Topic – II

Location – Hot & cold.

Wn Margins

20° – 30° N & S.

Climatic desert

(1) 1/3 of land surface of globe experiences desert or semi-desert conditions

I

(2) Tropical deserts or Trade wind deserts Sit 20° – 30° N & S. of equator

(3) Marked on Wn sides of continents.

(4) Old World Desert Belt stretches from Morocco in NW Af. through Sahara, Arabia and Baluchistan into NW India

II 2nd group of deserts comprise continental interiors in Middle latitudes

4th Principle → To achieve Sus. Dev. Env. Protection shall constitute integral part of dev. process.

5) All states & all people shall cooperate in eradicating poverty + decrease disparities in stds. of living.
6) Env. Vulnerable cts shall be given priority
7) States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of earth's ecosystem.
8) Eliminate unsustainable patterns

warming are a few major causes of soil erosion.

Deforestation

Mismanaged utilization of soil resources like the removal of forest cover causes soil erosion heavily. ue to increasing land demand, the uman is more into deforesting nds. Tree roots act as a binder of the top layer of the soil.

PHYSICS Related Links	
principle of conservation	non uniform motion definition
transverse waves and longitudinal waves	circuit diagram

Man-Environment Relationship in deserts

Climatic Effect:- Affect human eyes, lower mental ability, upset metabolism, Sandstorms may Reduce visibility

Use of Underground water: Surface water is less so depend upon sub-surface H_2O for agri, plants, human use, animal use.

Reservoirs have been made to harness & collect water.

reclamation of coastal marshes, the construction of coastal defence against erosion.

Coastal protection by govt. is there.

- Coastal areas are complex natural systems where intense interaction occur bet land sea & atmosphere
- These ecosystems are extremely vulnerable particularly by increasing human activities.

Geographic Environment :—

1. Low lying
2. Moderate climate
3. Vegetative cover - evergreen - Mangroov Swamps glasses rich bind the silt
4. Dense population
5. Development of fishing
6. Tourism
7. Sea Port

Greenhouse gases	Pre-industrial concentration ~ 1750 AD	Concentration in 2000 AD	Increase since ~ 1750 AD %	Atmospheric life-time (years)
1. Carbon dioxide (CO_2)	280 ppm	368 ppm	31	5-200
2. Methane (CH_4)	700 ppb	1750 ppb	151	12
3. Nitrous oxide (N_2O)	270 ppb	316 ppb	17	114
4. Chlorofluorocarbons (CFC-11) + Hydroflu-orocarbons (HFC-23)	0	282 ppt		45-260

ppm - parts per million; ppb - parts per billion; ppt - parts per trillion.

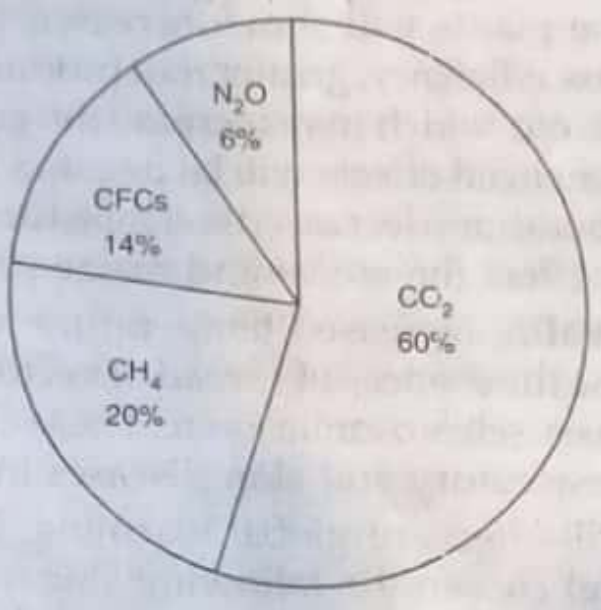

Fig. 6.2. Relative contribution of different GHGs to Global warming.

4. Ill effects of Global warming :

(i) Rise in sea level. Global warming will melt the polar ice caps. It is estimated that if all the ice on the earth melts, about 200 feet of water would be added to the surface of all oceans. Satellite pictures have shown that the polar ice has been shrinking by 10 per cent per decade since 1980.

Due to global warming, **India-Khumbu glacier of Mt. Everest** has retreated by 5 km since 1953 while sea ice cover of Arctic ocean has declined by 6% from 197 to 1995. It is estimated that an increase of only 3°C atmospheric temperature may rise sea level by 0.2 – 1.5 meters over the next 50–100 years. This **may inundate low lying coastal cities** like Shanghai, Bangkok, Dhaka, Venice, San Francisco, Cairo, Sydney, etc. In India, this effect may also threaten the inundation

INDIA	**382**
NCT of Delhi*	11,297
Chandigarh*	9,252
Puducherry*	2,598
Daman & Diu*	2,169
Lakshadweep*	2,013
Bihar	1,102
West Bengal	1,029
Kerala	859
Uttar Pradesh	828
Dadra & Nagar Haveli*	698
Haryana	573
Tamil Nadu	555
Punjab	550
Jharkhand	414
Assam	397
Goa	394
Maharashtra	365
Tripura	350
Karnataka	319
Andhra Pradesh	308
Gujarat	308
Odisha	269
Madhya Pradesh	236
Rajasthan	201

Ranking of States and

Rank in 2011	India/State/Union Territory*	Population in 2011	Percent to total population of India	
			2011	2001
	INDIA	1,21,01,93,422	100.00	100.00
1	Uttar Pradesh	19,95,81,477	16.49	16.16
2	Maharashtra	11,23,72,972	9.29	9.42
3	Bihar	10,38,04,637	8.58	8.07
4	West Bengal	9,13,47,736	7.55	7.79
5	Andhra Pradesh	8,46,65,533	7.00	7.41
6	Madhya Pradesh	7,25,97,565	6.00	5.87
7	Tamil Nadu	7,21,38,958	5.96	6.07
8	Rajasthan	6,86,21,012	5.67	5.49
9	Karnataka	6,11,30,704	5.05	5.14
10	Gujarat	6,03,83,628	4.99	4.93
11	Odisha	4,19,47,358	3.47	3.58
12	Kerala	3,33,87,677	2.76	3.10
13	Jharkhand	3,29,66,238	2.72	2.62
14	Assam	3,11,69,272	2.58	2.59
15	Punjab	2,77,04,236	2.29	2.37
16	Chhattisgarh	2,55,40,196	2.11	2.03
17	Haryana	2,53,53,081	2.09	2.06
18	NCT of Delhi*	1,67,53,235	1.38	1.35
19	Jammu & Kashmir	1,25,48,926	1.04	0.99
20	Uttarakhand	1,01,16,752	0.84	0.83
21	Himachal pradesh	68,56,509	0.57	0.59
22	Tripura	36,71,032	0.30	0.31
23	Meghalaya	29,64,007	0.24	0.23
24	Manipur	27,21,756	0.22	0.22
25	Nagaland	19,80,602	0.16	0.19
26	Goa	14,57,723	0.12	0.13
27	Arunachal pradesh	13,82,611	0.11	0.11
28	Puducherry*	12,44,464	0.10	0.09
29	Mizoram	10,91,014	0.09	0.09
30	Chandigarh*	10,54,686	0.09	0.09
31	Sikkim	6,07,688	0.05	0.05
32	Andaman & Nicobar Islands*	3,79,944	0.03	0.03
33	Dadra & Nagar Haveli *	3,42,853	0.03	0.02
34	Daman & Diu *	2,42,911	0.02	0.02
35	Lakshadweep*			

8. Hub of International trade
9. Rich in mineral resources
→ N.gas & oil, precious stones
10. Paddy culture.
11. Natural Defence (coasts act as)
Lagoons → backwaters → Rich in aquatic life & floral life & also tourism.
12 Big & Urban centers are located? - Human Interaction Accessibility.

