

**NATIONAL SOCIAL ISSUES- WOMEN, POPULATION, URBANISATION, EMPOWERMENT ETC**
**Migration in Bengal delta driven by livelihood issues, social factors**

According to the 2011 national census, West Bengal is the fourth-most-populous state in India with a population of 91,347,736 (7.55% of India's population).

As of 2011, West Bengal had a population density of 1,029 inhabitants per square km making it the second-most densely populated state in India, after Bihar

**What pulls migrants towards Bengal?**

- Economic reasons are the precipitating factor for migration in the Indian Bengal Delta that comprises the Sunderbans reveals an international study.
- The study is titled Deltas Vulnerability and Climate Change: Migration and Adaptation (DECMA).
- It points out that there is huge gender disparity when it comes to those migrating from the region.
- The study reveals that 64% people migrate because of economic reasons, unsustainable agriculture, lack of economic opportunities and debt;
- 28 % of the migration from the region is for social reasons and about 7% for environmental reasons like cyclones and flooding.

**Highlights of the study**

- The DECMA report also finds that most migrants both in case of men and women are young, in the age group of 20-30 years.
- When it comes to migration in the Indian Bengal Delta, the study finds a huge gender disparity, with men outnumbering women by almost five times.
- It shows that of the people migrating 83% are men and only 17 % are women.
- While most of the men migrate due to economic reasons, women do so, driven by mostly social factors.
- It shows that 57% of migration is seasonal, where people move once or twice a year;
- 19% is circular where those migrating move thrice a year irrespective of reasons and 24% permanent where people intend to stay for at least six months in the place they are migrating to.

**GEOGRAPHY**
**Solar tsunami can trigger the sunspot cycle**

A group of solar physicists suggests that a "solar tsunami" is at work that triggers the new sunspot cycle, after the old one ends.

**Solar Dynamo**

- It is believed that the "solar dynamo" a naturally occurring generator which produces electric and magnetic fields in the sun is linked to the production of sunspots.
- What kick-starts the 11-year sunspot cycle is not known.
- The extreme temperature and pressure conditions that prevail some 20,000 km below the sun's surface cause its material to form plasma consisting primarily of hydrogen and helium in a highly ionised state.
- The plasma is confined with huge magnetic fields inside the sun.

**Solar Tsunami:**

- The sun's magnetic field, from which sunspots get generated, wraps around the sun in the east-west direction.
- These magnetic fields behave like rubber bands on a polished sphere. They tend to slip towards the poles.
- Holding these fields in their place requires that there is extra mass (plasma mass) pushing at the bands from higher latitudes.
- Thus, a magnetic dam is formed which is storing a big mass of plasma.
- At the end of a solar cycle, this magnetic dam can break, releasing huge amounts of plasma cascading like a tsunami towards the poles.
- These tsunami waves travel at high speeds of about 1,000 km per hour carrying excess plasma to the mid-latitudes.
- There they give rise to magnetic flux eruptions.
- These are seen as the bright patches that signal the start of the next cycle of sunspots.

**Sunspots:**

- Sunspots are temporary phenomena on the Sun's photosphere that appear as spots darker than the surrounding areas.
- They are regions of reduced surface temperature caused by concentrations of magnetic field flux that inhibit convection.
- Sunspots usually appear in pairs of opposite magnetic polarity.

**Why study them?**

- The solar cycle and sunspot activity are intimately connected with space weather.

- The model provides a sound physical mechanism supporting why we should expect the next sunspot cycle 25 to begin in the year 2020.
- This is again followed by a strong increase in space weather shortly after the trigger of a series of new sunspots in that year.

### **'Bomb Cyclone'**

A powerful bomb cyclone has impacted several part of the US causing heavy floods.

### **Bomb cyclone:**

- The term is used by meteorologists to indicate a mid-latitude cyclone that intensifies rapidly. A bomb cyclone happens when atmospheric pressure in the middle of the storm drops at least 24 millibars over 24 hours, quickly increasing in intensity. The lower the pressure, the stronger the storm.
- Deep drops in barometric pressure occur when a region of warm air meets one of cold air. The air starts to move and the rotation of the earth creates a cyclonic effect. The direction is counterclockwise in the Northern hemisphere leading to winds that come out of the northeast.

### **What's the difference between hurricanes, cyclones and typhoons?**

- Hurricanes, cyclones and typhoons are all tropical storms. They are all the same thing but are given different names depending on where they appear. When they reach populated areas they usually bring very strong wind and rain which can cause a lot of damage.
- Hurricanes are tropical storms that form over the North Atlantic Ocean and Northeast Pacific. Cyclones are formed over the South Pacific and Indian Ocean. Typhoons are formed over the Northwest Pacific Ocean.

