News Analysis (29 Jun, 2019)

Kobe-Ahmedabad Sister Cities

A Memorandum of Understanding (MoU) of sister-city partnership was signed by Japan and India during the Indian Prime Minister's visit for 2019 **G20** Osaka summit in Japan.

- It will cultivate, promote and enhance opportunities on the business, academic and cultural front between Kobe in Hyogo, Japan and Ahmedabad in Gujarat, India.
- In November 2016, India and Japan signed **a sister-state relationship MoU** for Gujarat and Hyogo prefecture.

  - The MoU sought to promote mutual cooperation between Gujarat and Hyogo in the fields of academics, business, cultural cooperation, disaster management and environmental protection.
  - Kobe is the capital city of Hyogo. Indian Prime Minister had visited a bullet train plant in Kobe.
  - India is building its first bullet train between Mumbai and Ahmedabad with Japan's help.
- **The UNESCO** has recognized Ahmedabad as the World Heritage City and Kobe as the Creative Design City, and therefore, both are recognized by the world as cities of

repute.
    - This common thread will help people connect and this is very important for the growth on other fronts.
    - Kobe already has a large section of Gujarati community.

Sister City

- The concept of sister cities or twin towns is a legal and social agreement between towns, cities, counties, oblasts, prefectures, provinces, regions, states between two separate countries to promote cultural and commercial ties.
- The plan was conceived after the end of World War II to promote peaceful coexistence and to encourage trade and tourism.
- In diplomacy, this concept is seen as a way to enhance strategic ties between the two nations, both cultural as well as economic.
- In 2013, India signed the sister city agreements with China -- the pairs were Delhi-Beijing, Bengaluru-Chengdu and Kolkata-Kunming.

Just Job Index

JustJobs Index (JJI) is a new data-driven tool to measure the quantity and quality of jobs at the state level. This tool has been developed by the JustJobs Network(a private body), with support from the Azim Premji University.

- The tool draws data exclusively from government sources including the **National Sample Survey Organisation (NSSO)**, the **Labour Bureau** , **the Annual Survey of Industries (ASI)**, **the Reserve Bank of India (RBI)** and the recent Periodic Labour Force Survey (PLFS).
- It covers five dimensions: employment, formality, benefits, income equality and gender equality

What is a Good Job

- **Employment**: This covers the labour force participation rate, the unemployment rate and the youth unemployment rate.
- **Formality**: This looks at how many among the total workforce have written job contracts or earn regular wages, compared to those engaged in informal work, which can range from self-employment, unpaid family work to working for informal businesses.
- **Benefits**: State expenditure on pensions, the proportion of workers who are part of a union and the proportion of workers that have pension funds make up this dimension. It is a measure of the social protection afforded to workers, especially vital in an economy where millions are one expensive illness away from poverty.

- **Income equality**: Since credible income data is hard to come by, the authors have used consumption data to calculate consumption-based inequality as one of the indicators of income inequality. The other indicators are the ratio of minimum wages to average real wages and the ratio of informal wages to average wages.
- **Gender equality**: This is quantified by the ratio of female to male employment rates, labour force participation rates and the ratio of their wages.

Performance of States

- **Quality of the employment**: **Chhattisgarh** and **Andhra Pradesh** topped on employment indicator. Gujrat scored high on the employment dimension but it performed poorly on ensuring quality if the job, despite its highest economic growth rate in India.
- **Formal employment**: **Kerala** performed poorly on the employment dimension but has performed well on the formal employment part, it is attributed to its high youth unemployment rate, with the highest unemployment among those with a university education. **U.P** and **Jharkhand** are the worst performers largely because of the scale of the informal agriculture sector as well as the wholesale and retail sector.
    - Unemployment and informality tend to have an inverse relationship. States like Goa that performed poorly on the employment dimensions manage to keep informality in check, while Chhattisgarh, which had low unemployment also has high informality and so scores badly in the formality dimension.
- **Benefits to the employee**: J&K topped the benefits index with its relatively high state expenditure on pension. All other states performed poorly on providing benefits to workers, it could be partly linked to the large degree of informality in India's employment landscape(Workers who receive wages but have no contracts and no social protections).
- **Income inequality**: **Chattisgarh and Maharashtra** had the best performance on income inequality. **Kerala recorded the worst score on the income inequality** dimension because it has the highest levels of consumption inequality in the country. This runs counter to the fact that Kerala has the second lowest poverty rate in the country after Goa. However, pockets within the state record a high incidence of poverty, and the gap between rich and poor in the state is wide.
- **Gender equality**: **Himachal and Chattisgarh** performed the **best on gender equality** with relatively more parity. **Bihar and Uttar Pradesh ranked lowest on gender equality,** which also mirrored their ranking in the overall index. The correlation between performance on gender equality and overall performance on the index shows the significance of women's participation in the economy.

