News Analysis (11 Oct, 2021)

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Global Multidimensional Poverty Index 2021

Why in News

Recently, **Global Multidimensional Poverty Index** 2021 was released by the **United Nations Development Programme (UNDP)** and the **Oxford Poverty & Human Development Initiative (OPHI).**

The Index considers data from **109 countries and 5.9 billion people.**

Key Notes

- **Global Data:**
  - 1.3 billion people are **multidimensionally poor.**
  - About half (644 million) are children **under age 18.**
  - Nearly **85% live in Sub-Saharan Africa** (556 million) or **South Asia** (532 million).
  - More than 67% live in **middle-income countries.**
- **Periodic Reduction in Poverty:**
  Of the 80 countries and five billion people for which there is data over time, **70 reduced MPI in at least one period,** with the fastest changes coming from **Sierra Leone** (2013-2017), followed by **Togo** (2013/2014-2017).
- **Absolute Reduction in Poverty:**
  Some countries saw the fastest **absolute reductions** in their poorest regions- helping to fulfil their pledge to leave no one behind.
  These areas include **North Central in Liberia** (2013–2019/2020) and **Province 2 in Nepal** (2016–2019).

- **Poverty Across Ethnic and Racial groups:**
  - In some cases, **disparities in multidimensional poverty across ethnic and racial groups are greater** than disparities across geographical subnational regions.
  - Within a country, **multidimensional poverty among different ethnic groups can vary immensely.**
  - Therefore **different policy actions are needed** to reduce multidimensional poverty.
- **Education:**
  - Worldwide about **two-thirds** of multidimensionally poor people (836 million) live in households where **no woman or girl completed at least six years of schooling.**
    - 227 million live in India.
  - One-sixth of all multidimensionally poor people (215 million) live in households in which at least one boy or man has completed six or more years of schooling but **no girl or woman has.**
  - The report also finds that **women and girls living in multidimensional poverty are at higher risk of intimate partner violence.**
- **Living Standard:**
  - 1 billion are exposed to solid cooking fuels, another billion live with **inadequate sanitation** and another billion have **substandard housing.**
  - 788 million live in a household with at least one **undernourished person.**
  - 568 million lack improved **drinking water** within a 30-minute round trip walk.
- **Effect of Covid:**
  - The **Covid-19 pandemic** has **eroded development progress around the world,** and we are still grappling to understand its full impacts.
  - It has **exposed the weaknesses** in social protections systems, education, and workers' vulnerability around the world.
    - These weaknesses are **deepest in countries with higher levels of multidimensional poverty.**
- **Indian Scenario:**
  - As **castes and tribes are a more prevalent line of social stratification in India,** this index presents the incidence and intensity of multidimensional poverty among castes and tribes and among individuals who are not members of any caste or tribe.
  - In India **five out of six multidimensionally poor people are from lower tribes or castes.**
    - **9.4%** of the **Scheduled Tribe** group lives in multidimensional poverty
    - **33.3%** of the **Scheduled Caste** group lives in multidimensional poverty.
    - **27.2%** of the **Other Backward Class** group lives in multidimensional poverty.
  - In India close to 12% of the population live in **female-headed households.**

