

Sample from Polity

EVOLUTION OF THE INDIAN CONSTITUTION

Before we start:: please understand that initially, East India Company was sent to India by British Government for commercial purposes; but the company soon found that its commercial ends shall not be fulfilled unless it has a good say in political affairs of the country. Using its carrot & stick policies, the company started controlling political affairs of different kings. When the company's political control was established in India, the British Government in Britain started regulating and controlling the affairs of the company to establish its own control through various Acts and Regulations. Between 1600 and 1765, the Company chiefly remained a trading corporation, whose charter was renewed by the Crown from time to time.

CONSTITUTIONAL LANDMARKS	
Regulating Act of 1773	
<ul style="list-style-type: none"> • First step by British Government to regulate affairs of East India Company (EIC); establish a central administration; determine the form of Indian government and the first statute that recognizes the Company as fulfilling functions other than those of trade. • It established a definite system of government of India. • Designated Governor of Bengal as Governor General (GG) of Bengal. 1st one was Warren Hastings and subordinated Governors of Bombay & Madras to GG of Bengal. • Established Supreme Court (SC) at Calcutta 	<ul style="list-style-type: none"> • 1st step to control EIC • Centralization Started • GG of Bengal & SC
Pitts India Act, 1784	
<ul style="list-style-type: none"> • Indian affairs came under direct control of British Government in Britain • Distinguished between commercial & political functions of the company. • Board of Control (representing British Cabinet) was established to manage political affairs of the company. • Introduced dual government in India. 	<ul style="list-style-type: none"> • Direct control • Dual government • Ended EIC's political functions
Charter Act of 1833	
<ul style="list-style-type: none"> • Final step towards centralization in British India • GG of Bengal became Governor-General of India. GG was vested with all civil & military powers, and Governors of Bombay & Madras were deprived off their legislative powers. • Created Government of India, for first time having authority over British India (the part of India under control of Britain) • Ended activities of East India Co. as commercial body • Presidency of Bengal was divided into 2 parts– Bengal and Agra 	<ul style="list-style-type: none"> • GG of India • Centralization completed • Ended EIC's commercial functions too

Charter Act of 1853	
<ul style="list-style-type: none"> • Separated Legislative & Executive functions of GG's Council • A separate Lieutenant-Governor was appointed for Bengal. • Created separate Legislative Councils for India, but with only officials as its members • Also introduced open competition for civil services of the company & deprived the Directors of the company their patronage powers 	<ul style="list-style-type: none"> • Separate legislative body created • Open competition
Government of India, 1858	
<ul style="list-style-type: none"> • Rule of company was replaced by rule of crown • Secretary of State (SoS) for India was appointed to exercise the power of the crown. He was member of British Cabinet, responsible to British Parliament & assisted by Council of India having 15 members. • GG became the agent of the crown. 	<ul style="list-style-type: none"> • Rule of Crown started • Secretary of state created
Indian Councils Act of 1861	
<ul style="list-style-type: none"> • Introduced some Indians as non-official members in Legislature • Provision was also made for the inclusion of some Indians in the Governor-General's Council. • Thus seeds of Parliamentary system sown in India (representative institutions) • Initiated process of decentralization by restoring Bombay & Madras' legislative powers • Policy of legislative devolutions introduced which culminated into grant of almost complete internal autonomy of Provinces in 1937 • Empowered GG to frame rules of business (powers that Indian President has today under Article 77) • Statutory recognition to portfolio system • Member in-charge of his department could issue final orders with regard to matters which concerned his department 	<ul style="list-style-type: none"> • Introduced Indians in legislature; they were nominated
Indian Councils Act of 1892	
<ul style="list-style-type: none"> • Introduced indirect elections. GG still had power to nominate members • Enlarged functions of Legislative Councils. They had power to discuss budget and address questions to the executive, but they were not given the power of voting. 	<ul style="list-style-type: none"> • Indirect elections • Power to discuss budget & ask questions
Indian Councils Act, 1909 :: Morley-Minto Reforms	
<ul style="list-style-type: none"> • Minto (Governor-General of India); Morley (Secretary of State) • Changed name of Central Legislative Council to Imperial Legislative Council. Officials had majority in it • Attempted for the first time the introduction of representative and popular element in the government • Provincial legislative Councils had non-official majority • Introduced separate electorate system. Introduced communal representation for Muslims. Legalized communalism (Lord Minto called as father of communal electorate) 	<ul style="list-style-type: none"> • Enlarged deliberative powers of members of councils • Separate electorate • Communal representation

Government of India Act, 1919 (Montagu -Chelmsford Reforms)	
<ul style="list-style-type: none"> • Chelmsford (Governor-General of India); Montagu (Secretary of State) • Separated central subjects from provincial • Provincial subjects were of 2 types: 1. Transferred 2. Reserved • Transferred subjects administered by Governor with aid of ministers responsible to Legislature • Reserved subjects administered by Governor & his executive Council without any responsibility to Legislature • Diarchy (dual system of government) was introduced • Introduced Bicameral Legislature (upper & lower houses) • Introduced direct elections for the first time as majority members of both houses were directly elected. • 3 of 6 members of Governor-General's Council were Indian • Demand for responsible government remains unfulfilled as Central Government remain responsible to British Parliament. • Diarchy failed in Provinces because of dominance of Governor and Executive Council over policy and ministers • Provided for establishing a Public Service Commission for recruitment to higher civil services. • Local-self government became a provincial & transferred subject under a responsible Indian minister. 	<ul style="list-style-type: none"> • Created centre-state relations • Diarchy • 2 Houses of legislature (birth of Lok Sabha & Rajya Sabha) • Direct elections
Simon commission	
<ul style="list-style-type: none"> • The Indian Statutory Commission was a group of 7 British Members of Parliament that had been dispatched to India in 1927 to study constitutional reform in Britain's most important colonial dependency. • It was commonly referred to as the Simon Commission after its chairman, Sir John Simon. • One of its members, Clement Attlee, who subsequently became the British Prime Minister, would oversee the granting of independence to India and Pakistan in 1947. <p>The Commission's recommendations were:</p> <ul style="list-style-type: none"> • Future Advance: <ul style="list-style-type: none"> ✓ The first principle was that the new constitution should, as far as possible, contain within itself provision for its own development. It should not lay down too rigid and uniform a plan, but should allow for natural growth and diversity. ✓ Constitutional progress should be the outcome of practical experience. Where further legislation is required, it should result from the needs of the time, not from the arbitrary demands of a fixed time-table. ✓ The constitution, while contemplating and conforming to an ultimate objective, should not attempt to lay down the length or the number of the stages of the journey. • Almost Responsible Government at the Provincial Level: <ul style="list-style-type: none"> ✓ Diarchy should be scrapped and Ministers responsible to the Legislature would be entrusted with all provincial areas of responsibility. ✓ However, safeguards were considered necessary in areas such as the maintenance of peace and tranquility and the protection of the 	<ul style="list-style-type: none"> • New constitution • Diarchy should be scrapped • Federal union • Franchise should be extended

<p>legitimate interest of the minorities. These safeguards would be provided, mainly, by the grant of special powers to the Governor.</p> <ul style="list-style-type: none"> • Federation <ul style="list-style-type: none"> ✓ The Report considered that a formally federal union, including both British India and the Princely States, was the only long-term solution for a united, autonomous India. • Immediate Recommendations at the Centre <ul style="list-style-type: none"> ✓ To help the growth of political consciousness in the people, the franchise should be extended; and the Legislature enlarged. ✓ The Report strongly opposed the introduction of Diarchy at the Centre. 	
<p>Government of India Act, 1935</p>	
<ul style="list-style-type: none"> • Provided for establishment of All-India Federation with its units consisting of Provinces & Princely States (they didn't join & so federation didn't come into existence) • 3 lists of subjects – Federal, Provincial & Concurrent- introduced; Residuary powers with GG. • Abolished Diarchy in provinces & introduced provincial autonomy • Introduced Diarchy at Centre & Bicameralism in Provinces (in Bombay, Madras, Bengal, Assam, Bihar, United Provinces) • Introduced Responsible governments in Provinces (that is, Governor responsible to Provincial legislature) • Established a federal court having original, appellate & advisory jurisdiction • Provided for the protection of the rights & privileges of members of civil services. • Provided for establishment of not only a Federal Public Service Commission but also a Provincial Public Service Commission and Joint Public Service Commission for two or more provinces. 	<ul style="list-style-type: none"> • Federation of India • Concurrent list added • Provincial autonomy
<p>Indian Independence Act, 1947</p>	
<ul style="list-style-type: none"> • Declared India as independent & sovereign state • Created 2 independent dominions, GG of each appointed by king • Established responsible government at both Center & Provinces • Designated GG of India & Provincial Governors as constitutional heads (nominal heads) • It assigned dual functions (i.e. constituent and legislative) to the Constituent Assembly formed in 1946. It declared this dominion legislature as a sovereign body. 	<p>Till 1947, Government functioned under the provisions of 1919 Act as the provisions of 1935 Act relating to federation and Diarchy did not come into operation</p>

SOME FACTS ABOUT THE EVOLUTION OF INDIAN CONSTITUTION

- **Idea of Constituent Assembly** for making the constitution was first mooted by **M. N. Roy** in **1934**
- First time **Indian National Congress** officially demanded the formation of constituent assembly in **1935**
- In 1940, the coalition Government in England recognized the principle that Indians should themselves frame a new constitution for autonomous India. First time **demand accepted**, in principle, for a constituent assembly in **August offer of 1940.**

- **Cripps Mission** (March, 1942) (came in the backdrop of WW-II), failed due to disagreement between Congress and Muslim League. In its proposals, it had envisaged the **framing of constitution** of India by an **elected constituent Assembly** of the Indian People.
- Finally, under the provisions of **Cabinet Mission Plan (1946)** a constituent assembly was formed for framing the Indian Constitution.
- Out of total no. of Members (389) - 296 were **indirectly elected** from British India and 93 were nominated by Princely States. Thus Constituent Assembly had nominated as well as elected members. The elected members from British India were to be indirectly elected by members of the provincial assemblies.
- The Constituent Assembly met for the first time in **New Delhi** on **9 December, 1946** in the Constitution Hall which is now known as the Central Hall of Parliament House. **207 representatives**, including **nine women** were present.
- The inaugural session began at 11 a.m. with the introduction of **Dr. Sachchidananda Sinha**, by Acharya Kripalani.
- **Sachinand Sinha**, the oldest member, was elected as the temporary President of assembly.
- The Muslim league boycotted the Constituent Assembly. Due to the boycott of Muslim League, it was attended by only 211 elected members of the congress. Constituent Assembly was not a sovereign body as it was brought about by British Government and could be abolished by it.
- Later, Dr. Rajendra Prasad and H. C. Mukherjee were elected as President and Vice-President of the assembly respectively.
- Sir B. N. Rau was appointed as the constitutional advisor to the assembly.
- The historic '**objective resolution**' was moved by **Pt. Jawaharlal Nehru** which was later accepted in its modified form as the **preamble** of the constitution.
- In addition to the making of the constitution and enacting of ordinary laws, the constituent assembly also performed following functions:
 - It ratified India's membership of the Commonwealth in May 1949
 - It adopted the national flag on 22 July 1947
 - It adopted the national anthem and national song on January 24, 1950
 - It elected Dr. Rajendra Prasad as the first President of India on January 24, 1950
- On the 26th November, 1949 constitution was declared as passed after the signature of the President of the assembly. Thus on **26th November 1949** the constitution of India was adopted.
- The Constituent Assembly took **2 years, 11 months and 17 days** to complete its historic task of drafting the Constitution for Independent India. During this period, it held **eleven sessions** covering a total of **165 days**.
- As to its composition, members were chosen by **indirect election** by the members of the Provincial Legislative Assemblies, according to the scheme recommended by the **Cabinet Mission**.
- On 29 August, 1947, the Constituent Assembly set up a **Drafting Committee** under the Chairmanship of **Dr. B.R. Ambedkar** to prepare a Draft Constitution for India. While deliberating upon the draft Constitution, the Assembly moved, discussed and disposed of as many as **2,473 amendments** out of a total of 7,635 tabled.
- The Constitution of India was **adopted on 26 November, 1949** and the hon'ble members appended their signatures to it on **24 January, 1950**.
- In all, **284 members actually** signed the Constitution.
- The provisions relating to **citizenship, elections, provisional Parliament**, and temporary provisions, were given effect from 26th November 1949.

- The rest of the constitution came in to force on the 26th January, and date is referred to in the constitution as the Date of its commencement. (To commemorate the independence day celebrated since 1930 after the passage of Purna Swaraj resolution)
- On January 24, 1950 the constituent assembly held its last session. However it continued as the provisional Parliament of India from 26 January, 1950 till the formation of new Parliament after the first general elections in 1951-52.

IMPORTANT COMMITTEES OF THE CONSTITUENT ASSEMBLY AND THEIR CHAIRMEN	
Name of the Committee	Chairman
Committee on the Rules of Procedure	Rajendra Prasad
Steering Committee	Rajendra Prasad
Finance and Staff Committee	Rajendra Prasad
Credential Committee	Alladi Krishnaswami Ayyar
House Committee	B. Pattabhi Sitaramayya
Order of Business Committee	K.M. Munsif
Ad hoc Committee on the National Flag	Rajendra Prasad
Committee on the Functions of the Constituent Assembly	G.V. Mavalankar
States Committee	Jawaharlal Nehru
Advisory Committee on Fundamental Rights, Minorities and Tribal and Excluded Areas	Vallabhbhai Patel
Minorities Sub-Committee	H.C. Mookherjee
Fundamental Rights Sub-Committee	J.B. Kripalani
North-East Frontier Tribal Areas and Assam Excluded & Partially Excluded Areas Sub-Committee	Gopinath Bardoloi
Excluded and Partially Excluded Areas (Other than those in Assam) Sub-Committee	A.V. Thakkar
Union Powers Committee	Jawaharlal Nehru
Union Constitution Committee	Jawaharlal Nehru
Drafting Committee	B.R. Ambedkar

- The most important of the committees was the **drafting committee** which was entrusted with the task of making the new constitution. It consisted of **seven members**
 1. Dr. Ambedkar (chairman)
 2. N. Gopaldaswamy Ayyengar
 3. Alladi Krishnaswamy Ayyar
 4. Dr. K.M. Munshi
 5. Syed Saadullah
 6. N. Madhav 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)
- The **first 'Draft constitution of India'** was published in Feb 1948. It was prepared by **Sir B. N. Rau**, constitutional advisor to the constituent assembly.
- Dr. **B. R. Ambedkar**, the chairman of the drafting committee is recognized as the **father of the Indian constitution**.
- As far as composition of Constituent Assembly is concerned United Provinces had highest no. of members (55) followed by Madras (49) and Bihar (36) among Provinces. Among States, Mysore (7) had highest members.

AMENDABILITY OF FUNDAMENTAL RIGHTS

Shankari Prasad vs. UoI Case (1951)

Challenged validity of 1st Amendment Act (1951) which inserted Art 31-A, 31-B and 9th Schedule. **Supreme Court** held that power to amend constitution including FRs is contained in Art 368, and Article 13 (2) includes ordinary law and not constitutional amendment

⇓

Golaknath Case (1967)

SC questioned the amending power of Parliament to the constitution. It held the amendment to the constitution **invalid**. (CJI-Justice Subba Rao)

⇓

24th Amendment 1971 by Parliament

Added **word 'Power'** to Article 368 and thus this Article described specifically the "Power of Parliament to amend the constitution and procedure there of". Also incorporated **Article 368 (3)** which provides that nothing in Article 13 shall apply to any amendment made under this article.

⇓

Keshvanand Bharti Case (1973)

Challenged the 24th amendment; SC laid down the **Basic Structure Doctrine**. It said that **Parliament has power** to amend the constitution provided **Basic structure of constitution** is not harmed. This case is also known as "Fundamental Rights Case". (CJI-Justice Sikri)

⇓

42nd Amendment (1976)

Gave **unlimited amending powers** to Parliament & also gave DPSP overriding power over FRs

⇓

44th Amendment (1978)

Re-established pre-42nd position i.e. Article 39 (b) & (c) having over-riding effect over FRs.

⇓

Minerva Mills Case (1980)

Challenged 42nd Amendment; SC **enlisted features of basic structure** of constitution

Present position is that Parliament is **not authorized to limit** the operation of **Articles 14, 19 and 21** which form the part of basic structure of the constitution.

BILLS OF PARLIAMENT

ORDINARY BILL

- A bill other than Money Bill & Financial Bill
- May **originate in either house** of Parliament
- When passed by both the houses and signed by the President, it becomes a law
- In passing a Bill, each House follows a procedure. The stages in passing the Bill are called **Readings** i.e. First Reading, Second Reading and Third Reading

MONEY BILL (ARTICLE 110)

- Parliament is the **sole power** to authorize expenditure and specify purposes.
- **Whether a Bill is a Money Bill** or not, is **decided by Speaker**. It shall **not be open to question** either in a Court of Law or in either House or even by President.
- Under **Article 110 (3)**, it has been specified that, if any question arises whether a bill is a money bill or not, the **decision of the Speaker shall be final**.
- Whenever a money bill is transmitted to the Rajya Sabha and when it is presented to President, a **certificate of Speaker** that it is a money bill is required to be given.
- Money Bill has been defined under **Article 110** as a bill that contains **only provisions** dealing with all or any of the following matters:
 1. The imposition, abolition, remission, alteration or regulation of any **tax**
 2. The regulation of borrowing of money or giving of any guarantee by the Government or amendment of law w.r.t. any government **financial obligations**
 3. The custody & operation of **Consolidated Fund or Contingency Fund** of India
 4. The appropriation of moneys out of the **Consolidated Fund** of India
 5. The declaring of any expenditure charged on the **Consolidated Fund** of India or the increasing of the amount of any such expenditure
 6. The receipt of money on account of the **Consolidated Fund** of India or the **public accounts** of India or the custody or issue of such money.
- **Art 109** says that Money Bill can **only be introduced in Lok Sabha** and not in Rajya Sabha. It can only be introduced with **prior recommendation** of President.
- When a money Bill is passed by Lok Sabha, it is sent to Rajya Sabha for **recommendations**. It must return the Bill with or without recommendations, within **14 days** from the date of receipt of Bill. It **cannot amend** the Bill. It is the **discretion of the Lok Sabha** whether to accept or reject recommendations made by the Rajya Sabha. The Bill now will deem to be passed by the Lok Sabha and will be sent to the President for his assent. Thus, in matters of money bills, the **primacy and supremacy of the Lok Sabha** is well established.
- **President cannot hold his assent** on the Money Bill (**Art 111**) as it was introduced with his recommendation only.
- There is **no provision for a joint sitting** in the case of Money Bills in which the Lok Sabha has final say.

FINANCIAL BILLS

- They are of **3 kinds**

1. Money bills
 2. Other financial bills
 3. Bills involving expenditure
- A financial bill, apart from dealing with one or more matters mentioned in Art 110 (1) regarding Money Bill, deals with other matters also. Therefore **all money bills are financial bills** but all financial bills are not money bills.
 - Under **Article 117**, the **Financial Bills** which **do not receive the Speaker's certificate** to the effect that they are money bills are of 2 kinds:
 1. A bill which contains any of the matters specified in Article 110 but **does not consist solely of those matters**, for example, a bill which contains a taxation clause, but does not deal solely with taxation.
 2. Any ordinary bill which contains **provisions involving expenditure** from the Consolidated Fund
 - All financial bills are **introduced** only in the Lok Sabha (and not in Rajya Sabha) after the **recommendations of the President**. But **Rajya Sabha** can **reject or amend** such a Bill like non-financial Bills subject to the limitation that an amendment other than for reduction or abolition of a tax cannot be moved in either House without prior recommendation of the President.
 - A Financial Bill is passed according to **procedure** provided for passing an Ordinary Bill
 - Any ordinary Bill which contains provisions involving expenditure from the Consolidated Fund is a **Financial Bill** of the **second class [Art 117(3)]**.
 - A **Financial Bill of the first class** contains any of the matters specified in **Art 110** but does not exclusively deal with such matters; it has two features in common with a Money Bill, viz. that it cannot be introduced in the Council of States and also cannot be introduced except on the recommendation of the President.
 - A Bill which **merely involves expenditure** and **does not include** any of the matters specified in **Article 110** is an ordinary Bill and may be initiated in either House. Rajya Sabha has full powers to amend or reject it. There is one special provision that it must not be passed unless the **President** has recommended its **consideration** (not for introduction but only for consideration).

ANNUAL FINANCIAL STATEMENT :: BUDGET (ARTICLE 112)

CONSTITUTIONAL PROVISIONS

- Article **112**: President shall lay before each house of Parliament, an **annual financial statement**; estimates shall show separately the expenditure charged on and expenditure made from Consolidated Fund; it shall distinguish expenditure on revenue account from other expenditure
- Article **113**: **No demand for a grant** shall be made except on **recommendation of President**; expenditure charged on the Consolidated Fund shall not be submitted to the vote of Parliament.
- Article **114**: No money shall be withdrawn from Consolidated Fund of India **except under appropriation** made by law-
- Article **117**: No Money Bill imposing tax shall be introduced in the Parliament except on the recommendation of the President and Money Bill cannot be introduced in Rajya Sabha
- Article **265**: No tax can be levied except by authority of law
- Rajya Sabha has **no power to vote** on demand for grants
- Rajya Sabha should send Money Bill within **14 days** to Lok Sabha
- Parliament can reduce or abolish a tax but **cannot increase it**

Term 'budget' has nowhere been used in the Constitution

STAGES IN ENACTMENT OF BUDGET

Presentation of Budget

Presented by Finance Minister (with prior recommendation of President) in 2 parts- **Part A-** a general economic survey of country; **Part B-** taxation proposals. Presented in 2 phases- **Railway Budget** (by Railway Minister in 3rd week of February) & **General Budget** (by Finance Minister on last working day of February at 5 pm). There is **no discussion** of Budget on the day on which it is presented. At the end of the budget speech, budget is laid before **Rajya Sabha**



General Discussion

Starts after few days of its presentation; spread over 3-4 days in both Houses. By Convention, at this stage, members deal with only the general aspect of fiscal & economic policy and not the details of taxation & expenditure. No cut motions or voting at this stage. FM has general right of reply at the end



Budget in Department Related Standing Committees

These committees (17 in 1993; increased to 24 in 2004) work during recess of Parliament (April 1-18) and discuss individual demands of each ministry, and submit reports to Parliament within given time-limit; but cannot make suggestions amounting to cut motions



Voting on demands for grants

Demands for grants are presented Ministry-wise; discussed in detail & put in form of a motion. Members can disapprove a policy, suggest measures for economy, and focus attention to specific grievances by moving subsidiary motions called '**Cut Motions**'. While the General Budget has totally **109 demands** (103 for civil expenditure and 6 for defence expenditure), the Railway Budget has **32 demands**. Each demand is voted separately by the Lok Sabha. Business Advisory Committee fixes a time for voting a particular demand. As the time limit for a demand is over, '**Closure**' is applied & demand is put to vote. On last day, demands not disposed of so far, are put to vote whether discussed or not. This process is known as **Guillotine**. With this, the discussion on demands for grants is concluded.



Passing of Appropriation Bill

Gives legal authority to government to appropriate expenditure from & out of Consolidated Fund. Includes **grants voted** by Lok Sabha & expenditure **charged on** Consolidated Fund. It is passed in the same manner as any other Bill except that the debate is restricted to those matters only which were not covered during the debate on demands & that **no amendment** can be made to it. Once passed by Lok Sabha, it transmits to Rajya Sabha which has no power to amend or reject it, but has to give its concurrence. The Bill is then sent to President for assent.



Passing of Finance Bill

It includes all **taxation proposals** of Government. All taxes are not to be voted every year. Some of them are permanent & their rates can be varied from time to time by Government. While general criticism of the policy is permitted, discussion on the details of particular estimates is not. **Amendments** can be moved to it. This Bill has to be passed by Parliament & assented to by President within 75 days after it is introduced

OTHER GRANTS	
Vote on Account	Before the Appropriation Act is passed, no money is to be withdrawn from the Consolidated Fund. But the Government needs money to spend before it is passed. Accordingly under Article 116 (a) , Lok Sabha can grant a limited sum to spend till the Appropriation Act is passed. Normally, it is taken for 2 months for a sum equivalent to 1/6 th of the estimated expenditure for the entire year.
Supplementary Grant	It is granted when the amount authorized by the Parliament through the Appropriation Act for a particular service for the current financial year is found to be insufficient of that year.
Additional Grant	It is granted when a need has arisen during the current financial year for additional expenditure upon some new service not contemplated in the budget for that year.
Excess Grant	It is granted when money has been spent on any service during a financial year in excess of the amount granted for that service in the budget for that year. It is voted by the Lok Sabha after the financial year.
Vote of credit	It is granted under Article 116 for meeting an unexpected demand for the service/ national emergency, the demands cannot be stated with the details in the budget. It's like a blank Cheque given to the executive by the Lok Sabha.
Exceptional Grant	It is granted for a special purpose and forms no part of the current service of any financial year.
Token Grant	It is granted when funds to meet the proposed expenditure on the new service can be made available by re-appropriation . A demand for the grant of token sum of Re 1 is submitted to the vote of Lok Sabha and if assented, funds are made available.
Article 115 of the Constitution lays down that the statements showing the estimates of expenditure for the supplementary, additional or excess grants have to be presented to the Lok Sabha.	

VARIOUS CUT MOTIONS AS MOVED IN LOK SABHA	
Disapproval of policy cut	It states that amount of demand be reduced to Re 1 .
Economy Cut	Demand be reduced by a specified amount/ lump-sum
Token Cut	Demand be reduced by a Rs 100 . It aims to ventilate specific grievance
✓ Cut Motions have only symbolic value , for they have no chance of being carried unless the government loses the support of the majority in the House. Cut Motions are generally moved by members from the opposition, and if carried, amount to a vote of censure against Government .	

RELATED INFORMATION ON BUDGET

India follows a **twin-budgetary system** wherein Railway budget is presented separately from the general budget. The **railways budget** was separated from the general budget in **1921** on the recommendations of the **Acworth committee**. Finance Ministry, the Administrative Ministries and their subordinate offices, Planning Commission and CAG are all involved in the preparation of Budget in India.

The estimates of budget consists of **2 types of expenditure**- the expenditure '**charged**' upon the Consolidated Fund of India and the expenditure '**made**' from the Consolidated Fund of India. The charged expenditure is **not-votable** by the Parliament, that is, it **can only be discussed** by the Parliament, while the other type has to be voted by the Parliament. The list of the **CHARGED EXPENDITURE** is as follows:

1. Emoluments & allowances of the **President** and expenditure relating to his office.
2. Salaries & allowances of **Chairman** & Deputy Chairman of Rajya Sabha and **Speaker** & Deputy Speaker of Lok Sabha.
3. Salaries, allowances & pensions of the judges of **Supreme Court, CAG**, Chairman & members of **UPSC**, and of persons serving in these offices.
4. The pensions of the judges of **High Court**
5. **Debt charges** for which the GoI is liable including interest, sinking fund charges and redemption charges and other expenditure relating to raising of loans and the service and redemption of debt.
6. Any sum required to **satisfy and judgment**, decree or award.
7. Any other expenditure **declared by the Parliament** to be so charged.

There are **3 kinds of funds** provided under the Constitution for the custody of the funds:

- **Consolidated Fund of India** (Article **266**): fund to which **all receipts** are credited and **all payments** are debited: (i) all revenues received by GoI; (ii) all loans raised by the issue of treasury bills, loans or ways & means of advances; and (iii) all moneys received in repayment of loans- form receipt side. No moneys out of it can be appropriated except in accordance with a Parliamentary law.
- **Public Account of India** (Article **266**): All other public money (other than Consolidated Fund) received by GoI shall be credited to it: provident fund deposits, judicial deposits, savings bank deposits, departmental deposits, remittances etc. Operated by **executive action**, that is, the payments from this account can be made without the parliamentary appropriation. Such payments are mostly in the nature of banking transactions.
- **Contingency Fund of India** (Article **267**): The Constitution authorized Parliament to establish a 'Contingency Fund of India', into which shall be paid from time to time such sums as may be determined by law. Accordingly, Parliament enacted **Contingency Fund of India Act in 1950**. This fund is placed at the disposal of the President, and he can make advances out of it to meet **unforeseen expenditure** pending its authorization by the Parliament.

TYPES OF BUDGET

- Performance Budgeting: First Hoover Commission, USA. Introduced in India in 1968 on recommendations of **ARC**. Emphasis on '**purpose**' of expenditure
- Zero-Based Budgeting: Given by Phyr, USA. Every scheme critically reviewed & **re-justified totally from zero** (or scratch)
- Traditional/ line-item/ conventional: Developed in 18th century. Traditional system prevailed in India. Emphasis on **items of expenditure** & not its purpose. Sole objective is **control** over expenditure.
- Management by objectives: Emphasis on budgetary decentralization
- Target-base budgeting: Emphasizes Centralization in Budgeting
- Planning-programming-budget: Economic planning orientation

DEMANDS FOR GRANTS: On recommendation of the President, the estimates of expenditure (other than those charged on the Consolidated Fund of India) are presented to the Lok Sabha in the form of demands for grants. Under **Article 113**, the **Lok Sabha has the power** to assent to or to reject, any demand, or to assent to any demand/subject to a reduction of the amount specified. These demands are not presented to the Rajya Sabha, though a general debate on the budget takes place there too.

APPROPRIATION BILL: According to **Article 114**, when the demand for grants has been voted for, the Appropriation Bill authorizes the withdrawal of the funds from the Consolidated Fund of India as regards **both the votable and the charged items. No amendments can be proposed** to this bill because that would amount to altering the once decided amount of a grant.

Sample from History

EARLY NATIONALISTS & SWADESHI MOVEMENT

This period dominates Liberalism and Economic critique of the British. The early nationalist leaders also called as moderates were believers in **constitutionalism and liberalism**. They had faith in **British sense of fair play and justice** and attempted to reform the Indian administration by way of petitions and raising public opinion in Britain in support of Indian demands and rights.

- For this purpose in 1889, a **British Committee of INC** was established **under William Wedderburn in London**. It started a **journal** called as **India in 1890**.
- **Dada Bhai Naoroji** spent most of his life in England popularizing India's cause.
- He contested in election to **British parliament** as candidate of liberal party.
- He was also first to put forward demand for self-government. At **International Socialist Conference in 1904** he put forward the demand for Self-government and also as President of **Calcutta Session (1906)**, he demanded **Self-government or Swaraj** like that of United Kingdom or the colonies.
- He **propounded of 'Drain theory'** in his book "**Poverty and un-British rule in India (1867)**" and was pioneer in formulating **economic critique of colonialism**.
- **R.C. Dutt, a retired ICS officer**, was great nationalist and economist and criticized the economic exploitation by British in his "**Economic History of India**" which was analysis of British policies since 1757.
- **Justice Ranade** was great supporter of **modern industrial development**.
- Along with them other moderates leaders such as **G. V. Joshi, Gokhale etc.** put forward comprehensive **economic critique of colonialism** which was their **most important** political work. This critique was used by all nationalist including Gandhiji to create nationalist consciousness.
- The **major weakness** of Moderates was their **narrow social base** and their **lack of faith** in the **masses**. This resulted in political moderation as no major political position could be taken in absence of mass support.
- **Some Important Moderate leaders:** Pherozshah Mehta (leading light of moderates), Gopal Krishna Gokhale, Dinsha Wacha, Badruddin Tyabji, Surndranath Banerjee, P. Anand Charlu. All these leaders believed in fair play of British.

THE MILITANT NATIONALISM: RISE OF LAL-BAL-PAL

- **By the dawn** of the 20th century a new school of militant nationalism has taken birth in India led by Bal Gangadhar Tilak, Lala Lajpat Rai & Bipin Chandra Pal
- The reactionary nature of British rule symbolized by Curzon's administration, growth of education and employment and new confidence and self-respect acquired by Indians through teachings of teachers like Vivekananda and Dayananda Saraswati which created new atmosphere in the country for which political moderation of early nationalists was seen completely inadequate.
- The rapid rise of an Asian country like Japan and the defeat of mighty Russia (1905), defeat of European nation like Italy by Ethiopia (1896) exploded the myth of

European superiority. The rise of revolutionary movements in Ireland, Turkey, Russia and Boer war in South Africa (1899) inspired Indians.

- **Rajnarain Bose & Ashwini Kumar Dutt in Bengal & Vishnu Shastri Chiplunkar** (wrote the famous **Nibhandhmala**) were earliest proponents of Militant nationalism.
- The **most outstanding** of militant nationalist was **Balgangadhar Tilak**.
- They did not believe like moderates in British sense of fair play and declared that it is upto Indians to work for their own good through self-government or Swaraj.
- Tilak asked Indians to be ready for making sacrifices and had faith in masses.
- They were influenced by Vivekanada's teachings such as "The only hope of India is masses; upper classes are physically and morally dead" and "If there is sin; it is weakness".

