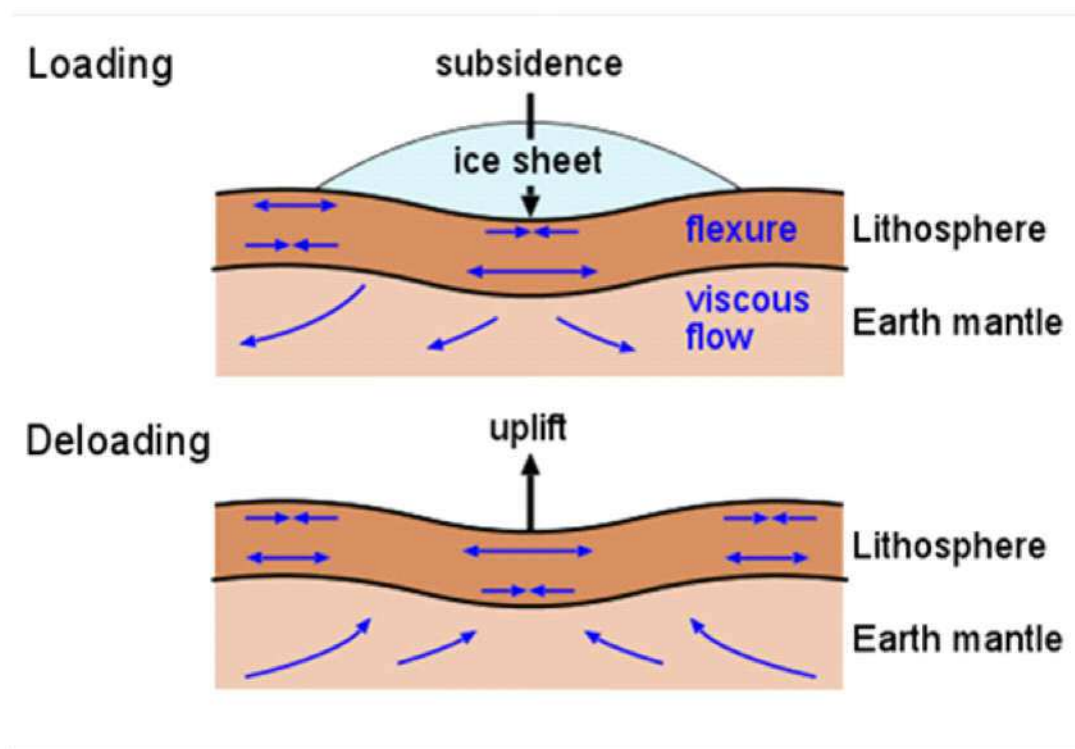
D. Isostasy

- Isostasy is the state of balance. The gravitational adjustment of the earth's crust is known as isostasy.
- It is based on the principle of buoyancy (Archimedes).

For example: A Ship sinks until it displaces a volume of water equal in weight of the ship and its cargo. Thus an empty ship displaces a smaller volume of water than the same ship when fully loaded.

Mt. Everest (8.84 km above sea level) and its adjacent peaks are not supported by the mechanical strength of materials within the earth because nothing on (or in) our world is that strong. The mountains upper surface of the continents floats high above sea level because the lithosphere of which it is part sinks into the asthenosphere until it has its own mass.

- The state of equilibrium, resembling floatation, in which segments of the earth crust stand at levels determined by their thickness and density.
- Isostatic equilibrium is attained by flow of material in the mantle.
- Isostasy takes place on the Earth wherever a large amount of weight is present. This weight might be due to a large mountain, ice from an ice age, or even from manmade structures, such as the weight from large manmade lakes.
- Isostasy also takes place when a large amount of weight is removed from an area, causing that portion of the Earth's crust to rise, such as when ice caps melt.



INTERIOR OF THE EARTH - SEISMIC WAVES, TYPES OF LAYERS

Due to changing nature of its internal composition and huge size the direct observation of the earth interior is not possible.