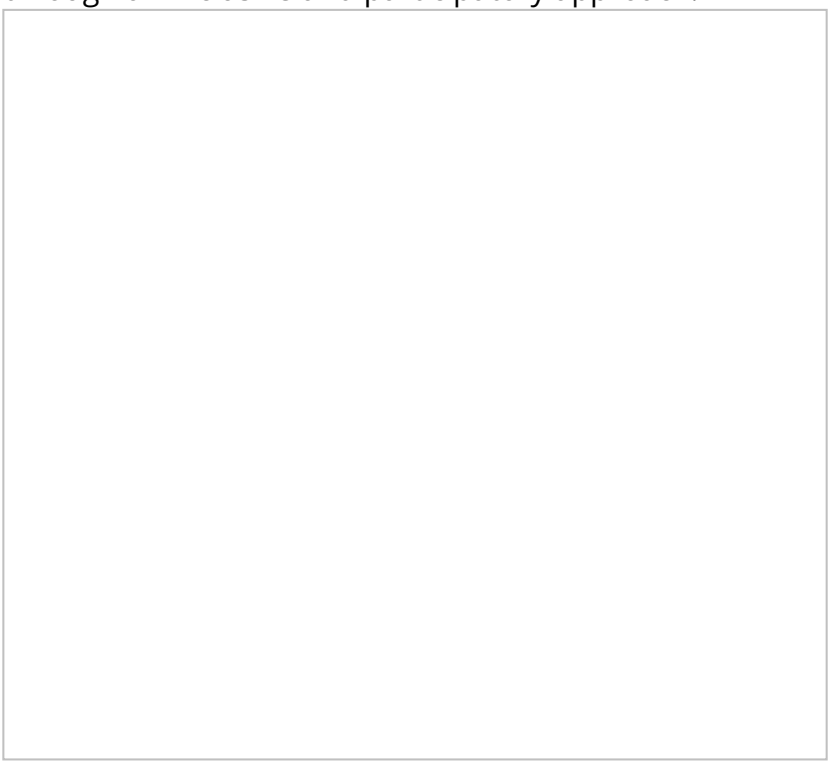
Suggestions

- The report proposes the establishment of a **National Employment Strategy** with a

three-pronged focus:
    - First, generating **labour-intensive jobs** in industry and in agriculture.
    - Second, making **investments in human capita**l, especially in quality education and universal healthcare, not just in short-term skill training.
    - Third, **strengthening labour market institutions** through simplifying and rationalising labour regulation and providing a national minimum wage.
- Not just the central government, even the states could make interventions. State level index can be developed for that.

First Resilient Kerala Program

The Government of India, the Government of Kerala and the World Bank have signed a Loan Agreement of USD 250 million for the **First Resilient Kerala Program** to enhance the State's resilience against the impacts of natural disasters and climate change.

- The Resilient Kerala Program will focus on strengthening the State's institutional and financial capacity to protect the assets and livelihoods of poor and vulnerable groups through an inclusive and participatory approach.

- The New Program is part of the Government of India's support to Kerala's **'Rebuild Kerala Development Programme'** aimed at building a green and resilient Kerala. This partnership will identify key areas of policy and institutional strengthening to maximize development impact.
- It is the first of two **Development Policy Operations** aiming to mainstream disaster and climate resilience into critical infrastructure and services.