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① More than 50% of world's pop. lives with 60 kms of the coastline
② Influx of people from inland to coast due to rapid urbanization
③ Urban problems?
④ Over exploitation of marine resources - making the coast

Soil Erosion

Soil Erosion is the process that erodes, breaks or gradually diminishes things down. The process of erosion usually takes place on the surface of soil, rock, or dissolved material from one location on the Earth's crust and with the help of the wind or water flow, it gets to settle down at another location.

more vulnerable.

4) Tourism → proper management is required.

5) Disposal of Waste → Problem & solutions

6) Solid waste management

7) Oil spilling from Marine transport water pollution

8) Fishes are victim of pollution

Census 2011 covered 35 States/UTs, 640 districts, 5,924 sub-districts, 7,936 towns and 6.41 lakh villages.

The growth rate of population for India in the last decade was 17.64%. The growth rate of population in rural and urban areas was 12.18% and 31.80% respectively. Bihar (23.90%) exhibited the highest decadal growth rate in rural population.

According to the provisional population totals of census 2011, out of a total population of 1,21,01,93,422 persons, 62,37,24,248 are males 58,64,69,174 females. The sex ratio of India is 940. The sex ratio at the national level has risen by seven points since the last census in 2001. This is the highest since 1971.

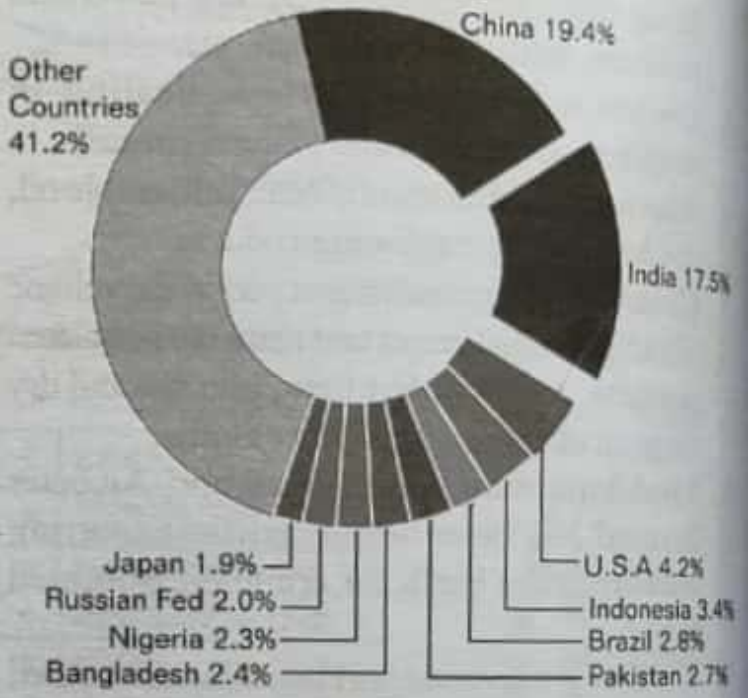
Absolute Numbers

The population of India at 0:00 hours of 1st March, 2011, as per the provisional population totals of Census 2011, is 1,210,193,422 compared to a total of 1,028,737,436 in 2001. In absolute terms, the population of India has increased by more than 181 million during the decade 2001-2011.

The absolute addition to the population during the decade 2001-2011 is slightly lower than the population of Brazil, the fifth most populous country in the world.

India in World Population

The estimated global population in 2010 was 6908.7 million. The population of the ten most populous countries of the world are given in the table below. Population of these 10 countries have all grown over the last decade, except in Russian Federation, which has declined. At present, these



Population of selected countries

Sl. No	Country	Reference date	Population (In millions)	Decadal change (in %)

(1) **Emissions trading**
Each industrialised country can trade in their entitlements to emit.

(2) **Joint implementation (JI)**
An industrialised country can invest in a project that reduces emissions in another indutrialised country and claim credit for reductions.

(3) **Clean development mechanism (CDM)**
Same as JI, but funded projects are in developing countries. An even cheaper option to reduce emissions, since the cost of setting up a project in a poor developing country is cheaper.

Moreover, industrialised countries were also allowed the use of forest trees (as carbon sinks) and claim that they have reduced CO_2 emissions. Sixty lobbyists from U.S. coal, oil and car industries threaten the U.S. and developing country delegates. The Protocol is signed at the last moment, despite deep misgivings from developing countries.

At Kyoto, the U.S. introduced concepts that world continue to plague negotiations thereafter. The negotiation process became slower, more complex and contorted.

1998 • At the CoP-4 at Buenos Aires, the conferences comes out with a two-year action plan (end-2000), the deadline to lay out rules and guidelines to implement the Kyoto Protocol. It focused on involving detailed steps for flexibility mechanisms to take off, compliance with commitments under the Protocol and development and transfer of cleaner technologies to developing countries. The EU asks for limits to the amount any nation can use emissions trading as a method to achieve national targets. The U.S. strongly resisted this proposal. It pushes for market mechanisms like CMD.

1999 • The Kyoto agenda shuffled along at CoP-5 in Bonn as countries continued discussions on various elements of Buenos Aires Plan of Actions (BAPA). No major progress on two-year plan. The U.S. pushes for flexibility mechanism, which continued to be the centre of controversy. A few countries were optimistic that the Protocol could come into effect by the World Summit on Sustainable Development (WSSD) in 2002.

2000 • During CoP-6 at the Hague, the U.S. insisted on maximum use of trading mechanism, and for the right to use its existing forests' ability to remove carbon as a credit. The EU refused to give in to the U.S. The EU wanted industrialised countries to reduce emissions through domestic action by cutting use of fossil fuel. But the U.S. wanted concessions in the form of using forests and emissions trading without restrictions. Talks break down.