NAME	NEWSPAPER	BOOKS	POLITICAL WORK
Tilak	Kesari (in Marathi earlier edited by Agarkar after 1889 by Tilak)	Gita Rahasya (in Mandalay prison)	Founded New English School (later Fergusson College)
	Mahratta (in English edited by Tilak)		1893 -Ganapati Festival 1895-Shivaji Festival 1896-97 no-tax campaign (Maharashtra) Arrested for by the Govt. after murder of Rand by Chaphekar Brothers Declared "Indians would not get anything if they croak once a year like frog".
Bipin C Pal	New India		Lecture tours over all India during Swadeshi movement
Lala Lajpat Rai	Punjabi	Young India	Severely criticized moderate methods. Deported in 1908.
Aurobindo Ghosh	Vande Mataram	New Lamp for old (earliest critique of moderate methods)	First one to suggest idea of Passive resistance during Swadeshi movement
		Bhawani Mandir (depicted India as mother and Shakti)	

SWADESHI MOVEMENT

- Bengal was the nerve centre of the nationalist movement hence **Curzon** decided to "**dethrone Calcutta from position of centre from which Congress is manipulated**" and divide the Bengali population.
- **Risley**, the Home secretary explained the rationale for the decision as such "**Bengal united is a power**. Bengal divided will pull in several different ways. One of our main objects is to split up & thereby to weaken a solid body of opponents to our rule".
- **Curzon** also tried to create **communal divide by declaring at Dacca** one of the reasons for partition was to "to invest the Mohammedans in Eastern Bengal with Unity which they have not enjoyed since days of Muslim Kings".

- The province of Bengal was partitioned into two parts: Eastern Bengal & Assam and the rest of Bengal (where Bengalis became a minority) the official explanation for partition was that it was too big to be administered.
- The **anti-partition in movement** was initiated on **7th August 1905** in the **town hall meeting in Calcutta** and the **famous Boycott resolution was passed**.
- The **partition** took effect on **16th October 1905**

MAIN EVENTS

- Lead in movement was taken by moderate leaders like **Krishna Kumar Mitra and Surendranath Banerjee** but soon it went into hands of militant nationalists.
- Newspapers like **Surendranath Banerjee's Bengalee**, **Krishna Kumar Mitra's Sanjibani** and **Prithurischandra Roy's Hitabadi** launched campaign against partition.
- **Krishankumar Mitra's Sanjibani** first mooted the **idea of boycott of foreign goods**.
- Rabindra Nath Tagore put forward the idea of tying rakhi on the partition day.
- He composed the famous **Amar Sonar Bangala** for the occasion (Later it became the national anthem of Bangladesh) and helped to open a **Swadeshi store**.
- However it was the **Vandemataram** from Bankim Chandra Chattopadhyay's Anadmath became the theme song of the movement.

Vande Mataram: The song first appeared in Bankimchandra Chattopadhyay's book *Anandamatha*, published in **1882**. **Rabindranath Tagore** sang *Vande Mataram* in 1896 at the Calcutta Congress Session held at Beadon Square. **Dakhina Charan Sen** sang it five years later in 1901 at another session of the Congress at Calcutta. **Poet Sarala Devi Chaudurani** sang the song in the Benares Congress Session in 1905. Lala Lajpat Rai started a journal called *Vande Mataram* from Lahore. In 1907, **Bhikaiji Cama** created the first version of India's national flag in Germany. It had *Vande Mataram* written on it in the middle band.

- Veteran leader **Ananda Mohan Bose** laid the foundation of a **Federation Hall** to mark the indestructible unity of Bengal.
- An important aspect of the Swadeshi Movement was the **emphasis placed on self-reliance or 'Atmasakti'**.
- In the economic field, it meant fostering indigenous and other enterprises.
- **Acharya P.C. Ray** organized his famous **Bengal Chemical Swadeshi stores**.
- **V.O. Chidambaram Pillai** started **Swadeshi Steam Navigation Company** (Hence called **Kappalottiya Tamilan**), the first indigenous shipping service.
- In field of education **national education** was emphasized in **1906**, a **National Council of Education** was set up.
- A **National College** with **Aurobindo Ghose** as **Principal** was started in Calcutta.
- **Satish Chandra Mukerjee** started **Dawn Society** which popularized national education.
- The patriotic songs written at the time by poets like Rabindranath Tagore, Rajani Kant Sen, Syed Abu and Mukunda Das.
- The famous **Thakur Mar Jhuli** was written by **Dadshinaranjan Mitra Majumdar**.
- Under **Abindranath Tagore** indigenous **Bengal school of Arts** developed.

- In **1907 Indian Society of Oriental Arts** was formed. **Nandlal Bose** who later became famous painter was **first recipient of the scholarship**.
- **Many Volunteer Societies** were formed such as **Swadesh Bhandab Society of Ashwin Kumar Dutt of Barisal**.
- Swadeshi Movement soon spread outside Bengal in different corners of the country led by nationalist leaders like Tilak (Maharashtra) and Lala Lajpat Rai (Punjab)
- **Lala Lajpat Rai and Ajit Singh** led the movement in **Canal colonies in Punjab**.
- Swadeshi movement was led in **Delhi** by **Syed Haidar Raza** and in **Andhra** by **Harisarvottam Rao**.
- Aurobindo suggested **passive resistance** and declared **“political freedom is the life breath of a nation”**
- Thus militant nationalist tried to transform the Swadeshi and Anti-partition agitation into a mass movement and gave slogan of independence from rule.
- Major **drawback** of Swadeshi movement was failure to garner **Muslim support** and especially that of the Muslim peasantry.
- But still many Muslim leaders like **Liaquat Hussain, Guznavi (Businessman)** and **Abdul Rasul** who was the **head of Bengal Provincial Conference** at **Barisal** in 1906 supported the movement.
- This conference was **broken up by Police** and widespread repression carried out
- Young Maulana Abul Kalam Azad joined revolutionary terrorist group at this time.
- By mid-1908, movement receded due to Heavy government repression & Internal quarrels of I.N.C. and split of Surat [1907].
- The heavy government repression left entire movement rendered leaderless
- Ashwini Kumar Dutt and Krishna Kumar Mitra- deported. **Tilak- sent to Mandalay prison**. Ajit Singh and Lala Lajpat Rai also deported
- Chidambaram Pillai (Madras) and **Harisarvottam Rao (Andhra)** - arrested
- Bipin Chandra Pal and Aurobindo Ghosh retired – due to government repression.
- In **1911** Government announced the **annulment of the partition** of Bengal. Western and eastern Bengal was reunited while new province consisting of Bihar and Orissa was created. At the same time it announced **shifting of Capital from Calcutta to Delhi**.

JAINISM AND BUDDHISM

- 6th century B.C. was the period of great intellectual and spiritual tumult and gave rise to many sects- Jainism and Buddhism were the most important.

CAUSES OF RISE OF HETERODOX SECTS

1. **Varna divided society:** Kshatriyas reacted strongly against the ritualistic domination of the Brahmanas. **Buddha and Mahavira both were Kshatriyas.**
2. **New Agricultural Economy:** The iron ploughshare required the use of bullocks. But indiscriminate killing of cattle in Vedic sacrifices, created a hurdle in progress of agriculture.
3. Coins facilitated the trade and commerce, which added to the importance of Vaishyas. Vaishyas ranked third in Varna system, were looking for some religion which would improve their position.

VARHAMANA MAHAVIRA (540 BC–468 BC) AND JAINISM

- 1st Tirthankara - Rishabhath
- 23rd Tirthankara – Parshvanath was from Banaras
- 24th Tirthankara – Mahavira.

- Mahavira born in **540 B.C.** at **Kundagram** (north Bihar)– belonged to **Jnatrika clan** (hence also called **nighanathanath putta**).
- Father **Siddhartha** and mother **Trishala**, sister of Lichchhavi chief Chetaka whose daughter was married to Bimbisara.
- He abandoned the world at age of 30. After 12 Years attained omniscience (**Kaivalya**).
- Because of this conquest (he conquered misery and happiness through Kaivalya) he is known as **Jina** i.e. the conqueror, and his followers are known as Jainas. His followers are also called **Nirgranthas** (free from fetters).
- Passed away at 72 in **468 B.C.** at a place called **Pavapuri** near modern Rajgir

DOCTRINES OF JAINISM

- Five Doctrines–
 1. Do not commit violence [Ahimsa].
 2. Do not tell a lie [Satya].
 3. Do not steal [Asteya].
 4. Do not acquire property [Aparigraha].
 5. Observe continence [Brahamcharya].

- **Only last one was added by Mahavira**
- These are five **Mahavratas** of Jainism; when followed by lay worshipper they are called **Anuvratas**.
- While Parsvanath asked his followers to cover upper and lower parts of the body Mahavira discarded clothes all together

- Jainism **recognized the existence of gods** but placed them **lower than Jina**.
- **Did not condemn Varna System** as Buddhism did.
- According to Mahavir – Man is born according to deeds of his previous birth.
- Through pure and meritorious life, members of the lower castes can attain liberation.
- Jainism mainly aims at the freedom from worldly bonds.
- But no ritual is necessary for such liberation.
- **Theory of Shyadvada** is essential ingredient of Jaina philosophy. No absolute denial or affirmation is possible because knowledge is relative.
- Freedom from worldly bonds can be obtained through **Triratna** of Jainism.
 - (i) Right faith
 - (ii) Right action
 - (iii) Right knowledge
- Utmost importance to ahimsa or non-injury to living beings.
- **Jainism prohibited war and even agriculture for its followers because both involves killing of living beings. Hence Jainas mainly confined themselves to trade and mercantile activities.**

SPREAD OF JAINISM

- Admitted both men and women.
- Because Jainism did not very clearly mark itself out of from the Brahmanical religion, it **failed to attract masses**.
- Jainism spread into West and South India where Brahmanism was weak.
- Two legends about spread –
 1. Chandragupta Maurya (322-298 B.C.)
 2. Famine after 200 years of death of Mahavira in Magadha lasted for 12 years. Some Jainas under **Bhadrabahu migrated to south**; others remained with **Sthalbahu in Magadha**.
- After coming back, southerners criticized those living in Magadha of violation of rules during famines.
- To sort out these differences, **First Jaina council** was called at **Pataliputra**. But southerners boycotted it and refused to accept its decision, thus dividing it in two:
 1. **Southerners – Digambaras**
 2. **Magadhans – Shvetambaras**
- But, Epigraphic evidences for spread of Jainism in **Karnataka** is in 3rd Century A.D.
- **Basadis** were Jaina monastic establishment in Karnataka.
- Jainism spread in **Orissa** in 4th century B.C.
- It enjoyed patronage of the Kalinga King **Kharvela** famous for **Hathigumpha inscription** who brought back image of Jina from Maghdha
- In 1st & 2nd centuries B.C. it also seemed to have reached the Southern districts of **Tamil Nadu**

CONTRIBUTION OF JAINISM

- Made first serious attempt to mitigate evils of varna order & ritualistic Vedic religion
- Use of people's language to preach their doctrines (**Prakrit**)

- In the **2nd Jaina Council**, religious literature in **Ardhmagadhi** compiled at **Valabhi** under president-ship of **Devardhi Kshamashraman**.
- Adoption of Prakrit to teach helped growth of this language and its literature.
- Many regional languages developed out of Prakrit e.g. **Shauraseni– Marathi** grew out of this.
- Jainas composed the earliest important works in **Apabrahmsa** & composed its **first grammar**
- Contributed to the growth of **Kannada**.
- Initially not image worshipers, but later began to worship Mahavir and 23rd Tirathankar.
- Contributed substantially to art and architecture in medieval times.

GAUTAMA BUDDHA [563 BC – 483 BC] AND BUDDHISM

- Born in **563 B.C.** in **Shakya Kshatriya** family in **Lumbini** in Nepal near Kapilavastu identified with Piprahwa.
- Father – **Suddhodhan** – elected ruler of Kapilavastu.
- Mother – **Mahamaya** – Koshalan dynasty princess.
- At 29, left home.
- **Alara Kalama** and **Udraka Ramputa** were his two teachers.
- Attained knowledge at 35 at **Bodhgaya** under a Pipal tree.
- **First sermon at Sarnath in Benaras**
- Passed away at age of 80 in **483 B.C.** at **Kusinagar** in eastern U.P.

DOCTRINES OF BUDDHISM

- He said world is full of sorrows and people suffer due to their desires.
- If desires are conquered, nirvana will be attained, i.e. man will be free from cycle of birth and death.
- Buddha recommended **eight fold path [Ashtangika Marg]** for elimination of human misery and attainment of Nirvana (salvation or freedom from rebirth)

(i) Right observation	(ii) Right determination
(iii) Right speech	(iv) Right action
(v) Right livelihood	(vi) Right exercise
(vii) Right memory	(viii) Right meditation
- Gautama taught that a person should avoid the excess of both luxury and austerity.
- He prescribed the middle path i.e. **Madhya Marg**.
- **Main items in social conduct are -**
 1. Do not covet the property of others.
 2. Do not commit violence.
 3. Do not use intoxicants.
 4. Do not speak a lie.
 5. Do not indulge in corrupt practices.

SALIENT FEATURES OF BUDDHISM AND THE CAUSES OF ITS SPREAD

- **Buddhism does not recognize the existence of god and the soul.**

- This was revolutionary in the history of Indian religion.
- Not enmeshed in the clap-trap of philosophical discussion hence appealed to common people.
- It won the support of lower orders as it **attacked the Varna System**
- In comparison to Brahmanism, Buddhism was **liberal** and democratic; **people from lower caste and women** were allowed in **Sangha**.
- Use of **Pali**, the language of people, contributed to the spread of Buddhism
- Once enrolled members of the Buddhist Church **had to take vow of** –
 - (i) Continence
 - (ii) Poverty
 - (iii) Faith
- **3 main elements of Buddhism**
 - (i) Buddha
 - (ii) Sangha
 - (iii) Dharma
- In Buddhist Sangha, election of President was done by voting by means of **wooden sticks**
- **Davaraya or Posada** was confession made by monk
- After division into **Hinayana and Mahayana** at **4th Buddhist council**, Mahayana spread to China, Japan etc. whereas Hinayana to Sri Lanka, Burma, south-east Asia
- After 7th century, **Vajrayana** (based on magic and mysticism) developed in **East India** and spread to Tibet
- Buddhist **literature written in Pali** is divided in **3 parts**- Vinaya Pitaka, Sutta Pitaka and Abhidhamma Pitaka- together called **Tripitaka**.

Vinaya Pittaka	Recited by Upali at 1 st council	Contains rules of monastic discipline
Sutta Pitaka	Recited by Ananda at 2 nd council	Divided into 5 parts- Contains sayings of Buddha; Jataka (551 stories of Buddha's previous birth)
Abhidhamma Pitaka	Attributed Mogliputra Tissa president of 3rd council	Philosophical

CAUSES OF DECLINE OF BUDDHISM

- Buddhism was inspired by the spirit of reform but eventually it **succumbed to rituals and ceremonies** it once denounced.
- It became **victim of orthodox religion** against which it had fought in the beginning.
- Buddhist monks were cut off from the people's life and the mainstream.
- **Gave up Pali language and took the Sanskrit.**
- **Rich endowments** and donations made monasteries wealthy e.g. Nalanda collected revenue from 200 villages. Monasteries were occupied by ease loving people and become centres of corrupt practices which Buddha had strictly prohibited.
- Persecution by followers of other religions.
- Brahman ruler **Pushyamitra Sunga** is said to have persecuted the Buddhist
- Huna King **Mihirkula**, worshipper of Shiva, killed hundreds of Buddhists.
- Shaivite **Shashanka** of Gauda cut off the Bodhi tree at Bodh Gaya.
- For their riches the monasteries were attacked by **Turkish invaders**.

- By Twelfth century A.D. Buddhism practically disappeared from India.

IMPORTANCE AND INFLUENCE OF BUDDHISM

- Buddhism made impact on society by keeping its **doors open to women and Shudras**.
- Boosted **cattle wealth** of the country by preaching non-violence. Buddhist text **Suttanipata** calls cattle as annada, vannada and sukhda (giver of food and joy)
- Buddhism developed a new awareness in the field of intellect and culture.
- Place of superstition was taken by logic and promoted rationalism among the people.
- In the first three centuries of AD by mixing Pali with Sanskrit, Buddhists created a new long – **Hybrid Sanskrit**.
- In medieval ages, works in **Apabrahmsa**.
- Buddhist monasteries developed as great centres of learning. e.g. **Nalanda and Vikramshila** (Bihar) and **Valabhi** (Gujarat)
- The first human statues worshipped in India were probably those of Buddha e.g. **Barhut and Sanchi** (M.P), **Gaya** (Bihar)

BUDDHIST COUNCIL	SITE	PRESIDENT	PATRON	SIGNIFICANCE
I 483 BC	Sattapami (Rajgriha)	Mahakshya	-	Upali recited Vinaya Pitaka and Ananda recited Sutta Pitaka
II 383 BC	Vaishali	Sabakami	-	Division of Buddhism into Sthaviravadin & Mahasanghikas
III 250 BC	Pataliputra	Mogliputra Tissa	ASHOKA	Missionaries sent to different countries. Third Pitaka Abhidhamma Pitka added
IV 1 st C AD	Kundalvana (Kashmir)	Vasumitra	KANISKA	Division into Mahayana & Hinayana

BHAKTI MOVEMENT

- As the popular Bhakti movement led by **Alvars (Vaishnava)** and **Nayanars (Shaivite)** declined by 11th century, new Bhakti movement developed in North India. **Maharashtra** was the **first state** to feel stirrings of this Bhakti movement.

MAHARASHTRA DHARMA

- The Bhakti movement in Maharashtra was named as Maharashtra Dharma.
- The Bhakti saints of Maharashtra taught in **Marathi** and composed beautiful **couplets called Abhangas**.
- The Bhakti movement was **centered on Vithoba** or Pandurang or Vithala of **Pandharpur**.
- It was divided between **Varkari saints** (made annual pilgrimage called Vari to Pandharpur) and **Dharkari saints** (taught philosophy of action).

SAINT	WORK	IMPORTANT FACT
Jnaneshwar (1275 -1296)	Bhavarth deepika or Jnaneshwari	First Bhakti Saint, commentary on Gita in Marathi
Namdev (1270-1350)	-	Tailor; traveled to north India and met Sufis; his verses are in Guru Granth Sahib
Eknath (1548-1599)	-	-
Tukaram (1598-1650)	-	Contemporary of Shivaji
Ramdas	Dasbodh	Dharkari taught philosophy of action; said to have influenced Shivaji .

NORTH INDIA

- North Indian Bhakti movement was divided into Saguna saints and Nirguna saints. **Nirgunas** believed in god without any attributes and **formless gods**. **Sagunas** believed in **personal god** worshipped as **Rama or Krishna**

Nirguna saints	Saguna saints
Kabir	Mirabai
Nanak	Tulsidas
Dadu Dayal	Surdas
Raidas	Chaitanya

IMPORTANT SAINTS

RAMANANDA

- First Bhakti saint from north India.
- He was Vaishnava Saint.
- Birthplace is thought to be Allahabad.
- First one to teach** and spread message of Bhakti **in Hindi**.

- His disciples were from diverse backgrounds and castes.

Disciple	Occupation/ Caste
Kabir	Weaver
Raidas	Cobbler
Sena	Barber
Sadhana	Butcher
Dhanna	Jat peasant
Narhari	Goldsmith
Pipa	Rajput prince

KABIR (1398-1518)

- He was raised by childless weavers named as Niru and Nimma at Varanasi.
- This disciple of Ramananda was an iconoclast who strongly criticized rituals and orthodoxy and stressed on purity of character and love for god.
- He was strong advocate of Hindu Muslim unity.
- **His dohas and sakhi (poems)** are collected in **Bijak**.
- He stressed on unity and formlessness of god.
- He did not believe in abandoning life of house holder.
- His verses are included in Guru Granth Sahib.
- He died at Maghar in U.P.

NANAK (1469-1539)

- Born at **Talwandi**; he belonged to **Khatri** household.
- He traveled widely and went to Mecca and Medina.
- He said to have met Babur and wrote **Babur Vani**.
- Laid stress on purity of character and conduct
- He also stressed the need of a Guru.
- He **composed hymns and sang** them to the accompaniment of **Rabab played** by his **disciple Mardana**.
- He also believed in formless god (Nirakara), denounced idol worship and simran (remembering the name of god).

RAIDAS

- Disciple of Ramanada his **verses in Guru Granth Sahib**.
- Mirabai was one of the followers of Raidas.

DADU DAYAL

- A saint from Gujarat. He preached in Amber (near Jaipur).
- He advocated the path of **Nipakh** (non-sectarianism).
- He was influenced by **Kabir**.
- His followers are known as Dadupanthis and have chief centre at Naraina where Dadu had died.
- His **disciple was Rajjab** advocated the path of devotion and Labour.

PRANNATH

- Influenced Bundela leader **Chhatrasal**
- **Put Quran and Vedas side by side** to prove that their tenets were no fundamentally different.

SAGUNA SAINTS

MIRABAI (1498-1546)

- Born in royal family of Merata and married to Bhojraja scion of **Sisodiya** family of Chittor.
- Great devotee of Krishna, she lived in Vrindavan.
- She composed **bhajans in Brajhasa** collected in a book **Padavali**

TULSIDASA (1532-1623)

- **Great devotee of Rama and wrote Ram Charit Manas.**
- His other books are **Vinay Patrika and Gitavali.**

CHAITANYA (1436-1533)

- Born in Nadia (West Bengal).
- Popularized **Vaishnavism** in Bengal. Great devotee of **Krishna.**
- He through his **Kirtans** popularized the Krishna Bhakti and believed in **Raagmarga** or path of spontaneous love.
- He was considered as incarnation of Vishnu by his followers.
- His followers are the famous Goswamis of Vrindavan.

VALLABHACHARYA (1479 -1531)

- A **Telugu brahmana** said to have visited Krishna **Devaraya's court.**
- He taught the path of **Shudha- advaita.** He is also propounder of **Pushti Marga.**
- He worshipped **Krishna as Srinathji.**
- The 8 disciples of Vallabhacharya and his son Bithalnath were called **Asht chap, Surdas** and **Ras Khan** (a Muslim who wrote **Prem Vatika**).

SURDAS (1483-1563)

- Life of Surdas has been explained in Ain-e-Akbari and Munshiat-e-Abul-Fazal, both written during the time of Akbar.
- Though **blind** this disciple of **Vallabhacharya** composed the famous **Sur Sagar** full of devotion for Lord Krishna.
- His philosophy was **Shuddhadvaitya.**

SHANKARA DEVA (1449-1569)

- He popularized **Vaishnavism in Assam.**

- He converted the **Ahom King Suhung Muhung or Swarag Narayan to Vaishnavism.**
- His disciple **Madhavadeva** converted many tribals of east to **Vaishnavism.**

NARSI MEHTA (15TH CENTURY)

- Bhakti saint from **Gujarat** whose "**Vaishnava Jana to tene kahiye**" was favourite of **Mahatma Gandhi.**

SIKH GURUS

- First Guru was Guru Nanak
- **2nd Guru Angad** (1539 – 1552) started the **Gurumukhi script.**
- **3rd Guru Amardas** (1552 – 1574) started the institution of **Langar** (community kitchen)
- 4th Sikh Guru was **Ramdas** (1574 - 81) - **Akbar granted Ramdas a plot of land at Amritsar** on which **Har-Mandir** or Golden temple was constructed.
- **Guru Arjun** (1581 – 1606) compiled **the 'Adigranth'.**
- He started the system of collecting offerings from Sikh followers at rate of 1/10th of their income.
- He completed the construction of Har-mandir.
- He **helped prince Khusrau** which incensed **Jahangir**, had him executed.
- 6th **Guru Hargovind** (1606–1645): To emphasize that Guruship combined both spiritual (Piri) and temporal authority (piri) he started wearing 2 swords.
- He **recruited a small army.** Thus bought a militant instinct in Sikhs.
- After **7th Guru Har Rai (1644 – 1661) and 8th Guru Har Kishan (1661 – 1664), 9th Guru was Guru Teg Bahadur.** He spread **Sikhism to east India and Assam.**
- He was executed by Aurangzeb in 1675.
- **10th Guru Govind Singh** was born at Patna.
- **He founded the Khalsa in 1699 at Anandpur.**
- He instituted the custom of **Baptism (Pahul).**
- His **autobiography is Bichitra natak.**
- He compiled the **Guru Granth Sahib.**
- He was **killed at Nanded** by a Pathan in 1708.
- **5 essential K's** of Sikhism – Kesh, Kanga, Kirpan, Kachha and Kada.
- Kapur Singh founded the Dal Khalsa.

ADI SANKRACHARYA

- He was the **first** philosopher who consolidated **Advaita Vedanta**, one of the sub-schools of Vedanta. He believed in the greatness of the holy Vedas and was a major proponent of the same.
- He founded **four Shankaracharya Peethas** in the four corners of India, which continue to promote his philosophy and teachings. These included:
 - Sringeri (South India)
 - Jagannath Puri (East India)
 - Dwaraka (West India)
 - Badarikashrama (North India)

- Adi Sankaracharya biography reveals that he was also the founder of **Dashanami** monastic order and the **Shanmata** tradition of worship.
- He was born in **788** AD in a Brahmin family in Kaladi village of Kerala.
- Adi Shankara had argued that all qualities or manifestations that can be perceived are unreal and temporary, but Ramanuja believed them to be real and permanent and under the control of the Brahman.

RAMANUJA (1017–1137)

- Ramanuja was born Ilaya Perumal in a Brahmin family in the village of Perumbudur, Tamil Nadu, India
- Also known as Ramanujacharya, Ethirajar, Emperumannar.
- He was a theologian, philosopher, and scriptural exegete.
- He is seen by Hindus in general as the leading expounder of Viśiṣṭādvaita, one of the classical interpretations of the dominant Vedanta school of Hindu philosophy.
- This period saw the rise of the Vedanta school of philosophy, which focused on the elucidation and exegesis of the speculative and philosophical Vedic commentaries known as the Upanishads.
- The Advaita, or non-dualist interpretation of Vedanta was developed in this time by Adi Shankara. It argued that the Brahman presented in the Upanishads is the static and undifferentiated absolute reality, and that the ultimately false perception of difference is due to avidya, or ignorance.

Sample from World Geography

MINERAL RESOURCES OF WORLD

IRON ORE

It is ferrous metal. Iron ore can be classified according to the purity contents in it. Generally iron ore is classified into **4 major groups**:

- 1 Magnetite:** It is the **best quality** of iron ore. It contains about **72%** ore iron contents. The colour of such iron ore is black or dark brown. It has magnetic properties and easily attracted by the magnet. Magnetite iron ore is found in the form of minute particles in **igneous rocks**. This type of iron is found in **Ural** Mountains of Russian Federation and Northern parts of **Sweden**.
- 2 Hematite:** This type of iron ore contains about **70%** of pure iron contents. Most of the iron ore found in the world belongs to this type because it is **easy to mine and smelt**. Its colour is **red**. Hematite iron ore found in USA, Great Britain, Russian Federation, Ukraine, Sweden, France and India.
- 3 Limonite:** This type of iron ore contains about **60%** of purity contents. Limonite iron ore is not difficult to mine. It is found in **sedimentary rocks**. Its quality becomes low due to the presence of oxygen mixtures. It is mined towards the South-West of **Itabira iron ore mines at Lafayette**. Besides these mines iron ore is mined in the mines of Santa Caterena and Bahia provinces.
- 4 Siderite:** Siderite iron ore contains about **40%-50%** purity contents. It is difficult to purify because of the very large amount of **carbon** particles. The colour of this type of iron ore is either yellow or light brown. The mines of siderite iron ore are found in England, Norway and Sweden.

TOP IRON ORE RESERVE HOLDING COUNTRIES

Total Reserves Approx. (115 Billion Metric Tons)

Ukraine > Russia > China > Australia > Brazil				
26%	22%	19%	17%	14%

TOP IRON ORE PRODUCING COUNTRIES

Brazil > Australia > China > India > Russia > Ukraine > USA

WORLD PRODUCTION AND DISTRIBUTION OF IRON ORE

- 1 Brazil:** Brazil has emerged as the **largest** iron ore producing country in the world contributing about **20%** of the total iron ore mined. Iron ore in Brazil is found in **Minas Geraeas** area situated in South East of Brazil. **Itabira mountain** ranges are other important mines. Iron ore is mined towards the South-West of Itabira iron ore mines at **Lafayette**. Besides these mines, iron ore is mined in the mines of Santa Caterena and Bahia provinces.
- 2 Australia:** Australia is the **2nd largest** iron ore producing country of the world. Australia contributes about **17.5%** to the total production of World's iron ore. The

reserves of iron ore in Australia are Hematite and limonite types. Australia iron ore mines can be divided into 2 parts:

- **Western Australia Regions:** The iron ore mines are situated at Pilbara, Kalgurli, Zeraldton, Mountbundi, Kaniakiang and Zampisound etc. Amongst these, the mines of **Pilbara** are the most important. Pilbara mines are situated about 1200 kilometers to the North of Perth.
- **Eastern Australian Regions:** The iron ore of Eastern Australian regions are found in 3 areas:-
 - a) The Metland areas of South Eastern Coastal parts.
 - b) Kalonkari and Dasan areas of North.
 - c) Iron knob, Kutana, Kulka and Brokenhill in the Flanders ranges in the south.

3 China: China has become the **3rd largest** producer of iron ore in the world. China contributes about **17%** to the total iron ore production of the world. Chinese mines of iron ore are extended in 6 areas:

(i) Manchuria Region: The Hematite and Limonite types of iron ore mines are found in Manchuria regions. Here iron ore mines are found to the south of Mukden. About **1%** of total iron ore reserves of the world are lying in this area.

(ii) Shantung Peninsular Region: The iron ore mines of this region are situated at Chenglengchen in Shantung peninsular region. These mines contain about **60 %** of purity contents in iron ore.

(iii) Upper Valley of Hwang Ho River: The mines in upper valley of Hwang Ho river are found in Mongolia province at Pautoue and Kanshu.

(iv) Shansi Region: The famous iron ore mines of this region of China are situated in east of Yangtzekiang river. Due to the presence of coal mines in nearby places, the industrial town namely, Taiyuan came into existence.

(v) Beijing Region: There is small iron-ore mine near Beijing town in Beijing region. Here good quality of iron ore is found.

(vi) Yangtzekiang Basin: Iron ore mines of this region are situated at Shangai, Wuhan, Chungking, Hunnan, Tazeh and Nanking. Here good quality of iron-ore is found. These mines of iron ore contain about 40 to 55% contents of pure iron.

4 India: The iron-ore production of India is increasing. India has become the **4th largest** iron ore producer of the world. India contributed about **8.53%** of the total production of iron ore of the world.

5 Russia: Russia contributes about **8%** to the total iron ore production of the world. Its leading iron ore producing area are:

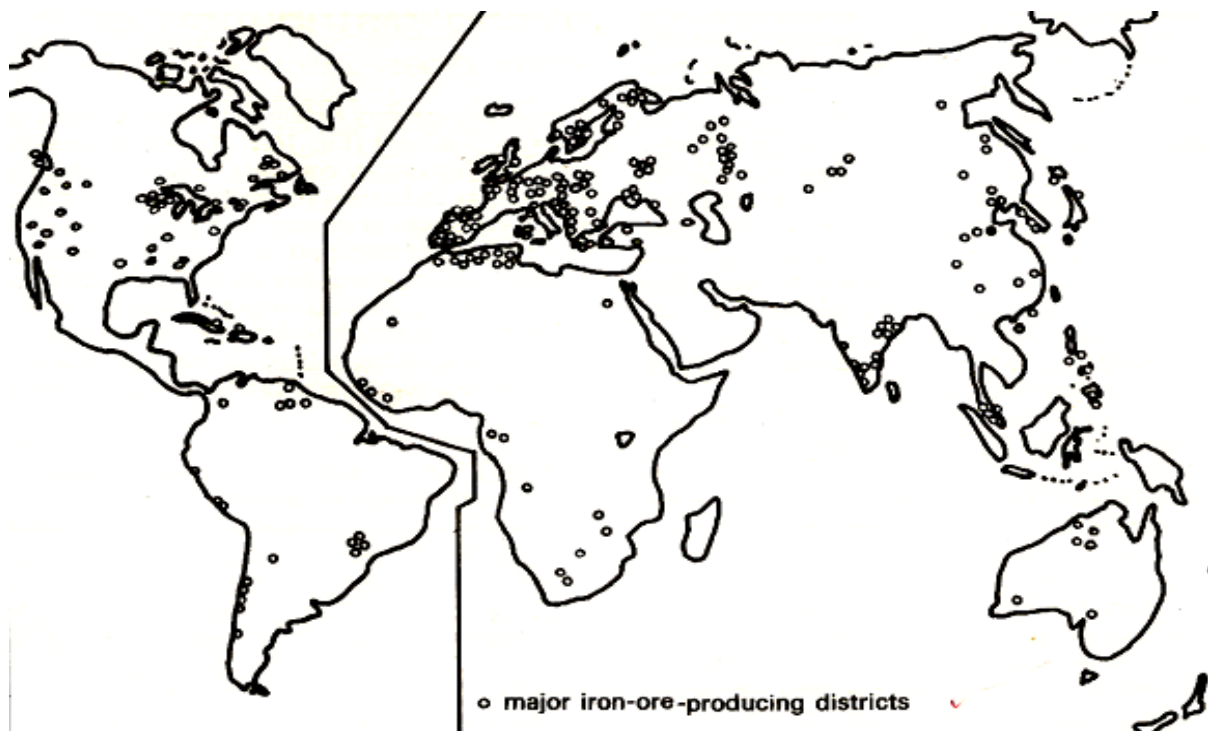
i) Ural Region: There are **vast reserves** of iron ore in Ural Mountains. This area contributes about **25%** to the total production of the iron ore of the country. Here best type of **magnetite** ore is found. The Ural regions iron ore mines are lying in northern and southern parts of Ural mountains. The major iron ore mines of Northern Ural are situated at **Hagasalovosk**. In the southern Ural ore mines are found in **Magnitogorsk** and **Baikal**. The iron ore mines of Central Ural Mountains are situated in **Kachaknar**.

ii) Kuznetsk Region: Kuznetsk iron ore situated near the coal fields of Kuznetsk, and these are the most important iron ore mines of **Siberia**. Here best type of Magnetite iron ore is found. The main iron ore mines of the region are Gornaya – Soria, Abkan, Temirtau and Tashtagol.

