
Calyx
2009-10
A Study Circle Activity
S.P. College, Pune

The Study Circle (2009-10)

(From left to right) (Last row) -
Girish Purohit, Mandar Gatate, Mithilesh Chavan,
Shrikant Gabale, Rahul Mudholkar, Aniket Tharkude,
Mayuresh Kulkarni.

(Middle row) - Neelima Kharde, Sanju Kumari, Pavitra Bhat,
Anuya Kulkarni, Smita Gunjal, Ketki Marathe,
Shachi Mehta, Prof. Sanjeev Jagtap (Supervisor, Jr. College).

(First row) - Prof. Ashok Gadadare (Supervisor, Jr. College).
Dr. Neelima Gundi (Vice-Principal, Jr. College),
Dr. Subhash Khandagale (Vice-Principal, Arts faculty),
Principal Dr. D. N. Sheth,
Dr. V. M. Sholapurkar (Vice-Principal, Science faculty),
Prof. U. N. Kiwalkar (Vice-Principal, Commerce faculty),
Shri. Dilip Soman (Registrar In-charge).

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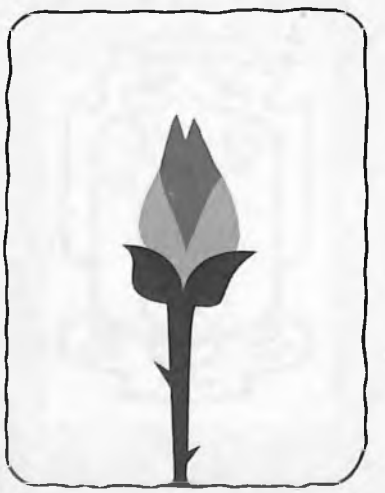
Sir Parashurambhau College, Pune.

calyx *n. tech. (pl.* ***calyxes*** *or* ***calyces****) a ring of leaves (sepals) which protects a flower before it opens and later supports the opened flower.*

Calyx will always remain a base upon which beautiful thoughts and ideas blossom.



Acknowledgements

We would like to extend our sincere gratitude and heartfelt thanks to the Principal Dr. D. N. Sheth, Vice-Principal (Science faculty) Dr. V. M. Sholapurkar and all the professors involved for their interest and support to the activities of the **"Calyx"** magazine.

The credit for the thought-provoking cover page goes to Mandar Gatate. We sincerely thank him for the excellent layout of the front page and his creative work.

We take this opportunity to thank all the professors who motivated, guided and supported us.

We would like to thank all the students of the study circle for their whole-hearted co-operation and active participation.

Last but not the least; we thank Mr. Madhav Nagpurkar of Shree Mudran Mandir, Pune for the neat typesetting and printing of the volume.

Mithilesh Chavan
Shrikant Gabale

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Editorial

Dear Readers,

We present to you the sixth issue of the students' magazine **'Calyx'** with a feeling of deep pleasure, enthusiasm and satisfaction. It is highly commendable that a lot of sincere efforts have gone into its making in considerably less time. We hope that its careful reading and understanding creates a delightful experience for the readers and offers them an opportunity to experience the joy of intellectual inquiry.

The magazine this year covers a diverse and broad spectrum of interesting research articles. The present issue comprises research articles from six different streams of knowledge- Geography, Economics, Political Science, Psychology, Philosophy and Computer Science. This issue is specially written by Post Graduate students of the above diverse disciplines, who have chosen the topics of their own interest and from their own academic spheres of study and research.

Interestingly, these articles reflect the student's perception, approach and their interpretation. The articles in this volume explore a variety of topics not commonly dealt with. They help in widening newer vistas of understanding. The articles reflect the core concerns in the respective branches of Science and Arts.

Though we have taken great efforts and utmost care to edit all the articles, there could be some mistakes, which could not be rectified.

'Calyx' is a magazine of the students of the study circle. It is truly a students' magazine in a broad sense. All academic, artistic, intellectual and editorial efforts needed for its creation have come from the students. They have met all the requisite expectations. It is by the students and also for the students. It offers them a platform to express themselves freely and creatively on any academic subject of their liking. The outcome, however, is not purely meant for students alone, but for all interested readers.

We believe that 'Calyx' will grow and enhance with every passing year and be constantly enriched with innovative ideas and thoughts. We also hope that the coming years will see the study circle becoming more active and encompass more fields of learning.

Mithilesh Chavan
Shrikant Gabale

Foreword

I am delighted to present the sixth issue of the Students' magazine **'Calyx'**. The first five issues received special attention, applause and appreciation from all those who are interested in student-centered activities. This issue, like first five, is an outcome of the sustained, c:ommitted and creative efforts of students of the study circle group of our college. I have a deep sense of contentment in expressing my heartfelt appreciation for this amazing work. Well Done!

The publication of 'Calyx' is an experiment, an experiment designed to promote original thinking, to provide opportunity to intelligent students for self-learning, to instill research mentality in bright young minds and ultimately to make students realize their infinite potential. Calyx is a modest attempt in initiating a learning process outside the walls of a classroom. I am sure that students enjoy this 'academic space' and meaningfully use it to widen their horizons.

The students of the study circle enjoy the freedom of selection and presentation of the topics. They also carry out all the editorial responsibilities. The chief editors and the leaders of the group - Shrikant Gabale and Mithilesh Chavan worked very hard. Their meticulous and dedicated editorial work deserves a special mention. I wish all the success to the members of the study circle group. The interaction with the group has been a fruitful and learning experience for me, at a personal level.

The activities of the academic year 2009-10 were hampered by two major events: Swine Flu and Teachers' strike. As a result, we had to relieve the under graduates from the Calyx work. So this time, the articles are written exclusively by the students of post graduate classes. As usual, the articles are written on a variety of interesting topics ranging from 'Climate Change' to 'Human Rights' and from 'Computer Viruses' to 'Plate Tectonics'. I am sure that the readers would find the articles informative and interesting. Students of the study circle group to the best of their capacity have surveyed the literature and expressed their views. All suggestions for the improvement are most welcome!

I take this opportunity to thank Principal Dr. D. N. Sheth for his constant encouragement and support in bringing out the magazine. I gratefully acknowledge the help from all the teaching and non-teaching members of our college. It is a pleasure to place on record my sincere thanks to Mr. Nagpurkar for his interest, innovative suggestions and fine printing.

V. M. Sholapurkar
In-charge, Calyx

Contents

Plate Tectonics : A Revolutionary Theory in Earth Science

Mithilesh Chavan, M.Sc. I (Geography)
Smita Gunjal, M.A. II (Geography)

INTRODUCTION TO PLATE TECTONICS:

Plate tectonics is the most recent and modern theory in Earth Science. In the end of 1960s, plate tectonics emerged as a unifying theory explaining many features of The Restless Earth like distribution of continents and oceans, continental drift, ongoing volcanism and tectonics, earthquakes, seismic events, distribution of different types of rocks at the surface, mountain building, geosynclines, faulting, etc.

The idea of moving continents has been proposed primarily by German meteorologist Alfred Wegener in his continental drift theory. The plate tectonics theory is a direct descendant of the continental drift hypothesis. Plate tectonics theory has overtaken other theories. Prof. Harry Hess postulated this concept in the year 1960. The term "plate" was first used by a Canadian geologist J. Tuzo Wilson in 1965.

CONCEPT OF PLATE TECTONICS:

The Earth's interior is divided into three major concentric parts:

1. ***The Outermost Crust,***
2. ***The Inner Mantle and,***
3. ***The Central Core.***

The Crust is divided into *SiAl* and *SiMa*. *SiAl* is the outermost layer of the Earth's crust composed of rocks rich in Silica and Aluminium. *SiMa* is the lower layer of the earth's crust composed of rocks rich in Silica and Magnesium.

The Mantle is divided into upper mantle and lower mantle.

The Core is the central part of the Earth's interior which is divided into outer liquid core and inner solid core.

The Earth's rocky outer crust solidified billions of years ago, soon after the Earth formed. This crust is not a solid shell; it is broken up into huge, thick plates that drift atop the soft, underlying mantle.

The crust of the Earth together with the upper mantle forms the lithosphere. It consists of rigid mobile slabs called plates that are slowly but constantly moving their position in relation to each other.

The recognition that the *lithosphere* is divided into rigid plates that move over the *asthenosphere* (part of mantle below lithosphere) is the foundation of plate tectonic theory. The main tenets of plate tectonic theory are that the rigid lithosphere consists of numerous variable-sized pieces called plates which float on a "plastic" layer called the asthenosphere. These plates move over the hotter and weaker semiplastic asthenosphere as a result of some type of heat-transfer system within the asthenosphere.

The Earth's surface layers are divided into large segments called plates. Plates include the Earth's crust (Sial and Sima) and a part of upper mantle and measure thousands of kilometers across. Plates may include either or both continents and oceans and move as a unit. These plates are from 50 to 250 miles (80 to 400 km) thick. Plates have changed their geographical position in the geological past.

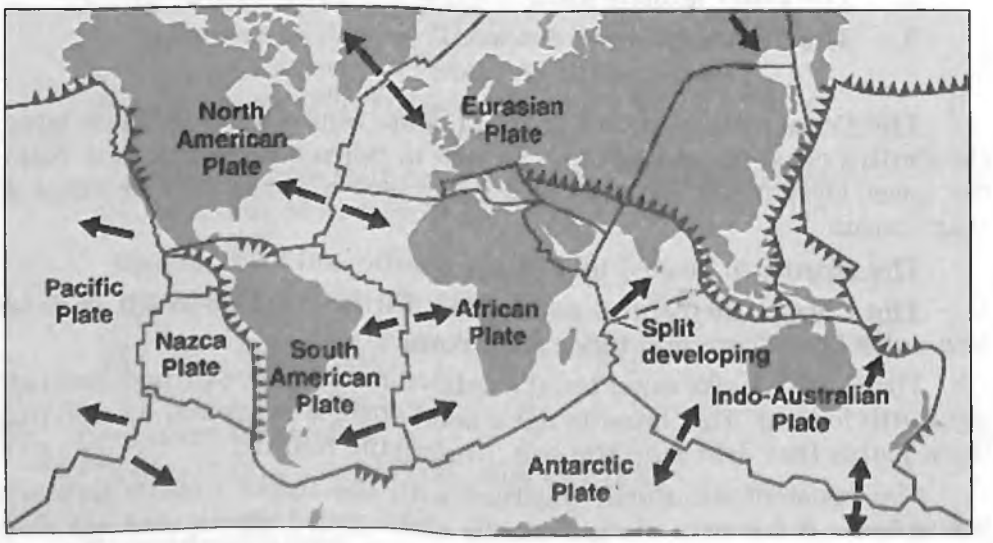
The whole mechanism of evolution, nature and motion of plates and resultant reactions is called "Plate Tectonics". (Singh, 1998)

DISTRIBUTION OF PLATES ON THE EARTH'S SURFACE:

According to the basic theory, the Earth's surface is covered by a series of crustal plates. There are 7 major plates and few minor plates (more than 20) covering the entire earth's surface.

Major plates: Pacific plate, North American plate, South American plate, African plate, Eurasian plate, Indo-Australian plate, Antarctic plate.

Minor plates: Arabian plate, Philippines plate, Cocos plate, Caribbean plate, Nazca plate, Scotia plate, Burma plate, Iran plate, etc.

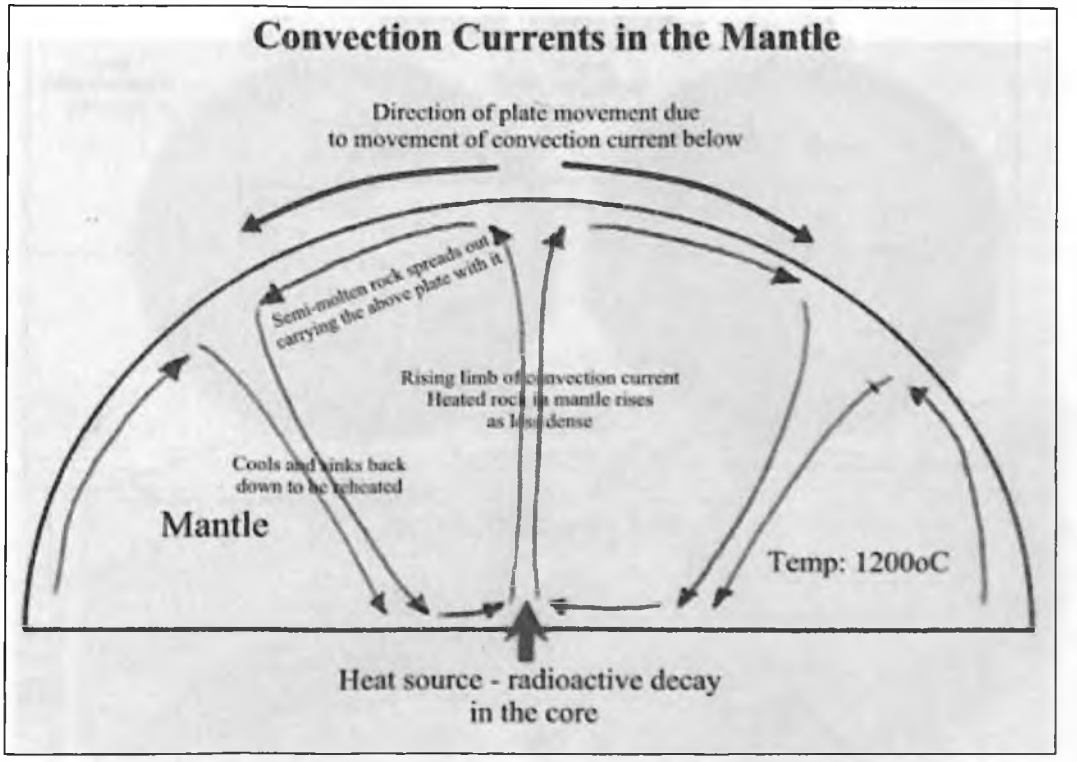


CAUSES OF PLATE MOTION:

In 1928, Arthur Holmes postulated the concept of rising thermal convection currents from within the Earth.

Thermal convective currents in the mantle are the main cause of plate motion. This is the most commonly accepted cause by majority of geoscientists.

Convection currents beneath the plates move the crustal plates in different directions. The source of heat driving the convection currents is radioactivity deep in the Earth's mantle.



MECHANISM OF PLATE TECTONICS:

As plates move over the Earth's surface, each describes a circular path round its pole of rotation. Plate movements take place in accordance with Euler's geometrical theorem. The plates move both horizontally (sideways) and vertically (up and down). Over long periods of time, the plates also change in size as their margins are added to, crushed together, or pushed back into the Earth's mantle.

Zones of volcanic activity, earthquakes, or both mark most plate boundaries. Along these boundaries plates separate (diverge), collide (converge), or slide sideways past each other. Plates separate, mostly at oceanic ridges, and collide, usually at oceanic trenches, where they are

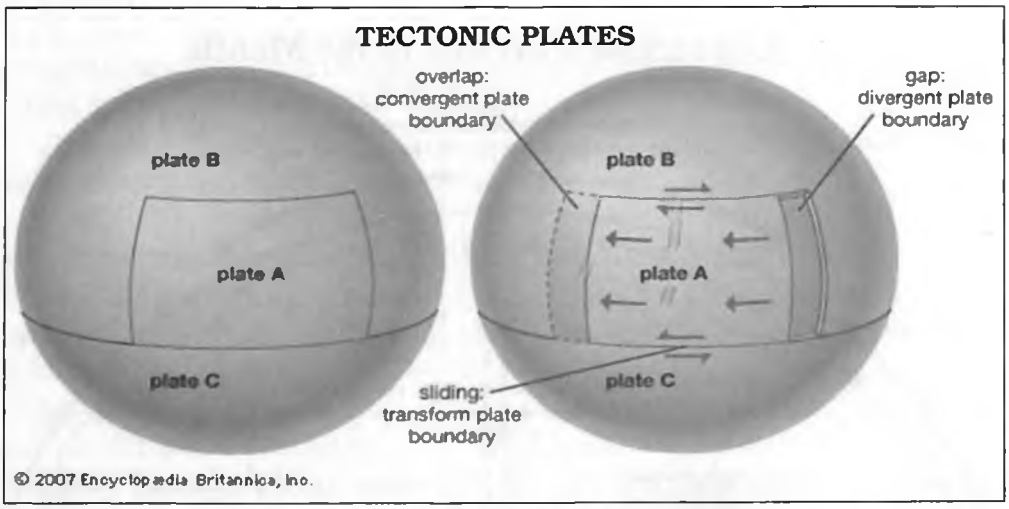
subducted back into the mantle. Since the volume of the Earth does not change, the amount of crust created at the ridges is balanced by that destroyed at the trenches in an endless cycle of movement.

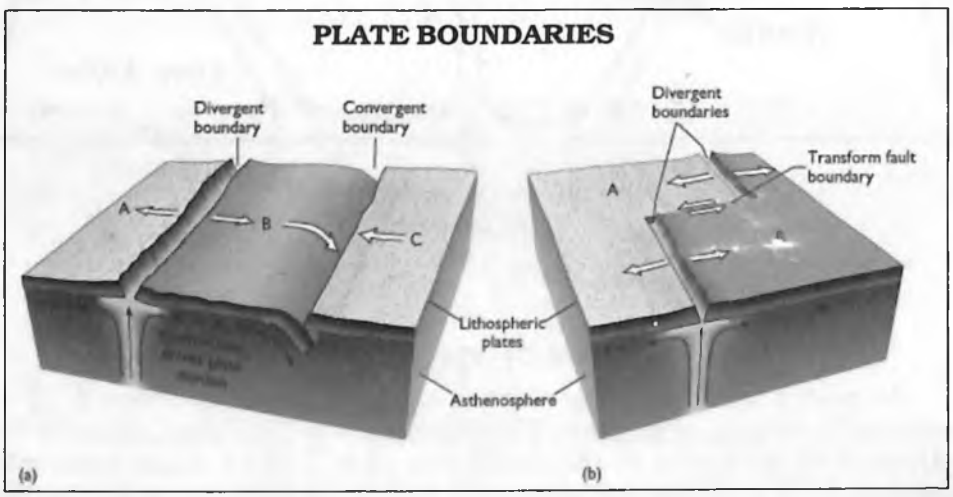
Plates may move away from each other, towards each other or slide each other. This results in three types of plate boundaries:

1. Constructive or Divergent Margin – *plates move away from each other.*

2. Destructive or Convergent Margin – *plates move towards one another.*

3. Transform Fault Margin – *plates slide past one another.*



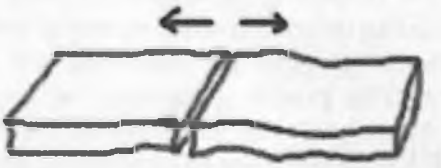


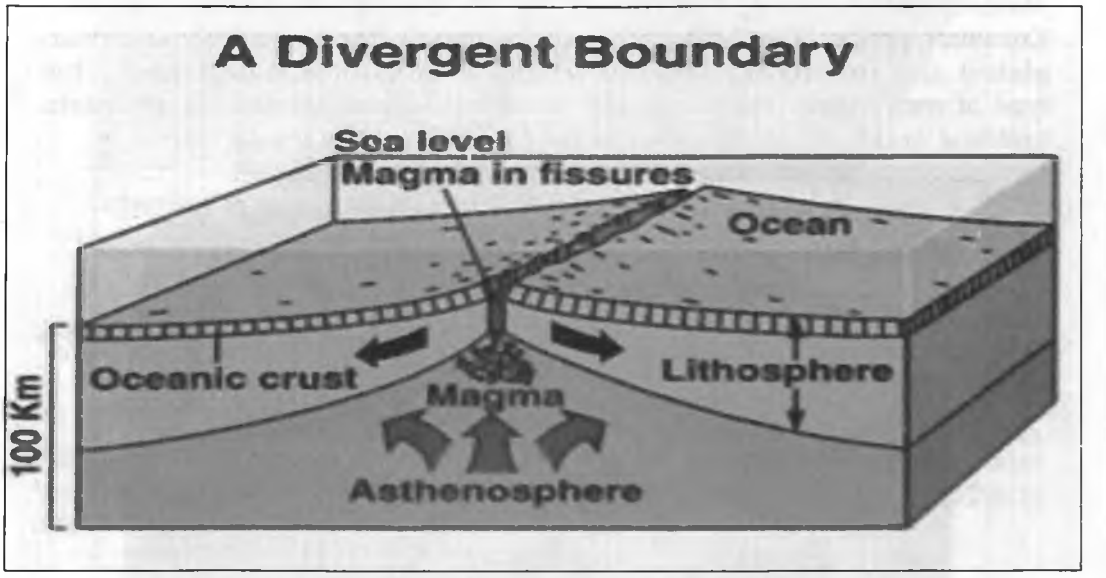
1. CONSTRUCTIVE / DIVERGENT PLATE BOUNDARY:

A divergent plate movement occurs when two plates move away from each other. When two plates move away from each other, a fissure develops and hot molten material (magma) rises up from mantle underneath the crust to the surface to cool and form new plate material. Magma solidifies at the plate boundary. This fissure is called a spreading or pull apart centre.

This is constructive since new crust is formed. As magma rises up to the surface, it piles up and solidifies, slowly forming a long chain of mountains on the ocean floor, called oceanic ridge. Volcanoes can also form undersea at these divergent boundaries; they are called submarine volcanoes and have gentle eruptions e.g. submerged volcanic islands – Iceland, the Azores and the mid-Atlantic and Indian oceanic ridges and rift valley of East Africa occur at divergent plate boundaries. The American and African plates are moving at a rate of 1 to 2 cm per year as against 5 to 9 cm per year rate of movement of Pacific plates.

Divergent Boundaries



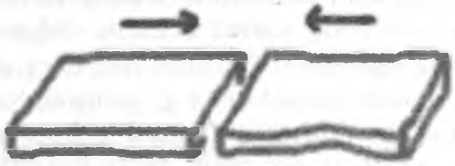


2. DESTRUCTIVE / CONVERGENT PLATE BOUNDARY:

Places where plates crash or crunch together are called convergent boundaries. Some crust is destroyed in this hence this is also called destructive boundary.

When two plates collide, denser and heavier plate subducts below less denser and lighter plate and it is destroyed and absorbed at depth. Subduction of solid plate below another one creates friction and stress which is released by earthquakes. The zone of collision of convergent plates is called Benioff zone.

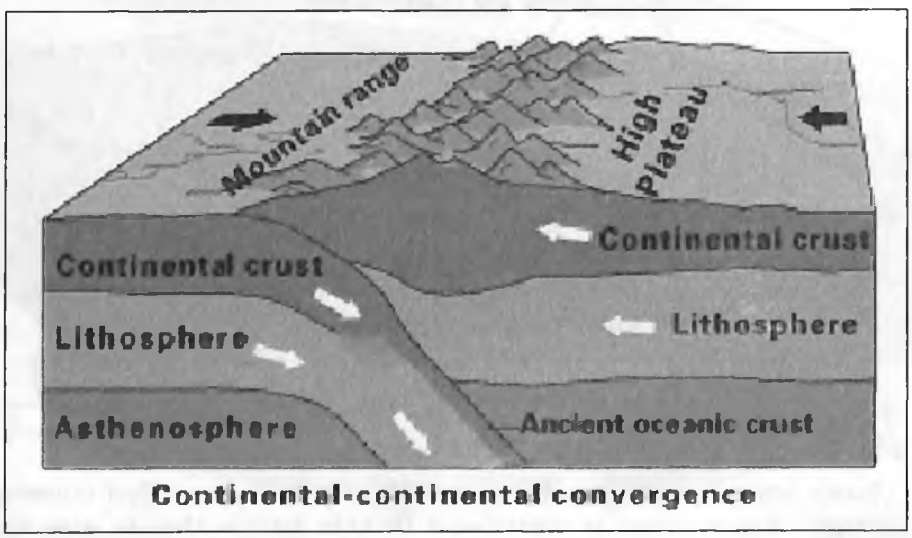
Convergent Boundaries



Three types of collisions or destructive margins are known:

- **Continent-continent collision:**

One plate will be forced only slightly under the other. When a continental block subducts below another, extent of subduction is restricted but soft sediments along margins of continents are folded to form young fold mountain system. The pressing together of two plates will fold the crust and form Fold Mountains e.g. Himalayan mountain system- Indian plate has collided with Eurasian plate to form Himalayas and elevated Tibet plateau. Other leading fold mountains are the Alps in Europe (African/ Eurasian plates), the Andes in South America (Nazca/ South American plates) and the western Rockies (Pacific/ North American plates). This type of convergent plate boundary therefore is associated with mountain building and tectonic movements but not with volcanic activities.