## **INTERNATIONAL AFFAIRS- BILATERAL, GROUPINGS, ORGANISATIONS**

### **Nehru, China, and the Security Council seat**

Finance Minister Arun Jaitley recently said that India's first Prime Minister, Jawaharlal Nehru, was the "original sinner" who favoured China over India for permanent membership in the UN Security Council.

### **Background**

- It refers to Washington's feeler sent to New Delhi in August 1950 through the Indian Ambassador in the U.S., mentioning the American desire to remove China from permanent membership of the UNSC and possibly replace it with India.
- The allegation that Nehru refused to take this suggestion seriously and thus abdicated India's opportunity to become a permanent member of the UNSC is the result of the critics' inability to comprehend the complexity of the international situation in the early 1950s and the very tentative nature of the inquiry.

### **Situation in the 1950s**

- This episode took place in August 1950. The Cold War was in its early stages, with the two superpowers in eyeball-to-eyeball confrontation that threatened nuclear catastrophe.
- The People's Republic of China, which had just emerged from a bloody civil war and was seen at the time as the Soviets' closest ally, was prevented from taking its permanent seat in the UNSC because of American opposition premised on Cold War logic.
- Furthermore, war was raging in the Korean peninsula, with U.S. and allied troops locked in fierce combat with North Korean forces supported by China and the Soviet Union.

### **Factors behind India's No at that time**

- Nehru was trying to carve a policy that ensured India's security, strategic autonomy and state-led industrialisation in these very dangerous times.
- He was well aware of the fact that pushing China out, as the U.S. wished to do, was a recipe for perpetual conflict that could engulf all of Asia.
- To him, the Korean War appeared a forerunner to more such conflagrations in Asia that could even turn nuclear.
- The U.S. had dropped nuclear bombs on Japan only five years ago and many observers believed it would not hesitate to do so again in an Asian conflict, especially since nuclear deterrence had not yet become a recognised reality.
- Nehru did not want India to get embroiled in hazardous Cold War conflicts and become a pawn in the superpowers' great game risking its own security.
- Nehru's approach to China was dictated by realpolitik and not wishful thinking.
- He understood that peace could not be assured in Asia without accommodating a potential great power like China and providing it with its proper place in the international system.

### **USA's vested interest behind the feeler**

- The so-called American "offer" to India of a permanent seat in the Security Council replacing China was made in this combustible context.

- To be precise, it was not an offer but merely a vague feeler to explore Indian reactions to such a contingency.
- The U.S. intended it to be a bait to entice India into an alliance with the West against the Sino-Soviet bloc, as it was then known, and lure it into becoming a member of the “defence” organisations it was setting up in Asia to contain presumed “Communist expansionism”.
- Then Pandit Nehru responded, “India because of many factors is certainly entitled to a permanent seat in the Security Council. But we are not going in at the cost of China.
- Had India accepted the American bait, it would have meant enduring enmity with China without the achievement of a permanent seat in the UNSC.
- The Soviet Union, then China’s closest ally, would have vetoed any such move since it would have required amendment of the UN Charter that is subject to the veto of the permanent members.
- It would have also soured relations between India and the Soviet Union and made it impossible to establish the trust required to later build a close political and military relationship with Moscow that became necessary once the U.S. entered into an alliance relationship with Pakistan.

Conclusion: It should be remembered by critics of Nehru’s eminently sensible decision not to fall into the American trap would do well to analyse the decision in the particular strategic and political context in which it was made and not allow their current political preferences to dictate their amateurish conclusions.

### INDIAN ECONOMY

#### New hydro policy to help meet renewables target

While the government’s decision to re-classify large hydroelectric projects as renewable energy will certainly help the sector, the move will also go a long way in meeting the targets set for the sector.

#### New Hydroelectric Policy

- According to the new policy, large hydro projects will also be designated as renewable energy projects.
- So far, only small hydro projects of a capacity of less than 25 MW were treated as renewable energy. Large hydro projects were treated as a separate source of energy.
- The tag allows these to qualify as part of the framework for non-solar Renewable Purchase Obligation (RPO) of the states.
- Under this, power purchasers will have to source a portion of electricity from large hydro projects.

#### India’s renewable capacity

- India’s renewable energy sector had an installed capacity of 75,055.92 MW as of February 2019, according to data with the Central Electricity Authority.
- This made up about 21.4% of the overall energy mix, with the rest coming from thermal, nuclear and large hydro sources.
- With the inclusion of large hydro in renewable energy, the energy mix changes drastically.
- Renewable energy capacity would now be 1, 20,455.14 MW or 34.4% of the overall energy mix.

