

# CURRENT AFFAIRS

WEEKLY

WEEK - 1  
DECEMBER, 2019

## PRELIMS

### ECONOMY

- Leaked NSSO data
- National Milk Day 2019

### ENVIRONMENT & ECOLOGY

- Emissions Gap Report 2019

### DISASTER MANAGEMENT

- 1<sup>st</sup> International Conference on "Landslides Risk Reduction and Resilience-2019"

### GOVERNMENT SCHEME

- Atal Beemit Vyakti Kalyan Yojana

### GEOGRAPHY

- Char Dham

### POLITY & GEOVERNANCE

- Global diplomacy index 2019
- Lokpal

### POLITY & GEOVERNANCE

- Transgender Persons Bill, 2019
- What is Rule 12, used by the Centre to revoke President's Rule in Maharashtra
- World Migration Report 2020 and the trend of migration globally

### SCIENCE & TECHNOLOGY

- Coalbed methane (CBM)
- Golden Rice: To Combat Vitamin A Deficiency for Public Health

### ECONOMY

- Exchange Traded Fund
- India's solar energy challenges
- National Digital Health Blueprint 2019
- Understanding GST in present economic context

## MAINS

### INTERNATIONAL RELATION

- South China Sea – Conflict, Issues, Problems and challenges

### INTERNAL SECURITY

- Anti-Tank Guided Missiles

### POLITY & GOVERNANCE

- Countrywide NRC- Its Implications

### SOCIAL ISSUES

- Begging in India: A Menace to the Society

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## — Disclaimer —

The current affairs articles are segregated from prelims and mains perspective, such separation is maintained in terms of structure of articles. Mains articles have more focus on analysis and prelims articles have more focus on facts.

However, this doesn't mean that Mains articles don't cover facts and PT articles can't have analysis. You are suggested to read all of them for all stages of examination.

# CURRENT AFFAIRS ANALYST

WEEK-1 (DECEMBER, 2019)

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**SECTION: A**  
**(MAINS)**

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**CURRENT AFFAIRS**

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# EXCHANGE TRADED FUND

## CONTEXT

- Edelweiss AMC recently got the government's permission to launch India's first bond ETF (exchange traded fund) which will invest in central public sector undertakings.

### ◎ BACKGROUND

- Soon, Bond ETFs will be another investment vehicle available to retail investors providing access to bonds of state-run enterprises.
- Bond ETFs are similar to how **equity ETFs** invest in line with indices covering specific baskets like the **Nifty50, Nifty Next 50 and Nifty Quality 30**, among others
- While bond ETFs are **not new in India**, they have not been very popular. At present, only three **GSec ETFs** are available, all with miniscule assets and **poor trading volumes**.
- The entry of newer bond ETFs comes **at a time when** traditional bond funds are only just emerging from a painful period of multiple **credit defaults**. **Investors are wary**.
- Bond ETFs claim to be different from traditional bond funds by **offering high liquidity, transparency and lower costs**.
- The cost angle is the most distinguishing facet of bond ETFs. Being **passively managed** products, these charge a **much lower fee** than actively managed bond funds. Sometimes even less than 0.5%.
- In the debt segment, there is not much the fund manager can do to **enhance returns**. Any strategy that can optimise costs is the need of the hour.
- Globally**, Bond ETFs have reported a **healthy growth** over the last decade. The size of Global Bond ETFs now accounts for over **\$1 trillion** assets under management (AUM) out of total \$4 trillion AUM across various ETFs.
- The **key objectives of launching Bond ETF** are:
  - ▶ To suffice borrowing needs of CPSEs
  - ▶ To increase retail participation
  - ▶ To deepen the bond market and increase liquidity

### What are ETFs?

- An exchange-traded fund (ETF) is a **marketable security**, meaning it has an **associated price that allows it to be easily bought and sold**.
- ETFs are in many ways similar to mutual funds; however, they are listed on exchanges and **ETF shares trade throughout the day** just like ordinary stock.

- ETFs offer **low expense ratios and fewer broker commissions** than buying the stocks individually.
- ETFs can **contain all types of investments** including stocks, commodities, or bonds; some offer domestic holdings only, while others are international.

### What are Bond ETFs?

- Bond ETFs are a type of ETF that **exclusively invests in bonds**. Bond ETFs **invest in various fixed-income securities** such as corporate bonds, treasuries, municipal, international, high-yield, etc.
- Bond ETFs are passively managed and trade, **much like stock ETFs** on major stock exchanges. This helps **promote market stability by adding liquidity and transparency** during times of stress.
- Bond ETFs allow ordinary investors to gain **passive exposure to benchmark bond indices** in an inexpensive way.
- Investors of bond ETFs are exposed to the **risk of interest rate changes**.
- Bond ETFs are typically of **two types**: They either track a specific maturity bucket like short, medium or long term or they track a target maturity where they invest in bonds with similar maturity as the product.
  - ▶ **Target Maturity Bond ETFs**: They provide predictable returns like Fixed Maturity Plans (FMPs), if they are held till maturity.

### Other type of ETFs

- Market ETFs**: Designed to track a particular index like the NIFTY.
- Sector and industry ETFs**: Designed to provide exposure to a particular industry, such as oil, pharmaceuticals, or high technology.
- Commodity ETFs**: Designed to track the price of a commodity, such as gold, oil, or corn.
- Style ETFs**: Designed to track an investment style or market capitalization focus, such as large-cap value or small-cap growth.
- Foreign market ETFs**: Designed to track non-Indian markets, such as US's Dollar 30 or Dow Jones Industrial Average (DJIA).
- Inverse ETFs**: Designed to profit from a decline in the underlying market or index.

- **Actively managed ETFs:** Designed to outperform an index, unlike most ETFs, which are designed to track an index.
- **Exchange-traded notes:** In essence, debt securities backed by the creditworthiness of the issuing bank; created to provide access to illiquid markets and have the added benefit of generating virtually no short-term capital gains taxes.
- **Alternative investment ETFs:** Innovative structures, such as ETFs that allow investors to trade volatility or gain exposure to a particular investment strategy, such as currency carry or covered call writing.

### Benefits

- **Lower Costs:** An investor who buys an ETF doesn't have to pay an advisory/management fee to the fund manager and taxes are relatively lower in ETFs.
- **Lower Holding Costs:** As commodity ETFs are widely traded in, there isn't any physical delivery of commodity. The investor is just provided with an ETF certificate, similar to a stock certificate.
- **Exposure to debt market:** Bond ETFs are a cost-effective way for investors to take debt-market exposure.
- **Tax considerations:** ETFs tend to be very tax efficient and ideal for holding in taxable accounts. Since ETFs don't sell shares very often and their portfolio turnover is very low, it is very rare for them to generate a taxable distribution for their shareholders.
  - IETFs also have the option of making an "in-kind" distribution to shareholders if they want to sell themselves and want the cash.
  - However, if the ETF's portfolio generates dividend income, this income is taxable.
- **Transparency:** The entire portfolio held by the bond ETF is disclosed on a daily basis to investors.
  - This is unlike conventional bond funds which disclose portfolios at the end of every month.
  - Further, since bond ETFs are listed on exchanges, they provide live price updates after every trade.
- **Liquid:** Being listed on the exchanges, bond ETFs also claim to offer liquidity—ability to buy and sell units instantly—for the investor.

- The liquidity in bond ETFs will depend on how actively market makers buy and sell units on the exchange in bulk.
- This will allow the investor to fetch a purchase or sale price closer to the fair value of the ETF, as indicated by its net asset value (NAV).
- **Increasing participation:** In India, retail participation in corporate bond market is shallow due to structural challenges like poor accessibility, lack of transparency and awareness. Bond ETFs can address these challenges and can play an important role in increasing retail investor participation in corporate bond market.

### Disadvantages

- Several ETFs in India are plagued by **crippling illiquidity**. In the **absence of trading volumes**, investors often end up buying or selling at a steep premium, or discount to the prevailing NAV.
- While lower cost enhances the return potential of ETFs, **absence of liquidity can effectively wipe out cost benefits**. Conventional bond funds do not face these issues.
  - If evidence is to go by, the initial liquidity in these products will be low, restricting investor's ability to move in and out at a desired price.
  - If the ETFs are not able to amass a decent corpus size, poor liquidity will continue. C
- Bond ETFs **cannot assure return to investors any more than conventional bond funds**, except certain categories of bond ETFs such as target maturity bond ETFs which have a defined maturity date.
- Unlike actively managed bond funds, bond ETFs will **not be in a position to gain from** opportunities emerging from **movements in interest rates or credit spreads**.

### Conclusion

- To conclude, ETFs offer both tax efficiency as well as lower transaction and management costs. Bond ETFs combine the best of both bonds and debt funds. Indians invest a substantial portion of their savings in fixed income instruments such as small savings schemes, fixed deposits, bonds and various types of fixed income mutual funds. If liquidity is sufficiently high, bond ETFs may be a good first stop for those looking to move from bank fixed deposits.

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# INDIA'S SOLAR ENERGY CHALLENGES

## CONTEXT

- The Prime Minister recently committed to setting up 450 gigawatts (GW) of non-fossil fuel power by 2022. India is determined to be the world's greatest solar energy success story, but caught in an economic slowdown, India's clean energy transition is likely to not go as per the plan.

## ◎ BACKGROUND:

- While speaking at the United Nations Climate Action Summit in New York, Prime Minister Narendra Modi committed to setting up **450 gigawatts (GW)** of non-fossil fuel power by 2022.
- With this, he more than doubled the initial target of 175GW of green energy that his own government had set in 2018.
- However, the renewable energy industry is flailing. India's installed green energy capacity stands at about **65GW today**.
- It was expected to cross 100GW by December 2022, definitely short of the government's 175GW target and far behind 450GW. But even the expected 2022 projection now seems a **bit too optimistic**.
- The **on-going slowdown in economic growth and electricity demand has worsened** the deep stress in India's renewable energy industry.
- **Solar energy tariffs in India are among the lowest**, but states are keen to push them down further.
- Independent power developers (IPPs) are wary of admitting to a slowdown, but the signs are everywhere. Of the 64GW that was auctioned by the Centre and states in FY19, 26% received no or lukewarm bids and another 10% got cancelled

## ◎ ANALYSIS:

### Why solar energy?

- **Climate change:** We must accept that if we have to overcome the serious challenge of climate change, then what we are doing at the moment regarding switch away from fossil fuels is just not enough.
- **Relatively favourable:** For the last few years, thermal power has become unfavourable due to rising coal costs and natural gas disappeared from the domestic market.
- **Environment-friendly:** When in use, it does not release CO<sub>2</sub> and other gases which pollute the air. Hence it is very suitable for India, which is one of the most polluted countries of the world.
- **Varied use:** Solar energy can be used for a variety of purposes like as heating, drying, cooking or

electricity, which is suitable for the rural areas in India. It can also be used in cars, planes, large power boats, satellites, calculators and much more such items, just apt for the urban population.

- **Abundant & Secure:** Solar power is inexhaustible. In energy deficient country like India, where power generation is costly, solar energy is the best alternative means of power generation.
- **Grid independent:** You don't need a power or gas grid to get solar energy. A solar energy system can be installed anywhere. Solar panels can be easily placed in houses. Hence, it is quite inexpensive compared to other sources of energy.
- **Solar watersheds:**
  - ▶ In 2010, government launched National Solar Mission or Jawaharlal Nehru National Solar Mission (JNNSM).
  - ▶ In 2015, India initiated the International Solar Alliance (ISA).

### Where does India stand in its solar capacity?

- India is largely dependent on fossil fuel imports to meet its energy demands. About **70%** of India's electricity generation capacity is **from fossil fuels**.
- By 2030, India's dependence on **energy imports is expected to exceed 53% of the country's total energy consumption**. Greater import dependence is a threat to India's energy security as it makes the economy susceptible to global market volatility.
- It also adds to a **huge import bill** leading to a loss of valuable foreign capital. Hence there is need to shift our focus towards the renewable energy sources.
- **India is a late comer** in the clean energy market.
- Nearly 46% of Germany's energy comes from renewable sources. In China, that figure crossed 26% in 2018.
- BNEF estimates that by 2050, 75% of India's electricity will be from renewables (from the current 21%), higher than in China (62%) and the US (55%).
- To ensure that there is a stable market for solar energy, the central government has already made



it **mandatory for state power utilities (discoms) to buy a certain amount of this clean energy** from independent power producers (IPPs).

- The duty structure for equipment needed to generate solar energy is more favourable compared to that needed for producing wind power. Government is ensuring grid connectivity and **subsidies for rooftop solar projects**.
  - ▶ Why discoms favour low solar tariffs is because solar power **helps discoms meet their peak power requirement**.

### India's solar potential

- As per World Energy Outlook Report 2015, India has substantial **solar potential; around 750 GW** (based on the assumption that 3% of wasteland in each state can be used for solar power projects, plus an assessment of the potential for rooftop solar). This represents almost three times India's total installed power capacity today.
- The solar resource is **strongest in the north and northwest** of the country (Rajasthan, Jammu and Kashmir), but the potential is also considerably high in several other states, including Maharashtra, Madhya Pradesh, and Andhra Pradesh.
- A breakup of India's earlier renewable energy target of 175GW:
  - ▶ 100 GW from solar
  - ▶ 60 GW from the wind
  - ▶ 10 GW from biomass
  - ▶ 5 GW from small hydroelectric projects
- 100GW of solar energy comprised:
  - ▶ 60 GW of utility-scale projects (both solar PV and CSP) like solar parks
  - ▶ 40 GW of rooftop solar applications for commercial users and households, together with some small-scale schemes and off-grid capacity

### What has gone wrong?

- **Silicon panel industry losing:** A big bulk of the new investments in green energy went into silicon panels, which were powered by the sun. However, the slow pace of development in the last few years is now bringing the industry on the verge of a shutdown.
- **Low tariffs:** Solar energy tariffs in India are among the lowest in the world, but state governments are still keen to push them down further. These dangerously low tariffs are turning unsustainable for some developers, who in turn start compromising on quality.
  - ▶ For example, developers in Andhra Pradesh are facing an existential crisis as the state holds

them hostage with two equally unpleasant options: either lowering the tariffs or see their long-term power purchase agreements (PPAs) cancelled.