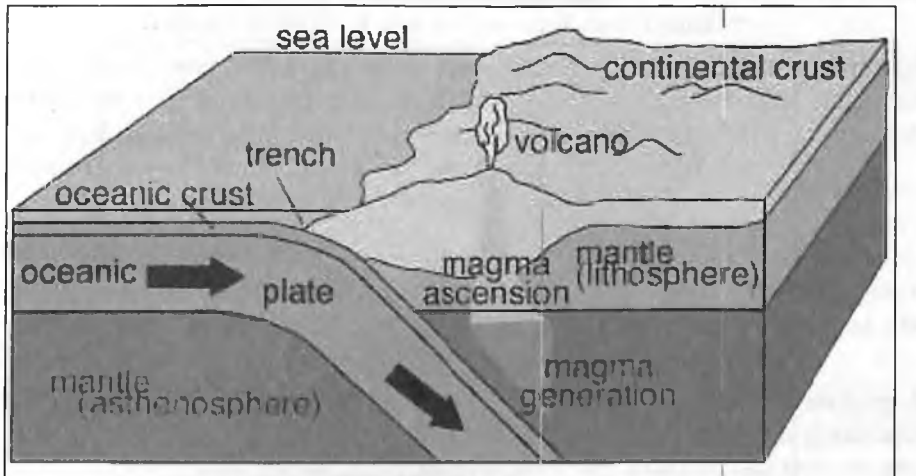


- **Continent-ocean collision:**

Continent-ocean collision margin is marked by subduction of denser oceanic plate below comparatively lighter continental plate. At surface where subduction starts, sea floor is bent to form an oceanic trench e.g. Mariana trench, Peru trench, etc. The world's deepest trench, the Mariana, was formed when the Pacific plate was forced under the far smaller Philippine plate.

Subducting plate melts underneath at the subduction zone due to intense heat of the magma, immense friction and pressure as it reaches mantle which results in generation of immense pressure in mantle zone which is released by volcanic eruptions in forms of island arcs of volcanic peaks e.g. Indonesian arc, Philippine arc, Aleutian arc, etc.

Cracks are formed and magma rises up the cracks, escapes onto the surface and solidifies, building up a volcano. Deep oceanic trenches and Fold Mountains are also formed.



Magma is generated at subduction zones where dense oceanic plates are pushed under lighter continental plates.

- **Ocean-ocean collision:**

One oceanic plate may subduct beneath the other. There is no head-on collision for two oceanic plates. Volcanoes are formed.

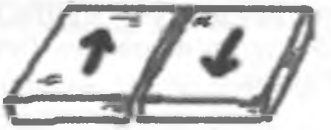
Collision of two oceanic plates may result in the formation of oceanic trenches, an arcuate system of islands and shallow seas between islands and continents.

3. TRANSFORM FAULT MARGIN:

Two plates slide laterally past each other. When two plates slide past each other little or no interaction takes place, without prominent divergence or convergence. Movement is not smooth due to friction between rocks of the two plates. Sometimes two plates may get 'stuck' together. The convection currents of the underlying magma are still dragging the plates. The edges of plates may get locked into each other leading to building up of stress which is released by occasional earth movements i.e. earthquakes. Tension and pressure is built up at the transform boundary causing earthquakes e.g. San Andreas Fault margin near Gulf of California. San Andreas Fault is perhaps the best known example of fracture in the

Earth's crust. It has resulted due to movement between Pacific plate to the west and the North American plate to the east.

Transform Plates



EVIDENCE FOR PLATE TECTONICS:

- **PALEOMAGNETISM (REMNANT MAGNETISM):**

Paleomagnetism is the remnant magnetism in ancient rocks recording the direction and intensity of Earth's magnetic field at the time of the rock's formation. It refers to the preservation of magnetic properties in older rocks of the Earth.

When any rock is formed it gets magnetized depending on presence of iron content in rock & is preserved (frozen at temperature below Curie point i.e. 600°C). The Curie point is the temperature at which iron bearing minerals gain their magnetism and align themselves with Earth's magnetic field.

In 1600 AD, Physician William Gilbert postulated that the Earth behaved like giant bar magnet of dipoles, located in the centre (core) of the earth and aligned approximately along the axis of the Earth's rotation. When long axis of dipole bar magnet is extended it intersects earth's surface at

two centers which are called North and South magnetic poles. Magnetic South Pole of the Earth is near its Geographic North pole. Magnetic North pole of the Earth is near its Geographic South pole. If ordinary small magnet is freely suspended at the Earth's surface then Earth's south magnetic pole attracts North Pole of small magnet and Earth's north magnetic pole attracts South Pole of small magnet. Earth's magnetic poles closely coincide with its geographic poles.

Earth's magnetic field is not constant. Being strongest at the poles and weakest at the equator, Earth's magnetic field is thought to result from different rotation speeds of the outer core and mantle.

Polar wandering is the apparent movement of magnetic poles through time. The best explanation for such apparent movement is that magnetic poles have remained near their present polar locations and the continents have moved.

- **SEAFLOOR SPREADING:**

The concept of seafloor spreading was first propounded by Prof. Harry Hess. Divergence takes place at the boundary of the oceanic plates and forms new sea floor. This process is called sea-floor spreading.

According to the theory of seafloor spreading, seafloor separates at oceanic ridges where new crust is formed by upwelling magma generated by thermal convection currents or cells within the mantle. As the magma cools, the newly formed oceanic crust moves laterally away from the ridge.

Earth's magnetic field has periodically reversed during the past. Magnetic anomalies in oceanic crust, which are parallel to and symmetric around oceanic ridges, match the pattern of magnetic reversals seen in continental lava flows, thus confirming that new oceanic crust is forming along oceanic ridges and moving the seafloor laterally away from them.

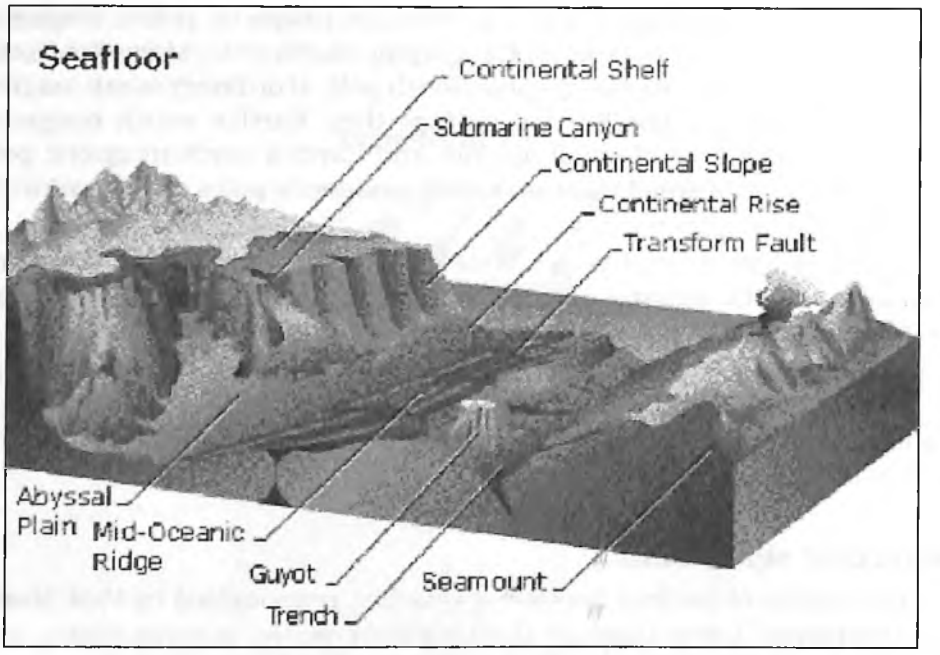
Cores of deep-sea sediments also confirm the theory of seafloor spreading in that the sediments directly overlying the oceanic crust get older with increasing distance from oceanic ridges, and the sediments become thicker moving away from the ridge.

The ocean floors are continually moving, spreading from the center, sinking at the edges, and being regenerated.

Spreading rates, though slow, are not negligible: the fastest rate is found at the East Pacific Rise, which creates 10 cm (4 in) of new crust every year.

- **OCEANIC RELIEF:**

Many features of oceanic relief such as mid-oceanic ridge, trenches, transform faults, etc. provides evidence for the plate tectonic theory.



EFFECTS OF PLATE TECTONICS:

1. Plate tectonics and Continental drift:

Alfred Wegner proposed the theory of the crustal plates moving on the mantle. This is called the Continental Drift.

Continental drift has now become a reality on the basis of plate tectonics and evidences of reconstruction of paleomagnetism and seafloor spreading. It has now been validated that the continents and ocean basins have never been stationary or permanent at their places rather these have always been mobile throughout the geological history of the Earth and they are still moving in relation to each other.

2. Plate tectonics and Mountain building:

Plate tectonics theory has enabled scientists to explain the problem of origin of folded mountains which was hitherto unresolved till the postulation of great scientific theory in the decade 1960-70. The plate tectonics theory offers convincing explanation for the solution of complex riddle of mountain building.

3. Plate tectonics and Vulcanicity:

Based on plate tectonics there is close relationship between plate boundaries and vulcanicity as most of the world's active volcanoes are associated with plate boundaries. About 15 per cent of the world's active volcanoes are found along the constructive or divergent plate margins (along the mid-oceanic ridges, where two plates move in opposite directions) whereas 80 per cent volcanoes are associated with the destructive or

convergent or consuming plate boundaries (where two plates collide). Some volcanoes are also found in intra-plate regions e.g. volcanoes of the Hawaii Island; fault zone of East Africa, etc. There are three major belts of volcanoes: (1) mid-Atlantic ridge zone, (2) circum pacific zone and (3) mid-continental zone.

The intensity of volcanic activity is also related to the nature of plate boundaries. Divergent or constructive plate boundaries are associated with quiet volcanic eruption known as fissure eruption.

Active volcanoes are associated with mid-oceanic ridges. Under the influence of rising thermal convection currents oceanic plates (crust) are separated and two plates move in opposite directions from the ridge crests.

The volcanic islands of Atlantic Ocean are without doubt associated with the mid-Atlantic ridge. The most active volcanic islands are nearest to the ridge whereas dormant & extinct volcanoes are located at the farthest distance from the ridge. Volcanic islands are formed near the ridge due to upwelling of magma from below. As the sea floor spreads these volcanic peaks move away from the ridge and magma source. When they move far away from the ridge the supply of magma comes to an end and thus most of these volcanic islands are submerged under sea waves and become sea mounts or guyots. Not all the volcanic peaks submerge beneath sea waves as a few of them project from 1500 to 3000 m above sea level.

HOT SPOTS: AN INTRAPLATE FEATURE

Hot spots are locations where stationary columns of magma from mantle (mantle plumes) have risen to the surface and formed volcanoes. Because the mantle plumes apparently remain stationary while plates move over them, the trail of hot spots, marked by extinct and progressively older volcanoes, records the direction and rate of plate movement.

The relative motion of one plate with respect to another can be derived from magnetic reversals and satellite-laser ranging techniques. Hot spots are evidence for absolute motion because they provide an apparently fixed reference point from which the rate and direction of plate movement can be measured.

4. Plate tectonics and Seismicity:

Seismic events can be explained in terms of plate boundaries. Major tectonic events associated with the plate boundaries are ruptures and faults along the constructive plate boundaries, faulting and folding along the destructive plate boundaries and transform faults along the conservative or transform plate boundaries. All sorts of disequilibrium are caused due to different types of plate motions and consequently earthquakes of varying magnitudes are caused.

Normally, moderate earthquakes are caused along the constructive plate boundaries because the rate of rupture of the crust and consequent movement of plates away from the mid-oceanic ridges is rather slow and the rate of upwelling of lava due to fissure is also slow.

Earthquakes of high magnitude are caused along the convergent or destructive plate boundaries because of collision of two convergent plates and consequent subduction of one plate boundary along the Benioff zone. Mountain building, faulting and violent volcanic eruptions cause severe and disastrous earthquakes. The process of convergence of plates and related plate collision explains the maximum occurrence of earthquakes along the Ring of Fire of the Pacific or the Circum Pacific Belt.

Tsunami: The waves generated in the oceans triggered by high magnitude earthquakes in the ocean floors (exceeding 7.5 on Richter scale), or by violent central volcanic eruptions, or by massive landslides of the coastal lands or of submerged continental shelves and slopes or in deep oceanic trenches, are called tsunami, which is a Japanese word meaning *'harbor waves'*. The tsunamis are long waves with longer wavelengths of 100 km or more which travel at the speed of hundreds of kilometers per hour but are shallow in depth in deeper oceans and seas. As these waves approach coastal land, the depth of oceanic water decreases but the height of tsunamis increases enormously and when they strike the coast, they cause havoc in the coastal areas.

Since the Pacific Ocean is girdled by convergent plate boundaries and the ring of earthquakes and volcanoes, tsunamis are more common in the Pacific with a minimum frequency of 2 tsunamis per year.

Sumatra tsunami: December 26, 2004, a powerful earthquake of magnitude 9 on Richter scale, off the coast of Sumatra occurred and generated a powerful tsunami with a wavelength of 160 km and initial speed of 960 km per hour. The deep oceanic earthquake was caused due to sudden subduction of Indian plate below Burma plate up to 20 meters in a boundary line of 1000 km or even more. This tectonic movement caused sudden 10 m rise in the oceanic bed which suddenly displaced immense volume of water causing killer tsunami. The furious tsunami with a height of about 10 m adversely affected 12 countries bordering the Indian Ocean; worst affected areas were Tamil Nadu coast and Andaman-Nicobar Islands, Sri Lanka, Indonesia and Thailand.

5. Plate tectonics and Rock cycle:

The rock cycle provides a way of viewing the interrelationships between Earth's internal and external processes. It relates the three rock groups (igneous, sedimentary and metamorphic) to each other; to surficial processes such as weathering, transportation, and deposition; and to internal processes such as magma generation and metamorphism.

Rock cycle can be best described by plate tectonics. Interactions between plates determine, to some extent, which of the three rock groups will form. Plate tectonics is the mechanism that drives the rock cycle and recycles the three rock groups between Earth's interior and its surface.

Weathered material from elevated landmasses is transported to the continental margins where it is deposited in layers that collectively are thousands of meters thick. Once lithified, these sediments create a thick wedge of sedimentary rocks flanking the continents. In due course of time, sedimentation along the continental margin may be interrupted, if the region becomes a convergent plate boundary. When this happens, the adjacent oceanic lithosphere begins to subduct beneath the continent into the asthenosphere. Along such active continental margins, the converging plate deforms the margins of the sedimentary rocks and transforms them into linear belts of metamorphic rocks. As the sedimentary rocks descend further, some of the overlying sediments that were not crumpled into mountains are carried downward into the hot asthenosphere, where they too undergo metamorphism. Eventually, some of this metamorphic material will be transported to depths where the temperature and pressures are sufficiently great to initiate melting. This newly formed magma will then migrate upward and erupt on the surface. The magma, in its course of movement upward, solidifies within the rock or above the surface to form igneous rocks. These igneous rocks are immediately attacked by the process of weathering and the process is renewed.

6. Plate tectonics and Climate change:

Plate tectonics is one of the causes for climate change. Over millions of years, the motion of tectonic plates reconfigures global land and ocean areas and generates topography. This affects both global and local patterns of climate and global atmosphere-ocean circulation. Arrangement of continents affects solar heating and cooling, and thus winds and weather systems.

The position of the continents determines the geometry of the oceans and therefore influences patterns of ocean circulation. The location of the seas are important in controlling the transfer of heat and moisture across the globe, and therefore, in determining global climate.

More locally, topography can influence climate. The existence of mountains (as a product of plate tectonics through mountain building) can cause orographic precipitation.

The size of continents is also important. Because of the stabilizing effect of the oceans on temperature, yearly temperature variations are generally lower in coastal areas than they are inland. A larger super continent will therefore have more area in which climate is strongly seasonal than will several smaller continents and/ or island arcs.

Plate movement also generates more volcanic activity. Volcanism is a process of conveying material from the crust and mantle of the earth to its surface. Volcanic eruptions, geysers, and hot springs, are examples of volcanic processes which release gases like CO_2 (carbon dioxide) and/or particulates into the atmosphere. This would cause global temperatures to rise. Eruptions large enough to affect climate occur on average several times per century, and cause cooling by partially blocking the transmission of solar radiation to the earth's surface for a period of few years e.g. 1883 eruption of Krakatoa volcano, Indonesia was one of the world's worst volcanic eruptions in modern history.

Much larger eruptions, known as large igneous provinces, occur only a few times every hundred million years, but may cause global warming and mass extinctions. Rapid plate spreading and hot-spot activity may release volcanic carbon dioxide and affect global climate.

7. Plate tectonics and the Supercontinent cycle:

The supercontinent cycle hypothesis is an expansion on the ideas of the Canadian geologist J. Tuzo Wilson. During the early 1970s, Wilson proposed a cycle (now known as the Wilson cycle) that includes continental fragmentation, the opening and closing of an ocean basin, and re-assembly of the continent. In the supercontinent cycle, all or most of Earth's landmasses come together to form a supercontinent, such as Pangaea, then break up, producing ocean basins, and then re-form in a cycle spanning about 500 million years.

Earth has been cooling since its formation. Since the crust formed about 3000 million years ago, Earth has undergone seven or may be eight cycles of Supercontinent formation. Supercontinents break up, forming a new ocean, which grows and later disappears, forming another Supercontinent. The cycle, from start to finish, takes about 500 million years.

IMPORTANCE OF PLATE TECTONIC THEORY:

The plate tectonic theory has brought about a revolution in Earth science. A revolutionary concept when it was proposed in the 1960s, plate tectonic theory has had far-reaching consequences in all fields of geology because it provides the basis for relating many seemingly unrelated phenomena. Besides being responsible for the major features of Earth's crust, plate movements also affect the formation and occurrence of Earth's natural resources as well as the distribution and evolution of the world's biota. The impact of plate tectonic theory has been particularly notable in the interpretation of Earth's history.

Plate tectonics is a more radical idea which provides relevant satisfactory explanation to puzzles of mountain building, geosynclines, continental drift, changes in positions of continents and oceans,

earthquakes and volcanism. It provides plausible and logical explanation for many of the Earth's varied structural phenomena.

Plate tectonics has provided a framework for interpretation of the composition, structure, and internal processes of the Earth on a global scale. It has led to the realization that the continents and ocean basins are part of a lithosphere-atmosphere-hydrosphere system that evolved together with Earth's interior.

Plate tectonic theory is the unifying theory of geology because it explains how many geological features, processes, and events are interrelated. It affects all of us because it explains where and why such natural disasters as earthquakes, volcanic eruptions, and tsunami occur as well as the formation and distribution of many economically valuable natural resources. The origin and distribution of many natural resources are related to the interaction between plates. Many metallic ores form as a result of igneous and hydrothermal activity related to the formation of magma along divergent and convergent plate boundaries.

Plate tectonics is an all-embracing theory. This theory holds vital importance in geology and geography of Earth through time. The acceptance of plate tectonic theory is recognized as a major milestone in the Earth sciences, comparable to the revolution Darwin's theory of evolution caused in biology.

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Climate Change : A Matter of Concern

Barnali Das, M.Sc. I (Geography)
Shrikant Gabale, M.A. I (Geography)
Ketki Marathe, M.A. II (Geography)

INTRODUCTION:

Climate is the sum total of the meteorological elements that characterize the average and extreme conditions of the atmosphere over a long period of time (approximately 30 years) at any place or region of the Earth's surface.

Climate is not static but dynamic in response to variations in the factors that control it, primarily the nature of mean circulation belts. Evidence of climate change have been found in the historical past (Indus valley) and geological pasts (Pleistocene glaciation) and there are many indicators of such changes. The causes of climate change are many and variable such as the variations in solar output, the movement of continental positions to affect the oceanic circulation, mountain building, volcanic eruption and the increase in CO_2 of the atmosphere.

HISTORY:

Climate change is a natural and continuous process. Sedimentological, archaeological and biological evidence indicate that earth has witnessed many variations in climate change since the beginning. The past climate was not like that of the present. The Earth had experienced several numbers of ice-ages. It was formerly believed that there where four main glacial periods.

An ice age is a natural system. Within a long-term ice age, individual pulses of extra cold climate are termed "glacial periods" (or alternatively "glacials" or "glaciations"), and intermittent warm periods are called "inter glacials". The temperature difference between ice-ages and warmer periods is about 5°C or 6°C.

EVIDENCE FOR ICE AGES:

There are three main types of evidence for ice ages: geological, chemical, and paleontological:

1. Geological evidence for ice ages comes in various forms, including rock scouring and scratching, glacial moraines, drumlins, valley cutting, and the deposition of till or tillites and glacial erratics.

2. Chemical evidence mainly consists of variations in the ratios of isotopes in fossils present in sediments and sedimentary rocks and ocean sediment cores.

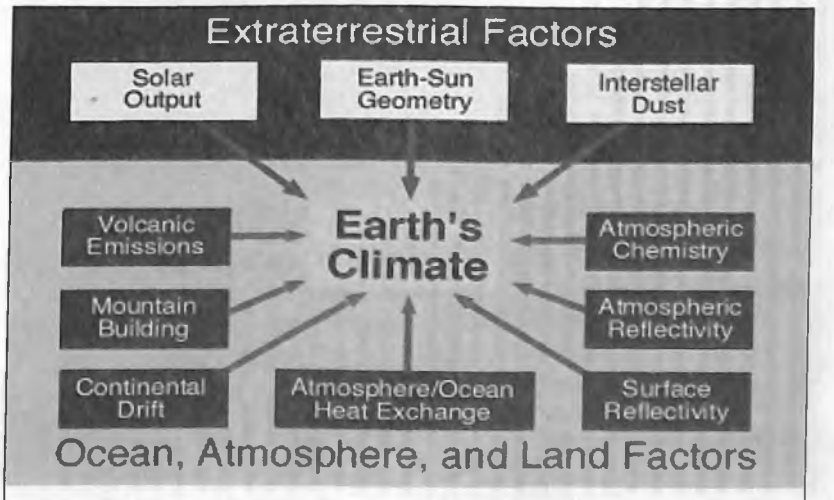
3. Paleontological evidence consists of changes in the geographical distribution of fossils. During a glacial period cold-adapted organisms spread into lower latitudes, and organisms that prefer warmer conditions become extinct or are squeezed into lower latitudes.

TRIGGERING FACTORS OF CLIMATE CHANGE:

The causes for climate change are many. They can be grouped into **astronomical and terrestrial causes**. The astronomical causes are the changes in solar output associated with sunspot activities. Sunspots are dark and cooler patches on the sun which increase and decrease in a cyclical manner. According to some meteorologists, when the number of sunspots increases, cooler and wetter weather and greater storminess occur. A decrease in sunspot numbers is associated with warm and drier conditions. Yet, these findings are not statistically significant.

Terrestrial causes include:

- **Green House Effect.**
- **Volcanic eruptions**
- **Variations in solar output.**



Factors that influence the Earth's climate
(Source: PhysicalGeography.net)

GREEN HOUSE EFFECT:

The Earth's greenhouse effect has stronger effect on climate change. Green house effect is caused by green house gases. Green house gases are those gases in the atmosphere which by absorbing thermal radiation, emitted by the Earth's surface have a blanketing effect upon the earth.

Imported green house gases are carbon dioxide (CO_2), Nitrous oxide (N_2O), Methane (CH_4), Chlorofluorocarbon's (CFC's).

CO_2 contributes about 70% of the green house effect. During last ice age CO_2 concentration was below $200mm^{-1}$ and after industrial revolution it raised to $360mm^{-1}$, this drastic increase is mainly due to burning of fossil fuels by humans.

