15ᵗʰ Sept, 2024

1. **The shock of Crumbling Infrastructure and the Solution**
   GS 3 (Infrastructure)

- **Why in News:** Recent reports on the collapse of several **under-construction bridges in Bihar** underscore significant quality control and project implementation issues within **India's infrastructure sector**. The government aims to transform India into a **developed nation by 2047**, emphasizing infrastructure improvements through initiatives such as the **PM Gati Shakti National Master Plan** and the **Smart Cities Mission**. Despite increasing capital expenditure to Rs 11.11 lakh crore in Budget 2024, the sector faces persistent challenges, including time delays and cost overruns.

- **Project Delays and Cost Overruns**
  o **Statistics on Cost Overruns**: As of December 2023, 431 infrastructure projects with investments of Rs 150 crore or more experienced cost overruns totaling Rs 4.82 lakh crore, highlighting severe financial inefficiencies.
  o **Extent of Delays**: Out of 779 delayed projects, 36% were behind schedule by 25 to 60 months, with 23% delayed by 13 to 24 months and 15% by over 60 months, indicating a systemic issue in timely project completion.
  o **Impact on Infrastructure Development**: These delays and cost overruns impose additional financial burdens on the government, diverting funds from other critical projects and inflating procurement costs, thereby hindering overall infrastructure growth.

- **Gaps in Project Management**
  o **Implementation Challenges:** The current project management practices reveal gaps in planning and execution, especially in urban infrastructure, where there is often insufficient capacity and oversight by local self-government institutions.
  o **Need for Comprehensive Planning**: Inadequate planning during the project conception stage results in increased expenditures and inefficiencies. Effective project management and planning are essential for managing large-scale infrastructure projects.
  o **Overhaul of Traditional Practices**: Modernizing project management practices with real-time data management and global best practices is crucial for improving the efficiency and effectiveness of infrastructure projects.

- **Program Management Approach**
  o **Successful Models**: The Shendra-Bidkin industrial corridor in Maharashtra exemplifies the effective use of a **Program Management Approach**, coordinating multiple projects to optimize resource use and achieve unified objectives.
  o **Proposed Agency for Professional Training**: Establishing an agency to conduct professional courses in project management, akin to the Institute of Chartered Accountants of India, will enhance project execution standards and develop a skilled workforce.

- o **Government's Role and Funding**: With substantial taxpayer funding allocated for infrastructure, it is imperative to implement robust program management systems to prevent project failures and ensure efficient use of resources for future-ready infrastructure.

2. Port Blair renamed Sri Vijaya Puram
Recent events of importance

- **Why in News:** The Union government announced the renaming of **Port Blair** to '**Sri Vijaya Puram**' to "**free the nation from colonial imprints**". Port Blair has long carried the name of **Captain Archibald Blair**, a British naval officer of the **East India Company** after whom the gateway to the island was named after. Earlier in January 2023, Prime Minister Narendra Modi named 21 large uninhabited islands in **Andaman and Nicobar** after **Param Vir Chakra awardees**.

- **Who Was Captain Archibald Blair?**
  - o Archibald Blair joined the **Bombay Marine** under the **British East India Company** in 1771. His first significant role as a midshipman involved **surveying the coasts of India, Iran, and Arabia** in 1772.
  - o **French Captivity:** In 1780, Blair was captured by a French warship while on an expedition to the **Cape of Good Hope.** He was imprisoned until 1784 and later handed over to the Dutch.
  - o **Blair's Role in Andaman Islands**
    - ▪ His most notable work was **surveying the Andaman Islands** from December 1788 to April 1789. **His detailed report led to the British decision to colonize the islands.**
    - ▪ Blair discovered a natural harbour on the southern part of Great Andaman Island and initially named it **Port Cornwallis** in honor of **Commodore William Cornwallis**, the British-Indian navy's Commander-in-Chief. This harbour was later renamed **Port Blair** in his own honor.
  - o **Settlement Efforts**
    - ▪ The first colony was established in South Andaman by Archibald Blair He established a settlement on Chatham Island, initially called Port Cornwallis. This new location faced a series of disasters, including disease outbreaks, leading to its abandonment in 1796.
    - ▪ Blair was replaced by **Major Alexander Kyd** and returned to England in 1795.