- iii) **Kursk Region:** The Kursk region of iron ore are covering about 1 lakh square kilometers area and are the **largest** iron ore mines of the world. There are many iron ore mines in this area; amongst the **Kursk mines** are most important. **Tula coal fields** are near the Kursk iron ore mines. As a result it has become the important regions of iron and steel industry. It is also famous in the name of "**Kursk Magnetic Anomaly**" containing one-sixth of all world's reserves.
 - iv) **Angara Region:** In central Siberia, Angara Pit and Angara Ilim are the main iron ore mines.
 - v) **Other regions:** Besides these iron ore regions the other important iron ore fields are **Amur valley**. Tomsk in western Siberia and **Dasketshan** in Caucasus mountain ranges are other regions.
- 6 **Ukraine:** Contributes **5%** to the total iron ore produce of the world. Ukraine had the best type of iron ore, namely, **Hematite** in its mines. Its main iron ore producing areas are mainly found in Southern Ukraine iron ore and Kerch regions.
- i) **Southern Ukraine Region** is the most important region. Southern Ukraine iron ore regions are also known as **Krivoy Rog iron ore fields**.
 - ii) **Kerch Region** is also situated in Ukraine Mountains. The iron ore mines are situated in the north east of black sea in the coastal areas of Sea of Azov.
- 7 **United States of America:** USA is the 7th largest iron ore producing country in the world. USA contributed about **5%** to the total iron ore production of the world.
- i) **Lake Superior Region:** This region is extended in between Superior and Michigan lakes. The mines of these regions are situated in Minnesota, Michigan and Wisconsin States. **Hematite** type of iron ore is found in this region. **Pittsburgh** is most important centre for iron and steel industries in the world.
 - ii) **Southern Appalachian Region:** One mine is in Birmingham of Alabama state and 2nd is in Tennessee. Many impurities are found in iron ore of this region but due to the presence of coal fields and limestone nearer to them these impurities are ignored. Hematite and limestone type of iron ore is also found in this region. This region is also known as **Alabama region**.
 - iii) **North East Region:** The iron ore mines of this area are found in mountain ranges of Adirondack and Cornwall region.
 - iv) **Western Region** is extended in western states namely, Utah, Wyoming, Nevada, California and Montana.
- 8 **Canada:** Canada is famous for reserves of high quality iron ore. Contribution of Canada in the total iron ore production of the world is about **4%**.
- i) **Labrador Iron Ore Region:** The major mines of this region are Knob Lake, Ruth Lake, Wabash Lake and Gagnon.
 - ii) **Ungava Iron Ore Region** is situated near the Bay of Ungava. It is the newest region of iron ore and still a small quantity of iron ore is mined in this region.
 - iii) **St. John Iron Ore Region** is found in Newfoundland, islands. Hematite type of iron ore is mined out in this region.
 - iv) **Micropicoten Iron Ore Region** is situated to the North East of superior lake.
- 9 **South Africa:** South Africa mines about **3.5%** iron ore mined by all the countries of the world. About **27% of the total iron ore reserves** of the world are lying in the mines of South Africa. Iron ore is also mined in Cape of Good Hope region.

- 10 **Sweden:** It contributes about **2%** to the total production of the world. Sweden has resources of **fine Magnetite** iron ore. The iron ore mines are at **Kiruna, Gailwara, Wester Boston** etc.
- 11 **France** – Lorraine (Siderite ores) Normandy in Pyreness; and central Massif.
- 12 **Britain** – Scunthorpe (Siderite ores) and Frodingham.
- 13 **Germany** – Siegrland.
- 14 **Spain** – Bilbao, Santander and Oviedo (Haematite)
- 15 **Norway** – Kirkenes.

WORLD DISTRIBUTION OF IRON ORE



WATERWAYS IN THE WORLD

Waterways are being in use for the transportation of goods and passengers from the very ancient times. Waterways are divided into types:

1. Inland waterways
2. Oceanic waterways

INLAND WATERWAYS

Inland waterways include the transportation of goods and passengers by rivers, lakes canals and inland seas.

- 1 Rhine River:** Waterways of Rhine River has the greatest importance than any other waterways of the world. Its length is about 380 kilometers and this river falls into the North Sea. Mainly coal is transported from **Ruhr valley** through the Rhine River and sometimes Rhine River is also called '**Coal River**'. Rhine river flows through the densely populated areas and big industrial centres have been established on its both the banks. Food products are exported from France and Germany by using this Riverways.
- 2 Danube River:** Danube River is the **longest river of the European continent** which flows through eight countries of Europe. This river is mainly used by Romania and Germany for transportation purposes.
- 3 St. Lawrence River:** St. Lawrence River is the famous river of **Canada**. This river joins North America world famous Great lakes with Atlantic Ocean. Many industrial centres of **Ontario** and **Quebec** provinces have been emerged due to the use of this river for water transportation. The length of St. Lawrence River is approximately **1400 kilometers**.
- 4 Mississippi River:** This is the main river of United States of America which has many branches and its total length is about **3200 kilometers**. Coal, oil, iron ore and chemical products etc. are transported from southern states of country by this river.
- 5 Yangtzekiang River:** Yangtzekiang River is the main river or back bone of China, which falls into China Sea near **Shanghai**. Shipping is possible from Shanghai to Nanking in **Yangtzekiang** River and ships can run upto Hankao in summers. **Yangtzekiang** River has gained more importance due to the less availability of highways and railways for transportation in this region.
- 6 Volga River:** Volga River is mainly Russian river and contributes about **80%** to the total trade of the country though waterways. In Russia the Volga River falls into **Caspian** Sea flowing through the areas of **coal** and **iron** ore mines. The Volga River ways are used only in summers as waterways freezes in winter season.
- 7 Nile River:** Nile River is called the **life line of Egypt**. Nile River flows in the continent of Africa. Head of Nile River lies in the central lakes of Africa and mouth in Mediterranean Sea. The passenger of Egypt and Sudan utilizes the Nile River for the transportation. The Egyptian cotton is exported through these waterways.

OTHER IMPORTANT WATERWAYS

- The **Mittelland Canal**, joins the 3 major rivers of Ems, Weser and Elbe, and continues eastwards to **Berlin** and into Poland.

- Near Hamburg another canal the **Kiel Canal**, 96 km, links the Elbe estuary to the Baltic Sea, improving access to the Scandinavian countries.
- The **Dortmund-Ems Canal** runs north-south and links the Rhine with the Bremen and Emden.
- The **Ludwig Canal** links the Main, a tributary of the Rhine, to the Danube and allows waterborne traffic from the Black Sea to reach the Mediterranean Sea through the **Rhone-Rhine Canal** or the Atlantic via the Rhine.
- **Rotterdam**, linked to the North Sea by the deep **New Waterway**, serves a vast hinterland stretching up the Rhine to Germany, Switzerland, France and Belgium.
- **Amsterdam** is joined by the North Sea Canal to the port of IJmuiden.
- More outstanding canals are the Baltic and **White Sea Canal**, the **Moscow-Volga Canal** and the **Volga-Don Shipping Canal**.
- The vast Volga system links **five seas**: the Baltic, White, Caspian, Black and the Sea of Azov.

- **Great Lakes-St. Lawrence Waterways**: In North America, the most important waterways are the **Great Lakes – St. Lawrence** shared by Canada and the U.S.A.
 - It stretches from Duluth on Lake Superior to the estuary of the St. Lawrence below Quebec.
 - Important cities linked to the Great Lakes – St. Lawrence waterway by smaller canals are – **Carillon and Grenville Canals** from Montreal to Ottawa.
 - By the **Rideau Canal** to Kingston; and
 - By the **Erie Canal** from Buffalo via the Mohawk Gap and the Hudson River to New York.

- **Small scale water transportation** is done by the **lakes**. Mainly the **Great lakes** of North America and **Baikal Lake** of Russia are used for water transportation.

CANALS

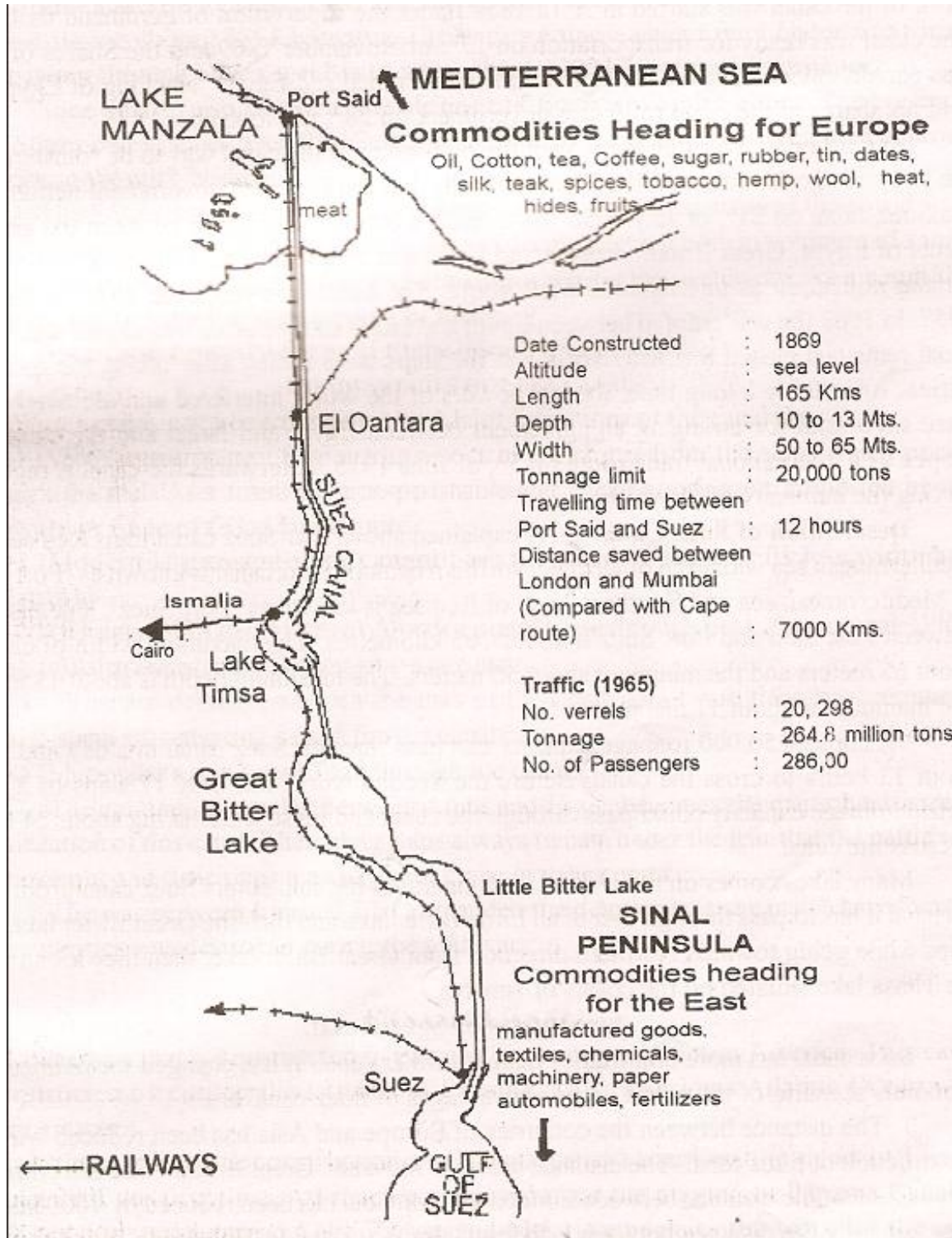
The canals are used as waterways for transportation of men and material from centuries together.

Suez Canal

Suez Canal is the **most important waterways** from the point of view of **International Trade route**. Suez Canal is constructed by cutting the **Isthmus of Suez**. This canal joins **Red sea with Mediterranean Sea**.

The Northern bank of Suez Canal is known as '**Port Said**' of Mediterranean Sea and Southern bank of Red sea is known as '**Port Suez**'. The distance between Port Said and Port Suez is about 165 kilometers. The maximum width of canal is about **65 meters** and the minimum about **50 meters**. The maximum depth is about **13 meters** and minimum is about 11 meters. **49 ships of 50,000 tonnage capacity** can pass through Suez canal in **a day** and takes about **13 hours** to cross the canal.

As the ship enters Suez Canal from Suez port and it has to pass through first of all **Little Bitter lake** and then the **Great Bitter Lake**. The ships while going towards Northern direction from Great Bitter lake, then they are to cross the **Timsa lake** situated on the coasts of Ismalya.



THE SUEZ CANAL

Panama Canal

Panama Canal is constructed in Panama, a country of **Central America**. This canal is constructed by cutting the **Isthmus of Panama**. This canal joins **Atlantic Ocean with Pacific Ocean**.

The **length** of Panama Canal is about **80 kilometers**. Its minimum **width** is about **100 meters** and maximum width is about 330 meters. This canal is **above the mean sea level**. **6** duplicate locks have been constructed in order to sail the ships through Panama Canal. The bank of Pacific Ocean of Panama canal is known as **Colon** and the Atlantic bank is known as **Panama**.

Comparison between Panama Canal and Suez Canal

- Panama Canal **joins** the Atlantic Ocean with Pacific Ocean. Suez Canal joins Red sea with Mediterranean Sea.
- Water **level of Panama Canal is higher** than the mean sea level of the oceans. Therefore duplicate locks have been constructed in order to sail the ships by this canal. Suez Canal is the level of mean sea level, there is no need of construction of any duplicate locks.
- There is **shortage of ports** and islands on the route of Panama Canal. There is no shortage of such natural features on the route of Suez Canal.
- Panama Canal passes through the **hilly** and **plateau** area that is why its banks are very solid and strong. Suez Canal passes through the **deserts**, therefore it is not solid on its banks and deserts sand continuously falls on the floors of Suez Canal.
- Panama Canal is more **wide** and **deep** than the Suez Canal.
- Panama Canal is **mostly used by United States of America**. Suez Canal is mostly used by the countries of Common Wealth Nations and other South-Eastern countries.
- **Two ships can sail** at a time in Panama Canal whereas it is not possible to sail the two ships at a time in Suez Canal.
- It takes about **8 hours** to sail through the Panama Canal. In order to sail through the Suez Canal is takes about **12 hours**.
- The length of Panama Canal is less than that of **Suez canal**.
- One has to pay small amount of Octroi to sail through Panama Canal, whereas one is to pay higher **Octroi** to sail through Suez Canal.

Soo Canal

Soo canal joins the Lake **Superior** and **Huron** lakes of United States of America. A river named Mary flow with great speed in between both the lakes as a result it could not be used as waterways for transportation. Therefore, Soo canal has been constructed and it has two branches.

Kiel Canal

Kiel Canal falls in **Germany**. Baltic Sea and North Sea are joined together by this canal. This canal was constructed in **1895**. Kiel Canal is about **98 kilometers** long, about **44 metres wide** and about **12 metres deep**.

Manchester Ship Canal

This canal belongs to Great Britain which joins **Liverpool** and **Manchester** together. Manchester acquired the status of port with the construction of this canal. This canal is about **57 kilometers long**, about **36.5 metres wide** and about **8.5 metres deep**. There are two locks in Manchester Ship canal.

Volga Don Canal

This canal belongs to **Russian** Federation which joins Caspian Sea with Black sea. This canal was ready for transportation in 1854. This canal is about **100 kilometer** long and has many locks on the way.

OCEANIC WATERWAYS

- 1. North Atlantic Oceanic routes:** North Atlantic oceanic route has much more importance than any other waterways. This waterway joins the developed regions of Western Europe with the developed regions of North America. There are many important ports of the world on this oceanic route e.g. **Glasgow, Manchester, Southampton, London, Rotterdam, Bremen, Bordio, Lisbon, Quebec, Montreal, New York, Charleston, Galveston, New Orleans and Havana.** The numbers of North Atlantic ports are more than hundred. The maximum goods are transported through these waterways of the world.
- 2. South Atlantic Oceanic routes:** South Atlantic oceanic routes join North America and Europe with South America. Through this waterway the industrial goods from North America and Europe are transported to South America. The major products transported by this oceanic route are machines, **electric** goods, goods of daily needs, medical apparatus and medicines, railway goods, parts of aeroplanes and army and defence equipment.
- 3. North Pacific Oceanic routes:** These waterways join East Asia and North America with each other. This waterway is very long. From this route the countries like China, Korea, Japan, Philippines islands, Indonesia, **Malaysia**, Singapore and Hongkong etc. takes maximum benefits.
- 4. South Pacific Oceanic routes:** South Pacific Oceanic route joins **Australia**, New Zealand, North America and Western Europe with each other. Through this oceanic route Australia and New **Zealand** exports wool, butter, cheese, skins, rubber etc. and industrial products are imported.
- 5. Routes of Indian Ocean:** Indian oceanic waterways are used by the countries which fall in the vicinity of Indian Ocean. Countries of **Indian Ocean** exports tea, jute products, mineral ores and imports industrial products.
- 6. Routes of Mediterranean Sea:** This waterway joins Asia and Australia continents with North Atlantic oceanic routes. Mediterranean waterways join together the maximum number of countries of the world. Through this waterways the raw material of Eastern countries are being transported to Western countries and Western countries transport industrial products to Eastern countries.
- 7. Cape of Good Hope Sea Route:** Cape of Good Hope Sea route joins **Eastern** Asia and Europe to Southern parts of Africa. This oceanic route has lost its importance with the construction of Suez Canal. Now a day only large sized ships loaded with heavy and cheap goods sail through this ocean route.

REGIONAL GEOGRAPHY OF AFRICA

GENERAL FACTS ABOUT AFRICA

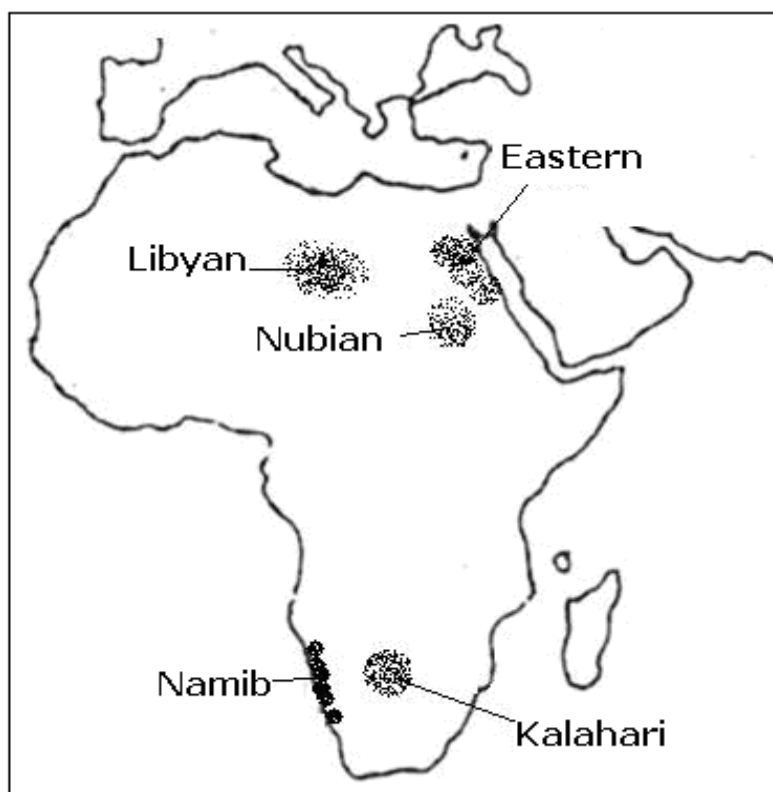
- African continent is separated from Europe by Mediterranean Sea and from Asia by Red Sea.
- It **touches Eurasia at 3 pts:-**
 - Strait of Gibraltar in North-West
 - Suez Canal in North-East
 - Strait of Bab-el-Mandab in East
- Africa consist of several plateaus, plateau is higher in South and East.
- **RIFT VALLEY**– One of special physical features of Africa. A Rift Valley is a long and deep valley formed due to cracks or rifts in the land. Running from south of Lake Malawi northward to Red Sea and then through Gulf of Suez and the Gulf of Aqfuaba to Dead Sea.
- **Kilimanjaro Mt.:** Highest peak of Africa. Situated in **Tanzania**.
- **Pemba/ Zanzibar:** Tiny Island situated off the Coast of Tanzania. Biggest producer and exporters of cloves in the world.
- Arranged from west to east, the **Atlantic Coasts** of South West Africa are Grain coast, Ivory Coast, Gold coast and Slave Coast (**GIGS**).
- **Swahili** – A language understood by many people.
- **Animism** – Religion followed by many tribes (love and respect of Nature).
- Prime Meridian (**Greenwich Line**) pass through Algeria, Mali, Burkina Faso and Ghana arranged from North to South. It also cuts Togo, Lake Volta and River Niger.
- Both **Tropic of Cancer and Prime Meridian** cross each other at ALGERIA
- **Equator and Greenwich** meet at "South Atlantic Ocean".

TROPIC OF CAPRICORN PASSES THROUGH (arranged from west to east)	
COUNTRY	CAPITAL
1. Namibia	Windhoek
2. Botswana	Gaborone
3. South Africa	Pretoria
4. Mozambique	Maputo
5. Madagascar	Antananarivo
TROPIC OF CAPRICORN PASSES THROUGH NAMIB DESERT AND THE LIMPOPO RIVER	

EQUATOR PASSES THROUGH THE FOLLOWING COUNTRIES (arranged from East to West)		
COUNTRY	CAPITAL	SOME FACTS
1. Somalia	Mogadishu	
2. Kenya	Nairobi	Mt. Kenya located on Equator
3. Uganda	Kampala	Equator passes through Lake Victoria & L. Edward
4. Democratic Rep of Congo	Kinshasa	Cap. Located on R. Zaire
5. Congo	Brazzaville	Cap. Located on R. Zaire
6. Gabon	Franksville (Libreville)	
EQUATOR CUTS THE R. ZAIRE (CONGO) TWICE		

DESERTS

- **Sahara:** A hot tropical desert, Largest in the world, situated in Northern Africa.
- **Libya:** A hot dry desert which huge **petroleum** deposits, situated in Northern Africa.
- **Nubian:** A hot tropical desert, situated in **Sudan** along Red Sea.
- **Arabian:** A hot tropical desert with rich **petroleum** deposits, situated in Egypt
- **Kalahari:** Lying along the Tropic of **Capricorn** in S W Africa, inhabited by the '**Bushman.**'
- **Namib:** A hot desert in Namibia drained by **Cold Benguela current**, with **diamond** deposits.
- **Sinai:** Desert Peninsula of Egypt, to the east of **Suez Canal**, with rich **petroleum** deposits.
- **Karu:** A temperate desert with stepped topography in South Africa.



LAKES

- **Lake Victoria:** Situated on **Equator**, it is the **largest** lake in Africa. Source of River **Nile**. Makes boundary with **Tanzania, Uganda and Kenya**.
- **Victoria Falls:** Situated on River **Zambezi**. Original name means 'the smoke that thunders'. Located in **Zambia**.
- **Kariba Lake/Dam:** Located on River **Zambezi**. Largest Producer of **water power** in Africa. In **Mozambique**.
- **Lake Nasser/Aswan Dam:** On River **Nile**. In Egypt. Named After President Nasser of Egypt.
- **Lake Chad:** Form an Inland drainage system in Central Africa. Makes boundary with **Niger, Nigeria, Chad and Cameroon**.
- **Lake Timsah/ Bitter Lake:** Important Lake of **Egypt**. Located on **Suez Canal**.



CLIMATE AND NATURAL VEGETATION

- Latitudes – 37°14' N to 34°50' S. Africa is **most tropical** of all continents.
- **Al-Aziziyah** (Libya) – Highest temperature in world (58°C).
- **Cape Debundsha** (Cameroon): Wettest place in Africa (1029cm)
- **Wadi Halfa** (Sudan): Driest place (<2.5mm rainfall)
- **Equatorial Type Of Climate** – It rains daily at belt lying along the equator on both sides and has a hot, wet climate (Hot-Wet Summer). Here forest is TROPICAL RAIN FOREST.
- **Sudan Type of Climate** – To North and South of Equatorial Climate. Warm Summers & Mild Winters. Most of Rain in summers. Distinct dry period. Vegetation is mostly grasses.

- **Savanna** – The region covered with tall and coarse grasses is known as Savanna.
- **Desert Type of Climate** – No rainfall. Climate is hot and dry. Vegetation is wholly absent or includes only shrubs and bushes.
- **Mediterranean Type** – Northern and Southern coasts of Africa have mild and RAINY WINTERS with DRY SUMMERS.

AGRICULTURE & FORESTS

- Food Crops – Root Crops such as Yam, Cassava. Maize is an important cereal.
- Cash Crops – Cocoa, Palm oil, Coconut, Coffee, Cotton, Sisal
- **Cassava** – Important plant of tropical region. The roots of plants are eaten as food.

Coconut Palm	Oil Palm	Date Palm
Found in tropical Islands Zanzibar & Pemba, Tanzania	Nigeria exports a good deal of it	Grows in oases in drier regions. Egypt exports it. Food for local people.

- Coffee – Ethiopia, Birth place of coffee – 20% of world’s coffee, Tropical West Africa, Highlands – East Africa.
- **Cacao** – Grow well in equatorial lowlands. Ghana & Nigeria export it.
- Cacao and Kola trees provide beverages.
- **Kola** – Cola drinks & Chewing gum.
- **Sisal** – Fiber used for making ropes and sacks. Africa is World’s largest producer. Tanzania - Exporter of Sisal (Poor, sandy soil).
- Zanzibar and Pemba Islands – **Biggest producer and exporters of Cloves** in the world. Also famous for Coconuts.
- Mediterranean region important for olives, apples, peaches and grapes.
- **Ostrich** in Kalahari Desert (fast running bird)

MINERALS

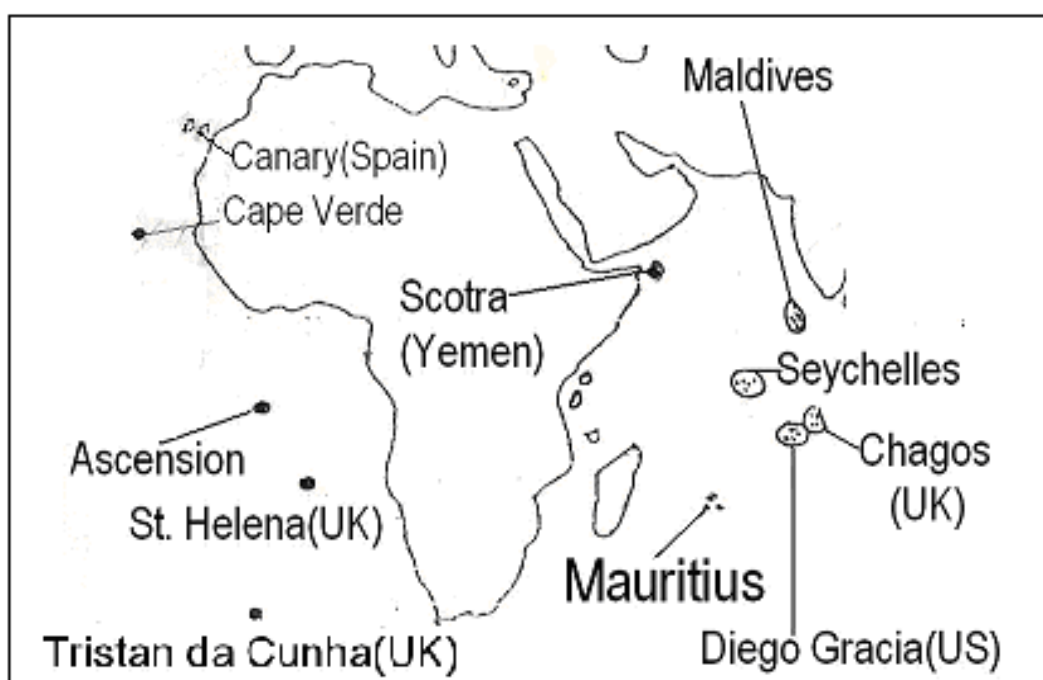
- **Gold**: More than ½ Gold production of the world is from Africa. South Africa is major producer. 80% of South Africa’s Gold comes from **Transvaal State** whose **Witwaters Rand** is most important for Gold mining. Zimbabwe and Ghana are other producers.
- **Bauxite**: Guinea– 2nd largest of world; Sierra Leone and Ghana are other producers.
- **Nickel** – South Africa
- **Manganese** – South Africa and Gabon
- **Tin** – Zaire (Katanga) and Nigeria
- **Diamond**– 95% of world’s diamond production comes from Africa. Diamond in South Africa is found in valley of **River Orange–Vaal and Kimberly** in Cape Province.
- **Power Resources** – 40% of the total Power is Hydel;
- **Coal**: Only Transvaal and Nettle area
- **Hydel Power**
 1. **Angola** – Second largest producer of HEP.
 2. **Victoria Falls** and 3 large dams **Kariba Dam** (Zambia/ Zimbabwe), **Cahora Bassa** (Mozambique) and **Itezhi-Tezhi** are located on **River Zambezi**.
 3. **Aswan Dam** (Egypt) and **Merowe Dam** (Sudan), both on River Nile and **Owen Falls** (Uganda) on R. White Nile

4. **Katse Dam** in Lesotho
 5. **Akosombo Dam** on River Volta in Ghana.
 6. **Kariba is the largest dam** followed by Aswan, Akosombo and Cahora Bassa.
- **Petroleum**– ANGOLA, NIGERIA and LIBYA.
 - **Platinum** – South Africa is a major producer.
 - Not much **coal and iron** or in this continent, which hampered production of steel & industrial growth.
 - South Africa – Leads the world in **Chromium** (does not rust), Gold and Platinum.

RACIAL STRUCTURE

- Racial Structure – Negroes, Arabs, Berbers, Ethiopian, Tuareqs.
- More Urbanized country is Djibouti, Least Urbanized is Ethiopia
- Sudanese Negroes (**Pure Negro**) – West Africa and Sudan.
- **Bantu** – Negroes, enjoy sway over Zulu, Swazi, Sotho and Zimbabweans. These are mixed skin people with light skin colour people of southern part.
- **Pygmies** of Equatorial forests of Africa, Primitive group.
- **Bushman** of Kalahari– Hunters, Yellowish nomads; Found in Botswana and Namibia.
- **Hottentots** – Pastoralists (S. Africa) and SW Africa.
- **Malagasy** – Madagascar. All these are cattle rearers and Agriculturalists
- **Masai**- Kenya and Tanzania- Pastoralists, whereas Kikuyuts of same area are agriculturists. Fulani-West Africa- pastro-agriculturist.
- **Pigmies** – Congo and Gabon.
- In Eastern Africa : **Nilotes**, Lango etc in Sudan (Pastrolists)
- Of **Central** Plains – Masai, Nandi (In Upper Nile Basin)- Herders; **Oromo** live in horn of Africa. Most of them are Bantu speaking and farmers, Bantu– Tall black in southern half of Africa – Traditionally Pastoralists. Pygmies and Hadza are brown and dark skinned, hunters and most primitive.