Multidimensional Poverty Index

- The Multidimensional Poverty Index was launched by the **UNDP** and the **OPHI** in 2010.
- MPI is based on the idea that **poverty is not unidimensional** (not just depends on income and one **individual may lack several basic needs like education, health etc.**), rather it is multidimensional.
- The index shows the proportion of poor people and the **average number of deprivations each poor person experiences at the same time.**
- MPI uses **three dimensions** and ten indicators which are:
    - **Education:** Years of schooling and child enrollment (1/6 weightage each, total 2/6);
    - **Health:** Child mortality and nutrition (1/6 weightage each, total 2/6);
    - **Standard of living:** Electricity, flooring, drinking water, sanitation, cooking fuel and assets (1/18 weightage each, total 2/6).
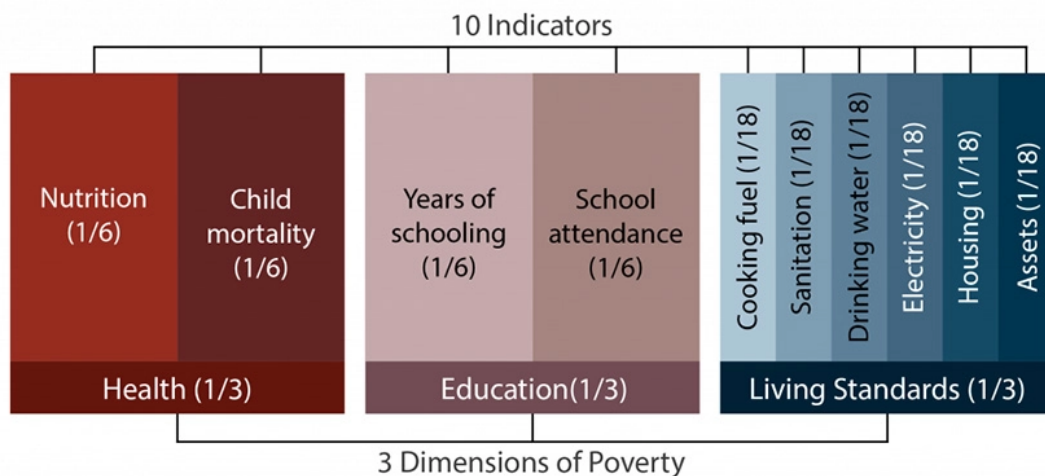
- A person is **multidimensionally poor** if she/he is deprived in one third or more (means 33% or more) of the weighted indicators (out of the ten indicators). Those who are deprived in one half or more of the weighted indicators are considered living in **extreme multidimensional poverty.**
- MPI is significant as it recognizes poverty from different dimensions compared to the conventional methodology that measures poverty only from the income or monetary terms.

Source: UNDP

Right to Clean Environment

Why in News

Recently, the **United Nations Human Rights Council (UNHRC)** unanimously voted for recognising **a clean, healthy and sustainable environment as a Universal Human Right.**

- If recognised by all, the right will be the first of its kind in more than 70 years since the **Universal Declaration of Human Rights (UDHR)** was adopted by the UN General Assembly in 1948.
- **UDHR:** The 30 rights and freedoms **include civil and political rights,** like the right to life, liberty, free speech and privacy and economic, social and cultural rights, like the right to social security, health and education, etc.

Key Points

- **Background:**
    - The **concept of human rights in general emerged after the Second World War (1939-45),** but the right to a healthy environment, as one of those human rights, was never a priority.
    - The **right to a clean environment is rooted in the 1972 Stockholm Declaration,** popularly called as the **Magna Carta of human environment.**
        It contained principles and recommendations for environmental policy.
    - **'Caring for the Earth 1991'** and the **'Earth Summit' of 1992"** also declared that human beings are entitled to a healthy and productive life in harmony with nature.
- **About:**
    - The human right to a healthy environment **brings together the environmental dimensions of civil, cultural, economic, political, and social rights, and protects the core elements of the natural environment** that enable a life of dignity.
    - The **right to life (Article 21)** has been used in a diversified manner **in India.** It includes, inter alia, the **right to survive as a species, quality of life, the right to live with dignity and the right to livelihood.**
        Article 21 of the Indian Constitution states: 'No person shall be deprived of his life or personal liberty except according to procedures established by law.'
    - Further the **Constitutional (forty-second Amendment) Act, 1976** incorporated two significant articles viz. **Article 48-A and 51A (g)** thereby making the Indian Constitution the first in the world conferring constitutional status to the environment protection.
        - **Article 48-A:** The State shall endeavour to protect and improve the environment and to safeguard the forests and wildlife of the country.
        - **Article 51A(g):** It is a duty of every citizen to protect and preserve the environment.