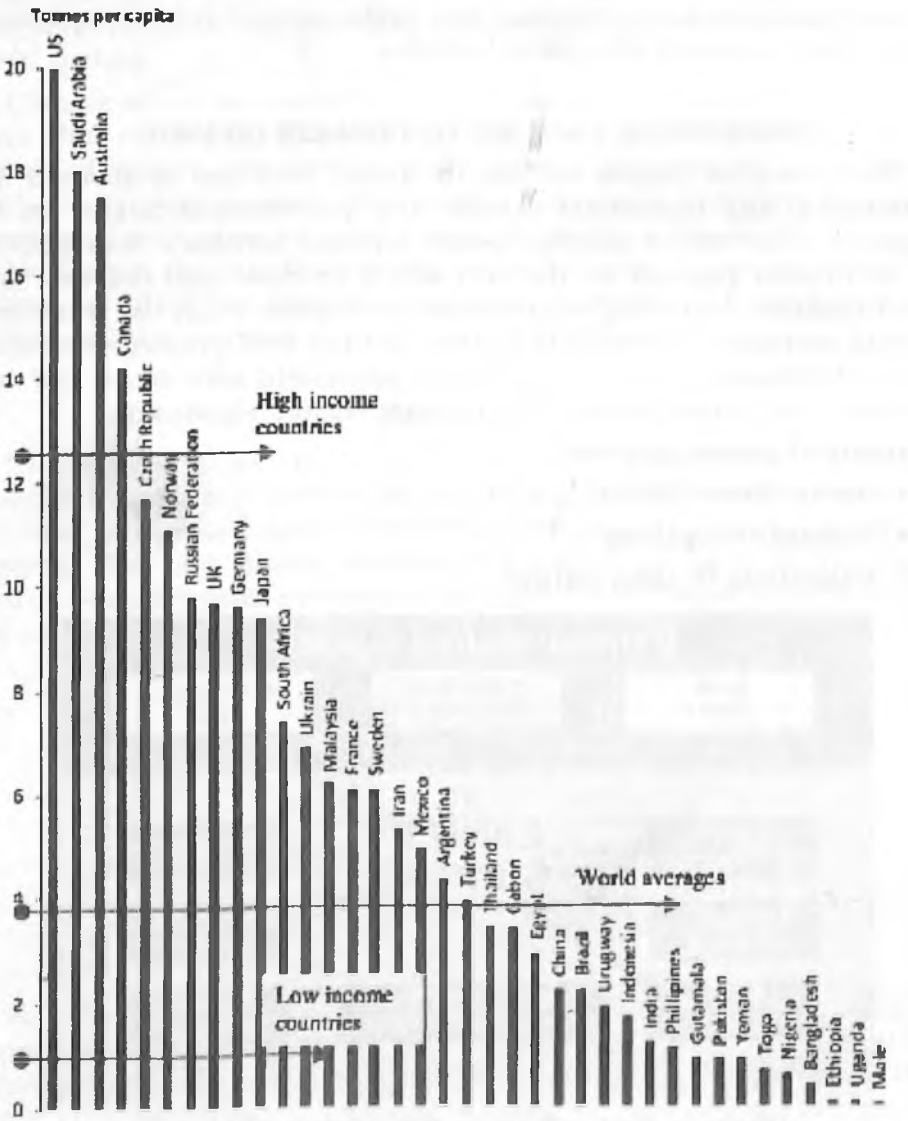
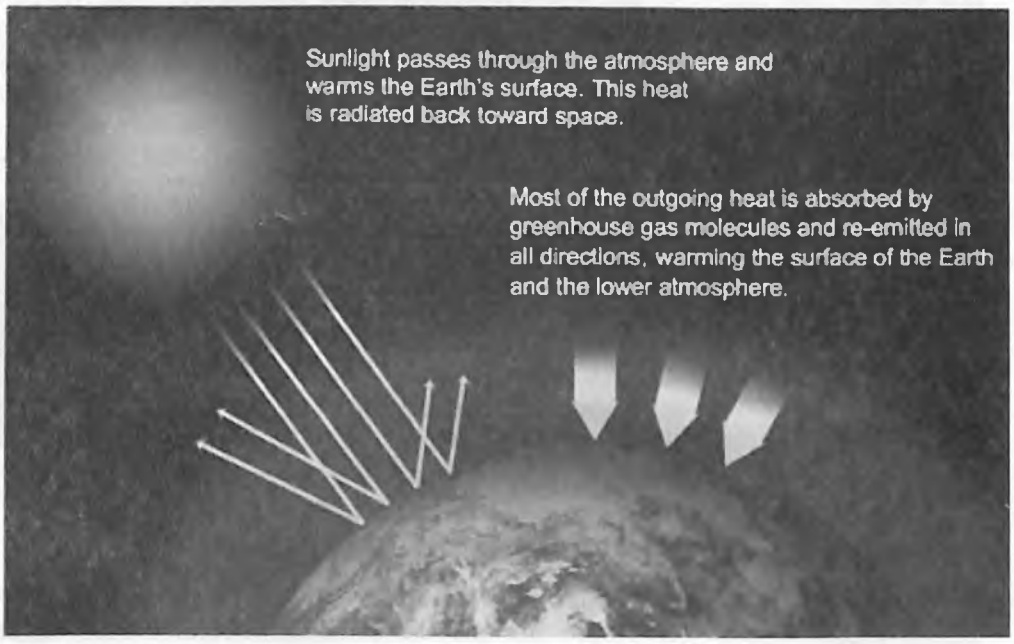


Figure 1. CO_2 emission by different countries in 2002. Source: UNEP[3].

Concentration of methane is increasing on an average of 1 % per year. Though the concentration of methane is much less than CO_2 but the warming effect caused by CH_4 is about 7.5 times more than CO_2.



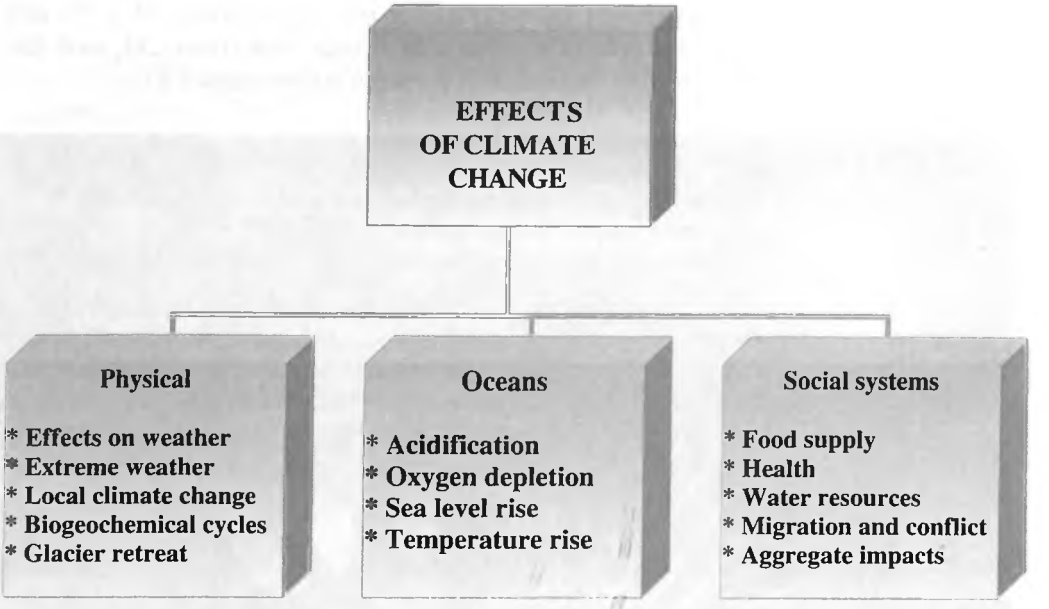
Nitrogen oxide is also known as laughing gas, it posses a relatively long atmospheric lifetime of about 150 years. Its concentration is increasing by 0.25 %

Chlorofluorocarbon (CFC) is a man-made chemical used mainly in refrigerators and aerosol spray cans, it is non-toxic and non-flammable, so when it is released in atmosphere, it remains for a long time (1 to 200 years). It is main cause of ozone depletion.

Chlorine atoms in CFC react with ozone forming ClO (chlorine oxide) and reducing ozone back to O_2 (Oxygen). One chlorine atom can destroy many molecules of ozone.

EFFECTS OF CLIMATE CHANGE:

Scientists from around the world with the Intergovernmental Panel on Climate Change (IPCC) tell us that during the past 100 years, the world's surface air temperature increased at an average of 0.6° Celsius (1.1° Fahrenheit). This may not sound like a very much change, but even one degree can affect the Earth. Below are some effects of climate change:



IMPACT ON HUMAN HEALTH:

Throughout the world, the prevalence of some diseases and other threats to human health depend largely on local climate. Extreme temperatures can lead directly to loss of life. In addition, warm temperatures can increase air and water pollution, which in turn harms human health.

Human health is strongly affected by social, political, economical, environmental and technological factors, including urbanization, affluence, scientific developments, individual behavior and individual vulnerability (e.g., genetic makeup, nutritional status, emotional well-being, age, gender and economic status). The extent and nature of climate change impacts on human health vary region to region, by relative vulnerability of population groups, by the extent and duration of exposure to climate change itself and by society's ability to adapt to or cope with the change.

Climate change may increase the risk of some infectious diseases, particularly those diseases that appear in warm areas and are spread by mosquitoes and other insects. These "vector-borne" diseases include malaria, dengue fever, yellow fever, and encephalitis. Also, algal blooms could occur more frequently as temperatures are warm — particularly in areas with polluted waters — in which case diseases (such as cholera) that tend to accompany algal blooms could become more frequent.

AIR QUALITY:

Ground-level ozone can damage lung tissue, and is especially harmful for those with asthma and other chronic lung diseases. Sunlight and high temperatures, combined with other pollutants such as nitrogen oxides and volatile organic compounds, can cause ground-level ozone to increase. Climate change may increase the concentration of ground-level ozone, but the magnitude of the effect is uncertain. For other pollutants, the effects of climate change and/or weather are less well studied and results vary by region (IPCC, 2007).

Another pollutant of concern is "particulate matter," also known as particle pollution or PM. Particulate matter is a complex mixture of extremely small particles and liquid droplets. When breathed in, these particles can reach the deepest regions of the lungs. Exposure to particle pollution is linked to a variety of significant health problems. Particle pollution also is the main cause of visibility impairment (haze) in the nation's cities and national parks. Climate change may indirectly affect the concentration of PM pollution in the air by affecting natural or "biogenic" sources of PM such as wildfires and dust from dry soils.

AGRICULTURE AND FOOD SUPPLY:

Agriculture is highly sensitive to climate variability and weather extremes, such as droughts, floods and severe storms. The forces that shape our climate are also critical to farm productivity. Human activity has already changed atmospheric characteristics such as temperature, rainfall, levels of carbon dioxide (CO_2) and ground level ozone. While food production may benefit from a warmer climate, the increased potential for droughts, floods and heat waves will pose challenges for farmers. Additionally, the enduring changes in climate, water supply and soil moisture could make it less feasible to continue crop production in certain regions.

Recent studies indicate that increased frequency of heat stress, droughts and floods negatively affect crop yields and livestock beyond the impacts of mean climate change...

Several factors directly connect climate change and agricultural productivity:

- Average temperature increase
- Change in rainfall amount and patterns
- Rising atmospheric concentrations of CO_2
- Pollution levels such as tropospheric ozone

ECOSYSTEMS AND BIODIVERSITY:

Climate is an integral part of ecosystems and organisms have adapted to their regional climate over time. Climate change is a factor that has the potential to alter ecosystems and the many resources and services they provide to each other and to society. Human societies depend on ecosystems for the natural, cultural, spiritual, recreational and aesthetic resources they provide.

In various regions across the world, some high-altitude and high-latitude ecosystems have already been affected by changes in climate. The Intergovernmental Panel on Climate Change (IPCC) reviewed relevant published studies of biological systems and concluded that 20 per cent to 30 per cent of species assessed may be at risk of extinction from climate change impacts within this century if global mean temperatures exceed 2-3 °C (3.6-5.4 °F) relative to pre-industrial levels (IPCC, 2007).

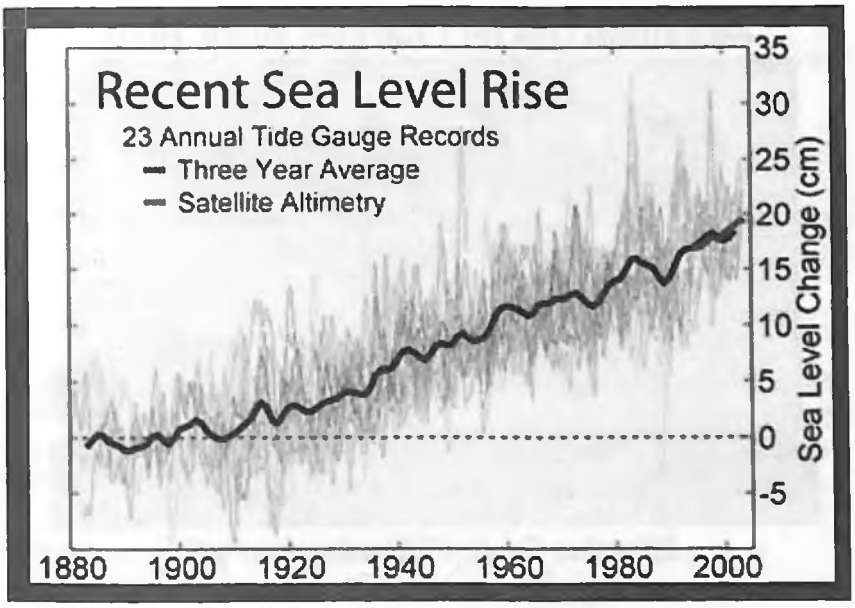
During the course of this century the resilience of many ecosystems (their ability to adapt naturally) is likely to be exceeded by an unprecedented combination of change in climate and in other global change drivers (especially land use change and overexploitation), if greenhouse gas emissions and other changes continue at or above current rates. By 2100 ecosystems will be exposed to atmospheric CO_2 levels substantially higher than in the past 6,50,000 years, and global temperatures at least among the highest as those experienced in the past 7,40,000 years. This will alter the structure, reduce biodiversity and perturb functioning of most ecosystems, and compromise the services they currently provide.

SEA LEVEL IS RISING:

During the 20th century, sea level rise was about 15 cm (6 inches) due to melting glacier ice and expansion of warmer seawater. Models predict that sea level may rise as much as 59 cm (23 inches) during the 21st century, threatening coastal communities, wetlands, and coral reefs.

Higher temperatures are expected to further raise sea level by expanding ocean water, melting mountain glaciers and small ice caps, and causing portions of Greenland and the Antarctic ice sheets to melt. It is estimated that the global average sea level will rise between 0.6 and 2 feet (0.18 to 0.59 meters) in the next century (IPCC, 2007).

Rising sea levels inundate wetlands and other low-lying lands, erode beaches, intensify flooding, and increase the salinity of rivers, bays, and groundwater tables. Some of these effects may be further compounded by other effects of changing climate.



This graph shows the change in sea level since 1880 with a rise in sea level of about 18.5 centimeters during the 20th century. The data used to make this graph comes from 23 tide gauge stations that are on land that is geologically stable. The tide gauge data for each year was averaged. The thick black line is an average that shows the trend.

ARCTIC SEA ICE IS MELTING:

The summer thickness of sea ice is about half of what it was in 1950. Melting ice may lead to changes in ocean circulation. Plus melting sea ice is speeding up warming in the Arctic.

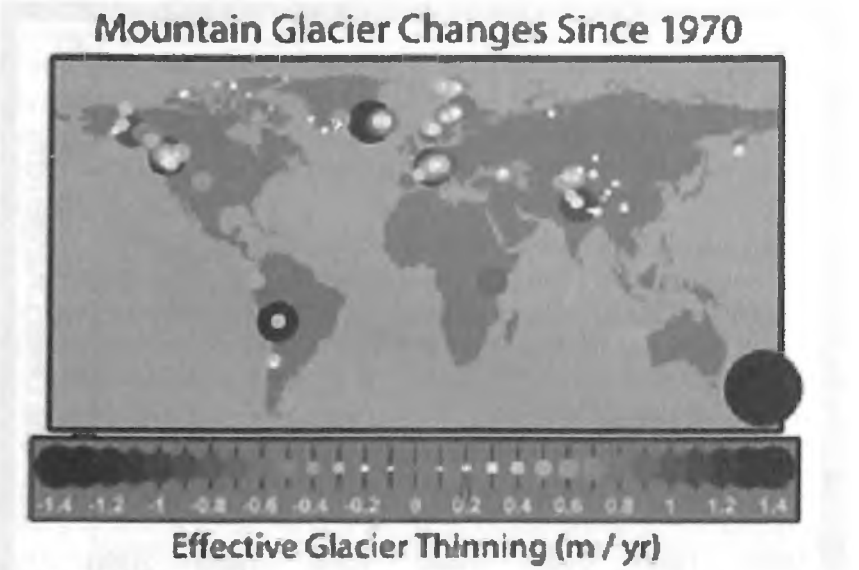
OZONE LAYER DEPLETION:

Ozone hole or ozone depletion is mainly due to green house gas CFC. Ozone hole is mainly observed when spring is commencing in Antarctica. Chlorine molecule in CFC reacts with ozone (O_3) to form ClO, thus reducing Ozone to Oxygen (O_2). This leads to the creation of Ozone hole.

GLACIERS AND PERMAFROST ARE MELTING:

Over the past 100 years, mountain glaciers in all areas of the world have decreased in size and so has the amount of permafrost in the Arctic. Greenland's ice sheet is melting faster too.

[Main article: Retreat of glaciers since 1850]



SEA-SURFACE TEMPERATURES ARE WARMING:

Warmer waters in the shallow oceans have contributed to the death of about a quarter of the world's coral reefs in the last few decades. Many of the coral animals died after being weakened by bleaching, a process tied to warmed waters.

HEAVIER RAINFALL CAUSES FLOODING IN MANY REGIONS:

Warmer temperatures have led to more intense rainfall events in some areas. This can cause flooding.

EXTREME DROUGHT IS INCREASING:

Higher temperatures cause a higher rate of evaporation and more droughts in few areas of the world.

ECOSYSTEMS ARE CHANGING:

As temperatures become warm, species may either move to a cooler habitat or die. Species that are particularly vulnerable include endangered species, coral reefs, and polar animals. Warming has also caused changes in the timing of spring events and the length of the growing season.

HURRICANES HAVE CHANGED IN FREQUENCY AND STRENGTH:

There is evidence that the number of intense hurricanes has increased in the Atlantic since 1970. Scientists continue to study whether climate is the cause.

MORE FREQUENT HEAT WAVES:

It is likely that heat waves have become more common in more areas of the world.

SEAWATER IS BECOMING MORE ACIDIC:

Carbon dioxide dissolving into the oceans is making seawater more acidic. There could be impacts on coral reefs and other marine life.

El Niño:

El-Nino is a current of warm water that appears on the coast of Peru in December. It includes low pressure areas and causes heavy rain in areas that are arid at other times. When El-Nino occurs, Indian subcontinent experiences scarcity of rainfall in monsoon season. Climate change leads to increase in ocean temperature and thus leads to increase in frequency of El-Nino condition.

SUMMITS HELD TO CONTROL CLIMATE CHANGE:

Happenings at the Copenhagen Climate Summit:

The US and China are responsible for half of the greenhouse gases emitted each year. Yet, in the past both countries have resisted changing their behaviors and reducing emissions. Throughout the Copenhagen Summit, other world leaders have been challenging the US and China to change their ways.

The aim is still to reduce emissions enough to keep warming at no more than two degrees Celsius, but many questions remain about how countries will do that. While there is no signed agreement yet, world leaders are hopeful that a decision can be reached soon - if not by the end of this meeting, then within the next several meetings.

Despite the widely held expectation that the Copenhagen will produce a legally binding theory, Failure was blamed on developed countries:

- Blamed on US Senates
- While British and U.S. government have both blamed on China for failure.
- Developed countries trace that they have reduced the emission by 80 % ... which is not true.

Failure was blamed on developing countries:

- Australia and Europe blamed Asia for it.
- Due to poor economic conditions of Asia and African Countries, emission is not controlled.
- About only 50% of efforts have been done by developing countries – as they can't afford for expensive implements.

KYOTO PROTOCOL:

For almost two decades, world leaders have been working together to reduce the amount of global warming caused by humans. Representatives from 192 countries signed a treaty in 1992 called the United Nation framework Convention on climate change. A few years later they developed the Kyoto Protocol to reduce greenhouse gas emissions from industrialized countries. Now a new global climate treaty is being discussed to replace the Kyoto Protocol.

Slowing global warming won't happen overnight. However, according to the IPCC, by taking steps today we could prevent some of the more catastrophic impacts of warming in the future.

FUTURE PREDICTION OF CLIMATE CHANGE:

- By 2030 there will likely be no more glaciers in Glacier National Park (Montana, U.S.).
- The white-capped summit of Africa's highest mountain, Mount Kilimanjaro, will soon be entirely without glaciers. It had glaciers on it for almost 12,000 years, however, in the past century the ice has diminished by 80% and scientists report that the glaciers will be entirely melted by 2015-2020.
- If all glaciers and ice sheets melt, sea level would rise by approximately 70 meters.
- According to the British Antarctic Survey, the amount of snowfall is outpacing melting on the continent of Antarctica, so the massive ice sheets are not yet shrinking.
- The retreat of glaciers will continue. There will be less snow cover on the planet, permafrost will continue to melt, the extent of sea-ice will decrease further, and the Greenland ice sheet will certainly shrink. The pace of all of these changes will increase as the pace of temperature change increases. Places which have slowly lost ice or snow cover will lose it more quickly, possibly even lose it altogether. Glacier National park in Montana was once entirely covered with ice and snow. In 1850 there were as many as 150 glaciers in it. Now there are 27, and by 2030 the last of those will be gone. The snows of Kilimanjaro – 'unbelievably white in the sun', according to Hemingway – will vanish by 2020.
- As our planet gets warmer, evaporation will increase, more water vapor will find its way into the air, and some parts of the world will experience much more or much less precipitation.

IMPACT ON DEVELOPING COUNTRIES:

Climate change poses a serious threat to development and poverty reduction in the poorest and most vulnerable regions of the world. Minimizing the impacts of climate change requires adaptation. The majority of developing countries are in tropical and sub-tropical regions, areas predicted to be seriously affected by the impacts of climate change: Africa, Asia, Latin America and the Small Island States (for example Mauritius) have all been identified as regions of concern. This is compounded by the fact that developing countries are often less able to cope with adverse climate impacts:

- **Livelihoods are highly dependent on climate-sensitive resources:**

Agriculture in Sub-Saharan Africa, of which up to 90% is rain-fed, accounts for 70% of regional employment and 35% of gross national product.

- **Low adaptive capacity:**

The poorest inhabitants of developing countries, especially those in the Least Developed Countries (LDCs), already struggle to cope with current extreme weather events and climate variability. In 2004, severe flooding in Bangladesh was caused by excessive rains of the annual Asian Summer. Monsoon killed over 600 people and displaced over 20 million. The greater frequency and severity of climate shocks is repeatedly eroding the coping capacity.

The most vulnerable sectors of society include:

- **Those dependent on natural resources**: especially subsistence farmers dependent on rain-fed crops.

- **Shanty town dwellers**: living on unsuitable land, often unstable and/ or flood prone and lacking infrastructure.

- **Those living in extreme poverty**: the UN estimated that 1.3 billion people live on less than $1 per day.

MITIGATION AND ADAPTATION:

The scale of action needed to tackle climate change is unprecedented and involves two concurrent approaches:

- **Mitigation**:

Actions that **tackle the causes** of climate change, such as reducing greenhouse gas emissions.

- **Adaptation**:

Actions that **minimize the consequences** of actual and expected changes in the climate.

CONCLUSION:

Climate change is a continuous phenomenon. Climate has been changing since the origin of the Earth. Thus we can say that humans are not the triggers of climate change but they are intensifying the rate of climate change. The world is moving towards the intense interglacial period.

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Asian Age Begins !!!

Aniket Tharkude, M.A. I (Economics)
Mayuresh Kulkarni, M.A. I (Economics)
Anuya Kulkarni, M.A. I (Economics)
Girish Purohit, M.A. I (Economics)

With rising GDP, annual growth rate touching double digits and patenting more than thousands of researches annually the countries in Asia are dominating the world in 21st century. The countries like India, China, Japan, and the Asian tigers (Taiwan, Hong Kong, etc.) are not only rising as economic powers but also as soft powers which includes cultural, social and philosophical influence over the world. These countries are also making prominent progress in scientific research and development.

In the past starting from European age or what is generally called British Century when the industrialization began the countries crossed their continent in the search of resource to boost production and of market also to sell the surplus production. In that era there was influence of merchandise economist, which believed that national wealth can be increased by trading of goods and earning gold from it. In this era European countries not only gained economic but also political power in the countries throughout the world.

Later in American age which started from the end of World War I and got momentum after World War II the same strategy can be traced i.e. finding resources and market for production and trade. The American age saw cold war between USA and USSR but the dominance of USA was greater. To dominate the world these countries not only used military power but also other techniques which includes spreading social, cultural and philosophical influence and mostly economic help to the poor countries. After the fall of USSR the USA emerged as a sole superpower. In this unipolar world USA used science and technology to dominate the world in various aspects.

But at the end of 20th Century the economic crisis in these developed countries helped other developing countries to come forward on global stage. The "Dot Com" bubble which resulted from heavy investment in internet companies led to high infrastructural development worldwide. And due to this communication got improved and developing countries used this infrastructural facility to boost their economy. After 9/11 the war on terror led to strain on the economies of developed countries which was further worsened by sub-prime crisis. Due to this financial crisis most of the countries got affected worldwide including developed as well as developing but India and China recovered faster than others, which gives them new opportunity to grab the larger share of the world market.