MAP SHOWING ISLANDS AROUND AFRICA



REGIONAL GEOGRAPHY OF INDIVIDUAL COUNTRIES

LAND OF GOLD AND DIAMONDS – SOUTH AFRICA

FACTS ABOUT SOUTH AFRICA

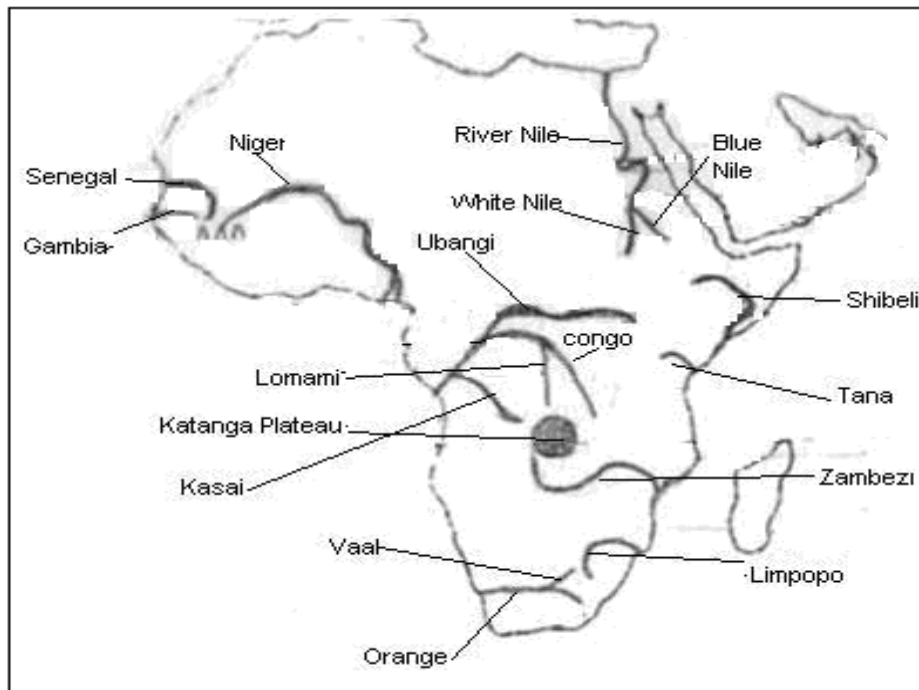
- The first European settlers in South Africa were the **Portuguese and Dutch**. The early colonists came to be known as "**Afrikaners**".
- **Apartheid** – Policy of segregation of people on the basis of their race or colour of skin. In 1994 – Non white got voting rights. Dr. Nelson Mandela was first Black President.
- The **Drakensberg** Mountains in East form the Edge of this plateau.
- The **Orange and Vaal rivers** flow from Drakensberg Mountain westward to Atlantic Ocean.
- The plateau region is covered with grasses. It is called **Veld**.
- It is the **most industrialized** country of Africa.
- **Mining** is the most important activity.
- **Johannesburg** – Largest city of South Africa. World famous for **Gold-Mining**.
- **Kimberly**: Center of **Diamond** Mining in South Africa.
- **Tshwane (earlier name PRETORIA)** – **Administrative Capital** of South Africa.
- **Cape Town** – Seat of **Legislature** (legal capital) and Largest Port of South Africa. On Cape of Good Hope.
- **Bloemfontein: Judicial** Capital.
- **Durban**: Important Port of South Africa located on East Coast.
- **Port Elizabeth**: Important Port of South Africa located in South; on Algoa Bay.
- **Maize** is most important crop.
- **Merino Sheep** – Famous for fine wool (South Africa).
- **Zambezi** is the major river of South Africa.

PHYSIOGRAPHIC FEATURES

- **The Great Escarpment**: The major physiographic feature lies 100 km inland from the coast and extends from the **Zambezi River in Zimbabwe**, around the southern end of Africa. It varies in height considerably with the greatest elevations occurring at the **Drakensberg**.
- **The Zambia-Zimbabwe Plateau**: The northeast part of the South African continent comprises the two elevated areas of Zambia and Zimbabwe. These plateaus are separated by the **Zambezi valley**, which forms the **international boundary** between the two countries. An area of internal drainage into **Lake Bangweulu** occurs in northern Zambia where the largest stream is the **Chambezi**. Zimbabwe is drained mainly by tributaries of the Zambezi but the southeastern part of the country is also drained by the **Limpopo & Save Rivers**.
- **Zambezi Valley**: The Zambezi is 3000 km in length and after rising in northwest Zambia; it flows across the **Kasisi plains** and plunges 110 m over the **Victoria Falls** into the zigzag gorge formed by the river exploiting weaknesses in the basalts caused by faulting in two direction. Erosion has cut back along the rivers to produce the gorges, which provides suitable sites for dams, as at **Cabora Bassa** and **Kariba**.

- **High and Middle Veldt:** These terms are used in purely an altitudinal sense to distinguish the plateau surfaces above 1200 m. The **High Veldt** is the extensive area of high and lying immediately **north of the Great Escarpment** in Cape Province and extending northwards through the Orange Free State into Transvaal. The most elevated parts are the Lesotho highlands.
 - :: The **Middle Veldt** which lies north and west of the High Veldt in west-central Cape Province has an **ill-defined boundary** with the High Veldt, except where the **Kaap plateau** rises abruptly from the plateau surface north of the **Vaal River**.
 - :: In central Transvaal an area known as the **Bush veldt** occurs north of Pretoria. This is a **lopolith**, where there have been successive plutonic intrusions.
- **The Orange River:** The drainage of much of the High and Middle Veldt is collected into the Orange River. This river, which has a length of **1100 km**, rises in the **Malauti Mountains** of Lesotho and proceeds to flow westwards across the continent to enter the south Atlantic on the **border** between the Republic of South Africa and Namibia. Its **longest tributary**, the **Vaal**, also rises on the western slopes of the Great Escarpment.

MAP OF AFRICA SHOWING MAJOR RIVERS



LAND OF FORESTS – DEMOCRATIC REPUBLIC OF CONGO (ZAIRE)

- Congo was ruled by **Belgium** and became independent in 1960.
- **Zaire River** – Drains most of the parts of Dem. Rep. of Congo. Known as Congo in later part. Discharges water into Atlantic Ocean. Carries greatest volume of water among all rivers of Africa. **Not used for shipping. Largest** river of the region; **Obangi and Kasai** are major tributaries. Great hydel power potential

- The **Congo basin is saucer shaped** depression surrounded by plateaus.
- Congo lies in equatorial region (High temperature, Heavy rainfall).
- Land is covered by **Tropical Rain Forests** (evergreen).
- Agriculture and mining are two important Economic activities of people, as it is rich in several natural resources.
- **Kananga**: One of the largest producers of **Copper** and Industrial **Diamond** in world.
- **Likazi** (Jodotville): Famous for processing **Agriculture & Minerals**.
- **Lubumbashi** (Elizabethville) - Commercial and **industrial centre** of Democratic Republic of Congo, rich in mineral resources.
- **Matadi**: Chief **Riverine port** of Dem. Rep. Of Congo. On river Congo.
- **Kinshasa**: Largest city. Located on river Zaire.
- **Kishangani**: Imp Industrial city of Congo. On river Congo, near equator.

LAND OF PALM OIL – NIGERIA

- Nigeria is world's **largest exporter of Palm Kernels, Palm Oil and Groundnuts**. Second largest producer of Cocoa.
- Animal Rearing – Important in Northern grasslands.
- Tiber and Plywood are important exports.
- Country of lowlands and plateau.
- It is one of largest **mineral oil** producing countries of Africa.
- **Plateau of Jos**: Located in North. Many Industrial Centers located over it. 4 **hydel power** stations located here. Here woodlands gradually give place to **grasslands**.
- **Kano/ Kaduna**: Important Industrial Centers. Located on the plateau of Jos.
- **Lagos**: Largest city and **Industrial** Center of Nigeria. Located on Gulf of Guinea. Earlier the capital of Nigeria. **New Capital is Abuja**.
- **Ibadan**: Largest city of Nigeria. It has airport and railroad link and acts as centre of trade for the farming area.
- **Port Harcourt**: Principal Port city and Industrial Center of Nigeria. Located on Gulf of Guinea. On mouth of **River Niger**.
- **Niger River**– Country is named after it. It drains greater part of Nigeria before it falls into Gulf of Guinea. It rises in **Futa Jallon plateau** of Sierra Leon and Guinea. It flows through Guinea, Mali, Niger, Benin and Nigeria. River Benul is major tributary.
- **Kainji Dam** on River Niger.
- Rivers of North Eastern part of country flow into Lake Chad. Forming an Inland Drainage System.
- **Harmattan** – Hot and dust-laden winds often blow from the northeast during this season.

THE GIFT OF THE NILE – THE ARAB REPUBLIC OF EGYPT

- Egypt is a part of Great Sahara Desert. Large part of country is desert because of scanty rainfall.
- **River Nile**– Only river of Egypt. **Longest** River of the world. Source lies in **Lake Victoria (located in equatorial region)**. It is known as **White Nile** in Sudan with Bahr-el-Ghazal main tributary from left. **The Blue Nile and White Nile** meet at Khartoum in Sudan. It finally reaches **Mediterranean Sea**. Nile and Zaire **not used for shipping**.

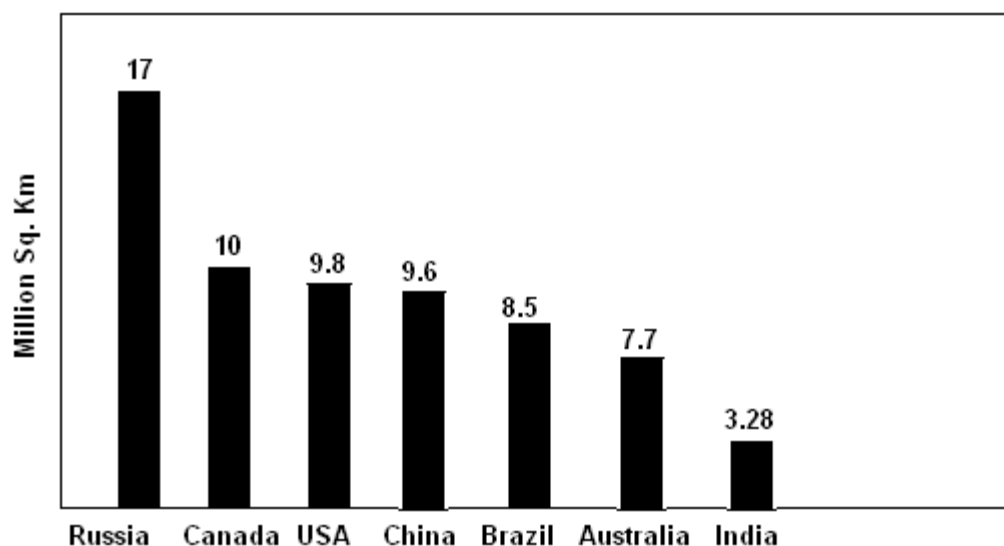
- **Mineral oil** is the most important wealth of Egypt, found in **SINAI** and along Red Sea.
- **Al Qanira** (Cairo) – Capital City. Largest city of Africa. On river Nile. Famous **Pyramids** and Sphinx located near it.
- **Alexandria**: Chief Sea Port and second largest city of Egypt. On the mouth of river **Nile**. Important cotton exporting port of Egypt.
- **El-Giza**: Important city of Egypt located on Nile. Famous pyramids and sphinx located here.
- **Port Said** - A port on Mediterranean Sea, at the entrance of **Suez Canal** in Egypt, important for export trade.
- **Cotton** is most important cash crop of Egypt. Needs fertile soil, high temp and abundant sunshine. (Rain, fog, dust and pests can damage it).
- **Dates** are important product grown especially in oasis.
- **Suez Canal** – In 1869, this canal was cut across Isthmus which separates Africa and Asia. It now links Mediterranean Sea with Red Sea, 173 km long. **Ferdinand Lessens** built Suez Canal.
- **Khamsin** – Hot, dry and sand laden winds blow from south during early summer i.e. April – May.
- **Fellah** – Egyptian Farmer.

FEW IMPORTANT CITIES OF AFRICA		
CITY	COUNTRY	REMARKS
Tripoli	Libya	Port Capital on Mediterranean Sea
Tunis	Tunisia	Port Capital on Mediterranean Sea
Algiers	Algeria	Largest city and Port Capital
Rabat	Morocco	Port Capital
Casablanca	Morocco	Largest city & Port. One of the largest artificial harbors in
Dakar	Senegal	Westernmost City of Africa
Banjul	Gambia	On River Gambia. Gambia is Smallest Country of Africa
Port Sudan	Sudan	Only seaport of Sudan
Dar-es-Salaam	Tanzania	Largest city
Abidjan	Ivory Coast	Major seaport and largest city

Sample from Indian Geography

PHYSIOGRAPHY OF INDIA

:: Covering an area of more than 32 Lakhs Sq. km, India is the 7th largest country in the world, with an area of approximately 32 lakh km².



- It has a land frontier of about 15,200 km. The total length of the coastline of the mainland and Islands (Lakshdweep and Andaman & Nicobar Islands) is 7,516 km.
- **Tropic of cancer** divides India in almost **2 equal parts**. The southern half coinciding with peninsular India lies in tropical zone, and the northern half, somewhat continental in nature, belongs to sub-tropical zone.
- Tropic of cancer passes through **8 states** of India (Gujarat, Rajasthan, M.P., Chhattisgarh, Jharkhand, W.B, Tripura and Mizoram)
- Countries having a common border with India are Afghanistan, Pakistan, China, Bhutan, Nepal, Myanmar, and Bangladesh. Sri Lanka is separated from India by a narrow channel of sea formed by the Palk Strait and the Gulf of Mannar. Total 7 countries have common border with India.

Longitudinal Extent (mainland)	8°4'N - 37°6' N	3,214 km
Latitudinal Extent (mainland)	68°7'E - 97°25' E	2,933 km
India lies entirely in the northern hemisphere.		
India belongs to Eastern Hemisphere as it is situated to the east of Prime Meridian. It occupies south central peninsula of the Asian continent.		
It has 2 time zones: 82°30' E forms standard Meridian		

- **Indira Point (N 6°45' E 93°49')** - Southernmost point of Indian Territory. Located on Great Nicobar. Indonesia lies few kilometers away from Indira Point. Great Channel separates India from Indonesia. Indira Point is also known as **Parsons Point** or **Pygmalion Point**

EXTREME POINTS OF India		
Northernmost	Dafdar in Taghdumbash Pamir near Beyik Pass in J&K	37°05'N 74°40'E
Southernmost	Indira point	6°45'N 93°49'E
Westernmost	West of Ghuar Mota, Gujarat 68°34'E	23.67N 68.52E
Easternmost	Kibithu, Arunachal Pradesh 96°30'E	28°01'N 97°24'E

- Order of countries sharing border with India (in **decreasing order of border length**) Bangladesh – China – Pakistan – Nepal – Myanmar – Bhutan – Afghanistan.
- Its total land frontier is 15200 kms.
- Maritime boundary – 6100 kms; it is 7516 km if we include Andaman and Nicobar and Lakshadweep.
- Kanyakumari – Southernmost point of Indian Mainland.
- Where the Himalayan mountains stand today, the region was under marine conditions about **60 crore years ago**. On the other hand, **Peninsula** dates back as far as **380 crore years**.
- With the opening of **Suez canal** (in year 1869), the distance of India and Europe has been reduced by **7000 Km**.
- Indian Subcontinent was originally part of Gondwana continent.

MAJOR PHYSIOGRAPHIC REGIONS

- **Three Major Structural components –**
 - (1) The Great Mountains of North.
 - (2) The Northern Plains Subdivisions:-
 - (a) Great Plains
 - (b) Thar Desert
 - (3) The great peninsular plateau – Having Subdivisions.
 - (a) Central Highlands
 - (b) Peninsular Plateaus
 - (c) Coastal Plains
- Islands of Andaman & Nicobar and Lakshadweep forms the fourth division of India
- **Area wise** these subdivisions can be arranged as – Peninsular Plateaus, Northern Mts., Great Plains, Central Highlands, Coastal Plains, Thar Desert and Islands.

GREAT MOUNTAIN WALL OF NORTH

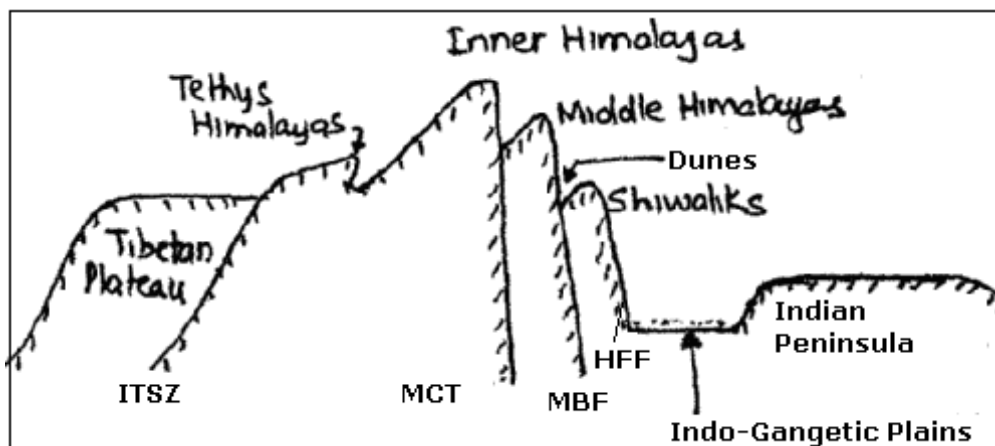
TRANS HIMALYAS

- From **Pamir Knot** (The **roof of the world**) run several mountain ranges. **Kunlun** run into Tibet, **Karakorum** enters Kashmir and runs S-E and includes the Plateau of **Aksai Chin**. It extends further east, known as **Kailas Range** in Tibet. **Pamir** is the connecting link between the Himalayas and the high ranges of Central Asia.
- Karakoram contains K₂ (**Godwin Austin**), second highest peak in the world. **Karakoram pass** is situated in Karakoram Range.
- **Baltoro** and **Siachin** are some of the glaciers in this area. **Length wise glaciers** of Karakoram are – Siachen (in Nubra valley), Hispar, Biafo and Baltoro.
- To the south of Karakoram lie two parallel ranges – **Ladakh** and **Zaskar**.
- Indus originates beside Kailash. Flows between Ladakh and Zaskar ranges from south-east to north-west. Indus forms **deepest gorge** of this region in **Gilgit**.

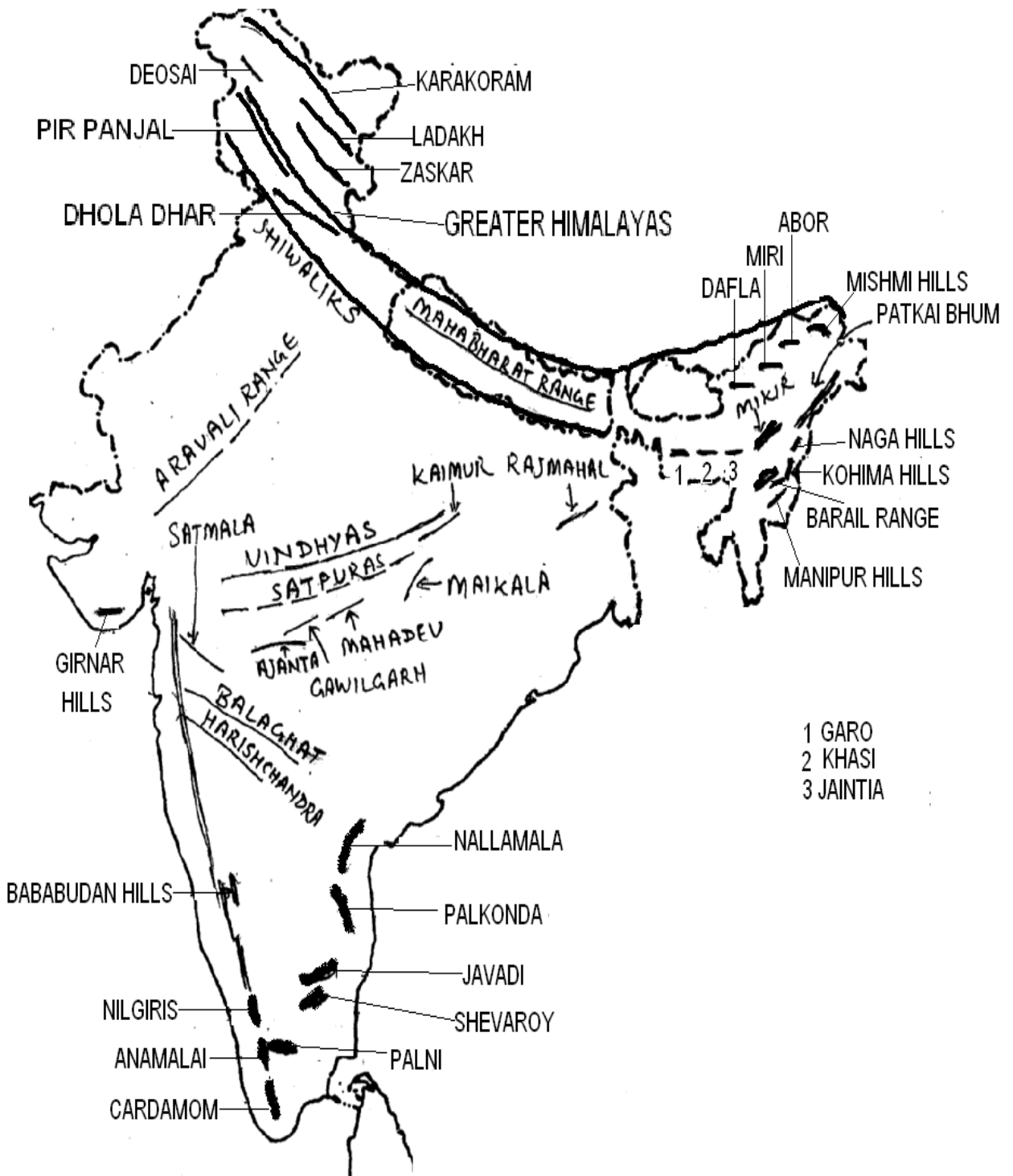
- **Nanga Parbat** overlooks Indus in the North.

THE HIMALYAS

- Himalayas emerged out of the Tethys Sea in **three different phases**. The first phase commenced about 120 million years ago, when the great Himalayas were formed. The formation was completed about 70 million years ago. The second phase took place about 25 to 30 million years ago when the Middle Himalayas were formed. The Shiwaliks were formed about 2- 20 million years ago.
- Himalayas run for a distance of **2500 km** (over 22° longitudes) between Indus and Brahmaputra. Width of Himalayas varies from **400 km** in the **west** to **150 km** in the **east**.
- Himalayas are wide in the west and narrow towards the east. The height of the eastern half is greater than the western half.
- **Wider in west because of many parallel and oblique ranges.**
- Himalayas in J&K and H.P. are called us **western Himalaya**. In Uttarakhand and Nepal are known as **central Himalayas** and in W.B., Sikkim, Bhutan and Arunachal Pradesh they are known as **Eastern Himalayas**.
- Mountains along the **eastern boundary** of India are called **Purvanchal**. These are less spectacular them Himalaya. They are of medium height and comprise the Patkai Bum, and Naga Hills in the north and Mizo hills in the south.



MAJOR MOUNTAIN RANGES OF INDIA



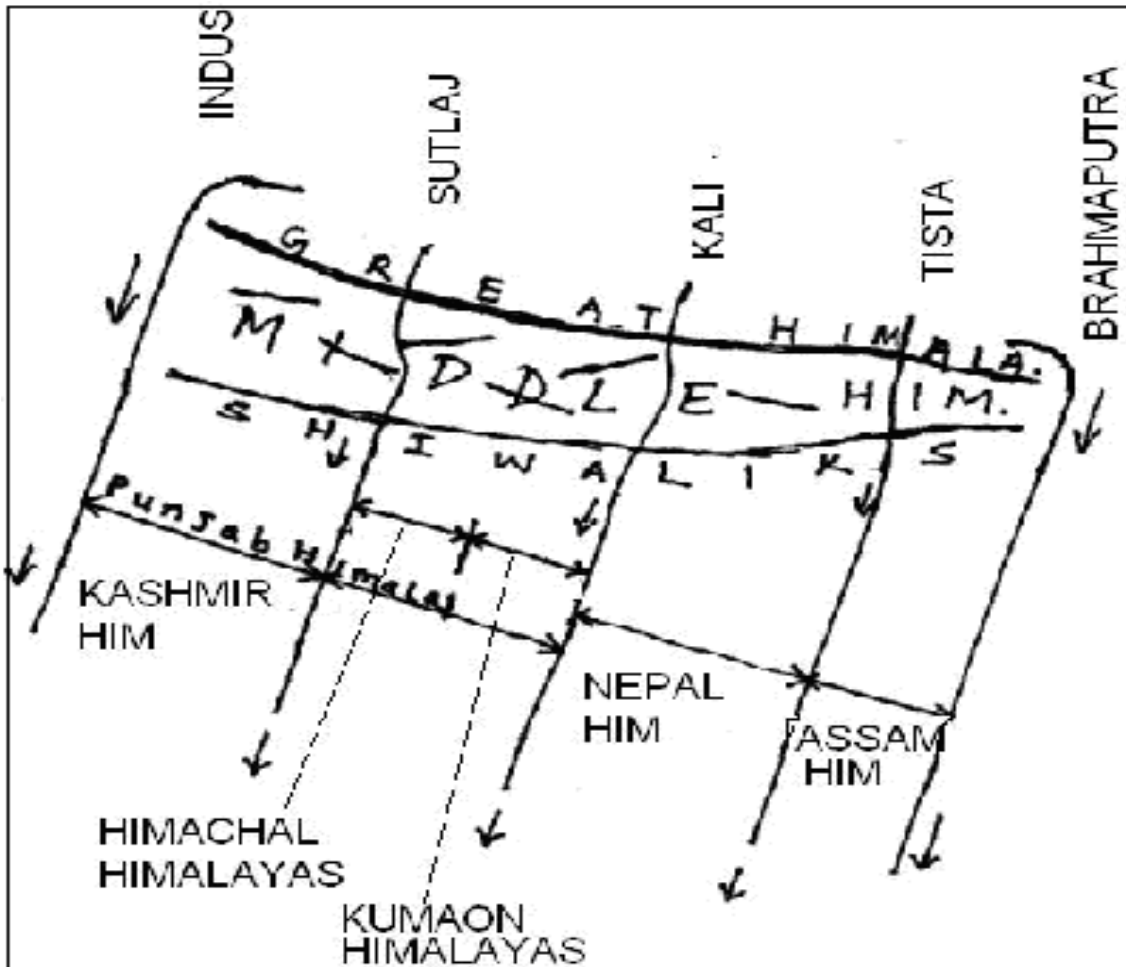
THE GREATER HIMALYAS

- Greater Himalayas or **Himadri** are the northern most and **loftiest** of all.
- **Mt. Everest** or **Sagarmatha** (8848 m) is the highest peak of the world, located in Nepal. Tibetans call it **Chomlungma**
- **Kanchanjunga** is the **second highest** peak of Himalaya and lies in Sikkim.
- **Namcha Bharwa** (located in China) is an important peak in east overlooking the **Brahmputra** where this range takes a sudden turn (like a hairpin) towards south to enter India.
- The area where Himalayas stand today together with the northern plains of India was occupied by a Sea, called '**Tethys**'.
- Tethys was elongated and shallow sea sandwiched between two giant masses 'the **Angaraland**' in the **north** and 'the **Gondwanaland**' in the **south**.
- Tethys stretched from the present **Indo-Burmese** border in the east and covered the vast area including western Asia, North eastern and central parts of Africa before it joined the South Atlantic Ocean in the **Gulf of Guinea**.
- As the Himalaya began to gain in height, the rivers and the other agents of denudation became increasingly active in eroding them, and carrying huge amounts of silt deposits in the shrinking Tethys. Thus Northern plains or **Indo-Gangetic** Plains formed.
- Himalayas are **not an effective water divide** as the rivers like Indus, Satluj and Brahmputra cut gorges through it in order to turn towards south.

MIDDLE/ LESSER HIMALYAS

- To the south of Great Himalayas, known as the **Himachal**. All the important **hill stations** such as Dalhousie, Dharamshala, Shimla, Mussoorie, Nainital – Darjelling.
- **Southernmost** ranges of Himalayas are called **Shivaliks** – made up of unconsolidated deposits of rivers are prone to **earthquakes** and **landslides**.
- **Shiwalik** result of deposition of **Indo-Brahm river (hypothetical)** sediments at foothills of Middle Himalayas.
- Himalayas have "**ridge-and-valley-topography**". The most outstanding valleys are the valley of Kashmir and the Karewas, the Kangra and Kulu valley in Himachal Pradesh; the Dun valley; the **Bhagirathi Valley** (near Gangotri) and the **Mandakini Valley** (near Kedarnath) in Uttarakhand and the Kathmandu Valley in Nepal.
- **Shiwaliks** is an almost unbroken succession of low hills except for a gap of 80-90 km which is occupied by the valley of the **Tista River**. The **Churia Ghat Hills** of Nepal also form parts of the Shiwalik Range.
- Ranges of the Middle Himalayas are as follows:-
 - Kashmir Section : Pir Panjal and Dhaola Dhar (Punjab Himalayas)
 - Himachal Section : Mussorie and NagTiba (Punjab Himalayas)
 - Nepal Section : Mahabharat Range (Nepal Himalayas)
 - Assam Section : Assam Himalayas
- **The arrangement of different ranges in Himalayas is classified according to the name of that region:**
 - a. Between Indus and Sutlej : Kashmir Himalayas
 - b. Between Sutlej and Kali : Himachal in west + Kumaon in East

- c. Between Kali and Tista : Nepal Himalayas
- d. Between Tista and Brahmaputra : Assam Himalayas
- e. Kashmir + Himachal Himalayas make Punjab Himalayas



NORTHERN PLAINS

- Length is about 3000 km from Indus to Brahmaputra; width varies from 150 km (Assam) to 400 km (Allahabad).
- It slopes south east, from Punjab towards W. Bengal.
- There are primarily **5 divisions of Plains:-**

PUNJAB PLAINS

- **Indus** and its tributaries make these plains, with **5 Doabs** (area between two rivers). Punjab derives its name from 5 river waters. These are (from south to north):-
 - **BIST:** Between Sutlaj & Beas
 - **BARI:** Between Beas & Ravi
 - **RACHNA:** Between Ravi & Chenab
 - **CHAJ:** Between Chenab & Jhelum
 - **SIND SAGAR:** Between Jhelum & Indus

- Placed from South to North, these rivers are: Sutlej, Beas, Ravi, Chenab, Jhelum and Indus
- Northern hilly region has enormous gullying, resulting into **badlands** called **Chos**
- Less than **one-third** of the Indus basin is located in India (J&K, H.P & Punjab)

HARYANA PLAINS

- Act as a **water divide** of Indian Plains (Ambala distt.). These separate the **Indus** system from the **Ganga** system. Drained by River Yamuna (tributary of Ganga).
- The **outcrops of Aravalli** in the southern part have broken the monotony of these plains. This region is called **Bhavani Bangar**

GANGA PLAINS

- Ganga after rising from Gangotri enters Northern plains at Haridwar, Yamuna joins it at Allahabad.
- Plains are dominated by the **confluence of cones** of the tributaries of Ganga.
- These consist of three sub-divisions, namely (from west to east): Rohailkhand Plains, Awadh Plains and Bihar Plains.

