



News Analysis (30 Nov, 2020)

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Mission COVID Suraksha

Why in News

The Government of India has announced the **stimulus package of Rs. 900 crore** for the **Mission COVID Suraksha**, the Indian Covid-19 Vaccine Development Mission, which will **help the development process of the vaccine candidates**.

Key Points

- **About:**

- Mission COVID Suraksha is India's **targeted effort to enable the development of indigenous, affordable and accessible vaccines** for the country and will complement the ongoing mission of Atmanirbhar Bharat.
- The Centre had announced this package during the **third economic stimulus**.
- The Mission with its **end-to-end focus from preclinical development through clinical development and manufacturing and regulatory facilitation for deployment**, would consolidate all available and funded resources towards accelerated product development.

- **Grant:**

- Phase-I of the Mission has been allotted **Rs. 900 Crore for a period of 12 months**.
- The grant will be provided to the **Department of Biotechnology (DBT)** for Research and Development (R&D) of Indian Covid-19 vaccines.

- **Stakeholders:**

- It will be **led by DBT** and implemented by a dedicated **Mission Implementation Unit** at the **Biotechnology Industry Research Assistance Council** (BIRAC).
- The existing activities under **National Bio Pharma Mission** (NBM) and **Ind-CEPI Mission** will provide complementary strengths to this Mission.
 - The DBT is supporting the implementation of the Ind-CEPI Mission, “Epidemic preparedness through rapid vaccine development: Support of Indian vaccine development aligned with the global initiative of the **Coalition for Epidemic Preparedness Innovations** (CEPI)”.
 - The Ind-CEPI Mission was approved in **March 2019**.

- **Objectives:**

- Accelerating pre-clinical and clinical development.
- Licensure of Covid-19 vaccine candidates that are currently in clinical stages or ready to enter the clinical stage of development.
- Establishing clinical trial sites.
- Strengthening the existing central laboratories and suitable facilities for animal studies, production facilities and other testing facilities to support the vaccine development.
- Supporting the development of common harmonized protocols, training, data management systems, regulatory submissions, internal and external quality management systems and accreditations.
- Supporting capabilities for process development, cell line development and manufacturing of GMP batches for animal toxicology studies and clinical trials.
- Developing suitable **Target Product Profile** so that vaccines being introduced through the mission have preferred characteristics applicable to India.

- **Vaccine Candidates:**

A total of **10 vaccine candidates** have been supported by DBT so far at both academia and industry and as on date and **5 vaccine candidates are in human trials.**

- **Covishield:** The **Serum Institute of India** (SII) is conducting the **phase-3** trial of the **Oxford-Astrazeneca** Covid-19 vaccine.
- **Covaxin:** The indigenously developed **Bharat Biotech** and the **Indian Council of Medical Research** (ICMR) vaccine has already started the phase III clinical trial.
- **ZyCoV-D:** Indigenously developed vaccine by **Zydus Cadila** has completed the phase-2 clinical trial in the country.
- **Sputnik V:** The combined phase 2 and 3 clinical trials of the **Russian Covid-19 vaccine** Sputnik V in India are about to get started.
- **BNT162b2:** India is focusing on training for conducting phase II and III human clinical trials of the **Pfizer's Covid-19 vaccine candidate** along lines of India's regulatory mechanism.

Clinical Trials

- It is a **systematic study to generate data for discovering or verifying the clinical and pharmacological profile** (including pharmacodynamic and pharmacokinetic) or **adverse effects** of a new drug on humans.
- It is the **only way of establishing the safety and efficacy** of any drug before its introduction in the market for human use and is preceded by animal trials where the efficacy and side effects are observed in animals and an estimated drug dose is established.
- Clinical trials of drugs developed in India **have to undergo all four phases of trials in India.**
 - Phase I or clinical pharmacology trials or “first in man” study.
 - Phase II or exploratory trials.
 - Phase III or confirmatory trials.
 - Phase IV trials or post-marketing phase.