By 'Asian Age' we mean that countries in Asia will dominate the world together or they would dominate the world individually also. In this article for selecting the countries which have potential powers to dominate the world we have referred to Virmani index of power potential (developed by Arvind Virmani of Indian Council For Research On International Economic Relations) which shows the countries' dominance on world considering economic strength, commercial and strategic technology, and production capability of particular country. Also we have taken into account World Bank report which states that China, India, Japan, S. Korea and ASEAN countries (Malaysia, Singapore, Thailand, Cambodia, Vietnam, Indonesia, Laos, etc.) are the fastest developing countries in Asia. In this article our main focus is on India and China as they have the huge population and land mass with military power. Still these countries need support from other Asian countries. The Asian Co-operation Dialogue, Shanghai Co-operation Organization and free trade areas are some steps towards building united Asia. We are not considering here Russia and Middle East countries as they are more inclined towards west than Asia. (Recently Russia is improving relations with many Asian countries.)

This article is based on following assumptions:

1. There will be political stability in these countries.
2. International relations will be stable in these regions.
3. There will be no major economic crisis.

ECONOMIC POWER:

Economic Power is the foundation of National Power. Economic Strength is the only sustained and sustainable basis for national power. Even though military power can be used to enhance national power for a certain period of time, this is not sustainable over long periods. This was illustrated by the break-up of the USSR, where the military and strategic competition could not be sustained by a declining economy. The role of economic factors in International Affairs is, likely to be much greater in the 21st century than it has been in previous centuries. With the growth of communication and the increased mobility of goods and services, labor, capital and technology, much technical knowledge is becoming the common heritage of mankind in reality. The process of modernization and global economic integration has expanded the gains from economic co-operation between States, reduced the gains to the winner from war, and increased the potential losses to third parties from active war between States. The lags between the rise or decline of economic power and the rise or decline of great powers are also likely to shorten during the 21st century.

Following statistics revealed that as developed countries are moving towards optimum level the growth in GDP is getting stagnant whereas growth in developing countries in GDP are touching double digits. Also some Asian countries have highest forex reserves in the world.

MACROECONOMIC INDICATORS:

Real GDP growth	2006	2007	2008	2009	2010
China	11.6	13.0	9.0	7.7	9.3
India	9.7	9.0	6.5	5.9	7.2
Indonesia	5.5	6.3	6.1	3.5	4.8
S. Korea	5.2	5.1	2.2	-2.2	3.5
United States	2.8	2.0	1.1	-2.8	0.9
United Kingdom	2.8	3.0	0.7	-4.3	0.0
Euro area	3.0	2.6	0.8	-4.1	0.7

Inflation	2008	2009	2010
China	7.2	2.0	0.5
India	8.4	4.5	3.5
Indonesia	11.1	5.5	5.3
United States	3.3	0.2	0.8
Euro area	3.3	0.5	0.7

[Source: OECD Economic Outlook (2009).]

COMMERCIAL AND STRATEGIC TECHNOLOGY:

Commercial technology is part and parcel of normal trade, financial flows and movement of managers and skilled personnel between open economies. FDI normally bundles two or more of these together. Any specific commercial technology (not available at a given time in the country) can therefore either be purchased from global markets or be attracted to the country through FDI (joint ventures, etc.).

Strategic technologies are the technologies of power. They include military related technologies such as nuclear and aero-space, as well as technology for producing advanced weapons systems and defense equipments. By definition strategic technologies are critical to national power and are not traded on commercial considerations. General technological capability forms the foundation of strategic technology, but its development requires special skills, directed R&D as well as focused attention. It has either to be developed through national effort or acquired through strategic/ military alliances.

General technological capability therefore has a dual role: It is the foundation of the productive capability of the economy and also the foundation for the development of specific strategic technologies. Thus in the real world in which nations guard their strategic technological knowledge, those with higher technological capabilities have a greater ability to develop strategic technology and therefore greater power potential.

Strategic technology also includes nascent technologies that may play a critical role in future defense systems. Because of the uncertainty inherent in forecasting the future, less developed technologies may at one stage be classed as 'strategic' and at another stage as 'commercial' and vice versa.

In Technological Achievement Index, China stands at 40th position, India is at 59th out of 68 countries, whereas Japan is at 3rd position and S. Korea at 5th. We can see that S. Korea and Japan are leading in technological development where as India and China are lagging behind. But recently China is investing heavily with nearly 2% of its GDP in R&D whereas India's investment in R & D is still at 1.1% of GDP.

Mostly these countries need R&D in Agriculture and Strategic technology in which the western countries are dominant. In recent years Asian countries have shown tremendous growth in Bio-technology sector. S. Korea opted not to rely on FDI, but to acquire knowledge through trade, and reverse engineering, and to invest substantially in its own R&D, again some countries not only opted for reverse engineering but also reverse chemistry by which they can know the contents of medicines to reproduce it. We have seen previously the tremendous growth in space and missile technology of China and India without much help from west. Again the private sector is developing many new technologies to use and generate electricity efficiently as these countries are facing electricity problems. The Asian countries are making progress in robotics as well as software. Recent example is the Indian IT firm which helped the British Government to develop congestion tax system in London.

PRODUCTIVE CAPABILITY:

The economic capacity of a country at any point in time is measured by its Gross Domestic Product (GDP). This represents its output of goods and services during the year. The same economy can produce different goods and services in different amounts, with the actual pattern of output depending on the pattern of demand. In general two economies can differ not only in their productive capacity but also in the pattern of demand. Asian countries are not only ahead in production but also in consumption. The 40% of world population resides in Asia. With rising middle class and purchasing power the demand for consumer goods are on rise due to which there is also rise in demand of capital goods which are required for production of goods. Asian countries are not only targeting domestic market but also international market. The African and Latin American continents are also growing faster (Sub Saharan African countries have 300 million middle class which is equal to India.). The productions of not only consumer goods but also capital goods are therefore on increase in Asian countries which is cheaper than goods produced by most of developed countries. Due to which many MNCs are setting up their manufacturing plants in Asia. So Asia is known as **"Engine of Growth"**.

The statistics below shows that the output growth in developing economies is greater than that of developed economies. Again external indicators in recent years show some positive changes in the growth in export and import volumes of developing countries in Asia. It also shows that in 2009 when there was recession the terms of trade were favorable for India and China.

GROWTH OF WORLD OUTPUT, 2004–2010:

Annual percentage change

	2004	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
World output	4.0	3.5	4.0	3.9	1.9	0.4	0.8
Developed economies	3.0	2.5	2.8	2.6	0.5	0.4	0.7
Of which							
United States	3.6	3.1	2.7	2.1	0.4	1.0	1.1
United Kingdom	3.0	2.2	2.9	2.6	0.6	-0.8	0.8
Developing economies	7.3	6.7	7.3	7.6	5.4	0.5	1.0
Of which							
East and South Asia	7.8	7.7	8.6	9.3	6.3	1.1	0.8
China	10.1	10.4	11.6	13.0	9.0	0.5	0.6
India	8.3	9.3	9.7	9.1	7.3	0.9	0.2

[Source: World Economic Situation and Prospects 2010 Global Outlook (United Nations).]

EXTERNAL INDICATORS:

China

	2006	**2007**	**2008**	**2009**	**2010**
	Percentage Changes				
Goods and services export volumes	23.8	19.8	8.7	- 13.0	7.4
Goods and services import volumes	16.2	12.9	5.2	- 7.8	10.0
Terms of trade	- 0.6	-1.8	-4.3	14.0	-5.5

India

	2006	2007	2008	2009	2010
		Percentage Changes			
Goods and services export volumes	18.9	7.5	12.7	3.1	6.8
Goods and services import volumes	24.5	7.7	20.8	5.7	7.8
Terms of trade	5.2	-0.6	-4.2	1.8	-1.6

United States

	2006	2007	2008	2009	2010
		Percentage Changes			
Goods and services export volumes	9.1	8.4	6.2	-13.8	1.6
Goods and services import volumes	6.0	2.2	-3.5	-15.7	1.2
Terms of trade	-0.8	-0.1	-4.7	8.4	-0.4

Source: OECD Economic Outlook (2009).

GROWING MARKET:

After the reforms Indian consumer markets have grown manifold. It now has 300 million middle class which is still growing in size as well as purchasing power.

RURAL AND URBAN POTENTIAL:

RURAL-URBAN PROFILE:

	Urban	Rural
Population 2001-02 (mn household)	53	135
Population 2009-10 (mn household)	69	153
% Distribution (2001-02)	28	72
Market (Towns/Villages)	3,768	627,000
Universe of Outlets (mn)	1	3.3

[Source: Statistical Outline of India (2001-02), NCAER]

Around 70 per cent of the total households in India reside in the rural areas. The total number of rural households is expected to rise from 135 million in 2001-02 to 153 million in 2009-10. This presents the largest potential market in the world. The annual size of the rural FMCG (Fast Market Consumer Goods) market was estimated at around US$ 10.5 billion in 2001-2002. With growing incomes at both the rural and the urban level, the market potential is expected to expand further. We can see here that most of the growth in case of India is domestic demand driven due to which there was limited impact of global recession on India.

HUMAN CAPITAL:

According to the UN, the world population will reach to 8 billion inhabitants till 2025 (6.5 today). And 97 % of this growth will occur in the developing countries (Asia and Africa), out of which 61 % of the world population will be in Asia. The major part will be of a young population whereas 30% population in European Union will be aged at more than 65 years. The countries in Asia are developing the strategies to get the dividend of this young population.

Because of its rising supply of scientists and engineers, over 700 R&D centers have been set up by MNCs in China. Moreover, China has been investing heavily in higher education. In 1997, its tertiary enrolment rate was 6.5 per cent. Since then it has been increasing new entrants by 50 per cent per year. In 2005, its tertiary enrolment rate reached 21 per cent and the number of students enrolled at the tertiary level surpassed that in the US. Forty percent of them were in mathematics, science and engineering.

India's engineering talent began to be recognized globally because of the reputation its software engineers acquired in fixing the "Y2K bug". This launched its expansion into software services and Business Process Outsourcing (BPO) globally. In addition, in the last five years an increasing number of MNCs are not only producing in India, but setting up their own R&D centers in the country, attracted largely by the relatively low cost and high level of human capital available locally, as well as the possibility of working round the clock with their other research centres because of digital networks. The result of this increased R&D investment by MNCs in India as well as some increased R&D investment by domestic firms has led to an estimated increase in R&D from an average of about 0.8 per cent of GDP for the 20 years up to 2003 to as much as 1.1 per cent of GDP in 2005.

ENERGY USE AND RESOURCES:

Asian economies should not follow the western model of economic development. The Western model of economic development is inefficient in resource use, particularly American model. US has 5% of world population and uses approximately a quarter world energy, i.e. 40% of oil, 23% of gas and 23% of coal. Currently China uses six times more energy than Japan and 3.5 times more energy than the US to produce one unit of GDP. Due to this China is greatly dependent on resources outside the country, so she is trying to secure her resources by putting greater investment in other countries. Though it has other benefits also but the greater dependence can cause greater damage as much resource trade is happening by sea route due to which sea routes need to be protected especially Indian Ocean region but instead of collaborating with India on maritime security China have increased her Naval presence in the region which is seen as threat by India.

The future of the developing economies will not only depend on resource availability but also on how efficiently they use it as the resources and in particular conventional energy resources are limited. The conventional resources also generate green house gases. Cutting energy waste is the cheapest, easiest and fastest way to solve many energy problems, improve the environment and enhance both energy security and economic development. And another way is to develop renewable energy.

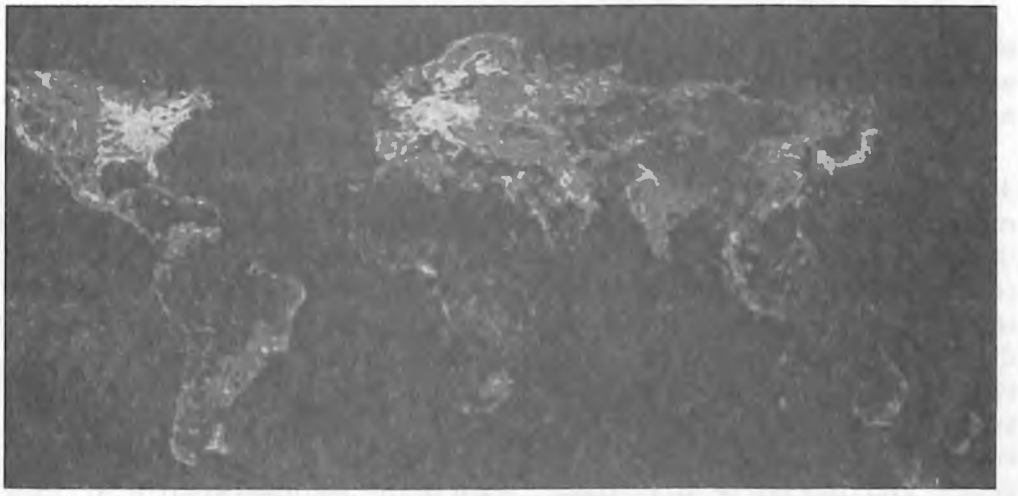
Again using renewable energy and developing such technology has many benefits as to lowering dependence on resource import and low pollution of environment. In India the government is emphasizing the use of nuclear energy which is much costly and it has much greater risk of environmental degradation. The India Government has spent 60% of total science budget on atomic energy which still produces 3% of country's total energy production where as renewable energy produces 5% of country's total energy production. The clean renewable energy includes wind, solar, biomass and small-hydro projects. Recently Indian government has launched Solar Mission to develop and distribute solar energy throughout the country. Currently India has one of the largest decentralized photovoltaic power systems in the world. It includes more than 7, 00,000 systems generating 440 MW. Moreover Indian companies are also developing the technologies to generate electricity from waste which can be an important source of energy in near future.

Within next 50 years because of scarcity, water is going to play a major role in establishing diplomatic relations as it is very much linked with human existence. Indian sub-continent as well as China has major fresh water resources which are needed to be tackled in such a way that the resource is used in most efficient manner. Recently Bangladesh signed a pact with China regarding construction of dam on Bramhaputra that would provide a major power generation station for Bangladesh as well as reduce the vulnerability of floods. This diplomatic move of Bangladesh is the most ideal example of dealing with water issues that might had resulted in strained diplomatic relation between two countries.

While many Asian countries are still having sufficient resources but they are exploited to the much extent due to overproduction and inefficient use by foreign rulers and later by non visionary rulers as well as Dictators. But now to get resources and market, Asia is turning to Africa and Latin America which are resource rich continents. China is Africa's largest trading partner after USA. China is investing heavily in infrastructure building and getting larger share in mining, forming a land bank (China has acquired nearly 48, 10,300 ha land bank) and other activities. Indian companies also had acquired land in African (Ethiopia) and Latin American (Paraguay, Uruguay) countries (total 3, 22,000 ha) for agricultural production. Again they are collaborating with the Governments in African countries for technology sharing, infrastructure building and mining activities. In the global sphere, the story is somewhat different. Despite

the pretence that the world is big enough to accommodate the rise of both India and China, the competition remains intense — over markets, construction orders, minerals, and land banks. But we can see the difference in strategy, the Chinese aggressiveness in these regions can be termed as new colonization whereas India's mutual benefit approach helps the poor countries to develop. Again this strategy helps India to have long term benefit through establishing soft power and strong local bonds.

ENERGY INTENSIVE REGIONS OF THE WORLD:



ROLE IN INTERNATIONAL ORGANIZATIONS:

Asian States are getting far more assertive in addressing humanitarian issues in their own backyard – especially for places like Myanmar and N. Korea where India and China have taken new approach contrary to west as to improving economic relations due to which political situations can be changed– and in taking a lead in international climate change negotiations. In recent years we have seen that many negotiations on various topics from Copenhagen climate talk to WTO trade agreement were difficult to proceed without China's and India's agreeing on certain issues. On many issues these countries have stood together for mutual benefit. India is one of the founding members of many International organizations like IMF and WTO, etc. China and India are extending its role in such organizations. Again India's contribution to UN peace keeping forces is recognized by many countries.

But still while contributing to major international organizations and improving humanitarian efforts these countries lag behind, the US, for example, provides 50% of UN food aid and pays 20% of the UN's overall costs. China, soon to be the world's second largest economy, pays 0.7% of food aid and a mere 2% of overall UN costs. Japan has shown leadership in all these areas, but few others in the region have demonstrated a similar

sense of global responsibility. Human Development Index (HDI used to measure the standards of living) of China and India which are two major fastest growing economies is 0.777 and 0.619 respectively. Whereas HDI for USA and Japan two developed nations is 0.951 and 0.953 respectively. Even S. Korea's HDI is 0.921 ranking at 26th position. In HDI ranking China stands at 81th position and India at 128th position. So the Asian countries have to put more efforts for improving the standard of living of their people.

ASIA AS SOFT POWER:

This is the century of soft power. We, as Asians need to dominate the world as soft power and not by weapons of mass destructions, their threat and through the way we fell in the hands of European powers few centuries ago.

Soft power, a concept developed by a Harvard University professor Joseph Ney, is the way to attract other nations through culture, philosophy, media, political values, foreign policy and history. If we look at the map of the countries we have considered in this article, we will come to know the common things in them that would combine and shape Asia as a soft power union. Though there are different races, religions, languages and much dissimilarity within ourselves, we still have similar kind of history and culture. We are different nations today, but we were not so about thousand years down the line. The French, the British, the Portuguese, the Japanese ruled us... But now we need to wake up and rule the superpower as soft power- and may not be an Economic giant in the assumed span of 50 years (of course, we all must aim at becoming economic super power in near future of 75 years). This soft power will help us to increase our economic power and dominance on world without much opposition from other countries.

Indian movies are gaining global recognition in film festival likes Cannes, Asian film festival, etc. IFFA award is another famous Indian film award festival which is getting famous throughout the world. Also the film festivals in India such as Goa Film Festival and Delhi Film Festival attracts global talent. Indian daily soap operas are very much popular all around the world. '*Kyunki Saas Bhi Kabhi Bahu Thi*' is famous in almost every family in Asian subcontinent as well as the Middle East.

Again not only entertainment industries like movies and daily soaps on TV channels but also sport tournaments like IPL are getting famous day-by-day. The Olympic Games 2008 held in Beijing, China is another example of soft-power. The growing number of medals and sports persons with a higher rank on international level shows the confidence of these countries. It again influences the masses in other countries.

Tourism is a booming sector in the continent. People around the globe are attracted towards the fascinating beauty of the Taj, the Great Wall of China, etc. The Petronas Towers at Malaysia is also very popular. The country calls itself *truly Asia*. Our aim is to give identity of *truly Asia*, without

loosing the country's own identity, but still representing Asia. Take for example of the ASEAN, which has now established their tourism centre in their block, the same could be done for the whole continent. Maldives will have coral reefs, and beautiful sea beaches to attract travelers. India has started agriculture and medical tourism as innovative forms of tourism. Malaysia, Thailand, Singapore are already leading in cuisine and dance...Nepal may provide parachute jumping over the Everest! Not only this natural beauty but immense variations in culture, religions, traditions and historical monuments are the great strength of the Asian countries which can be used for tourism. We want everything under the banner of Asia. This is our strength!

TOURIST ARRIVALS:

Country	No. of Tourist Arrivals	Rank out of 168 countries	Country	No. of Tourists Arrivals	Rank out of 168 countries
China	2, 37, 70,000	6	**India**	23, 74,000	35
Thailand	72, 94,000	17	**Philippines**	22, 23,000	37
Singapore	65, 31,000	18	**Sri Lanka**	3, 66,000	78
Malaysia	62, 11,000	19	**Maldives**	3, 06,856	79
Japan	42, 18,000	26	**Bhutan**	5,000	150

We are considering Asia... the continent of immense population, immense variety and less developed. The most important challenge for us in the next assumed fifty years is the ill effects of global warming and pollution. We have to suffer because of the mess created by the developed nations. This is a vital area in which we all should join hands to deal with global warming. Maldives, if we not take firm action against this issue, would be accustomed to under ocean cabinet meetings, and Nepal on Himalaya... China and India, the leaders of Asia, no matter how politically strained relations they have, argues on environmental issues with one voice. This should be done on Asian level.

All the important sectors are developing well. But the problem is that they are scattered in distant countries of the largest continent, which restricts Asian countries to grab the advantage of the resources. If trade between the Asian countries takes place like inter state trade, i.e. without any duties or tariffs, we would be able to have greater share of global market. Acting as soft power, would be supplementary to it. We need to rule the world, certainly not with machine guns and atom bombs, but by becoming economically strong and as a soft power.

CONCLUDING REMARKS:

In this article we have seen some of the major countries or developing countries in the Asian continent and their increasing share in the world market. Over a period of time these countries have shown remarkable progress or performance in various sectors and spheres. Some of the Asian countries like India, China, etc. have been able to prove themselves as good competitors by giving tough competition to various developed countries in west. Though we agree that the socio-economic problems for each country differ in the degree of severity; limitations faced by each country also vary. But by taking these countries' potential capabilities into consideration we have put forward the possibilities of mutual benefit of economic, and socio-political nature that can be earned due to emergence of Asian Union.

The Asian Countries are facing many similar problems, for example, major challenge in getting dividend of young population for India is that the supply of highly trained knowledge workers such as scientists and engineers in India is much more limited than commonly thought. There is a highly bifurcated higher education system. The premier part consists of seven Indian Institutes of Technology, six Indian Institutes of Management, and the Indian Institute of Sciences, the Indian Statistical Institute and the All Indian Institute of Medical Sciences which are world class. However, they produce only ten thousand graduates per year. The bulk of the higher education system produces graduates of very low quality. A recent McKinsey study estimates that only 10 to 20 per cent of the graduates are properly trained to work for MNCs. There are also many political and economical problems for increasing the supply of the premier institutes or for improving the quality of the broader system.

Many Asian countries have created some small pockets within a country which are developing faster than other regions. In China there are very large regional income inequalities between the coastal provinces, where GDP has been growing at 15 per cent to 20 per cent per year, and the western provinces, where growth has been just 2 per cent to 5 per cent, this leads to income inequalities, a huge migration and social unrest. India is also facing similar problems of regional imbalances due to which migration towards the major cities is increasing which causes social, cultural and political problems. Again China, India and other countries are facing major resource and environmental problems.

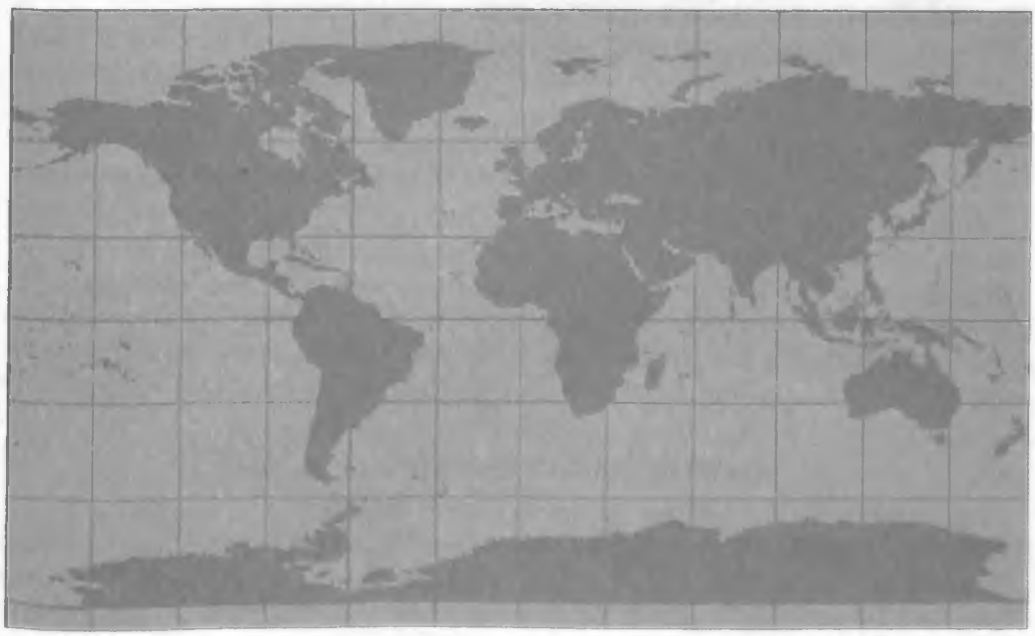
If these problems are not solved then they can pose major threat to economic development. The economic development should not be limited to some pockets; it should spread throughout the region internal and external. Asia is a multi-community continent. It means it has people from various religions, ethnicity and culture. Because of economic, social, cultural, political and religious unrest there are problems like terrorism, naxalism and international crime. To progress we require social, cultural and political harmony, and understanding, for which the Asian countries need to help each other in fields by sharing information and expertise.