WEST BENGAL DELTA

- Delta formed by Ganga, Brahmaputra and Damodar.
- Largest and fastest growing delta of the world and it is also the most fertile delta.
- Important for Jute and Rice cultivation. Three crops of rice per year.
- The marshes here are important for Sundari trees (Sunderbans)

BRAHMAPUTRA PLAINS

- Lie in Assam, these plains are prone to floods, earthquakes and gullying

LATITUDINAL DIVISIONS OF NORTHERN PLAINS

BHABAR

- A **Narrow, Continuous** belt along the foothills of **Shivaliks**, from **Indus to Tista**
- Consists of degraded materials- **pebbles**. It's a **porous** zone.
- **Rivers are lost here** after emerging from Himalayas
- Consists of **alluvial cones** and inter-cones

TERAI

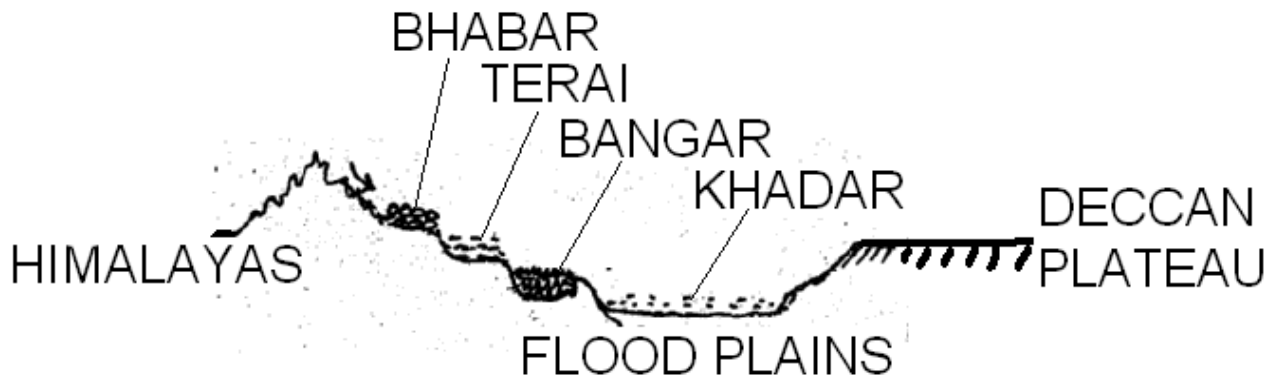
- Region (in **Uttar Pradesh**) where rivers **re-emerge** after being lost in Bhabar region
- Consists of **wetlands** and **marshes**. **Rice** cultivation practiced here
- Fertile soils, **only soil having nitrates in India**.
- In **Assam**, this region is called **Duars**, useful for **tea** cultivation

BHANGAR

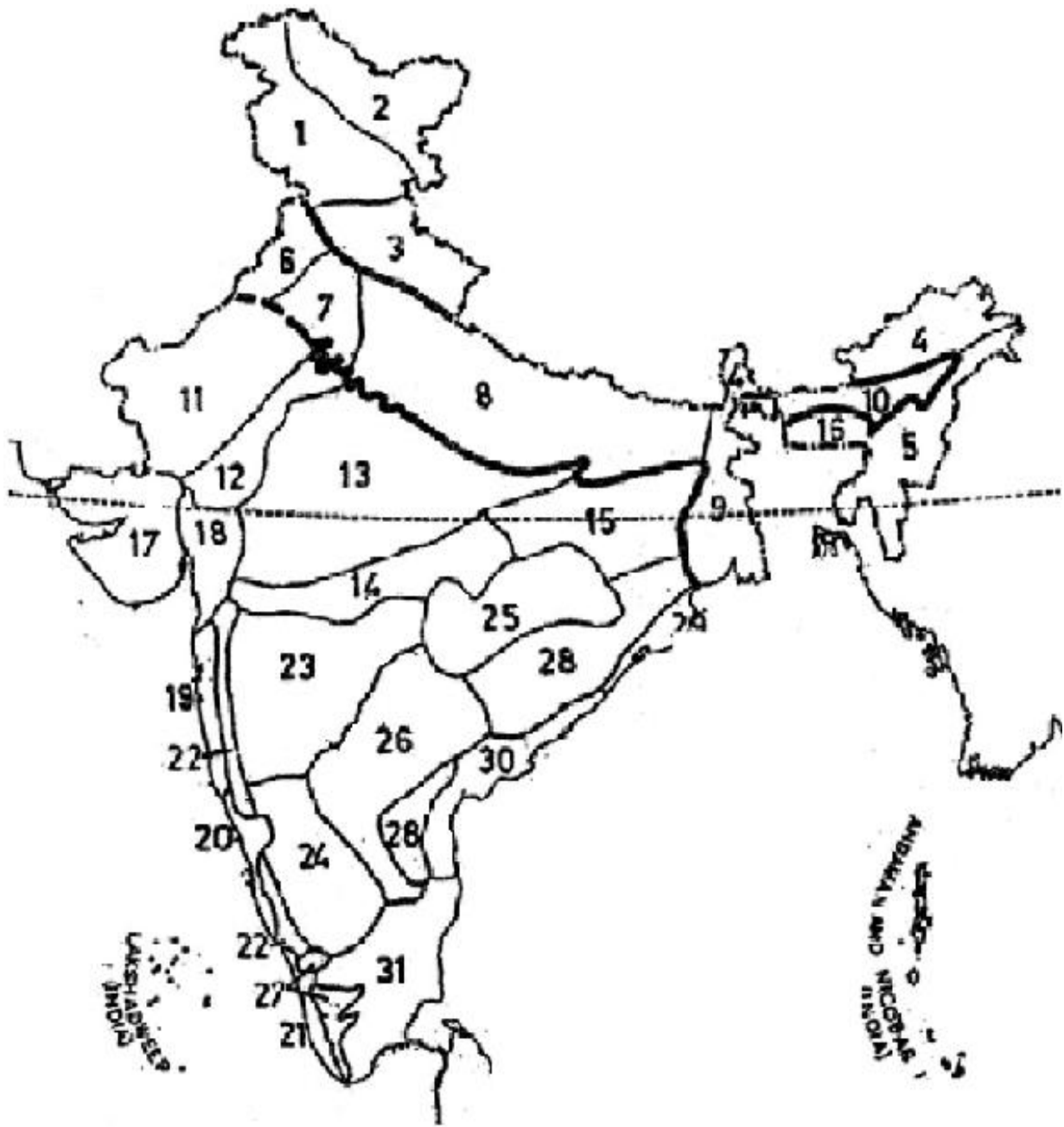
- **Alluvial Terraces** along the river floodplains; consists of **calcareous Kankars**.
- Known by **different names** in different regions
 - Barind : West Bengal
 - Bhur : Aeolian deposits in upper Ganga-Yamuna doab
 - Dhaiya : Punjab (highly gullied)
 - Dharos & Dhands : Indus (long & narrow)

KHADAR

- **New alluvium** in floodplains of rivers.
- **Highly fertile** soils consisting of **ox-bow lakes** and **meanders**



THE DETAILED DESCRIPTION OF PHYSIOGRAPHIC REGIONS OF INDIA IS AS FOLLOWS:

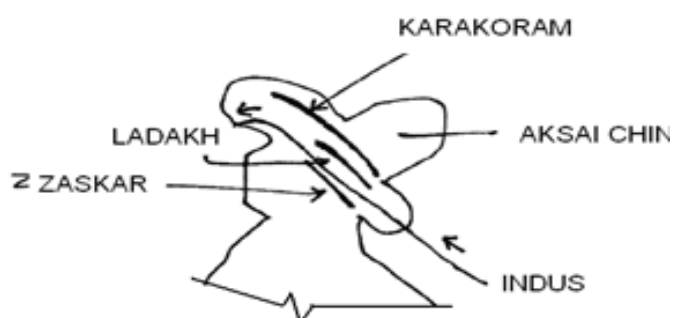


REGION 1: KASHMIR

- Relief : mountainous, rugged topography with parallel and oblique ranges interspersed by river valleys.
- Rivers : Jhelum, Chenab and Ravi. **Jhelum** cuts through **Pir Panjal** and makes **Baramula Pass**
- Lakes : **Wular (Ox-bow lake of R.Jhelum)**, Dal
- Ranges : Shiwalik, Dhaola Dhar and Pir Panjal of Middle Himalayas, and Inner Himalayas i.e. Great Himalayas.
- Peaks : **Nanga Parbat (8126 m)**
- Passes : Zozila, Banihal, Burzil, Bara Lacha La
- Vegetation : Alpine in north to **Montane sub Tropical** and Temperate in South
- Forested Area : J&K- 20% of total geographical area that falls within territory of India
- National Parks : Dachigam, Kishtwar, Salim Ali
- Tribes : **Gujjars & Bakarwals** – (They Experience **Transhumance**)
- Tourism Places : Amarnath, **Gulmarg (Ski resort)**, Srinagar
- HEPs : **Salal, Dul Hasti, Uri**
- Tilted beds of Lake Deposits called **KAREWAS** are found on the flanks of **Pir Panjal Range**

REGION 2: KARAKORAM, LADAKH AND BALTISTAN

- Result of Collision between Peninsula and Eurasian Plate. Outcome was **Trans-Himalayas Ranges** (Ladakh & Zaskar Range) and Karakoram Range. Karakoram uplifted before the rise of Himalayas.
- **Relief** : General Elevation is more than 5000m (Ladakh Plateau – 5300 m)
- Peaks : K2 (8611m), Godwin Austin, Gasherbrum
- Rivers : Indus basin (tributaries Shyok & Gilgit join from north, Zaskar from south)
- Lakes : Pangong, Salt Lake, **Tso Moriri**.
- Plains : Aksai Chin, Deosai, Baltistan
- Passes : Karakoram, Aghil
- Siachen : World's longest Glacier (72 km) and highest battlefield in the world Glacier
- Forest : Devoid of any forest (Cold desert)
- Single strategic road from **Srinagar to Leh** passes through **Zojila Pass**
- Most of it occupied as **CoK** (China occupied Kashmir) & **PoK** (Pakistan occupied Kashmir)



REGION 3: KUMAON & HIMACHAL

- Narrow Longitudinal Valleys called **DUNES** between **Shivaliks and Middle Himalayas**, for example Dehradun, Kothridun (Kumaon Himalayas), Patlidun (All in Uttranchal)
- Covers the states of Himachal Pradesh and Uttarakhand
- Highly Forested (HP-24%, Uttarakhand > 60%)
- **National Parks**: Valley of Flowers, Jim Corbett, Nanda Devi (All in Uttranchal); Great Himalayan & Pin Valley (in HP)
- **Tribes**: Gaddis (H.P.), Bhotias (Garhwal & Kumaon)
- Peaks: Nanda Devi, Kamet.
- Pilgrimage: Gangotari, Yamunotari, Badrinath, Kedarnath
- Tourism: Kullu, Manali, Shimla, Dehra Dun, Mussorie, Nainital
- HEPs: Naptha Jakri (Satluj in H.P.), Tehri (Bhagirathi in Uttarakhand), Thein (Ravi in H.P.)

REGION 4, 5, 16: EASTERN HIMALAYAS, PURVANCHAL, MEGHALAYA PLATEAU

- **Younger**, bolder and **steeper** than Western Himalayas with **abrupt rise**
- Protruding of hard peninsular rocks into Eurasian plate, therefore **syntaxial (knee like) bending**. Himalayas turn to **north-south direction** over here
- Distinction between parallel ranges is lost here, therefore **Narrower than Western Himalayas**
- Important Ranges/ hills:-
 - Dafla, Miri, Abor and Mishmi in E.Himalayas
 - Patkai Bum, Naga, Mizo, Barail, Rengma, Mikir in Purvanchal
 - Garo, Khasi, Jaintia in Meghalaya Plateau
- Peaks – **Kanchenjunga** (8598m), **Namcha Barwa** (7756m)
- Rivers: Dihang, Dibang, Lohit, Subansiri and Surma (All tributaries of Brahmaputra)
- Passes – **Diphu Pass** (**Tri-junction** of India, China and Myanmar), Bomdila, Nathula, Jelepla
- Lakes – Loktak (Manipur with floating island)
- HEP – **Loktak Lake HEP**
- Mynsynram receives more than 1000 cm rainfall annually.
- Highly Forested (Arunachal Pradesh > 94%)
- National Parks: Namdapha, Keibul Lamjao, Dampa, Nokrek.
- Agriculture: **Jhum** (Shifting) **Cultivation, Rice in Surma Valley**
- Population density of **Tripura** > 300 persons/ sq. km because deltaic plains of Bangladesh extend here.
- **Tribes** – Garo, Khasi & Jaintia (Meghalaya); Kuki (Manipur), Nagas, Lushai (Mizoram); Chakmas (Tripura), Abors (A.P.); Lepchas (Sikkim)
- Literacy – Low in Arunachal. High in Tripura and Mizoram

REGION 12 – ARAVALLI REGION/ HILLS

- **Fold mountain**- Highly dissected, denuded, a **Relic mountain**. Av. Elevation 800-900 m
- **Senile stage** of landform development. Older than Himalayas

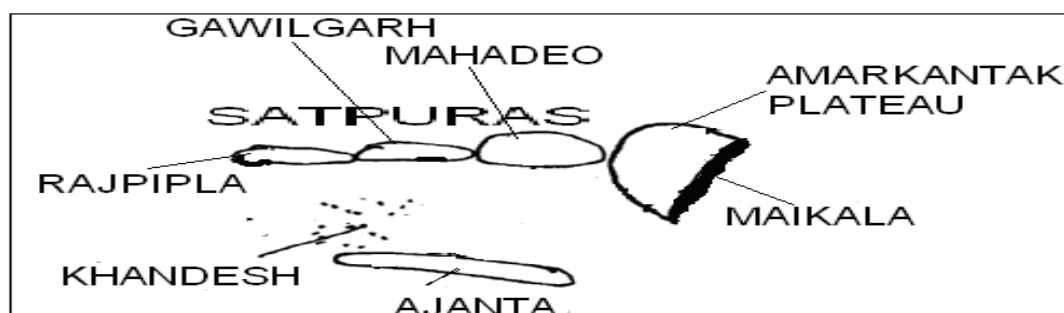
- **Broader in south** as compared to north.
- Elevation goes on decreasing from south to north, quite pronounced in Udaipur. **Gurusikar** (in south): highest peak near **Mt. Abu**.
- Extends from Delhi Ridge to Ahmedabad from N-E direction to S-W direction.
- North of Ajmer, divide into several parallel ranges separated by longitudinal valleys: Delhi ridge and Ambala ridge.
- Acts as **Gangetic water divide**.
- **Nakki Lake**: Mt. Abu – famous for tourism
- **Rivers**: Luni and its small tributaries flow westward, and Banas and its feeders flow eastward
- Aravallis are **parallel to SW monsoon** and fall in the zone of subsidence; therefore, scanty rainfall & low humidity. High seasonal variation in rainfall
- **Rain fall**: Southern side faces more rainfall (broader)
- **Vegetation**– southern side– moist and dry deciduous to dry deciduous and thorny in north. Western face fairly rainy and forested. North of Ajmer– devoid of forest cover

REGION 13: CENTRAL VINDHYAN UPLANDS

- Location: Aravallis in west, Vindhayan Range in south & plains in north.
- Vindhyan Range continues as **Bhander** and **Kaimur** hills in east. Forms watershed between Ganga system & Southern rivers
- **Malwa plateau** rolls down to north & finally merges with Gangetic Plains. Highly dissected by river valleys of Tributaries of Chambal: Sind, Betwa & Ken, therefore forming **Badlands**
- Majority of it lies in **M.P.**
- **Tribes**: Bhils, Kol, Gond

REGION 14: KHANDESH & SATPURA – MAIKALA RANGE

- Satpuras are **Fold Mountains**. Known by different names at different sections. From west to east, it names as **Rajpipla**, **Gawligarh** and **Mahadeo** Hills
- **Mahadeo** Hills forms the **highest portion**. **Dhupgarh** Peak (1350m) near **Panchmarhi** (hill station) in M.P. is highest peak of Satpuras. **Tapi** rises from here.
- Maikala Range/ **Amarkantak** Plateau: Wet Forested Region is the **source of many rivers** like Narmada, Son, Mahanadi, and Wainganga.
- **Rivers**:
 - Narmada & Tapi – west flowing
 - Son – biggest Tributary of Ganga from south
 - Wainganga – major tributary of Godavari
- Highly forested area with national parks: Pench, Kanha, and Satpura.



REGION 17, 18: KACHCHH & KATHIAWAR, GUJARAT PLAINS

- Mineral oil & Natural Gas – commercial production along western Gujarat plains. Kalol, Ankaleshwar, Gandhar are important ones

KACHCHH	KATHIAWAR	GUJARAT PLAINS
<p>Consists of Great Rann along north. Little Rann on coast & south east. Prone to earthquakes & floods</p> <p>Rivers: Luni & Banas</p> <p>Wild Ass Sanctuary</p>	<p>Central Tableland with Highest point: Mt. Girnar.</p> <p>Radial drainage pattern</p> <p>Gir National Park: Asiatic Lion (only place in the world for Asiatic lion)</p>	<p>Alluvial Plains</p> <p>Drained by Sabarmati, Mahi, Narmada & Tapi</p>

REGION 23, 24, 26: DECCAN LAVA PLATEAU INCLUDING KARNATAKA & TELENGANA- RAYALSEEMA PLATEAUS

- Extends from Vindhyas to the southern tip of Peninsula.
- It is triangular in shape and is widest in the north.
- Important Ranges** in the northern part are Satmala, Ajanta, Balaghat & Harishchandra.
- Western Ghats lies on the western side of plateau.
- Deccan Plateau is highest along its western edge and **gently slopes towards the Bay of Bengal** in the east.
- Towards its south lies the **Karnataka Plateau**. The **western** part of this plateau is called **Malnad** while the **eastern** is called **Maidan**. Western part is higher and more rugged.
- Baba Budan Hills** is an important Range along Karnataka Plateau.
- It lies in the **rain shadow zone** of Western Ghats, therefore, severely prone to droughts
- Important rivers of this region are – Krishna, Tungabhadra, Penneru and Cauvery
- Tank irrigation** is widely practiced here
- Towards the South-East lies the **Telengana-Rayalseema Plateau** which is a low plateau, highly dissected and denuded. River **Krishna divides** it into two parts- Telengana in north and Rayalseema in south.
- It is also a **drought** prone area, lying in the rain shadow of Karnataka Plateau.
- Twin cities of **Hyderabad** and Secundrabad lie in the **Telengana** region.

REGION 25: WAINGANGA AND MAHANADI BASINS

- Here lie the river valleys of Wainganga, Mahanadi and Indravati (a tributary of Godavari). **Chitrakoot Falls** lie on **Indravati**.

- It includes **Dandkarnaya** Plateau - Highly forested, denuded and undeveloped region (Bastar, Kalahandi and Koraput districts) of India.
- **Chattisgarh Plains** also lie here
- **National Parks:** Tadoba, Nawegaon, Indravati
- Important Mines: Dilli Rajhara, Bastar, Bailadila, Balaghat

REGION 28, 22 & 27: WESTERN & EASTERN GHATS & SOUTHERN HILL COMPLEX

WESTERN GHATS

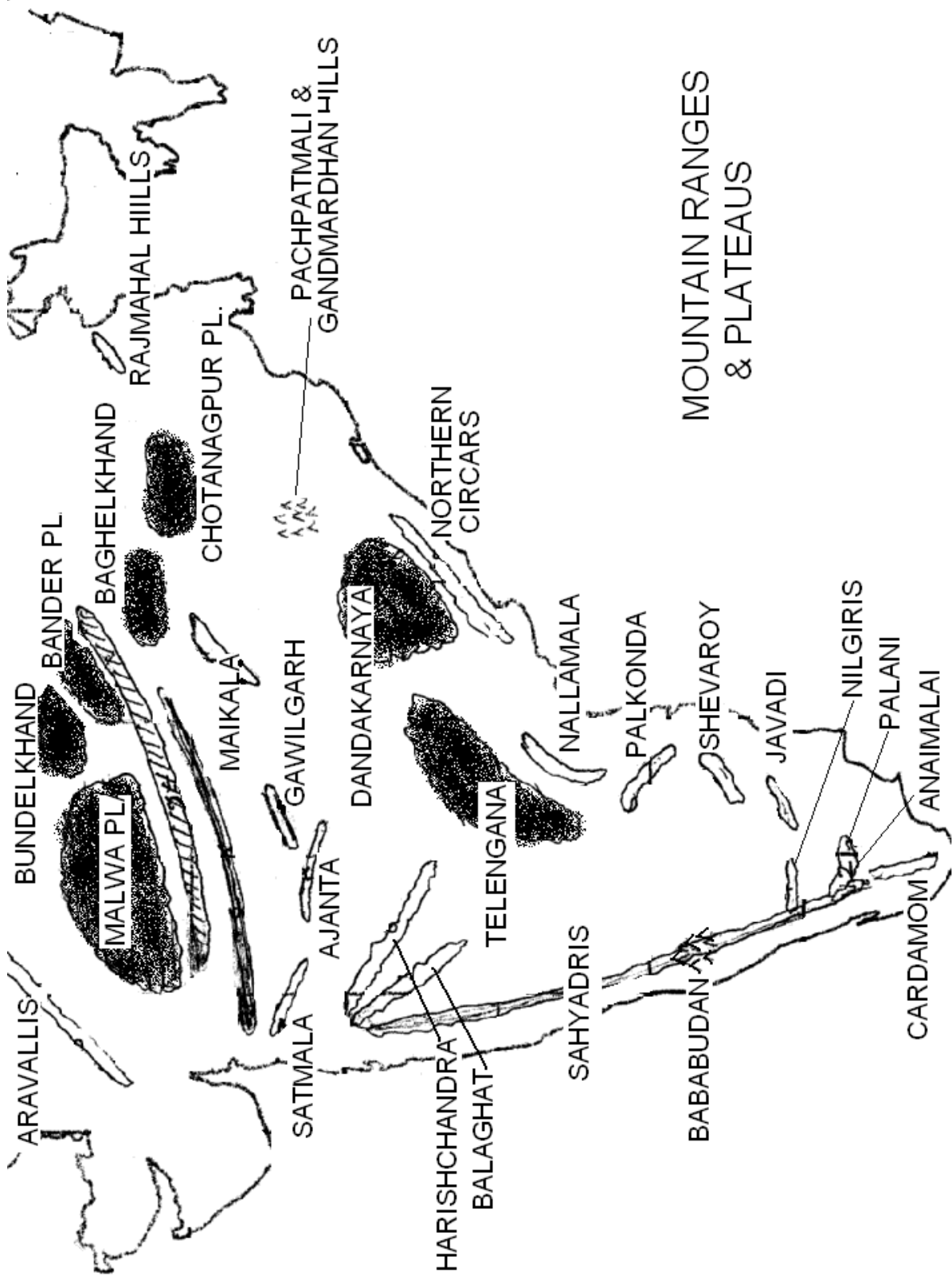
- Form a **continuous barrier** from north to south, almost parallel to the Arabian Sea. General altitude is **900-1100 m**. These are **higher** in their **southern part**
- Known as **Sahyadri** in **Maharashtra** and **Karnataka**, **Nilgiris** in **T.N.**, **Anaimalai** and **Palni-Cardamom** Hills in **Kerala** and **Tamil Nadu**.
- Collectively Nilgiris, Anaimalai Hills & Palni-Cardamom Hills form **Southern Hills Complex**.
- **Nilgiris** is the **meeting point** of Western Ghats, Eastern Ghats and Southern Hill Complex. **Doda Beta** (2637m) is the highest peak of Nilgiris. **Udagamandalam** (ooty) is a hill station located in Nilgiris (Tamil Nadu). Temperate forests called **Sholas** are found here.
- **Anai Mudi** (2,695m) is the highest peak of **Western Ghats**. It is located in **Anaimalai Hills** and falls in **Kerala**.
- Famous hill station of **Kodaikanal** (T.N) lies in **Palni Hills**. The source of Periyar River lies in **Cardamom** Hills. **Periyar Lake** is also situated here.

EASTERN GHATS

- Form a **discontinuous line** of hills parallel to E.Coast
- Known by different names at different places –
 - **Northern Circars** in north of Godavari
 - **Palkonda & Nallamala** between Godavari & Palar Rivers
 - **Shevaroy & Javadi** as T.N hills
- As opposed to Western Ghats, E. Ghats are **higher** in **northern** part. **Mahendra Giri** (1501m) is the highest peak of E.Ghats, lying in **Orissa**.

WESTERN GHATS	EASTERN GHATS
Higher average elevation than E. Ghats. Higher in Southern part	Higher in northern part
Source of many rivers. Act as a water divide	Not a source of any river
High rainfall (>200cm). higher in south	Less rainfall (<200cm). higher in north
Greater HEP potential. Many waterfalls	Lesser potential
Water falls in Western Ghats	Water falls in Eastern Ghats

PLATEAUS AND RANGES OF PENINSULAR INDIA



MOUNTAIN RANGES
& PLATEAUS

REGION 19, 20, 21, 29, 30 AND 31: COASTAL PLAINS

WEST COASTAL PLAIN

- Extend from Gujarat to Kerala.
- Known as **Konkan** in the north (Daman to Goa), **Kanara** in Karnataka and **Malabar** in the Kerala.
- Plains are **narrower in the north** (Goa & Karnataka) and **wider in south** (Kerala)
- **Jog Falls/ Gersoppa Falls** (on R. **Sharavati**) on **Karnataka** Coast are the **Highest** in India.
- In **Kerala**, coast has salt water lakes called **Lagoons** or **Backwaters** or **Kayals**. Important Lakes here are **Ashtamudi** and **Vembanad**
- Lowlands during rains merge together to form **Patlas**; are used for cultivation

EAST COASTAL PLAINS

- Coastal strip along Bay of Bengal is **broader** as compared to the western coast.
- Known as **Utkal Plains** (in **Orissa**); wide and deltaic (Mahanadi & Brahmani delta). **Chilka** lagoon is located here
- Andhra Plains: Deltaic (Godavari & Krishna delta) in middle. **Kolleru** lake lies here
- **Coromandal** Coast (**Tamil Nadu**) in south; Deltaic (Cauvery delta); **Pulicat** lake lies here

WESTERN COASTAL PLAINS	EASTERN COASTAL PLAINS
Formed by submergence of western side of Western Ghats. Retrograded coastline	Formed by alluvium brought by rivers like Mahanadi, Godavari, Krishna & Cauvery. Prograded coastline
Less in width due to subsidence. Continental Shelf is wide because of the same reason	Wider coast & narrower shelf due to emergence
Rivers are smaller, swift and more erosive. Form estuaries .	Rivers are longer, gradual and less erosive. Form deltas .
Rainfall: 200-400 cm (SW Monsoon)	Rainfall: 100-200 cm (SW & NE Monsoon)
Less prone to cyclones	More prone to cyclones
Not prone to floods except Narmada estuary because of swiftness and small lengths of rivers	Prone to floods because of gradual lengths, deltaic formations & long lengths of rivers
More contribution to marine food	Less contribution
Prospects of Wave Energy	Prospects of OTEC (Ocean Thermal Energy Conversion)
More no. of Natural Harbours	Lesser no.
Ports important for import purposes	Ports important for export purposes

REGION 32, 33: ISLAND GROUPS

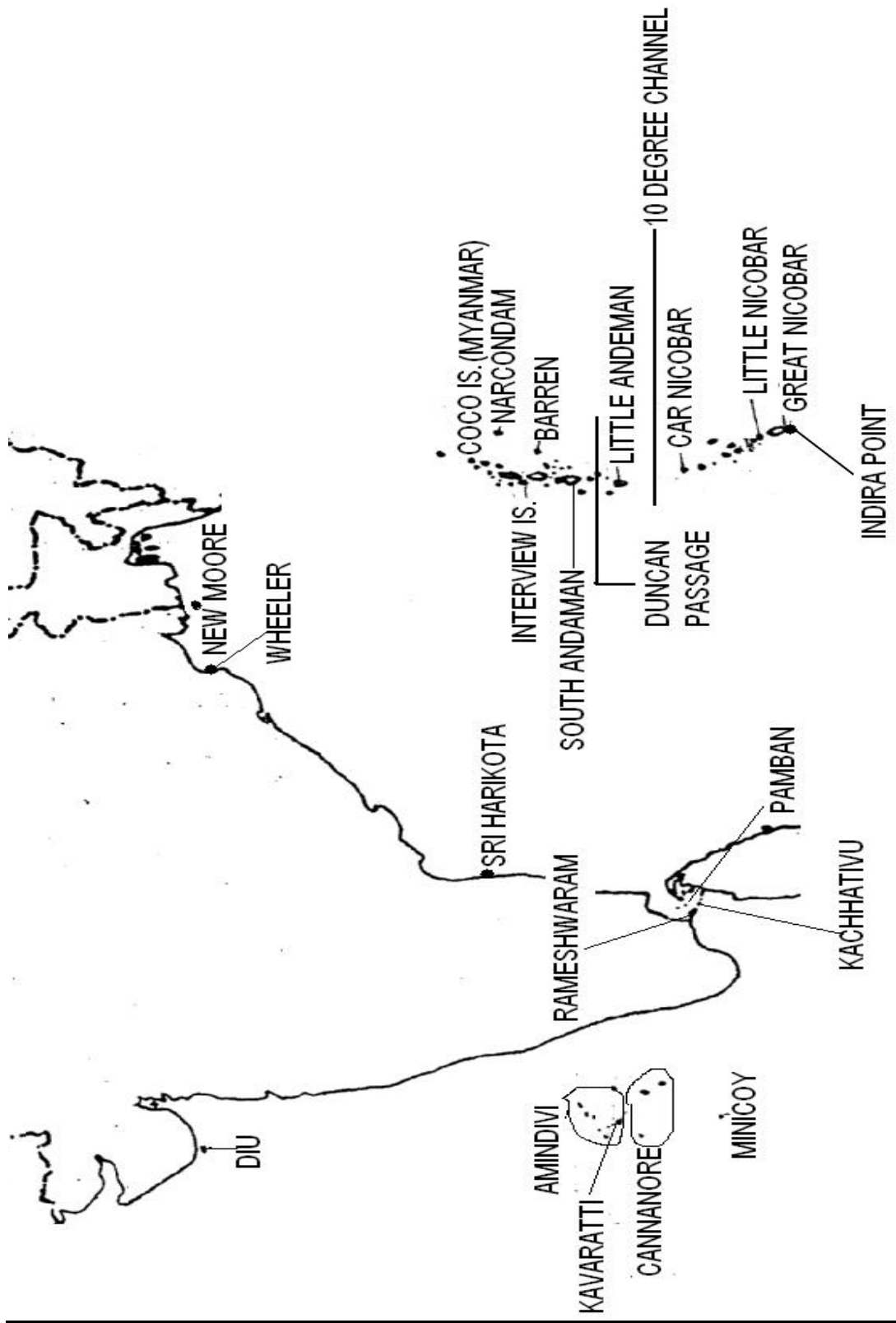
LAKSHADWEEP ISLANDS

- Extend from **8°N - 12°N**. Consists of 30 small islands, only 10 of which are populated.
- Population consists of **Moppilas (Muslims)** from **Kerala**
- **Coral** origin (made up by the organic activity of micro-organisms called coral **polyps**)
- Among Lakshadweep islands, some islands are **horse-shoe shaped** called **Atolls**.
- Lakshadweep Group consists of 2 sub-groups:
 - **Amandivi** Islands - North of 11° N Channel
 - **Cannanore** Islands - South of 11° N Channel
- **Minicoy** Islands lie to the extreme south

ANDAMAN AND NICOBAR ISLANDS

- Extend from **6° 39'N - 13° 34'N**
- Consist of two groups – Andaman Group (Great & Little Andaman) – 204 islands, and Nicobar Group (Car, Little and Great) – 19 islands
- Continent in origin. They are submerged parts of mountain range called **Arkan Yoma** (Myanmar).
- Some of them are of **volcanic** origin and only active volcano of India is located on these islands (**Barren** Island). **Narcondam** is the extinct volcanic island.
- 10° channel separates **Andaman** (Little) from Nicobar
- **Little Andaman** is separated from **Great Andaman** by **Duncan passage**
- Great Nicobar is the Largest Island in the group
- **Saddle Peak** in North Andaman – **highest** peak
- **Car Nicobar encircled by a Fringing Reef**
- Prone to **earthquakes** and **tsunamis**
- Main **Tribes** here are Great Andamanese, Onges, Senthesese, Jarawas and Shompens
- High potential for **wave power** & **OTEC**

INDIAN ISLANDS



Sample from Ecology/ Environment

BIODIVERSITY

Earth is the only planet, among the nine around the sun which supports life. Despite the vastness of earth, **life exists only in a very thin layer enveloping the earth** called **biosphere**. Sun is the only source of energy which enables continuous interaction among various life forms. The variety of life on Earth, its biological diversity is commonly referred to as **biodiversity**. The number of species of plants, animals, and microorganisms, the enormous diversity of genes in these species, the different ecosystems on the planet, such as deserts, rainforests and coral reefs are all part of a biologically diverse Earth.

Appropriate conservation and sustainable development strategies attempt to recognize this as being integral to any approach. Almost all cultures have in some way or form recognized the importance that nature, and its biological diversity has had upon them and the need to maintain it. Yet, power, greed and politics have affected the precarious balance.

The **United Nations** proclaimed **2010** to be the **International Year of Biodiversity**, and people all over the world are working to safeguard this irreplaceable natural wealth and reduce biodiversity loss.

WHY IS BIODIVERSITY IMPORTANT?

At least **40% of the world's economy** and **80% of the needs of the poor** are derived from biological resources. In addition, the richer the diversity of life, the greater the opportunity for medical discoveries, economic development, and adaptive responses to such new challenges as climate change. **Biodiversity boosts ecosystem productivity** where each species, no matter how small, all have an important role to play. For example,

- A larger number of plant species means a greater variety of crops
- Greater species diversity ensures natural sustainability for all life forms
- Healthy ecosystems can better withstand and recover from a variety of disasters.

And so, while we dominate this planet, we still need to preserve the diversity in wildlife. A healthy biodiversity provides a number of **natural services, resources and social benefits** for everyone:

- **Ecosystem services**, such as
 - Protection of water resources
 - Soils formation and protection
 - Nutrient storage and recycling
 - Pollution breakdown and absorption
 - Contribution to climate stability
 - Maintenance of ecosystems
 - Recovery from unpredictable events
- **Biological resources**, such as
 - Food
 - Medicinal resources and pharmaceutical drugs
 - Wood products
 - Ornamental plants
 - Breeding stocks, population reservoirs

- Future resources
- Diversity in genes, species and ecosystems
- **Social benefits**, such as
 - Research, education and monitoring
 - Recreation and tourism
 - Cultural values

:: It simply means that there is a no. of services that we get for free. The cost of replacing these (if possible) would be extremely expensive. It therefore makes **economic and development sense** to move towards sustainability.