2001 • The George W. Bush administration took office in January 2001 and U.S. walks out of the Kyoto Protocol in March 2001. Bush releases the new U.S. Energy Policy on May 16, 2001 with increased use of fossil fuels. A resumed session of CoP-6 was called in July 2001 at Bonn. The U.S. did not attend this conference. Attempts were made to maintain the quorm for the Kyto Protocol to come into effect. The already weak Protocol was weakened further as the EU made compromises to get industrialised countries like Japan, Canada and Australia on board. The final agreement was weak on compliance with no clarity on its legally-binding nature. The final agreement did not provide any assurance that developing countries will get any funds from the North for adapting to climate change.

• At CoP-7, held in Marrakech (Morocco) during October/ November, 2001 differences emerged on a few issues decided at resumed session of CoP-6 at Bonn. At the end, prolonged negotiations on process of implementing Kyoto Protocol were closed. The outcome was a much diluted agreement with a mere symbolic significance. Perhaps for the first time, the rest of the world united against the U.S. to reach an agreement on the Kyoto Protocol. This paved the way for the ratification of the Protocol.

12) States should cooperate to promote a supportive and open international economic system that would lead to eco growth & sus. dev.

13) States shall develop national law regarding liability & compensation to victims of pollution & env. damage.

14) Check on transfer of any activity and substance to other states that cause severe env. degradation.

15) Precautionary approach shall be applied if there is threat to env.

The **United Nations Organisation (UNO)** is an international organisation formed after the Second World War in 1945. It replaced the League of Nations. The UNO aims to facilitate cooperation in international law, international security, economic development, social progress, human rights and achieving world peace.

What led to the Formation of the UNO?

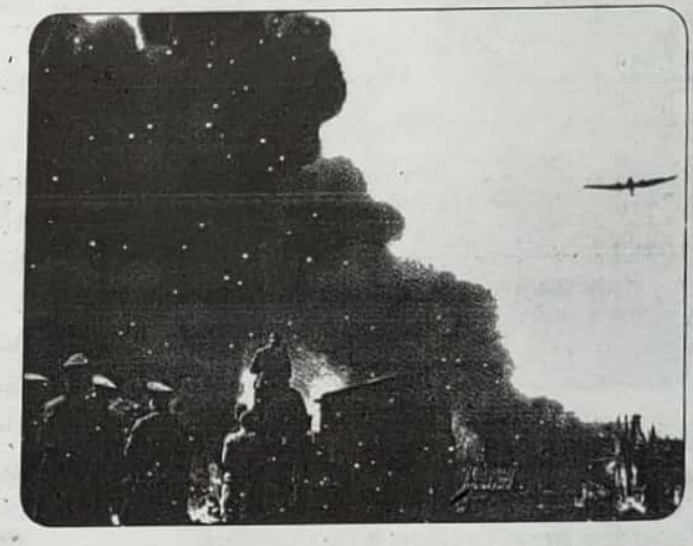
1. Fear of the devastation and death caused by wars

The world witnessed two global wars in the twentieth century that caused large-scale destruction and loss of human lives. The Second World War was even more disastrous killing over fifty million people and leaving several millions injured. Both the wars created tremendous economic loss leaving many industrial towns and cities destroyed and devastated. Numerous business centres and industrial estates were bombarded. It was felt by the world leaders that there should be a strong and effective world organisation, which would prevent such wars in the future.

2. Threat of nuclear war

The use of nuclear bombs by the United States on

Second World War



Japan brought before the world a new kind of threat. It also made the world realise that a full-scale nuclear war can only result in complete disaster with the loss of many lives.

3. Failure of League of Nations

The need for the UN also emerged from the total failure of the League of Nations, which was established after the First World War. The League failed miserably to promote peace and security in the world. Within a decade after its formation, the world was fighting the Second World War. It soon became apparent that the League as an international

IPCC

Intergovernmental Panel on Climate change

Established in 1988 by the World Meteorological Organisation and United Nations Environment Programme.

5-6 yrs. to produce a report.

The 2007 report is 4th assessment

The report is scientific. based on

Census in India

India is a welfare state where various welfare schemes are formulated and implemented under different departments and ministries. For the formulation of these schemes and programmes, basic data about the population of the country is provided by the census.

Oldest references of census in India are found in Mauryan and Mughal period. In modern period, first census was conducted in 1872 by Lord Mayo, but it was incomplete. First complete census was conducted in 1981 by Lord Ripon. After that it is being conducted once in every 10 years. Census of 2011 was 15th census in modern India and 7th after independence.

Census is conducted under 'Census Act 1948' by 'Registrar General and Census Commissioner of India' who is appointed by the central government. The Census Commissioner office functions under the ministry of home, government of India.

In the census 2011, the government decided to prepare NPR (National Population Register) also.

A decline of more than five percentage points in decadal growth rate from the previous census decade was recorded for fifteen States and Union Territories, namely, for the States Jammu & Kashmir, Punjab, Haryana, Rajasthan, Uttar Pradesh, Sikkim, Nagaland, Manipur, Mizoram, Maharashtra and Goa, and also for the Union Territories of Delhi, Chandigarh, Lakshadweep and Andaman and Nicobar Islands. Among the larger states and UTs, Delhi has registered the sharpest drop of twenty six percentage points during the said period followed by Haryana (8.53), Rajasthan (6.97) and Maharashtra (6.74).

Time bound goals in the 11th five year plan

- Reducing maternal mortality rate (MMR) to 1 per thousand live births;
- Reducing infant mortality rate (IMR) to 28 per thousand live births;
- Reducing total fertility rate (TFR) to 2.1;
- Providing clean drinking water for all by 2009 and ensuring no slip backs;
- Reducing malnutrition among children of age-group 0-3 to half its present level;
- Reducing anaemia among women and girls by 50 percent;
- Raising sex ratio for age-group 0-6 to 935 by 2011-12 and to 950 by 2016-17.

National Population Policy 2000

This policy outlined three objectives: Immediate, medium-term and long-term.

The immediate objective was to meet needs of contraception, health infrastructure, health-personnel and to provide integrated services for basic reproductive and child health care.

The medium term objective was to lower down the total fertility rates (TFR) to the replacement levels by 2010.

The long-term objective was to achieve a stable population by 2045.

In this broad framework, the National Population Policy aimed at the following:

- Reduce maternal mortality rate (MMR) to below 100 per one lakh live births;
- Reduce infant mortality rate (IMR) to below 30 per thousand live births;
- Achieve universal immunization of children against all vaccine preventable diseases;
- Achieve universal access to information/counseling and services for fertility regularization and contraception with a wide basket of choices;
- Promote delayed marriage for girls, not earlier than 18 and preferably after 20 years of age;
- Prevent and control communicable diseases;
- Promote the small family norm to achieve replacement levels of total fertility rates;
- Bring about convergence in implementation of related social sector programmes to make family welfare a people central programme.

member of the United Nations Organisations.

- Membership in the United Nations is open to all other peace-loving states, which accept the obligations contained in the present Charter.
- Membership in the United Nations will be granted by a decision of the General Assembly upon the recommendation of the Security Council.

At the time of its establishment, the United Nations had 51 countries. Currently, there are 192 United Nations member states.