We have seen from above analysis that various Asian countries are specializing in different fields such as Japan is leading in technology, China and S. Korea in Manufacturing and India in Service sector, if these countries collaborate and share their experience and knowledge they can produce a commodity with lower cost and higher quality. This product will have its own demand and monopoly in market with brand name **'Made in Asia'.**

As we have said previously that by Asian age we do not mean that countries in Asia will dominate the world combined but the leading countries may dominate the world individually also. But they have to solve their own problems by improving mutual relations and understanding. As seems throughout this article Asian countries are all ready harnessing their inert individual powers and hence 50 years seems more than adequate time for Asia to dominate the world.

Lastly we conclude that if there is a major crisis (though we have assumed that there will be no major crisis affecting the region) in the world, Asia will emerge from it with great potential to develop and dominate the world as we have seen in previous crisis years. We want to state here the famous quote of John F. Kennedy that:

"When written in Chinese the word "crisis" is composed of two characters - one represents danger and the other represents opportunity", *which is true about Asia.*



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Human Rights In India : An Overview

Neelima Kharde, M. A. II (Political Science)

"You must not lose faith in humanity; humanity is like an ocean,
If a few drops of the ocean are dirty, the ocean does not become dirty".

- Mahatma Gandhi

Each and every society of the world has accepted the natural relation of human and rights; therefore what we call 'Human Rights' today can be found in all cultural and philosophical traditions in the world. What were earlier called as the natural and moral claims of an individual have today became the ideals of human rights.

The 'Human Rights' generally suggests the availability of a favorable condition for an individual, to attain his or her overall development. These are said to be inalienable i.e. that cannot be taken away by anyone. Besides its entitlement to a human being, these are regarded to be necessary for leading a life of dignity and well being. Apart from its general character of economic, social and political rights, the human rights also provides the freedom of expression, opinion and conscience, freedom of religion, culture and literature in the domain of equality, justice and liberty.

The idea of treating a individual as 'Humane', legally emerged at first in the international community, after the universally known violations of World War I and II. Thus in 1948, the United Nations proclaimed Universal Declarations of Human Rights and recognized that the inherent dignity and equal rights are essence of freedom, justice and peace as a moral force on member States. A further attempt provided the 'Legal Framework', when International covenants on political, civil, cultural, and economic rights were adopted and accepted legally by member States including India in 1966.

These global efforts also resulted in the emergence of human rights organizations and Non-Governmental Organizations (NGO's) as well as establishment of monitoring authorities for mobilization of masses about their rights at international and state level. So to see the human rights situation in India, I shall explain the evolution of human rights in India.

LEGACY OF HUMAN RIGHTS IN INDIA:

The evolution of human values in India can be traced from ancient period. The Vedic culture had its doctrine of rights as a natural origin that created a philosophical base of India. The period of invasions provided an emergence of multidimensional cultures in India. The colonial era also experienced the propagation of 'Social Equality' by Mahatma Phule and other social reformers. The rights of women were also promoted by enacting the anti-sati law. On these basis, the gradual awareness of civil and political rights resulted in India's attainment of political independence in 1947.

After independence, The Constitution of India became a basic source of human rights that guarantees the fundamental rights in the political, social, cultural, and religious spheres without discrimination on the grounds of caste, creed, color, sex, religion or place of birth. It also promoted the protective discrimination for welfare of the neglected sections of the society and also suggested the equality of opportunity in employment and equal distribution of wealth and resources. The Constitution also provided for the judiciary as a guardian of human rights in India.

Thus, theoretically the constitutional law of India provides the ideal conditions for human development. However in reality, the country is facing severe human rights violations.

THE VIOLATIONS OF HUMAN RIGHTS IN INDIA:

Though, the historical evils of slavery and unsociability are not visible today, the modern age humans are suffering brutal kind of violations. The extent of human rights violations are wide in nature and the statistics also reveals the growing numbers of innocent deaths in India.

The provisional laws like AFSPA (Armed Forces Special Power Act) 1958, have been misused by some security personnel, its objectives of maintaining law and order in the disturbed areas like North East and Kashmir is diluted. These laws have become the means of ill-treatment, torture, custodial deaths, and harassment of weaker sections of societies.

Uttar Pradesh has topped the list of states with maximum number of complaints relating to human rights violations followed by Delhi. U.P. accounts for more than half of the complaints received by NHRC [National Human Rights Commission]. Also, among the north-east states Assam accounts for maximum numbers.

The women and children are the biggest victims of human trafficking, forced labor, mental and physical harassment in India. The women are also victim of female foeticide and recently the increased numbers of rape and violence via cyber space. In social conflicts, warfare situations, and natural disasters women are affected the most in all circumstances. Nowadays, some NGO's are also arguing for equal human dignity for sex workers. Today, untouchability does not exist in its original form, but mental harassment and denying the temple entries to dalits are prevalent in some regions of the states.

Among the southern states, Tamil Nadu has topped for registering human rights violations cases. It is also the state with highest numbers of caste related violations. In case of women, the highest literacy state, Kerala has emerged as the highest in the women violations.

SOME RECENT DEBATED HUMAN RIGHTS:

The environmental rights are the rights to healthy environment. It is also related to the conservation of natural resources, as in many cases like 'Singur land'. 'Narmada Bachao' demanded the consideration of local people in the ownership of natural resources. The victims of technological and chemical disasters are also demanding justice. Victims of Bhopal Gas Tragedy (1984) are still waiting for justice.

Today, the political violence by non-state actors as terrorists or naxalists is threatening the very basic right to live. The recent tragedy of massacre of CRPF jawans is most brutal consequence of long pending political issues.

The LGBT (Lesbian, Gay, Bisexuals, Transgender) in these days a visible strata, campaigning for their right to life with dignity, was neglected as they faced ill-treatments and 'unnatural' tag earlier. However, now India has recognized its practice of homosexuality as another expression of human being, and not a disorder.

Many human rights organizations and NGO's are working in the direction of awareness of human rights; but the monitoring authorities are responsible for the promotion of human rights. Therefore, it is necessary to review the crucial role of advocating agencies in securing human rights in India.

RESPONSE OF ADVOCATING ACTORS:

STATE ACTORS:

The establishment of National Human Rights Commission, marked a responsible step of Indian government, to promote and protect the human values. It has accepted the 'Human Rights' as life, liberty, equality and dignity of the individual, guaranteed by The Constitution or embodied in the International Covenants and enforceable by courts. Thus, this reflects the committed nature of NHRC to the international as well as national values. The NHRC was formed by an Act of Parliament in 1993. The atrocities during emergency, the separatist movements and communal riots threatened a right to life and civil rights movements demanding the fulfillment of their rights pressurized government to form an institutional mechanism as a watchdog of human rights. The NHRC provides for a former chief justice as the chairperson and its prominent members are the chairpersons of commission of women, scheduled caste, scheduled tribe and minorities.

Some noticeable features of NHRC are its autonomous and independent nature compared to other governmental institutions, having power to initiate and process cases in civil courts, and its wide sphere in utilizing the Central and State Intelligence agencies, for investigating the issues. However, it is not empowered to address the matter after expiry of one year from the date on which the act of human violation alleged to be

committed. NHRC responded positively to the cases of child prostitution, prisoners reforms, rehabilitation of persons, child and bonded labor, violence against women. It has also allocated compensations in various cases. The increased numbers of complaints showed the faith of masses towards the commission. The commission has played a prominent role in spreading literacy and awareness of human rights among Indian masses. Some addressed issues by NHRC are the implementation of compulsory education, elimination of child labor, domestic violence act relating to violence against women, quality assurance in the hospitals related to maternity deaths, etc.

But on the part of its limitations, the recent confrontation over the appointment of chairperson shows the political influence on it. It could not address the voices of people at all India level. The most important limitation of NHRC is the exemption of security forces from the investigation power of commission, but it can enquire into the matter only after receiving a central report.

Another state agency being judiciary, a guardian of fundamental rights in India, has maintained a limited role since independence. But after emergency its intervention in public affairs has increased through addressing PIL's (Public Interest Litigations). Its judgment about lesbians has provided dignity to them. Today, the isolation of judiciary has been minimized through its advisory and transformative judgements. However in the presence of vastness of civil cases, Judiciary cannot provide the 'timely justice' to all.

NON-STATE ACTORS:

The NGO's and media are the agencies that exert their fundamental rights of organization and expression. They also get support from the people, as a platform of expression. It is believed that both agencies should have a co-operative and constructive role with the NHRC and Judiciary. Many times these agencies do not focus on relevant issues for commercial benefits. But these agencies are trying to mobilize, organize, realize and activate masses about their human rights.

CONCLUSION:

India has maintained a committed position to the international standards of human rights. The country also possess an ideal cultural background of humanism and has maintained a 'Soft State' character at international level. But the country also has the possibilities of growing separatist tendencies because of its complex structure. These evils in India dilute the core idea of human rights i.e. fair trial to everyone. India today also accepted the basic standards of education, removing poverty, quality health care system, and economic opportunities as strategy for improving the human rights situation, as included in the 'Millennium

Development Goals' directive programme of world forum. The oppressed and weak sections of the society need to be empowered by making them accessible to these standards. So the human rights that ensure the prosperity and development of an individual as well as society can be defended by the efforts of 'Human' only, by developing an equal vision and moral standards towards all.

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Pune's Average Happiness Quotient

Rahul Mudholkar, M. A. I (Economics)

The neoclassical Economists theorized that development was basically an increase in Gross National Product over a sustained period. As these economists advocated trade without restrictions, Gross National product can be defined as the market value of all goods and services produced in one year by labor and property supplied by the residents of a country. This however proved an untenable measure even for a country's growth and countries began to rely on Gross domestic product for showing growth.

Gross domestic product takes into account all goods and services produced within the geographical borders of a country. It however fails to recognize additional factors such as internal security (Police) and external security (Armed forces) as contributors towards growth by maintaining normalcy. Additionally things such as income disparities, widening inequalities, necessity of an organized (not barter market), quality of goods, and type of goods produced and sustainability of growth are not recognized. Hence in the international community the need for "development" dictated that GDP should not be overstated.

Amartya Sen, amongst the well known people in development economics defines development as "the removal of major sources of non-freedom, poverty as well as tyranny, poor economic opportunities as well as systematic social deprivation, neglecting of public facilities as well as intolerance or over activity of repressive States." Thus it means that for there to be true development not only should income improve but society should be more free and tolerant. There has been, over the last few years many things said both on our GDP growth and also on our tolerance level reducing. Yet media views cannot be treated as gospel truths.

To show how much India has developed, the choice of development barometers was the key. Human Development Index is perhaps the most well known of all other indicators to judge development but it's reliance on government statistics and its basically monetary rather than overall approach rendered it largely unworkable. Moreover the New Economic welfare indicator does measure cost and benefits to the economy, passing value judgments on what are positive and negative factors within the economy. An example : walking is not contributing to national income but driving a car is contributing to national income yet the carbon footprint is increasing with driving a car thus pollution is increasing. This negative is removed in monetary terms to give us development.

Yet the above theories though sound are at a macro economic level. The scope of micro indicators has however to be appreciated with micro indicators giving a more accurate quality of life solution. Moreover micro indicators can be subjective as well. Thus the choice here of Gross national happiness is a base for this study.

Gross National Happiness or GNH was being worked on as early as 1972 in Bhutan but was adopted by Majesty Jigme Khesar Namgyel Wangchuck, in November 2008. GNH is a measure which goes beyond mere economic activity but aims to cover an entire plethora of indicators said to measure quality of life in more holistic and psychological terms. GNH not only measures growth of economic trade in the hope that increase in trade will lead to an overall improvement in living standards but it also measures true growth. 9 key indicators are said to be the key to progress. These indicators are as follows:

- **Psychological well-being:** Key to all round development. A society that is calm shows that it has achieved a certain level of sufficiency. Moreover a society that is stressed will in the long run have to deal with a population that perhaps may be less productive or at the very least one that is more likely to get mental and other illnesses.
- **Time Use:** Time use shows improvement in quality of life. If a society has gained higher wages but works longer there is an obvious question as to the quality of life. The backward bending supply curve of labor for individuals clearly states that in the long run work hours will be traded for enjoyment hours.
- **Community vitality:** An active community, one that helps others as well as allows others personal freedom is the key to development.
- **Cultural diversity:** Maintenance of India's core ethos must be a determinant in measuring happiness. This can even be seen in developed countries that try to maintain their cultural identity and develop dying Arts. Moreover for India, it can be termed as economically important also with Westerners trying to learn Indian values and Arts such as Yoga, meditation. One for money must never loose their identity.
- **Health:** A healthy population is more likely to find gainful employment due to obvious reasons. The question of health is the key as it shows development. Through human history people have seen development directly resulting in longer life and more cures to diseases.
- **Education:** An educated society is more likely to attain self sufficiency and form rational informed decisions. An educated society not only results in more enlightened people but decision making is greatly improved with increased education. Yet not only being literate is sufficient, education must be current and must be useful.
- **Ecological Diversity:** Ecological diversity is the key to most countries. Development must not be at the cost of ecology within the country but must be protective of it.
- **Living standard:** This covers the basic Economic condition of people. Does a person receive a high enough income to support his family adequately and what does the future seem like are answered in this section.

- **Good Governance:** A democratic Government is supposed to work for the betterment of its citizens. Moreover a Government that is seen to be acting for the welfare of its citizens will find its citizens willing to make sacrifices for the Government.

MEANS OF MEASUREMENT:

Feeling that all these indicators are important a study was carried out with a *group of 160 individuals, strong* from youngsters to retired people, from bai's to drivers to Executives. Yet even after spreading in the demographic view as widely as this, the answer to all these indicators could not be formulated in the same manner Bhutan uses. This is primarily due to the fact that they have year on year data which is not available to this study and moreover the cut offs instituted in Bhutan may prove too high or low for India hence the same cut offs could not be used. To overcome this problem, averages have been used of the demographic. *A score out of 10 is given to each section.* Additionally, within each section there were wide ranging questions asked and all questions were rated out of 10. Finally an average of all questions was created to give us a final score for that section and then the sectional scores were averaged to give us the final average. Due to the use of averages, one cannot club Bhutan's index and this as synonymous and hence the decision to name this index as "*average happiness index*" was taken.

While there is no base for comparison, one must assume that a reasonable score will be above 5 and a good score of 7.

Additionally it must be clearly noted that the study has been restricted to ONE (1) city (Pune) and thus national trends may differ substantially. It is keeping the above in mind that I have termed this study as *Pune's average happiness quotient* which while borrowing from the *GNH index, changes certain features hence cannot be clubbed as one and the same.*

THE STUDY:

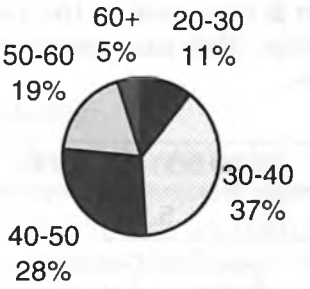
The following are the basic characteristics of the study:

Gender

Men	Women
85	75

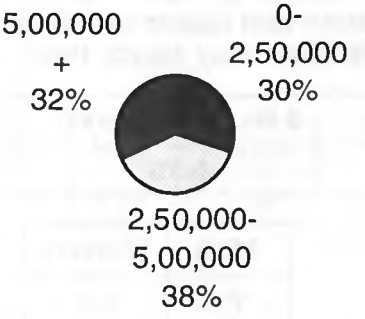
Age Group

20-30	30-40	40-50	50-60	60+
17	61	44	30	8



Income Group

0-2,50,000	2,50,000- 5,00,000	5,00,000+
48	61	51



Occupation

Un-employed	Trader	Civil servant	Armed Forces	Driver	Corporate Employee	Self employed	Retired	Lawyer	House keeping
13	32	6	3	30	46	5	4	3	18

Thus one can see that an attempt to equally represent all sections of society was made. It was found that people voted more closely according to economic lines rather than gender bias except when the question of economic discrimination arose. The following are the results of the census:

1. Psychological well being:

Pune scored a respectable 6.3 out of 10 in psychological well being. While key features of well being such as anger and frustration got low scores of 4.7 and 4.1 respectively, pride, lack of jealousy scored well at 7 and 7.3 respectively. The highest scorer was a lack of guilt which means the society feels that what it has done in the past is correct and time has not changed this impression. This may mean society has been rather fair in its dealings with others.

0-2,50,000	2,50,000-5,00,000	5,00,000+
5.9	5.23	7.77

Men	Women
7.4	5.2

2. Time Use:

Pune in time use scored 6. Though this is high some people felt that their time was not being spent according to the importance they attached to certain things. Lower income groups in particular felt that family time was low almost non-existent and higher income groups that in some cases they felt guilty that work took away family time.

0-2,50,000	2,50,000-5,00,000	5,00,000+
4.21	5.75	8.4

Men	Women
7.4	5.2

3. Community vitality:

Community vitality could well be divided into two parts the first part being the importance people attach to values such as friendship, freedom, material wealth, etc. and second what people feel, the community values such as freedom, generosity, honesty, help, etc.

a. Values:

People rated values on a scale of 1-10 and the following overall average emerged. While the overall trend shows values scored an overall of 7.2, financial security rated at 8.7 and material wealth at 7.7 while generosity and spiritual faith scored 5.6 and 6.6 respectively. This is an alarming trend and judgment as to material wealth being negative has not been passed. Since this is for an individual, this is none less than alarming.

0-2,50,000	2,50,000-5,00,000	5,00,000+
7.9	6.74	6.96

Men	Women
6.53	7.87

b. Society values and vitality:

Society scores an even more shocking 4.7. This is due to the basic fact that for a society to progress concern about material wealth and selfishness must be left behind. Yet as high as 145 and 99 people respectively feel society is more concerned about material wealth and more selfish than a few years ago. This is especially alarming. The distinction of making material wealth and selfishness negative attributes of society is obvious due to the fact that developmental Economics is all about equality and happiness rather than material gains. In addition spirituality and freedom from discrimination score poorly pointing to a less tolerant society. The definition of Development by Sen itself enshrines tolerance within it and hence society tolerance was included within this point.

0-2,50,000	2,50,000-5,00,000	5,00,000+
3.89	4.62	5.59

Men	Women
4.34	5.06

4. Cultural Diversity:

Yet another key factor of this index is cultural diversity. In a bid however to touch on all points perhaps cultural diversity was admittedly neglected. However a few questions such as languages a person can speak or write were present. The results shows that a majority of people know more than two languages and a substantial amount know all three major languages. This perhaps can be termed as especially important. However if languages are one part of diversity surely tolerance is the second part. Tolerance however has been termed as a lacking part of society scoring a mere 3.16. In addition due to most of our culture part of spirituality scoring low for an individual (6.6) and lower for how that individual feels society has progressed (3.66: meaning society is less spiritual) clearly shows the need for addressing this problem. Without tolerance by all diversity may not be achieved in society.

5. Health:

Health plays yet another key role in gauging development. A developed country has more people that are healthier thus having high productivity and longevity of life. The average health score, 6.65 is quite satisfactory within a country like India. But this may perhaps come lower if the rich going to private hospitals was not considered. The poor felt that while the treatment they received was fair, time and cost at times played a part in reducing satisfaction. Indeed one interviewee went to an eye camp and lost sight in one eye completely due to quacks being allowed to operate.

0-2,50,000	2,50,000-5,00,000	5,00,000+
4.19	7.13	8.83

Men	Women
6.24	7.06

6. Education:

Education does not merely dictate a person is able to read and write but also play an important role in decision making. Indeed the fact that education should be useful to the people is important. In this case several people felt that the Right to Education signaled a shift and an improvement in education though they were not sure how or by how much. Again, education was treated as a necessity by the poor who were not sure as to what to answer to questions like what your child learns today is useful in his future. For many it was the first generation that was being educated thus they did not know responses. On an average education scored a highly respectable 6.9. The basic reason for it loosing out on a higher score was largely the fact that certain segments felt that reforms are required and moreover the fact that writing for several was rated poorly.

0-2,50,000	2,50,000-5,00,000	5,00,000+
7.24	6.87	6.59

Men	Women
7.43	6.37

7. Ecological Diversity:

The reason for including ecological diversity is that it shows progress and an improved standard of life. If ecology is protected, the fact that society benefits in the long term is hardly questionable. Moreover in recent times ecological preservation was highly rated due to climate change. Here the Government's role in protection of environment is also part of the study. While with an overall score of 3.4 this is clearly an area of great concern,

the blame must be apportioned equally. Government does share some blame with some respondents talking about depleting forest covers around Pune and one even talking about Aircel having a *project tiger* better known than a government counterpart. The fact that people state climate change is somewhat important yet they use private vehicles shows a rather odd balance.

0-2,50,000	2,50,000-5,00,000	5,00,000+
3.6	3	3.6

Men	Women
3.29	3.51

8. Living standard:

The standard of living or people's economic happiness is measured here. The overall indicator shows that India is at 5. The fact that people are worried about inflation plays a significant role. The point that savings and investment are important is recognized by the educated while the poorer class only talks about saving and that too in actual cash. Additionally the fact that inflation according to them is not coming down sufficiently significantly diverts away possible higher standards. This is letting us remember in a city which grew at 15% according to the PMC Environment survey and has double the per capita income than the national average. Yet, the poor feel that their income is highly insufficient and disparities between them and the rich are high. Additionally here in an informal exchange with about 80 respondents a majority ate out even from poorer sections and most wished to have a vacation. Yet the poor who included drivers said any vacation for them would entail them loosing their household income and hence shed away from actually stating that they would be going on a vacation. At the same time middle and higher income groups stated that they try their best to club sick days and casual leaves for a get away every year. This also shows high levels of stress and a lack of ability to unwind within the city.

0-2,50,000	2,50,000-5,00,000	5,00,000+
4.1	4.43	6.47

Men	Women
5.72	4.28

9. Good Governance:

The last but certainly not the least indicator which was measured was good governance. The media, courts, ministries, police have all been pooled together as governing bodies. The overall score of this section is a poor 3.2. This is chiefly due to the vast number of people that believe corruption is largely gripping the system. In addition to this the feeling that not enough is being done for inflation, anti-corruption, pro people

policies, etc. reduced this score. People talked about bribes required for ration cards, petrol price hike and other such government decisions in the recent past. This however casts no aspersions on any Government because the people did in fact choose the Governing party hence the opposition is not viewed as any better.

0-2,50,000	2,50,000-5,00,000	5,00,000+
2.63	2.87	4.1

Men	Women
3.1	3.3

CONCLUSION:

In conclusion, we find Pune has an overall rating of 5.5. While cultural diversity was not measured the other measures were given equal value in the final outcome and society and community values (which form a part of community vitality) were given equal weight age. The clear figures can be summarized as below:

	Measure	Score
1)	Psychological well being	**6.3**
2)	Time use	**6.0**
3)	Community vitality	
a.	Personal values	**7.2**
b.	Society values	**4.7**
4)	Cultural diversity	**N/a**
5)	Health	**6.7**
6)	Education	**6.9**
7)	Ecological diversity	**3.4**
8)	Living standard	**5.0**
9)	Good Governance	**3.2**
	Total (Average)	**5.5**

Thus, from the above table we find that Pune scored above 5. Yet, chief concerns of Good Governance and Ecological Diversity must be addressed. Ecological diversity is something that must be left for future generations and Good Governance must be brought about so as to give people true freedom. As I started by talking about freedom the point that true freedom will only be possible through good governance must be remembered. If these two issues are not addressed there will be a tendency for the rot to spread to other sections of this index leading to a lower happiness index.

ABSTRACT OF QUESTIONNAIRE:

How satisfied are you with the following aspects of your life?

		Satisfied	Fairly satisfied	Not very satisfied	Dissatisfied	Don't Know
Sat1	Your health	**1**	**2**	**3**	**4**	**8**
Sat2	The security of your finances/livelihood	**1**	**2**	**3**	**4**	**8**
Sat3	The major occupations in your daily life (could be your job if formally employed, farm work, housework)	**1**	**2**	**3**	**4**	**8**
Sat4	The relationship you have with your immediate family members.	**1**	**2**	**3**	**4**	**8**

During the past few weeks, how often have you felt the following moods/ emotions?

		Often	Sometimes	Never
Emot1	Anger	**1**	**2**	**3**
Emot3	Guilt	**1**	**2**	**3**
Emot5	Selfishness	**1**	**2**	**3**
Emot6	Jealousy	**1**	**2**	**3**
Emot7	Pride	**1**	**2**	**3**
Emot8	Calmness	**1**	**2**	**3**
Emot9	Empathy/Compassion	**1**	**2**	**3**
Emot10	Forgiveness	**1**	**2**	**3**
Emot11	Contentment	**1**	**2**	**3**
Emot12	Generosity	**1**	**2**	**3**
Emot13	Disappointment	**1**	**2**	**3**
Emot14	Sadness	**1**	**2**	**3**
Emot15	Frustration	**1**	**2**	**3**

Other emotions which are experienced often (please specify)
.....