- **Environmental Principles:**
  - **Inter-generational Equity:** It states that every generation holds Earth in common, therefore its resources should be used judicially and for the common benefit of all.
  - **Polluter Pays Principle:** It states that the polluter should bear the cost of damage caused by it to the natural environment.
  - **Precautionary Principle:** It states that even in the absence of scientific evidence, measures must be taken to anticipate and prevent the causes of environmental degradation. It is the social responsibility of the State to protect the public from any plausible risk.
  - **Public trust Doctrine:** It states that resources like water, air, sea and forest have a great importance to the general public that it would be unjustified to make it the subject of private ownership. It poses a duty on the State to protect such resources for the benefit of all and not to permit any commercial use of it.
  - **Sustainable Development Principle:** It states that the State should try to strike a balance between development and environment.

United Nations Human Rights Council

- **About:**

  It is **an inter-governmental body within the United Nations system** responsible for strengthening the promotion and protection of **human rights** around the world.
- **Formation:**

  The Council was created by the **United Nations General Assembly (UNGA)** in **2006.** It is headquartered in **Geneva, Switzerland.**
- **Members:**

  It is made up of 47 United Nations Member States which are **elected by the UNGA.**

  India was elected in January 2019 for a period of three years.
- **Procedures and Mechanisms:**
  - **Universal Periodic Review: UPR** serves to assess the human rights situations in all United Nations Member States.
  - **UN Special Procedures:** These are made up of **special rapporteurs**, special representatives, independent experts and working groups that monitor, examine, advise and publicly report on thematic issues or human rights situations in specific countries.

Source: DTE

Market Based Economic Despatch (MBED) Phase 1

Why in News

Recently, the **Ministry of Power** released Framework for Implementation of **Market Based Economic Despatch (MBED) Phase 1** to **reduce consumers' power purchase costs** by 5%.

- It is an important step in reforming electricity market operations and in moving towards the **"One Nation, One Grid, One Frequency, One Price" framework.** Its implementation is planned to start **with effect from 1ˢᵗ April 2022.**
- Earlier, the government **released <u>cybersecurity guidelines</u>** for the <u>power sector.</u>

Key Points

- **About:**
  - The **power demand by all states is proposed to be met through a central pool** allocating power at the optimal price.
      - **Currently,** power distribution companies (discoms) have been sourcing power from available sources within the states, invariably ending with a higher energy cost.
  - MBED will ensure that the **cheapest generating resources** across the country are dispatched to meet the overall system demand.
  - It will thus be a **win-win for both the distribution companies (discoms) and the generators** and ultimately result in significant annual savings for the electricity consumers.
  - MBED **aims to establish a uniform pricing framework** that prioritizes the least cost and most efficient generators while backing down more expensive ones, thereby creating a national merit order.
  - This is **in line with the draft National Electricity Policy (NEP) 2021,** which aims to more than double the penetration of short-term power markets by 2023–2024.

- **One Nation, One Grid, One Frequency:**
    - India has a **significant inter-regional power transmission capacity** through its complex interconnected power grid that requires close coordination between grid operators and power project generators across coal, gas, hydro, nuclear and green energy sources run by the Centre, states, and the private sector.
    - With **significant investments** over the last decade, the Indian power system has **achieved larger inter-regional transfers of electricity** and eliminated most constraints to realise its status as "One Nation, One Grid, One Frequency".
    - It is the **state-owned Power System Operation Corp. Ltd (Posoco),** which manages these complex functions through the National Load Despatch Centre (NLDC), Regional Load Despatch Centres (RLDCs) and State Load Despatch Centres (SLDCs).
        - The country has 33 SLDCs, five RLDCs (for the five regional grids that form the national grid) and one NLDC.
    - Despite this enablement, the **existing electricity scheduling and despatch mechanisms in the country are siloed** and the day-ahead procedures result in **sub-optimal utilization of the country's generating resources.**
        - The **day-ahead market** is a financial market where market participants purchase and sell electric energy at financially binding day-ahead prices for the following day.