There are three ways to observe the interior of the earth as used by Geophysicists and geologists:

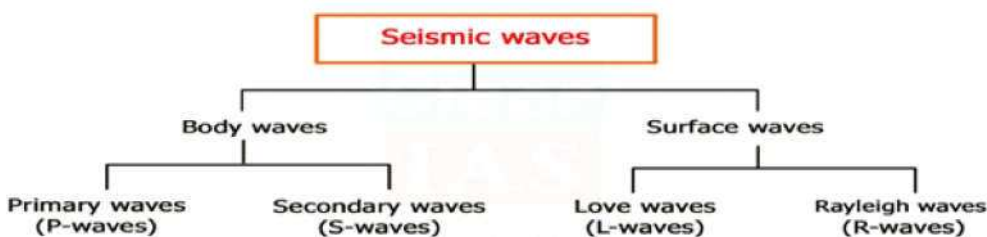
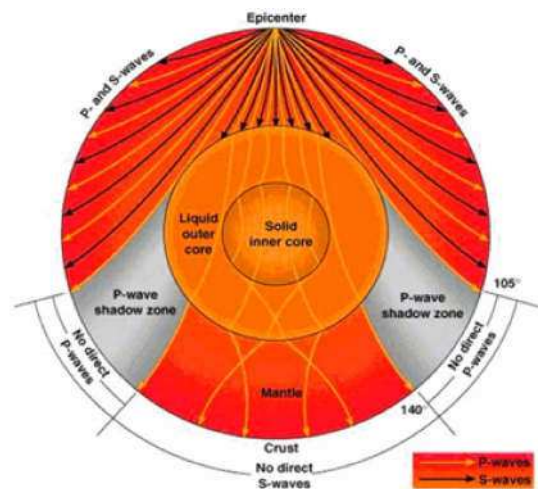
- a) **Temperature:** Temperature increases at the rate of 1°C per 32 metres of depth, reaching 4000°C at its core where no rocks or minerals can remain solid due to such high temperature.
- b) **Density of rocks:**
 - The density of the rocks increases going inside the earth.
 - The outer shell consists of sedimentary rocks upto about 1.6 km with a density of 2.7g/cm^3 .
 - Below sedimentary rocks lie crystalline rocks with a density of 3.0 to 3.5 g/cm^3 .
 - The average density of the earth is 5.5 g/cm^3 .
 - Density of the core is more than 11g/cm^3 due to the presence of metallic minerals like nickel and ferrous.
- c) **Earthquake Waves (Seismology):**

The energy generated by earthquake in the form of waves is the most reliable source to know the interior of the earth.

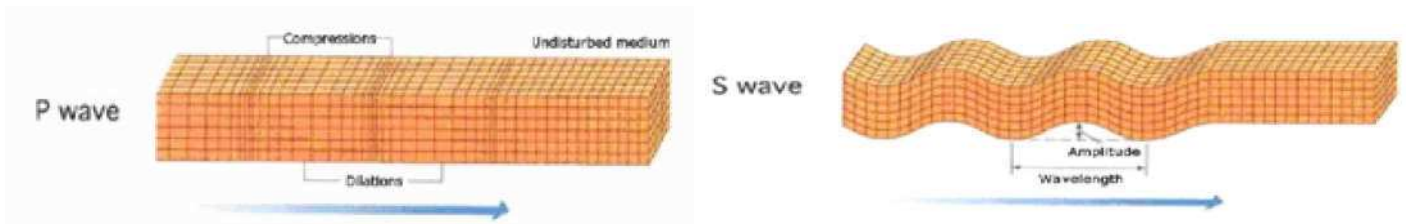
Seismic waves passing through the earth are refracted in a way that show distinct discontinuities within earth's interior and provide the basis for the belief that earth has:

- a) A solid inner core,
- b) A liquid outer core,
- c) A soft asthenosphere, and
- d) A rigid lithosphere.

There are two types of Seismic Waves:



- a) **Body Waves** travel or propagate through the body of the (interior) earth following ray paths refracted by the varying density and stiffness of the earth's interior which in turn, vary according to temperature, composition, and phase.
- **Primary Waves (P Waves):** Analogous to sound waves, travels fastest through the solid materials but slows down while passing through liquid. They are observed on seismograph quickly as it travels nearly twice as fast as the S Waves.
 - **Secondary Waves (S Waves):** Analogous to water ripples or light waves, travels through solid only, having high frequency, short wavelength which propagates in all direction from the focus.



- b) **Surface Waves (L Waves)** travel or propagate along Earth's surface are slower than body waves due to its low frequency, long duration and large amplitude. They are most violent and destructive covering the longest distance on the surface.
- **Rayleigh Waves (Ground Roll):** Generated by the interaction of P- and S- waves at the surface of the earth, Travel as ripples with motions that are similar to those of waves on water. It causes the ground to shake in an elliptical motion, with no transverse, or perpendicular, motion. It emanates outward from the epicenter of an earthquake travelling about 10 times the speed of sound in air (0.340 km/s).
 - **Love waves (Q Waves):** It causes horizontal shifting of the Earth and circular shearing of the ground during an Earthquake. They usually travel slightly faster than Rayleigh waves, about 90% of the S wave velocity, and have the largest amplitude.