Do you agree or disagree with the statement "*what your children (Or you) learn in the classroom is applicable to their day-to-day life?*"

	Agree	Disagree	Don't Know
EdApp1	**1**	**2**	**8**

How satisfied are you with the quality of education that your children (Or you) receive?

	Satisfied	Dissatisfied	Don't Know
	1	**2**	**8**

During the last few years, most people in India have become-

Change1	More generous	Stayed the same	Less generous	Don't Know
	1	**2**	**3**	**8**

Change2	More compassionate	Stayed the same	Less compassionate	Don't Know
	1	**2**	**3**	**8**

Change3	More concerned about material wealth	Stayed the same	Less concerned about material wealth	Don't Know
	1	**2**	**3**	**8**

Change4	More selfish	Stayed the same	Less selfish	Don't Know
	1	**2**	**3**	**8**

Change5	More honest	Stayed the same	Less honest	Don't Know
	1	**2**	**3**	**8**

Change7	More tolerant	Stayed the same	Less tolerant	Don't Know
	1	**2**	**3**	**8**

Do you feel that you:

		Yes	**No**	**Don't know**
Rights1	Have right to freedom of speech and opinion	**1**	**2**	**8**
Rights2	Have right whom to vote	**1**	**2**	**8**
Rights3	Have right to join political party of your choice	**1**	**2**	**8**
Rights4	Have right to equal access and opportunity to join public service	**1**	**2**	**8**
Rights5	Have right to equal pay for work of equal value	**1**	**2**	**8**
Rights6	Are free from discrimination based on race, sex, religion, language, politics or other status	**1**	**2**	**8**

Within your community, do you consider your family to be?

Income14	Wealthier than most families	About the same as most families	Poorer than most families	Don't Know
	1	**2**	**3**	**8**

How has your family's financial position changed over the past few years, compared to other families in your community?

Income15	Financial position has improved more than most families	Financial position has changed about the same as most families	Financial position has improved less than most families	Don't Know
	1	**2**	**3**	**8**

In the next two years, do you think your family's financial situation will get better, worsen or stay the same?

Fin Sce 1	Get Better	Stay The Same	Get Worse	Don't Know
	1	**2**	**3**	**8**

How well does your total household income meet your family's everyday needs for food, shelter and clothing?

Fin Sce 2	Not enough	Just enough	More than enough
	1	**2**	**3**

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Optimization of Human Resources:

The Influence of Human Resource Development On The Performance of Public Administration

Seyyed Hassan Mirmasoumi, M.A. II (Political Science)

ABSTRACT:

In public administration, the knowledge, skills, values and attitudes of public servants are at the heart of State performance. The revitalization of public administration, however, must be seen from a holistic perspective. For example, the training of individuals cannot be isolated from the performance expectations of a specific function or position. Performance and human resource development plans for staff cannot be separated from the goals and service objectives of the employing organization, and goals and organizational structure cannot be disconnected from an understanding of the policy framework, including demand for services from the respective citizens. At the same time, the goals, priorities and performance objectives of an organization cannot be determined outside the broader national and government policy agenda and macro-socio-economic framework.

Political, creative and inventive managers are the prime movers in bringing about alignment between capacity-building efforts of the public administration system and national development goals. Without effective and determined managers, it is difficult to revitalize public administration in any country. These are managers that primarily drive the Change process. A major weakness of many public sector reform programmes, in fact, has been the lack of genuine manager commitment to those efforts. These ingredients, policy and institutional reform and managers commitment, are therefore essential prerequisites for the formulation of a strategy to strengthen the capacity of human capital in order to revitalize public administration at the national level. The present article stresses that reform of public administration is a long-term process, requiring the adoption of a comprehensive strategy that fosters the development of core capacities to provide creative manager; to formulate sound public policies; to foster greater performance - orientation in service delivery; and to enhance professionalism in public management.

KEY WORDS:

Human Reassures Development (HRD), public administration

INTRODUCTION:

In the public administration (as in private sector), human resources are a fundamental and decisive factor, regardless of whether one is discussing private organizations, or public and central government organizations. These organizations, however well they are organized otherwise, will only function if their people are prepared to support their actions. Their actions also depend on the successful performance of the organization in public administration. Reforming public administration in both developed and developing countries is not an easy task and many are the difficulties to be overcome. In the past twenty years a number of national and international forces have contributed to significantly changing the role of The State, which has resulted in the need for new skills, attitudes and behaviors among public officials at all levels. In fact, the core competencies for the public sector of the 21st century differs in many ways from the past, especially as the demands placed on public servants, in terms of skills, knowledge and competency, are rapidly increasing and becoming more complex. Top government leaders in developing countries are still facing old challenges, while at the same time they also have to address new ones, which have resulted from many social, economic and political changes sweeping throughout the world.

The main goal of presented research was to empirically investigate one factor of efficiency, which depends on investment in human resources. We tried to analyze if there is any dependency between training of employees and performance in public sector measured by citizens' satisfaction. In one research, results pointed testing influence of public servants' training on work efficiency e.g., performance. We introduce two hypotheses from its testing:

– The increase in the number of employees who were included in education/ training in year t, will improve the administration's performance indicators in year t.

– The improved performance indicators influence citizens' satisfaction.

After introduction, the paper presents some theoretical part and results of partly empirical background of importance of investments in human resources in public sector and its performance. The conclusion includes some recommendations and potential areas for further research.

THE IMPORTANCE OF INVESTMENT IN HUMAN RESOURCES:

Human resource management is a part of the process that helps an organization attain its goals. Price (2004) describes human resource development (HRD) as a strategic approach for investing in human capital. It draws on other human resource processes, including resourcing and performance assessment, to identify actual and potential talent. HRD provides a framework for self-development, training programmes and career progression to meet an organization's skill requirements. Furthermore, interpretations given of the aims and methods of HRD function vary

according to the stakeholder group in an enterprise, e.g. managers, workers and labor unions do not necessarily come to a common understanding of the aims of HRD. This complexity brings with it a number of factors relating to questions of how to identify what is expertise in HRD work, how it is constructed in organizations and by the practitioners themselves, and what can be expected from an expert's performance in the field. (VALKEAVAARA, T. 2000).

THE KEY CONNECTIONS BETWEEN HRD AND SCENARIO PLANNING:

Human resource development professionals claim to be concerned with the thoughtful application of tools and interventions that can have a positive impact on the lives of organizational workers, managers, executives, communities and nations. Are they also concerned about the manner in which such beneficial practices might be carried out in the future? In a world of increasingly rapid change, scenario planning has emerged as a tool for considering multiple plausible futures, embracing multiple differing views on what 'better' futures might and 'should' look like. There are the following five key connections between HRD and scenario planning:

(1) *Increased knowledge about scenario planning can leverage HRD to become a shaper of business strategy;*

(2) *Implementation of actions resulting from the scenario-planning process often requires HRD expertise;*

(3) *The connection between scenario planning and organization development or change efforts implies a domain of HRD;*

(4) *The theory of the scenario-planning process can benefit from learning expertise in HRD; and, finally,*

(5) *Scenarios were advocated to consider the future of HRD itself.* (CHERMACKM, T. J. 2004).

Human resource development is under the influence of two factors: *internal* and *external*. In internal factors, the changes are generally caused by changing organizational, informational and/ or technological processes or changes in ownership conditions, the composition of the human resource development system within the public administration, as well as, importantly, the political climate. Political conditions have a significant impact on the formation of human resource development in the public administration. (BREJC, M. 2004). The external factors include the general political environment, the economic system, technical and technological development of society, demographics, social factors, and the culture in general.

A human resource development system must be a long-term, systemic and target-oriented process, harmonized with current and future demands of work. The objectives of a human resource development system must be related to the continual professional, personal and working development of

each individual. This means that the optimization and modernization of work processes and procedures alone is not enough.

A wide range of views have been expressed on human resource development in organizations. Dauphin and Starbird (R. T. 1996) consider that the main reasons for staff development are:

- creating conditions to increase an organization's effectiveness and competitiveness;
- gaining highly-motivated staff;
- achieving suitable human resources to introduce and implement new programs;
- increasing skills required to use the organization's available technological resources;
- ensuring rapid and suitable replacements for any staff that leave the organization.

A suitable approach to human resource management allows easier cognition, forecasting and directing of the behavior of people and the manner in which they react. All this is carried out with the purpose of assuring greater thoughtfulness, motivation, creativity, success and effectiveness of individuals at work and, indirectly through this, raise the success, effectiveness and competitive advantage of the organization. The stated goals should also be set in local government where the deciding factor is the employees. The fundamental principle of human resource development is that it goes further than piecemeal training.

Human resource development should be a part of a planned and systematic process in which:

- Competencies or capabilities are identified by a performance management system;
- They are matched with need specified by the human resource strategy;
- Gaps are addressed by the development programme. (PRICE, A 2004)

Contemporary public administration is inherent of reform changes and innovations. Striving for solution to complex problems in Central and Eastern European countries, the main focus should be laid on improvement of state structures efficiency, government bodies' stability and increment of professionalism and accountability of human resources in state institutions. Human resources system is concurrent with establishment of new quality since the aim of the latter is to create an integrated and well-manageable system of central and local government human resources and to ensure expansion of the system as well as action programmes related to it... Public servants training is one of the means improving public administration and enhancing continuous policy on public staff training, which aims at ensuring implementation of objectives set to state and self-government institutions (CHLIVICKAS, E. 2003).

The systematic training model assumed an organizational environment based on slow change, hierarchical lines of authority and clear requirements. It was a logical series of steps centered on the use of an objective training needs analysis. It provided a framework within which the trainer could ensure a thorough and "professional" job. Swanson and Arnold (1996) argued that the purpose of HRD is to improve performance. This view is founded on the premise that HRD, when practiced in productive organizations, should strive to contribute directly to the organizations' performance goals.

The Kirkpatrick's Model for Summative Evaluation is based on four levels:

(I)- In first level (Reaction), students are asked to evaluate the training after completing the programme. These are sometimes called smile sheets or happy sheets because in their simplest form they measure how well students liked the training. This questionnaire moves beyond how well the students liked the training to questions about: the relevance of the objectives, the ability of the course to maintain interest, the amount and appropriateness of interactive exercises, the ease of navigation and the perceived value and transferability to the workplace.

(II)- Level two in the Kirkpatrick model measures learning results. In other words, did the students actually learn the knowledge, skills, and attitudes the programme was supposed to teach? To show achievement, have students completed a pre-test and post-test, making sure that test items or questions are truly written to the learning objectives. By summarizing the scores of all students, trainers can accurately see the impact that the training intervention had. This type of evaluation is not as widely conducted as Level One, but is still very common.

(III)- Level Three evaluations attempt to answer whether or not students' behaviors actually change as a result of new learning (Behavior in the Workplace). Students typically score well on post-tests, but the real question is whether or not any of the new knowledge and skills are retained and transferred back on the job... Ideally, this measurement is conducted three to six months after the training programme.

(IV)- The fourth level in this model is to evaluate the business impact of the training programme. The only scientific way to isolate training as a variable would be to isolate a representative control group within the larger student population, and then rollout the training programme, complete the evaluation, and compare against a business evaluation of the non-trained group. Unfortunately, this is rarely done because of the difficulty of gathering the business data and the complexity of isolating the training intervention as a unique variable. (KRUSE, K. 2008)

The effects of acquired knowledge were tested using the Kirkpatrick model in some countries and it had consequences on employees and also users. The score was compiled on the following basis:

- Opinions on the adequacy of the training, from the line managers of the employee / student;
- Opinions on whether the training was adequate from the employee/ student;
- User-satisfaction surveys and
- Tests of knowledge for employees providing services.

CONCLUSIONS:

We can conclude that investments in human resources are important despite the drawback of presented research analysis. The presented research can be a basis for further research and case study in every country. The systematic monitoring of indicators and expansion of the quality barometer survey to all public administration agencies will make more data available on one hand, and will eventually ensure sufficiently lengthy period of monitoring on the other. This means that in future, similar analyses will provide more accurate results, and the research presented may encourage further and more sophisticated research in this field in future. In some countries, where these limitations do not exist, the research presented could function as an impetus to test the hypotheses proposed. Bringing countries into the scope of the analysis could also lead to international comparability. Human resource development offers the opportunity to faster method of operation, which is also promoted within the administration itself. This includes methods of working, behavior and thought, and changes in processes and tasks that will make work within the public administration more effective and user-friendly, while at the same time also meeting standards of legality. Despite that additional training in public administration can cause higher cost, since the higher educated employees want higher wages and since training itself causes additional costs. It is obvious that investments in human resources lead to a dilemma: are the costs of investments worthwhile? Is better performance reducing costs enough to be in better financial situation? Is better performance needed to improve citizens' satisfaction or it is needed just for cost reduction? All that questions and more should be answered by policy makers, when decision about investments in human resources is taken into account. Other important decision that should be made is the right kind of training. Not all kinds of trainings are necessary. Sometimes training for civil servants is even harder, since the most of training is focused on private sector and not all of the elements important for private sector could be useful for public administration.

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Relation between Self-confidence and Ambitiousness

Shachi Mehta, M.A. I (Psychology)

ABSTRACT:

The present study is aimed at examining the relationship between self-confidence and ambition of individual. An incidental sample of 12 students from Science faculty of S. P. College was chosen for study. To measure ambitiousness and self-confidence of student Sentence Completion Test-(SCT) was utilized. It was constructed by L. N. Dubey and Archana Dubey. Non-parametric correlation test is used to analyze the data. The results indicated significant relation between self-confidence and ambitiousness.

INTRODUCTION:

The term "Self-confidence" suggests the belief of believing in you to believe that one is able to accomplish what one sets out to do, to overcome obstacles and challenges.

Professor Raj persuades that true confidence comes from an attitude where you, "promise yourself, no matter how difficult the problem life throws at you, that you will try as hard as you can help yourself. You acknowledge that sometimes your efforts to help yourself may not result in success, as often being properly rewarded is not in your control." This personal attitude develops self-confidence.

Ambitiousness or ambition can be stated as strong feeling of wanting to be successful in life and achieve great things and advancement. Ambition is knowing, where you want to go, how to get there and doing what it takes to reach the goal. Ambition means desire, within initiative which means action.

To study relation between these two variables Sentence Completion Test-(SCT) has been used. In this test most of sentences are starting with first person or situation is kept in such a way that his personal involvement is necessary. He expresses his own feelings, likings, attitudes, etc.

Incomplete series of sentences or clauses are given. Person is supposed to complete then with the very first thought that comes in his/ her mind after reading it. Some sentences from test are given here e.g.

- I am .....
- I .....when I meet stranger.
- In my opinion.....
- Social functions.....

METHODOLOGY:

Sample:

Incidental sampling method is used for collecting the data. Entire sample (n=12) was gathered from S. P. College Science faculty.

Tool:

Sentence Completion Test-(SCT) constructed by Dr. L. N. Dubey and Archana Dubey was utilized to study the relation between variables. Test consists of 50 incomplete sentences.

Reliability of test:

Split half reliability of the test is ranging from 0.62 to 0.73 and the test retest reliability is 0.67

Standardization:

The test has been standardized on sample of 1150 students among them 450 were girls and 700 boys and age was ranging from 14 years to 19 years.

Hypothesis:

Here literature review is not available for studying these two same variables so null hypothesis is stated as:

"There is no significant relation between self-confidence and ambition."

RESULTS:

Data analysis is done with non-parametric statistical tool. Rank difference method is utilized to find out the correlation between the variables.

Sr. No.	Self-confidence	Ambition	R1	R2	d	d^2
1	24	21	11	9.5	1.5	2.25
2	34	26	4.5	4.5	0	0
3	23	24	12	7	5	25
4	30	21	7	9.5	-2.5	6.25
5	34	27	4.5	2.5	2	4
6	25	18	9.5	11	-1.5	2.25
7	37	30	1	1	0	0
8	34	26	4.5	4.5	0	0
9	25	17	9.5	12	-2.5	6.25
10	36	27	2	2.5	-0.5	0.25
11	34	22	4.5	8	-3.5	12.25
12	29	25	8	6	2	4
					Total =	62.5

Formula:

Coefficient of Correlation:

$$r = 1 - \frac{6 \sum d^2}{n^3 - n}$$

r = 0.78,

The correlation obtained between self confidence and ambition is 0.78 which is quite high.

Degrees of freedom = n – 2 = 12 – 2 = 10

Probability at 0.01 level of significance:

Test value is greater than table value.

So, null hypothesis is rejected.

DISCUSSION:

In the beginning of the study assumption was that there is significant relation between ambition and self-confidence of person. It means that

individuals those are likely to be high on self-confidence or ambition will be high on ambition or self-confidence as well and individuals those are likely to be low on self-confidence or ambition will be low on other variable.

By this assumption and as literature review was not available in case of these two variables so null hypothesis was taken into consideration that, there is no significant relation between self-confidence and ambition.

But raw scores and statistical data are showing positive co-relation between self-confidence and ambition and results are showing that null hypothesis is rejected so there is relationship between self-confidence and ambition.

The correlation between two sets of scores or variables can be positive or negative. It is said to be positive when increase (or decrease) in one corresponds to an increase (or decrease) in other. It is negative when an increase corresponds to decrease or when decrease to an increase.

Results of present study found that there is 0.78 correlation between two variables that is self confidence and ambition of person. So this correlation proves that there is significant relation between scores obtained on self-confidence and ambition.

LIMITATIONS OF THIS STUDY:

1. The total sample number was 12. As sample size was very small so any generalization about results cannot be made.
2. Faking responses can be given by subjects because there is no available procedure to measure faking responses.
3. It can be requested to subjects about answering style but nobody can force them for avoiding socially acceptable responses.
4. Investigator cannot be generalized with confidence any statement because the sample remains no longer representation of population.

CONCLUSION:

By going through all the results it can be concluded that there is significant relationship between self-confidence and ambition.

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स्त्री एक रचना : नैसर्गिक की कृत्रिम ?

मंदार गताटे (पदव्युत्तर द्वितीयवर्ष, तत्त्वज्ञान विभाग)

मानवी जीवनातील प्रश्न आणि समस्या ह्या त्याच्या विकसनाच्या प्रत्येक टप्प्यावर बदलत गेल्या आहेत. हा बदल मूळ प्रश्न अथवा समस्या यात नसून, त्याच्या अनुषंगिक स्वरूप, प्रारूपात बदल होतो. त्याच्या शाखा, उपशाखा वाढतात. कालानुरूप त्या प्रश्न, समस्येचा ऊहापोह करण्याचे त्यावर काही उपाय शोधण्याचा प्रयत्न हा अपुरा वाटू लागतो. कारण मूळ प्रश्न, समस्येच्या भाग्यात न जाता शाखा, उपशाखा या स्वरूपावरच छाटणी केली जाते. मुळात अशा समस्या वा प्रश्न निर्माण होतातच का ? कशामुळे याचा विचार करण्याचा प्रयत्न करणे संयुक्तिक असते. प्रामुख्याने मानवी जीवनात निर्माण होणारे प्रश्न हे त्याच्या वर्तनाने व त्या वर्तनामागील विचारप्रक्रियेतून निर्माण होतात. एक वेळी ते एक सामाजिक व्यवस्था अशी मानवी समूहाची प्रगती किंवा विकासाच्या टप्प्यांवर सुरुवातीपासूनच वर्गवारी, प्रतवारी करण्यात आल्याचे आढळते. वर्चस्व प्रस्थापित करणे आणि मालकीहक्क या भावनांनी त्यात भेद-भाव, श्रेष्ठ-कनिष्ठता निर्माण झाली. यामुळे आजच्या समाजव्यवस्थेत अनेक प्रश्न उत्पन्न झाले आहेत. धर्म, जात, पंथ आणि लिंग यानुसार अनेक समस्या मानवी जीवनाशी निगडीत झाल्या. अनेक अर्थांनी याला समस्या म्हणण्यापेक्षा गुंता म्हणावासा वाटतो. लिंगभेद हा असाच गुंता आहे. त्याचे अनेक पैलू आहेत, पण प्रामुख्याने स्त्री आणि पुरुष या दोन लैंगिक निकषांवरच प्रामुख्याने याची चर्चा केली जाते किंवा या विषयाच्या इतर पैलूंकडेही याच दोन आधारांच्या प्रभावाखाली लिंग पाहिले जाते. स्त्री-पुरुष यांच्यातील संबंध या परीघाच्या बाहेर जाऊन, त्यांचे हक्क, समानता, याच्याबद्दल विचारही केला जातो. 'स्त्रीवाद' हे याचेच एक अपत्य आहे असे म्हटल्यास वावगे ठरणार नाही.

सामाजिक व्यवस्थेचा विचार करता, विकासाच्या एका प्रगत टप्प्यावर स्वत:च्या हक्कांविषयी, समानतेविषयी प्रश्न पडणे हे अत्यंत स्वाभाविक आहे. १७व्या-१८व्या शतकात, किंवा त्याच्या पुढे-मागे ज्याप्रमाणे जातीव्यवस्था, धर्मव्यवस्था, राजेशाही, भांडवलशाही, वसाहतवाद यांच्याविरुद्ध लढे, क्रांत्या, चळवळी झाल्या, त्याचप्रमाणे लिंगभेदाच्या विरोधातही स्त्रियांनी अनेक लढे, चळवळी उभ्या केल्या. हे लढे, चळवळी का उभ्या राहिल्या ? कोणत्या विचारांच्या आधारावर एक प्रस्थापित सामाजिक चौकट मोडण्याची भाषा वापरली जाऊ लागली ? अर्थात समाजातील शोषित, वंचित घटकच हक्क आणि समानतेच्याविषयी बोलतो. उद्विग्न करून टाकणारी अस्थिरता किंवा मूलभूत बाबींमध्ये मिळालेली स्थिरता या दोन परस्परभिन्न निकषांवर हक्क आणि समानतेचा विचार शोषिताच्या, वंचिताच्या मनात येतात आणि या कालखंडाचा विचार केल्यास हे दोन्हीही निकष समाजात हातात हात घालून उपस्थित होते. स्त्रीवाद, स्त्रीसमस्या, स्त्री-चळवळी या याच्याच द्योतक आहेत. भेदभाव आणि त्यातून होणारे शोषण हे या प्रश्नांचे आणि चळवळींचे मूळ आहे.

निसर्गाने मूलत: स्त्री आणि पुरुष असा भेद केलेला आहे का ? इथपासून याविषयाचा विचार करण्यास सुरुवात करू. जीवशास्त्रीयदृष्ट्या (Biologically) अर्थात या प्रश्नाचे उत्तर 'हो'च असे द्यावे लागते. जीवशास्त्रीयदृष्ट्या स्त्री-पुरुष या दोन्ही घटकांत निसर्गत: फरक आहे. पण अर्थात तो श्रेष्ठ व कनिष्ठ या पातळीवर मुळीच नाही. निर्माता-नियंत्रक निसर्ग या रचनाकाराच्या स्त्री आणि पुरुष या दोन उत्तम

रचना आहेत, त्याच्या कलाकृती आहेत आणि कोणताही विवेकी रचनाकार त्याच्या दोन रचनाकृतींमध्ये भेदभाव कसा करेल ? अर्थात तो करणारच नाही. या अशा साध्या-सोप्या दाव्यावर वा युक्तिवादावर या प्रश्नाची चर्चा संपत नाही, तर खऱ्या अर्थाने सुरू होते. कारण मानवी वर्तन आणि त्या वर्तनामागे केलेला त्याचा विचारच जशी सुव्यवस्था निर्माण करतो, तसेच प्रश्न व समस्याही निर्माण करतो. स्त्रियांच्या चळवळीच्या मुद्द्यावर याच अनुषंगाने अनेक पैलूंवर, घटकांवर अनेक विचारवंतांनी, बुद्धिवंतांनी चर्चा करून मूळ गाभ्यापर्यंत जाण्याचा प्रयत्न केला आहे.