State partnership is a key pillar of the Bank's new **Country Partnership Framework** for India. Through such partnerships, the Bank will support select States striving to bring about systemic improvements in the way development initiatives are planned and executed.

Objectives of the Program

- It aims to support the State with:
    - Improved river basin planning and water infrastructure operations management, water supply and sanitation services
    - Resilient and sustainable agriculture, enhanced agriculture risk insurance
    - Improved resilience of the core road network
    - Unified and more up-to-date land records in high-risk areas
    - Risk-based urban planning and strengthened expenditure planning by urban local bodies
    - Strengthened fiscal and public financial management capacity of the state.
- **Other initiatives:** The World Bank has been supporting the State through engagements such as the Second Kerala State Transport Project, Dam Rehabilitation and Improvement Project, National Hydrology Project, National Cyclone Risk Mitigation Project Phase 2 and the Kerala Local Government and Service Delivery Project.

Development Policy Financing (DPF)

- It is an initiative of World Bank that aims to help the borrowers to achieve **sustainable poverty reduction** through a program of policy and institutional actions, for example, **strengthening public financial management**, **improving the investment climate**, addressing bottlenecks to **improve service delivery**, and **diversifying the economy**.
- This represents a shift away from short-term macroeconomic stabilization and trade liberalization reforms of the 1980s-90s towards more medium-term institutional reforms.
- **This could be a loan, grant or credit** which provides rapidly-disbursing financing to help a borrower address the actual or anticipated development financing requirements and promote policy reform.

Day Zero Situation

It has been reported that **Shimla**, Himachal Pradesh and **Udupi** and **Mangaluru** in coastal Karnataka are on the **verge of** becoming Tier 2 cities which would have a **'Day Zero' situation soon.**

The Case of Shimla

- Shimla, which has a population of 0.17 million, gets approximately 10,000 visitors daily during the peak tourist season in summer.
- At the time of the peak tourist season, **the demand for water** rises to **45** million litres per day **(MLD)**. However, due to **scanty rain and snowfall and drying up of the perennial water sources**, Shimla has **reserves** of only **18 to 27 MLD.**

The Case of Udupi

- The **Swarna river and the Baje dam** are the main source of water for the Udupi city.
- The dam reached the **'dead storage'** limit this year. Dead storage refers to water in a reservoir that cannot be drained by gravity and has to be pumped out.
- The city has been divided into six zones and drinking water from the Swarna is at present being supplied once in six days to each one of these zones in turns.

The Case of Mangaluru

- A vented dam was built across the city's Netravati river at Thumbe in 1993 to ensure an adequate and continuous supply of water throughout the year. Another dam 50 metres downstream of the vented dam was constructed and commissioned in 2016 to meet the future water supply needs of Mangalore
- But this year, with **no inflow into the Netravati,** the corporation has taken the hard decision of water rationing.

Day Zero Situation

- It is a situation **when there will be no water in the taps and the use of water will become restricted for vital services only.**
- Considering the present situation of water crisis in the cities of Shimla, Udupi and Mangaluru, they are being termed as **soon to be India's Cape Towns.**

The Case of Cape Town

- In January 2018, officials in Cape Town announced that the city of 4 million people was three months away from running out of municipal water.
- **Labelled "Day Zero"**, 12th April, 2018, was to be the date of the largest drought-induced municipal water failure in modern history, the result of three consecutive years of anemic rainfall.
- One year on, **Cape Town has apparently made it through the worst of a historic drought without turning off the taps,** although the water supply is still tenuous.
- The steps taken include:
    - Cape Town's government **ramped up water tariffs** and enforcement of prohibitions on heavy users, **prohibiting the use of municipal water** for

swimming pools, lawns, and similar **non-essential uses.**
    - Farmers diverted additional water stored for agricultural purposes to the city.
    - The city's government also implemented **a new water-pressure system,** saving roughly 10 % of overall municipal water consumption.

Bacterial Spray and Decaying Monuments

A Study has identified bacteria responsible for calcification and hardening of lime.