Shadow zone:

- **Shadow Zone for P Waves:** From a particular spot (labeled 0°) shadow zone for P-Waves exists between 103° and 143° from the focus of the earth quake. Evidently the core deflects the waves from a linear path where seismic waves travel relatively slowly.
- It is due to dense core which produces shadow zone in which no seismic waves passes and detected. It signifies that the core is liquid at a depth of 2900 km from the Earth surface in which S Waves does not pass through.
- 'S' Waves disappear at an angle of 120° from the epicenter.
- Since the outer core is fluid, and S-waves cannot travel through a fluid, the "S-wave shadow zone" is even larger, extending from about 100° to 180° .
- The Mantle (35 to 2900 km) is made of dense rigid rocks (magnesium and iron). As the velocity of seismic wave decreases from lower Mesosphere to upper Asthenosphere, signifies that the lower mantle is more liquid than upper mantle.
- The Crust made of Silica and Aluminum (solid) has a great impact of L Waves and S Waves, causing massive destruction on surface.

Data on the Earth's Interior				
Density (g/cm²)				
	Thickness (km)	Top	Bottom	Types of rock found
Crust	30	2.2 –	– 2.9	Silicic rocks Andesite, basalt at base.
Upper mantle	720	3.4 –	– 4.4	Peridotite, eclogite, olivine, spinel, garnet, pyroxene. Perovskite, oxides
Lower mantle	2.171	4.4 –	– 5.6	Magnesium and Silicon oxides
Outer core	2.259	9.9 –	– 12.2	Iron+oxygen, sulfur, Nickel alloy
Inner core	1.221	12.8 –	– 13.1	Iron+oxygen, sulfur, Nickel alloy
Total thickness	6,221			

CLASSIFICATION OF ROCKS

- The earth's crust is made up of various types of rocks differing from one another in texture, structure, colour, permeability, mode of occurrence and degree of resistance to denudation. Rocks also form the basis for soil, and determine to some extent the type of natural vegetation and land use.
- Generally speaking, all rocks may be classified under three headings according to their origin and appearance: Igneous, Sedimentary and Metamorphic.

Igneous Rocks: Crystalline in structure, formed by the cooling and solidification of molten rock (Magma) from beneath the earth's crust. They do not occur in strata nor contain any fossils.

On the basis of mineral composition Igneous Rocks can be subdivided:

- When they contain high proportion of silica, are said to be 'acid' such as granite which is less dense and are lighter in colour.
- Basic rocks contain a greater proportion of basic oxides of iron, aluminium or magnesium and thus denser and darker in colour.
- They are described on two axes:
 - 1) Rocks that are quartz rich (felsic) and magnesium rich (mafic).
 - 2) Fast cooling (small crystals) and slow cooling (large crystals).

On the basis of origin, Igneous Rocks are of two types: Plutonic Rocks and Volcanic Rocks.

- **Plutonic Rocks (Intrusive Rocks):** Formed at some depth in the earth's crust, cooled and solidified slowly so that large and easily recognised crystals have been able to form. These are exposed at the surface by the process of denudation and erosion. Example: granite, diorite, gabbro etc.
- **Volcanic Rocks (Extrusive Rocks):** Formed on the surface of the earth when the molten lave is cooled slowly and solidifies after being poured on forming small crystals. Example: Basalt, Andesite, Rhyolite etc.

Extrusive Rocks

- **Basalt:** A dense, black, massive rock, high in calcium and iron-magnesium- bearing minerals and low in quartz content. Found in the Columbia Plateau of the northwestern United States, the Deccan region of western India and the Karoo of South Africa.
- **Andesite:** It has higher quartz content than basalt and is usually lighter in colour. Crystals of the minerals amphibole, biotite, and feldspar are sometimes visible without magnification. In Utah Andesite can be seen at Signal Peak in the Tushar Mountains, Piute County.
- **Rhyolite:** A fine-grained, white, pink, or gray rock, high in quartz and feldspar content with some amphibole and biotite. A well-known example is the Topaz Mountain rhyolite in the Thomas Range, Juab County.

Intrusive Rocks

- **Granite:** Granite is the intrusive equivalent of rhyolite but has a coarser texture. It is rich in feldspar and quartz (silica) and hence is called a felsic rock. So granite is felsic and plutonic.

- **Diorite:** Diorite has the same texture as granite but has the mineral composition of an andesite, which is diorite's extrusive equivalent. Diorite forms the summits of Haystack Mountain, Mt. Tomasaki, Mt. Mellenthin, and Mt. Tuckuhnikivatz in the La Sal Mountains, Grand and San Juan Counties.