#### This won’t be additional

- This is a purely cosmetic change.
- No additional resources have been created through this policy. It is a reclassification of existing capacity.
- The policy has meant a drastic change in the renewable energy mix as well.
- Whereas earlier, wind energy contributed nearly 50% of all renewable energy capacity, it will now make up only 29.3%.
- Similarly, solar energy’s share will fall from 34.68% to 21.61%.

#### Huge imbalance

- There has been a huge imbalance in the thermal-hydro mix for the last few years because of a sharp growth in thermal and complete stagnation in hydro.
- The basic idea is to ramp up hydro because it provides grid stability which a renewable source like wind and solar do not.
- The key reasoning seems to be providing grid stability and a better energy mix.

### ENVIRONMENT- CONSERVATION, BIO-DIVERSITY AND ISSUES

#### UN meet dilutes Indian plan to phase out single-use plastics

An ambitious resolution piloted by India to phase out single-use plastics by 2025, was watered down at the United Nations Environment Assembly (UNEA) that concluded recently in Nairobi.

#### Deadline pushed back

- The final declaration on March 15 removed the firm timelines and edited out the “decisively” and only committed to a “reduction by 2030.”

- At the World Environment Day summit on June 5, 2018 India had pledged to eliminate single-use plastics from India by 2022.
- This pushed several States — notably Maharashtra, Tamil Nadu and Himachal Pradesh — to enforce previous commitments to ban plastic bags and similar disposables.
- Ahead of the UNEA, the UN secretariat had invited inputs from member states to forge a common declaration regarding addressing a host of environmental challenges.

#### What concerns India?

- A CPCB estimate in 2015 says that Indian cities generate 15,000 tonnes of plastic waste daily and about 70% of the plastic produced in the country ends up as waste.
- Seventeen States have plastic bans, on paper.
- Experts have rued the inadequacy of collection and recycling systems to address the burgeoning plastic waste problem.

#### Reasons cited

- The UNEA lauded India for playing a key role in advocating a time-bound ban on single use plastic.
- A person privy to negotiations told that India didn't work enough to garner international support to carry it all the way through.

#### Curbing Nitrogen pollution

- Along with plastic, India also piloted a resolution on curbing nitrogen pollution.
- The global nitrogen-use efficiency is low, resulting in pollution by reactive nitrogen which threatens human health, ecosystem services, contributes to climate change and stratospheric ozone depletion.
- Only a small proportion of the plastics produced globally are recycled, with most of it damaging the environment and aquatic bio-diversity.

### **SCIENCE AND TECHNOLOGY- EVERYDAY SCIENCE, SPACE, NUCLEAR, DEFENCE ETC**

#### National Supercomputing Mission (NSM)

IIT Kharagpur has signed anMoU with Centre for Development of Advanced Computing (C-DAC) to set up a 1.3 Petaflop high-performance computing facility and data centre funded under the National Supercomputing Mission.

The new supercomputing system would be used for specific challenge domains like cryptography, chemistry, molecular dynamics, drug discovery, artificial intelligence and data sciences where the new system would be utilized.

#### National Supercomputing Mission (NSM):

- National Supercomputing Mission, approved in 2016, is being implemented and steered jointly by the Department of Science and Technology (DST) and Department of Electronics and Information Technology (DeitY).
- The Mission envisages empowering national academic and R&D institutions spread over the country by installing a vast supercomputing grid comprising of more than 70 high-performance computing facilities.
- These supercomputers will also be networked on the National Supercomputing grid over the National Knowledge Network (NKN). The NKN is another programme of the government which connects academic institutions and R&D labs over a high speed network.
- The Mission includes development of highly professional High Performance Computing (HPC) aware human resource for meeting challenges of development of these applications.

#### Significance:

- World-wide supercomputing facilities have enabled countries in their S&T capabilities in areas such as designing vehicles, aeroplanes, massive structures like high rise buildings and bridges, infrastructure, discovery of new life saving drugs, discovery and extraction of new energy sources including oil, natural gas etc.
- Over the years, supercomputers have benefitted mankind in several ways. Weather prediction has reached accuracy of forecast as well as real time tracking of natural phenomenon. Timely warning of cyclones in the recent past have saved many lives and property. The Mission aims to further such capabilities beyond current levels.

### **QUOTE OF THE DAY**

**When the preparation feels like an uphill struggle, just think of the view from the top.**