- **Freedom Struggle in Andaman and Nicobar Islands**
  - o Infamously known as "Kala Pani" or "Black Waters," this remote convict colony became a place where prisoners in India, both political and non-political, were exiled.

- **Rise of Penal Colonization**: After the first war of independence in 1857, the British needed to suppress dissent more effectively. They decided to use the Andaman Islands as a penal settlement to isolate political and non-political prisoners. The Andaman Committee, led by Dr. F.J. Mouat, recommended this move.

- **Prison Conditions and Rebellions**: The harsh conditions led to multiple escapes and harsh reprisals. In 1858, 251 prisoners escaped, and the brutal execution of 88 escapees was ordered.

- **Great Andamanese Resistance**: The Great Andamanese tribe resisted British rule, culminating in the Battle of Aberdeen on May 17, 1859. Despite their bravery, the indigenous people suffered heavy casualties.

- **Notable Events and Figure**
  - o **Assassination of Lord Mayo**: In 1872 Lord Mayo, the Viceroy of India, was assassinated by Sher Ali, a convict from Peshawar. This assassination highlighted the discontent among prisoners and sent shockwaves through the British administration.

Port Blair is now Sri Vijaya Puram, Shah says removing slavery symbol

VIKAS PATHAK
NEW DELHI, SEPTEMBER 13

THE CENTRE on Friday renamed Port Blair, the capital of Andaman and Nicobar Islands, as Sri Vijaya Puram. Making the announcement, Union Home Minister Amit Shah said the decision was taken as part of Prime Minister Narendra Modi's vision to "rid the country of all symbols of slavery".

Andaman and Nicobar Islands had an "unparalleled place" in India's freedom struggle, Shah said.

He recalled that V D Savarkar had spent years in the Cellular Jail in the Andamans, and that Netaji Subhas Chandra Bose had hoisted the Tricolour on the island.

"Inspired by the resolve of Prime Minister Shri @narendramodi ji to rid the country of all symbols of slavery, today the Home Ministry has decided to rename Port Blair as 'Sri Vijaya Puram'. The name 'Sri Vijaya Puram' reflects our struggle for freedom and the contribution of Andaman and Nicobar in it," Shah said in a post on X.

"This island has a unique place in our country's independence and history. This island, which played the role of a naval base in the Chola Empire, is today ready to accelerate the country's

- o **Construction of Cellular Jail (1896-1906):** The British constructed the Cellular Jail to impose stricter confinement on political prisoners. It became infamous for its brutal conditions and the torture inflicted on its inmates, including well-known revolutionaries and freedom fighters.
- o **Hunger Strikes and Protests (1932-1937):** Several hunger strikes were organized by political prisoners demanding better conditions. These strikes, particularly the ones in 1933, garnered national attention and led to protests on the mainland.
- o **Japanese Occupation (1942):** During World War II, the Japanese forces captured the Andaman Islands. The Indian Independence League, led by leaders like Subash Chandra Bose, raised the Indian flag on December 30, 1943, marking a significant event in India's fight for freedom.
- o **End of Penal Settlement (1945):** With the end of World War II and the reoccupation by British forces, the penal settlement was closed. All prisoners were granted pardons, marking the end of this dark chapter.

3. Disengagement at four places in eastern Ladakh
GS 2 (International Relations)

- **Why in News:** China recently announced that its troops have disengaged (process where military forces pull back or withdraw from positions they occupied) from four locations in eastern Ladakh, including the Galwan Valley.
- **Locations of Disengagement**
  - o The disengagement has occurred in the following four areas in eastern Ladakh:
    - **Galwan Valley:** The Galwan river valley is strategically located between Ladakh in the west and Aksai Chin in the east, which is currently controlled by China as part of its Xinjiang Uyghur Autonomous Region.
    - Galwan River has its source in Aksai Chin, on China's side of the LAC, and it flows from the east to Ladakh, where it meets the Shyok river on India's side of the LAC.
    - The LAC lies east of the confluence of the **Galwan and Shyok rivers** in the valley.
    - At its western end are the Shyok river and the Darbuk-Shyok-Daulet Beg Oldie (DSDBO) road. Its eastern mouth lies not far from China's vital Xinjiang Tibet road, now called the G219 highway.
    - **Pangong Lake (North and South Banks):** Pangong Lake, situated at a height of almost 4,350m, is the world's highest saltwater lake.
    - Extending to almost 160km, one-third (45 km) of the Pangong Lake lies in India and the other two-thirds in China. The Line of Actual Control (LAC) passes through the lake, and both countries have conflicting claims over the territory surrounding it.
    - It is accessible via a high-altitude mountain pass, the **Chang La,** which is one of the **highest motorable passes in the world.**
    - **Khurnak Fort** lies on the northern shore of Pangong Tso and has been in Chinese-held territory since 1958. Before 1958, the boundary between India and China was considered at the Khurnak Fort but the latter has wrested control since then