- In calcification process, lime is deposited.
- When the rain water seeps into the monumental structure, lime leaches through basaltic rock joints. This leached lime is acted upon by bacteria, which turn it into hard calcified lime.
    - Because of it, many monuments have been losing its shine and beauty due to white deposits on its surface.
    - It is very hard and difficult to remove precipitates of calcium carbonates (calcified lime).
- The Salabat Khan tomb, located 125 kilometres from Aurangabad in Maharashtra, has been losing its shine and beauty due to white deposits on its surface.
    The study of it was conducted by National Museum Institute of History of Art, Conservation and Museology.
- The study identified bacteria responsible for calcification and hardening of lime are Bacillus sp, Arthrobacter sp, Agromyces Indicus and Aquamicrobium sp species.
- **Bacterial Spray:** A spray of identified organisms along with calcium carbonate can create calcite layer that will help preserve exteriors of monuments.
    - In this method, micro-organisms are evenly sprayed on the surface and are fed with nutritional medium containing calcium and urea.
    - The bacteria then induces carbonate precipitation by creating low acidic medium and converting dissolved calcium into a protective surface coating of calcium carbonate.
    - This process is also known as Biocoating. Under it, identified organisms are used to preserve exterior of monuments.
- The study proves that living bacteria can be used to clean as well as protect old and historic monuments and also to seal the cracks, if any, without causing any damage to the monument or its surface.
    Currently marble surfaces of historic monuments are cleaned by applying mud packs, which at times can be damaging.

National Museum Institute of History of Art, Conservation and Museology

- The National Museum Institute of the History of Art, Conservation and Museology was formed and registered on January 27, 1989 under the Societies Registration Act, 1860.

It is located in Delhi.

- It provides for various courses of study, training and research in different branches of History of art, Museology, Conservation, etc.

Ozone Pollution

According to the data presented by the **Ministry of Environment, Forest and Climate Change** in the Lok Sabha, ozone was reported as a prominent pollutant (for 95 days between 2016 and 2018) in Delhi (contributing to rising **air pollution in Delhi**).

> Delhi has witnessed 122 micrograms per cubic metre (ug/cu m) of ozone pollution which is 1.22 times higher than the eight-hour average standard which is 100 ug/cu m.

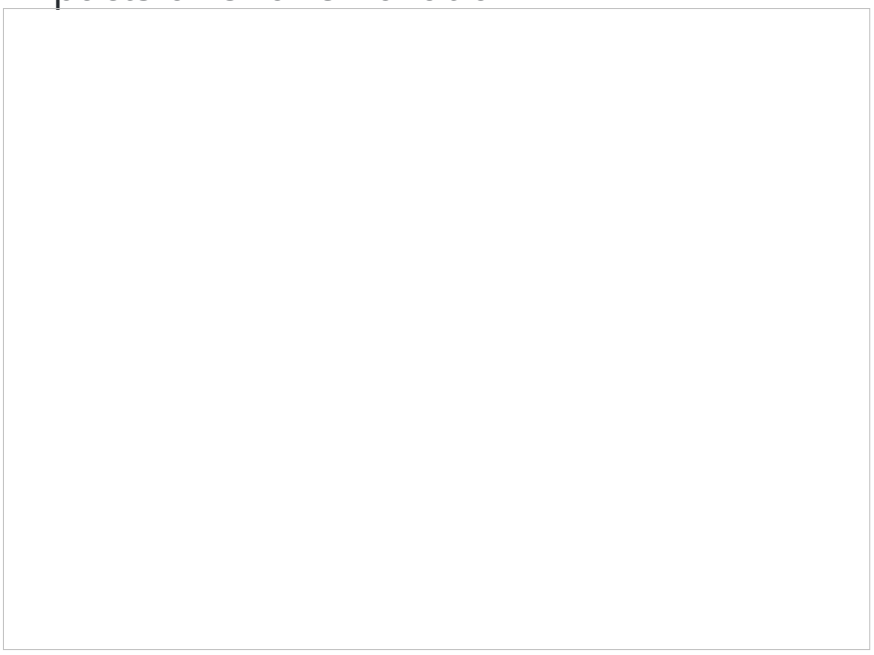
Ozone

Ozone (composed of three atoms of oxygen) occurs both in the Earth's upper atmosphere (stratosphere) and at ground level (troposphere). It can be good or bad, depending on where it is found:

- **Good Ozone:** Ozone occurs naturally in the Earth's upper atmosphere (Stratosphere) where it forms a **protective layer** that shields us from the sun's harmful ultraviolet rays.
  - **Ozone depleting gases** like chlorofluorocarbons (CFCs), HCFCs, halons, destroy this protective shield and causes hole in the ozone.
  - India had adopted the **Kigali Amendment** (aims to phase-down hydrofluorocarbons).
- **Bad Ozone:** In the Earth's lower atmosphere (troposphere) near ground level, ozone is formed when pollutants emitted by cars, power plants, industrial boilers, refineries, chemical plants, and other sources react chemically in the presence of **sunlight.**

  Surface level Ozone is a harmful air pollutant.

Impacts of Ozone Pollution



- Surface level Ozone causes **damage** to **crops** and **forests.**
- Irritation can occur in the **respiratory system** giving rise to **coughs** and an uncomfortable sensation in the chest.
- Ozone worsens bronchitis, emphysema, asthma, etc and increases the risk and susceptibility to pulmonary inflammation like **Chronic Obstructive Pulmonary Disease** (COPD).
- It may reduce **lung function** and make breathing difficult.

Government Efforts

- Shifting to **BS-VI compliant vehicles from BS-IV.**
- Shutting down of the Badarpur thermal power plant.
- Banning of garbage burning.
- **Graded Response Action Plan** (GRAP).
- Launch of the **National Clean Air Programme** (NCAP).
- Setting up of a monitoring network for assessment of the ambient air quality at 779 locations, covering 339 cities in 29 states and six Union territories

Maharaja Ranjit Singh

A statue of Maharaja Ranjit Singh, who ruled Punjab for almost four decades (1801-39), was inaugurated in **Lahore** on the occasion of 180th death anniversary of the legendary Sikh ruler.

Maharaja Ranjit Singh

- He was born on November 13, 1780 in **Gujranwala**, now in **Pakistan.**
- At that time, Punjab was ruled by powerful chieftains who had divided the territory into Misls (refers to the sovereign states of the **Sikh Confederacy**, that rose during the 18th century in the Punjab region in the northern part of the Indian subcontinent after the collapse of the Mughal Empire).
    Ranjit Singh overthrew the warring Misls and established a **unified Sikh empire.**
- He was given the title **Lion of Punjab** (Sher-e-Punjab) for his success in freeing Lahore (his capital) from the Afghan invaders.

Modernization of Army

- He combined the strong points of the **traditional Khalsa army** with western advances in warfare to raise **Asia's** most **powerful indigenous army** of that time.
- He also employed a large number of **European officers**, especially French, to train his troops.
- He appointed French General **Jean Franquis Allard** to modernize his army.

Wide Empire

- Ranjit Singh's **trans-regional empire** (spread over several states) included the former Mughal provinces of Lahore and Multan besides part of Kabul and the entire Peshawar.
- The boundaries of his state went up to **Ladakh** — in the northeast, **Khyber pass** (route the foreign rulers took to invade India) in the northwest, and up to **Panjnad** in the south where the five rivers of Punjab fell into the Indus.

Legacy

- The Maharaja was known for his **just** and **secular rule.**
    Both Hindus and Muslims were given powerful positions in his darbar.
- He turned **Harimandir Sahib** at Amritsar into the **Golden Temple** by covering it with gold.
- He is also credited with funding **Hazoor Sahib gurudwara** at the final resting place of Guru Gobind Singh in Nanded, Maharashtra.

International Recognition

- In 2016, the town of **St Tropez** in France unveiled the maharaja's **bronze statue** as a mark of respect.
- His throne is displayed prominently at the **Victoria and Albert Museum in London.**
- Last year, **London hosted** an exhibition that focused on the history of the Sikh Empire and the international relations forged by the Maharaja.