Source: PIB

China's New Dam on Brahmaputra

Why in News

Recently, Chinese authorities have given the go ahead for a **Chinese hydropower company** to construct the **first downstream hydropower project** on the lower reaches of the river **Brahmaputra** (known as **Yarlung Zangbo in Tibet**).



Key Points

- **Brahmaputra:**
 - It originates under the name of **Siang or Dihang**, from the **Chemayungdung glacier of the Kailash range near the Mansarovar lake**. It enters India west of Sadiya town in Arunachal Pradesh.

Tributaries: Dibang, Lohit, Siang, Burhi Dihing, Tista, and Dhansari.
 - It is a **perennial river** and has **several peculiar characteristics due to its geography and prevailing climatic conditions**.
 - It is **flooded twice annually**. One flood is caused by the **melting of the Himalayan snow in summer** and the **other due to the monsoon flows**.
 - The **frequency** of these floods have increased and are devastating due to climate change and its impact on high and low flows.
 - These **pose a concern for the population and food security in the lower riparian states of India and Bangladesh**.
 - The river is in itself **dynamic as frequent landslides and geological activity force it to change course** very often.

- **About the Project:**

- The **state-owned** hydropower company **POWERCHINA** signed a strategic cooperation agreement with the **Tibet Autonomous Region (TAR) government** to implement hydropower exploitation in the downstream of the Yarlung Zangbo river as part of the new **Five Year Plan (2021-2025)**.

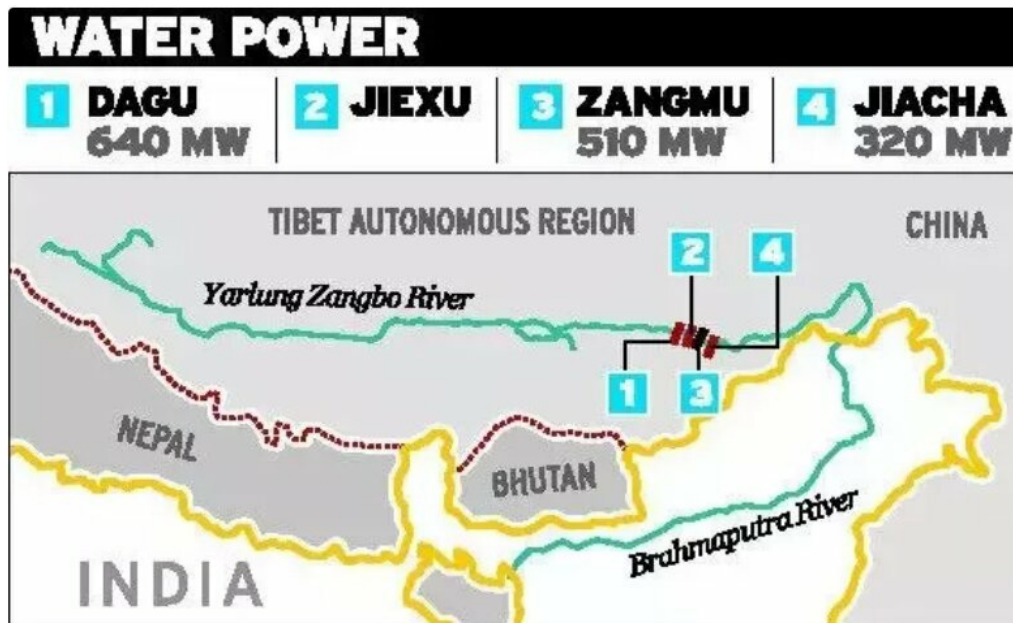
This will be the **first time the downstream sections of the river will be tapped**. However, the **location** of the planned project **has not been mentioned anywhere**.

- The **Great Bend of the Brahmaputra** and the **Yarlung Zangbo Grand Canyon in Medog county**, where the river turns sharply to flow across the border into **Arunchal Pradesh** could be the **potential spot** for the project.

This **50 km section** alone offers a potential of developing **70 million kilowatt hours (Kwh)**.