DAY AFTER DOVAL-WANG YI MEET

Disengaged at four places in Eastern Ladakh, situation stable, says China

SHUBHAJIT ROY
NEW DELHI, SEPTEMBER 13

NSA Ajit Doval and Chinese Foreign Minister Wang Yi held talks in St Petersburg on Thursday

A DAY after External Affairs Minister S Jaishankar said that about 75 per cent of the "disengagement problems" with China have been sorted out, the Chinese Foreign ministry Friday said that the troops have disengaged at four places in Eastern Ladakh, including Galwan Valley.

This came a day after National Security Advisor Ajit Doval and Chinese Foreign Minister Wang Yi held talks on the sidelines of a meeting of BRICS NSAs in St Petersburg in Russia where they discussed the progress made in the recent consultations on border issues, the Chinese Foreign Ministry said.

When asked whether the two countries are close to a breakthrough to revive the bilateral ties frozen for over four years due to the military standoff in Eastern Ladakh, Chinese Foreign Ministry spokesperson Mao Ning told a media briefing Friday that the two militaries realised disengagement in four areas and the situation along the border is stable.

"In recent years, frontline armies of the two countries have realised disengagement in four areas in the Western sector of the China-India border, including the Galwan Valley. The China-India border situation is generally stable and under control," Ning said.

About the Doval-Wang meeting, the Chinese Foreign ministry said both parties expressed the belief that the stability of the China-India relations is in the fundamental and long-term interests of the two countries and conducive to regional peace and development.

China and India agreed to implement the consensus reached by the heads of the two countries, enhance mutual understanding and trust, maintain continuous communication, and create conditions for boosting bilateral ties, it said. Wang, also a member of the Political Bureau of the Communist Party of China Central Committee, stressed that facing a turbulent world, China and India as two ancient eastern civilisations and emerging developing countries should adhere to independence, choose unity and cooperation, and avoid consuming each other, state-run Xinhua news agency reported.

During their Thursday meeting, both Wang and Doval discussed progress made in recent consultation on border issues and agreed to deliver on the common understandings reached by leaders of the two countries, enhance mutual understanding and trust, create conditions for improving bilateral ties and maintain communication to this end, Mao said.

The Ministry of External Affairs, in a statement, said the meeting gave the two sides an opportunity to "review the recent efforts towards finding an early resolution of the remaining issues along the LAC, which will create conditions to stabilise and rebuild bilateral relations".

"Both sides agreed to work with urgency and redouble their efforts to realise complete disengagement in the remaining areas. The NSA conveyed that peace and tranquillity in border areas and respect for LAC are essential for normalcy in bilateral relations," the MEA said.

The BRICS leaders' summit is scheduled to take place from October 22 to 24 in Kazan, Russia, which is expected to be attended by Prime Minister Narendra Modi and Chinese President Xi Jinping, among other leaders.

The MEA said the "two sides agreed that the India-China bilateral relationship is significant not just for the two countries but also for the region and the world."

- o **Gogra and Hot Spring:** Both Hot Spring (PP15) and Gogra (PP17A) are part of the 65 patrolling points along the Line of Actual Control (LAC) in Ladakh.
- o PP15 is located in an area known as the Hot Springs, while PP17A is near an area called the Gogra post.
- o Both of these are close to the **Chang Chenmo river** in the Galwan sub-sector of the LAC in eastern Ladakh.
- o While Hot Springs is just **north of the Chang Chenmo river**, Gogra Post is **east of the point** where the river takes a hairpin bend coming southeast from Galwan Valley and turning southwest.
- o The area is north of the **Karakoram Range of mountains**, which lies north of the Pangong Tso lake, and south east of Galwan Valley.