Source: PIB

Rail Link between Nepal and India

Why in News

The **first stretch of rail link between Nepal and India** is ready to resume on the neighbouring country's **first-ever broad gauge passenger service** (Jainagar-Bijalpura-Bardibas railway project).

Key Points

- **Background:**

  - The rail link between Nepal and India has been popular since the early 20th century.
  - In 1937, the British had built a **narrow gauge line** to ferry cargo, mainly logs, from Nepal to India.
  - However, over time it became a popular passenger service before it was stopped in 2014 for conversion to broad gauge.
- **Revamped Project:**
  - **First Stretch:** A 34-km line between Bihar's **Jainagar** and Nepal's **Kurtha,** with the Hindu pilgrimage city of **Janakpur Dham (in Nepal)** in between.
  - **Second Stretch:** A 17 km of railway line from **Kurtha to Bijalpura** is also getting the finishing touches.
        For the remaining portion up to Bardibas, land is being handed over to IRCON International Limited (a Government of India Undertaking).
  - **Cost of Project:** The construction cost of Rs 784 crore for the entire stretch is **being borne by India** in the form of a grant to Nepal.
  - **Managing Body:** The **Konkan Railway Corporation Limited** has got the contract for operations and maintenance of the line, and will train and develop manpower provided by Nepal, as per the bilateral understanding.
- **Electric Rail Track:**
        MoUs have been signed between both the governments for laying an **electric rail track linking Kathmandu with Raxaul** (Bihar) in India.
- **Freight Train Services:**
  - India and Nepal have signed a **Letter of Exchange (LoE)** to the India-Nepal **Rail Services Agreement (RSA) 2004.**
  - It will allow all **authorized cargo train operators to utilize the Indian railway network** to carry Nepal's container and other freight - both bilateral between Indian and Nepal or third country from Indian ports to Nepal.
- **Significance:**
        The line is being seen as a small link to a larger plan of deepening India's ties with Nepal through the Railways, bypassing the influence of other neighbouring countries in this strategically vital region.

Other Connectivity Project

- **Inland Waterways:** India is looking to develop the **inland waterways for the movement of cargo,** within the framework of trade and transit arrangements, providing additional access to sea for **Nepal calling it linking Sagarmatha (Mt. Everest) with Sagar (Indian Ocean).**
- **Petroleum Pipeline:** In 2019, India and Nepal had jointly inaugurated a cross-border petroleum products pipeline.
    - Pipeline carries **petroleum products** from **Motihari** (Bihar) **in India to Amlekhgunj in Nepal.**
    - This is South Asia's first cross-border petroleum products pipeline.