- **China's Previous Projects:**

In **2015**, China operationalised its **first hydropower project at Zangmu in Tibet**, while three other dams at **Dagu, Jiexu and Jiacha** are being developed, all on the upper and middle reaches of the river.



- **Importance of the Project for China:**

- The **60 million kWh hydropower** exploitation could **provide 300 billion kWh of clean, renewable and zero-carbon electricity annually**.
- The project will play a significant role in realising China's goal of reaching a **carbon emissions peak before 2030 and carbon neutrality till 2060**.

- **Concerns for India:**

- India has been expressing concerns on Brahmaputra **since 2015** when China operationalised its **project at Zangmu**.
- A dam at the **Great Bend**, if approved, would raise fresh concerns considering its **location downstream and just across the border** from Arunachal Pradesh.

For India, **quantity of water is not an issue** because these are run of the river dams and will not impact the Brahmaputra flow. More importantly, Brahmaputra is not entirely dependent on upstream flows and an estimated **35% of its basin is in India**.

- However, India is concerned about the **Chinese activities affecting the quality of water, ecological balance and the flood management**.
- **India and China** do not have a water sharing agreement. Both nations share hydrological data so it becomes important to share genuine data and have continuous dialogue on issues like warning of droughts, floods and **high water discharges**.

Way Forward

- India is required to go beyond the exchange of hydrological data and ask China for information on the topographic condition of the whole basin.
- Any forward movement on ensuring hydro-security in the Brahmaputra basin would require a long-term understanding between the two countries. It is necessary for India to engage China in a sustained dialogue and secure a water-sharing treaty that serves the interests of both the countries.

Source:TH

China-Nepal Bilateral Cooperation

Why in News

Recently, China and Nepal have discussed **various issues of bilateral interest**, including bolstering **military cooperation** between the countries, issues pertaining to resumption of training and **student exchange programs** and follow up on **defence assistance** that have been impacted due to the **Covid-19 pandemic**.

Key Points

- **Historical Background:**

- In **1955**, Nepal established diplomatic relations with China.
- It **recognised Tibet as part of China in 1956** and signed the **Treaty of Peace and Friendship in 1960**.
- **In the 1970s**, when **King Birendra of Nepal proposed Nepal as a “zone of peace” between India and China**, India did not show keen interest, while China was quite supportive. These and many such issues created a **rift in Nepal-India ties**; while at the same time China has been proactive to **support and aid Nepal**.
- Indo-Nepalese relations took a turn in **2015**, when **India imposed an informal yet effective blockade on Nepal**, thus **causing acute fuel and medicine shortages in Nepal**.

Nepal imports **almost all of its oil through India**, as road links to China through the Himalayas had been blocked since the earthquakes of April and May 2015.
- As tensions with India mounted, **China reopened its border with Nepal**, in Tibet.
- After the recent visit of Chinese President, Nepal has reiterated its commitment to **‘One-China policy’**, promising **not to allow** any forces to **use its territory against China**.

- **China’s Interest:**

- Although Nepal and India have an **open border and free mobility** of people across borders; it is China that is increasingly working to take over India’s position of the **largest trading partner of Nepal**.
 - India is the **largest economy of south Asia and has been emerging as a leader of south Asian countries**.
 - China wants to **contain India's growing power and status** which may become a threat to Chinese dream of becoming the superpower.
- The **growing influence of India in Tibet** had grave security considerations for China.
- Thus, **preserving the balance of power in southern Asia in its favour** and **securing Nepal’s active cooperation to prevent its rivals** use of the country for **anti-Chinese activities** became **principal strategic objectives of Beijing’s Nepal policy**.
- Nepal’s northern border with China lies entirely with Tibet and China sees security cooperation with Nepal as critical in controlling the **Tibetan matters**.

In this pursuit, **China is following security diplomacy vis-à-vis Nepal**.