4. <u>**CO2 Emissions from Transport Sector could be Slashed up to 71% by 2050: Study**</u>
   <u>**GS 3 (Environment)**</u>

- **Background:**
  - o A recent study by the World Resources Institute (WRI) India reveals that India's transport sector has the potential to reduce carbon dioxide (CO2) emissions by up to 71% by 2050 if key strategies are implemented.
  - o These strategies include **electrification**, **improving fuel economy standards**, and **adopting cleaner modes of transport** and **mobility**.

- **Emissions from India's Transport Sector:**
  - o In 2020, India's transport sector contributed 14% of the country's total energy-related CO2 emissions.
  - o The study stresses the urgent need for an emission reduction roadmap for the sector to help meet India's net-zero target by 2070.
  - o The findings are based on an energy policy simulator that models various decarbonization targets and outcomes.
  - o **Sectoral Breakdown of CO2 Emissions:**
    - ▪ **Road transport remains the most carbon-intensive segment**, accounting for 90% of the transport sector's CO2 emissions.
    - ▪ Two-wheelers contribute 16%, cars 25%, buses 9%, light-duty freight vehicles 8%, and heavy-duty freight vehicles 45%—the highest of any category.
    - ▪ Other modes like railways, aviation, and waterways accounted for 6%, 3%, and 1% of energy consumption, respectively.

- **Key Findings of the Study:**
  - o The report highlights that a high-ambition strategy involving electrification, fuel economy improvements, and modal shifts could significantly reduce CO2 emissions.
  - o According to the study, **implementing these strategies at their maximum potential could cut CO2 emissions and fossil fuel consumption by 71% by 2050**, compared to a business-as-usual (BAU) scenario.
  - o The study also notes that integrating a carbon-free electricity standard, where 75% of electricity comes from renewable sources, could lead to a 75% reduction in emissions by 2050 compared to BAU levels.

- **Least-Cost Policies for Decarbonization:**
  - o The study emphasized that decarbonizing India's transport sector can be achieved through cost-effective policies.
  - o The simulation suggests that **shifting to low-carbon transport for both freight and passenger segments is the most economical long-term solution**, with an estimated saving of Rs. 12,118 per tonne of CO2 abated.
  - o **Electric Vehicles and CO2 Reduction:**

- One of the most effective strategies for reducing CO2 emissions is the expansion of electric vehicle (EV) sales
- The study estimates that the annual abatement potential for CO2 emissions from EV adoption could reach 121 million metric tonnes (MtCO2e).
- Additionally, decarbonizing electricity generation could further enhance the effectiveness of EV electrification targets.

- **Risk of Business-As-Usual (BAU) Scenario:**
  - If India follows a BAU scenario, the transport sector will continue to rely heavily on fossil fuels until 2050.
  - **The study warns that fossil fuel consumption, including LPG, diesel, and petrol, is expected to quadruple over the next three decades**.
  - This rise will be driven by a surge in passenger and freight travel demand, which are projected to triple and increase sevenfold, respectively, between 2020 and 2050.
- **Conclusion:**
  - The WRI study highlights the need for ambitious policies and strategies to decarbonize India's transport sector, emphasizing the importance of electric vehicles, fuel efficiency, and cleaner transportation modes.
  - Without these measures, India risks remaining heavily dependent on fossil fuels, further driving CO2 emissions in the coming decades.

5. **OpenAI o1**
   GS 3 (Science and Tech)

- **Why in News:** Recently, OpenAI has released a new AI model called o1 and also released a smaller, cheaper version of the o1 called o1-mini.
- **About OpenAI o1:**
  - It is a new **Large Language Model (LLM)** trained with reinforcement learning to perform complex reasoning.
  - It **thinks before it answers**—it can produce a long internal chain of thought before responding to the user.
  - This model can reason through complex tasks and solve harder problems than previous models in science, coding and math.
  - According to the company, the model is a progressive step toward achieving human-like AI.
  - It also demonstrates tangible improvements in key areas, such as **generating code and tackling complex,** multistep challenges with greater proficiency than its predecessors.
  - It has trained these models to spend **more time thinking** through problems before they respond, much like a human would.
  - The **o1 model scored 83 per cent** on the qualifying exam for the International Mathematics Olympiad, OpenAI said in its blog post. This is a vast **improvement from the 13 per cent scored** by its predecessor, GPT-4o.
  - OpenAI's previous GPT models were simply taught to provide answers by detecting patterns in training data.
  - But, in the case of o1, researchers at the organisation first taught the model using a system of rewards and penalties.
  - Then, o1 was taught to process user queries by breaking them down and going through them one step at a time.
  - Currently, the o1 **can neither browse the internet nor process** files and images. It also lacks factual information about recent world events.