2. Headquarters

The headquarters of the United Nations is located on the international territory in **New York City**. It also houses the four principal organs of the UNO. The International Court of Justice is located in The Hague. The other major agencies of the United Nations are based at Geneva, Vienna and Nairobi.

Also endorsed the global Forest Principles and adopted Agenda 21 for achieving Sustainable Deve. in the 21st Century.

It declares 27 Principles

1) Human being are at the centre of concern for Sus. deve. They are entitled to a healthy & productive life in harmony with nature.
2) State have right to exploit their resources and carry on with deve. activities without causing damage to other states (Nations)
3) Right to development must be fulfilled so as to meet developmental & equitable Env. needs of present & future generations.

Demographic transition

"Demographic transition" is a model that describes population change over time. There are several expositions of demographic transition theory. The theory mainly describes and analyses the transition from a stable population with high mortality and high fertility to a stable population with low mortality and low fertility. The stages of demographic transition have, however, been differently analysed by different demographers. A commonly accepted theory defines four clear stages of population growth. The four stages are:

Stage 1 : Typically seen in less developed countries where birth rates are high but a large number of people die of preventable causes leading to a stable population.

Stage 2 : Death rates fall steeply as deaths from preventable causes are reduced by better food supply and improved public health, but birth rates remain high due to high fertility, poor social development and limited access to health and contraceptive services. This often leads to a spurt in population.

Stage 3 : Birth rates fall but population continues to grow because there are a large number of people in the reproductive age group due to the high fertility of the previous generations.

Stage 4 : Countries achieve a stable population once again with low birth and low death rates but at a higher level of social and economic development. Population is stable but higher than in stage one.

This transition from a stable population with high mortality and high fertility to a stable population with low mortality and low fertility is called demographic transition. India is currently at the third stage19, with some of the States and Union territories already into stage 4.

ten countries account for nearly three- fifth of the world population. The three most populous ones, namely, China, India and USA, together account for four of every ten persons of the world.

At present, a little more than one out of every six persons in the world is from India.

The gap between India, the country with the second largest population in the world and China, the country with the largest population in the world has narrowed from 238 million in 2001 to nearly 131 million in 2011. On the other hand, the gap between India and the United States of America, which has the third largest population, has now widened to about 902 million from 741 million in 2001. In 1950, China with 22 percent share of the world population was the world's most populous country, followed by India, which had a share of 14.2 percent. The population of India is almost equal to the combined population of USA, Indonesia, Brazil, Pakistan, Bangladesh and Japan put together- the population of these six countries totals 1214.3 million.

A point that is striking is that while India accounts for a meagre 2.4 percent of the world surface area of 135.79 million square kms, it supports and sustains a whopping 17.5 percent of the world population. In contrast, the USA accounts for 7.2 percent of the surface area with only 4.5 percent of the world population. As such,

Percentage decadal growth rates of the six most populous States

The percentage decadal growth rates of the six most populous States, namely, Uttar Pradesh, Maharashtra, Bihar, West Bengal, Andhra Pradesh and Madhya Pradesh have all fallen during 2001-2011 compared to 1991-2001, the fall being the lowest for Andhra Pradesh (3.5 percentage points) and highest for Maharashtra (6.7 percentage points).

among the ten most populous countries of the world, only Bangladesh has a higher population density compared to India.

The United Nations has estimated that the world population grew at an annual rate of 1.23 percent during 2000-2010. China registered a much lower annual growth rate of population (0.53 percent) during 2000-2010, as compared to India (1.64 percent during 2001-2011). In fact, the growth rate of China is now third lowest among the ten most populous countries, behind Russian Federation and Japan and it is substantially lower than the USA (0.7 percent). With a definite slowing down of population growth in China, it is now estimated that by 2030, India will most likely overtake China to become the most populous country on the earth with 17.9 percent population living here.

3. Environmental ethics :

(i) Love and honour for the earth.

(ii) Celebrate the turning of the senses of the earth.

(iii) No right to drive other livings to extinction.

(iv) Be respectful to plants and animals which provide food to human beings.

(v) Limit the human population.

(vi) Do not waste your resources.

(vii) You should not run after gains at the cost of nature.

(viii) Do not prohibit the right of future generation to live in a clean and safe vironment.

(ix) Consume the natural resources in moderate amounts so that all may share treasure.

Even our ancient **Vedas and Upanishads** advocate the ecological and vironmental values e.g.

"The whole universe together with its creatures belongs to the Lord (Nature) Let no one species encroach over the rights and priviliges of other species."

–Isha Upanishad

Even in our Vedas, every component of the environment is compared with some d/goddess so that we have respect for them. So environmental ethics demand t **man should learn to live as a part of nature and not as a master of nature.** must make sincere efforts to renew the natural resources so that all species may ve in nature.

CLIMATE CHANGE

1. Introduction and Definition : Climate refers the physical environmental rs of an area. These physical factors include duration and quantity of light, perature, humidity, wind, gases, water, etc. Such conditions which average for t 30 years is called **climate.** These climatic conditions especially temperature fluctuate from time to time but such fluctuations vary in different regions e.g.

of production & consumption and promote appropriate demographic policies.

9) Strengthening of endogenous capacity-building for sus. dev. by improving sc. understanding, exchange of technologies, innovative & new technologies.

10) Participation of all citizens, encourage public awareness, env. information should be made available widely

11) States shall enact effective environmental legislation.

22) Indigenous people — vital role traditional practices — env friendly.

23) Env. & Res. of people under oppression shall be protected

24) States shall respect international law during military conflict.

25) Peace, deve & env protection are inter-dependent & indivisible.

26) All Env. disputes shall be resolved peacefully in accordance with UN Charter.

27) States & people shall cooperate in good faith for fulfillment of Declaration Princ

Literacy

The state literacy in India as per the provisional totals of census 2011 presents a highly encouraging picture. The highlights have been the decline of the number of illiterates and the increase in the number of literates across the country. The most encouraging trend has been the narrowing down of the gender gap in literacy.

Literacy level and educational attainment are vital indicators of development in a society. Attainment of universal primary education is one of the Millennium Development Goals of the United Nations to be achieved by the year 2015. Planning Commission has also targeted in the eleventh Five Year Plan to increase literacy rate of persons of age 7 years or more to 85% and reducing gender gap in literacy to 10 percentage points by 2011-12.

The number of literates and illiterates aged seven and above in India as per the provisional population totals of Census 2011 is 778,454,120 and 272,950,015 respectively. There has been a marked improvement in the proportion of literates in the last decade. Literates in 2011 constitute 74 per cent of the total population aged seven and above as compared to 65 percent in 2001. On the other hand, illiterates form 26 per cent of the total population in 2011 as compared to 35 percent in 2001.

The formula for computing crude literacy rate and effective literacy rate are as follows:

Crude Literacy Rate

$$\frac{\text{Number of Literate persons} \times 100}{}$$

272,950,015 in 2011, showing a decline of 31,196,847 persons.