Source: IE

Mission Lucy: NASA

Why in News

National Aeronautics and Space Administration (NASA) is set to launch **'Lucy',** its **first mission to explore the Jupiter Trojan Asteroids.**
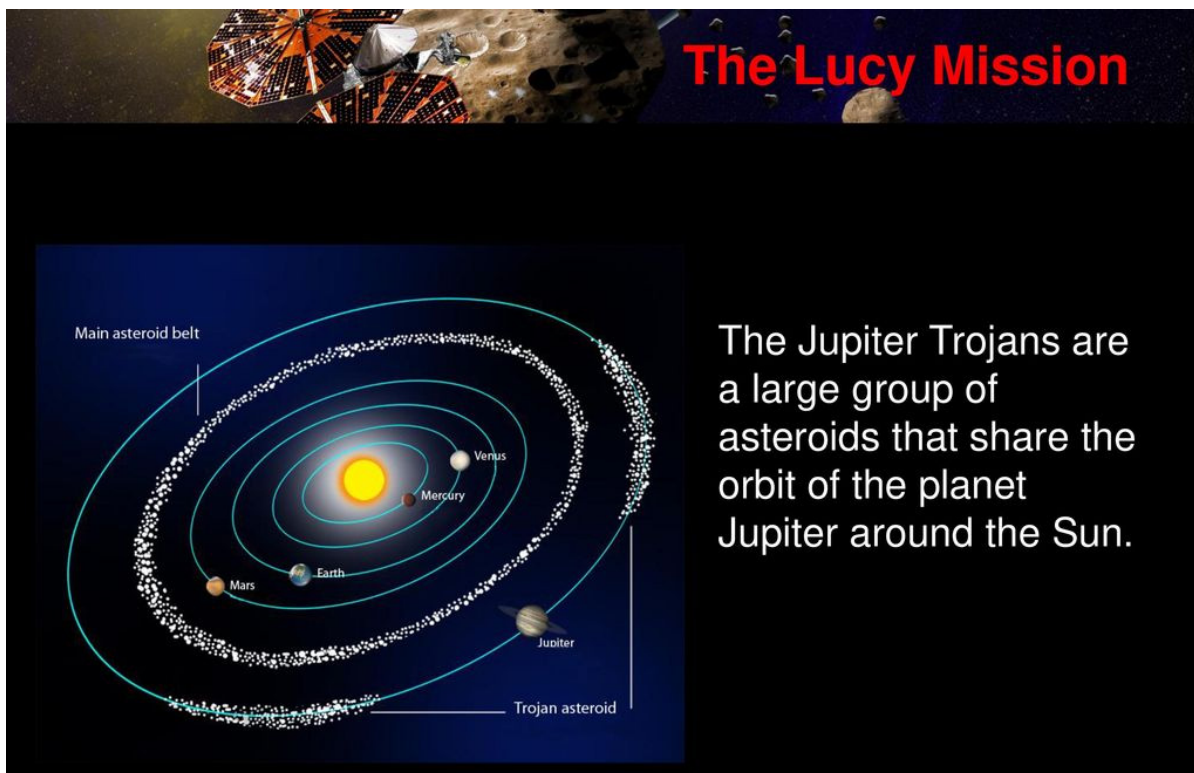
Key Notes

- **Mission Lucy:**
  - **Duration:**
    The **solar-powered mission is estimated to be over 12 years long,** during which the spacecraft will visit **eight asteroids covering a distance of about 6.3 billion km** to deepen the understanding of the "young solar system".
  - **Name and Launch:**
    The mission is **named after 'Lucy', a 3.2 million-year-old ancestor** who belonged to a species of <u>hominins</u> (which include humans and their ancestors). The spacecraft will be **launched on an Atlas V 401 rocket.**
  - **Asteroid Donald Johnson:**
    The spacecraft's first encounter will be with an asteroid that lies in the main belt that can be found between **Mars and Jupiter.** This asteroid is named **'Donald Johnson'** after the paleoanthropologist who discovered the fossilised remains of 'Lucy'.
- **Significance:**
  - The Trojan asteroids are believed to be **formed from the same material that led to the formation of planets nearly 4 billion years ago** when the solar system was formed.
  - Therefore, the mission is designed to **understand the composition of the diverse asteroids** that are a part of the Trojan asteroid swarms, to **determine the mass and densities of the materials** and to look for and study the satellites and rings that may orbit the Trojan asteroids.
  - Studying them will **help scientists understand its origins and evolution,** and why it looks the way it does.