- ▶ The bone of contention for the state government is PPAs signed from 2014-2019 that were over and above the mandated 5% renewable power purchase obligations of the state.
- ▶ Tariffs that states are willing to pay are capped at ₹2.50-2.80 per unit, limiting the room for IPPs to improve profit margins and disincentivising quality projects.
- **Uncertain policy changes:** Before competitive bidding for awarding projects was introduced for the renewable energy sector in 2017, states invited developers by setting a fixed tariff (called the feed-in tariff). Policy changes have been sudden and unpredictable.
  - ▶ Uttar Pradesh made an attempt to renegotiate old renewable energy tariffs.
  - ▶ Gujarat decided that only projects which supply power to the state discom could use land within the state, flouting a central procurement agency's rule for setting up projects under the interstate transmission system.
  - ▶ Rajasthan, one of the most sought-after states for solar power plants, recently announced its decision to impose additional charge on all projects that sell power outside the state.
- **Mounting discom dues:** Some state power distribution companies (discoms) are also late on paying their power bills. As of July 2019, state discoms owe a whopping ₹9,735.62 crore to the renewable energy companies.
- **Slack in new Investment:** While the renewable energy sector has been fuelled mostly by private equity (PE) investments so far, the number of firms now able to attract investment has dwindled due to the problems faced by the industry. There is also uncertainty in the bidding of new projects. The projects that have already started, the pace has slowed down dramatically.
  - ▶ PE investments into renewables have stayed low and large banks like State Bank of India are no longer lending to renewable energy projects that sell power at below ₹3 a unit.
- **No broad solar development:** Countries which are a success story in solar energy have all had a parallel development in solar-based IP, manufacturing and deployment. But in India, we went straight to deployment and that makes it vulnerable to global players like China and Vietnam who lead in manufacturing. That dependence will only grow more as India's energy transition slows or gets delayed.

- **Currency risk:** There is also currency risk involved because modules are imported and then the cost of the module itself keeps varying.
- **Low quality power:** Beyond the rising risks and regulatory uncertainty, an increasing area of concern is also the quality of solar energy installations in India, most of which are purchasing cheaper panels from China to break-even. There are higher-than-expected degradation levels in the solar modules that Indian developers are using.
  - ▶ Studies have suggested that quality issues in solar Photo Voltaic (PV) cells could be the result of aggressive pricing policies and commissioning deadlines for PV plants.
- **Decline in power sector demand:** A large part of the stress in renewable energy sector is because the slow rates of growth in power demand, particularly from high energy-consuming industries.
  - ▶ Data from Central Electricity Authority show all-India power demand growth slowed to 4.4% in April-September 2019, down from 6% a year ago.
- **Operational issues:**
  - ▶ The solar panels used are **not designed for very high temperatures**. In remote areas with high temperatures, the panels do not yield their optimal usage.
  - ▶ **Dust is a problem**, especially in Rajasthan, which require frequent cleaning and increase the operational costs. There is alluvial dust present in plains of north India and delta regions of south India) which turns into mud when water is poured.
  - ▶ Other main issue is the hardness of the water. **Hard water is not suitable for cleaning**, and companies have to invest in reverse osmosis (RO) and other technology to make it suitable.
  - ▶ **Skilled workforce is required** for cleaning and maintenance is not available in these areas and so companies have to bring them in from other areas and train them.

### Consequences:

- In the rush to build market share, some players have become **very aggressive are bidding very low tariffs with fairly low returns**. It is important that every project remains viable from both aspects—tariff and profitability.
  - Given that several **discoms**, the ultimate buyers of power, are in a **poor financial condition**; and India's **banking sector** is already facing its own set of **challenges**, viability of solar power projects has become a serious cause for concern.
- **We need to attract more players and many more investors** into this nascent sector. This will come only if the returns are attractive for investors.
  - If the slowdown persists, not just in renewables but in the broader economy, it will adversely affect India's energy transition plans and the target of achieving 450 GW by 2022.

### Consumer side Problems:

- There is no power generation **when the sun sets down**.
- It is **weather dependent** hence not reliable.
- There is **need to clean the panels regularly**. Cleaning panels of large solar farms is wastage of lots of water.
- **Sunny area is required**. Even small shadow on the panel can disrupt the generation of whole string.
- Replacement of **batteries in off-grid plants is costly**. While installing a solar panel is quite cheap, installing other equipment becomes expensive.
- Solar panels require **considerable maintenance** as they are fragile and can be easily damaged. So, extra expenses are incurred as additional insurance costs.
- In On-grid systems, when there is a **power cut** from the grid then your own power cannot be used instead. This results in no power at all in such situation.
- Finding faults in and maintenance of big solar farms is hard because of large size.
- The land space required to install a solar plant with solar panel is quite large. India is already a highly populous and **land starved country**.
- While the government has provided subsidy for rooftop solar installations, consumers are still expected to foot the **water bill and cleaning bill** which means bearing the operational costs of having solar modules on roofs.

### CONCLUSION AND WAY FORWARD

Regardless of whether or not the International Solar Alliance is effective, renewable energy, particularly solar, is crucial to India's future. Due diligence should be exercised while selecting and procuring solar modules, including verifying the antecedents of the manufacturer, and independent checks on the quality of the modules imported into India. Today, discoms are forced to buy expensive power and political pressures prevent them from raising tariffs for consumers. If there is no demand for more power, the ripple effect is longer payment cycles and more standoffs between states and generators. This isn't going to change until economic growth picks up soon.

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# NATIONAL DIGITAL HEALTH BLUEPRINT 2019

## CONTEXT

- Niti Aayog had earlier floated the 'National Health Stack' paper as "implementation framework" for Ayushman Bharat. After holding consultations on it, the Ministry of Health formed a committee under former UIDAI chairman and former MeitY secretary, which drafted the 'National Digital Health Blueprint 2019'.

### ◎ BACKGROUND

- Recently, the National Digital Health Blueprint (NDHB) Committee submitted the final "National Digital Health Blueprint" (NDHB) report to Union Health Minister.
- NDHB will help in providing a **common platform for integration of existing applications in health domain and data** which has existed in silos, either in public health facilities, or, in private healthcare facilities, in India.
- Building on the initial document of "**National Health Stack**" (NHS) by NITI Aayog, Ministry of Health and Family Welfare has defined clear **timelines, targets and the resources required for digital convergence of healthcare programmes** in India.
- The priorities of the central government of India were included in the "**National Health Policy 2017**" and **NDHB shows the implementation angle for achieving the same.**
  - ▶ The National Health Policy 2017 (NHP 2017) envisages the goal of attainment of the highest level of **health and well-being for ALL at ALL ages**, through increasing access, improving quality and lowering the cost of healthcare delivery.
  - ▶ The **key principles** of NHP 17 include universality, citizen-centricity, quality of care and accountability for performance.
  - ▶ **Leveraging digital technologies** for enhancing the efficiency and effectiveness of delivery of all the healthcare services.
  - ▶ Creation of **district-level electronic databases**, establishing registries for all diseases of public importance
  - ▶ Establishing '**Federated National Health Information Architecture**', to roll-out and link systems across **public and private health providers at State and National levels** consistent with Metadata and Data Standards (MDDS) & **Electronic Health Record (EHR)**.
  - ▶ Leveraging the potential of digital health for 2-way systemic **linkages between primary, secondary and tertiary care** to ensure continuity of care.

- This can be considered as the biggest leap of towards achieving the **goal of Universal Healthcare Coverage (UHC)** with impetus on the **digital healthcare component**.

### National Health Stack

- **NHS objective:** The NHS envisages a centralized health record for all citizens of the country in order to streamline the health information and facilitate effective management of the same.
- **NHS mechanism:** The proposed NHS is an approach to address the challenge and seeks to employ latest technology including Big Data Analytics and Machine Learning Artificial Intelligence, a state of the art Policy Mark-up Language and create a unified health identity of citizens - as they navigate across services across levels of care, i.e. Primary, Secondary and Tertiary and also across Public and Private.

### Why is there need of NHS?

- **India today is witnessing significant trends in health:** increasing prevalence of non-communicable diseases for instance, as well as marked demographic shifts. Climbing out-of-pocket costs is becoming difficult for most households.
- **Ayushman Bharat:** To address the health needs of citizens, the Government of India had announced comprehensive policy response – the Ayushman Bharat Yojana. This flagship health programme is to develop a wellness focused strategy, ensuring cost effective healthcare for all. The program leverages a two-pronged approach:
  - ▶ On the supply side, substantial investments will be made to build 1.5 lakh health and wellness centers offering preventive and primary care; and
  - ▶ On the demand side, the Pradhan Mantri-Rashtriya Swasthya Suraksha Mission (PM-RSSM) will create a national insurance cover of up to 5 lakhs per year per family for over 10 crores households, towards secondary and tertiary care.
- **Need for technology backbone:** Achieving such scale requires core technology backbone of our system and leverage cutting edge digital solutions

to tackle the challenge. Though technology deployment for healthcare has been continuous and widespread but the benefits have been highly localized and fragmented.

- ▶ The citizen cannot access his health records speedily nor store them conveniently.
- ▶ In the absence of an integrated system, the service providers undertake diagnostic tests afresh and create isolated medical records enhancing the burden on the citizen significantly.
- ◉ **Health and policy interventions:** Health service providers in the public and private sectors do not have an aggregated and complete view of the data for providing efficient health services to the citizens.
- ▶ Governments, Central and State alike, also do not have reliable and complete data for policy analysis and evidence-based interventions.
- ◉ **Benefits of NHS:** Once implemented, the National Health Stack will significantly bring down the costs of health protection, converge disparate systems to ensure a cashless and seamlessly integrated experience for the poorest beneficiaries, and promote wellness across the population.

### National Digital Health Blueprint

- ◉ **NDHB Objective:** NDHB objective is to create an ecosystem which can integrate the existing disparate health information systems and show clear path for upcoming programmes.
- ▶ Establishing and managing core health data, and the infrastructure for its exchange.
- ▶ Establishing National and Regional Registries to create "Single Source of Truth" relating to clinical establishments, healthcare professionals and health and pharmacies.
- ▶ Adopt open standards.
- ▶ To create Personal Health Records based on international standards, which are easily accessible to citizens and services providers, based on consent.

- ▶ To promote enterprise-class health application keeping in mind Sustainable Development Goals related to health.
- ▶ To ensure private sector participation.
- ▶ To ensure national portability in the provision of health services.
- ▶ To promote the use of Clinical Decision Support (CDS) Systems by health professionals and practitioners.
- ▶ To leverage health data analytics and medical research for better management of the health sector.
- ▶ To enhance Governance digital tools in the area of Performance Management.
- ▶ To support steps taken for ensuring quality of healthcare.

- ◉ **NDHB key features:** Key features of the blueprint include a Federated Architecture, a set of architectural principles, a 5-layered system of architectural building blocks, Unique Health Id (UHID), privacy and consent management, national portability, EHR, applicable standards and regulations, health analytics and above all, multiple access channels like call centre, Digital Health India portal and MyHealth App.

- ◉ **NDHB recommendations:** The formation of 'National Digital Health Mission' as an implementing body recommended in this report is a balanced combination of designing, developing and realizing certain pure-play Technology Building Blocks and the essential Domain (Health) Building Blocks.

### Conclusion

- ◉ The need of the hour is to elevate the existing systems from providing disparate electronic services to integrated digital services. We need to clearly adopt the principles of Enterprise Architecture, if we must leverage the digital technologies to achieve the vision of NHP 2017.

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# UNDERSTANDING GST IN PRESENT ECONOMIC CONTEXT

## CONTEXT

- The Goods and Services Tax (GST) has been evolving since the time it was implemented. Now given stagnant tax revenues, it is clear that urgent reforms are needed in the GST structure. It is a good time to analyse the revenue implications and economic impact of GST, as well as identify the reform areas to increase revenue productivity and minimize administrative, compliance and distortion costs.

## ◎ BACKGROUND:

- The overall **GST collections have been below estimates** and showed even negative growth rates in both September and October 2019.
- Compared to the Budget Estimates for 2018-19, the Central government has a **GST collection shortfall** of ₹2 trillion.
- **Slowing economy, tax rate cuts and Input Tax Credit (ITC) frauds** have impacted the GST revenue growth. A total of 9,385 cases of tax fraud through ITC, amounting to ₹45,682 crore, were detected until October 2019. The undetected amount would be much larger.
- With GST revenue growth falling, **state governments have not got their GST compensation** and the chances of getting full compensation in near future remains bleak.
- The recently announced **corporate tax cuts will also reduce the tax transfers** by the Centre to states.

## ◎ ANALYSIS:

### Why GST?

- The starting point of India's nationwide goods and services tax (GST) was the **Vijay Kelkar task force on tax reforms**.
- The need for a **uniform, predictable and stable indirect tax regime** across the country was axiomatic to a frictionless common economic market.
- Being a consumption tax GST is **easier to collect** than an income tax, since it is collected on every tiny transaction and **leaves an electronic trail that makes evasion difficult**. This makes it **administratively attractive**.
- **Structural Benefits:** The GST constitutes a major tax reform since it eliminates the earlier system's tax-upon-tax cascade, encourages inter-state commerce, provides an inbuilt incentive for compliance, reduces leakages, corrects the earlier

skew which favoured imported goods, and is fully electronic.