- **Nepal's Benefit:**

- For Nepal, China serves as a **potential supplier of goods and assistance** that it needs in order to recover its economy.
 - Almost half the population of Nepal is unemployed and more than half is illiterate. At the same time, more than **30 per cent of the people in Nepal live in poverty.**
 - To **deal with its internal problems**, Nepal needs to engage with China to overcome its **poverty & unemployment.**
- Nepal with China will gain the mileage in negotiations and **counter India's Big Brother approach.**
- Through **China Nepal Economic Corridor**, Nepal seeks to end Indian dominance over its trade routes by increasing connectivity with China.

- **India's Concern:**

- Given the difference in the strategic weight of China and Nepal, **security diplomacy** can be used as a tool by China to **interfere in the internal affairs of Nepal.**
- Since Nepal acts as a buffer state for India, seeing it slip into China's sphere of influence, will **not be in India's strategic interest.**
- Also, China's interest in "**security diplomacy**" is not limited to Nepal.
- **China's deep pockets** make it difficult for India to control the expansion of China's influence in India's neighbourhood.
- **China Nepal Economic Corridor** can lead to China dumping consumer goods through Nepal which will worsen India's trade balance with China further.

Way Forward

- India must **not deny** every Chinese investment in infrastructure because of the **China Pakistan Economic Corridor (CPEC).**
 - The corridor provides a likelihood of **greater tourism and people to people contact** which is important for bridging the trust deficit that exists today between India and China.
 - It will also lead to the **rapid development** of one of **the poorest regions in the world** which lie in Nepal and parts of northern and northeastern India.
- Nepal has sought to **increase connectivity** with China since a blockade along its border with India resulted in several months of acute shortage of fuel and medicine in 2015 and 2016.
 - Though India has all the rights of such blockades, however, **India must refrain from such blockades** as it affects India's credibility in the eyes of Nepali citizens.
 - India should **act as a bridge** rather than **a blockade** in realizing Nepal's dream of becoming a land-linked country from a land-locked one.

- Given the importance of ties with Nepal, often romanticised as one of “**roti-beti**” (**food and marriage**), India must not delay dealing with the matter, and at a time when it already has a **faceoff with China in Ladakh and Sikkim.**
- Since the free movement of people is permitted across the border, Nepal enjoys immense **strategic relevance from India’s national security point of view**, India should work towards **ensuring stable and friendly relations with Nepal.**

Source:TH

Hidden Epidemic

Why In News

A new research published recently in **Diabetologia** (journal of the European Association for the Study of Diabetes) highlights the **vulnerability of indian youth** towards **diabetes.**

Key Points

- The research titled “**Lifetime risk of diabetes in metropolitan cities in India,**” was done by a team of authors in India, U.K. and U.S., **led by Shammi Luhar, Department of Public Health and Primary Care, University of Cambridge, U.K.**

- **Findings of the study:**

- More than **half of men** (55%) and **two thirds** (65%) of **women aged 20 years in India** are more likely to develop diabetes, with most of those cases (**around 95%**) likely to be **type 2 diabetes** (T2D) in their lifetime.

- Type 2 diabetes:**

- It affects the way the body uses insulin. While the body still makes insulin, unlike in type I, the **cells in the body do not respond** to it as effectively as they once did.
 - The population with 45 and above age groups is the most affected with it.
 - This is the most common type of diabetes and it has strong links with obesity.
 - Lifetime risk of developing diabetes in 20 year old men and women free of diabetes today is **56% and 65%**, respectively.
 - **Obesity** has a significant impact on vulnerability to diabetes.
86% higher among 20 year old women and **87%** among men of **metropolitan area**.
 - India currently has **77 million adults who have diabetes** and this number is **expected to almost double to 134 million by 2045**.
 - Women generally **had a higher lifetime risk of developing diabetes** across their lifespan.
 - Remaining lifetime risk of developing diabetes **declined with age**. As per researchers, those **currently aged 60 years and free of diabetes**, are **less likely to develop diabetes** in their remaining life.

- **Sources of data for the study:**

- **Sex and BMI-specific incidence rates** of diabetes in urban India taken from the **Centre for Cardiometabolic Risk Reduction in South Asia (2010–2018)**;
- **age, sex and urban-specific rates of mortality** from period lifetables reported by the **Government of India (2014)**;
- Prevalence of diabetes from the **Indian Council for Medical Research India Diabetes study (2008–2015)**.