Asteroids

- **About:**
  Asteroids are **rocky objects that orbit the Sun,** much smaller than planets. They are also **called minor planets.**

- **Categories:**
  - **Main Belt of Asteroids:**
    - First, those found in the **main asteroid belt, between Mars and Jupiter.** This region is estimated to contain somewhere between 1.1-1.9 million asteroids.
  - **Trojan:**
    - The second group is that of **trojans** (the name comes from Greek mythology), which are asteroids that **share an orbit with a larger planet.**
    - NASA reports the presence of **Jupiter, Neptune and Mars trojans.** In 2011, they reported an Earth trojan as well.
    - The Jupiter asteroids can be found in what are referred to as **"swarms" that lead and follow the planet Jupiter along its orbit around the Sun.**
      - 'Lucy' will reach the first swarm of these asteroids that precede Jupiter by August 2027.
    - These asteroids are believed to be the **remnants of the early solar system.**
  - **Near-Earth Asteroids:**
    - The third classification of asteroids is under **Near-Earth Asteroids (NEA),** which has **orbits that pass close to the Earth.** Those that cross the Earth's orbit are called **Earth-crossers.**
    - More than 10,000 such asteroids are known, of which over 1,400 are classified as **Potentially Hazardous Asteroids (PHAs).**

Jupiter

- Fifth in line from the Sun, Jupiter is, by far, the **largest planet in the solar system –** more than twice as massive as all the other planets combined.
  - **Jupiter, Saturn, Uranus and Neptune are called Jovian or Gas Giant Planets.** These have thick atmospheres, mostly of helium and hydrogen.
- Jupiter **rotates once about every 10 hours** (a Jovian day), but takes about 12 Earth years to complete one orbit of the Sun (a Jovian year). Jupiter has more than 75 moons.
  - The major moons of Jupiter are named **Io, Europa, Ganymede, and Callisto,** which are each distinctive worlds.
- In 1979, the **Voyager mission discovered Jupiter's faint ring system. Nine spacecraft have visited Jupiter.** Seven flew by and two have orbited the gas giant. **Juno,** the most recent, arrived at Jupiter in 2016.

Source: IE

Digital Divide in Education

Why in News

Recently, the **Supreme Court** (SC) warned that the **Digital Divide caused by online classes will defeat the fundamental right** of every poor child to study in mainstream schools.

- SC lamented how the **Right to Education** of little children now **depends on who can afford "gadgets"** for online classes and who cannot.
- During the course of the **Covid-19 pandemic**, as schools increasingly turned to online education the digital divide produced stark consequences.

Key Points

- **Digital Divide:**
    - The digital divide refers to the **gap between demographics and regions that have access to modern information** and communications technology and those that don't have access.
        - It is the **gap that exists between individuals** who **have access to modern information and communication technology and those who lack access.**
    - Digital divides exist between **developed and developing countries,** urban and rural populations, young and educated versus older and less-educated individuals, and men and women.
    - In India the **urban-rural divide** is the single biggest factor in the digital divide.
- **Pre-Pandemic Divide:**
    - Students from the urban area and rich families were learning the concepts of science with the help of modern technology and other e-learning platforms while schools in rural areas and poor families were lacking in basic infrastructure facilities like **toilets, proper classrooms and drinking water.**
    - The condition of **female children in rural India was even worse than the male child,** it was seen that many girls were dropping out of schools as the **menstruation cycle** starts as schools **do not have basic facilities like toilets, primary care in schools.**
    - In some areas, students had to walk for **10-12 Kms to avail basic education.**
- **Post-Pandemic Divide:**
    - In **urban areas and rich families** where students and teachers are acquainted with digital education and due to comparatively high income, families can **easily afford digital devices for education** as well as they can afford various e-learning platforms.
    - The situation is the opposite in rural areas and poor families. In most cases, **smartphones are owned by earning members,** thus students are finding lots of difficulties in attending online lectures. Those who can afford smartphones are facing network issues.
    - In some cases, **teachers are unfamiliar with online education technology.**