Cancer Detection Tool

The team at Yale University has developed a tool which can potentially detect triggers in patients with renal as well as brain cancers, a finding that could advance the treatment of cancer by early detection.

- The researchers have found how cancer cells are triggered to spread to other parts of the body (this process of spreading of cancer cells is called **metastasis**).
- Finding and treating cancer at an early stage can save lives. However, treatment becomes more difficult, once cancer gets **metastasised or spreads**.

Metastases

- It is the plural form of metastasis. It most commonly develops when cancer cells break away from the main tumour and enter the bloodstream or lymphatic system. These systems carry fluids around the body. This means that the cancer cells can travel far from the original tumour and form new tumours when they settle and grow in a different part of the body.
- Metastases can also sometimes develop when cancer cells from the main tumour, typically in the belly, or abdominal cavity, break off and grow in nearby areas, such as in the liver, lungs, or bones.

  Advantages: The discovery can potentially be used to develop new prognostic tests and pave the way for more personalised clinical interventions.

  Novel drugs can be developed to target the cells and prevent them from undergoing the change in environment which acts as a trigger to cancer.

Dragonfly Mission

The National Aeronautics and Space Administration's (NASA) Dragonfly mission, (which will be launched in 2026 and land in 2034) plans to fly a drone copter to **Saturn's largest moon Titan** in search of the building blocks of life.

- Dragonfly mission will study whether the moon of Saturn (Titan) could now be, or once was, home to life.
- Dragonfly will fly to dozens of promising locations on Titan looking for **prebiotic chemical** processes common on both Titan and Earth.
- This will be the first time Nasa will fly a **multi-rotor vehicle** for science on other planet.

  Multi-rotor vehicle would have eight rotors (moving component of an electromagnetic system in the electric motor, electric generator, or alternator)

and will fly like a large **drone.**

- Dragonfly will explore diverse environments from **organic dunes** (hill of loose sand built by the flow of water or air) to the floor of an impact crater where liquid water and complex organic materials (key to life)once existed together (possibly tens of thousands of years).
- The craft will land first at the equatorial **"Shangri-La" dune,** exploring the region in short trips before building up to longer "leapfrog" flights of five miles (8 kilometers).
- It will investigate the Titan's **atmospheric and surface** properties and it's subsurface ocean and liquid reservoirs and will also search for chemical evidence of past life.

Titan

- Titan is the **largest moon** of Saturn and the second largest moon in our solar system.
- It has liquid rivers, lakes, and seas on its surface (though these contain hydrocarbons like methane and ethane, not water).
- Titan's atmosphere is made mostly of **nitrogen**, like Earth's, but is four times denser.
- Unlike Earth, it has **clouds and rain of methane.**
- It is 886 million miles (1.4 billion kilometers) away from the Sun, about 10 times farther than Earth.
- Because it is so far from the Sun it's **surface temperature** is (-179 degree Celsius).
- It's **surface pressure** is also 50% higher than Earth.

International Seed Testing Association

The 32nd **International Seed Testing Association (ISTA) Congress** is taking place in Hyderabad from 26th June to 3rd July, 2019. This is the **first congress** that is being held in **Asia**.

- ITSA was founded in the year **1924** with the aim to develop and publish standard procedures in the field of seed testing.
- It produces internationally agreed rules for seed sampling and testing, **accredits laboratories,** promotes research, **provides international seed analysis certificates** and training, and disseminates knowledge in seed science and technology.
- ISTA **members are over 85 countries**/distinct economies worldwide and they work together to achieve their vision of 'Uniformity in seed quality evaluation worldwide'. This facilitates seed trading nationally and internationally, and also contributes to food security.
- The **headquarters** of the Association is located in **Switzerland.**

Note

- **National Seed Research and Training Centre (NSRTC), Varanasi** is the apex centre

in India to maintain uniformity in seed testing results at national level.
- The **Central Seed Testing Laboratory (CSTL),** under the centre, is a member laboratory of International Seed Testing Association (ISTA).