### The Gains

- Abolition of interstate check-posts has **reduced the impediments to the interstate movement of goods** and helped create a **national common market**.
  - ▶ It is estimated that the long-distance travel time for goods transportation has reduced by almost 20%.
  - ▶ The reform has also improved supply-chain management.
- The abolition of interstate sales tax has made the **tax destination-based** and reduced inequitable interstate tax exportation.
- **Compliance mechanisms** have improved due to linkage and exchange of information between income-tax and GST departments.
- **Cascading (tax on tax) has reduced** due to more a comprehensive mechanism to credit input taxes against the taxes on outputs.
  - ▶ Earlier, the central excise duty was levied at the manufacturing stage and it cascaded into the final retail value.
  - ▶ The state value-added tax was earlier levied on the already paid value of excise duty.
- The inclusion of taxes like central sales tax, octroi, purchase taxes and luxury taxes on hotels in GST too have substantially reduced cascading effects.
- **Creation of GST Council** is an important innovation in cooperative federalism. It has helped minimize the transaction cost of formulating domestic consumption taxes of the Centre and states.

### Challenges

- The most important constraint in current GST structure is **stagnant revenues**:
  - ▶ For 2017-18, the CAG estimated central government part of GST declined by 10% for the subsumed taxes as compared to the previous year.

- GST implemented in India has a number of shortcomings which have resulted in **erosion of the base and continued distortions**:

- ▶ Large list of exemptions
- ▶ Multiplicity of rates
- ▶ Exclusion of several items of consumption from the base.

- **Exemption of almost 50% items** in the CPI basket has narrowed the base.

- The tax is levied at four different rates (at 5%, 12%, 18% and 28%) in addition to the special rates on precious metals (0.25%), gold (3%) and job work in diamond industry (1.5%).

- **Multiplicity of tax rates** enhance administration and compliance costs, enable misclassification, and cause distortions and in some cases cause inverted duty structure.

- ▶ Rates have been varied set according to use of the product and value of the product.
- ▶ Items considered as inputs are taxed lower as compared to those judged as outputs.

**Inverted duty structure** is a situation where import duty on finished goods is low compared to the import duty on raw materials that are used in the production of such finished goods. This causes the manufactured goods by the domestic industry to become uncompetitive against imported finished goods.

- A special cess is also levied at varying rates on items under 28% categories and, in the case of some class of automobiles there's a cess of 22%, resulting in the **total incidence of 50%**.
- **High tax rates on automobiles, building and construction material** at a time when demand conditions are already weak has caused further slowdown in these sectors.
- By **excluding petroleum products, real estate and electricity**, 40% of the internal indirect taxes at the Centre as well as states are not in the net.
- There are **loopholes in GST forms** which have made invoice matching difficult and have given rise to a **fake invoice industry**.
- The **dysfunctional GST technology** platform has resulted in arbitrary integrated GST allocation and has caused delays in refunds to the exporters.
- The GST Act did provide for compensation out of the compensation cess if state revenues failed to grow at 14%. **But if the cess fell short**, as it is now, **there is no mechanism to ensure the states get paid**.
- Given that GST comprises nearly 60% of tax revenues of states, **falling revenues and default in GST compensation** is bringing activities of the States to halt.

- ▶ While the Centre has more fiscal manoeuvring space, the decline in tax revenue growth is impacting state capex more directly.
- ▶ States are facing pressure on fiscals, some already resorting to ways and means and even overdrafts.
- ▶ State governments have curbed their capital expenditure, a move which will further delay the revival of private investment cycle.
- ▶ Given that roughly two-thirds of the general government capex is contributed by states, the slashing of capex by states can deepen economic slowdown.

### Reforms needed

- **Simplify and Rationalise**: The full potential of GST reform depends upon further simplification and rationalization.
- **Improve tech platform**: In order to improve revenue performance GST council must stabilize the technology platform.
- **Higher threshold**: The threshold for registration should be kept at a reasonably high level.
  - ▶ The data from Karnataka for 2017-18 shows that 93% of taxpayers had less than ₹50 lakh turnover and they accounted for 6.5% of the turnover and 12% of the tax paid.
  - ▶ Hence it is important to focus on those with high turnovers, who could contribute to a higher tax percentage.
  - ▶ Having a reasonably high threshold helps also the cause of equity.
- **Categorical invoice matching**: 100% invoice matching is not followed anywhere. Empirical results from Korea suggest that it tried 100% invoice matching but gave it up. Perhaps, it is desirable to match invoices above a certain value—say ₹10,000.
- **Reduce multiplicity of rates**: Reducing the number of tax rates should begin by getting rid of the 28% category altogether and transferring them to the 18% slab.
  - ▶ At a lower rate, the turnover would be higher due to increased demand and the loss of revenue will be lower.
- **Reducing exempted list**: The list of exempted goods and services should be pruned. Only those that are difficult to tax for administrative reasons should be exempted and many of the items under 5% should be moved to 12%.
  - ▶ There is need to include the petroleum products and electricity in the GST base.
  - ▶ Petroleum products contribute about 42% of the revenue from domestic indirect taxes and including it will ensure competitiveness.

- **Standard GST rate:** In the next stage, the 12% and 18% categories can also be merged at 15% (or a 14-16% range). This will simplify the tax system.
- **Broadening the basis of tax formation:** Formulating tax rates based on consumption pattern alone ignores the employment potential from these sectors.
  - ▶ Varying rates as per use and value of the products should be eliminated.
  - ▶ Rate differences based on the stage of production should be eliminated.
  - ▶ There is need to do away with rate differentiation for the same group of commodities.
- **Separate excise for demerit goods:** "Demerit goods" such as tobacco and its products are taxed in the 28% category. Cigarettes are taxed differently according to their lengths. It is important to levy high tax rates on such items for sumptuary reason, but the proper method is to levy GST at the standard rate and have a separate excise on them.
- **Phased reforms:** All reforms should be sequenced and calibrated over a period of two-three years, so that there are no shocks in the economic system.
- **Expert consultation:** There is need of a strong technical secretariat comprising of administrators, economists, accountants and lawyers to advise the GST Council and present options so that informed decisions are taken.
  - ▶ Equally important is the need to make all data, which is not sensitive to enforcement, available in public domain.
  - ▶ Reluctance to share the data is a major constraint for undertaking independent research. Even CAG has raised this issue.
- **States' involvement:** Onus of fixing GST should not just be central government's job; states should also focus on the ground issues instead of only focusing on getting compensation.
- **Checking ITC frauds:** In order to avert input tax credit (ITC) frauds there is need for increasing development of business intelligence systems to detect such frauds, and setting up dedicated units in each state.

#### The saga of what the GST rate should be?

- The GST rates have been estimated using the concept of a **revenue neutral rate (RNR)**.
  - ▶ The RNR is a rate of GST at which the amount of taxes collected by the government before GST and the amount expected to be collected after GST remains the same.

- ▶ It is the ratio of all excise plus value added (sales) taxes in the numerator, divided by the total taxable gross domestic product (GDP) in the denominator.
- This rate was the **contentious issue** of discussion between the Centre and states prior to the roll-out of the GST.
- Since the reform envisaged end of all indirect taxes (to be subsumed into GST), states were reluctant to put in all their existing taxes into the basket of the numerator. And since almost half of GDP is excluded from the denominator (agriculture, health, education, petroleum, electricity); a smaller denominator a higher numerator contributed to a **high RNR**.
- Hence, RNR is an imprecise and elusive concept and a moving target. **It is not a definite rate.**
- Even though we want GST to be comprehensive and cover a large part of the economy, ideally, **its share along with indirect taxes must not exceed 50% of the total tax kitty.**
- Policy makers should not be administratively lured by GST because indirect taxes are regressive, as they burden the poor more than the rich in relative terms.
- The proper way to address income inequality, or achieve redistribution, is through **progressive income taxes, not through differential GST rates.**
- A plethora of rates makes space for discretion on part of tax inspectors, **misclassification, interpretation disputes, litigation, corruption, and worse.** Multiple rates defeat the very purpose of shifting to GST.
- There is thus need to replace all GST rates with a **standard rate**, as envisaged in the original Kelkar report. For example, a standard GST rate set in the range of 14-16% **may not be revenue neutral, but could spur economic growth.**

#### ◎ CONCLUSION

- The implementation of GST in a large and diverse federal country ruled by different political parties is a remarkable achievement. Currently, the most important constraint in GST is stagnant revenues and unless immediate measures are taken to raise revenue productivity, the euphoria of GST will wane. Significant reforms are needed to ensure better compliance and to minimize economic distortions.

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**CONTEXT**

GST has been evolving since the time it was implemented. Now given stagnant tax revenues, it is clear that urgent reforms are needed in the GST structure

**Why has the revenue been falling?****GS SCORE***Learning Aid*

There have been a no. of shortcomings which have resulted in **erosion of the base and continued distortions**

**Exemption of almost 50% items** in the CPI basket has narrowed the base

Exclusion of several items of consumption from the base

**Multiplicity of rates**

This enhances administration and compliance costs, enable misclassification, and cause distortions and in some cases cause inverted duty structure

The **dysfunctional GST technology** platform has resulted in arbitrary integrated GST allocation and has caused delays in refunds to the exporters

There are **loopholes in GST forms** which have made invoice matching difficult and have given rise to a **fake invoice industry**

The GST Act did provide for compensation out of the compensation cess if state revenues failed to grow at 14%



But if the cess fell short, as it is now, there is no mechanism to ensure the states get paid

**Besides these, the situations has compounded due to**

Slowing economy

Tax rate cuts

Input Tax Credit frauds

The overall impact has adversely affected the GST revenue growth and showed even negative growth rates in both September and October 2019

For 2017-18, the CAG estimated central government part of GST declined by 10% for the subsumed taxes as compared to the previous year.

Compared to the Budget Estimates for 2018-19, the Central government has a **GST collection shortfall of ₹2 trillion**

With GST revenue growth falling, **state governments have not got their GST compensation** and the chances of getting full compensation in near future remains bleak

At a lower rate, the turnover would be higher due to increased demand and the loss of revenue will be lower

**Simplify and Rationalise**

**Standard GST rate:** In the next stage, the 12% and 18% categories can also be merged at 15% (or a 14-16% range)

**Checking ITC frauds** by increasing development of business intelligence systems

**Improve tech platform:** In order to improve revenue performance GST council must stabilize the technology platform

**Categorical invoice matching:** 100% invoice matching is not followed anywhere  
↓  
Perhaps, it is desirable to match invoices above a certain value—say ₹10,000.

**Reforms that could be ushered in**

**Reducing exempted list:** The list of exempted goods and services should be pruned  
↓  
Only those that are difficult to tax for administrative reasons should be exempted and many of the items under 5% should be moved to 12%

Formulating tax rates based on consumption pattern alone ignores the employment potential from these sectors

Varying rates as per use and value of the products should be eliminated

There is need to do away with rate differentiation for the same group of commodities

Rate differences based on the stage of production should be eliminated



# SOUTH CHINA SEA – CONFLICT, ISSUES, PROBLEMS AND CHALLENGES

## CONTEXT

- Recently, Indian Ocean Conference (IOC) in Maldives discussed South China disputes.

### ◎ BACKGROUND

- The South China Sea, one of the world's busiest waterways, is subject to several overlapping territorial disputes involving China, Vietnam, the Philippines, Taiwan, Malaysia and Brunei.
- The conflict has remained unresolved for decades but has emerged as a flashpoint in China-US relations in Asia.
- Beijing outlines the area it claims in the South China Sea with a **nine-dash line**, rather than a continuous border. Various other claimants have sought a clearer delineation of its claims from officials. Mainland China occupied the Paracel Islands following the battle of the Paracel Islands in 1974. In the Spratly Islands, it has occupied six features since 1988 and Mischief Reef since late 1994/early 1995.

#### Geographic Facts

- South China Sea** is an arm of western Pacific Ocean in Southeast Asia.
- It is south of China, east & south of Vietnam, west of the Philippines and north of the island of Borneo.
- Bordering states & territories (clockwise from north): the People's Republic of China, the Republic of China (Taiwan), the Philippines, Malaysia, Brunei, Indonesia, Singapore and Vietnam.
- It is connected by Taiwan Strait with the East China Sea and by Luzon Strait with the Philippine Sea.
- It contains numerous shoals, reefs, atolls and islands. The Paracel Islands, the Spratly Islands and the Scarborough Shoal are the most important.

- In 2018, the entry of an American destroyer into waters within 12 nautical miles of an island over which Beijing has claimed sovereignty is certain to draw international attention again to the rapid military build-up by the Chinese in the South China Sea
- At Indian Ocean Conference (IOC) in Maldives the US Ambassador to South Korea attacked China for illegally building artificial islands and militarising them in the South China Sea to which China responded by saying that it has indisputable sovereignty over the Nansha Islands (Spratly Islands) and the adjacent waters of the sea.

- Analysts say the likelihood of the sea becoming the main theatre of Sino-US tension as Washington galvanises allies and friendly countries to do more to challenge Beijing in the waters – in particular, by conducting FONOPs (Freedom of Navigation Operations).

### Timeline

- 1994 – The Convention on the Law of the Sea went into effect. The United States called this treaty the "Law of the Sea Convention."
- 1997 – Beijing shared the first rendering of its "Nine-dash Line" extending roughly 1,118 miles from Hainan Island to waters off equatorial Borneo under China's historical claim of having it in the past.
- 2002 – ASEAN and China signed the Declaration on the Conduct of Parties in the South China Sea.
- 2009 – China issued two diplomatic notes that appear to claim a majority of the South China Sea.
- 2013 – The Philippines challenged China's claims of historic rights and other actions in an arbitration case under the Law of the Sea Convention.
- 2014 – The deployment of a Chinese drilling rig in waters near the Paracel Islands led to several confrontations between Vietnamese and Chinese ships and provoked protests in Vietnam. Later Beijing started building military installations. China has also established a new city on one of the islands – Sansha on Woody Island – in turn leading to an increased Chinese tourism.
- 2016 – The Arbitration Tribunal ruled in favor of the Philippines and rejected China's maritime claims that go beyond the entitlements set out in the Convention. However, Beijing rejected the ruling and described it as having "no binding force".