- **Consequences:**
  - **The Disadvantaged Bear the Brunt:**
    - Children belonging to the **Economically Weaker Sections** [EWS]/Disadvantaged Groups [DG] had to suffer the consequence of not **having to fully pursue their education** or worse still drop out because of the lack of access to Internet and computer.
    - They even run the **danger of being drawn into child labour or worse, child trafficking.**
  - **Unfair Competitive Edge:**
    - The poor will remain void of crucial information presented online concerning academia, and thus they will always lag, and this may be summed up by **poor performance.**
    - Hence superior students who can access the internet have an unfair **competitive edge over their less privileged counterparts.**
  - **Disparity in Learning:**
    - The people in **lower socio-economic classes are disadvantaged and have to undergo long hours of cumbersome studies** in meeting the objectives of the course.
    - While the rich can easily access schooling materials online and work on their programs in a flash.
  - **Decreased Productivity Among the Poor:**
    - Most underdeveloped countries or the rural areas tend to **produce half-baked graduates because of inadequate training** due to limited research abilities as connectivity to the internet is limited besides having low cadre training equipment.
- **Constitutional Provisions for Right To Education:**
  - Originally **Part IV of Indian Constitution,** Article 45 and Article 39 (f) of **DPSP (Directive Principles of State Policy)**, had a provision for state funded as well as equitable and accessible education.
  - The **86th Constitutional Amendment in 2002,** provided Right to Education as a fundamental right in **Part-III of the Constitution.**
    - It inserted **Article 21A** which made Right to Education a fundamental right for children between 6-14 years.
    - It provided for a follow-up legislation **Right to Education Act 2009.**

Way Forward

- Even though schools are now reopening gradually due to the receding curve of the pandemic, the **"need to provide adequate computer-based equipment together with access to online facilities for children is of utmost importance".**
- Priority should be given to the less advantaged students who do not have access to e-learning.

- Genuine **efforts must be invested to ensure every child gets good quality equitable education** as a fundamental right.
- A **solution has to be devised at all levels of the Government, State and Centre,** to ensure that adequate facilities are made available to children across social strata so that access to education is not denied to those who lack resources.

Source: TH

Quarterly Employment Survey (QES)

Why in News

The **Labour Bureau, Ministry of Labour and Employment** released the results of the **Quarterly Employment Survey (QES)** for the **First Quarter (FQ) of 2021 (April to June).**

Key Points

- **QES Survey:**
  - **About:**
    - The Quarterly Employment Survey (QES) is **part of the All-India Quarterly Establishment-based Employment Survey (AQEES).**
    - It **covers establishments employing 10 or more workers in the organised segment in 9 sectors.**
    - The **9 sectors** are Manufacturing, Construction, Trade, Transport, Education, Health, Accommodation and Restaurants, **IT/BPO**, Financial Service Activities.
  - **Objective:** To enable the government to frame a "sound national policy on employment."

    India ratified the International Labour Organization's (ILO) Employment Policy Convention, 1964, in the year 1998, which requires the ratifying countries to implement "an active policy designed to promote full, productive and freely chosen employment." **India does not have a National Employment Policy (NEP) yet.**
  - **QES vs PLFS:**

    While the **QES provides a demand side picture,** the **National Sample Survey or Periodic Labour Force Survey (PLFS) gives the supply side picture** of the labour market.

    PLFS is conducted by the **National Statistical Organization (NSO), MoSPI** (Ministry of Statistics and Programme Implementation).
  - **Issue with QES Data:** As the QES covers only establishments with at least 10 workers, it provides **data essentially on the formal economy.**

    Considering that **informal workers (with no written contracts, and benefits) account for roughly 90% of the labour force** in India, the QES thus provides only a partial glimpse of the labour market.