:: **Genetic diversity** also helps to prevent the chances of extinction in the wild species. To prevent the well known and well documented problems of genetic defects caused by in-breeding, **species need a variety of genes to ensure successful survival**. Without this, the chances of extinction increases.

:: And as we start destroying, reducing and isolating habitats, the chances for interaction from species with a large gene pool decreases. While there might be "**survival of the fittest**" within a given species, each species depends on the services provided by other species to ensure survival. It is a type of cooperation based on mutual survival and is often what a "**balanced ecosystem**" refers to.

TYPES OF BIODIVERSITY

Biological diversity encompasses the variety of all life on earth. Biodiversity manifests itself at **3 levels**:

- 1 **Genetic diversity**: genetic diversity refers to genetic variation within species. A single species might show high diversity at the genetic level over its distributional range. The genetic variation shown by the medicinal plant **Rauwolfia vomitoria** growing in different Himalayan ranges might be in terms of the potency and concentration of the active chemical (reserpine) that the plant produces. India has more than 50,000 genetically different strains of rice, and 1,000 varieties of mango.
- 2 **Species diversity**: species diversity refers to the numbers and kinds of living organisms; for example, the Western Ghats have greater amphibian species diversity than the Eastern Ghats.
- 3 **Ecological diversity**: ecosystem diversity denotes the variety of habitats, biological communities and ecological processes. At the ecosystem level, India, for instance, with its deserts, rain forests, mangroves, coral reefs, wetlands, estuaries, and alpine meadows has greater ecosystem diversity than a Scandinavian country like Norway.

PATTERNS OF BIODIVERSITY

- **Latitudinal gradients**: The diversity of plants & animals is not uniform throughout the world but shows a rather uneven distribution. For many group of animals or plants, there are interesting patterns in diversity, the most well- known being the latitudinal gradient in diversity. In general, **species diversity decreases as we move away from the equator towards the poles**.
- **Species-Area relationships**: The relation between species richness and area for a wide variety of taxa (angiosperm plants, birds, bats, freshwater fishes) turns out to be a rectangular hyperbola.

BIOLOGICAL HOT-SPOTS

:: A **biodiversity hotspot** is a bio-geographic region with a **significant reservoir of biodiversity** that is **under threat from humans**. The concept of biodiversity hotspots was originated by Norman Myers in two articles in "The Environmentalist" (1988 & 1990), revised after thorough analysis by Myers and others in "Hotspots: Earth's Biologically Richest and Most Endangered Terrestrial Eco-regions".

:: To qualify as a biodiversity hotspot on Myers 2000 edition of the hotspot-map, a region must meet **two strict criteria**: it **must contain at least 0.5% or 1,500 species of vascular plants as endemics**, and it has to have **lost at least 70% of its primary vegetation**. Around the world, at least **25 areas qualify** under this definition, with nine others possible candidates. These sites support nearly **60%** of the world's plant, bird, mammal, reptile, and amphibian species, with a very high share of endemic species.

:: The **25 biodiversity hotspots** as indicated in **Myers** "Biodiversity hotspots for conservation priorities."

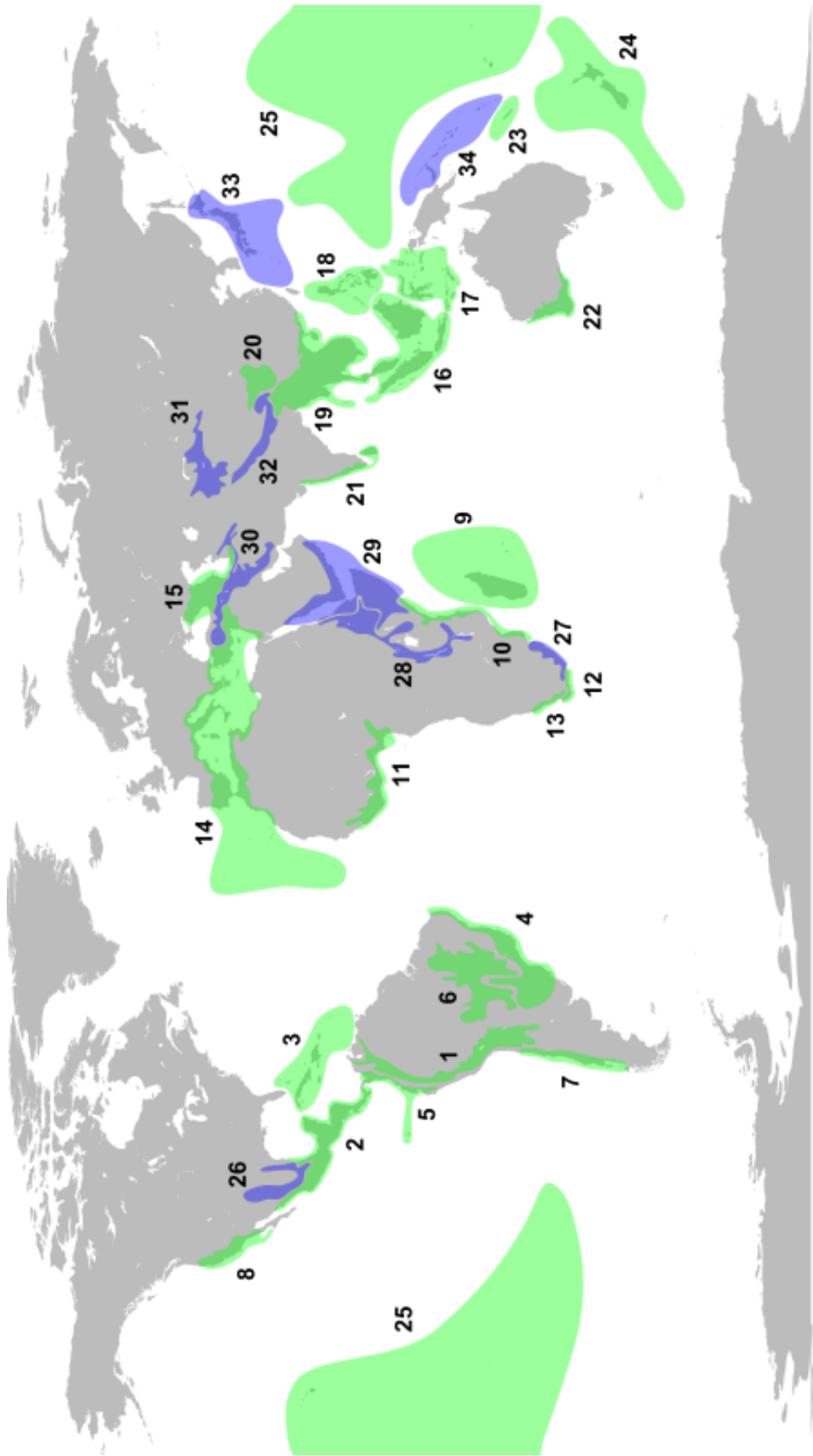
1. The Tropical Andes
2. Mesoamerica
3. The Caribbean Islands
4. The Atlantic Forest
5. Tumbes-Chocó-Magdalena
6. The Cerrado
7. Chilean Winter Rainfall-Valdivian Forests
8. The California Floristic Province
9. Madagascar and the Indian Ocean Islands
10. The Coastal Forests of Eastern Africa
11. The Guinean Forests of West Africa
12. The Cape Floristic Region
13. The Succulent Karoo
14. The Mediterranean Basin
15. The Caucasus
16. Sundaland
17. Wallacea
18. The Philippines
19. Indo-Burma
20. The Mountains of Southwest China
21. Western Ghats and Sri Lanka
22. Southwest Australia
23. New Caledonia
24. New Zealand
25. Polynesia and Micronesia

An additional 9 hotspots have since been added:

26. The Madrean Pine-Oak Woodlands
27. Maputaland-Pondoland-Albany
28. The Eastern Afromontane
29. The Horn of Africa
30. The Irano-Anatolian
31. The Mountains of Central Asia
32. Eastern Himalaya
33. Japan
34. East Melanesian Islands

:: **Only a small percentage of the total land area within biodiversity hotspots is now protected.** Several international organizations are working in many ways to conserve biodiversity hotspots.

- **Critical Ecosystem Partnership Fund (CEPF)** is a global program that provides funding and technical assistance to nongovernmental organizations and other private sector partners to protect biodiversity hotspots. CEPF has provided support to more than 1,000 civil society groups working locally to conserve hotspots in Africa, Asia, and Latin America.
- **Conservation International** applies innovations in science, economics, policy and community participation to protect the Earth's richest regions of plant and animal diversity including: biodiversity hotspots, high-biodiversity wilderness areas and important marine regions.
- **The World Wildlife Fund** has derived a system called the "Global 200 Eco-regions", the aim of which is to select priority Eco-regions for conservation within each of 14 terrestrial, 3 freshwater, and 4 marine habitat types. They are chosen for their species richness, endemism, taxonomic uniqueness, unusual ecological or evolutionary phenomena, and global rarity. All biodiversity hotspots contain at least one Global 200 Eco-region.
- **Birdlife International** has identified 218 "Endemic Bird Areas" (EBAs) each of which hold two or more bird species found nowhere else. Birdlife International has identified more than 11,000 Important Bird Areas all over the world.
- **Plant life International** coordinates several projects around the world aiming to identify Important Plant Areas.
- **Alliance for Zero Extinction** is an initiative of a large number of scientific organizations and conservation groups who co-operate to focus on the most threatened endemic species of the world. They have identified 595 sites, including a large number of Birdlife's Important Bird Areas.
- **The National Geographic Society** has prepared **A World map** of the hotspots and ArcView shapefile and metadata for the Biodiversity Hotspots including details of the individual endangered fauna in each hotspot, which is available from Conservation International.^[7]



BIODIVERSITY IN INDIA

Notwithstanding the fact that current knowledge of the number of species inhabiting the earth is still incomplete, estimates vary from **8 to 14 million species**. To date, about 1.7 million species have been described while many more await discovery. India is known for its rich heritage of biodiversity.

In biological diversity parlance, India is one of the **18 mega-diverse countries in the world**. It is home to 7.6% of all mammalian, 12.6% of all avian, 6.2% of all reptilian, 4.4% of all amphibian, 11.7% of all fish, and 6.0% of all flowering plant species.

India, a mega-diversity country with only 2.4% of the land area, accounts for 7-8% of the recorded species of the world spread over **45,500 species of plants** and **91,000 species of animals** that have been documented so far. India's **10 bio-geographic zones** possess an exemplary diversity of ecological habitats like alpine forests, grasslands, wetlands, coastal and marine ecosystems, and desert ecosystems.

At the global level, 2,78,900 **species of micro-organisms** have been described so far out of the estimated 3.75 million extant species. In India, **5,650 microbial species** have been described. A wide variety in physical features and climatic situations has resulted in a diversity of habitats and ecosystems such as forests, grasslands, mountains, wetlands, coastal and marine (mangroves and coral reefs) and deserts.

India's biodiversity includes wild relatives of **agricultural crops & domesticated animals**. The large mosaic of distinct agro-ecosystems has contributed to diverse cropping pattern and systems across the country. India has **16 major types** and 251 subtypes of **forests**.

India is also one of the **8 primary centers** of origin of cultivated plants and is an acknowledged centre of crop diversity, including about **375 closely related wild species** mainly of rice, and several important pulses, millets, vegetables, fruits and fibre plants. In addition, nearly **140 breeds** of domesticated animals (such as cattle, sheep, goat, camel, horse and poultry) are also found here. About 5,150 plant species and 1,837 animal species are endemic to India.

BIODIVERSITY CONSERVATION IN INDIA

India has **4 out of 34 global biodiversity hotspots**, which is an indicator of high degree of endemism (of species) in India. These include:

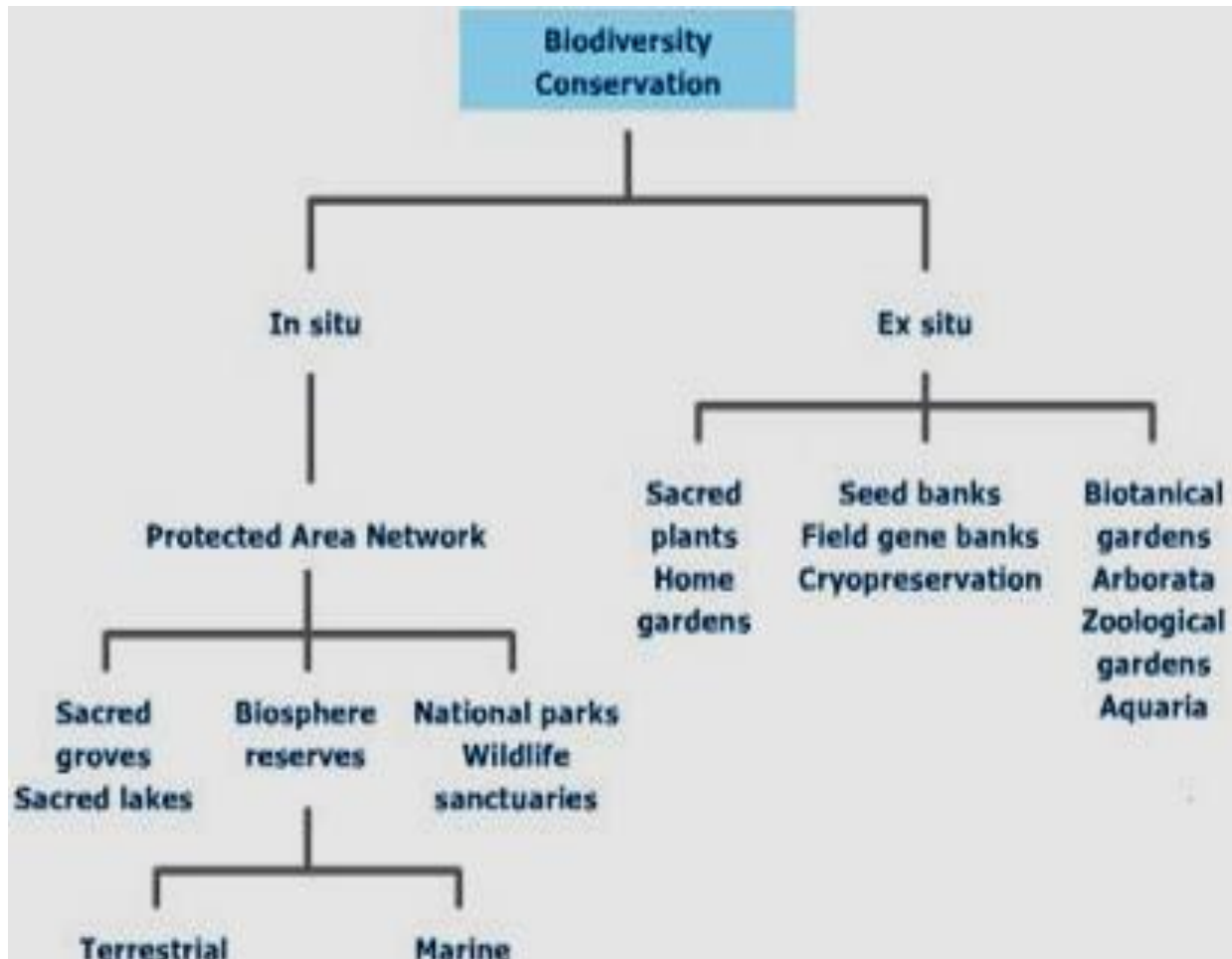
- **Western Ghats**
 - **Eastern Himalayas including Sikkim, North West Bengal, Arunachal Pradesh**
 - **Indo-Burma including Manipur, Nagaland etc.**
 - **Gulf of Mannar adjoining Sri Lanka**
- India also includes part of Northern Indian Ocean coral reef hotspot (Reef Guardian).

Wide-ranging policies, programmes and projects are in place, which directly or indirectly serve to protect, conserve and sustainably use the country's biological resources. These include the:

- Forest (Conservation) Act
- Wildlife (Protection) Act
- Biological Diversity Act
- National Green Tribunal Act
- National Biodiversity Action Plan
- National Forest Policy
- National Wildlife Action Plan

- National Forestry Action Programme
- National Environment Policy
- National Action Plan on Climate Change

The **biodiversity management system** for conserving biodiversity in India is shown in the chart given below:



There are two methods of biodiversity conservation, **in situ** and **ex situ**. The **former** envisages conservation **within the natural ecosystem** such as protected areas (wildlife sanctuaries, national parks, biosphere reserves, heritage sites, etc.), and the **latter** is a method of conservation **outside natural habitats** (botanical and zoological gardens, gene banks, seed banks etc). In case of domesticated or cultivated species, conservation means conservation in the surroundings where they have developed their distinctive properties.

In addition to this there are special projects envisaged by Government of India to protect threatened species such as **Project Tiger, Project Elephant, Project Rhino, Project Hangul**, etc.

India's strategy for conservation and sustainable utilization of biodiversity focuses on according **special status** and **protection to biodiversity rich areas** by declaring them as national parks, wildlife sanctuaries, biosphere reserves, and ecologically fragile and sensitive areas; diverting pressure on reserve forests by supporting alternative measures for meeting fuel wood and fodder needs of people; afforestation of degraded areas and wastelands; and creation of ex-situ conservation

facilities such as gene banks, within the overall ambit of a stable institutional framework.

Environment protection is also enshrined in the Constitution of India. **Article 48-A** and **Article 51-A (g)** of the Directive Principles of State Policy state that “the State shall endeavour to protect and improve the environment and to safeguard the forests and wildlife in the country”, and it is a duty of every citizen “to protect and improve the national environment including forests, lakes, rivers and wildlife, and to have compassion for living creatures”. Under the system of democratic decentralization (73rd Constitution amendment), local bodies have been entrusted with **responsibility of safeguarding the local environmental** capital stocks.

At the Central Government level, **MoEF** is the focal point for biodiversity conservation, as well as the nodal Ministry for all environment & forest related matters. Biodiversity being a **multi-disciplinary subject**, several other Ministries/ Departments and affiliated agencies at the central and state levels are also undertaking biodiversity related programmes. At the Central level, the Ministries/ Departments of Agriculture, Health, Water Resources, Rural Development, Power, Industry, New and Renewable Energy, Urban Development, Science and Technology, and others have important programmes relating to biodiversity.

Conservation programmes for species such as tiger and elephant, and species-specific sanctuaries for wild & domesticated biodiversity have been established so as to strengthen conservation efforts. Setting up of **zoos, botanical gardens, and captive breeding centers**, and also promoting genetic mapping, gene banking and research activities on ex situ/ in situ conservation, are other initiatives. Specific efforts for conservation include:

- Protected areas are the cornerstones of biodiversity conservation in India, and approximately **4.74%** of the total geographical area of the country is already under in-situ conservation of habitats and ecosystems.
- India has participated in all major international events on environment issues, since the **Stockholm Conference** on Human Environment and Development in **1972**.
- The country has contributed to and **ratified** several key multilateral agreements on environment issues, including the **Convention on Biological Diversity (CBD)**.
- Pursuant to the CBD, following a widespread consultative process, a '**National Policy and Macro level Action Strategy on Biodiversity**' was developed in **1999** to consolidate & augment existing strategies & programmes relating to biodiversity.
- India has also enacted the **Biological Diversity Act, 2002**, which was developed through an extensive and intensive consultation process initiated in **1994**. India is one of the few countries to have enacted such legislation. This Act primarily aims at giving effect to the provisions of the Convention, including regulating access to biological resources and associated traditional knowledge so as to ensure equitable sharing of benefits arising out of their use, in accordance with the provisions of **Article 15 of the CBD**.
- The Government has also promulgated the **Biological Diversity Rules in 2004**.
- The **National Environment Policy (NEP) 2006** seeks to achieve balance and harmony between conservation & development. The policy is intended to mainstream environmental concerns in all development activities. The dominant theme of this policy is that while conservation of environmental resources is necessary to secure livelihoods and well-being of all, the most secure basis for conservation is to ensure that people dependent on particular resources obtain better livelihoods from the fact of conservation, than from degradation of resources.
- The principal aim of the **National Forest Policy, 1988** is to ensure environmental stability and maintenance of ecological balance including atmospheric equilibrium

which is vital for sustenance of all life forms, human, animal and plant. The derivation of direct economic benefit must be subordinated to this principal aim.

- The **national goal** is to have a minimum of **1/3rd** of the total land area of the country under **forest** or tree cover. In the hills and in mountainous regions, the aim is to maintain **2/3rd** of the area under such cover in order to prevent erosion and land degradation and to ensure the stability of the fragile ecosystem.
- A major concern now is to formulate and implement a **National Biodiversity Action Plan (NBAP)** taking in view the prevailing threats to biodiversity as well as challenges to the ongoing conservation efforts. Preparation of NBAP is also in pursuance of Article 6 (a) of the CBD, as well as Sections 36 (1) and (3) of the Biological Diversity Act, 2002. The process of preparing the NBAP for India was carried out by **Ministry of Environment & Forests** involving wide consultations and planning with various stakeholders across the country, including an **externally aided project on 'National Biodiversity Strategy and Action Plan' (NBSAP)**.
- NBSAP proposes to design actions based on the assessment of current and future needs of conservation and sustainable utilization, and of physical and fiscal instruments, with particular reference to implications and impact of such instruments on short and long term basis.
- Sustainable use of our biodiversity has both ecological and economic value. It is with this objective that India has enacted **Biological Diversity Act, 2002** and set up a **National Biodiversity Authority (NBA)** in 2003 with an explicit mandate of promoting conservation of biological resources and associated knowledge as well as facilitating access to them in a sustainable manner.
- **Scheduled Tribes & Other Traditional Forest Dwellers (Recognition of Forest Rights) Act**, enacted in 2006, is a tool to provide occupational & habitational rights to the people, thus, incentivizing conservation & sustainable use of biological resources by providing access to livelihood enhancing resources to people.
- **National Biotechnology Development Strategy, 2007** calls for promotion of mass use of technologies for sustainable utilisation of bio-resources.
- **National Biodiversity Action Plan of 2008** developed in consultation with various stakeholders and by taking cognizance of legislative and policy framework is a dynamic matrix for mainstreaming biodiversity concerns in the country. India proudly upholds the tradition of nature conservation.
- India has a **National Wildlife Action Plan**, which envisages 10% of the geographical area of the country under protected area coverage.
- **Under the Man and Biosphere (MAB) Programme**, out of **16 biospheres in India** (70,000 sq. km.), 7 are already in UNESCO World Network of Biosphere Reserves (World total 503).
- India has a **National Wetland Conservation Programme** covering 125 wetlands including 25 Ramsar sites under the Ramsar Convention.
- India accounts for about 5% of the world's **mangroves** (including Sunderbans delta the largest mangrove forest in the world) and partners with IUCN's **Mangroves for Future programme**. India has established a **National Institute** of the Mangrove Research at Kolkata. **Coral reefs** in India occupy an extent of 2375 sq. km. (including the Andaman Islands, which have rich coral diversity and a National Coral Reef Research Centre at Port Blair).
- India has a **National Lake Conservation Plan** covering 42 lakes, which aims at rejuvenation in terms of improvement on water quality and biodiversity. India also has a **National River Conservation Plan** under implementation in 160 cities

covering 34 rivers. **NGRBA** (National Ganga River Basin Authority) is responsible for conserving and sustainable use of the biodiversity of the river Ganges.

- Several species specific projects are being implemented for flagship animal species such as Tiger (National Animal), **Elephant (National Heritage Animal)**, Rhinoceros, Gharial, Hangul and snow leopard, birds such as Vulture, Great Indian Bustard, and plants such as Orchids, Rhododendron and citrus.
- India has large number of **scientific personnel** and important network of **scientific institutions** in public, private & NGOs sectors. Important organisations include Botanical Survey of India, Zoological Survey of India, Wildlife Institutes, Fishery Survey of India, Forest Survey of India, ICFRE, ICAR, CSIR, DBT, DST, DRDO etc. **National Bureaus** on plants, animals, fish, insects, microbes and forest genetic resources are specifically mandated for management of genetic resources.
- India has put in place a number of initiatives for promoting conservation of biodiversity, such as, provision of **National gene fund, National biodiversity fund**, awards etc. **All India Coordinated Project on Taxonomy** and network projects on honeybee and pollinators and ornithology are also in place for capacity building and research.
- Pressure from habitat loss and degradation has been reduced by the **system of environment clearances** based on Environmental Impact Assessment (EIA), Coastal Regulation Zone (CRZ), National Afforestation and Eco-development Board (NAEB), National Action Programme to Combat Desertification and Green India Mission.

Sample from India Year Book

ENVIRONMENT

- National Conservation Strategy and Policy Statement of Environment & Development, 1992, National Forest Policy, 1988, Policy Statement on Abatement of Pollution 1992 and National Environment Policy 2006 have been evolved in field of environment.
- **Botanical Survey of India (BSI)** was set up in **1890**, at **Kolkata**. **Deccan circle** of BSI was opened in Hyderabad in 2005.
- **Zoological Survey of India (ZSI)**, a premier institute under the Ministry for survey of rich faunal diversity of India, was established in **1916**, at **Kolkata**.
- **Tibetan Wild Ass** (Kiang) and **Himalayan Marmot** are found in Ladakh, **Snow Trout** in Himachal Pradesh and **Himalayan Salamander** in West Bengal.

FOREST SURVEY OF INDIA (FSI)

- In **1981**, at **Dehradun** is a premier national organisation for forest resource assessment. It has regional offices at Shimla, Kolkata, Nagpur & Bengaluru.
- **Attached office** of the Ministry of Environment & Forest
- Engaged in generating information and database on forest cover and forest resources in the country besides providing training, research and extension.
- Present mandate of FSI is to prepare a comprehensive **State of Forest Report (SFR)** including **National Vegetation Map (NVM)** once in every two years.
- According to State Forest Report 2005, **total forest cover in the country** is 677.088 Km² constituting about 20.60% of total geographic area of the country. If the area above altitude of 4000 m (where climatic conditions limit tree growth) is excluded, total forest cover comes out to be 21.81% of total geographic area.

Total forest cover in the country 677.088 Km ² (20.60% of total geographic area)
Moderately Dense (10.12%) > Open Forest (8.82%) > Very Dense (1.66%) > Scrub (1.17%)
Mangrove cover in the country occupies 0.14% of the geographic area of which the very dense mangroves comprises (26% of mangrove cover)
Area-wise Maharashtra (9,466 km ²) > Gujarat > Rajasthan > Uttar Pradesh
% wise (of geographic area of State) Nagaland (82%) > Arunachal Pradesh > A & N Islands

- A study on forest cover in 28 Tiger Reserves of India has revealed that there was an **increase in forest cover in five Tiger Reserves**, a decrease in eleven and no change in 12 Reserves with overall slight decrease in forest cover.
- As per the study, the **major loss in forest cover** occurred in Nomeri, Buxa, Manas, Indravati and Dampa Tiger Reserves due to socio-economic reasons & natural disasters.
- A **Sustainable Forest Management Cell** created in the Survey and Utilization Division in the Ministry, in pursuance to the recommendation of the **National Task Force on Sustainable Forest Management**.
- India is a **producer-member of the International Tropical Timber Organization (ITTO)** which was established by the International Tropical timber Agreement (ITTA), 1983. At present there are 59 Members countries in ITTO, out of which 33 are Producer-Member countries and India is actively participating in adoption of new agreement, International Tropical Timber Agreement (ITTA), 2006.
- **National 'Multi-Disciplinary Team'** has been constituted to combat the smuggling of **Red-Sanders** under Chairmanship of Director General of Revenue Intelligence.

BIOSPHERE RESERVES

- These are the areas to terrestrial and coastal ecosystem which are internationally recognized within the frame work of **UNESCO's Man and Biosphere programme**.
- The **goal** is to facilitate **conservation of representative landscapes** and their immense biological diversity and cultural heritage, foster economic and human development which is culturally and ecologically sustainable and to provide support for research, monitoring, education and information exchange.
- While the **core areas of Biosphere Reserves** will continue to be the **Wildlife (Protection) Act, 1972, Indian Forest Act, 1927** and **Forest Conservation Act, 1980**, a separate Regulation within the framework of existing **Environment (Protection) Act, 1986** is being firmed up to regulate activities within Buffer Zone of the Biosphere Reserves.
- **16** Biosphere Reserves have been set up namely Nilgiri, Nanda Devi, Nokrek, Great Nicobar, Gulf of Mannar, Manas (Assam), Sunderbans, Simlipal (Orissa), Dibru Daikhowa, Dehong-Deband, Pachmarhi (MP), Kanchanjanga (Sikkim), Augasthyamalai and Achanakmar-Amarkantak. **Kachchh Biosphere Reserve (Gujarat) was designated as the 15th one in January 2008.**
- 7 of these Reserves namely Sunderbans (West Bengal), Nanda Devi (Uttarakhand), Pachmarhi, Simlipal and Nokrek (Meghalaya) have been included in the **World Network of Biosphere Reserves** so for.

WETLANDS

- Wetlands are lands **transitional between terrestrial and aquatic system** where water table is usually or near the water surface & land is covered by shallow water.
- **Ramsar Convention** sets criteria for identification of wetlands. A Programme on conservation of Wetlands was initiated in **1987**. So far **103** have been identified. **25** sites have been identified as Ramsar sites in India.
- Ramsar convention defines wetlands as areas of marsh or fen, peat land or water whether artificial or natural, permanent or temporary with the water that is static or flowing a fresh brackish or salt including areas of marine water the **depth of which at low tide does not exceed 6 meters**.
- Mangroves, Corals, Estuaries, Bays, Creeks, Flood Plains, Sea grasses, Lakes etc. are covered under this definition
- **Identification criterion:-**
 - When an area is permanently or periodically inundated.
 - When an area supports hydrophytic vegetation.
 - When an area has hydric soils that are saturated or flooded to become anaerobic.

MANGROVES

- These are those that survive high salinity, **tidal extremes**, strong wind velocity, high temperature and muddy anaerobic soil-a combination of conditions hostile for other plants.
- Mangroves not only protect the coastal communities from the fury of cyclones and coastal storms, but also promote sustainable fishers and prevent sea erosion.
- Mangrove Conservation **Programme in 1987**. So far identified 38 mangrove areas for intensive conservation and management. These mangrove areas are identified on the recommendation of **National Committee on Mangroves and Coral Reefs**.
- **National Mangrove Genetic Resources Centre** is located at **Orissa**.
- **Two mangrove species** are endemic to India; one is **Rhizophora annamalayana** occurring in Pichavaram, Tamil Nadu and **Heritiera kanikensis** that exists only in Bhitarkanika of Orissa.
- **Coastal Regulation Zone notification 1991** under the **Environmental Protection Act, 1986** recognizes the mangrove and coral reef areas as ecologically

sensitive, and categorizes them as CRZ-I implying that these areas are afforded protection of the highest order.

- The **National Environment policy, 2006** recognizes the mangroves and coral reef as important coastal environmental resources.
- Mangrove in India account for about **5% of World's mangrove vegetation** and are spread over on area of about 4,639 KM² along the coastal states/ UTs of the country.
- **Sunderbans in West Bengal** account for nearly half of the country's mangroves.
- Government has identified **28 mangrove areas** and **4 coral reefs areas** on a country – wide basis for intensive conservation and management.
- There has been an increase of 58 sq km in mangrove cover mainly because of the plantations and protection measures in the states of Gujarat, Orissa, Tamil Nadu, and West Bengal. Decrease in mangrove cover in Andamans & Nicobar Islands is attributed to after effects tsunami.

CORAL REEFS

- Coral reefs are shallow-water tropical **marine ecosystems**, characterized by high biomass production and rich floral and faunal diversity.
- **Fringing reefs** are found in Gulf of Mannar and Palk Bay as well as A&N Islands.
- **Platform reefs** are along Gulf of Kachchh
- **Atoll reefs** mainly along Lakshadweep Archipelago.
- **Four coral reefs**, namely, Gulf of Mannar, A&N Islands, Lakshadweep Islands and Gulf of Kachchh have been identified for **intensive conservation and management**.
- **Gulf of Mannar coral reef** area in Tamil Nadu has been included in the world list of biosphere reserves of UNESCO.
- The Indian reef area is estimated to be 2,375 sq. km.
- **National Coral Reef Research Center** is located at **Port Blair** in the Andaman & Nicobar Islands.
- Year 2008- International Year of Coral Reefs

BIODIVERSITY

- India is **one of the 17 mega diverse countries** which together possess 60 to 70% of the world's biodiversity.
- Convention on Biological Diversity (CBD) adopted during Rio Earth Summit in 1992, is the **1st comprehensive global agreement** addressing all aspects of biodiversity.
- CBD has near **universal membership** with 190 countries as its partners.
- India ratified the International Convention on Biodiversity (**CBD**) in **1994**.
- CBD is an international legal instrument for promoting conservation and sustainable use of biological diversity taking into account the need to share cost and benefit between developed and developing countries and the ways and means to support innovation by local people.
- The eighth meeting of Conference of the Parties (**CoP**) to the CBD was held in Curitiba, Brazil in **2006**. India has prepared the Third National Report to the Convention of Biological diversity.
- **National Biodiversity Authority** set up at **Chennai** in **2003** under Biological Diversity Act 2002.
- **17 Like Minded Mega-diverse Countries** (LMMC) have formed a group which holds nearly 70% of the global biodiversity and is duly recognized as a negotiating block in the UN and other international fora.
- **Cartagena Protocol on Bio-safety**, 2000 is the **first international regulatory framework** for safe transfer, handling and use of Living Modified Organism (LMOs) negotiated under aegis of Convention on Biological Diversity. India acceded in 2003.
- **Indian Biosafety Clearing House (INDBCH)** has been established to facilitate the exchange of information of LMOs.