### ◎ ANALYSIS

#### What is the conflict about?

- The Philippines, Vietnam, China, Brunei, Taiwan and Malaysia hold different, sometimes overlapping, territorial claims over the sea, based on various accounts of history and geography.
- China claims more than 80 per cent, while Vietnam claims sovereignty over the Paracel Islands and the Spratly Islands.

- The Philippines asserts ownership of the Spratly archipelago and the Scarborough Shoal, while Brunei and Malaysia have claimed sovereignty over southern parts of the sea and some of Spratly Islands.
- Over the years, the claimants have seized control of a raft of sea features, including rocks, islands and low-tide elevations.
- China's "nine-dash line" is a geographical marker used to assert its claim. It stretches as far as 2,000km from the Chinese mainland, reaching waters close to Indonesia and Malaysia. It is violative of the principle of Exclusive Economic Zones (EEZ)
- The stalled negotiations between China and ASEAN made headway on Code of Conduct as four of the ASEAN nations also made territorial claims on the disputed waters which adds to the problem with already non-negotiable behavior of China.

### Why is it important?

- The South China Sea is a key commercial thoroughfare connecting Asia with Europe and Africa, and its seabed is rich with natural resources. One third of global shipping, or a total of US\$3.37 trillion of international trade, passes through the South China Sea.
- About 80 per cent of China's oil imports arrive via the Strait of Malacca, in Indonesia, and then sail across the South China Sea to reach China.
- The sea is also believed to contain major reserves of natural resources, such as natural gas and oil.
- The US Energy Information Administration estimates the area contains at least 11 billion barrels of oil and 190 trillion cubic feet of natural gas. Other estimates are as high as 22 billion barrels of oil and 290 trillion cubic feet of gas.
- The South China Sea also accounts for 10 per cent of the world's fisheries, making it a key source of food for hundreds of millions of people.

### What role does the US play in the dispute?

- The US has wide-ranging security commitments in East Asia, and is allied with several of the countries bordering the South China Sea, such as the Philippines, Singapore and Vietnam.
- Furthermore, the South China Sea is a vital trade route in the global supply chain, used by American companies who produce goods in the region.
- Although the US does not officially align with any of the claimants, it has conducted Freedom of Navigation operations, designed to challenge what Washington considers excessive claims and grant the free passage of commercial ships in its waters.
- During the summer of 2018, British and French forces conducted similar operations in the disputed waters.

### Is there any resolution in sight?

- Southeast Asian nations have traditionally rejected looking for a bilateral solution with China, the region's main economic and military power. Despite this, one year after the landmark ruling against China's territorial claims, Philippine President Rodrigo Duterte agreed to solve the dispute with China through bilateral talks.
- Similarly, Vietnam, the most outspoken critic of China, has softened its stance. In April 2018, the government said it would be willing to hold talks with China to resolve disputes in the area "in accordance with international law".
- ASEAN has been working with China on an official code of conduct to avoid clashes in the disputed waters. A binding agreement has been discussed for years to little avail but in August 2018 it was revealed all the parties had agreed on a single draft negotiating text.

### Challenges

- China's behavior of negligence, denial and the sense of superiority while overlooking international laws and regulations like the UN Convention on the Law of the Sea.
- Along with China's bullying tactics, North Korea's provocative behaviour has attracted US aircrafts in the already troubled waters. The growth of military vessels and planes in the area makes it more challenging to handle.
- Undefined geographic scope of the South China Sea; disagreement over dispute settlement mechanisms; different approaches to conflict management (self-restraint, mutual trust, and confidence building); and the undefined legal status of the Code of Conduct (COC) add to it.
- The different histories of distant, largely uninhabited archipelagos of the sea make the matter more complicated and multifaceted.

### Achievements

- The members of the Association of Southeast Asian Nations (ASEAN) and China engaged in discussions on a potential COC to manage the South China Sea maritime and territorial disputes for a very long time and finally settled for a non-binding Declaration on the Conduct of Parties in the South China Sea (DOC) in 2002. In 2005, the first draft of guidelines to implement the DOC was drawn up, but not adopted until 2011. However, problems still linger so a plan for more robust policies is needed.
- After the consultations of 2016, in 2017 ASEAN and China adopted a bare-bone framework for the COC.

### Suggestions

- New arbitration processes to bring necessary mediation, facilitation and binding resolution mechanism which can move the military dispute to border management and to joint development finally.
- Adopting the concept of joint development zones, which resolves the territorial disputes and allows to pursuit of joint commercial activities, environmental protection, disaster relief and humanitarian perspective and counter-piracy control.
- International disputes should be settled by peaceful means in line with international laws on the principle of safeguarding maritime security, navigation and over flight rights and freedoms.

### India's Stand on South China Sea Issue

- In a Joint Strategic Vision for the Asia-Pacific and the Indian Ocean Region, India and the USA talked about ensuring freedom of navigation and resolving disputes according to UNCLOS referring to the South China Sea but after Philippines won the arbitration award in its favour in 2016, India has clearly separated itself from the dispute.
- New Delhi has not conducted any defence cooperation, navigational patrols and naval

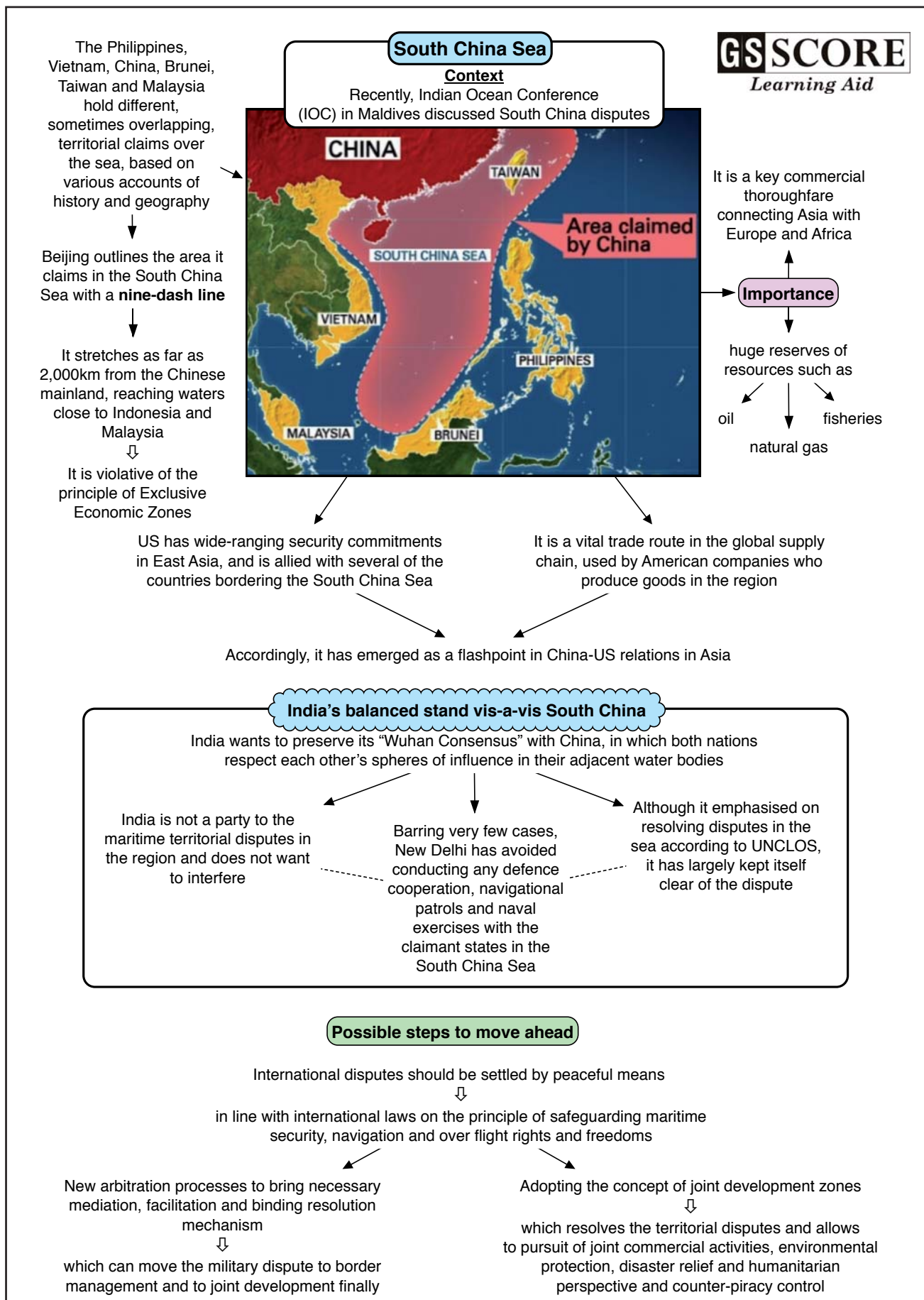
exercises with the claimant states in the South China Sea (only recently it conducted a naval exercise with Vietnam).

- After the recent development of affairs with Japan and Russia, it might appear that India wants to raise its strategic presence in the South China Sea but it is not so. Firstly, because India is not a party to the maritime territorial disputes in the region and does not want to interfere. Secondly, India wants to preserve its "Wuhan Consensus" with China, in which both nations respect each other's spheres of influence in their adjacent water bodies.

### ◎ WAY FORWARD

- Forming an overarching authority like NATO or European Union (EU) with China as a member, in Asia to settle grievances and specifically find solutions to Asian problems, might help resolve disputes like this.
- The sense of power of China needs to be checked so that it abides by the intergovernmental and international agreements and conventions.
- Peaceful bilateral or multilateral talks and negotiations can be used because aggression or war is not a solution to this or any problem at all.

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# ANTI-TANK GUIDED MISSILES

## CONTEXT

- Indian Army inducts Israel made Anti-Tank Guided Missile (ATGM) 'Spike' along LoC in J&K.

### ◎ BACKGROUND

- The Indian Army has inducted Israel made ATGM Spike along the LoC in the northern command in Jammu and Kashmir (J&K) to bolster defence along the border with Pakistan.
- India has signed a deal with Israel for the acquisition of **240 spike missiles** which are generally used for **anti-tank roles** in the forces.
- The spike missiles **were acquired after the Balakot operations**.
- Purpose:** An anti-tank missile (ATM), anti-tank guided missile (ATGM), anti-armour guided missile or anti-tank guided weapon (ATGW) **is a missile that is created to destroy vehicles that are heavily armoured**.
- India started a feasibility study on a First Generation ATM in **1959**.
- Background:** The task of preliminary study and wind testing was assigned to Department of Aeronautics and Institute of Science, Bangalore. In 1962, DRDO was granted funding begin work on developing an ATM due to conflict with China in Ladakh.

### Facts about Anti-Tank Missiles:

- Different sizes:** Sizes of ATM can range from smaller missiles that can be carried by just one person and shoulder-launched, to bigger ones that need a team to transport or launch, to even bigger missiles that are mounted on aircrafts and other vehicles.
- Earlier technology was not efficient:** Earlier, anti-tank weapons provided to the infantry - such as anti-tank rockets, anti-tank mines and anti-tank rifles - did not have a high armour-penetration capacity and so, soldiers had to approach close to the target for them to work.
- Improved technology now:** The rise of anti-tank guided missiles now has given infantry soldiers the ability to defeat tanks with light and medium armours from a large range, even though main battle tanks (MBTs) are still quite resistant to ATGMs.
- HEAT:** Most ATGMs now have a high-explosive anti-tank (HEAT) warhead - this is a spike of metal which goes through the target.
- Some top anti-tank missiles are designed to launch the attack from above as the armour is usually

weaker there.

- ATGMs were used by more than 130 countries as of 2016.
- Three types** of guidance systems in ATGMs
  - First generation:** These missiles are guided by manual commands and the missile is steered to the target.
  - Second generation:** Semi-automatically commanded missiles need to operate to keep the sight fixed on the target till impact.
  - Third generation:** This type of guided missiles relies on electro-optical imager (IIR) seeker, a laser or a W-band radar seeker in the nose of the missile. These are 'fire-and-forget' missiles where the operator can retreat right after firing as there is no more guidance required.