- **Impact of high probabilities of developing diabetes:**

- Overburdening of already **strained health Infrastructure** of the country.
- Increase **out-of-pocket expenditure** on diabetes treatment by patients.

- **Causes of such high incidences of diabetes:**

- Urbanisation
- Decreasing diet quality
- Decreased levels of physical activity

- **Prevention or postponing diabetes by effective lifestyle modification, such as:**
 - Following a healthy diet
 - Increasing physical activity
 - Reducing body weight in those who are obese or overweight

Diabetes

- Diabetes is a **Non-Communicable Disease (NCD)** that occurs either when the pancreas **does not produce enough insulin** (a hormone that regulates blood sugar, or glucose), or when the **body cannot effectively use** the insulin it produces.
- Types:
 - **Type I diabetes:** It is also known as **juvenile diabetes** (as it mostly affects children of age 14-16 years), this type occurs when the **body fails to produce sufficient insulin**. People with type I diabetes are **insulin-dependent**, which means they must take artificial insulin daily to stay alive.
 - **Gestational diabetes:** This type occurs in women during pregnancy when the body sometimes **becomes less sensitive to insulin**. Gestational diabetes does not occur in all women and **usually resolves after giving birth**.
- Diabetes affects the **five major organs** namely, **Kidney, Heart, Blood vessels, Nervous System, and Eyes (retina)**.
- The factors responsible for the increase in diabetes are an **unhealthy diet, lack of physical activity, harmful use of alcohol, overweight/obesity, tobacco use, etc.**

Source:TH

Electrification of Railways

Why in News

Recently, the **Minister of Railways** has inaugurated the newly electrified **Dhigawara-Bandikui section** of **North Western Railway** and flagged off the first **train on this electrified route** from **Dhigawara station** in **Alwar District**, Rajasthan.

Key Points

- **History of Railways:**

- **1832:** The **first railway proposals** for India were made in Madras.
- **1837:** The country got its **first train in the form of Red Hill Railway**, which was built with the sole purpose of transporting granite for road building.
- **1853:** In **April**, India's **first passenger train**, operated by the Great Indian Peninsula Railway **ran between Bori Bunder (Mumbai) and Thane**.
- **1925:** In **February**, the **first electric passenger train** ran between **Victoria Terminus and Kurla (Mumbai)**.
- **1951:** Indian Railways was **nationalised**.

- **Current Electrification:**

- Indian Railways has set a **target to complete Electrification of its Broad gauge network by December 2023**.
- More than **66% of the Broad gauge route** has already been **electrified**.
- With **18065 km of electrification**, Railways recorded a **371% increase in electrification during 2014-20** period as compared to 2009-2014.

- **Benefits of Electrification:**

- **Speed:** 100% electrification will provide **seamless train operation by eliminating detention of trains** due to change in traction (action of drawing or pulling something over a surface) from diesel to electric and vice versa.
- **Capacity:** It will help Railways in **enhancing line capacity due to higher speed and higher haulage capacity** of electric locomotives.
- **Safety: Improved signaling system** will lead to enhanced safety in train operations.
- **Less Financial Burden:** Electric traction is much **cheaper and efficient** compared with diesel traction as running trains on electric traction is **50% cheaper** than diesel.
- **Seamless Movement: Electric Multiple Units (EMUs)** are ideal for suburban services, which require **higher acceleration and braking features** for frequent starts and stops.
- **Employment Generation:** Direct employment during the construction phase for electrification will translate to about 20.4 crore man days, which will significantly boost the employment.
- **Energy Security:** Total shift to electric traction will **reduce fossil fuel consumption** of about 2.83 billion liters per annum and also give a subsequent reduction in **greenhouse gases** (GHG) emissions.

GHG emission for electric traction falls below diesel traction, making it an environmentally friendly option.
- **Energy Bill Savings:** It provides savings of **Rs. 13,510 crore per annum** in fuel bill as **maintenance of electric locomotive is low** as compared to diesel locomotive.