- The Ministry is currently implementing a **CEE –World Bank Capacity Building** project on Biodiversity to assist India to fully implement the obligations under the **Cartagena Protocol**.
- **Genetic Engineering Approval Committee** the **apex body** was notified under Rules for the manufacture use import export and storage of Hazardous Microorganisms/ Genetical, Environmental Organisms or Cell Rules 1989 for regulation of genetically modified organisms in India.
- The GEAC has **approved 73 Bt cotton hybrids** expressing Cry1 Ac gene and stacked genes Cry1 Ac & Cry2 Ab, for commercial release in 9 cotton growing states viz. Andhra Pradesh Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra Punjab, Rajasthan and Tamil Nadu during Kharif 2006.
- **Task Force on Recombinant Pharma under Dr. R. A. Maheshkar** was set up with a view to streamline the regulatory mechanism for r-pharma products.

FOREST POLICY AND LAW

- India is one of the few countries to have a **forest policy since 1894**. It was revised in **1952** and **1988**.
- Ministry of Environment and Forests has constituted the **National Forest Commission in 2003** to review the working of Forests and Wildlife Sector.
- **National Forestry Action Programme (NFAP)** has also been formulated as a comprehensive strategic long-term plan for the next **20 years**. Objective of NFAP is to bring **one-third of the area of the country** under tree/forest cover and to arrest deforestation.
- Under the provisions of the **Forest (Conservation) Act, 1980**, prior approval of the Central Government is required for diversion of forest lands for non-forest purposes.
- **Integrated Forest Protection Scheme (IFPS) was** formulated by the merging of two schemes of 9th Five Year Plan, namely, **Forest Fire Control and Management** and **Bridging up of Infrastructural Gaps** in the forestry sector in the North-Eastern Region and Sikkim. It is operational since **2002-03**. Planning Commission has suggested renaming the scheme as 'Intensification of Forest Management'.
- **Management of Gregarious Flowering of Muli Banboos in NE States** Scheme was approved by planning Commission in 2006.
- **Global Forest Policy** is non-legally binding international instrument for sustainable development adopted by all members of UN. GoI assigned minor forest produce to people living in & around forests through **Scheduled Tribes & Other Traditional Forest Dwellers Act, 2006**.
- On recommendation made by the **Indian Board of Wildlife** under the Chairmanship of Prime Minister, **National Forest Commission** with justice **B N Kirpal** as chairman and six other members was constituted in **2003**. Commission submitted its report in 2006. Some **Salient Features of the recommendations** are as follows:
 - No change has been suggested in NFP, 1988.
 - Need to undertake scientific research to assess the optimum forest/ tree cover according to forest type and topography to meet the intended objectives has been emphasized.
 - Amendment of Indian forest Act, 1927.
 - Forest Department should implement the Biological Diversity Act, 2002 and Environment Protection Act.
 - No amendment and further dilution to forest Conservation Act, 1980.
 - Re-Scheduling of Species under wildlife protection Act to avoid man animal conflict etc.

ALL INDIA COORDINATED PROJECT ON CAPACITY BUILDING IN TAXONOMY

- Taxonomy is the science which helps in **exploration, identification and description of living organisms**.

- About 90,000 species of animals and 47,000 species of plants have been identified and described so far. A large number of animals and plants are yet to be explored, identified and described.
- As a signatory to the Convention on Biological Diversity (CBD) held in Rio de Janeiro in 1992, India has committed itself to **capacity building in taxonomy** and taken up exploration and preparation of an inventory of living organisms.

WILDLIFE

- Forests & Wildlife falls under **Concurrent List**
- **First National Wildlife Action Plan of 1983** has been revised and the new **Wildlife Action Plan (2002-2016)** has been adopted.
- The **Protected Area network** in India includes 99 National Parks and 515 Wildlife Sanctuaries, 43 Conservation Reserves and Community Reserves covering an area of 15.67 million hectares.
- **Action Plan for Vulture Conservation** is implemented in collaboration with States. Government supported breeding centres at Pinjore (Haryana), Buxa (West Bengal) & Rani Forest (Assam).
- **Indian Board of Wildlife**, headed by Prime Minister, is the **apex advisory body** overseeing and guiding implementation of various schemes for wildlife conservation.
- **4th meeting of National Board for wildlife** held in **2007**. The important decision taken during the meeting includes setting up of sub-committee for recovery programme of endangered terrestrial species & for conservation of marine species.
- **Wildlife (Protection) Act, 1972** adopted by all States except Jammu and Kashmir (which has its own Act), governs wildlife conservation and protection of endangered species.
- '**Valley of Flowers**' National Park in Uttarakhand has been included in World Heritage Sites as an extension on the Nanda Devi National Park (Uttarakhand).
- India is a signatory to the **Convention on International Trade in Endangered Species (CITES)** of wild flora and fauna. In the 14th Conference held at The Hague, Netherlands, India's efforts for conservation of Asian Big Cats & Tibetan Antelope were appreciated.
- Under the auspices of **Convention on Conservation of Migratory Species of Wild Animals (CMS)** for Siberian Cranes held at Almaty, Kazakhstan- Keoladeo national Park (Rajasthan) accorded a potential wintering site for Siberian Cranes. 2 more sites Etawah-Mainpuri (UP) & Banni Grasslands (Gujarat) are under consideration.
- **Central Zoo Authority** was created by the government through an amendment of Wildlife Protection Act in 1992 to enforce minimum standards and norms for the upkeep and healthcare of animals in Indian Zoos and to restrain mushrooming of unplanned and ill conceived Zoos. 61 critically endangered wild animal species have been identified for coordinated conservation breeding programme in Indian zoos.

WILDLIFE CONSERVATION

- India is a party to **5 major international conventions** related to wildlife conservation, viz. Convention of International Trade in Endangered Species of wild fauna and flora (CITES), International Union for Conservation of Nature and Natural Resources (IUCN), International Whaling Commission (IWC), United Nations Educational, Scientific & Cultural Organization-World Heritage Committee (UNESCO-WHC) and Convention on Migratory Species (CMS).
- India has joined hands with USA and other partners against the **illegal wildlife crime/ trafficking** by joining Coalition against Wildlife Trafficking (CWAT).
- 100% Central Assistance was provided to 38 Tiger Reserves as additionality for deployment of **Tiger protection Force**, comprising ex-army personnel & local workforce.

PROJECT TIGER

- **Project Tiger** started in 1973
- **Wildlife Protection Act, 1972** was **amended in 2006** to incorporate the creation of the **National Tiger Conservation Authority. Wildlife Crime Control Bureau** constituted under Wildlife (Protection) Act 1972. 100% central assistance provided for 17 Tiger Reserves as additionality to Tiger Protection Force.
- Presently there are **28 tiger reserves** in 17 States. Approval accorded for declaring 8 new tiger reserves. **Four new** tiger reserves which were added recently:
 - (i) Pakui-Bameri (Arunachal/Assam).
 - (ii) Bori-Satpura (Madhya Pradesh).
 - (iii) Bhadra (Karnataka).
 - (iv) Pench (Maharashtra).
- Presently estimated no. of tigers is 1411.
- Guidelines have been revised to include **enhanced village relocation package** for people living in core areas from Rs. 1 lakh/ family to Rs. 10 lakh/ family.
- Notification for **Sahayadri Tiger Reserve** in Maharashtra has been issued in January 2010.
- India has a **MoU with Nepal** on controlling **trans-boundary illegal trade** in wildlife and conservation, apart from a protocol on tiger conservation with China.

PROJECT ELEPHANT

- **Project Elephant** launched in **1992**.
- All India estimation of elephant is done every 5 years. The trend of last four estimations indicates **increase in population** of wild elephants in the country.
- **Earlier 25 Elephant Reserves** were notified by various state governments and consents were given for three- Lemru & Badalkhod in Chhattisgarh, and Deomali in Arunachal. The total number of **Elephant Reserves** in the country has become 27 up to 2009.
- Assistance provided to Haryana for creating 1st elephant rehabilitation centre in India
- 2007 survey shows increase in no. of elephants compared to 2002.
- **Animal Welfare Division** became a part of the **Ministry of Environment and Forests** in July 2002. Earlier the Division was under the Ministry of Statistics and Programme Implementation. The main task of the Division is to implement effectively the various provisions of prevention of Cruelty to Animals Act, 1960.
- **National Institute of Animal Welfare (NIAW)** at Ballabgarh, Faridabad.
- **Animal Welfare Board** of India is a statutory body located at **Chennai**.

ENVIRONMENT IMPACT ASSESSMENT

- EIA is a proven management tool for incorporating environmental concerns in development process and also in improved decision making.
- Initiated for **River Valley Projects in 1978-79**. The scope of appraisal was subsequently enlarged to cover other sectors like industrial projects, thermal and nuclear power plants, mining schemes and infrastructure projects.
- Major **statutory regulations** governing EIA are EIA Notification 2006 and Coastal Regulation Zone (CRZ) Notification 1991.
- A draft notification declaring **Pachmari** (M.P.) as **eco-sensitive zone** inviting suggestions and objections is being notified.

CONTROL OF POLLUTION

- Following Acts are observed for control of pollution:
 1. Water (prevention and Control of Pollution) Act, 1974
 2. Air (Prevention and Control of Pollution) Act, 1981
 3. Hazardous Wastes (Management and Handling) Rules, 1989

4. Environment (Protection) Act, 1986
- During the year 2008-09 **environmental standards** in respect of following categories of industry have been evolved and are being finalized for notification:
 - Petrochemical plants;
 - Incinerator plants in organic chemicals manufacturing units;
 - Dye & Dye intermediate units;
 - Rubber products;
 - Iron Ore Mines and Copper Zinc smelter.
 - Under **National Air Quality Monitoring Programme (NAMP)**, **four air pollutants** viz. Sulphur Dioxide (SO₂), Oxides of Nitrogen (NO₂), Respirable Suspended Particulate Matter (RSPM) and Suspended Particulate Matter (SPM) have been identified for regular monitoring at all the locations. Besides additional parameters such as **Respirable Lead** and other toxic trace metals and Polycyclic Aromatic Hydrocarbons are also being monitored. National mean SO₂ declined over the years while NO₂ & RSPM remained stable despite increase in vehicles. SPM kept fluctuating.
 - **"Eco-mark"** label has been introduced to label **consumer products** that are **environment-friendly**.
 - As per **Auto Fuel Policy, Bharat State-II norms** for new vehicles have been introduced **throughout the country** from 1st April **2005**. EURO-III equivalent emission norms for all new vehicles except 2-3 wheelers have been introduced in 11 cities from 1 April 2005. Bharat Stage-II, EURO-III and EURO V emission norms matching quality of petrol and diesel is being made available.
 - **Central Pollution Control Board** is an **autonomous** body of the Ministry of Environment and Forest, set up in **1974**, under the provisions of the **Water (Prevention and Control of Pollution) Act, 1974**. It coordinates the activities of the State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs), and also advises the Central Government on all matters concerning the prevention and control of environmental pollution.
 - **17 categories** of heavily polluting industries have been identified.
 - **Organic pollution** continued to be the predominated pollution of aquatic resources.
 - **Maharashtra, Gujarat and Tami Nadu** account for over **63%** of total hazardous wastes generated in the country.
 - Ministry is also the **nodal agency for various international conventions** like:
 - ✓ **Basel Convention** on the Control of **Trans-boundary Movement** of Hazardous Wastes and their Disposal
 - ✓ **Rotterdam Convention** on the **Prior Informed Consent Procedure** for Certain Hazardous Chemicals and Pesticides in International Trade
 - ✓ **Stockholm Convention** on Persistent **Organic** Pollutants
 - ✓ **Vienna Convention** for the Protection of the **Ozone Layer**
 - ✓ **Montreal Protocol** on substances that deplete the **Ozone Layer**
 - ✓ UN Convention to **Combat Desertification**
 - ✓ Kyoto Protocol; Ramsar Convention etc.
 - One of the important achievements during 2007-08 is the establishment of South Asian Association for Regional cooperation (**SAARC**) **Forestry Centre** in Bhutan.

CLIMATE CHANGE

- To give more concrete action plan to combat climate change, parties to the UNFCCC in 1997 adopted the **Kyoto Protocol** in recognition of necessity for strengthening developed country commitments under the convention in furtherance to the objectives of the Convention.
- The Kyoto Protocol commits the developed countries, including economies in transition, to **reduce emissions of greenhouse gases** by an average of **5.2% below 1990 levels** during **2008-12**. The Kyoto Protocol came into force on **16 February 2005**. India is party to the Kyoto Protocol.
- Government set up the **Expert Committee on Impacts of Climate Change** in 2007 under the Chairmanship of R. Chidambaram, Principal Scientific Advisor to

Government of India. The terms of reference of the committee are to study the impacts of **anthropogenic climate change** on India and to identify the measures that we may have to take in the future in relation to address vulnerability to anthropogenic climate change impacts.

- The Inter-governmental Panel on climate change (**IPCC**) has brought out the 4th Assessment Report on climate change in November 2007.
- The Phase-II of **Indo-UK collaborative research** on climate change under the aegis of Structured Dialogue on Climate change was initiated. The phase II of the project was launched on 11-12 May 2009.

OZONE LAYER PROTECTION

:: India has met the following compliance dates as per the control schedule of the **Montreal Protocol**:-

- ✓ Freeze of **CFC** production and consumption in July 1999 at 22588 ODP tons and 6681 ODP tons respectively. 50% reduction of CFC production and consumption in 2005.
- ✓ Phase out of consumption of CFC in all applications as on 1 January 2010 except in manufacturing of Metered Dose Inhalers for Asthma & chronic obstructive pulmonary disease patients.
- ✓ Freeze of **halon** production and consumption on 1 January 2002. Total phase-out of halon production and consumption in 2003.

CONSERVATION

- **National River Conservation Directorate** (NRCD) under the Ministry is engaged in implementing the **River and Lake Action Plans** by providing assistance to State Governments. 35 rivers are covered under the programme. **First River Action Plan** taken up under NRCD was the Ganga Action Plan.
- The Government of India, through the Ministry has received **financial assistance** from the **Japan Bank of International Cooperation** for the implementation of **Yamuna Action Plan** Phase-II. **Gomti Action Plan Phase-II** has been sanctioned and the project cost is to be shared at the ratio of 70:30 between GoI and U.P.
- Under **Lake Conservation Plan**, works on **49 lakes** including Dal Lake and Velli Akkuluian Lake in Kerala was taken so far. Cost sharing is 70:30 between Centre & States.
- **National Afforestation Programme** is the **flagship scheme** of National Afforestation and Eco Board (set up in 1992) in so much as it provides support, both in physical and capacity building terms, to the Forest Development Agencies.
- **Eco-Development Forces** implemented through **Ministry of Defence** for ecological restoration of terrains rendered difficult due to severe degradation or remote location.
- **UN Convention to Combat Desertification**: World Day to Combat Desertification and Drought was celebrated on 17 June to raise awareness among people, policy planners and shareholders of the country.

RESEARCH

- **G.B. Pant Institute of Himalayan Environment and Development, Almora** (Uttarakhand) established by the Ministry in **1988** as an **autonomous** research and development institute of the Ministry has emerged as a **leading institution** for fostering scientific knowledge, formulation of policy guidelines and development of efficient strategies for conservation and management of natural resources of Himalayan Region.
- **Indian Council of Forestry Research and Education, Dehradun** is the **apex body** in the national forestry research system to develop **holistic forestry research**; granted ISO 9001:2000 Certification.

- **Indian Institute of Forest Management, Bhopal**, also provides training in forest management and allied subjects to persons from the Indian Forest Service.
- **Wildlife Institute of India, Dehradun**, provides in-service training to forest officers, wildlife ecologists and other professionals for conservation and management of the wildlife resources of the country.
- **National Museum of Natural History, Delhi**, a subordinate organisation of the Ministry is to create awareness in conservation of environment.
- **Indira Gandhi National Forest Academy, Dehradun** imparts in-service training to IFS professionals.
- India is a party to the UN Convention to Combat Desertification (UNCCD). **Six Thematic Programme Networks (TPN)** have been identified for the purpose.
- **India is host country for TPN-2** "Agro-forest and Soil Conservation in Arid, Semi-arid and Dry Sub-humid Areas".
 - **TPN1** - **Desertification** Monitoring & Assessment
 - **TPN3** - Range and **Pasture** Management
 - **TPN4** - **Water Resources** Management for Agriculture in Arid, Semi-arid & Sub-humid areas
 - **TPN5** - **Drought Preparedness & Mitigation** in the Context of Climate Change

FELLOWSHIPS AND AWARDS

- **Amritadevi Wildlife Protection Award**, in the name of Amritadevi Bishnoi, to be given to Village Communities for showing valour and courage for protection of wildlife.
- **Rajiv Gandhi Environment Award** one in each of the identified 18 categories of highly polluting industries which make a significant and measurable contribution towards development or use of **clean technologies**.
- **Indira Gandhi Paryavaran Puraskar** conferred by a committee under Vice-President of India.
- **Indira Priyadarshini Vriksha Mitra Awards** given upto 2005 & now being restructured
- Others include Pitamber Pant National Environment Fellowship, E.K. Janaki Ammal National Award on Taxonomy; Rajiv Gandhi Conservation Award and B.P. Pant National Environment Fellowship for Biodiversity.
- **Medini Puraskar Yojana**: This award is given to encourage writing of original books in Hindi on the subjects related to the environment. Four writers were honored for the year 2008.
- Ministry is the **nodal point** for the **Convention on Wetlands of International Importance, Waterfowl** habitat, **Vienna** Convention (1985) for protection of the Ozone Layer, **Montreal** Protocol (1987) on Substances that deplete the Ozone Layer.
- India is party to United Nations Framework Convention on Climate Change (**UNFCCC**). The objective of it is to stabilize **Greenhouse Gases** concentrations in the atmosphere at a level that would prevent dangerous human induced interference with the climate system.
- **India** acceded to the **Kyoto Protocol in 2002** to fulfill prerequisites for implementation of Clean Development Mechanisms in accordance with the national sustainable priorities. Kyoto Protocol commits the developed countries, including economics in transition to reduce emissions of greenhouse gases by an average of **5.2% below 1990 levels during 2008-12**.
- **South Asia Cooperative Environment programme** is located at **Colombo**.
- **SAARC Forestry Centre :: Bhutan**. India is current chair of SAARC
- The Ministry has set up the "**Ozone Cell**" as a national unit to look after and to render necessary service to implement the Montreal Protocol and its Ozone Depleting Substances phase out programme in India.

INSTITUTIONS RELATED TO ENVIRONMENT	
Forest Research Institute	Dehradun
Arid Forest Research Institute	Jodhpur
Rain Forest Research Institute	Jorhat
Institute of Wood Science and Technology	Bangalore
Tropical Forestry Forest Research Institute	Jabalpur
Institute of Forest Genetics and Tree Breeding	Coimbatore
Himalayan Forest Research Institute	Shimla
Institute for Forest Productivity	Ranchi
Centre of Social Forestry and Eco-rehabilitation	Allahabad
Institute of Forestry Research and Human Resources Development	Chhindwara
Indian Institute of Forest Management	Bhopal
Wildlife Institute of India	Dehradun
Salim Ali Centre for Ornithology and Natural History	Coimbatore
Central Arid Zone Research Institute (CAZRI)	Jodhpur
National Environmental Engineering Research Institute	Nagpur
The Energy & Resources Institute	New Delhi
Automotive Research Association of India	Pune
Directorate of Forest Education	Dehradun
Indian Plywood Industries Research & Training Institute	Bangaluru
Centre for Environment Education	Ahmedabad
CPR Environmental Education Centre	Chennai
Centre for Ecological Sciences	Bangaluru
Centre for Mining Environment	Dhanbad
The Tropical Botanic Garden And Research Institute	Thiruvananthapuram
Indira Gandhi Rashtriya Manav Sangrahalaya	Bhopal
Rajiv Gandhi Regional Museum of Natural History (being established)	Sawai Madhopur
5 th Regional Museum of Natural History (being established)	Gangtok (Sikkim)

MISCELLANEOUS

- **Botanic Garden of the Indian Republic (BGIR), Noida** was inter-alia set up in **April 2002** to facilitate **ex-situ conservation & propagation** of rare & threatened indigenous plants of the country, serve as a '**Centre of Excellence**' for research and training and thereby cater to the need for conservation of endangered species in the region, and build public awareness on the conservation needs through education on conservation of plant diversity.
- The Ministry has set up an Environmental Information System (**ENVIS**) as a plan programme and as a **comprehensive network** in environmental information collection, collation, storage, retrieval & dissemination to varying users, which include decision-makers, researchers, academicians, policy planners, research scientists, etc. ENVIS network at present consists of a chain of **76 network partners** out of which 46 are on subject-specific and 30 are on State related issues.

Sample from Economics

POVERTY

Different people think about poverty in different ways. Some people think that poverty is about being able to buy and sell but other people think about getting a fair share of education and health care or about being given respect, and having some influence over what happens in their life. Because of these differences it is useful to think about two main types of poverty - income poverty and non-income poverty.

Income poverty happens when a household takes in less than one US dollar per day. This means that people will not have enough food or medicine and they will have poor clothes and houses. Income poverty is due to people not having access to money or other assets. The best way to reduce income poverty is to encourage and support the development of effective businesses (small, medium and large) which make good use of our natural resources and talents to create wealth and jobs

Non income poverty happens when people may have a little bit of money but otherwise the quality of their life is not good. They do not have access to affordable social and physical services (schooling, health care, medicines, safe water, good sanitation, and good transport). The best way to reduce non-income poverty it to make sure that people have access to affordable and good quality social services and infrastructure, that they feel secure in their homes, that they trust the authorities and, if they are vulnerable, that there are safety net programmes to protect them.

:: Poverty is the **deprivation of common necessities** such as food, clothing, shelter and safe drinking water, all of which determine our quality of life. It may also include the **lack of access to opportunities** such as education and employment which aid the escape from poverty and/ or allow one to enjoy the respect of fellow citizens.

This is the **World Bank's** definition of poverty:

:: Poverty is an **income level below some minimum level necessary to meet basic needs**. This minimum level is usually called the "**poverty line**".

Definition agreed by the **World Summit on Social Development** in Copenhagen in 1995:

- Poverty is a condition characterized by **severe deprivation of basic human needs**, including food, safe drinking water, sanitation facilities, health, shelter, education and information. It depends not only on income but also on **access to services**.
- It includes a **lack of income and productive resources to ensure sustainable livelihoods**; hunger and malnutrition; ill health; limited or lack of access to education and other basic services; increased morbidity and mortality from illness; homelessness and inadequate housing; unsafe environments and social discrimination and exclusion.
- It is also characterized by **lack of participation in decision making** and in civil, social and cultural life.
- **It occurs in all countries**: as mass poverty in many developing countries, pockets of poverty amid wealth in developed countries, loss of livelihoods as a result of economic recession, sudden poverty as a result of disaster or conflict, the poverty of

low-wage workers, and the utter destitution of people who fall outside family support systems, social institutions and safety nets.

Poverty has many dimensions

- A *material* dimension (food, clothing etc.)
- A *psychological* dimension (respect, self-esteem, trust, fear)
- A *political* dimension (power, representation) and
- A *social* dimension (education, health, work).

:: The **latter 2 dimensions** point to the fact that poverty, while often suffered alone and in solitude, requires **social cooperation** if it is to be eliminated.

:: The **material, political and social dimensions can, to some extent, be measured**, which is necessary if we want to have an idea of the importance of the problem, its evolution over time, and the effectiveness and success of policy measures aimed to combat poverty. One can measure nutrition, housing, income, access to certain services, standard of living, quality of life etc.

:: The **psychological dimension** is much more difficult to measure, but no less important. This dimension also shows us that poverty is not just a matter of the current state one is in, and the resources one has or doesn't have. It is also about vulnerability, about the **future**, about trust and fear. Poverty means comparing yourself to others, feeling like a failure, humiliated, shameful etc.

The **insufficiency of resources to meet basic needs**, such as nutrition, shelter, health and education can result in following **material symptoms of poverty**:

- Low **income or consumption** levels.
- Low average **calorie** intake levels.
- High infant **mortality** rates.
- Low **life expectancy** rates.
- High **illiteracy** rates.
- High **unemployment**.
- Widespread **diseases**, especially curable ones.
- Famine or high risk of **famine**.
- High rates of economic **migration**.

:: Apart from these absolute monetary and non-monetary kinds of poverty, there is also **relative poverty**: people compare themselves to others, mostly others who are relatively close by and better off. This inequality of income or consumption can result in the following **psychological symptoms of poverty**:

- Feelings of loss of dignity
- Low self-esteem
- Feelings of relative powerlessness
- Feelings of lack of participation in culture and politics
- Feelings of discrimination and resentment

A third kind of poverty is **vulnerability**, actual or perceived risk of future poverty. This vulnerability can result in following **psychological symptoms** of poverty:

- Fear, stress
- Feelings of insecurity
- Irrational precaution measures

- Family planning decisions
- Migration

ANOTHER DIMENSION: ABSOLUTE POVERTY & RELATIVE POVERTY

:: Poverty is usually measured as either **absolute** or **relative poverty** (the latter being actually an index of **income inequality**). Absolute poverty refers to a **set standard** which is consistent over time and between countries. The **World Bank** defines **extreme poverty** as living on **less than US \$1.25 (PPP) per day**, and **moderate poverty** as **less than \$2 a day** (but note that a person or family with access to subsistence resources, e.g. subsistence farmers, may have a low cash income without a correspondingly low standard of living- they are not living "on" their cash income but using it as a top up). It estimates that "in 2001, 1.1 billion people had consumption levels below \$1 a day and 2.7 billion lived on less than \$2 a day".

:: **6 million children die of hunger every year** - 17,000 every day. **Selective Primary Health Care** has been shown to be one of the most efficient ways in which absolute poverty can be eradicated in comparison to Primary Health Care which has a target of treating diseases. **Disease prevention** is the focus of Selective Primary Health Care which puts this system on higher grounds in terms of preventing malnutrition and illness, thus putting an end to Absolute Poverty.

:: The **proportion of the developing world's population living in extreme economic poverty** fell from 28% in 1990 to 21% in 2001. Most of this improvement has occurred in **East and South Asia**. In East Asia the World Bank reported that "The poverty headcount rate at the \$2-a-day level is estimated to have fallen to about 27% (in 2007), down from 69% in 1990." In **Sub-Saharan Africa** extreme poverty went up from 41% in 1981 to 46% in 2001.

:: In the early 1990s some of the **transition economies of Eastern Europe and Central Asia** experienced a sharp drop in income. The collapse of the Soviet Union resulted in large declines in GDP per capita, of about 30 to 35% between 1990 and 1998. As a result poverty rates also increased although in subsequent years as per capita incomes recovered the poverty rate dropped from 31.4% of the population to 19.6%.

:: World Bank data shows that the percentage of the population living in households with **consumption or income per person below the poverty line** has decreased in each region of the world since 1990:

Region	1990	2002	2004
East Asia and Pacific	15.40%	12.33%	9.07%
Europe and Central Asia	3.60%	1.28%	0.95%
Latin America and the Caribbean	9.62%	9.08%	8.64%
Middle East and North Africa	2.08%	1.69%	1.47%
South Asia	35.04%	33.44%	30.84%
Sub-Saharan Africa	46.07%	42.63%	41.09%

:: However, there are **various criticisms** of these measurements. Although "a clear trend decline in the percentage of people who are absolutely poor is evident ... with uneven progress across regions...the **developing world outside China and India has seen little or no sustained progress** in reducing the number of poor".

:: The 2007 **World Bank report "Global Economic Prospects"** predicts that in **2030** the number living on less than the equivalent of **\$1 a day will fall by half**, to about 550 million. Much of **Africa** will have difficulty keeping pace with the rest of the developing world and even if conditions there improve in absolute terms, the report warns, Africa in 2030 will be home to a larger proportion of the world's poorest people than it is today.

:: The reason for the faster economic growth in **East Asia and South Asia** is a result of their relative backwardness, in a phenomenon called the **convergence hypothesis** or the **conditional convergence hypothesis**. Because these economies began modernizing later than richer nations, they could benefit from simply adapting **technological advances** which enable higher levels of productivity that had been invented over centuries in richer nations.

RELATIVE POVERTY

:: Relative poverty views poverty as **socially defined and dependent on social context**, hence relative poverty is a **measure of income inequality**. Usually, relative poverty is measured as the percentage of population with income **less than some fixed proportion of median income**. There are several other different income inequality metrics, for example the **Gini coefficient** or the **Theil Index**.

:: Relative poverty measures are used as official poverty rates in several **developed countries**. As such these poverty statistics **measure inequality rather than material deprivation** or hardship. The measurements are usually based on a person's yearly income and frequently take no account of total wealth. The main poverty line used in the OECD and the European Union is based on "**economic distance**", a level of income set at 60% of the median household income.

:: **Ultra-poverty**, a term apparently coined by **Michael Lipton**, connotes being **amongst poorest of the poor in low-income countries**. Lipton defined ultra-poverty as receiving less than 80% of minimum caloric intake whilst spending more than 80% of income on food. Alternatively a 2007 report issued by **International Food Policy Research Institute** defined ultra-poverty as living on less than 54 cents per day. The depth of poverty should be measured. This **depth is the distance to the poverty line**. Just below the poverty line or way below makes a lot of difference.

MEASURES OF POVERTY

Not all of the kinds of poverty can be easily measured. Some perhaps cannot be measured at all. Even the apparently easy ones, such as infant mortality rates or income levels, can and do pose problems, such as the **availability of data** (poor countries often do not have the institutional resources to generate high quality statistics), international comparability of data, definitions of data etc. However, it is important to measure the levels of poverty and their evolution as good as we can. Only if we have data can we **judge the effectiveness of specific programs** to alleviate specific symptoms of poverty.

Poverty is **not just a philosophical problem** because depending on the definition of poverty we use, our measurements will be radically different (even with an

identical definition, measurements will be different because of different measurement methods). Roughly **6 different parameters for measuring poverty** are used:

- insufficient **income**
- insufficient **consumption** spending
- insufficient **caloric** intake
- **food consumption spending** above a certain share of total spending
- certain **health indicators** such as stunting, malnutrition, infant mortality rates or life expectancy
- certain **education** indicators such as illiteracy

None of these parameters is ideal, although the first and second on the list are the most widely used. A few words about the advantages and disadvantages of each are as follows:

1 Income: e.g. “**\$1 a day**” level, which is the **World Bank definition** of extreme poverty level; moderate poverty is less than \$2 a day; these levels are of course expressed in purchasing power parity

:: In **developed countries**, income is a common definition because it’s easy to measure. Most people in developed countries earn a salary or get their income from sources that are **easy to estimate** (interest payments, the value of houses, stock market returns etc.). They don’t depend for their income on the climate, crop yields etc. Moreover, developed countries have **good tax data** which can be used to calculate incomes.

:: In **developing countries**, however, income data tend to be underestimated because it’s **difficult to value the income of farmers and shepherds**. Farmers’ incomes fluctuate heavily with climate conditions, crop yields etc. Another disadvantage is that people are generally **reluctant to disclose their full income**. Some income may have been hidden from the **tax administration** or may have been earned from illegal activity such as **corruption**, smuggling, drug trade, prostitution, theft etc. For this reason, using income to estimate poverty means overestimating it.