Sedimentary Rocks: Non-crystallized termed as stratified rocks found in layers, formed by the accumulation of sediments (brought by streams, glaciers, winds or even animals, over a long periods) usually under water.

The rocks may be coarse or fine grained containing fossils of animals, plants and other micro-organisms.

In accordance with their origin and composition sedimentary rocks are of: Mechanically Formed, Organically Formed and Chemically Formed.

a) Mechanically Formed Sedimentary Rocks:

- Formed by the accumulation of sand grains, often quartz fragments derived from granites which were cemented together on other rocks. Example: sandstone.
- A coarse type of sandstone is known as grit. The finer sedimentary materials form clay widely used for brick making, shale or mudstone. Sand and gravel may occur in uncemented form.
- When large rounded pebbles are firmly cemented to form a rock is called conglomerate or breccia when the fragments are angular.

b) Organically Formed Sedimentary Rocks:

- Formed from the remains of living organisms such as corals or shellfish when their fleshy parts are decomposed, leaving behind the hard shells. Example: Calcareous which include limestones and chalk.
- The carbonaceous rocks are also organically formed but from the vegetative matter such as swamp and forests. Example: Peat, Lignite or coal.

c) Chemically Formed Sedimentary Rocks:

- Such rocks are precipitated chemically from solutions of one kind or another. Rock salts are derived from strata which once formed the beds of seas or lakes.
- Gypsum or Calcium Sulphate is obtained from the evaporation of salt lakes, such as the Dead Sea. Similarly potash and nitrates are also formed.

Some common sedimentary rocks:

- **Shale:** Shales are formed due to consolidation of silt and clay. Shales are formed of thin laminae which are easily separated. Shales are impermeable rocks and therefore they hold mineral oil above them.
- **Sandstone:** Sandstones are formed mostly due to deposition, cementation and consolidation of sand grains. These are porous rocks and water easily percolates through them.
- **Limestone:** Limestone is a sedimentary rock composed largely of the minerals calcite and aragonite, which are different crystal forms of calcium carbonate (CaCO_3). Many limestones are composed from skeletal fragments of marine organisms such as coral or foraminifera.
- **Conglomerate:** Conglomerate is well-rounded gravel in a matrix of sand, clay, and natural cementing agents.



Metamorphic Rocks: Under great heat and pressure all rocks including sedimentary and metamorphic can turn into metamorphic altering their original character and appearance.

By this process:

- Clay may be metamorphosed into slate, Limestone into marble, Sandstone into quartzite, Granite into gneiss, Shale into schist and coal into graphite.

Metamorphic rocks are classified into Foliated and Non-Foliated on the basis of their structure and dominant minerals.

- Foliated Metamorphic Rocks:** Parallel arrangement of mineral grains, formed when pressure squeezes the flat or elongate minerals within a rock to become aligned. These rocks develop a platy or sheet like structure that reflects the direction where pressure was applied. Example: Slate, Schist, Gneiss etc.
- Non-Foliated Metamorphic Rocks:** Rocks with only one mineral (such as limestone) or those that recrystallize in the absence of deforming stresses that do not develop strong foliation developing a granular texture. It does not have a platy or sheet like structure. Example: Limestone.

Some common metamorphic rocks

- **Slate:** (low-grade metamorphism) Formed by comparatively low pressures and temperatures, fine grained, perfect cleavage enabling it to be split into fine sheets. It generally contains dark and light brown texture commonly used for chalkboards and headstones.
- **Schist:** (Medium grade metamorphism) Formed by more pressure and heat compared to slate, coarse grained usually found in the form of crumpled or folded which are visible from the naked eyes. For example: talc schist, garnet mica schist, hornblende schist, and bitotite mica schist.

- **Gneiss:** (High grade metamorphism) Formed by more pressure and heat compared to schist, distinctly banded and is coarser than schist. Its bandings are comprised of different minerals, for example: feldspar along with quartz and mica. Gneiss can form from the metamorphosis of sedimentary rock like shale or sandstone, or from igneous rock like granite. Gneiss is used as a building stone and for paving.
- **Quartzite:** Metamorphosed form of sandstone, sugary looking surface, typically breaks through the grains. Some quartzite formations retain their original bedded (layered) structure such that when broken they form flagstones that are commonly used in landscaping or as veneer for buildings.
- **Marble:** Metamorphosed form of dolomite or limestone containing calcium carbonate in large concentration, usually harder than its parent rock which enables it to be polished. It is made up of various sized crystals having many variances in colour due to impurities present in it. Hence, it can be of white, gray, black, red, green, pink, banded and mottled.



CONSTITUTION AND TYPES

What is a Constitution?