### Anti-Tank Guided Missiles of India

- DRDO Anti-Tank Missile:** The DRDO ATM is a first generation wire-guided missile developed in India by Defence Research and Development Laboratory (DRDL) of Defence Research and Development Organisation (DRDO).
  - It has a subsonic speed up to 300 ft/s (91 m/s) with a range of 1.6 km and carries a 106 mm HEAT warhead.
- Amogha missile: Amogha-1,** is a second generation, ATGM which has pin point accuracy for a range up to 2.8 km. It is under development by Bharat Dynamics at Hyderabad. It has also become the first missile designed and tested by the **Bharat Dynamics Ltd (BDL)** Company.
  - The missile will be produced in two versions. **Amogha -2;** the land version has already been tested. The IIR version the missile (**Amogha -3**) of uses a thermal intelligent vision and then attacks the target. Amogha -3 is a fire and forget, 3rd generation ATM.
  - The missile moves near the target in a parabolic path and does not follow a completely parabolic path like conventional projectiles. It then bends at steep angles to attack the target.
- Nag missile:** The Nag missile also called '**Prospina**' for the land attack version is an Indian third generation all weather 'fire-and-forget', lock-on after launch ATGM with an operational range of 500m-20km, single-shot hit probability of 0.9 and 10 years of maintenance free shelf-

life. Nag is under the Integrated Guided Missile Development Program (IGMDP) run by DRDO and is manufactured by BDL. The Ministry of Defence (MoD) recently announced its readiness to enter series production. It comes in five variants, namely;

- ▶ Land version (for mast mounted system)
- ▶ **HeliNa** (Helicopter-launched Nag)
- ▶ Man portable (**MP ATGM**)
- ▶ Air-launched version (for air interdiction which will replace imaging infra-red (IIR) to milli metric-wave (mmW) active radar homing seeker.
- ▶ **NAMICA** (Nag Missile Carrier) tank buster which is a modified BMP-2 Infantry Fighting Vehicle (IFV) produced under and licensed in India by Ordnance Factory Medak (OFMK).
- **Stand-off Anti-Tank (SANT):** SANT missile was tested for the first time, last year from a Mi-35 attack helicopter and according to media reports is a variant of HeliNA ATGM developed to be used from Unmanned Aerial Vehicles (UAVs) of MALE and HALE Class with a similar range of HeliNA.
- **Cannon-launched Laser Guided Missile (CLGM):** CLGM developed by DRDO is a semi-active Laser homing cannon launched missile that can be launched from a 120mm main gun of the Arjun Tank. The 5 km range CLGM can target armored vehicles, including Tanks, as well as low-flying aircraft.
- ▶ **SAMHO:** SAMHO is an infantry launched version of CLGM which requires a tripod launcher and has a range of 6kms. CLGM and SAMHO are capable of both direct and indirect laser designation.
- **Man Portable Anti-tank Guided Missile (MP ATGM):** This is an Indian third-generation fire-and-forget AGM. It is currently under development by the DRDO in partnership with Indian defence contractor VEM Technologies Private Limited. The missile is derived from India's Nag ATGM.
- ▶ It is fitted with a HEAT warhead. It has a range of about 2.5 km.
- ▶ The missile has a length of about 1,300 mm and a diameter of about 120 mm.
- ▶ It has a weight of 14.5 kg, with its command launch unit (CLU) weighing 14.25 kg.
- ▶ It is equipped with an advanced IIR seeker with

integrated avionics. The missile has top attack capability.

- ▶ It will reportedly compete with systems such as FGM-148 Javelin, and will be technologically more advanced than the Spike (ATGM).
- **Jasmine anti-tank missile** - VEM Technologies Pvt Ltd proposed that they are capable of developing a 3rd generation ATM called "Jasmine" in a short time since they had all requisite technologies to develop it in-house, if interest were shown by the armed forces.

### Anti-Tank Guided Missiles of Israel

- **Spike:** Known as the 'fire and forget' missiles, Spike are portable by men and are powerful enough to destroy tanks and bust bunkers within four kilometres.
- ▶ The SPIKE family of fourth-generation ATM is produced by EuroSpike, a joint venture between Rafael Advanced Defence Systems and Diehl BGT Defence and Rheinmetall Defence.
- ▶ It includes three versions, namely SPIKE-MR (medium range), LR (long range) and ER (extended range).
- ▶ The **SPIKE-MR** is a man-portable fire-and-forget missile that can be launched by infantry and special-forces, to accurately strike targets within a 200m to 2,500m range.
- ▶ The **SPIKE-LR** can be launched from a ground-based tripod and light combat vehicles for ranges between 200m and 4,000m.
- ▶ The **SPIKE-ER** is designed for launch by land vehicles, helicopters and naval platforms to defeat tanks within a range of 8km.
- ▶ Missiles are fitted with tandem-charge HEAT warhead and IIR seeker for accuracy.
- **Other ATGMS of Israel:**
  - ▶ Orev (upgraded BGM-71 TOW-2)
  - ▶ MAPATS
  - ▶ LAHAT – fired through smoothbore tank gun tubes of Merkava tanks
  - ▶ Nimrod

### Other Defence Technologies imported by India from Israel

- Heron; Searcher; SPYDER; Python-5; Barak 8.

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# COUNTRYWIDE NRC- ITS IMPLICATIONS

## CONTEXT

- Recently, Union home minister said in Parliament that the Nation Register of Citizens (NRC) would be prepared for every state in the country.

## ◎ BACKGROUND

- The National Register of Citizens (NRC) is a register containing names of all genuine Indian citizens.** At present, **only Assam has such a register.**
- The exercise may be extended to other states as well. **Nagaland** is already creating a similar database known as the **Register of Indigenous Inhabitants**. The Centre is planning to create a National Population Register (NPR), which will contain demographic and biometric details of citizens.
- National Register of Citizens, 1951 is a register prepared after the conduct of the Census of 1951.
- Purpose:** To separate "illegal" immigrants and deport them.
- Nodal Agency:** Registrar General and Census Commissioner India.

### NRC in Assam

- The issue of its update assumed importance as Assam witnessed large-scale illegal migration from erstwhile East Pakistan and, after 1971, from present-day Bangladesh.
- This led to the six-year-long Assam movement from 1979 to 1985, for deporting illegal migrants.
- The All Assam Students' Union (AASU) led the movement that demanded the updating of the NRC and the deportation of all illegal migrants who had entered Assam after 1951.
- The movement culminated in the signing of the Assam Accord in 1985.
- It set March 25, 1971, as the cut-off date for the deportation of illegal migrants.
- Since the cut-off date prescribed under articles 5 and 6 of the Constitution was July 19, 1949 - to give force to the new date, an amendment was made to the Citizenship Act, 1955, and a new section was introduced.
- It was made applicable only to Assam.
- There had been intermittent demands from AASU and other organisations in Assam for updating the NRC, an Assam based NGO filed a petition at the Supreme Court.

- In December 2014, a division bench of the apex court ordered that the NRC be updated in a time-bound manner.
- The NRC of 1951 and the Electoral Roll of 1971 (up to midnight of 24 March 1971) are together called Legacy Data. Persons and their descendants whose names appeared in these documents are certified as Indian citizens.
- On 31st August, the updated National Registry of Citizens was released in Assam after a Supreme Court deadline. Of the 3.3 crore applicants, 3.11 crore figured in the final citizens' list, while about 19 lakh residents were excluded.
- Assam government rejected NRC data released on 31st August.

## ◎ ANALYSIS

### Aim

- Census and National Population Register is counting residents while the proposed NRC will count citizens. Its objective is to weed out non-citizens and deport them to their countries of origin or put them in detention camps.

### Scope of NRC across India

- An amendment in the Foreigners (Tribunals) Order, 1964, issued by the central government on May 30 paves the way for expanding the scope of NRC beyond.
- The amended order empowers state governments and even district magistrates of all states and Union Territories to set up tribunals to identify a "foreigner" who is living in India illegally.

### Implications of Nationwide NRC

- It puts an entire population under suspicion of alienage. Under the foreigners' Act 1946, the burden of proof rests on the individual charged with being a foreigner. Moreover, Citizenship Act provides no mechanism for identifying aliens. With that justification can a state that does not have the ability to detect aliens or even to secure its borders against illegal immigrants, set out to find aliens by elimination? Elimination method is not the right approach.

- **Cost of Authentication:** Preparation of a countrywide NRC requires lot of resources. The Assam NRC is reported to have costed Rs 1600 crores. To prepare a countrywide NRC we need an estimated outlay of Rs 4.26 lakh crore. It would also need deployment of 1.33 crore officials when total number of government employees in India was 2.9 crore in 2011-12.
- **Lot of time to prepare it:** It is a regressive exercise and will take lot of time to prepare it.
- **Building new detention centers** that will be needed to incarcerate the excluded people.
- **Panic among people:** The necessary documents required to be included in NRC has created panic and fear in Assam and many committed suicides as they were not having the documents to prove their citizenship even when their ancestors have been living here for hundreds of years. If NRC done at national level it would have graver ramifications.
- **Federal Imperative of seeking the consent of state governments:** Many states in northeast are erupting in protest against NRC. It is a federal issue and requires consultations between states and the centre and it cannot be done on the whims of a particular political party that comes to party.
- **Fraying plural social fabric of this nation:** If the NRC carves out paths to statelessness for groups that are disfavoured, the citizenship Amendment Bill creates paths to citizenship for preferred groups. The implicit assumption in the NRC is that the infiltrators are Bangladeshi Muslims who must be disenfranchised as they have illegally acquired the citizenship. The citizenship Amendment Bill on the other hand promises citizenship to migrants belonging to all groups except Muslims – who

will be eligible for fast-track citizenship because they are persecuted minorities in Afghanistan, Pakistan and Bangladesh. However, it does not offer the same to the victims of sectarian religious persecution in neighbouring countries, such as the Ahmadiyas or the Rohingyas. It is a hypocrisy on part of the state.

### Modalities for Implementation of NRC

- Although citizenship rules say being born in India or having parents who were born in India are enough for the citizenship. The NRC also requires you or your parents to have been born before a certain cut-off date. In case of Assam, you have to prove that your ancestors entered India before March 24, 1971, the eve of the Bangladesh War. You can be born in India in 1971, to parents who crossed the border that year, and still be considered a foreigner at the age of 48.
- The Home Ministry is working on modalities to implement across the country the exercise to identify illegal immigrants for deportation.

### CONCLUSION

- Constitutionally, India is a political community whose citizens avow the idea of the nation as a civic entity, transcending ethnic differences. The NRC-CAB combination signals a transformative shift from a civic-national conception to an ethno-national conception of India, as a political community in which identity determines gradations of citizenship. Hence, the rationale for a nationwide register of citizens, its feasibility, and, above all, its moral legitimacy, is questionable

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# BEGGING IN INDIA: A MENACE TO THE SOCIETY

## CONTEXT

- The J&K High Court's verdict on the Beggary Act rejects the state's fettering of guaranteed constitutional freedoms

### ◎ BACKGROUND

- Since independence Government of India is playing an important role to render justice to its people in every aspect of life.
- But due to disproportionate distribution of wealth, poverty situation is caused.
- The poverty coupled with disadvantaged condition of life forced many to live like beggar in the society.
- Beggary is an age old social phenomenon in India. This system of begging and alms-giving to mendicants and the poor is still widely practiced in India.
- India has huge number of beggars and West Bengal has top the list of beggars among the states.

### Meaning and Concept

- Beggary is defined as soliciting or receiving alms in a public places, whether or not under any pretence such as singing, dancing fortune telling, performing or offering any article for sale, entering on any private premises for the purpose of soliciting or receiving alms, exposing or exhibiting with the object of obtaining or extorting alms, any sore, wound, injury, deformity or disease whether of a human being or animal, or having no visible means of subsistence.
- Beggars may be found in public places such as transport routes, urban parks, and markets.
- Beggars have existed in society since the inception of human civilization.
- Begging is witnessed in all most all societies around the world.

### Constitutional parameters

- The Indian constitution guarantees every citizen, the right to earn livelihood and the protection of social and economic rights.
- A right is claim of an individual integral to realize human rights and ensure individual freedom and dignity.
- Poverty is one of the most critical Conditions of life which touches human rights issue.

- Being a social welfare state, the constitution of India guarantees to all persons, without any distinction of status, the right to life and personal liberty.
- The Supreme Court of India has broadly interpreted Article 21 of the constitution and held that right to life mean right to life with human dignity, free from all exploitative condition.
- Court has made it clear that, the expression right to life in Article 21 includes Right to livelihood.
- Article 23 of the Constitution ensures right to life free from exploitation. It is designed to mean to stop beggar and other forms of human trafficking.
- Article 23(1) is to be read with articles 39(e) and 39(f) which impose obligation on the state for protection of persons against exploitation and against moral and material abandonment.

### Social attitude towards beggars

- Beggars are not treated well in the society. There is negative attitude towards beggars, because they are poor and lazy people rely on the others sympathy.
- There are very few person in the society those treat beggars with compassion and sympathy.
- They are treated as drug trafficker and chid lifter etc.
- There are many instances in which the states have shown negative attitude towards beggars and taken special drive to punish the beggars.
- It is believed that, beggars are obstacle to tourism and a scar on highly developed cities.

### Legal Provisions against begging

- The Hyderabad Prevention of Beggary Act, 1941
- The Bengal Vagrancy Act, 1945
- The Mysore Prevention of Beggary Act, 1945
- The Bombay Prevention of Beggary Act, 1945
- The Madras Prevention of Beggary Act, 1945.
- The Cochin Vagrancy Act, 1945
- The Travancore Prohibition of Begging Act, 1945
- The Bhopal Prevention of Beggary Act, 1947
- The Bihar Prevention of Beggary Act, 1952.

**Ram Lakhan v State (Case dealing with anti-Begging law)**

- The Delhi High Court moved away from the judicial practice of castigating begging and upheld its legitimacy through a comparative discourse on the common law doctrines of necessity and duress, as well as on the principles of equality and liberty embodied in the Constitution.
- One significant aspect of Ram Lakhan is that it addresses the issue of begging from the touchstone of Article 19(1)(a), read with Article 21 of the Constitution, and asserts that unreasonable prohibitions on begging are unconstitutional in that they invariably deprive beggars of two fundamental rights.