- **Highlights of QES 2021 Data:**
  - Shows a **29% increase in employment** in nine sectors during the peak <u>Covid-19</u> months of April-June 2021 over a base of 2013-14 **(Sixth Economic Census - EC).**
  - There has been a **decline in the share of <u>female workers</u>.** From 31% in the 6th EC (2013) **to 29%** in QES (2021) data.
  - Out of the 9 sectors, 7 sectors saw growth in employment while **only 2 sectors (Trade, and Accomodation & Restaurants) saw a decline in employment figures.**
    - The **IT/BPO sector saw the most growth** of 152% during 2013-2021 period.
  - Between **1998-2021,** there has been **an absolute increase in employment figures.** Since 1998 (4th EC), the **highest growth rate in employment (38%) was in the period 2005-2013.**
    - The simple growth rate of employment between 1998-2021 has been fluctuating, and not linear.
- **All-India Quarterly Establishment-based Employment Survey (AQEES):**
  - The AQEES has been **taken up by the Labour Bureau** to provide frequent (quarterly) updates about the employment and related variables of establishments, in both organised and unorganised segments of nine selected sectors.
    - These sectors altogether account for a majority of the total employment in the non-farm establishments.
  - There are **two components** under AQEES:
    - Quarterly Employment Survey **(QES)** and
    - Area Frame Establishment Survey **(AFES).**
  - **QES** would provide the employment estimates **for the establishments employing 10 or more workers.**
  - **AFES** covers the **unorganised segment (with less than 10 workers)** through a sample survey.

Economic Census

- Economic Census is the complete count of **all Establishments** located **within the geographical boundary of India.**
- It also provides valuable insight into **geographical spread/clusters of economic activities, ownership pattern,** persons engaged, etc. of **all economic establishments** in the country.
- It is conducted **every five years** and is very crucial for framing of policies and planning for the government and other organisations.

- Six Economic Censuses, (EC) have been conducted till date. **The first EC was undertaken in 1977 by the <u>Central Statistical Organization (CSO)</u>.** The Second in 1980 followed by 3rd in 1990. The 4th edition took place in 1998 while the fifth was held in 2005. The **Sixth EC was conducted in 2013.**
- The **<u>7th Economic Census (7th EC)</u>** is being conducted by **Ministry of Statistics and Programme Implementation (MoSPI)** since **2019.**
    - It is being carried out by the **MoSPI** in collaboration with **<u>Common Service Centre (CSC)</u>,** a Special Purpose Vehicle (SPV) under **Ministry of Electronics and IT.**
    - **For the first time,** an IT-based digital platform is being used for data capture, validation, report generation and dissemination.
    - The 7th EC will cover **all establishments** including household enterprises, engaged in **production or distribution of goods/services (other than for the sole purpose of own consumption)** in **non-farm agricultural** and **non-agricultural sectors.**

<u>Source: TH</u>

Detoxification of Lukha River: Meghalaya

Why in News

Recently, the Meghalaya Government has claimed that a **detoxing pilot project** has brought the **Lukha river back** from the dead.

Key Points

- **About:**
    - The Lukha River was considered toxic beyond redemption a decade ago owing to **contamination due to acid mine drainage and run-off from the<u> coal mines</u>.**
    - **Phytoremediation method** was used to detoxify the river, where **<u>Algae</u>** was used to remove major toxic contents from the water.
    - The pilot project was **undertaken under the <u>District Mineral Fund</u>** after reports of low pH levels affecting the aquatic life in the river.
        - Most living organisms, especially aquatic life, function at the **optimal pH range of 6.5 to 8.5.**
        - pH is a **measure of how acidic/basic water is.** The range goes from 0 to 14, with 7 being neutral. pHs of less than 7 indicate acidity, whereas a pH of greater than 7 indicates a base. The **pH of water is a very important measurement concerning water quality.**

- **Lukha River:**
  - The Lukha is located in the southern part of **east Jaintia Hills** of Meghalaya where most of Meghalaya's **rat-hole coal mines** are located.
    - It has become a victim of the unsustainable large-scale mining of coal and limestone, allegedly responsible for the pollution that turns the river its surreal winter hue.
  - It **receives water from the Lunar river** (Wah Lunar) and small streams draining from the **Narpuh Reserve Forest** and the undulating hills of the area while flowing down.
  - The river is mainly fed by monsoon rain and flows in the south-west direction and later takes a southern path after **joining the Lunar river near the Gaddum village.**
  - The river passes via the Sonapur village and then **into southern Assam's Barak Valley and ends up in the floodplains of Bangladesh.**

Source: TH