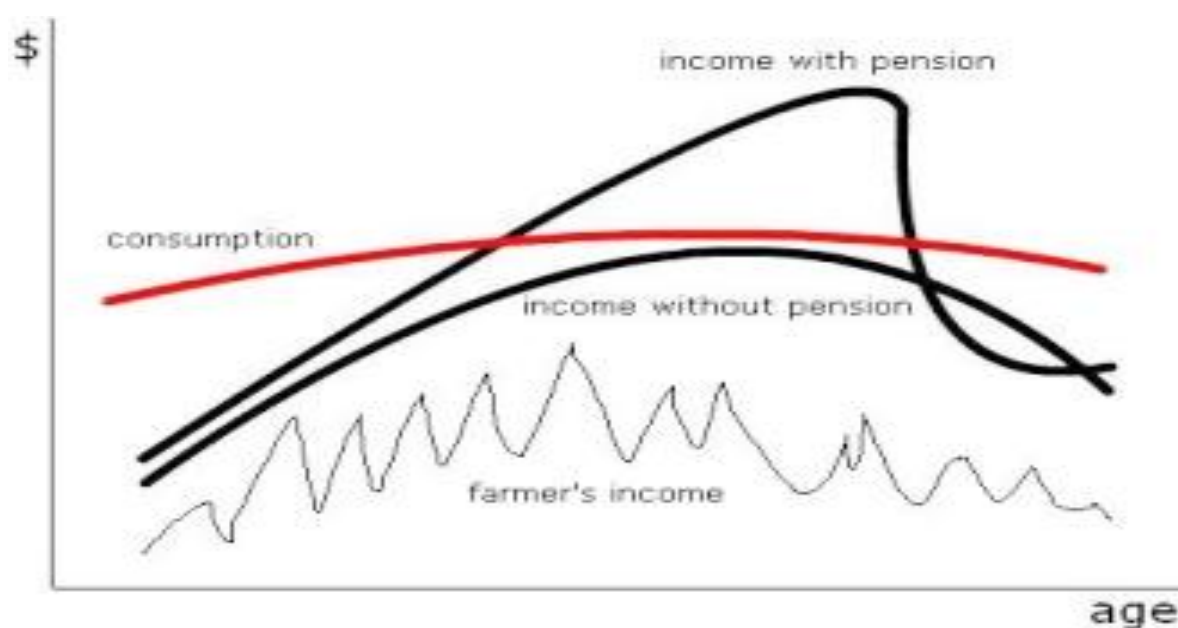
2 Gross Domestic Product (GDP, or total annual country income) per capita or per citizen is another measure of poverty. However, the problem with this measure is that it tells us about average and not how it is distributed over the spectrum. For example, in India, the people below poverty line are much below the average GDP per capita.

3 Consumption: The main advantage of using consumption rather than income to measure poverty is that consumption is **much more stable over the year and over a lifetime**. This is even more true in the case of farmers who depend on the weather for their income and hence have a more volatile income. As farmers are often relatively poor, this issue is all the more salient for poverty measurement. This is called the **lifecycle hypothesis** (shown in graph). Another advantage of using consumption is that people aren’t as reticent to talk about it as they are about certain parts of their income.

:: However, consumption of goods like **durable goods and housing** is difficult to measure because it’s difficult to value them. For example, if a household owns a house, it is difficult to estimate what it would cost to rent that particular

house and add this to the total consumption of that household. Then the same has to be done for cars etc.

:: Another difficulty in measuring consumption is that in developing countries households **consume a lot of what they themselves produce** on the family farm. This as well is often difficult to value correctly. And finally, **different people have different consumption needs**, depending of their age, health, work etc. It's not clear how these different needs are taken into account when consumption is measured and used as an indicator of poverty.



Lifecycle Hypothesis

- 4 **Calorie intake:** the problem with this is that **different people need different amounts** of calories (depending on their type of work, their age, health etc.), and that it isn't very easy to measure how many calories people actually consume. An average adult male has to eat food representing **approximately 2000-2500 calories** per day in order to sustain the human body.
- 5 **Food spending as a fraction of total spending:** here the problem is that if we say people who spend more than x% of their total spending on food are considered poor, we still have to factor in **relative food prices**.
- 6 **Stunting as an indicator of malnutrition and hence of poverty:** stunting (height for age) is a notoriously difficult thing to measure.
- 7 Another measure of poverty is work out the **parameters related to education** such number of years in education, Literacy levels, drop-out rates etc.

:: Another issue with poverty measurement is that people may have comparable incomes or even consumption patterns, but they may face very **different social or environmental conditions**: an annual income of \$500 may be adequate for people living in a rural environment with a temperate climate where housing is cheap, heating isn't necessary and subsistence farming is relatively easy. But the same income can mean deep poverty for a family living in a crowded city on the edge of a desert. The presence or absence of public goods such as quality schools, roads, running water and electricity also makes a lot of difference, but poverty measurement usually doesn't take these goods into account.

:: For other types of **poverty such as income differences**, traditionally used measure is the **Gini coefficient** although most symptoms of this kind of poverty, as well as social, psychological poverty, are **intangible**. The difficulties of aggregating the different available measures, together with the difficulties of measuring other indicators, result in the **impossibility to establish a single, binary poverty indicator**, "are you poor or not", yes or no type of indicator. As a result, many scientists and politicians use a simplified rule to establish poverty, for example the "1 \$ a day" rule, of some other kind of poverty level expressed quantitatively. It is also important to measure the time frame of poverty, i.e. **incidental or chronic poverty**. This difference should be taken into account when devising policies.

POVERTY ESTIMATES IN INDIA

Poverty in India is still rampant, with the nation estimated to have a third of the world's poor, despite an impressive economic growth. An estimated **250 million people** are below the poverty line and approximately **75% of them are in the rural areas**.

:: The **World Bank's definition** of the poverty line, for underdeveloped countries, like India, is **US\$ 1/ day/ person** or US \$365 per year. As per this definition, more than 75% of all Indians are, probably, below the poverty line. However, according to a **2005 World Bank estimate**, **41%** of India falls below the international poverty line of **US\$ 1.25 a day [in terms of PPP** (Purchasing Power Parity), in nominal terms ₹ 21.6 a day in urban areas and ₹14.3 in rural areas]; having reduced from 60% in 1981.

:: According to the definition by **Planning Commission**, poverty line is drawn with an intake of **2400 calories in rural areas and 2100 calories in urban areas**. If a person is unable to get that much minimum level of calories, then he/ she is considered as being below poverty line.

:: According to this criterion, **27.5%** of the population was living **below the poverty line in 2004–2005**, down from 51.3% in 1977–1978, and 36% in 1993-1994. The source for this was the 61st round of the National Sample Survey (**NSS**) and the criterion used was **monthly per capita consumption expenditure** below ₹356.35 for rural areas and ₹538.60 for urban areas. As per GOI, this amount will buy **food equivalent to 2200 calories per day, medically enough, to prevent death**. 75% of the poor are in rural areas, most of them are daily wagers, self-employed householders and landless labourers.

:: The definition of poverty in India has been **called into question by the UN World Food Programme**. In its report on **global hunger index**, it questioned the government of India's definition of poverty saying: The fact that calorie deprivation is increasing during a period when the proportion of rural population below the poverty line is said to be declining rapidly, highlights the increasing **disconnect between official poverty estimates and calorie deprivation**.

OTHER POVERTY ESTIMATES FOR INDIA

Estimates by **NCAER** (National Council of Applied Economic Research), show that **48% of the Indian households** earn more than ₹90,000 (US\$ 1,998) annually (or more than US\$ 3 PPP per person). According to NCAER, in 2009, of the 222 million households in India, the absolutely poor households (annual incomes below ₹

45,000) accounted for only 15.6 % of them or about 35 million (about 200 million Indians). Another 80 million households are in income levels of ₹45,000-90,000 per year. These numbers also are more or less **in line with the latest World Bank estimates** of the "**below-the-poverty-line**" households that may total about 100 million (or about 456 million individuals).

Income inequality in India is increasing, with a Gini coefficient of 32.5 in 1999-2000. Although the Indian economy has grown steadily over the last two decades, its **growth has been uneven** when comparing different social groups, economic groups, geographic regions, and rural and urban areas. Between 1999 and 2008, the annualized growth rates for Gujarat (8.8%), Haryana (8.7%), or Delhi (7.4%) were much higher than for Bihar (5.1%), Uttar Pradesh (4.4%), or Madhya Pradesh (3.5%).

Poverty rates in **rural Orissa** (43%) and **rural Bihar** (41%) are among the world's most extreme. A study by the Oxford Poverty and Human Development Initiative using a Multi-dimensional Poverty Index (MPI) found that there were 645 million poor living under the MPI in India, 421 million of whom are concentrated in eight North India and East India states of Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh and West Bengal. This number is higher than the 410 million poor living in the 26 poorest African nations.

A 2007 report by the state-run **National Commission for Enterprises in the Unorganised Sector** (NCEUS) found that 77% of Indians, or 836 million people, lived on less than 20 rupees (approximately US\$ 0.50 nominal; US\$ 2 PPP) per day. It is relevant to view poverty in India on a PPP basis as food etc. are purchased in Rupees.

According to a recently released **World Bank report**, India is on **track to meet its poverty reduction goals**. However by **2015**, an estimated **53 million people** will still live in extreme poverty and 23.6% of the population will still live under US\$ 1.25 per day. This number is expected to reduce to 20.3% or 268 million people by 2020. However, at the same time, the effects of the worldwide recession in 2009 have plunged 100 million more Indians into poverty than there were in 2004, increasing the effective poverty rate from 27.5% to 37.2%.

:: Despite this, India is sitting on **unused foreign aid of over ₹100,000 crore** (US\$ 22.2 billion) reflecting inadequate planning by ministries like urban development, water resources and energy, a report by Comptroller and Auditor General of India (CAG) has said. "As on March 31, 2010, unutilized committed external assistance was of the order of ₹1, 05,339 crore," the CAG said in its report tabled in Parliament on 18 March 2011. In fact, the Indian government has **paid commitment charges** of ₹86.11 crore (US\$ 19.12 million) out of taxpayer-money during 2009-10 in the form of penalty for **not timely utilizing the aid** approved by multilateral and bilateral lending agencies.

PROBLEMS WITH EXISTING OFFICIAL POVERTY LINES

:: The existing all-India rural and urban official poverty lines were originally defined in terms of **Per Capita Total Consumer Expenditure** (PCTE) at 1973-74 market prices and **adjusted over time and across states** for changes in prices keeping unchanged the original 1973-74 rural and urban underlying all-India reference **Poverty Line Baskets** (PLB) of goods and services. These all-India rural and urban PLBs were derived for rural and urban areas separately, anchored in the per capita calorie norms of 2400 (rural) and 2100 (urban) per day.

:: However, they covered the consumption of all the goods and services incorporated in the rural and urban **reference poverty line baskets**. Three major criticisms of these poverty lines have been commonly aired. One, the **consumption patterns** underlying the rural and urban PLBs remained tied down to those observed more than three decades ago in 1973-74 and hence had become outdated. Two, **crude price adjustment** for prices was leading to implausible results such as proportion of total urban population below poverty line being higher than its rural counterpart in certain major states. Three, the earlier poverty lines assumed that **basic social services of health and education** would be supplied by the state and hence, although private expenditure on education and health was covered in the base year 1973-74, no account was taken of either the increase in the proportion of these in total expenditure over time or of their proper representation in available price indices.

CAUSES OF POVERTY IN INDIA

- **Caste system:** Dalits constitute the bulk of poor and unemployed. Casteism is still widespread in rural areas, and continues to segregate Dalits despite the steady rise and empowerment of the Dalits through social reforms and the implementation of reservations in employment and benefits. Caste explanations of poverty, however, fail to account for the urban/rural divide. However, using the **UN definition** of poverty, 65% of **rural forward castes** are below the poverty line.
- **British era: Jawaharlal Nehru** claimed "A significant fact which stands out is that those parts of India which have been longest under British rule are the poorest today." The Indian economy was purposely and severely de-industrialized, especially in the areas of textiles and metal-working, through colonial privatizations, regulations, tariffs on manufactured or refined Indian goods, taxes, and direct seizures.
- **India's economic policies:** In 1947, the **average annual income** in India was US\$ 439, compared with US\$ 619 for China. By 1999, the numbers were US\$ 1,818 and US\$ 3,259 respectively. Thus **India was left far behind due to its economic policies** especially the **License Raj** and the accompanying **red tape** that were required to set up and run business in India. The License Raj was a result of India's decision to have a planned economy, where all aspects of the economy are controlled by the state and licenses were given to a select few. **Corruption** flourished under this system. Up to 80 agencies had to be satisfied before a firm could be granted a license to produce and the state would decide what was produced, how much, at what price and what sources of capital were used.
- **Over-reliance on agriculture:** There is a surplus of labour in agriculture. While services and industry have grown at double digit figures, agriculture growth rate has dropped from 4.8% to 2%. About 60% of the population depends on agriculture whereas the contribution of agriculture to the GDP is about 18%.
- **High population growth rate**, although demographers generally agree that this is a symptom rather than cause of poverty.
- High **Illiteracy** (about 35% of adult population)
- **Regional inequalities**

CAUSES OF RURAL POVERTY IN INDIA

- Rapid Population Growth & Excessive Population Pressure on Agriculture

- Lack of Capital
- Lack of Alternate Employment Opportunities Other than Agriculture
- Illiteracy & Child Marriage Tradition
- Regional Disparities
- Joint Family System
- Lack of proper implementation of PDS

CAUSES OF URBAN POVERTY INDIA

- Migration of Rural Youth towards Cities
- Lack of Vocational Education / Training
- Limited Job Opportunities of Employment in the Cities
- Rapid increase in Population
- Lack of Housing Facilities
- No proper Implementation of Public Distribution System

LIBERALIZATION POLICIES AND THEIR EFFECTS

:: **75% of poor are in rural India.** There is a viewpoint that holds that the **economic reforms** initiated in the early 1990s are **responsible for the collapse of rural economies and the agrarian crisis** currently underway. P Sainath describes that the **level of inequality** has risen to extraordinary levels, when at the same time; hunger in India has reached its highest level in decades. He also points out that rural economies across India have collapsed, or on the verge of collapse due to the neo-liberal policies of the government of India since the 1990s.

:: The **human cost of the "liberalization"** has been very high. The huge wave of **farm suicides** in Indian rural population from 1997 to 2007 totaled close to 200,000, according to official statistics. Commentators have faulted the policies pursued by the government which, according to Sainath, resulted in a very high portion of rural households getting into the **debt cycle**, resulting in a very high number of farm suicides.

:: Government policies encouraging farmers to **switch to cash crops**, in place of traditional food crops, has resulted in an extraordinary increase in farm input costs, while market forces determined the price of the cash crop. Sainath points out that a disproportionately large number of affected farm suicides have occurred with cash crops, because with food crops such as rice, even if the price falls, there is food left to survive on.

:: He also points out that **inequality** has reached one of the highest rates India has ever seen. During the time when **Public investment in agriculture** shrank to 2% of the GDP, the nation suffered the worst agrarian crisis in decades, the same time as India became the nation of **second highest number of dollar billionaires**. Sainath argues that Farm incomes have collapsed. Hunger has grown very fast. Non-farm employment has stagnated. Only the National Rural Employment Guarantee Act has brought some limited relief in recent times. Millions move towards towns and cities where, too, there are few jobs to be found.

SUCCESS OF EFFORTS TO ALLEVIATE POVERTY

Since the early 1950s, government has initiated, sustained, and refined various planning schemes to help the poor attain self sufficiency in food production. Probably the most important initiative has been the **supply of basic commodities**, particularly food at controlled prices, available throughout the country as poor spend about 80 percent of their income on food.

Eradication of poverty in India is generally only considered to be a **long-term goal**. Poverty alleviation is expected to make better progress in the next 50 years than in the past, as a **trickle-down effect of the growing middle class**. Increasing stress on education, reservation of seats in government jobs and the increasing empowerment of women and the economically weaker sections of society, are also expected to contribute to the alleviation of poverty. It is incorrect to say that all poverty reduction programmes have failed. The **growth of the middle class** (which was virtually non-existent when India became a free nation in August 1947) **indicates that economic prosperity** has indeed been very impressive in India, but the distribution of wealth is not at all even.

CONTROVERSY OVER EXTENT OF POVERTY REDUCTION

:: While **total overall poverty in India has declined**, the extent of poverty reduction is often debated. With the rapid economic growth that India is experiencing, it is likely that a significant fraction of the rural population will continue to migrate toward cities, making the issue of urban poverty more significant in the long run.

:: While **absolute poverty** may not have increased India remains at an **abysmal rank in the UN Human Development Index**. India in recent years remained at lowest position in the index compared to last 10 years. It can even be argued that the situation has become worse on **critical indicators of overall well-being** such as the number of people who are **undernourished** (India has the highest number of malnourished people, at 230 million), and the number of malnourished children (43% of India's children under 5 are underweight (BMI<18.5), the highest in the world) as of 2008.

:: A study by the **McKinsey Global Institute** found that in 1985, 93% of the Indian population lived on a **household income of less than 90,000 rupees a year**, or about a dollar per person per day; by 2005 that proportion had been cut nearly in half, to 54%. More than 103 million people have moved out of desperate poverty in the course of one generation in urban and rural areas as well. They project that if India can achieve 7.3% annual growth over the next 20 years, 465 million more people will be lifted out of poverty. Contrary to popular perceptions, rural India has benefited from this growth: extreme rural poverty has declined from 94% in 1985 to 61% in 2005, and they project that it will drop to 26% by 2025. Report concludes that **India's economic reforms and the increased growth that has resulted have been the most successful anti-poverty programmes in the country**.

Persistence of malnutrition among children

:: The World Bank, citing estimates made by the World Health Organization, states that "About 49% of the world's underweight children, 34% of the world's stunted children and 46% of the world's wasted children, live in India." The World Bank also noted that "while poverty is often the underlying cause of malnutrition in children, the superior economic growth experienced by South Asian countries compared to those in Sub-Saharan Africa, has not translated into superior nutritional status for the South Asian child". A special commission to the **Supreme Court** has noted that the **child malnutrition rate in India is twice as great as sub-Saharan Africa**.

INDIA: URBAN POVERTY REPORT 2009

:: The Ministry of Housing and Urban Poverty Alleviation, Government of India, with the support of the United Nations Development Programme (UNDP) has brought a report, **India-Urban Poverty Report 2009**. **Key findings** of the report are:

- The **urban population of India is increasing** but not as fast as other Asian countries. India's urban population is increasing at a **faster rate than its total population**. The researchers expect **rate of urbanisation** to also increase in the coming years. With over 575 million people, India will have **41%** of its population living in cities and towns by 2030 from the present level of 286 million. But this success has been accompanied by poverty in urban areas. Urban poverty in India remains high, at over 25%. Over **80 million poor people** live in the cities and towns of India. This is roughly equal to the population of Egypt.
- At the national level, **rural poverty is higher than poverty in urban areas** but the gap between the two has decreased over the last couple of decades.
- As per **2001 census report** the slum population of India in cities and towns with a population of 50,000 and above was 42.6 million, which is 22.6% of the urban population of the states/ UT reporting slums.
- The **incidence of migration** in India has shown an increase in 2001 as compared to consistent decline during 1961-1991. The economic motive remains the main reason for migration among male interstate migrants. Economically backward states keep losing people to developed states. **Poverty incidence was found less among migrants** as compared to non-migrants but it was higher among rural to urban migrants.

Proposed solutions to urban poverty

- 1 There should be **greater equity in the provision of basic services** as interstate and intercity disparity has acquired alarming proportions.
- 2 **Small and medium towns**, particularly in backward states, should get special assistance from the central / state government as their economic bases are not strong enough to generate adequate resources.
- 3 **Constitutional amendments for decentralization** should be backed up by actual devolution of powers and responsibilities and their use by the municipal bodies
- 4 As much of the **subsidized amenities** have gone to high and middle income colonies, the restructure of these programmes and schemes is needed to ensure that

subsidies are made explicit through strict stipulations, targeted through vulnerable sections of population.

- 5 There is good potential for **organising slum communities** as the average size of size of slum is small.
- 6 To **improve sanitation standards**, it is suggested to construct community toilets where individual toilets are not possible, to extend sewerage networks to slum areas and connect toilet outlets with that, and community management of toilets in common places.
- 7 **Solar, bio-gas and non-conventional energy needs** to be promoted for street lights as well as in household energy use wherever possible and feasible. Complete coverage of slum households through electric connections should be ensured.

TENDULKAR COMMITTEE REPORT

:: There has been a growing concern on the official estimates of poverty. In view of this, **Planning Commission** set up an expert group under the chairmanship of **Suresh Tendulkar** to examine the issue and suggest a new poverty line and estimates. Following are the salient features of the proposed poverty lines:

- 1 The expert group has also taken a conscious decision to move away from anchoring the poverty lines to a **calorie intake norm** in view of the fact that calorie consumption calculated by converting the consumed quantities in the last 30 days as collected by NSS has not been found to be well correlated with the **nutritional outcomes** observed from other specialized surveys either over time or across space (i.e. between states or rural and urban areas).
- 2 NSSO has decided to shift to **Mixed Reference Period (MRP)** for all its consumption surveys in future, namely, **365-days for low frequency items** (clothing, footwear, durables, education and institutional health expenditure) and 30-days for all the remaining items. This change captures the household consumption expenditure of the poor households on low-frequency items of purchase more satisfactorily than the earlier 30-day recall period. The Expert Group decided to adopt the **MRP-based estimates** of consumption expenditure as the basis for future poverty lines as against previous practice of using **Uniform Reference Period** estimates of consumption expenditure.
- 3 The estimated urban share of the poor population (described as headcount ratio or poverty ratio) in 2004-05, namely, 25.7% at the all-India level, is generally accepted as being less controversial than its rural counterpart at 28.3% that has been heavily criticized as being too low. It was decided to recommend **MRP-equivalent of urban PLB** corresponding to 25.7% urban head count ratio as the new reference PLB to be provided to rural as well as urban population in all the states after adjusting it for within-state **urban-relative-to-rural** and rural and urban **state-relative-to-all-India price differentials**.
- 4 The new poverty lines have been arrived at after assessing the adequacy of **private household expenditure** on **education and health**, while the earlier calorie-anchored poverty lines did not explicitly account for these.
- 5 It may be noted that although those near the poverty line in urban areas continue to afford the original **calorie norm** of 2100 per capita per day, their actual observed calorie intake from 61st Round of NSS of is 1776 calories per capita. This actual intake is very close to the revised calorie intake norm of 1770 per capita per day

currently recommended for India by the **Food and Agriculture Organization** (FAO). Actual observed calorie intake of those near the new poverty line in rural areas (1999 calories per capita) is higher than the FAO norm.

- 6 Separate allowance for private expenditure on **transport and conveyance** has been made in the recommended poverty lines. For **rent and conveyance**, actual expenditure share for these items were used to adjust the poverty line for each state.

ENTRENCHED FACTORS ASSOCIATED WITH POVERTY

- **Scarcity of basic needs:** Rise in the costs of living makes poor people less able to afford items. Poor people spend a **greater portion of their budgets on food** than richer people. As a result, poor households and those near the poverty threshold can be particularly vulnerable to increases in food prices.
- **Third World debt:** Third World debt plays a large part in **international inequality and poverty**. On average in 1999, \$128 billion was transferred from indebted industrializing countries to debt holding nations for **debt repayments**. The World Bank and the IMF, as primary holders of Third World debt, attach **structural adjustment conditionalities** to loans. These conditionalities generally push for economic liberalization, including reducing barriers to trade, elimination of state subsidies, Union busting, privatization of state assets and services etc. As a result of such policies, developing countries need to spend a large proportion of their budgets to repay foreign debt.
- **Barriers to opportunities:** lack of **economic freedom** inhibits entrepreneurship among the poor. New enterprises and foreign investment can be driven away by the results of **inefficient institutions**, notably corruption, weak rule of law and excessive bureaucratic burdens. Lack of financial services, as a result of restrictive regulations, such as the requirements for banking licenses, makes it hard for even smaller micro-savings programs to reach the poor. In India, businesses had to bribe government officials even for routine activities, which were, in effect, a tax on business. **Lack of opportunities** can further be caused by the failure of governments to provide essential infrastructure.
- **Colonial Histories:** One of the most important barriers to development in poor countries is lack of uniform, basic infrastructure, such as roads and means of communication. Some development scholars have identified colonial history as an important contributor to the current situation. In most countries with a history of colonization, the colonizers developed local economies to facilitate the expropriation of resources for their own economic growth and development.
- **Centralization of Power:** In many developing countries, political power is disproportionately centralized. Instead of having a network of political representatives distributed equally throughout society, in centralized systems of governance one major party, politician, or region is responsible for decision-making throughout the country. This often causes development problems. For example, in these situations politicians make decisions about places that they are unfamiliar with, lacking sufficient knowledge about the context to design effective and appropriate policies and programs.
- **Corruption:** Corruption often accompanies centralization of power, when leaders are not accountable to those they serve. Most directly, corruption inhibits development when leaders help themselves to money that would otherwise be used for

development projects. In other cases, leaders reward political support by providing services to their followers.

- **Warfare:** Warfare contributes to more entrenched poverty by diverting scarce resources from fighting poverty to maintaining a military. Take, for example, the cases of Ethiopia and Eritrea. The most recent conflict over borders between the two countries erupted into war during 1999 and 2000, a period when both countries faced severe food shortages due to drought.
- **Environmental degradation:** Awareness and concern about environmental degradation have grown around the world over the last few decades, and are currently shared by people of different nations, cultures, religions, and social classes. However, the negative impacts of environmental degradation are disproportionately felt by the poor. Throughout the developing world, the poor often rely on natural resources to meet their basic needs through agricultural production and gathering resources essential for household maintenance, such as water, firewood, and wild plants for consumption and medicine. Thus, the depletion and contamination of water sources directly threaten the livelihoods of those who depend on them.
- **Social Inequality:** One of the more entrenched sources of poverty throughout the world is social inequality that stems from cultural ideas about the relative worth of different genders, races, ethnic groups, and social classes. Ascribed inequality works by placing individuals in different social categories at birth, often based on religious, ethnic, or 'racial' characteristics. In South African history, apartheid laws defined a binary caste system that assigned different rights (or lack thereof) and social spaces to Whites and Blacks, using skin color to automatically determine the opportunities available to individuals in each group.

EFFECTS OF POVERTY

:: The effects of poverty may also be causes, thus creating a "**poverty cycle**" operating across multiple levels, individual, local, national and global.

HEALTH

- **Hunger, disease, and less education** describe a person in poverty. One third of deaths - some 18 million people a year or 50,000 per day - are due to **poverty-related causes**: in total 270 million people, most of them women and children, have died as a result of poverty since 1990. Those living in poverty suffer disproportionately from hunger or even starvation and disease. Those living in poverty suffer lower life expectancy.
- According to the **World Health Organization**, **hunger and malnutrition** are the single gravest threats to the world's public health and malnutrition is by far the biggest contributor to child mortality, present in half of all cases.
- **Women who have born children into poverty** may not be able to nourish the children efficiently and provide adequate care in infancy. The children may also suffer from disease that has been passed down to the child through birth. Asthma and ricketts are common problems children acquire when born into poverty.

EDUCATION

- There is a high risk of **educational underachievement** for children who are from low-income housing circumstances.
- This often is a process that begins in primary school for some less fortunate children. For children with low resources, the risk factors are similar to excuses such as **juvenile delinquency rates**, higher levels of teenage pregnancy, and the economic dependency upon their low income parent or parents.
- Poverty often **drastically affects children's success in school**. A child's "home activities, preferences, mannerisms" must align with the world and in the cases that they do not these students are at a disadvantage in the school and most importantly the classroom. Children who live at or below the poverty level will have far **less success educationally** than children who live above the poverty line.
- Poor children have a great deal less healthcare and this ultimately results in many absences from the academic year. Additionally, poor children are much more likely to suffer from **hunger, fatigue**, irritability, **headaches**, ear infections, flu, and colds. These illnesses could potentially restrict a child or student's focus and concentration.

HOUSING

- **Slum-dwellers**, who make up a third of the world's urban population, live in poverty no better, if not worse, than rural people, who are the traditional focus of the poverty in the developing world, according to a report by the United Nations.
- Most of the children living in institutions around the world have a surviving parent or close relative, and they most commonly entered orphanages because of poverty.

VIOLENCE

- According to a UN report on modern slavery, the most common form of **human trafficking** is for prostitution, which is largely fueled by poverty.
- In Zimbabwe, a number of girls are turning to **prostitution** for food to survive because of the increasing poverty.
- Also there are also many effects of poverty closer to home. For example after dropping out of school children may turn to violence as a source of income i.e mugging people, betting during street fights etc.

ADDRESSING THE UNDERLYING CAUSES OF POVERTY

:: Building a more widespread commitment to overcoming poverty is an essential first step in overcoming poverty, and actions to address this are discussed below.

- **Share the benefits of economic growth** through an emphasis on more widespread employment: The phenomenon of **jobless economic growth** that increases income inequalities and generates too few jobs for low income groups poses a serious threat to the well-being of many nations, both North and South. **Government policies** should consider not only aggregate economic impact but also the distribution of employment. **Socially responsible venture capital and microcredit initiatives** can foster employment-generating businesses that complement the local culture and environment.

- **Root out corruption**, which harms society as a whole: Corruption, both in government and business, places heavy cost on society. Businesses should enact, publicize and follow codes of conduct banning corruption on the part of their staff and directors. Citizens must **demand greater transparency** on the part of both government and the corporate sector and create reform movements where needed.
- **Broaden access to education and technology** among marginalized groups, and especially among girls and women: The educational attainment of **women** has strong bearing on the well-being of their families, and efforts to improve education for women and girls must be strengthened. At the same time, steps should be taken to ensure that the **current revolution in information technology** benefits marginalized groups. This must begin in school.
- Improve **government capacity to provide universal access** to essential goods and services, including potable water, affordable food, primary health care, education, housing and **other social services**: Governments around the world have made commitments to this through the 20/20 Initiative, which calls for 20% of national budgets and 20% of foreign aid to be spent on human services. But raising adequate resources through effective taxation and other mechanisms is often politically difficult. New mechanisms for **public policy dialogue** that enable citizens of all classes to recognize the benefit of universal access to key services must be put in place. Nonprofit groups and even corporations can provide essential support here, helping articulate a **vision of a healthy society**. These nongovernmental actors can also help in the actual provision of services.
- **Investments in human capital** in the form of health, is needed for economic growth. Nations do not necessarily need wealth to gain health. Cheap water filters and promoting hand washing are some of the most **cost effective health interventions** and can cut deaths from diarrhea and pneumonia. Knowledge on the cost effectiveness of healthcare interventions can be elusive but educational measures to disseminate what works are available, such as the disease control priorities project.
- **Human capital**, in the form of education, is an even more important determinant of economic growth than physical capital. **De-worming children** costs about 50 cents per child per year and reduces non-attendance from anemia, illness and malnutrition and is only a twenty-fifth as expensive to increase school attendance as by constructing schools.
- **Good Infrastructure**, such as roads and information networks, helps market reforms to work. It was the technology of the steam engine that originally began the dramatic decreases in poverty levels. **Cell phone technology** brings the market to poor or rural sections. With necessary information, remote farmers can produce specific crops to sell to the buyers that bring the best price. Such technology also makes **financial services accessible** to the poor. Those in poverty place overwhelming importance on having a safe place to save money, much more so than receiving loans. Also, a large part of microfinance loans are spent on products that would usually be paid by a checking or savings account.
- **Aid in its simplest form is a basic income grant**, a form of social security periodically providing citizens with money. Some aid, such as **Conditional Cash Transfers**, can be rewarded based on desirable actions such as enrolling children in school or receiving vaccinations. Another form of aid is microloans, made famous by the **Grameen Bank**, where small amounts of money are loaned to farmers or villages, mostly women, who can then obtain physical capital to increase their

economic rewards. Aid from **non-governmental organizations** may be more effective than governmental aid; this may be because it is better at reaching the poor and better controlled at the grassroots level.

- **Good Institutions:** Efficient institutions that are not corrupt and obey the rule of law make and enforce good laws that provide security to property and businesses. Efficient and fair governments would work to invest in the long-term interests of the nation rather than plunder resources through corruption. Examples of good governance leading to economic development and poverty reduction include Thailand, Taiwan, Malaysia, South Korea, and Vietnam, which tends to have a **strong government**, called a hard state or development state.

Sample from Science

HEART

- **Arterial blood** carries **oxygen** and dissolved food while **venous blood** carries **CO₂** and waste materials. But the **Pulmonary artery and vein** are **exceptions** to this.
- All chambers of heart and all blood vessels are internally lined by a layer of smooth, thin flattened cells called **endothelium** which **prevents clotting** of blood **within Circulatory System**.
- **Dorsal aorta** is the part of aorta that supplies blood to viscera and legs.
- **Artificial valves** are either **tissue based** (of pigs, cadaver) or **Mechanical** (Plastics, Ceramics).
- No communication between Left and Right compartments.
- Pumping rate of heart is about **70/ minute**. It may go upto 150/ minute during exercise or excitement.
- Pressure of blood **varies** from one part of the body to another.
- The pressure produced in ventricle when it contracts and empties itself into aorta and pulmonary artery is called **Systolic Pressure** and equal to **120 mm** of Hg. Opposite situation, when it fills the blood, the pressure is called **Diastolic Pressure** and equals **80 mm** of Hg.
- **Lymph** is another **medium of circulation** in body meant for **proteins** which can't re-enter the blood capillaries because of their size. It is **light yellow** and not red because it **doesn't contain hemoglobin**. Its composition is quite similar to blood plasma. Flows in one direction i.e. tissues to heart. Contains special white cells, for fighting diseases, called **lymphocytes**.
- **CO₂** of respiration in cells is transported both by **hemoglobin** of the blood and by water which dissolves it. Expulsion of CO₂ occurs in the surface of **lungs**.
- The same circulatory system **transports** both **nutrients** and **water**. So there needs to be a special mechanism of **separating** the **two**, so that only waste is excreted and nutrients are held back. This filtering work is done by **kidneys**. These are in **two** numbers.