One of the interesting features of Census 2011 is that out of total of 217,700,941 literates added during the decade, females (110,069,001) out number males (107,631,940). A reverse trend was noticed during 1991-2001. The decadal increase in number of literates among males is of 31.98 percentage points while the corresponding increase in case of females is of 49.10 percentage points.

A notable feature is that out of the total decrease of 31,196,847 in the number of illiterates, the females (17,122,197) outnumber males (14,074,650). The above two changes are a clear indication of the fact that the gender gap in literacy is shrinking in the country. This trend of rising female literates will have far reaching consequences on the development of society.

Other States/UTS

The other States and Union Territories showing substantial percentage increase in number of literates are Dadra and Nagar Haveli (119.46), Daman & Diu (75.63 per cent) Arunachal Pradesh (62.95 per cent), Meghalaya (56.99 per cent) and Jammu & Kashmir (50.71 per cent).

The percentage decadal increase in population aged seven years and above during 2001-2011 is 21.56 per cent while the corresponding increase in the number of literates in this age group is of 38.82 per cent.

Literates/Illiterates	Persons	Males	Females
Population (aged 7 and above)			
2001	86,49,00,041	44,72,14,823	41,76,85,218
2011	1,05,14,04,135	54,07,72,113	51,06,32,022
Increase in 2011 over 2001	18,65,04,094	9,35,57,290	9,29,46,804
Literates			
2001	56,07,53,179	33,65,71,822	22,41,81,357
2011	77,84,54,120	44,42,03,762	33,42,50,358
Increase in 2011 over 2001	21,77,00,941	10,76,31,940	11,00,69,001
Illiterates			
2001	30,41,46,862	11,06,43,001	19,35,03,861
2011	27,29,50,015	9,65,68,351	17,63,81,664
Increase in 2011 over 2001	-3,11,96,847	-1,40,74,650	-1,71,22,197

Literacy in major states

Rank	State/Union Territories*	No. of Literate in 2011	No. of Literate in 2001	Absolute increase in the No. of Literates (2001-2011)	% increase in the number of literates (2001-2011)
	INDIA	**77,84,54,120**	**56,07,53,179**	**21,77,00,941**	**38.82**
1	Bihar	5,43,90,254	3,11,09,577	2,32,80,677	74.83
2	Jharkhand	1,87,53,660	1,17,77,201	69,76,459	59.24
3	Uttar Pradesh	11,84,23,805	7,57,19,284	4,27,04,521	56.40
4	Rajasthan	3,89,70,500	2,77,02,010	1,12,68,490	40.68
5	Chhattisgarh	1,55,98,314	1,11,73,149	44,25,165	39.61
6	Madhya Pradesh	4,38,27,193	3,15,92,563	1,22,34,630	38.73
7	Uttarakhand	69,97,433	51,05,782	18,91,651	37.05
8	Odisha	2,71,12,376	1,98,37,055	72,75,321	36.68

Literacy rate in India : 1951-2011

Census Year	Persons	Males	Females	Male-Female gap in literacy rate
1951	18.33	27.16	8.86	18.30
1961	28.3	40.4	15.35	25.05
1971	34.45	45.96	21.97	23.98
1981	43.57	56.38	29.76	26.62
1991	52.21	64.13	39.29	24.84
2001	64.83	75.26	53.67	21.59
2011	74.04	82.14	65.46	16.68

cent ranks last in the country preceded by Arunachal Pradesh (66.95 per cent) and Rajasthan (67.06 per cent).

Kerala holds the first rank in the country in female literacy with 91.98 per cent. Rajasthan (52.66 per cent) has recorded the lowest female literacy rate preceded by Bihar (53.33 per cent).

Lakshadweep (96.11 per cent) holds the first rank in the country with respect to male literacy rate. Kerala (96.02 per cent) ranks second. Bihar

World population was transformed in the 20th century as technological and social changes brought steep declines in birth rates and death rates around the world. The century began with 1.6 billion people and ended with 6.1 billion, mainly because of unprecedented growth after 1960. The momentum created by this population growth may carry the world population past 7 billion by 2015. It is almost certain that nearly all future population growth will occur in the developing regions of the world. Urban areas in these regions will absorb most of the additional people.

Population Growth Rates

It is significant that the percentage decadal growth during 2001-2011 has registered the sharpest decline since independence. It declined from 23.87 percent for 1981-1991 to 21.54 percent for the period 1991-2001, a decrease of 2.33 percentage point. For 2001-2011, this decadal growth has become 17.64 percent, a further decrease of 3.90 percentage points.

Similarly, the average exponential growth rate for 2001-2011 has declined to 1.64 percent per annum from 1.97 percent per annum during 1991-2001. The average annual exponential growth rate during 1981-1991 was 2.16.

Population: States and Union Territories

Uttar Pradesh continues to be the most populous State in the country with almost 200 million people living here, which is more than the population of Brazil, the fifth most populous country in the world. The combined population of Uttar Pradesh and Maharashtra (the second most populous State), at 312 million, is substantially greater than the population of USA, the third most populous country of the world. Twenty States and Union Territories now have a population of over ten million. On the other extreme, there are five States and Union Territories in the country that are yet to reach the one million mark.

While Uttar Pradesh (199.6 million), Maharashtra (112.4 million), Bihar (103.8 million), West Bengal (91.3 million) and Andhra Pradesh (84.7 million) have all held on to the top five slots in terms of their ranking in 2011 as compared to 2001, Madhya Pradesh (72.6 million), which has moved on to take the sixth position from its seventh position, pushing Tamil Nadu (72.1 million) now to the seventh spot. A little more than six of every ten Indians live in one of these seven States.

Population growth: All states and Union Territories

Exactly half of the twenty most populous States, each with a population of ten million or more, have added lesser persons in the decade 2001-2011 compared to the previous one. Had these ten States added the same number of persons during 2001-2011 as they did in the previous decade, everything else remaining the same, India would have added another 9.7 million more persons during this decade. The phenomenon of low growth have started to spread beyond the boundaries of the Southern States during 2001-11, where in addition to Andhra Pradesh, Tamil Nadu and Karnataka in the South, Himachal Pradesh and Punjab in the North, West Bengal and Odisha in the East, and Maharashtra in the West have registered a growth rate between eleven to sixteen percent in 2001-2011 over the previous decade.

Among the smaller States and Union Territories, Dadra and Nagar Haveli and Daman and Diu registered very high growth rates of more than fifty three percentage points. In contrast, Lakshadweep, Andaman & Nicobar Islands and Goa have registered single digit decadal growth. Nagaland is the only State which has registered a small negative growth during 2001-2011 after very high growths in all the previous decades.

The percentage decadal growth of population in the inter-Censal period 2001-2011, among the more populous States and Union Territories, varied from a low of 4.86 in Kerala to a very high 25.07 in Bihar. Jammu & Kashmir with 23.71 percent, Chhattisgarh with 22.59 and Jharkhand with 22.34 also registered very high growth rates.