- A constitution is a basic law of the land which establishes the relations between various organs of the government and also defines the nature and polity of that country. The polity defines the basic structure of law and the rights and obligations of both the state and the citizens.
- On the other hand, the document containing laws and rules which determine and describe the form of the government, the relationship between the citizens and the government, is called a Constitution.

Importance of Constitution:

- To maintain the smooth functioning of modern welfare state, there is a need of a set of codified rules which determines or will determine the form of government, the relationship between the citizens and government in order to sustain and flourish.
- It is the constitution which establishes these relationships and lays down the objectives of the state which it has to achieve. It also describes the rights and duties of the citizens and also limit the powers of the government(s).
- It facilitates the minimal coordination among the members of a society by specifying who has the power to make decisions in a society and also decides how the government will be constituted.
- Thus, a constitution is considered to be the basis for the governance of the country both in terms of goals and objectives as well as their structures and functions.

Functions of a constitution: The constitution whether written or unwritten, is a political structure having several functions:

- **Expression of Ideology:** It reflects the ideology and philosophy of a nation state. For example: the ideology of Indian Constitution is based on a socialist and secular social system. On the other hand, the U.S.A. follows the ideal of a capitalist -social order.
 - **Expression of Basic Law:** Constitution present basic laws which could be modified or replaced through a process called extra-ordinary procedure of amendment. There is a special law also which usually focuses upon the rights of the citizens, for instance, rights concerning language, speech, religion, assembly, the press, property and so on.
 - **Organizational framework:** It provides organizational framework for the governments. It defines the functions of the legislature, executive and judiciary, their inter-relationship, restrictions on their authority etc.
 - **Levels of Government:** Constitution generally explains the levels of different organs of the government. Whether it is federal, quasi-federal or unitary, will be described by the constitution. They delineate the power levels of national and provincial governments.
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- **Amendment provision:** As it would not be possible to foretell all possibilities in future with great degree of accuracy, there must be sufficient provisions for amendment of the constitution. It should contain a set of directions for its own modifications. The system might collapse if it lacks in scope for modification. An inherent capacity to change according to changing times and needs, help any system to survive and improve.

Types of Constitution:

Broadly speaking, constitution can be of:

Two types based on the nature of document:

- **Written:** Written in the form of a book or a series of documents combined in the form of a book which is consciously framed and enacted. It is formulated and enacted by a constituent assembly or a council or a legislature whose members are elected by the people for whom the constitution is being written.
- **For Example:** Indian Constitution (the longest written constitution), Constitution of America etc.
- **Unwritten:** It is not committed of systematic writing by a particular constituent assembly, rather, evolved or developed due to a number of customs, usages, parliamentary acts and traditions.
- For example, the British constitution has evolved on the basis of all these over a period of many centuries.

Two types based on the nature of polity:

- **Unitary:** Establishes single authority without dividing powers among separate entities. However, there may be other legislative and executive authorities under a unitary constitution but they enjoy only delegated powers and not constitutionally granted powers.
- **For Example:** British Constitution which only recognizes the British Parliament and the central government without having any state type legislatures or government.
- **Federal:** It shares powers between two distinct entities namely, federal or the union government and the state governments without having inferior to each other as both derive its powers directly from the constitution.
- Countries with large population, geographical size, social, cultural and linguistic diversities generally adopt federal form of constitution to allow autonomy of governance to the constituent states. For example, the US, Canadian, Australian Constitutions are federal constitutions.

CONSTITUTIONAL DEVELOPMENT

The origin and growth of the Indian Constitution has its roots in Indian history during the British period. The British came to India in the 17th century as traders. From 1773 onwards, various Acts were passed by the British Government for the governance of India. None of them, however satisfied Indian aspirations mainly because they were imposed by the alien rulers.

Regulating Act, 1773: (i) First attempt by the British Parliament to regulate the affairs of the Company; (ii) Provided for centralisation of Administration of Company's territories in India; (iii) Governor of Bengal became Governor General for all British territories in India; (iv) Governor General and Council of 4 members was appointed for Bengal; (v) Court of Directors of 24 members was to be elected for 4 years, with one-fourth members retiring every year; (vi) Bombay (Maharashtra) and Madras (Tamil Nadu) Presidency subordinated to Bengal Presidency; (vii) Supreme Court to be set up at Calcutta; and (viii) Company's Servants forbidden from accepting bribes or doing private trade.

Amending Act, 1781: (i) Settled the question of jurisdiction of Supreme Court; and (ii) Supreme Court to apply personal law of the defendant.