**The Criminal Law (Amendment) Act, 2013 provides for an imprisonment for a convict of beggary (10 years). The Act prescribes following provision:**

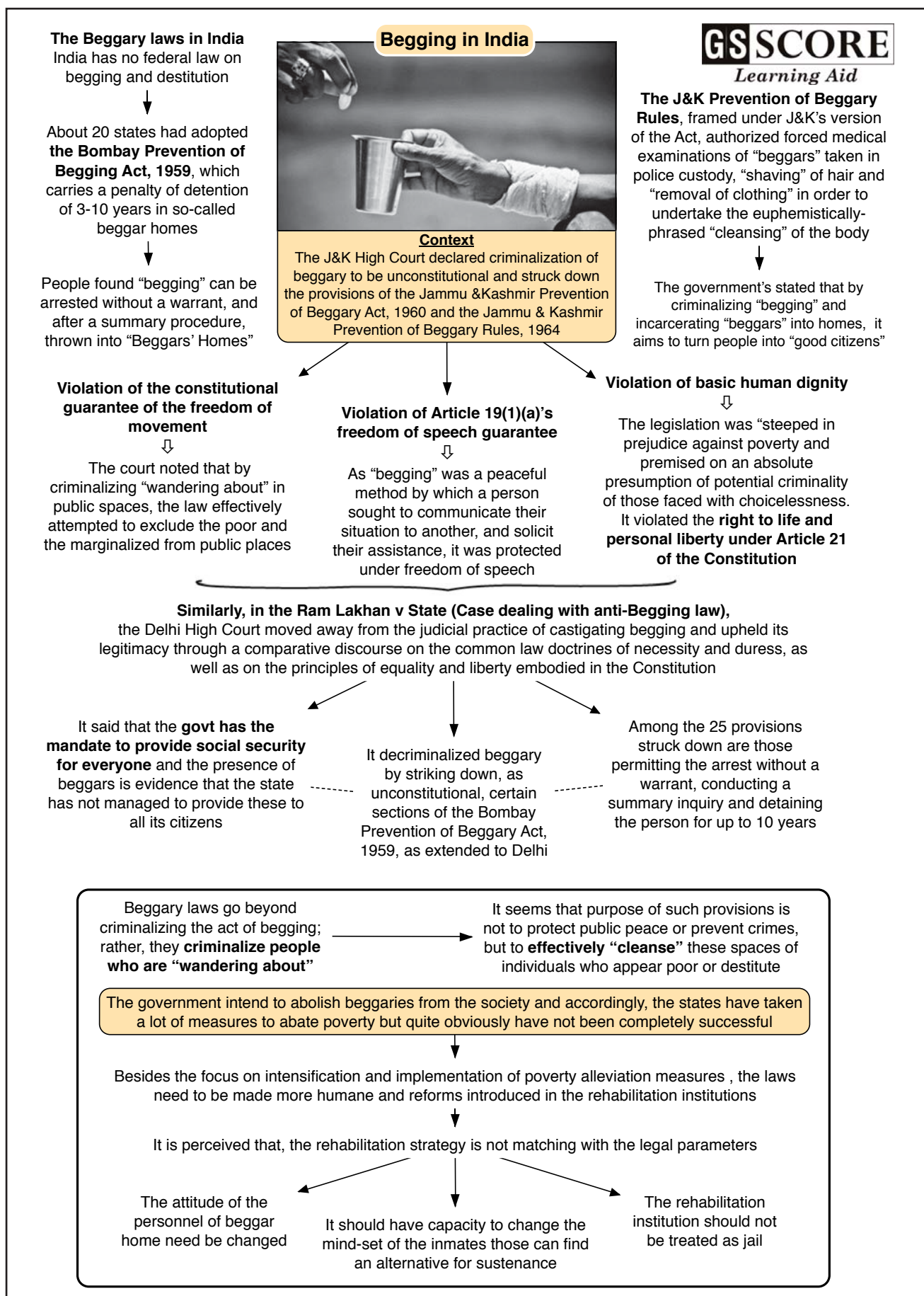
- Beggars may be arrested without warrant.
- They can be sentenced to jail without trial or may be sent to shelter homes/certified institutions.
- The punishment for beggary ranges from 3-10 years imprisonment.
- Court may pass detention of persons if totally dependent on beggar.

- Prescribes Penalty for employing persons to beg or using them for purposes of begging.
- Provisions are made for the teaching of agricultural, industrial and general education.
- Provisions are made for medical care of the inmates of the Receiving Centres and/Certified institutions.
- If any beggar detained in a certified institution, found to be of unsound mind or a leper, he/ she can be removed to a mental hospital or leper asylum as per provisions of the Indian Lunacy Act, 1912 and of the Lepers Act, 1898.

**◎ CONCLUSION**

- Beggary is a social problem and this has been accepted way of life. The government intend to abolish beggaries from the society. The states have taken a lot of measures to abate poverty. The move is good, but while implemented in the social milieu it causes harassment to the innocent people. It is perceived that, the rehabilitation strategy is not matching with the legal parameters. The attitude of the personnel of beggar home need be changed. The rehabilitation institution should not be treated as jail. It should have capacity to change the mind-set of the inmates those can find an alternative for sustenance.

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**SECTION: B**  
**(PRELIMS)**  

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**CURRENT AFFAIRS**  

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## LEAKED NSSO DATA

### ◎ CONTEXT

- Leaked findings from the 2017-18 Consumer Expenditure Survey (CES) show that inflation-adjusted average monthly per capita expenditure (MPCE) declined by 3.7% in between 2011-12 and 2017-18. Government has debunked the report and decided not to release it citing 'data quality issues'.

### ◎ ABOUT

- Inflation-adjusted average monthly per capita expenditure (MPCE) declined by 3.7% in the country between 2011-12 and 2017-18, first time in four decades.
- The decline came **because of an 8.8% decline in rural MPCE** even as **urban MPCE increased by 2%**.
- The CES is a flagship **survey of the National Statistical Office (NSO)**, formerly known as the National Sample Survey Office (NSSO), and is conducted **every five years**.
- The CES, in addition to being a source of **information on consumption spending and inequality**, is also used extensively in other statistical processes including revision of base years for calculation of GDP and the composition of the inflation basket.
- The 2017-18 CES was scheduled for release in June 2019. The **previous CES was conducted in 2011-12**.
- MOSPI has withheld the report and is examining the feasibility of conducting the **next CES in 2020-2021 and 2021-22** after incorporating all data quality refinements in the survey process.
- CES 2017-18 is the second major NSO report to run into **controversy**. Earlier publication of the NSSO Periodic Labour Force Survey (PLFS) for 2017-18 was also in controversy. 75th round (Consumer Expenditure), 76th round (Drinking water, Sanitation, Hygiene, and Housing Conditions) survey results were also deemed controversial.
- Leaked PLFS findings showed **the unemployment rate in the country to be 6.1%**, a four-decade high.
  - Data for 2017-18 shows Kerala has the most number of jobless people at 11.4 per cent. It is followed by Haryana (8.6 per cent), Assam (8.1 per cent) and Punjab (7.8 per cent).
  - At 3.3 per cent, Chhattisgarh had the least unemployment in 2017-18. Madhya Pradesh (4.5 per cent) and West Bengal (4.6 per cent) were at second and third places.
  - The joblessness rate rose the quickest in Gujarat — from 0.5 per cent in 2011-12 to 4.8 per cent in 2017-18.

### Impact of not releasing CES report

- The decision of not releasing CES 2017-18 will have **important policy implications** given its widespread **use in calculating GDP and measuring inflation**.
- GDP **base year revisions coincide with the period of CES surveys**.
- The **base year for GDP and Index of Industrial Production (IIP)** was due to be revised to 2017-18. The **base year of Consumer Price Index (CPI)**, India's benchmark inflation measure, was to be changed to 2018.
- But by delaying the CES to 2020-21, the GDP **base year revision will have to be postponed** to at least 2025 because the survey results will not be available until 2023.
- CES surveys are also essential in **calculating the contribution of the informal sector to the GDP** and deciding **weight of various items in the CPI basket**.

### Concluding arguments

- Previous CES rounds have also been subject to other kinds of controversy but never has data been withheld, and a report was junked. The best way to resolve such controversies

is to release the data transparently and let everybody who is familiar with such numbers, look at it. Otherwise it gives the impression that only statistics which are acceptable will be released and it is dangerous for the credibility of our statistical system.

## NATIONAL MILK DAY 2019

### ◎ CONTEXT

- **November 26** is celebrated as **National Milk Day in India**. This isn't the same as **World Milk Day**, which is marked on **June 1st**, and was established by the **Food and Agricultural Organisation**.

### ◎ ABOUT

- India celebrates National Milk Day on 26th November in memory of Dr Verghese Kurien, fondly known as the Father of White Revolution.
- In 2014, all the dairy majors of the country, along with the Indian Dairy Association, resolved to observe Dr Kurien's birth anniversary on 26th November as National Milk Day.
- National Milk Day is celebrated to promote benefits related to milk and milk industry and to create awareness among people about the importance of milk and milk products.
- India is celebrating 98th birth anniversary of Dr. Kurien this year.

### History: Operation Flood and the White Revolution

- In the year 1970, 'Operation Flood' was launched as a National Dairy Development Board (NDDB) project.
- It transformed India from a milk-deficient nation into the world's largest milk producer, surpassing the US in 1998.
- It created a national milk grid linking producers throughout India with consumers in over 700 towns and cities, reducing seasonal and regional price variations while ensuring that the producer gets a major share of the price consumers pay, by cutting out middlemen.
- All this was achieved not merely by mass production, but by production by the masses; the process has been called the white revolution. This is known as his 'billion-litre idea'.

### Significance of National Milk Day in 2019

- India is world leader in milk production since last 15 years and the credit goes to small producers.
- India has 108.7 million buffaloes, which makes 57% of the world buffalo population.
- India is number one in bovine population with 18% of the world population and contributes 20% of the total milk produced in the world.
- Indigenous breeds are tolerant to heat and resistant to diseases.
- The indigenous breeds of cows are known to produce A2 type milk which protects us from various chronic health problems such as cardiovascular diseases, diabetes and neurological disorders.

### Why there is a need of New White Revolution?

- **Surplus production in India:** From a chronic milk deficit country in 1950-51, with a production of 19 Million Ton per year (MMT), the production has increased to 176 MMT in 2017, and per capita availability of Milk has reached 375 grams per day. As Indian milk production has continued to grow rapidly, growth in Milk production has outstripped population growth.
- **Negligence of development of recognized Indian breeds:** In White Revolution, the focus was on introduction of exotic cattle breeds like HF and jersey and producing their cross bred. Therefore the developments of recognized Indian breeds were largely neglected.
- **Adulteration of milk and rising demand for organic milk:**



- About 68 per cent of the milk produced in India is found to have adulterants like detergent, starch, urea and white paint.
- Consumers are becoming more health conscious day by day which is fuelling growth for organic and natural milk products instead of milk from animals that are injected with growth hormones for more milk production and are full of antibiotics.
- Therefore there is a need to have a re-look at the whole policy for Dairy sector and to take steps so that the interests of the Indian farmers and consumers are protected.

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## EMISSIONS GAP REPORT 2019

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### ◎ CONTEXT

- The 2019 UN Environment Programme (UNEP) Emissions Gap Report paints a “bleak” picture of accelerated global greenhouse gas (GHG) emissions and a growing gap between “what we need to do and what we are actually doing to tackle climate change.”

### ◎ ABOUT

- This is the tenth edition of the United Nations Environment Programme (UNEP) Emissions Gap Report.
- It provides the latest assessment of scientific studies on current and estimated future greenhouse gas (GHG) emissions and compares these with the emission levels permissible for the world to progress on a least-cost pathway to achieve the goals of the Paris Agreement.
- This difference between “where we are likely to be and where we need to be” has become known as the ‘emissions gap’.

#### What is the “Emissions Gap”?

- The Emissions Gap could also be called the “Commitment Gap”.
- It measures the gap between what we need to do and what we are actually doing to tackle climate change.
- The gap is the difference between the low levels of emissions that the world needs to drop to, compared with the projected level of emissions based on countries’ current commitments to decarbonisation.

#### Why does the Emissions Gap Matter?

- The gap is important because if we can’t close it and meet the emissions reduction target, we will face increasingly severe climate impacts worldwide.
- It is important that policymakers, and their citizens, know what the gap is so that the commitments countries are making are sufficient to close the gap.

#### What does the Emissions Gap Report measure?

The Emissions Gap Report measures and projects three key trend lines:

- The amount of greenhouse gas emissions every year up to 2030
- The commitments countries are making to reduce their emissions and the impact these commitments are likely to have on overall emission reduction
- The pace at which emissions must be reduced to reach an emission low that would limit temperature increase to 1.5°C, affordably.

#### The key “headline” messages and conclusions of the report

- GHG emissions continue to rise, despite scientific warnings and political commitments;
- To close the emissions gap by 2030, annual emissions need to be 15 GtCO<sub>2</sub>e lower than current unconditional NDCs imply for the 2°C goal, and 32 GtCO<sub>2</sub>e lower for the 1.5°C goal;

- Enhanced action by G20 members will be essential for the global mitigation effort. Collectively, G20 members – who account for 78% of global GHG emissions – are on track to meet their limited 2020 Cancun Pledges, but seven countries are currently not on track to meet their 2030 NDC commitments.
- “Dramatic strengthening” of the NDCs is needed in 2020. Countries must increase their NDC ambitions threefold to achieve the “well below 2°C” goal and more than fivefold to achieve the 1.5°C goal.
- Although the number of countries announcing net zero GHG emission targets for 2050 is increasing, only a few countries have so far formally submitted long-term low-emission development strategies to the UNFCCC.
- Decarbonising the global economy will require fundamental structural changes, which should be designed to bring multiple co-benefits for humanity and planetary support systems.
- Renewable and energy efficiency, in combination with electrification of end uses, are key to a successful energy transition and to driving down energy-related CO2 emissions.
- Demand-side material efficiency offers substantial GHG mitigation opportunities that are complementary to those obtained through an energy system transformation.

## 1<sup>st</sup> INTERNATIONAL CONFERENCE ON “LANDSLIDES RISK REDUCTION & RESILIENCE-2019”

### ◎ CONTEXT

- The Union Minister of State for Home Affairs inaugurated the 1st International Conference on “Landslides Risk Reduction and Resilience” in Delhi. The conference has been organised by the National Institute of Disaster Management.

### ◎ ABOUT

- The conference has been organised by the National Institute of Disaster Management.
- Aim of the Conference is to explore and debate the most recent advances in landslide risk reduction and resilience.
- Continent-wise, Asia suffers the maximum damages / losses due to landslides and among the Asian countries, South Asian nations are the worst sufferers and even among South Asian countries India is one of the worse affected by landslides.
- As landslides are frequent and widespread, the annual cumulative losses worldwide amount to tens of billions of USD in terms of lost property, environmental damage, repair works, and the maintenance of defence measures.
- As per Geological Survey of India, the window of economic loss due to landslides may reach between 1-2% of the gross national product in many developing countries.