Regeneration facilities of electric locomotives will **save 15-20% energy** and also there is a **reduced overall requirement of electric locomotives** due to their **higher horsepower**.
- **Sustainability: Reduced carbon footprint** as environmental cost per tonne Km for electric traction is less as compared to diesel traction.
 - In line with the commitment made by India in **Conference of Parties (COP) 21 (Paris)** total shift to electric traction will **reduce Carbon Dioxide (CO₂) emission of Railways by 24% till 2027-28**.
 - **Carbon footprint** can be defined as the total amount of **GHG** produced directly and indirectly to support **human activities**, usually expressed in equivalent **tons of CO₂**.

- **Using More Renewable Energy:**

- In **July 2020**, Indian Railways **decided to be self-reliant for its energy needs** by utilizing its vacant lands for **Renewable Energy** (RE) projects.
- It will utilize **solar energy** for meeting its traction power requirements.

Guru Nanak Jayanti

Why in News

The President of India has greeted the citizens on the occasion of **Guru Nanak Jayanti**.

It is a sacred festival of the Sikh community and is celebrated to commemorate the birth anniversary of **Guru Nanak Dev**, who is believed to be born on **Poornima** (full moon) of the **Kartika** (8th month of Hindu calendar), which falls on **30th of November in 2020**.

Key Points

- **Guru Nanak Dev:**
 - **Birth:** In 1459 at **Talwandi Rai Bhoi village near Lahore**, which was later renamed as **Nankana Sahib**.
 - He was the first of the **10 gurus** of **Sikhism**.
 - **Contributions:**
 - Initiated **inter-faith dialogue way back in the 16th century** and had conversations with most of the religious denominations of his times.
 - Wrote compositions which were included in the **Adi Granth**, compiled by **Guru Arjan** (1563-1606), the **fifth Sikh guru**.
This came to be known as **Guru Granth Sahib after the additions made by the 10th sikh guru Gobind Singh** (1666-1708).
 - Advocated the '**Nirguna**' (devotion to and worship of formless divine) form of bhakti.
 - Rejected **sacrifices, ritual baths, image worship, austerities**.
 - Set up rules for **congregational worship (Sangat)** involving collective recitation.
 - Gave the basic mantra of '**Ek Onkar**' to his followers and insisted on treating all human beings equally, without discriminating on the **basis of caste, creed and gender**.
 - **Death:** In 1539 at **Kartarpur, Punjab**.

- **Relevance of Guru Nanak Dev for Modern India:**

- **Building an Egalitarian Society:** His idea of **equality** can be deduced by the following innovative social institutions, as given by him:
 - **Langar:** Collective cooking and sharing of food.
 - **Pangat:** Partaking food without distinctions of high and low caste.
 - **Sangat:** Collective decision making.
- **Social Harmony:**
 - According to him, the whole world is God's creation and all are born equal. There is only one universal creator i.e. **"Ek Onkar Satnam"**.
 - Apart from it, forgiveness, patience, forbearance, and kindness are the core of his teachings.
- **Creating a Just Society:**
 - He placed the motto of **"kirat karo, naam japo and vand chhako"** (work, worship and share) before his disciples.
 - He stood for karma as the basis of dharma, and he transformed the idea of spiritualism into the ideology of social responsibility and social change.
 - He advocated the concept of **"dasvandh"** or **donating one-tenth of one's earning** among needy persons.
- **Gender Equality:**
 - According to him, **"Women as well as men share the grace of God and are equally responsible for their actions to him."**
 - Respect for women and gender equality is perhaps the most important lesson to be learnt from his life.
- **Bringing Peace:**
 - According to Indian philosophy, a Guru is the one who provides illumination, dispels doubt and shows the right path. In this context, the ideas of Guru Nanak Dev can help **promote peace, equality and prosperity across the globe.**
 - In 2019, the **550th birth anniversary of Guru Nanak Dev** was celebrated and the **Kartarpur corridor** was inaugurated, which is an important step towards easing the **tensions between India and Pakistan.**

Source:PIB