The percentage decadal growth has declined during the census decade 2001-2011 as compared to the previous census decade in all the States and Union Territories except Chhattisgarh, Tamil Nadu and Puducherry, which together constitute about 8.17 percent of India's population.

2. Principles of UNO

The UNO follows several principles.

- All member-states are considered to be sovereign and equal.
- All members of the UN are required to abide by the principles stated in the UN Charter and fulfil their obligations faithfully. The UNO and its members should not interfere in the internal affairs of any country
- All disputes must be settled peacefully.
- All members are required to assist the UNO in all its actions.
- The organisation should see that non-member states should also act according to the principles of UNO.
- The United Nations is neither a government nor does it make laws. However, it helps in resolving international conflicts and crises. It is also involved in formulating policies on issues and matters that affect the entire world. The UN recognises the importance of all its member-states, no matter how large or small, and rich or poor they are or what political views and social systems they represent. Every member is entitled to have a voice and a vote in the process of the UN.

Key points: Objectives, Purpose and Principles of UNO

- Objectives and purpose—save succeeding generations from the scourge of war; maintain international peace and security and eradicate the threats to peace; develop friendly relations among nations and acquire international peace and co-operation in solving economic, social and cultural problems; establish conditions under which justice and respect for international law and international treaties can be maintained; establish faith in human rights and in the dignity and worth of the human being; promote social progress and better standard of life; and harmonise and achieve the said aims and objectives.
- Principles of UNO—all member-states are considered to be sovereign and equal; all the members of the UN are required to abide by the principles stated in the UN Charter and fulfil their obligations faithfully; all disputes must be settled peacefully; all members are required to assist the UNO in all its actions; members should not interfere in the internal affairs of any country

Principal Organs of UNO

The UN Charter provides for **six principal organs** of the UNO along with their respective duties, powers and methods of working. These organs are the General Assembly, the Security Council, the Economic and Social Council, the Trusteeship Council, the International Court of Justice and the Secretariat.

1. General Assembly

a) Annual sessions

The **General Assembly** is the main organ of the United Nations. It is composed of all the member-states. The General Assembly holds its annual regular session from September to December to discuss important and pressing issues concerning the world. The member states, at the beginning of each session, elect a president from among themselves. Apart from the regular session, the General Assembly can also hold special or emergency sessions to discuss matters and subjects of particular concern. The General Assembly is like a parliament of the nations. Each member state can send up to five representatives. However, each member has only one vote.

b) System of voting

To pass a resolution, the General Assembly resorts to voting. However, the decision on any question such as approval of the budget, making recommendations on peace and security, electing a member to a particular organ and granting membership is reached only when it is approved by a majority of two-thirds of members present and voting. Each member country has one vote. It is important to note that the General Assembly can discuss any matter that falls within the scope of the UN, except for those that are under the consideration of the Security Council.

c) Functions of General Assembly

- **Deliberative functions:** As a deliberative organ, the General Assembly discusses and makes recommendations on any matter related to international security and peace. The Assembly also seeks to promote international cooperation among the members on social, economic, educational and cultural issues.
- **Supervisory functions:** The General Assembly is responsible for administering and regulating

⇒ Features! →

- Partial or complete absence of Vegetation
- Landsurface is exposed to denudational processes (erosion) or unprotected landsurface became of no vege.
- Absence of water or very little water available → thus arid or semi-arid lands.
- Wind is an agent of importance, Geomorphic agent and also affects the lifestyle of people.
- Action of Mechanical & chemical weathering, rocks breakup & wind

Cultivation — Coarse grain where water is available.
Soils are poor, degraded, coarse, more soil salt loose, thin
Subsistence agri., primitive methods of farming.

Mining activity

oil, N-gas, iron, Mica, phosphate, Coal, tin, lead, salt, Coffee (Raj)

Pipelines from origin → coastal area or refineries for trade.

Tourism :-
Emptiness attracts tourists
Sand dunes, Oasis,

Agro Industries → Also big near Urban centres

Coast

The zone of contact between land and sea.

Shore comprises the area between low-water spring tides and the base of the cliff (between low water and the highest point reached by storm waves)

Beach consists of accumulation of sand and stones upon the shore

- Coast is formed by natural factors waves, rock type, tides, ice sheets, glaciers - -
- The work of man is of profound significance esp. marine engineering in the form of
  - dredging of estuaries,
  - Creation of ports.

contains more of small grains and of open structure erodes faster.

Slope

Soil present in a steeper slope more than the soil present at a plane level of the ground.

Intensity or Amount of Rainfall

More intense rain, more erosion. This can be a bit slow if there are more trees present in the land as the roots of the plants hold soil in a firm manner.

Human Activities

Agricultural practices, deforestation, roads and urbanization and global warming are a few major causes of soil erosion.

Deforestation

explained below.

Rain Drop or Splash Erosion

The erosion due to the impact of falling raindrops on soil surface leading to the destruction of the crumb structure is known as the raindrop or splash erosion.

Sheet Erosion

It is the uniform removal of soil in thin layers from the land surface caused by the wind. Land areas with loose, shallow topsoil overlie compact soil are most prone to sheet erosion

Rill Erosion

Rill erosion is a form of water erosion in which the erosion takes places through numerous narrow and more or not so straight channels called streamlets, or head cuts. Rill is the most common form of erosion, which you can also observe during heavy rain.

Erosion of topsoil

What is Soil Erosion?

Soil Erosion is one form of soil degradation. It occurs in almost all types of lands. Flowing water, rainwater, and the wind are the prime agents which cause a significant amount of soil loss each year. Too much of soil erosion causes serious loss of topsoil and also reduces crop production potential, lower surface water quality, and damaged drainage networks.

Types of Soil Erosion

One of the most important things that we can do to ensure the health of our crops and nearby ecosystems is to reduce soil erosion. The different soil erosion types are explained below.

Rain Drop or Splash Erosion

removal of soil ...

Gullies when started once, will move by headward erosion or even by slumping of side walls unless and un-till proper steps will be taken in order to stabilize the disturbance.

Stream Bank Erosion

Bank erosion is nothing but washing

global warming during late autumn and winter takes place more in the areas of higher latitudes (e.g. 2 to 3 times than the average change at the poles) than the areas in tropics.

These changes in the physical environmental factors of an area over long period of time collectively called climatic change which may adversely affect the agriculture, migration of animals, hydrological cycle, thermal gradient between the poles and equator, wind pattern, distribution of rainfall, etc.

2. Causes of climate change : Main culprit of such climatic change is man himself. **Anthropogenic (man-made) activities** are mainly responsible for upsetting the delicate balance between the various components of the environment. These include : population explosion, rapid industrialization, urbanization, unjudicious use of fossil fuels, deforestation, biomass burning, increased use of automobiles, jet-aeroplanes, etc. These activities release greenhouse gases like CO_2, methane, N_2O and chlorofluoro carbons (CFCs), etc. in the atmosphere and cause increase in the average global temperature. It is estimated that earth's temperature is increasing at the rate of 0.5 to 1°C for every 100-200 years.