### OBJECTIVES

- The aim of Conference is to explore and debate the most recent advances in a discipline. This will be directed towards understanding past and present processes and through different approaches involve in landslide risk reduction and resilience with the following objectives:
  - To enhance the understanding of the issues and solutions on governance and administration for landslides risk reduction and resilience
  - To discuss about current practices in the landslides risk assessment, mitigation and monitoring technologies for landslide risks and resilience with case examples
  - To highlight the environmental and emerging issues in context with urbanization, development and climate change



- To share experiences related to community based landslides risk reduction and resilience
- To disseminate information related to national and local strategies for landslides risk reduction and resilience as well as to develop a network mode roadmap for addressing the gaps by engaging with the institutions, researchers and experts.

**SPECIAL FOCUS IS GIVEN TO:**

- Governance and administrative issues and support for LRR&R
- Tools, techniques and technologies for LRR&R
- Impact of climatic change, development, urbanization, and population growth for LRR&R

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## ATAL BEEMIT VYAKTI KALYAN YOJANA

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**◎ CONTEXT**

- The total number of Insured Persons covered under Employees' State Insurance (ESI) scheme is 3.49 crores. All Insured Persons (IPs) fulfilling the contributory and other conditions under Atal Beemit Vyakti Kalyan Yojana are eligible for availing relief under this scheme.

**◎ ABOUT**

- Atal Bimit Vyakti Kalyan Yojana is a welfare measure being implemented by the Employee's State Insurance (ESI) Corporation.
- It offers cash compensation to insured persons when they are rendered unemployed.
- The scheme is implemented on pilot basis for a period of two years initially.

**Benefits under the scheme**

- The scheme provides relief to the extent of 25% of the average per day earning during the previous four contribution periods to be paid up to maximum 90 days of unemployment once in lifetime of the Insured Person.
- The maximum duration, for which an IP shall be eligible to draw the Relief under the Atal Beemit Vyakti Kalyan Yojana (ABVKY) will be 90 days once in life time after a minimum of two years of Insurable Employment.
- The claim for relief under the Atal Beemit Kalyaan Yojana will be payable after the three months of his/her clear unemployment.
- The relief will be paid for clear month of unemployment.
- No prospective claim will be allowed.
- In case the beneficiary gets gainful employment in between the three months of unemployment for which he was eligible for relief under ABVKY, the relief will be payable for clear month of unemployment between the date of unemployment and date of re-employment.

**Eligibility**

- Employees covered under Section 2(9) of the ESI Act 1948.
- The Insured Person (IP) should have been rendered unemployed during the period the relief is claimed.
- The Insured Person should have been in insurable employment for a minimum period of two years.
- The Insured Person should have contributed not less than 78 days during each of the preceding four contribution periods.
- The contribution in respect of him should have been paid or payable by the employer.

- The contingency of the unemployment should not have been as a result of any punishment for misconduct or superannuation or voluntary retirement.
- Aadhar and Bank Account of the Insured Person should be linked with insured person database.

### Disqualification/Termination of relief under ABVKY

- During lock out.
- Strike resorted to by the employees declared illegal by the competent authority.
- Voluntary abandonment of employment/ voluntary retirement/ premature retirement.
- Less than two years contributory service.
- On attaining the age of superannuation.
- Convicted under the provisions of Section 84 of the ESI Act read with Rule 62 of the ESI (Central) Rule
- On being re-employed elsewhere during the period he/she is in receipt of Relief under ABVKY.
- Dismissal/termination under disciplinary action.
- On death of IP.

## CHAR DHAM PROGRAMME

### ◎ CONTEXT

- Union Minister for Road Transport and Highways has informed Lok Sabha about the Char Dham Programme.

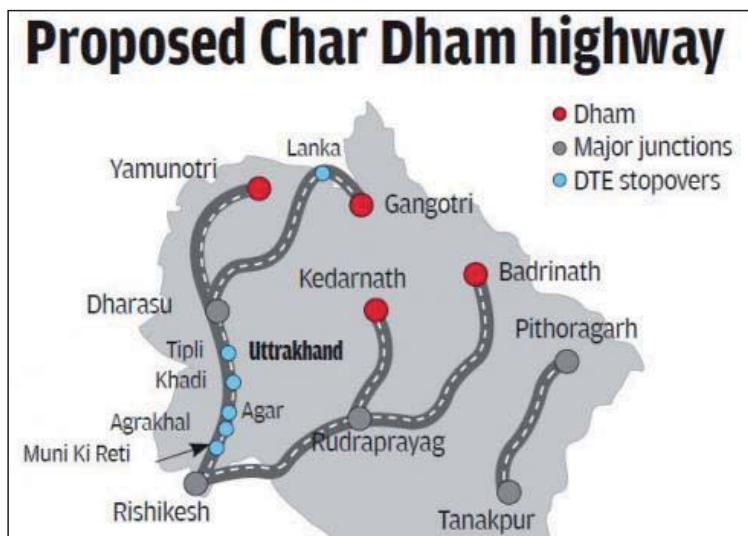
### ◎ ABOUT

#### Char Dham Programme:

- The Char Dham programme is an initiative to improve connectivity to the Char Dham pilgrimage centres in the Himalayas namely **Gangotri, Yamunotri, Kedarnath and Badrinath**.
- These four ancient pilgrimages sites in Uttarakhand **are known as Chota Char Dham** to **differentiate them from** the bigger circuit of modern day **Char Dham sites namely Badrinath, Dwarka, Puri and Rameswaram**.
- The works under Char Dham Pariyojna are being implemented on **Engineering Procurement and Construction (EPC) mode** of contract.
- These projects are being implemented by three executing agencies of Ministry of Road Transport and Highways, viz,
  - Uttarakhand State PWD,
  - Border Road Organization(BRO) and
  - National Highway & Infrastructure Development Corporation Limited (NHIDCL).

#### Features of the programme:

- The project proposes the **widening of single lane roads into double lanes by up to 10 metres**, developing highways in Uttarakhand and thereby improving access to the Char Dham.
- The projects also **includes mitigation measures/ stabilisation of chronic landslide & sinking spots/zones** as a standalone project or part of road widening projects to avoid landslide and safety of road users.



#### EPC model:

- Engineering procurement and construction (EPC) is the system of private sector participation aimed at overcoming the shortcomings of PPP model.
- Under EPC model the contractor is legally responsible to complete the project under some fixed predetermined timeline and may also involve scope for penalty in case of time overrun. But the entire cost is borne by the government.
- In EPC all the clearances, land acquisition and regulatory norms have to be completed by the government itself and the private players do not have to get itself involved in these time taking procedures.

#### BRO:

- The Border Roads Organisation (BRO) was formed in 1960 to secure India's borders and develop infrastructure in remote areas of the north and north-east states of the country.
- It functions under the control of the Ministry of Defence since 2015.
- BRO executes road construction and maintenance works along the northern and western frontiers primarily to meet the strategic requirements of the army and is responsible for maintenance of over 53,000 km of roads.

## GLOBAL DIPLOMACY INDEX 2019

### ◎ CONTEXT

- The 2019 Global Diplomacy Index released by the Sydney-based Lowy Institute gives the latest statistics, marking how the world's diplomatic networks are expanding and, in certain cases, shrinking.

### ◎ ABOUT

- The Lowy Institute Global Diplomacy Index visualises the diplomatic networks of all G20 and OECD nations
- The Index covers 42 nations — the 19 nations that are members of the G20 and the 34 OECD member nations (11 nations are members of both organisations).
- Posts are classified by type: embassy or high commission, consulate-general, consulate, permanent mission or delegation to multilateral organisations, or other representation type, including delegations to countries where there is no formal diplomatic relationship.
- The size of a country's diplomatic network is of course only one indicator of the effectiveness of its diplomacy.

- According to a research over the past six years, around half of the developed nations in the OECD have reduced their diplomatic footprint over the past decade.

### Key highlights of the report

- China now has more diplomatic posts across the world than the US, a marker of its growing international clout and ambition.
- China overtook the US in 2019 with 276 embassies and consulates worldwide, which is three more than the US.
- China's expansion in worldwide diplomatic presence has come partly at the expense of Taiwan, a self-governing democracy.
- The next three spots are occupied by France, Japan, and Russia.
- India is 12th among the 61 countries. India has 123 embassies and high commissions and 54 consulates globally.
- Taiwan saw the biggest drop in diplomatic posts, down from 22 embassies in 2016 to 15 this year.

### Nine Tracks of Multi-Track Diplomacy

#### • Track One: Government, Official Diplomacy

- Track One sets most of the agenda in the field and has leadership and authority over the peacemaking systems at the official level. Most political peace-building (the making of political agreements, decisions regarding use of force) is done by this track.
- An issue for this track is that it tends to be elitist and thus hard to reach. It often shuts itself out from expertise and alternative voices in the field, such as NGOs, specialist groups, identity groups, formal and informal citizen groups. It is male dominated. Track One negotiators should be more prepared for dealing with this through multi-lateral negotiation skills training.
- **Examples of Track One organisations:** States, official diplomats, the military, government-run development programs (Governmental Organisations), Inter-governmental organisations such as the UN, UNESCO, NATO, the EU, the OSCE, the WEU, The World Bank, The IMF, the FAO

#### • Track Two: Nongovernmental/Professional and Peacemaking through Conflict Resolution.

- This is the field of **professional non-governmental actors and organisations that try to manage prevent and analyse conflict**. They come from vastly different backgrounds. Individuals and organisations in this track do mediation, consulting, problem-solving workshops, conferences etc.
- The single **biggest challenge for this track is money**. Funders are often looking for product, but conflict resolution specialists are often focused on nurturing a process. Examples are: Search for Common Ground (Conflict Resolution), The Institute for Multi-Track Diplomacy, Pax Christi, Life and Peace Institute.
- Other professional organisations without a clear conflict resolution agenda are also included in this track like: Doctors without Borders (MSF), the Red Cross, Oxfam, Novib and other Development Organisations.

#### • Track Three: Business, or Peacemaking through Commerce

- This is the business world with its potential for peace-building through commerce. The traditional business community is profit-oriented, competitive and conservative. But lately the business community has recognised that peacemaking activities can create more stable environments for business and safety for its employees.
- Issues for the business community often include environmental responsibility and social responsibility for the countries in which it operates: How to balance profitability with responsibility.

- **Track Four: Private Citizens or Peacemaking through personal involvement**
  - This includes all attempts by private citizens to do peace-building. This could be through citizen diplomacy (exchange programs), voluntary organisations and development programs, advocacy or special interests groups, professional interest groups and democracy-building organisations.
  - This track often includes a wide range of NGOs, local and international. These individuals have a tremendous amount of knowledge of what happens on the ground, although they often have difficulty finding connections with the rest of the peace building system.
- **Track Five: Research, Training, and Education or Peacemaking through learning**
  - This includes research,
  - academic departments, research institutes and think-tanks
  - Training, transfer of practitioner skills such as: mediation, negotiation, conflict resolution, third party facilitation
  - Education, from kindergarten to Ph.D. programs
  - One of the issues of this track is how to produce and transfer relevant information for practical use in conflicts.
- **Track Six: Activism, or Peacemaking through Advocacy**
  - This track involves environmental and peace activism from disarmament to human rights and socio-economic justice issues. People involved in this track often try to change attitudes, policies or institutions. Most of their work is stated in terms of opposition to certain situations.
  - Often organisations in Track Six are one topic oriented, like Amnesty International and Human Rights Watch in regards to Justice and Human Rights.
  - An argument could be made for placing Amnesty International under track 2 as well. These organisations engage in a whole range of activities: education, advocacy, organising, supporting, witnessing and protesting.
  - Issues for this track include small NGOs relative lack of power, their reputation as 'peaceniks' and way of often defining themselves as 'anti' this or that, as opposed to constructive involvement.
- **Track Seven: Religion, or Peacemaking through Faith in Action.**
  - This includes the efforts of religiously based communities and their efforts to make peace, from small church groups to larger religious communities of different denominations.
  - In many places they are involved in reconciliation processes with a long-term commitment and thus are very well placed as contacts and confidants of conflicting parties.
- **Track Eight: Funding or Peacemaking through Providing Resources.**
  - These are the organisations that provide the financial support for many of the activities that take place on the other tracks, which is a persistent problem.
  - Many funding organisations look for measurable results within a limited amount of time (typical funding cycles are 2-3 years), which can be too little time in many peace-building processes.
- **Track Nine: Communication and the Media, or Peacemaking through Information**
  - This is the realm where public opinion formation takes place through TV, radio, printed media etc. This track informs the public and engages it in issues of conflict and peace.



- One of the problems related to this field is that the media has a preference for 'bad news' above 'good news'. A successful attempt at preventing an outbreak of conflict, for example the preventive diplomacy between India and Pakistan over Kashmir issue is often not considered 'news' and thus receive criticism in India.

## LOKPAL

### ◎ CONTEXT

### ◎ ABOUT

- Anti-corruption ombudsman Lokpal released its logo and motto.**
- The logo is in tricolour representing the national essence of Lokpal.
- A Lokpal is an anti-corruption authority or body of ombudsman who represents the public interest in the Republic of India.
- The current Chairperson of Lokpal is Pinaki Chandra Ghose.
- The Lokpal has jurisdiction over central government to inquire into allegations of corruption against its public functionaries and for matters connected to corruption.
- The Lokpal is responsible for enquiring into corruption charges at the national level while the Lokayukta performs the same function at the state level.