WHAT IS OPENAI O1, THE AI MODEL THAT 'THINKS' BEFORE IT ANSWERS?

BIJIN JOSE
NEW DELHI, SEPTEMBER 13

OPENAI, the world's premier artificial intelligence research organisation, on Thursday released its latest AI model. The new OpenAI o1 is the first in a planned series of "reasoning" models that have been designed to solve more complex tasks and problems in science, coding, and maths.

The model is part of the organisation's secretive Project Strawberry, which is expected to feature autonomous Internet research and dramatically improve AI reasoning capabilities.

How does the new model work?
According to OpenAI, o1 is designed to "think" more carefully about queries before answering — like how humans do while solving a complex problem. The organisation has trained the model to learn how to approach problems from different perspectives, check its output, and learn from its mistakes. This is a big leap forward in AI technology, OpenAI said.

OpenAI o1 is an early version and is yet to be equipped with other features such as browsing the web or managing files and images. The next update of this model is expected to perform similarly to PhD students on challenging benchmark tasks in physics, chemistry, and biology.

What about the safety of the model?
OpenAI said to make it safe to use, it has created a new way of training, which

helps the model to understand and follow safety rules better by using its problem-solving skills.

The organisation has tested how well the model follows safety rules, even when users try to trick the AI into breaking them (known as AI jailbreaking). The company said that in one of its toughest tests, the earlier version of the AI model scored 22 out of 100, and the new version scored 84.

OpenAI has improved its safety efforts by working closely with the United Kingdom and the United States governments and their AI safety teams. It has also been given early access to a version of the model to safety groups for research.

How can it impact jobs and research?
Since the new model can solve complex problems, it may impact jobs that could include tasks such as software development, data analysis, coding, mathematical modelling, etc. Reasoning is an intellectual task, and automating it would likely reduce the need for human involvement in some routine coding and troubleshooting in industries such as IT, finance, and engineering.

When it comes to researchers, o1 can be an assistant in fields like physics, chemistry, biology, and healthcare as it can speed up problem-solving. The model's ability to generate formulae and analyse large datasets makes it a helpful tool for researchers looking for breakthroughs.

OpenAI o1 is a big step forward in AI's handling of tasks that are traditionally managed by highly skilled professionals.

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MCQ Current Affairs
14ᵗʰ Sept, 2024

1.   The Irula Tribe primarily lives in which one of the following groups of states?
a)   Tamil Nadu, Kerala, and Karnataka
b)   Andhra Pradesh, Telangana, and Karnataka
c)   Gujarat, Maharashtra, and Madhya Pradesh
d)   Assam, Bihar, and West Bengal

2.   Onitis bordati, recently in news is a:
a)   Bird
b)   Gecko
c)   Spider
d)   Dung Bettle

3.   Consider the following statements regarding the Rangeen Machhli App:
   A.   It provides multilingual information on popular ornamental fish species in eight Indian languages.
   B.   It is developed by the Indian Council of Agricultural Research and Central Institute of Freshwater Aquaculture.

Which of the statements given above is/are correct?

   a)   A only
   b)   B only
   c)   A and B
   d)   Neither of two

4.   Consider the following statements regarding the OpenAI o1 model:
A.   It is a new large language model trained with reinforcement learning to perform complex reasoning.
B.   It cannot browse the internet and process files and images.

Which of the statements given above is/are correct?

a)   A only
b)   B only
c)   A and B
d)   Neither of two

5.   Consider the following statements regarding the Port Blair:
   A.   It is located on the West coast of the South Andaman Island.
   B.   It was used by the Chola emperor as a strategic naval base during the 11th century AD.

Which of the statements given above is/are correct?

   a)   A only
   b)   B only
   c)   A and B
   d)   Neither of two

Answers Current Affairs
14th Sept, 2024

1. a
2. d
3. c
4. c
5. c