Pitt's India Act, 1784: (i) Transferred the Indian affairs of the Company into the hands of the British Government; (ii) Abolished dual system of governance. Court of Directors consisting of 24 members to look after commercial functions; (iii) Board of Control consisting of 6 Parliamentary Commissioners was constituted to control civil, military and revenue affairs of India; (iv) Court of Directors had to comply with the orders and directions of the Board; (v) Strength of Governor-General's Council reduced to 3; (vi) Control of Governor-General-in-Council on Bombay and Madras Presidency enlarged and made effective; and (vii) First effective substitution of Parliamentary Control over East India Company.

Act of 1786: Governor-General to be the Commander-in-Chief of Indian Forces.

Charter Act, 1793: (i) Company given monopoly of trade for 20 more years (ii) Expenses and salaries of the Board of Control to be charged on Indian Revenue; and (iii) Governor-General could over-ride his Council.

Charter Act, 1813: (i) Company deprived of its trade monopoly in India except in tea and opium trade with China; (ii) All Englishmen could trade with India subject to certain restrictions; (iii) Rules and procedures made for use of Indian revenue; and (iv) A sum of Rs. 1 lakh earmarked annually for education.

Charter Act, 1833: (i) End of Company's trade monopoly even in tea and opium with China; (ii) Company was asked to close its business at the earliest; (iii) Governor-General of Bengal to be Governor-General of India; (iv) Govt. of Madras and Bombay deprived of legislative powers; (v) A fourth member, Law Member, added to Council of Governor-General; (vi) Government Service was thrown open to the people of India; (viii) All laws made by Governor General Council, henceforth to be known Acts and 'not regulations; (viii) Provision made for appointment of Law Commission for condensation of laws; and (ix) Slavery was to be abolished.

Charter Act, 1853: (i) Expanded life of the Company for an unspread period; (ii) For the first time a separate legislative machinery consisting of 12-member Legislative Council was created; (iii) Law member was made a full member of the Executive Council of the Governor-General. Six additional members added for legislative purposes; and (iv) recruitment of Civil Services was based on open annual competitive examination.

Government of India Act, 1858: (i) Rule of company in India ended and that of the Crown began; (ii) System of double government ended. Court of Directors and Board of Control abolished; (iii) Secretary of State for India was created. He was assisted by a 15-member Council (India Council). He was to exercise the powers of the Crown; (iv) Secretary of State to be a member of the British Cabinet; (v) Secretary of State governed India through the Governor General; (vi) Governor-General was to be called the Viceroy and was the direct representative of the Crown in India; and (vii) A unitary and highly-centralised administrative structure was created.

Indian Councils Act, 1861: (i) Policy of Association of Indians in legislation started; (ii) Portfolio system was introduced; (iii) For legislation; Executive Council of Viceroy was enlarged by 6 to 12 members composed of half non-official members. Thus foundations of Indian Legislature was laid down; (iv) Legislative powers of the Presidency Government deprived in 1833 were restored; and (v) Viceroy could issue ordinances in case of emergency.

Indian Councils Act, 1892: (i) Though the majority of official members was retained, the non-official members of the Indian Legislative Council were henceforth to be nominated by the Bengal Chamber of Commerce and the Provincial Legislative Councils, while the non-official members of the Provincial Council were to be nominated by certain local bodies such as universities, district boards, municipalities. Beginning of representative system in India; and (ii) Council to have the power to discuss budget and of addressing questions to the Executive.

Indian Councils Act, 1909: Also known as the Morley-Minto Reforms -- (i) Introduced for the first time, an element of elections to the Legislative Councils; (ii) At the Provincial Legislative Councils, non-official members to be in majority; and (iii) Introduction of separate electorates (for Muslims).

Government of India Act, 1919: Popularly known as Montague-Chelmsford Reforms -- (i) The idea of "Responsible Government" stressed; (ii) Office of the High Commissioner of India was created in London; (iii) Indian Legislature became "bicameral" for the first time; (iv) communal representation extended to Sikhs; (v) Secretary of State for India now to be paid from British revenue; and (vi) Diarchy in provinces by dividing subjects of administration between official members and elected members.

Dyarchy: It meant Dual Government. The Provincial subject of administration were to be divided into two categories -- "Transferred" and "Reserved" subjects. The transferred subjects were to be administered by the Governor with the aid of Ministers responsible to the Legislative Council. The reserved subjects were to be administered by the Governor and his Executive Council without any responsibility to the Legislature.

Devolution Rules: Subjects of administration were divided into two categories -- "Central" and "Provincial". Subjects of all-India importance (like Railways, Finance) were brought under the category of Central, while matters relating to the administration of the provinces were classified as provincial.