'स्त्री' म्हणून जे एक प्रारूप आपल्याला समाजात दिसते, त्या प्रारूपाची रचना ही निसर्गत् आहे की मानवनिर्मित-कृत्रिम आहे ? याचा विचार होणे अत्यंत गरजेचे आहे. समाजव्यवस्था ही अनेक अंगाने बनलेली असते. व्यक्ती हा त्यातील मूळ केंद्रिय घटक असला तरीही, त्याच्याभोवती कुटुंबव्यवस्था व समाजव्यवस्थेचे एक परिवलय असते. या दोन पायऱ्यांवरच व्यक्तीच्या सामाजिक वर्तनाचे नियम व घटना तयार केल्या जात असतात. प्रत्येकाची भूमिका, त्यातील विविध स्वरूपांच्या परिभाषा करण्याचे काम या दोन संस्था प्रामुख्याने करतात. स्त्रियांची जी कर्तव्ये, कार्यप्रणाली, भूमिका, कुटुंबात व समाजात अधोरेखित केली गेलेली आहे, त्यामुळे वरवर जरी ती नैसर्गिक भासत असली तरीही मुळात हे कृत्रिम आहे. जन्मल्यापासून लादली गेलेली बंधने, संस्कारांनी खोलवर रुजविली गेली आहेत. आणि त्यामुळे कृत्रिमता त्या व्यक्तीला स्वत:लाच, स्वाभाविक, अपरिहार्य वाटू लागते. निसर्गत: ती व्यक्ती 'स्त्री' म्हणून जन्माला आलेली असते; पण 'बाईपण' हे तिच्यावर समाज आणि कुटुंब लादत असते.

या साऱ्याचे मूळ हे कुटुंबव्यवस्था व कुटुंबव्यवस्था चालवणारी पितृसत्ताक पद्धत आहे आणि कुटुंब हे समाजाचा काही प्रमाणात आरसा असतो. समाजाच्या भव्य रंगमंचावर असे अभिनयित व्हायचे याची पूर्वतयारी कुटुंबात होत असते. यावरून कुटुंबव्यवस्थेला वाईट, चुकीची म्हणणे अतिशयोक्तीचे होईल. कोणतीही व्यवस्था पूर्णत: बरोबर किंवा योग्य आणि पूर्णत: चूक / अयोग्य कधीच नसते. त्याचा विवेकपूर्ण वापरच त्याला जास्त चांगली, बरोबर, फलदायी ठरवीत असतो. कुटुंबधोरणे, समाजधोरणे ठरविताना त्यातील बलशाली, प्रभावी गटाचा त्या ध्येयधोरणांवर प्रभाव असतो. कुटुंबव्यवस्था ही पितृसत्ताक व अप्रत्यक्षरीत्या पुरुषसत्ताक झालेली आढळते. कुटुंबाचे अर्थकारणच हे व्यक्तिकेंद्री म्हणजे पितृकेंद्री आहे. याचे कारण समाजाने स्त्री व पुरुष यांच्या जबाबदाऱ्या, कर्तव्ये ठरविली आहेत. पुरुषाने अर्थार्जनाची जबाबदारी तर स्त्रियांनी पालन-पोषणाची जबाबदारी असा वर्ग केलेला दिसतो आणि इथे प्रश्न पडतो की, ज्या कोणी ही व्यवस्था केली त्याच्या मनात नक्की काय होते ? कामाची विभागणी ही खरोखरच कुटुंबाची 'व्यवस्था' होती ? की त्याच्यामागे श्रेष्ठ-कनिष्ठतेची सुप्त ठिणगी होती ? शेवटी अर्थार्जन हे श्रेष्ठ व कुटुंबातील कामे, घरकामे ही कनिष्ठ अशा मानसिकतेतून ही विभागणी होती, की मागाहून-कालांतराने ही पुरुषांची मानसिकता तयार होत जाऊन ती दृढ झाली ? या पार्श्वभूमीवर पुढे स्त्री अर्थार्जन करू लागल्यावर तिला तेवढेच 'श्रेष्ठत्व' देण्याचा मनाचा मोठेपणा पुरुष मानसिकतेने दाखविला का ? की त्या कालानुरूप स्त्रियांनी अर्थार्जन करणे अपरिहार्य झाले आहे अशी सोयीस्कर भूमिका त्यात आहे ? २१ व्या शतकात स्त्रीचे अर्थाजन खरोखरच तिला प्रतिष्ठा मिळून देते का ? याला समाजातील वर्गभेदाचा-अर्थार्जनावरून वर्गभेदाचा पुसटसा स्पर्श आहे ? चार घरची धुणी-भांडी करून 'अर्थार्जन' करणारी 'स्त्री' आणि एखाद्या बहुराष्ट्रीय कंपनीत मोठ्या हुद्द्यांवर बसून 'अर्थार्जन' करणारी स्त्री यांना 'अर्थार्जन' या निकषावर मिळणारी सामाजिक प्रतिष्ठा सारखीच असते का ? तसेच तिच्या स्वत:च्या

कुटुंबातही एकसारखाच दृष्टिकोन असतो का ? आणि जर असेल तर धुणी-भांडी करणाऱ्या स्त्रीचा मुलगा / मुलगी कलेक्टर, डॉक्टर, इंजिनिअर होणे आणि बहुराष्ट्रीय कंपनीतील स्त्रीच्या मुला / मुलीने डॉक्टर, इंजिनिअर, कलेक्टर होणे याला एकाच दृष्टिकोनातून पाहिले जाते का ? आपल्या अपत्यांचे पालन-पोषण करणे हे प्रत्येक जन्मदात्याचे कर्तव्य आहे आणि त्यासाठी सोई-संधी उपलब्ध करून देणे हा त्याचाच एक भाग आहे. वरील उदाहरणातून अधोरेखित करण्याचा मुद्दा हा आहे की, केवळ अर्थार्जन करण्याने समाजातील दोन भिन्न घटकांना समान प्रतिष्ठा मिळत नाही. अर्थार्जन हे प्रतिष्ठित असले तरी त्याचे विकेंद्रिकरण झालेले दिसते व ते त्या-त्या कुटुंबापर्यंत मर्यादित राहिलेले दिसते, पुन्हा त्या कुटुंबात त्या व्यक्तीला स्वाभाविकपणे प्रतिष्ठा मिळते की कुटुंबातील सदस्यांना ती अपरिहार्यतेतून द्यावी लागते, हा आणखीनच खोलवर चर्चा करण्याचा विषय आहे. कारण तो सापेक्ष होत जातो. विसंगती म्हणजे ह्याच सापेक्षतेच्या वारंवारतेवर आपण ध्येय-धोरणे ठरवीत असतो, समाजाचे एक चित्र उभे करीत असतो. मोलमजुरी स्त्रीला तिच्या श्रमाची प्रतिष्ठा मिळणेही तितकेच गरजेचे आहे. त्यामागील श्रमित व्यक्तीला म्हणजेच त्या स्त्रीला 'व्यक्ती' म्हणून, 'माणूस' म्हणून प्रतिष्ठा मिळणे आज २१व्या शतकातही गरजेचे आहे. आजपासून कितीही मागे जाऊन, धांडोळा घेण्याचा प्रयत्न केल्यास, स्त्रीच्या कोणत्याच श्रमाला प्रतिष्ठा मिळालेली दिसत नाही. अगदी निसर्गाने स्त्रीला प्रजननक्षमता देऊ केली, निसर्गाने तिला कोणतीही विशेषणे दिली नाहीत, मानवाने त्याच्या प्रतिभेच्या जोरावर नैसर्गिक प्रजननक्षमतेला 'वरदान', 'सृजन' ही विशेषणे दिली, या विशेषणांनी कदाचित काही क्षण स्त्रीही सुखावली असेल, पण पुढे आपली 'प्रजननयंत्रणा' झाल्याचे लक्षात आल्यावर, शब्दांनी मिळालेली प्रातिभ - प्रतिष्ठाही विरून गेली असेल.

कुटुंबव्यवस्था-संस्था ही व्यक्तिसंस्था व समाजसंस्था यांतील दुवा आहे. या तीनही संस्थांच्या परिवलयात, कुटुंब या पातळीवर सुधारणांना, बदलांना खूप वाव आहे. त्यासाठी प्रस्थापित पितृसत्ताक पद्धती क्रांती करून उलथवून टाकण्याची काहीच गरज नाही. कोणत्याही व्यवस्थेत विसंगती व अपवाद हे असणारच... नव्हे, असतातच. अर्थात हा मुद्दा म्हणजे विनाकारण पितृसत्ताक पद्धतीची भलावण, पाठराखण करणे नव्हे, कारण पहिली गोष्ट म्हणजे ती पूर्णत: उलथवून टाकणे अशक्य आहे आणि दुसरी गोष्ट म्हणजे त्याला पर्यायी व्यवस्था कोणती असणार आहे ? आणि आलेली व्यवस्था पूर्णपणे यशस्वी होणार का ? किंवा ती यशस्वी होऊन प्रस्थापित होण्यास शतके खर्ची पडतील. मूळ मुद्दा हा आहे की, कुटुंबपातळीवर, वर्तन, वर्तनामागील विचारप्रक्रिया आणि प्रामुख्याने त्या विचारप्रक्रियेमागील मानसिकता बदलण्याची गरज आहे, या मानसिकतेमधून गेली हजारो वर्षे समाजातील एका मोठ्या गटाचे, घटकाचे प्रत्यक्ष आणि अप्रत्यक्षरीत्या अनेक स्तरांवर प्रचंड शोषण झाले आहे, 'झाले आहे' या शब्दाला 'नकळतता' अध्याधृत आहे, त्यामुळे 'केले आहे' हा शब्दप्रयोग चपखल आहे. कुटुंबपातळीवर करण्यासारखे बदल म्हणजे, सगळ्यात मूलभूत आणि गोष्ट समजावून घेतली पाहिजे आणि सांगितली पाहिजे, ती म्हणजे, आपण 'स्त्री-पुरुष' असे कोणीतरी असण्याच्या आधी आपण माणूस आहोत, मानव आहोत, आपण मानवाच्या पोटी जन्माला आलोय, आपल्याला 'माणसाचे बाळ' म्हणतात, कोण्या 'प्राण्याचे पिल्लू' नाही. ती आपली अत्यंत प्राथमिक तरीही वैश्विक ओळख आहे, आणि त्यानंतर आपण 'स्त्री-पुरुष' असे कोणीतरी आहोत. कोणताही आगा-पिछा नसताना 'आगंतुका' सारखे आपण या विश्वात टपकलेलो आहोत, त्यामुळे त्या टपकण्यावर लैंगिक न्यून वा अहंभावाची पुटे न चढू देणेच योग्य आहे. विश्वस्थापत्याची 'मानव' ही एक अनेक अद्‌भुत रचनांपैकी एक रचना आहे, त्याने अत्यंत विचारपूर्वक

नैसर्गिकत: स्त्री व पुरुष असा भेद न करता, 'स्त्री-मानव' व 'पुरुष-मानव' अशी भिन्नता केली आहे, ती विविधता आहे, भेद नाही. कारण विश्वात येताना आणि विश्वातून जाताना होणाऱ्या क्रिया-प्रक्रिया या दोहोंसाठी एकसारख्याच असतात. आपण माणसाने 'मुलगा-मुलगी' जन्मल्यावरचे सोहळे आणि 'स्त्री-पुरुष' मेल्यानंतरचे कर्मकांड यांच्यात भेदभाव करतो, निसर्ग याची दखलही घेत नाही, ''माणसाचे बाळ' म्हणून तो दोघांनाही एकाच पद्धतीने जन्माला घालतो व एकाच पद्धतीने मरण देतो. त्यामुळे 'स्त्री-दाक्षिण्य' दाखविण्याचा भाबडेपणा पुरुषाने दाखविण्याची काहीच गरज नाही, याचं शिक्षण, विचार कुटुंबपातळीवर देणे गरजेचे आहे. या विचारांचा संस्कार, त्यामागची प्रगल्भता मनावर रुजली गेली, तर आपोआपच, पुढे केली जाणारी घरातल्या, बाहेरच्या, पालण-पोषण-अर्थार्जन या कामांची, जबाबदाऱ्यांची विभागणी न्यूनतेच्या, प्रतिष्ठेच्या मुद्द्यांवर होणार नाही. एकत्र नांदण्यासाठीची आपण तयार करून स्वीकारलेल्या व्यवस्थेत मग अहंमन्यतेचा भाव न राहता त्यात आदान-प्रदानता येऊ शकते.

कुटुंबपातळीवर एका ठराविक वयापर्यंत पाल्यांवर होणारे संस्कार खरोखरच सर्वार्थाने महत्त्वाचे असतात. वरील विचारांच्या स्वीकारण्याने पितृसत्ताक पद्धती व त्यामुळे ओघाने येणारी पुरुषसत्ताकता कमी होईल का ? कारण माणूस म्हणून, मानव म्हणून मानवात असणारी सत्तापिपासु वृत्ती, मालकी हक्क हे कसे कमी होणार ? असा प्रश्न पडतो. संपत्ती, सत्ता, अधिकार माणसाला उन्मत्त करतो का ? आणि तिथे मानसशास्त्रीय पातळीवर या उन्मत्तपणावर स्त्री-पुरुष असा भेदभाव असतो का ? थोडक्यात - समानतेच्या संस्काराबरोबरच संयमाचे आणि विवेकाचे संस्कारही होणे गरजेचे आहे. दांभिकपणे स्त्री-पुरुष समानतेचा मुद्दा न मांडता, वास्तवाचे, विवेकाचे भान ठेवून, उन्मत्तता, ही कोणाच्यातही येऊ शकते, हे मानवी स्वभावाचे दोष स्वीकारून, विवेकाने, तटस्थपणे हा मुद्दा मांडावासा वाटतो.

मानवी स्वभावाचा दोष किंवा मर्यादा या मुद्द्यावरून पुढे जाताना, साहित्य, काव्य, कला या क्षेत्रांमध्ये स्त्री-प्रतिमेची एक वेगळीच प्रतिष्ठा प्रस्थापित केली गेली आहे. अर्थात यात वास्तवात आणि कल्पनेत मोठ्या प्रमाणात विसंगती आहे. प्रतिभेच्या आणि सृजनशीलतेच्या जोरावर स्त्रीची कमालीची अलंकारिक काव्यात्मक प्रतिभा, कल्पना रेखाटली गेली आहे.

साहित्यिक, प्रतिभापातळीवर, भाषा म्हणून समाजात, साहित्यक्षेत्रात, कलाक्षेत्रात त्याला मान्यताही मिळाली आहे, मिळते आहे. अगदी 'स्त्रीवादी' चष्मा लावून हा मुद्दा मांडायचा म्हटल्यास, ''भोज्येषु माता, कार्येषु मंत्री, शयनेषु रंभा'' हे आणि यासारखे अनेक गुणसंपन्न स्त्रीचे काव्यात्मक रेखाटन, प्रतिभा हे पुरुषप्रतिभेचे आविष्कार आहेत, की मनातल्या सुप्त आकांक्षा-इच्छा ? हे लिहिणाऱ्या कवीच्या लेखी मानवी स्वभावमर्यादांचा विचार होतो का ? अर्थातच असणार, कारण या काव्याच्या शेवटी अशी सर्वगुणसंपन्न स्त्री मिळणे दुर्लभ आहे असे उद्धृत केलेले आहे. पण प्रश्न पुन्हा तोच आहे की, ही मांडणी म्हणजे मानवी स्वभावाच्या मर्यादांची जाण आहे की अप्राप्यतेचा सल आहे ? कवीची गुणग्राहकताच फक्त इथे वाखाणण्याजोगी आहे. कवीच्या उद्देशावर कोणताच प्रश्न उपस्थित न करता, त्याने त्याच्या काव्यातून स्त्रीला एक वेगळीच प्रातिभासिक प्रतिष्ठा देऊ केली आहे असे गृहित धरून, ती प्रतिष्ठा वास्तवात स्त्रीला मिळते का याचा विचार करू. प्रतिभेच्या पातळीवर अत्युच्च प्रतिष्ठा लाभलेली, स्त्री प्रत्यक्षात मात्र जन्मल्यापासून शेवटपर्यंत स्वत:च्या नावाच्या मागे काय बिरूद लावायचे याच वंचनेत असते ? बालपणी 'कुमारी', लग्नानंतर 'सौभाग्यवती', लग्न न झाल्यास 'श्रीमती', पतीच्या निधनानंतर 'सौभाग्यवतीतून पुन्हा 'श्रीमती'' असा पाठशिवणीचा खेळच खेळत असते. पुरुषांसाठी मात्र 'कुमार'

आणि 'श्रीमान' अशी दोनच किंवा वयाच्या एका ठराविक टप्प्यानंतर कायम 'श्रीमान' असेच बिरूद नावामागे मिळते. इथे आपली दांभिकता आहे. काव्यातल्या स्त्रीची प्रतिमा आणि वास्तवातल्या स्त्रीचे रूप याच्यात हीच विसंगती आहे. लग्न न केलेल्या स्त्रीच्या 'श्रीमती' लावण्यात आणि पतिनिधनानंतर 'श्रीमती' लावण्याच्या छटेत आम्ही फरक करतो. त्यात खरोखरच प्रतिष्ठा असते का ? या विसंगतीला, दांभिकतेलाच, दुटप्पीपणालाच कोणत्यातरी आत्मसन्मानाला दुखावण्यालाच आम्ही 'सामाजिक व्यवस्था' म्हणतो, याचेच खरोखर वैषम्य वाटते. कारण स्वत:चा आत्मसन्मान शाबूत ठेवणाऱ्यांनीच ही व्यवस्था केली आहे. दुसऱ्याचा आत्मसन्मान, व्यक्तिसन्मान दुखावणारी व्यवस्था.

भारतीय किंवा हिंदू परंपरेत अनेक देव-देवता पुजल्या जातात; पण त्यातल्या बऱ्याच दुर्लक्षित, कुठल्याही व्रतवैकल्य, कर्मकांडाला बळी न पडलेला देव म्हणजे अर्ध-नट-नारी-नटेश्वर. अर्थात देव ही संकल्पनाच मानवी असल्याने, ही देवताही मानवी प्रतिभेचीच एक चुणुक आहे. या देवतेचे चित्र पाहिल्यासही आपल्याला स्त्री-पुरुष समानतेचा विचार दिसतो. भारतीय जगाला दाखले देण्याच्या बाबतीत इथेही कमी पडताना दिसत नाही; पण या देवतेचे कधीच कोणी पूजन करताना ऐकले किंवा पाहिले नाही. कोणी ते करावे असा अनाहूत सल्लाही देणे नाही. फक्त त्यामागील विचार, आम्ही २१व्या शतकात जाताना विवेकाने समजावून घेणे गरजेचे आहे. अर्ध-नर-नारी-नटेश्वर ही संकल्पनासुद्धा मानवी प्रतिभेचीच एक रचनाकृती आहे, त्याचे कौतुक फक्त एवढ्यासाठीच, की त्यात कुठेही छुपी दांभिकता नाही.

निसर्गाने, ईश्वराने 'मानव' ही एक त्याच्या प्रतिभेतून, सृजनशीलतेतून निर्माण केलेली रचनाकृती आहे, स्त्री-पुरुष या रचनाकृतीची स्वायत्त उपांगे आहेत. त्याच्यात स्वाभाविक नैसर्गिकता अभिप्रेत असावी, समाजाच्या चौकटीतून आलेले, लादले गेलेपण, राहणार नाही. मानवाचा निसर्गाची एक रचनाकृती म्हणून विचार करायला गेल्यास ज्यावेळी स्त्री या रचनेचा विचार येतो, तेव्हा त्यात प्रचंड लादलेपण येते, दिसते, तिच्यावर बाईपण खरोखरच लादलेले दिसते आणि तटस्थपणे, विवेकाने विचार केल्यास काही प्रमाणात हे लादलेपण पुरुषावर असतेच. त्यालाही 'पुरुष' म्हणून सतत स्वत:ला वेगळी ओळख करून द्यावीच लागत असते. जसे 'बाईपणाचे' निकष ठरवले गेले आहेत, तसेच 'पुरुषीपणाचे' निकषही आहेत. त्याला त्याचा 'पुरुषीपणा' सिद्ध करण्यासाठी, किंवा दाखवण्यासाठी ना-ना खटाटोप करावे लागतात, किंवा तो करतो. विसंगती इथे येते, जिथे पुरुषीपणा सिद्ध करण्यासाठी त्याला स्वत:च्या निसर्गदत्त गुणांचा, क्षमतांचा आधार न घेता, दमनाचा, शोषणाचा आधार घ्यावा लागतो. स्वत:ची सारी बुद्धी, शक्ती, प्रतिभा मुख्यत: त्याला कोणालाही काबूत ठेवण्यात, वश करण्यात, पणाला लावावी लागते. निसर्गाने केलेल्या 'स्त्री'च्या रचनेवर त्याला 'बाईपणाचा' त्याचा अभिकल्प लादावा लागतो आणि मग प्रश्न उपस्थित होतो, ''स्त्री ही खरोखरच कोणती रचना आहे, नैसर्गिक वा कृत्रिम ?''

Computer Dynamics

Pavitra Bhat, M. Sc. I (Computer Science)

Now- a-days computers have become the vital part of every conduit. Computers have also become the imperative and essential basic claim of an organization. In the market too we could view varied Computers of motley features and using gratifying technology. Every year Computer's generation sees computers with much better and different features.

"Why are there rapid and constant changes in the computer world"? ; The most philosophical question that should come into one's mind. To excavate on this query, we need to first perceive these so called *rapid and constant changes.* To give a head start let us commence with the History of computers which would construe the query and ultimately lead to its solution.

WHY COMPUTERS?

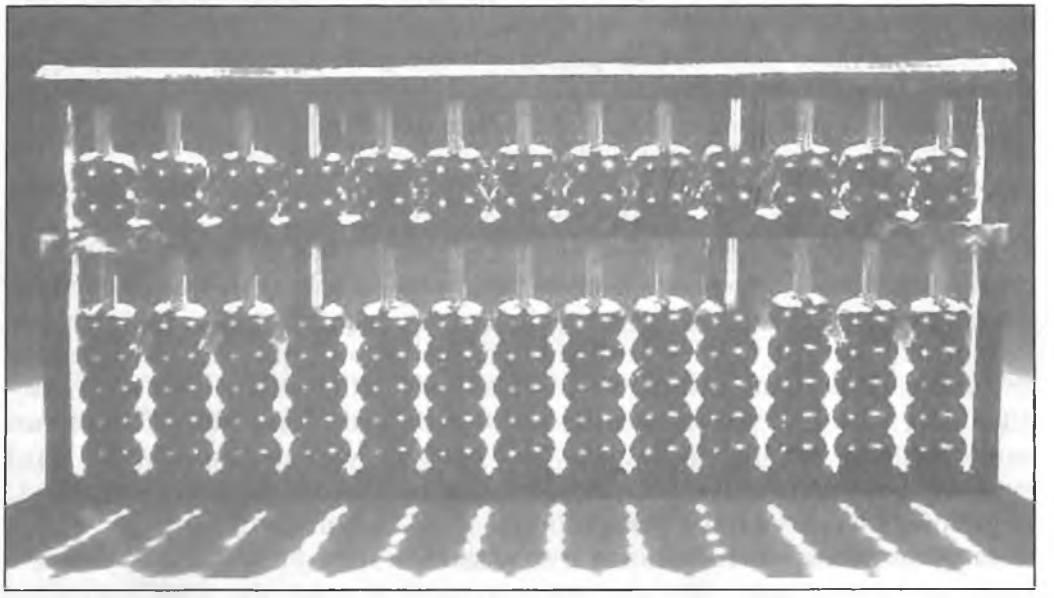
The first computers were people! "Computer" was originally a job title; it was used to describe those human beings (predominantly women) whose job was to perform the repetitive calculations required to compute things like navigational tables, tide charts, and planetary positions for astronomical almanacs. Imagine you had a job where hour after hour, day after day, you were to do nothing but compute multiplications. Boredom would quickly set in, leading to carelessness, leading to mistakes. And even on your best days you wouldn't be producing answers very fast. Therefore, inventors have been searching for hundreds of years for a way to find a mechanism to perform this task.

A typical computer operation back when computers were people.

As said aptly *"Necessity is the Mother of Invention"*; this ultimately leads to the invention of the Computers. The electronic computers (and the earlier mechanical computers) were given this name because they performed the work that had previously been assigned to people.

THE FIRST AMENDMENT:

"Abacus", this is the first milestone. A skilled abacus operator can work on addition and subtraction problems at the speed of a person equipped with a hand calculator (multiplication and division are slower).



Modern abacus. Note how the abacus is really just a representation of the human fingers: the 5 lower rings on each rod represent the 5 fingers and the 2 upper rings represent the 2 hands.

Just after few years Blaise Pascal had invented ***Pascaline*** which is a one function calculator (that could only add). The consequence of this invention led to the invention of a four function calculator called ***stepped reckoner*** by Gottfried Wilhelm Leibniz. By 1822 an English mathematician Charles Babbage proposed a machine which would be able to compute tables of numbers such as logarithm tables, which he called as the ***Difference machine***. This was however not that successful due to its complexity and then came the brainstorming device called ***Analytical machine*** that was inspired by ***Jacquard loom;*** two main parts of his Analytic Engine the "Store" and the "Mill", as both terms are used in the weaving industry. The Store was where numbers were held and the Mill was where they were "woven" into new results.