GLOBAL WARMING

1. Introduction : The average global temperature is 15°C which is maintained due to presence of certain gases like CO_2, methane, water vapour, nitrous oxide and chlorofluorocarbons present in the troposphere (lowermost zone of atmosphere). These gases are collectively called **heat-trapping** or **Greenhouse gases (GHGs).** Earth's temperature is maintained by **reradiated infra-red (heat) radiations by these GHGs which prevent heat from escaping to outer space,** so are functionally comparable to glass panels of a greenhouse which keep CO_2 concentration higher and so higher temperature inside the greenhouse. So this effect is called **Greenhouse effect.** These GHGs contribute to the tune of 33°C effect as in their absence, the average global temperature would have been as low as –18°C.

2. Definition : Global warming is the increase in average global temperature due to increase in amount of GHGs in the earth's atmosphere.

3. Sources and Relative contribution of different GHGs to global warming (Fig. 6.2) :

of CO_2 are : combustion of fossil fuels like

Lakshadweep islands, Mumbai and deltas of Ganges (West Bengal), Cauveri (T.N.), Godavari (A.P.) and Mahanadi (Orissa).

(ii) Increase in global temperature. It is estimated that if the present input trend of GHGs continued, then Earth's mean global temperature will rise.

A **December 2003 report** has predicted that global warming would be faster during the 21st century and average global temperature would be 5.5°C higher by 2100 A.D.

(iii) Ecological disturbance. Due to global warming :

(a) North America will be warmer and drier while North and East Africa, India, W. Australia and Mexico will be warmer and wetter. Worst drought of 2001 in Kenya which affected about 4 million people was due to global warming.

(b) Deserts are likely to increase.

(c) Chances of hurricanes, cyclones and floods will be more which will damage the lagoons, estuaries and coral reefs.

These ecological disturbances due to global warming may cause extinction of more than one million species of animals and plants by 2050 A.D.

(iv) Effect on agriculture. The response of plants to elevated concentrations of CO_2 is called **Carbon Dioxide fertilization effect.** It is estimated that with increase in CO_2 concentration, some plants will show increased photosynthesis, reduced transpiration, more water-use efficiency, greater root production, increased nitrogen-fixation in the root nodules, etc. which may increase the growth of plants by about 30 per cent. But all these beneficial effects will be negated by the ill effects on most of plants by : increased evaporation, decreased soil moisture, increased pest growth, etc. which may adverselly affect the wheat and maize production.

(v) Effect on human health. Increased temperature and humidity caused by global warming will increase the chances of spread of vectors of a number of human diseases like malaria, filariasis, schistosomiasis etc. These climatic changes will also increase the incidence of respiratory and skin diseases in human beings.

Keeping in view these ill-effects of global warming, **UNEP (United Nations Environmental Programme)** chosen the following slogan in 1989 :

GLOBAL WARMING : GLOBAL WARNING

Since 1989, **"5th June is celebrated as World Environmental Day".**

5. Measures to check global warming :

(i) Control of population growth by decreasing the birth rate.

(ii) Afforestation (Planting more trees on new areas).

(iii) Deforestation reversal by **reforestation.**

(iv) Reduction in the use of **chlorofluorocarbons.**

(v) To trap and use **methane as a fuel.**

(vi) Shift from **coal to natural gas** or electricity as energy-source.

Rio Declaration 1992

United Nations conference on Env. & Deve., having met at Rio de Janeiro from 3rd to 14th June 1992

1st International Earth Summit

- The summit was convened for addressing urgent problems of Env. protection and socio-eco deve at the global level.
- Agenda was to combat env. damage, poverty, disease through global co-operation on common interest, mutual needs and shared responsibilities.
- The assembled leaders signed the declaration on Global Climatic

The report put to review by hundreds of independent scientists.

It could not be released unless signed by all governments including U.S.A.

2007 report

This include → studies documenting accelerated melting of greenland ice sheet.

Water is near the surface

Trees are deep rooted - dug deeply to get water 15-20 m down

Artesian wells are used for irrigati

deep wells are dug.

Pipes are laid to supply water to households & fields.

Distillation of Sea water to make it worth for irrigation for coastal areas & deserts

Nomadism about 30% people still practice it

Nomads trade in gold, camels, silver, weapons, cloth

Grow Barley, wheat & fruit

of Europe, the UN created the Inter-governmental Negotiating Committee (INC) entrusted with the task of negotiating a global warming convention. During January 1991 to May 1992 five INC meetings took place and the outcome was the United Nations Framework Convention on Climate Change (UNFCCC).

During such meetings the U.S. very often was isolated from rest of the world. Whereas developing countries took the position that the onus of climate change belonged to the industrialised developed countries, the U.S. wanted developing countries to accept responsibility. The U.S. resisted any proposal that would assign responsibility for GHG reduction on the basis of a nations historical share of emissions. It was extremely reluctant to acknowledge "differentiated responsibilities" for national obligations. It strongly resisted proposals to negotiate enforceable (legally-binding) targets and time tables to reduce GHG emissions. On the question of funding GHG-reducing projects in developing countries, the U.S. resisted that developed nations pay not "full" costs, but only "incremental" costs.

1992 Rio de Janeiro : The Earth Summit (3-14 June, 1992)

The UNFCCC text adopted at the summit recognised that industrialised countries are more responsible for GHG emissions historically and currently, asking them to voluntarily stabilise their emissions to 1990 levels by 2000. They should take lead in reducing emissions. Unfortunately, U.S. pressure ensures that the text remains a legally non-binding one.

1992 to 1995

During the intervening period between 1992 and 1995, series of Inter-governmental Negotiating Committee meeting took place. But no consensus could emerge among world leaders to combat global warming and climate change.

1995 • The IPCC in its assessment report concluded that there is a discernible human influence on climate.

The CoP-1 to UNFCCC in Berlin called for a protocol with a schedule for reductions to be adopted in 1997. There would be no new commitments for developing countries.

1996 • At CoP-2, held at Geneva, there was little progress on agreeing to new targets. The U.S. called for a realistic, verifiable and achievable target without indicating any base year. The proposed target should be met through emissions trading and project-based trading that had to include developing countries. The U.S. infact included controversial issues that would considerably slow down the negotiation process.

• The Geneva Declaration, however, calls for legally-binding medium-term targets to reduce emissions to be negotiated at CoP-3 in Kyoto.

July 25, 1997 • A senate resolution introduced by senators Hagel and Byrd is passed by a vote of 95-0, suggesting that the U.S. should not sign any agreement unless the protocol or other agreement also mandated new specific scheduled commitments ... for developing country parties within the same compliance period. The resolution effectively jeopardised those UNFCCC principles the U.S. had agreed in 1992.