### Powers of the Lokpal

- The Lokpal has jurisdiction to inquire into allegations of corruption against anyone who is or has been Prime Minister, or a Minister in the Union government, or a Member of Parliament, as well as officials of the Union government under Groups A, B, C and D.
- Also covered are chairpersons, members, officers and directors of any board, corporation, society, trust or autonomous body either established by an Act of Parliament or wholly or partly funded by the Union or State government.
- It also covers any society or trust or body that receives foreign contribution above ₹10 lakh
- The Lokpal, however, cannot inquire into any corruption charge against the Prime Minister if the allegations are related to international relations, external and internal security, public order, atomic energy and space, unless a full Bench of the Lokpal, consisting of its chair and all members, considers the initiation of a probe, and at least two-thirds of the members approve it.
- Such a hearing should be held in camera, and if the complaint is dismissed, the records shall not be published or made available to anyone.

### Other features

- A complaint under the Lokpal Act should be in the prescribed form and must pertain to an offence under the Prevention of Corruption Act against a public servant.
- There is no restriction on who can make such a complaint.
- When a complaint is received, the Lokpal may order a preliminary inquiry by its Inquiry Wing, or refer it for investigation by any agency, including the CBI, if there is a prima facie case.
- Before the ordering of an investigation by the agency, the Lokpal shall call for an explanation from the public servant to determine whether a prima facie case exists.
- The Lokpal, with respect to Central government servants, may refer the complaints to the Central Vigilance Commission (CVC).

### The Lokpal and Lokayuktas Act, 2013

- Lokpal will have power of superintendence and direction over any central investigation agency including CBI for cases referred to them by the ombudsman.

- A high-powered committee chaired by the PM will recommend selection of CBI director. The collegium will comprise PM, leader of opposition in Lok Sabha and Chief Justice of India. PM has been brought under purview of the Lokpal, so also central ministers and senior officials.
- Directorate of prosecution will be under overall control of CBI director. At present, it comes under the law ministry.
- Appointment of director of prosecution to be based on recommendation of the Central Vigilance Commission.
- Director of prosecution will also have a fixed tenure of two years like CBI chief.
- Transfer of CBI officers investigating cases referred by Lokpal with the approval of watchdog.
- Bill incorporates provisions for attachment and confiscation of property acquired by corrupt means, even while prosecution is pending.
- Bill lays down clear timelines for preliminary enquiry and investigation and trial. Provides for special courts. Public servants will not present their view before preliminary enquiry if the case requires 'element of surprise' like raids and searches.
- Bill grants powers to Lokpal to sanction prosecution against public servants.
- CBI may appoint a panel of advocates with approval of Lokpal, CBI will not have to depend on govt advocates.

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## TRANSGENDER PERSONS BILL, 2019

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### ◎ CONTEXT

- The Transgender Persons (Protection of Rights) Bill, 2019 was recently introduced in Lok Sabha by the Minister for Social Justice and Empowerment. The bill seeks to empower the transgender community by providing them a separate identity.

### ◎ ABOUT

#### Key Features

- **Definition of a transgender person:** The Bill defines a transgender person as one, who is,
  - Neither wholly female nor male; or
  - A combination of female and male; or
  - Neither female nor male.
  - In addition, the person's gender must not match the gender assigned at birth. This will include trans-men, trans-women, persons with intersex variations and gender queers.
- **Certificate of identity for a transgender person**
  - A person recognised as transgender person under the Bill shall have a right to self-perceived gender identity.
  - A transgender person has to obtain a Certificate of Identity which will confer rights and be proof of recognition of identity as a transgender person.
  - An application for obtaining such a Certificate should be made to the District Magistrate (DM). The DM will refer such an application to a District Screening Committee.
  - The District Screening Committee will comprise a:
    - Chief Medical Officer;
    - District Social Welfare Officer;
    - Psychologist or psychiatrist;
    - Representative of the transgender community; and
    - Government officer

- The DM will issue a Certificate of Identity as 'transgender' based on the recommendation of this Committee.
- The gender of a transgender person will be recorded in all official documents, on the basis of this Certificate.
- If there is any change in gender, the transgender person may apply for a revised certificate by following the same process as that of obtaining a Certificate of Identity.
- **Benefits related to employment, health and education**
  - The central or state governments shall provide welfare schemes and programmes to facilitate and support livelihood for transgender persons. This will include vocational training and self-employment.
  - The central and state governments shall take steps to provide healthcare facilities to transgender persons including:
    - Separate HIV surveillance centers;
    - Sex reassignment surgery and hormonal therapy counselling;
    - Review of medical curriculum; and
    - A comprehensive insurance scheme.
  - Educational institutions shall provide inclusive education and opportunities for sports, recreation and leisure activities to transgender persons.
- **Offences and Penalties**
  - The Bill specifies the following offences:
    - Compelling transgender persons to beg or do forced or bonded labour (excluding compulsory government service for public purposes);
    - Denial of use of a public place;
    - Denial of residence in household, village or other place of residence; and
    - Physical, sexual, verbal, emotional or economic abuse.
  - These offences will attract imprisonment between six months and two years, and a fine

**National Council for Transgender persons:**

- A National Council for Transgender (NCT) persons will be set up to advise the central government on policies, and legislation related to transgender persons.
- It will also monitor and evaluate such policies.
- The NCT will consist of representatives from,
  - Ministries such as social justice and empowerment, health, minority affairs;
  - NITI Aayog;
  - National Human Rights Commission and National Commission for Women;
  - State governments;
  - Nominated members from the transgender community; and
  - Experts from non-governmental organisations.

## WHAT IS RULE 12, USED BY THE CENTRE TO REVOKE PRESIDENT'S RULE IN MAHARASHTRA

**◎ CONTEXT**

- After the assembly polls in October 2019, the state of Maharashtra was placed under the President's rule amid a stalemate over the formation of the government in the state. However, to end the president's rule, "Rule 12" has been used by the PM to end President's rule in Maharashtra.



## ◎ ABOUT

**The President's Rule:**

- President's rule is imposed through the **invocation of Article 356** of the Constitution by the President on the advice of the Union Council of Ministers.
- Under Article 356, President's Rule is imposed if the **President, upon receipt of the report from the Governor of the State** or otherwise, **is satisfied** that a situation has arisen in which the **government of the State cannot be carried on in accordance** with the provisions of **the Constitution**.

**What is this rule, known as 'Rule 12'?**

- Rule 12 of the Government of India (Transaction of Business) Rules, 1961, allows the Prime Minister to depart from laid down norms at his discretion.
- Titled "Departure from Rules", Rule 12 says, "The Prime Minister may, in case or classes of cases permit or condone a departure from these rules, to the extent he deems necessary."
- The Cabinet can subsequently give post-facto approval for any decision taken under Rule 12.

**Under what circumstances is Rule 12 used?**

- Rule 12 is usually not used to arrive at major decisions by the government. However, it has been used in matters such as withdrawal of an office memorandum or signing of MoUs in the past.
- The last big decision taken through the invocation of Rule 12 was re-organisation of the state of Jammu and Kashmir into the Union Territories of Jammu and Kashmir, and Ladakh on October 31.
- The proclamations issued by the President that day, dividing various districts between the two Union Territories, were issued under Rule 12.
- The Cabinet gave post-facto approval to the same on November 20.

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## WORLD MIGRATION REPORT 2020 AND THE TREND OF MIGRATION GLOBALLY

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## ◎ CONTEXT

- **At 17.5 million, Indian diaspora largest in the world: UN report.** The Global Migration Report 2020 highlighting the international migrants stock was recently released.

## ◎ ABOUT

- It is released by the UN-affiliated International Organization for Migration (IOM).
- The International Organization for Migration (IOM) provides services and advice concerning migration to governments and migrants, including internally displaced persons, refugees, and migrant workers.
- IOM's stated mission is to promote humane and orderly migration by providing services and advice to governments and migrants.
- IOM works to help ensure the orderly and humane management of migration, to promote international cooperation on migration issues, to assist in the search for practical solutions to migration problems and to provide humanitarian assistance to migrants in need, be they refugees, displaced persons or other uprooted people.

**Top destinations**

- The top destination for international migrants is the US where, as of September 2019, there were 50.7 million international migrants.
- The US remained the top remittance-sending country (\$68.0 billion) followed by the United Arab Emirates (\$44.4 billion) and Saudi Arabia (\$36.1 billion).

- The US is followed by Germany, Saudi Arabia, Russian Federation and the UK.
- Gulf countries have some of the largest numbers of temporary labour migrants in the world, including the United Arab Emirates, where they make up almost 90 percent of the population.

### Indian case

- India continues to be the largest country of origin of international migrants with a 17.5 million-strong diaspora across the world.
- It received the highest remittance of \$78.6 billion from Indians living abroad
- After India the largest number of migrants living abroad is followed by Mexico (11.8 million), and China (10.7 million).

### Other Highlights of the report

- Overall figure represents just a tiny fraction of the world's population, although it is a 0.1 percent increase on the level indicated in its last report, published two years ago.
- More than half of all international migrants (141 million) live in Europe and North America.
- In Africa, Asia and Europe, most international migrants stay within their regions of birth, but the majority of migrants from Latin America and the Caribbean and North America do not.
- IOM's Internal Displacement Monitoring Centre highlighted that a total of 41.3 million people were forced to flee their homes at the end of 2018 a record since monitoring began in 1998.
- Turning to the impact of climate and weather disasters, the report notes that Typhoon Mangkhut in the Philippines contributed to the fact that 3.8 million people were newly displaced there at the end of 2018, the largest number globally.

## COALBED METHANE (CBM)

### ◎ CONTEXT

- **Global Coal Bed Methane Market Growth Analysis, Forecasts To 2025**

### ◎ ABOUT

- Coalbed methane, coalbed gas, coal seam gas or coal-mine methane is a form of natural gas extracted from coal beds.
- In recent decades it has become an important source of energy in United States, Canada, Australia, and other countries.
- The term refers to methane adsorbed into the solid matrix of the coal. It is called 'sweet gas' because of its lack of hydrogen sulphide.
- The presence of this gas is well known from its occurrence in underground coal mining, where it presents a serious safety risk.
- India has fifth-largest proven coal reserves in the world. So it has significant prospects for exploiting CBM.

### Where is coalbed methane found?

- Coalbed methane is associated with coal deposits, and is found in coal seams.
- In the past, the gas was the cause of numerous explosions in underground mines. More recently, the gas has been vented to the surface from underground mines.
- Various basins in the Rocky Mountains hold much of this country's coalbed methane resources.

**How is coalbed methane extracted from coal?**

- When water is removed from a coal seam, it lowers the reservoir pressure.
- Methane that was held in place by water pressure tends to follow the water as it is pumped to the surface, where it is captured and transported through pipelines to storage facilities or shipped.
- This relatively inexpensive and straightforward procedure has made coalbed methane a useful, easily accessible form of energy.

**Advantages of CBM as a fuel**

- CBM is an environmentally safe gas
- It will halt its emission into environment and thus reducing emission of greenhouse gas from coal mining.
- It would help in increasing the domestic gas production.

**Challenges and concerns:**

- Global methane emissions from coal mines are projected to for approximately 8 percent of total global methane emissions.
- Disturbance of lands drilled and its effect on wildlife habitats results in ecosystem damage.
- CBM production behaviour is complex and difficult
- Water discharges from CBM development could potentially have on downstream water sources.
- Issue of high salinized water that is removed in the process of extraction is released into freshwater ecosystems could have adverse effects.\

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## **GOLDEN RICE: TO COMBAT VITAMIN A DEFICIENCY FOR PUBLIC HEALTH**

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**◎ CONTEXT**

- Said to be answer to Vitamin A deficiency, yet to be planted on large scale. Bangladesh could be on the verge of becoming the first country to approve plantation of this variety.

**◎ ABOUT**

- In the late 1990s, German scientists developed a genetically modified variety of rice called Golden Rice.
- It was claimed to be able to fight Vitamin A deficiency, which is the leading cause of blindness among children and can also lead to death due to infectious diseases such as measles.
- Bangladesh could be on the verge of becoming the first country to approve plantation of this variety.
- In Bangladesh, over 21 per cent of the children have vitamin A deficiency.
- The Golden Rice that is being reviewed in Bangladesh is developed by the Philippines-based International Rice Research Institute.
- This rice variety will not be more expensive than the conventional variety.

**Why the Golden colour?**

- Rice is naturally low in the pigment beta-carotene, which the body uses to make Vitamin A. Golden rice contains this, which is the reason for its golden colour.

**Bio fortification of staple crops**

- Fortification is the practice of deliberately increasing the content of an essential micronutrient, i.e. vitamins and minerals (including trace elements) in a food, so as to improve the nutritional quality of the food supply and provide a public health benefit with minimal risk to health.
- Bio fortification is the process by which the nutritional quality of food crops is improved through agronomic practices, conventional plant breeding, or modern biotechnology.
- Bio fortification differs from conventional fortification in that bio fortification aims to increase nutrient levels in crops during plant growth rather than through manual means during processing of the crops.

**Examples of bio fortification projects include**

- Iron-bio fortification of rice, beans, sweet potato, cassava and legumes;
- Zinc-bio fortification of wheat, rice, beans, sweet potato and maize;
- Provitamin A carotenoid-bio fortification of sweet potato, maize and cassava; and
- Amino acid and protein-bio fortification of sorghum and cassava.

**Vitamin A and its deficiency**

- Vitamin A is a fat-soluble vitamin that is good for healthy vision, skin, bones and other tissues in the body.
- Vitamin A often works as an antioxidant, fighting cell damage, but it also has many other uses.
- Through its role with cell growth and division, vitamin A has an important role in the normal formation and maintenance of the heart, lungs, kidneys and other vital organs.
- Good sources are fortified milk, eggs, meat, and cheese, liver, halibut fish oil, cream and kidneys.
- Vitamin A deficiency is the leading cause of childhood blindness in Southeast Asia.
- Symptoms of a severe deficiency are night blindness, dry eyes, diarrhea and skin problems.

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