Government of India Act, 1935: (i) Provided for the establishment of an All-India Federation consisting of the British Provinces and the Princely States.

The joining of Princely States was voluntary. The Federation part of the scheme could not be implemented; (ii) Dyarchy was introduced at the Centre. Provincial autonomy replaced Diarchy in Provinces. They were granted separate legal identity. Responsible governments were set up in States under Prime (Chief) Ministers elected by Legislatures; (iii) Governor had special responsibilities (or discretion) in several matters; (iv) It made a three-fold division of powers -- Federal, Provincial and Concurrent Lists. Residuary powers were to be with the Governor-General; (v) The India Council of Secretary of State for India was abolished; (vi) Principle of separate electorate was extended further to include Anglo-Indians Indian Christians and Europeans also; and (vii) A Federal Court was to be constituted with a Chief Justice and 10 other Judges. This was set up in 1937.

Indian Independence Act, 1947: This Act did not lay down any provision for the administration of India but merely stated that from the "appointed date (Aug. 15, 1947), in place of India as defined in the Government

of India Act, 1935, there would be two independent Dominions to be known as "India" and Pakistan", and the Constituent Assembly of each Dominion would have unlimited powers to frame and adopt any Constitution, and to repeal any Act of the British Parliament.

MAKING OF THE CONSTITUTION

The idea of a Constituent Assembly for India was put forward for the first time by M. N. Roy.

The Constituent Assembly was constituted in November 1946 under the scheme formulated by the Cabinet Mission Plan.

The total strength of the Constituent Assembly was to be 389. Of these, 296 seats were to be allotted to British India and 93 seats to the Princely States. Out of 296 seats allotted to the British India, 292 members were to be drawn from the eleven governors' provinces and four from the four chief commissioners' provinces, one from each.

Each province and princely state (or group of states in case of small states) were to be allotted seats in proportion to their respective population. Roughly, one seat was to be, allotted for every million population.

Seats allocated to each British province were to be decided among the three principal communities-Muslims, Sikhs and general (all except Muslims and Sikhs), in proportion to their population.

The representatives of each community were to be elected by members of that community in the provincial legislative assembly and voting was to be by the method of proportional representation by means of single transferable vote.

The representatives of princely states were to be nominated by the heads of the princely states.

It is thus clear that the Constituent Assembly was to be a partly elected and partly nominated body. Moreover, the members were to be indirectly elected by the members of the provincial assemblies, who themselves were elected on a limited franchise.

Drafting Committee

It consisted of seven members. They were:

1. Dr B R Ambedkar (Chairman)
2. N Gopaldaswamy Ayyangar
3. Alladi Krishnaswamy Ayyar
4. Dr. K M Munshi
5. Syed Mohammad Saadullah
6. N Madhava Rau (He replaced B L Mitter who resigned due to ill-health)
7. T T Krishnamachari (He replaced D P Khaitan who died in 1948)

Dr B R Ambedkar introduced the final draft of the Constitution in the Assembly on November 4, 1948 (first reading). The Assembly had a general discussion on it for five days (till November 9, 1948).

The second reading (clause by clause consideration) started on November 15, 1948 and ended on October 17, 1949. During this stage, as many as 7653 amendments were proposed and 2473 were actually discussed in the Assembly.

The third reading of the draft started on November 14, 1949.

The Constitution as adopted on November 26, 1949, contained a Preamble, 395 Articles and 8 Schedules.

Trending Topics

ADAPTATIONS MADE FOR SURVIVAL IN TUNDRA BIOME

Adaptations made for survival in Tundra Biome The tundra biome is an ecosystem situated near the North Pole in the Arctic Circle. There are three types of tundra: arctic tundra, alpine tundra and Antarctic tundra. It is noted for its frost-molded landscapes, extremely low temperatures, little precipitation, poor nutrients, and short growing seasons.

The winters are extremely cold with temperatures typically below -34°C . The summers last only about two months and the temperatures are still very cold ranging from 3° to 12°C .

Plants adaptations

Only a thin layer of soil, called the active layer, thaws and refreezes each year. This makes shallow root systems a necessity and prevents larger plants such as trees from growing in the Arctic. (The cold climate and short growing season also prevent tree growth. Trees need a certain amount of days above 50°F , 10°C , to complete their annual growth cycle.)