Kyoto Protocol (CoP$_3$, UNFCCC)

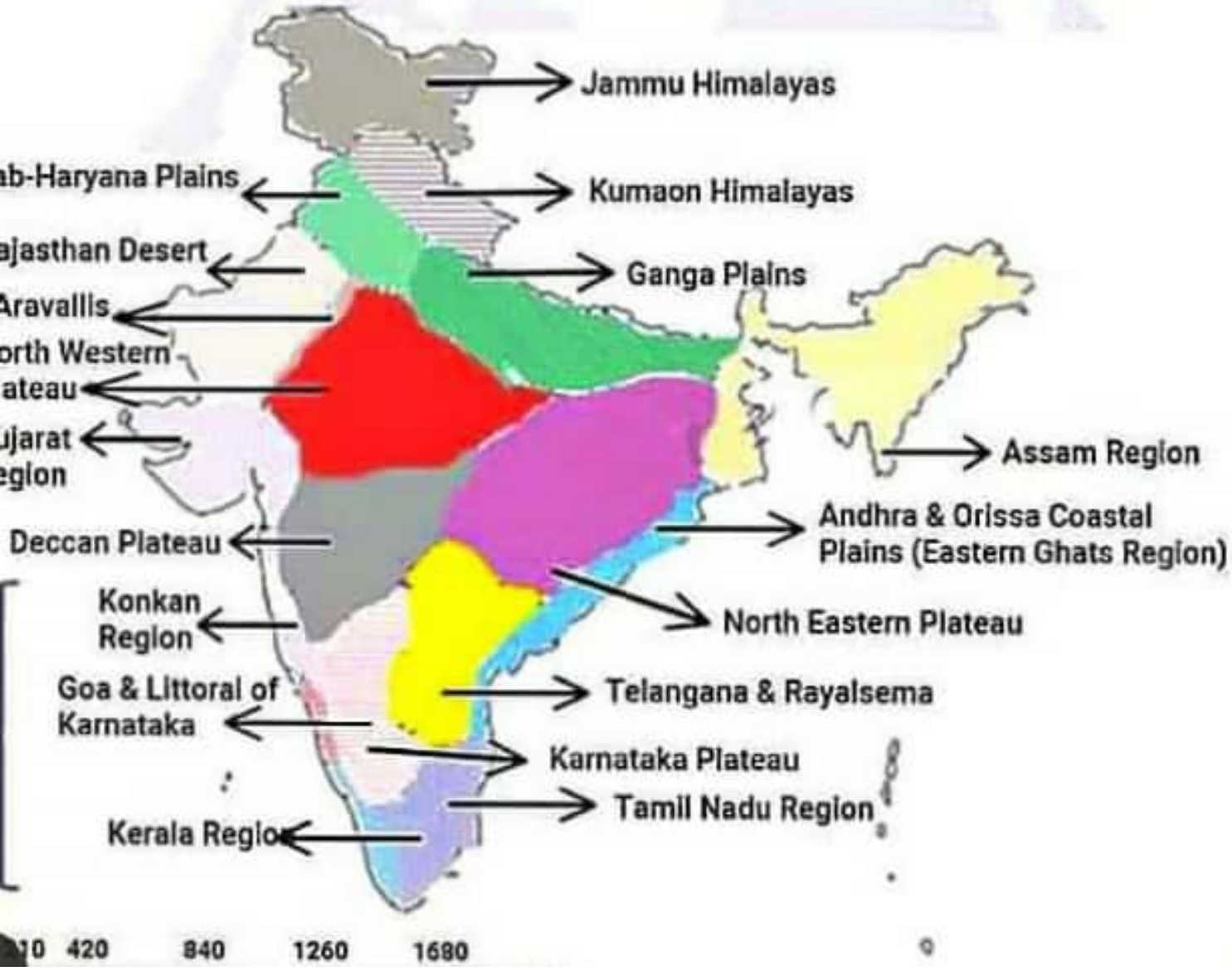
December 1-10, 1997

Kyoto Protocol was signed at the historic CoP-3 held during December 1-10, 1997 at Kyoto, Japan. The Protocol asked industrialised countries to cut emissions, even as the U.S. held up negotiations till the last moment to force meaningful participation by key developing countries.

Under the Protocol, Japan agreed to reduce emissions to six per cent below 1990 levels, the U.S. agreed to seven percent, and the EU agreed on an eight per cent reduction by 2008-2012. On an average the Protocol demanded a cut of 5.2% below 1990 levels in the period 2008-2012.

Several provisions found their way into the Protocol to help industrialised countries meet their commitment cheaply. For instance, instead of focusing on cutting fossil fuel use, the following three so called flexibility mechanisms were introduced.

INDIAN PHYSICAL GEOGRAPHY



LANDSLIDES

...dslide/landslip is primarily a combination of several geological processes that include earth movements like extensive slope failure, rocks falling, and debris flow under the action of gravity. Landslides occur when gravitational and other types of shear stresseswithin a slope exceed the shear strength (resistance to shearing) of the materials that form the slope.

CAUSES OF LANDSLIDES

1. Extensive Rainfall: Prolonged and heavy intensity rainfall triggers landslide. If rain duration and pore pressure are high, moderate rainfall can also trigger landslide. A universal landslide survey held in 2003 revealed that 90% of the landslides that occurred were activated by a heavy rainfall.

2. Melting of Snow: In several cold mountain places, during snowmelt the water produced infiltrates into the earth .This increases pore water pressures, causing the initiation of the landslide process.

3. Rivers: Rivers can damage the slopes, particularly during the floods triggering a landslide.

4. Seismic Shaking and volcanic eruption: They cause slope failure triggering landslide.

5. Deforestation: Roots of plants hold soil particles firmly thereby avoiding soil erosion. But removal of vegetation makes rocks prone to landslides.

6. Geology: Type of rock or soil such coarse particles have low cohesive strength making it vulnerable to landslide.

7. Developmental activities: Excavationfor minerals, tunnels etc. and road construction can tootrigger landslide.

EFFECTS OF LANDSLIDES

Landslides blocks streams with debris and stones, leading to overflowing. It disrupts vehicular movement, damages vegetation, roads, communication networks and buildings. It also results in accidents. Overall it acts as a risk to life.E.g. A massive landslide in 2017 in Himachal Pradesh has killed at least 46 people and injured several others.

MANAGEMENT AND MITIGATION METHODS

1) Afforestation: It consolidates the slope thus checking slope instability. Degraded areas should be afforested and existing patches should be preserved.

2) Wired stone blocks: Stone ridge is strapped with wire mesh to protect against landslides.

3) Retaining wall: Construction of concrete retaining walls to prevent slippage from slope.

4) Landslide hazard zonation mapping: Zonation mapping will help in preventing settlements in hazard prone area and also developing and continuously updating the inventory of landslide incidences affecting a country.

5) Surface drainage: Draining of surface and subsurface rivers to allow smooth flow of water.

6) Landslide Warning Techniques: Sensors have been developed which are used for the landslide warning and detectionEarly warning systems can disseminate information to masses on time, hereby saving many lives.

7) Managing of catchment: Excess water in catchments areas should be stored to reduce