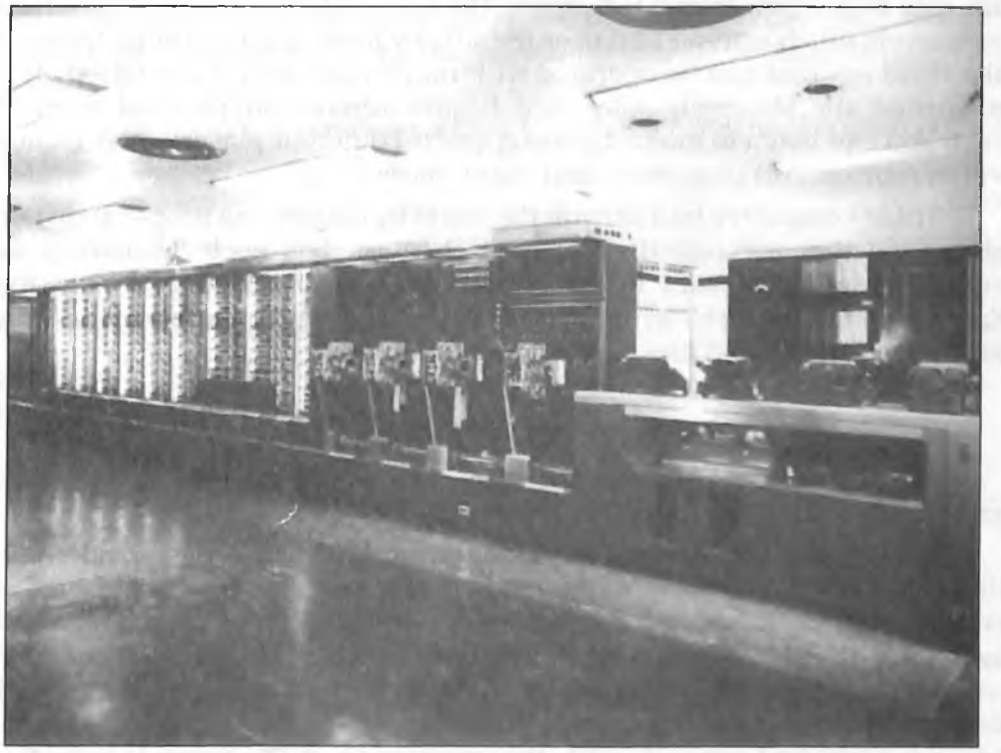
The accumulation of the above progression formed into a single unit that formed a big ***Central Processing Unit.***

Thus the above gives a gist of rapid and constant changes! The so called Huge Room-sized C.P.U. was condensed into 20 inches C.P.U. that is much faster, compact and handles extensive computation and is prominently used in today's modern world accompanied by monitors used for display, and keyboard used to input to the C.P.U..

This is a terse for the rapid and constant changes in Computer world. Let us apprise on why these changes transpire?

WHY THERE ARE CONSTANT AND RAPID CHANGES?

"***Necessity is the author of change.***" Thus, there are umpteen changes in the computer world. Early super computers were of the large room size! Just imagine how someone would operate on such huge machine.



The Harvard Mark I: an electro-mechanical computer

This required a lot of manual effort, space, and was too time consuming. So it became a necessity to make a compact C.P.U. Thus, the computer generation had a revolution and again there was consummation of the same. Thereafter and also now we are and we can espy a drastic

change in the computer world. The size of computers have been reducing right from room sized in early times to small, compact hand sized (like palm tops). These computers are diminutive and are much faster. Thus, man achieves and continuously works to accomplish his own necessities. Computer has become a part and parcel of every working organization whether the organization is renowned or obscure! It can be conveniently said that "Computer is omnipresent"! Computer is elemental prerequisite of populace. Today if computer do not work then every activity comes to a stand-still. Computers have become a person's soul mate, his/her passion, his/her past-time; his/her work hub, his/her activity diary, and more! For instance, every bank around the world has automated its transactions; if the computers in the bank are down then the work ceases and would resume only when the services have been restored.

COMPUTERS CONTRIBUTION:

Computer as stated above is not only used for convoluted computations but also to perform varied functions. The interaction with computers have been made much evident and user friendly by inventing Operating Systems like Windows that can be operated with much ease, even by children. This subsumes the Microsoft office that bestow utmost supplement to every field! You can listen to music by using several different players; play games, watch movies, run programs, and many more...

These computers had shrunk the world by connecting people at distant places together through the INTERNET! Internet is used extensively for myriad things. Internet is a fabulous facet for learners; it acts like Knowledge outsources having everything into it! We can send mails, chat with people, download files, upload files, shop things, and so on...

SIDE-EFFECTS OF COMPUTERS:

As it is said," There are two sides of a coin"; even computers have some worse effects onto this generation.

The personal computers changed the world by costing jobs, adding to the stress levels of people using them (windows crashes), contributed to criminal activity (identity theft, credit card fraud, criminal access to other systems)! Children no longer play outside. They sit around and play computer games. The only part of their body that gets exercise is their fingers. Consequently they get fat from being sedentary. The laziness plague has been invoked around, with the emergence of PCs; people now find ways for technology to replace day to day activities. For example, recreation has changed. Instead of going outside to take a cricket, or football ball, computer games have captured a large group of people to satisfy their need to "let loose." One other thing is online dating. Instead of taking time to actually get to know somebody in person, the computer has taken over, creating "virtual dating" where anybody can overemphasize their good attributes, and not mention their weak points.

Everyday new kinds of viruses are generated and that causes the computer breakdown! These viruses have been used to steal information from your desktop, also few viruses are used by hackers to hack sensitive data from your account or spoil your videos! Making fake calls is also possible through viruses.

It is used by naxalites too, to further tarnish the world. They spy the locations using the maps and then cause harm to localities!

CONCLUSION:

Not everything is perfect, but we can make it perfect by using this great invention in advantageous way! Computer is a great contribution, rather I would say an asset to the world and it is propitious if used for virtuous cause!

Since benefits from the computers are weighing better over atrocious things, it should be given sufficient door locks to stop the corrupt practices and should be used extensively for the benefit of the society in general. Even the major world calamities can be predicted and people made be aware in no time, so that losses to the humanity can be avoided through the proper use of Computers.

Hence I strongly recommend the Computer Age which should enlarge further in the larger pace!

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Computer Viruses

Sanju Kumari, M. Sc. I (Computer Science)

WHY WE NEED TO KNOW ABOUT THE WORD " VIRUSES"?

Before we exactly know what are viruses first let's get a little bit knowledge about its "ORIGIN". Experts in the field of security report the first virus was spread as early as 1981. The term "computer virus" was coined by Fred Cohen in 1983, while he performed academic experiments on a Digital Equipment Corporation VAX system. Viruses are classified as being one of two types: research and "in the wild". A research virus is one that has been written for research or study purposes and viruses which have been seen with any regularity are termed "in the wild". A program called "Rother J" was the first computer virus to appear "in the wild". The first computer viruses were developed in the early 1980s. The first viruses found "in the wild" were Apple II viruses, such as Elk Cloner, in 1981. The first PC virus "in the wild" was a boot sector virus created in 1986 by the Farooq Alvi Brothers in Lahore, Pakistan, reportedly to hinder piracy of the software they had written. Since then viruses have become a fatal infectious disease and have caused heavy destruction among computer systems worldwide. It has been suggested that viruses for multi-user systems are too difficult to write.

Viruses have "evolved" over the years due to efforts by their authors to make the code more difficult to detect, disassemble, and eradicate. This evolution has been especially apparent in the IBM PC viruses.

The first IBM-PC virus appeared in 1986; this was the *Brain* virus. *Brain* was a boot sector virus and remained resident. In 1987, *Brain* was followed by *Alameda* (*Yale*), *Cascade*, *Jerusalem*, *Lehigh*, and *Miami* (*South African Friday the 13th*). These viruses expanded the target executables to include COM and EXE files. *Cascade* was encrypted to hinder disassembly, and detection. Stealth viruses, which employ various techniques to avoid detection, also first appeared in 1989, such as *Zero Bug*, *Dark Avenger* and *Frodo* (*4096* or *4K*). In 1990, self-modifying viruses, such as *Whale* were introduced. The year 1991 brought the *GP1* virus, which is "network-sensitive" and attempts to steal Novell NetWare passwords. Since their inception, viruses have become increasingly complex.

Macro viruses have become common since the mid-1990s. Most of these viruses are written in the scripting languages for Microsoft programs such as Word and Excel and spread throughout Microsoft Office by infecting documents and spreadsheets.

COMPUTER VIRUS, WHAT REALLY IS IT?

A computer virus is the result of a destructive program that someone has written and placed inside a computer program. Computer Virus is a

kind of malicious software written intentionally to enter a computer without the user's permission or knowledge, with an ability to replicate itself, thus continuing to spread. Some viruses can erase all the information from the place where it is stored on the computer's hard disk. But each virus is different. Some display strange messages on your computer screen; others make small changes in your computer programs.

"It was great. The program showed
profits and sales were up 95%.
Then I discovered my computer had a virus."

QUESTIONS ON VIRUSES???

WHERE THESE VIRUSES DO COME FROM???

They certainly don't float around in the air like some human viruses. Instead, like any other computer program, a human must create them.

WHY DO PEOPLE CREATE THEM???

It is difficult to say. Some people create these programs out of meanness to get even. While others create them just as a challenge.

HOW DO COMPUTERS ACQUIRE VIRUSES AND ITS EFFECTS???

Most of us get contaminated computer programs by using programs of other people. Others get contaminated computer programs through the

use of modems, which allows computers to communicate over telephone lines (i.e. The Internet). It happens through opening email attachment or visiting certain malicious website.

When this program enters your computer through your input device, it hides in your computer's memory and starts to duplicate itself like a disease. When you save your data, you also save the virus. Slowly but surely, the virus crowds out your data and causes major system problems.

If the virus is on your disk or hard drive, it will return to the computer when you use the program again. If you switch from one program to another without shutting down the machine, the virus will attach itself to the new program. In this way, it can slowly infect all your programs before you know that it exists. Today millions of dollars are being spent to get rid and protect computer systems from these virus programs.

INFECTION STRATEGIES

Viruses can be divided into two types based on their behavior when they are executed.

1) Nonresident viruses: Nonresident viruses can be thought of as consisting of a *finder module* and a *replication module*. The finder module is responsible for finding new files to infect. For each new executable file the finder module encounters, it calls the replication module to infect that file. It immediately searches for other hosts that can be infected, infect those targets, and finally transfer control to the application program they infected.

2) Resident viruses: Resident viruses contain a replication module. The replication module can be called, for example, each time the operating system executes a file. In this case the virus infects every suitable program that is executed on the computer. These viruses do not search for hosts when they are started. Instead, a resident virus loads itself into memory on execution and transfers control to the host program. Resident viruses are sometimes subdivided into a category of fast *infectors* and a category of *slow infectors*

Fast infectors: *Fast* infectors are designed to infect as many files as possible ...

Slow infectors: *O*nly infect files when they are copied...

DIFFERENT TYPES OF VIRUSES:

There are Different Types of Computer Viruses which could be classified according to their origin, techniques, types of files they infect, where they hide, the kind of damage they cause, the type of operating system or platform they attack, etc. Let us have a look at them...

Resident Viruses: This type of virus is permanent which dwells in the RAM memory. From there it can overcome and interrupt all of the operations

executed by the system: corrupting files and programs that are opened, closed, copied, renamed, etc. Examples include: Randex, CMJ, Meve, and MrKlunky.

Direct Action Viruses: The main purpose of this virus is to replicate and take action when it is executed. When a specific condition is met, the virus will go into action and infect files in the directory or folder that it is in and in directories that are specified in the AUTOEXEC.BAT file PATH. This batch file is always located in the root directory of the hard disk and carries out certain operations when the computer is booted.

Overwrite Viruses: Virus of this kind is characterized by the fact that it deletes the information contained in the files that it infects. The only way to clean a file infected by an overwrite virus is to delete the file completely, thus losing the original content. Examples of this virus include: Way, Trj.Reboot, Trivial.88.D.

Boot Virus: This type of virus affects the boot sector of a floppy or hard disk. This is a crucial part of a disk, in which information on the disk itself is stored together with a program that makes it possible to boot (start) the computer from the disk. The best way of avoiding boot viruses is to ensure that floppy disks are write-protected and never start your computer with an unknown floppy disk in the disk drive. Examples of boot viruses include: Polyboot.B, AntiEXE.

Macro Virus: Macro viruses infect files that are created using certain applications or programs that contain macros. These mini-programs make it possible to automate series of operations so that they are performed as a single action. Examples of macro viruses: Relax, Melissa.A, Bablas, and O97M/Y2K.

Directory Virus: Directory viruses change the paths that indicate the location of a file. By executing a program (file with the extension .EXE or .COM) which has been infected by a virus, you are unknowingly running the virus program, while the original file and program have been previously moved by the virus. Once infected it becomes impossible to locate the original files.

Polymorphic Virus: This kind of virus changes the virus signature that is also known as binary pattern, each time it multiples and infects the new files. Doing this changing lets them hide perfectly and they will be difficult to be detected by any anti-virus. Polymorphic viruses encrypt or encode themselves in a different way (using different algorithms and encryption keys) every time they infect a system. This makes it impossible for anti-

viruses to find them using string or signature searches (because they are different in each encryption) and also enables them to create a large number of copies of themselves.

Examples include: Elkern, Marburg, Satan Bug, and Tuareg.

File Infectors: This type of virus infects programs or executable files (files with an .EXE or .COM extension). When one of these programs is run, directly or indirectly, the virus is activated, producing the damaging effects it is programmed to carry out. The majority of existing viruses belong to this category, and can be classified depending on the actions that they carry out.

Companion Viruses: Companion viruses can be considered file infector viruses like resident or direct action types. They are known as companion viruses because once they get into the system they "accompany" the other files that already exist. In other words, in order to carry out their infection routines, companion viruses can wait in memory until a program is run (resident viruses) or act immediately by making copies of themselves (direct action viruses). Some examples include: Stator, Asimov.1539, and Terrax.1069

FAT Virus: The file allocation table or FAT is the part of a disk used to connect information and is a vital part of the normal functioning of the computer. This type of virus attack can be especially dangerous, by preventing access to certain sections of the disk where important files are stored. Damage caused can result in information losses from individual files or even entire directories.

Worms: A worm is a program very similar to a virus; it has the ability to self-replicate, and can lead to negative effects on your system and most importantly they are detected and eliminated by antivirus.

Examples of worms include: PSWBugbear.B, Lovgate.F, Trile.C, Sobig.D, and Mapson.

Trojans or Trojan Horses: Another unsavory breed of malicious code are Trojans or Trojan horses, which unlike viruses do not reproduce by infecting other files, nor do they self-replicate like worms.

Logic Bombs: They are not considered viruses because they do not replicate. They are not even programs in their own right but rather camouflaged segments of other programs. Their objective is to destroy data on the computer once certain conditions have been met. Logic bombs go undetected until launched, and the results can be destructive.

Boot sector viruses: This certain type of virus infects your removable disks, diskettes, a hard drive. When this virus has infected the Mater Boot Record (MBR) in your floppy disk, inserting it to your computer surely causes an infection to your system. Besides, re-booting your computer while the infected disk is still in the drive also causes an infection. In simpler words, once you insert an infected drive, your computer will be infected as well.

Program viruses: Usually, this kind of virus has extensions of .BIN, .COM, .EXE, .OVL, or .DRV. This virus will be active when the program file that carries the virus is opened. Activating this virus means starting them to re-duplicate and to infect other programs in your computer.

Multipartite viruses: This virus infects program files and affects the boot record once the program is activated. Therefore, this virus will be infecting your local drive and other programs on your computer the next time you start your computer up.

Stealth viruses: This is a quite unique type among other types. It can disguise perfectly to prevent any detection from any anti-virus software. The virus disguises through some effective ways such as modifying its file size, hiding itself in memory, and so on. Good anti-virus software could detect this virus by checking the infected files and evidence in the memory.

INDICATIONS OF VIRUSES:

Computer system always shows some signs when it is infected by any virus. They are:

1. The system runs slower than its normal time.
2. The system gives a very slow response and freezes frequently.
3. It often restarts itself.
4. It shows some uncommon error messages, dialog boxes, and distorted menu.
5. The applications in your system do not work properly.
6. You can not print document correctly.

PREVENTIVE MEASURES:

To prevent any virus infection in your computer system, you can install anti-virus software. Many different types of anti-virus software are available so you can choose the best one based on your requirements.

EFFECTS:

Petty theft: Following emergence and promotion of paid internet-services (mail, web, hosting) computer underground members start to take a interest to how to access to network at somebody else's expense, i.e. by stealing somebody's login and password (or several logins and passwords from different infected computers) by using specially developed Trojans.

Calls to premium-pay numbers or sending paid SMS: Cyber criminals, or groups of cyber criminals, create and distribute a special program which illegally makes telephone calls or sends SMS messages from mobile phones, which is not authorized by the user. Before this or in parallel the same time the same people register the company on whose behalf a contract with the local mobile provider on paid service is made.

Cyber crime: The most dangerous group of virus writers is hackers or groups of hackers who intentionally create malicious programs in their own interests. They create such virus and Trojan programs which steal access codes to bank accounts.

Stealing electronic currency: To be more precise, this includes creation, distribution and maintenance of Trojan spy programs aimed to steal funds from personal e-wallets (e.g. e-gold, Web Money). Trojan programs of this kind collect information on access codes to accounts and send it to their "master". Usually the information is collected by searching and decoding files which store personal data of the account's owner.

Stealing banking information: This is currently one of the most common types of criminal activity on the Internet. In this case numbers of credit cards and access codes to Internet personnel (sometimes even corporate), bank accounts ("Internet-banking") are at risk. In such attacks Trojan spies use a wide range of methods. For instance, they show a dialogue window or image which duplicates the web-page of the bank and request login and password from the user to access the account or a credit card number (similar methods are also typical of phishing — spam mailings with imitation text which reminds a message from the bank or other Internet-service).

Cyber blackmail and cyber extortion: Cyber criminals create Trojans which can encrypt a user's personal files. The Trojan penetrates the system, searches for and encrypts the user data and then leaves a message that files are not subject to restoration and that the decryption program can be obtained by contacting the address given in the message.

Current Virus/ Worm Reports

Sophos New/Current Virus/Worm Alerts

- 12 Apr 2010 Mal/Rbot-G
- 12 Apr 2010 Mal/Rbot-H
- 12 Apr 2010 Troj/Agent-MYE

CONCLUSION:

THEREFORE, IT IS CONCLUDED THAT TODAY VIRUSES ARE THE THREATENING CHALLENGE OF THE COMPUTER SYSTEM WORLDWIDE. MANY RESEARCHERS, PROFESSORS AND OTHER EXPERTS (E.G. SOFTWARE ENGINEERS) ARE STILL WORKING ON ITS ERADICATION, BUT IT IS ADVICEABLE TO THE GENERAL PUBLIC AND USERS TO BE AWARE OF THE VARIOUS VIRUSES AND ITS SIDE-EFFECTS, CAUSES AND ITS PREVENTIVE MEASURES TO PROTECT THEIR COMPUTER FROM THESE FATAL INFECTIOUS DISEASES.

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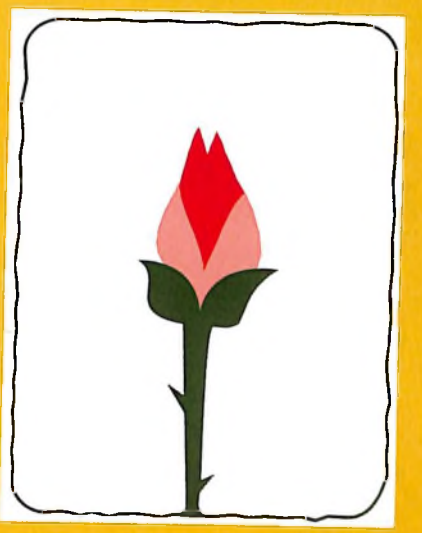
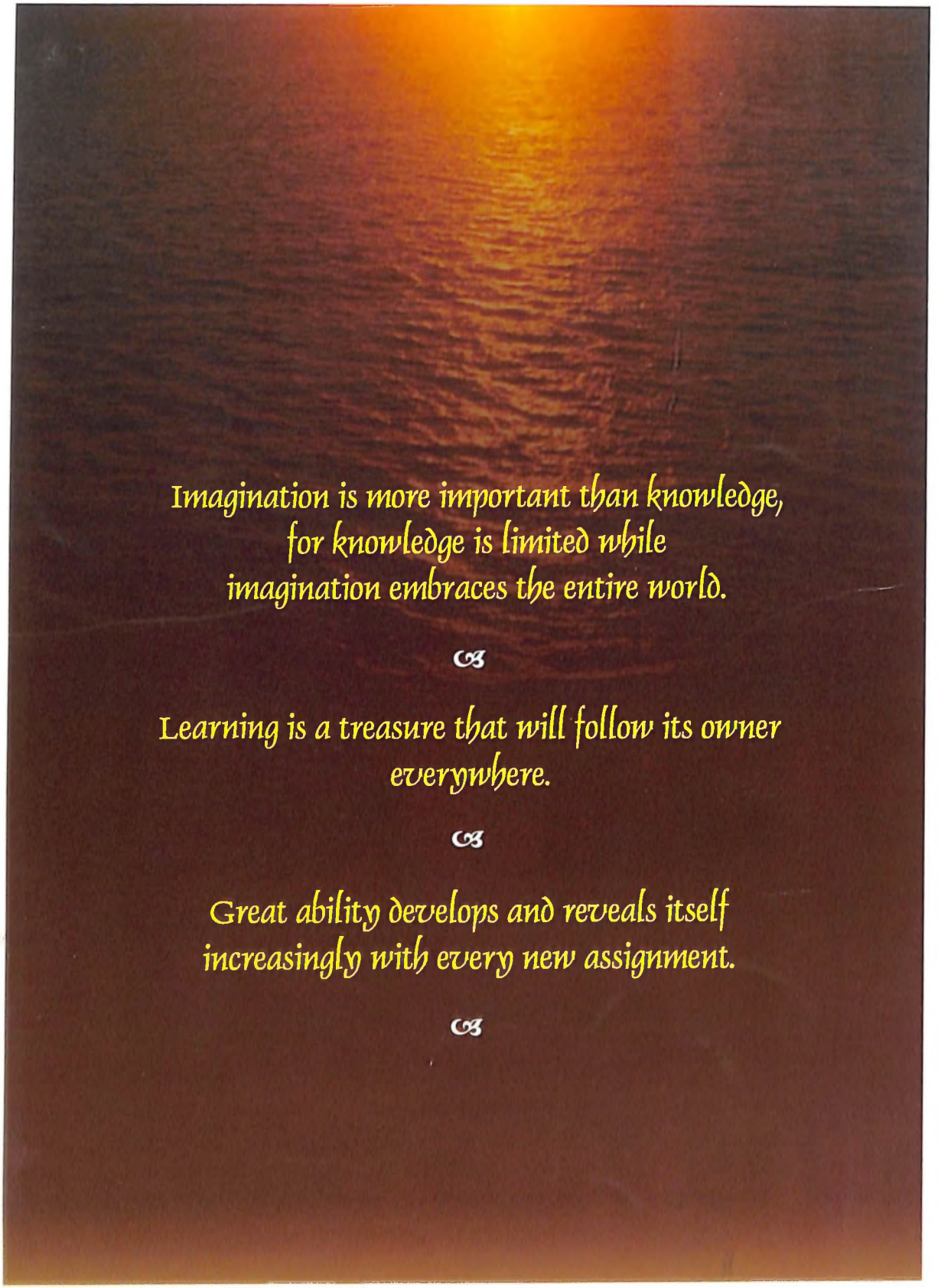
International Days

➢ World Youth Day	12th January
➢ World Printing Day	24th February
➢ World Woman's Day	8th March
➢ World Science Day	28th March
➢ World Health Day	7th April
➢ World Red cross Day	8th April
➢ Earth's Day	22nd April
➢ World Labour Day	1st May
➢ World Environment Day	5th June
➢ Longest Day (Northern Hemisphere)	21st June
➢ World Population Day	11th July
➢ World Literacy Day	8th September
➢ World Blind Day	15th October
➢ World Human Rights Day	10th December
➢ Shortest Day (Northern Hemisphere)	21st December

चुकता चुकता शिकता येते ।
प्रतिभेतून मग कला जन्मते ।।



शब्दहि सुचतिल, जुळतिल ओळी गुणगुणता, गुणगुणता...
नसेल लिहिलं जरी आजवर, होईल लिहून कविता...


Imagination is more important than knowledge,
for knowledge is limited while
imagination embraces the entire world.
Learning is a treasure that will follow its owner
everywhere.
Great ability develops and reveals itself
increasingly with every new assignment.