- Most of the plants are small, grow close together and close to the ground. This protects them from the cold temperatures and the strong winds.
- Some flowering plants have fuzzy coverings on the stems, leaves and buds to provide protection from the wind. Some have woolly seed covers.
- Lichens grow in mats on the ground and on rocks across the Arctic. Lichens provide an important food source for caribou in the winter.
- Many Arctic species can grow under a layer of snow, and virtually all polar plants are able to photosynthesize in extremely cold temperatures.
- During the short polar summer, plants use the long hours of sunlight to quickly develop and produce flowers and seeds.
- Flowers of some plants are cup-shaped and direct the sun's rays toward the center of the flower. Dark-colored plants absorb more of the sun's energy.
- In addition, many species are perennials, growing and blooming during the summer, dying back in the winter, and returning the following spring from their root-stock. This allows the plants to direct less energy into seed production. Some species do not produce seeds at all, reproducing asexually through root growth.
- Small leaves help the plants retain moisture.

Animal Adaptations

- The animals in these regions are usually white or light colored, e.g., polar bear, penguin. This adaptation helps them in maintaining their body temperature, and in camouflaging.
 - These animals can store fat in their body as they eat a lot during the summer.
 - The stored fat can be consumed during the winter months because the animals hibernate for months, i.e., go into a state of inactivity, during severe winters.
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- In hibernation, their metabolic activity is reduced to a great extent. In this state, their heartbeat, breathing rate and temperature become very low.
 - Furred soles of the feet of polar bears protect them from cold and prevent them from slipping.
 - The small animals burrow down into the snow. The snow traps the air, and it becomes an excellent insulator.
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Trending Topics

NATIONAL ANTHEM - CODE OF CONDUCT

The song Jana-gana-mana, composed originally in Bengali by Rabindranath Tagore, was adopted in its Hindi version as the National Anthem of India on January 24, 1950.

It was first sung on December 27, 1911 at the Kolkata Session of the Indian National Congress.

It has five stanzas with first stanza containing the full version of the National Anthem

The duration of the National Anthem is approximately 52 seconds. A short version consisting of the first and last lines of the stanza (playing time approximately 20 seconds) is also played on certain occasions.

The National Anthem of India is played or sung on various occasions. Instructions have been issued from time to time about the correct versions of the Anthem, the occasions on which these are to be played or sung, and about the need for paying respect to the anthem by observance of proper decorum on such occasions.

The full version of the Anthem shall be played on the following occasions:

- Civil and Military investitures;
- When National Salute (which means the Command "Rashtriya Salute - Salami Shastr" to the accompaniment of the National Anthem is given on ceremonial occasions to the President or to the Governor/Lieutenant Governor within their respective States/ Union Territories;
- During parades - irrespective of whether any of the dignitaries referred to above is present or not;
- On arrival of the President at formal State functions and other functions organized by the Government and mass functions and on his departure from such functions;
- Immediately before and after the President addresses the Nation over All India Radio;
- On arrival of the Governor/Lieutenant Governor at formal State functions within his State/Union Territory and on his departure from such functions;
- When the National Flag is brought on parade;
- When the Regimental Colours are presented;
- For hoisting of colours in the Navy.

Recently, the Supreme Court ordered that all Indians will now compulsorily have to stand up and listen to the National Anthem before they can watch a movie in a theatre.

The decision is in tune to the Article 51(A) of the Constitution which makes respecting the National Anthem a fundamental duty of every citizen

Trending Topics

CRIME AND CRIMINAL TRACKING NETWORK & SYSTEMS

Crime and Criminal Tracking Network & Systems (CCTNS) is a plan scheme conceived in the light of experience of a non-plan scheme namely - Common Integrated Police Application (CIPA).

CCTNS is a Mission Mode Project under the National e-Governance Plan of Government of India. CCTNS aims at creating a comprehensive and integrated system for enhancing the efficiency and effectiveness of policing through adopting of principle of e-Governance and creation of a nationwide networking infrastructure for evolution of IT-enabled-state-of-the-art tracking system around 'Investigation of crime and detection of criminals.

An allocation of Rs. 2000 crores has been made for CCTNS Project. Cabinet Committee on Economic Affairs (CCEA) has approved the project on 19.06.2009.

Objectives of 'CCTNS':

The objectives of the Scheme can broadly be listed as follows:

- Make the Police functioning citizen friendly and more transparent by automating the functioning of Police Stations.
 - Improve delivery of citizen-centric services through effective usage of ICT.
 - Provide the Investigating Officers of the Civil Police with tools, technology and information to facilitate investigation of crime and detection of criminals.
 - Improve Police functioning in various other areas such as Law and Order, Traffic Management etc.
 - Facilitate Interaction and sharing of Information among Police Stations, Districts, State/UT headquarters and other Police Agencies.
 - Assist senior Police Officers in better management of Police Force.
 - Keep track of the progress of Cases, including in Courts.
 - Reduce manual and redundant Records keeping.
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