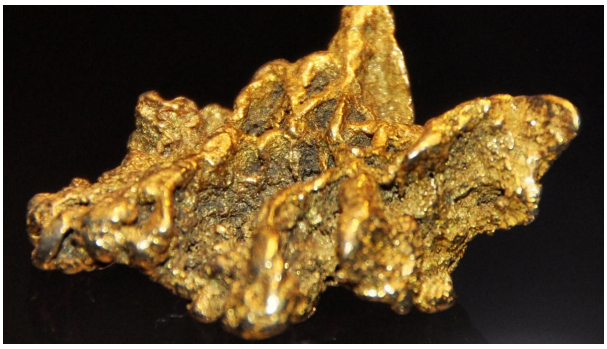
UPSC Daily Current Affairs | Prelim Bits 05-09-2024

Gold nuggets in orogenic quartz veins

A study explored why gold nuggets accumulate in orogenic quartz veins found in mountainous areas.

- **Gold Nuggets** - Gold nuggets are naturally occurring pieces of gold formed through erosion and contains 75 to 97 % gold.



- **Gold Nugget Formation-** Most nuggets originate from the quartz veins formed in orogenic gold systems found around the world.

  Orogenic refers to mountain formation driven by tectonic plate convergence and deformation.

- **Quartz and Piezoelectric Effect-** Quartz, a piezoelectric crystal, develops a voltage when squeezed or mechanically distorted.
- **Piezo catalytic chemical reactions** - Piezoelectric field distorts the electronic properties of the crystal.
- It makes the charged particles, like electrons, flow from the crystal to an aqueous solution on its surface or vice versa.
- This drives electrochemical reactions at the material-solution interface and causes gold to be deposited from the solution to the slabs' surface.
- **Earthquake** - Seismic activity can repeatedly squeeze quartz crystals, leading to piezo catalytic reactions and the gradual accumulation of gold in quartz veins.
- Over time, this process results in large gold nuggets.

Reference

The Hindu | Earthquakes Nature's Goldsmiths

MoU between Comptroller and Auditor General of India(CAG) and UAE Accountability Authority(UAEAA)

The Comptroller and Auditor General of India (CAG) has signed a Memorandum of Understanding (MoU) with the UAE Accountability Authority (UAEAA).

- **Objective-** To promote cooperation and strengthen the professional capacity of CAG and UAEAA.
- To improve methodologies in the field of public sector audit.

The UAE Accountability Authority (UAEAA) is the supreme institution for financial audit and accounting in the UAE, reporting directly to the President.

- **Areas of cooperation-** Exchange of knowledge and experiences in public auditing.
- Conducting capacity development programs at SAI India or SAI UAE as needed.
- **Significance-** The MoU reaffirms the shared values and goals of the two institutions.
- It enhances opportunities for ***knowledge exchange and strengthens bilateral ties.***

Comptroller and Auditor General of India (CAG)

• CAG is a constitutional body established under Article 148 of the Constitution of India.
• CAG is the head of the Indian Audit and Accounts Department.
• **Duty** - Uphold the Constitution of India and laws of Parliament in the field of financial administration.

Constitutional Provisions
Article 148 - Comptroller and Auditor-General of India
Article 149 - Duties and Powers of the Comptroller and Auditor-General
Article 150 - Form of Accounts of The Union and of The States
Article 151 - Audit Reports
Article 279 - Calculation of "net proceeds", etc.

To read more about the Comptroller and Auditor General of India (CAG) Click here

References

1. The Hindu | *MoU between CAG and UAE*

2. UAEAA | About UAEAA

New Defence Procurements

Recently, the Defence Acquisition Council has approved 10 capital acquisition proposals.

- **Objective-** Modernizing India's defence capabilities of Army, Navy and Indian Coast Guards.

  The Defence Acquisition Council (DAC), chaired by the Minister of Defence, is responsible for formulating new policies and approving capital acquisitions for the Army, Navy, Air Force, and the Indian Coast Guard.

- The procurements range from Advanced Tanks, Aircrafts ,Frigates and Air defence Radars.
- **Future Ready Combat Vehicles**– FRCVs are futuristic main battle tanks to replace the ageing Soviet-origin T-92 tanks.



- **Features** - Advanced mobility, all-terrain capability, multi-layered protection, precision weaponry, and real-time situational awareness.
- **Air Defence Fire Control Radars** – It can detect and track aerial targets, and provide firing solutions.



- ADFCR in conjunction with Anti-Aircraft Guns forms a Ground Based Air Defence system
- It is an effective point defence against air threats at short and very short ranges during day and night under all weather conditions.

- **Features** - X-Band Active Array Antenna based 3D-Search Radar, Ka-Band Tracking Radar, Electro-Optical Sensors for passive 2D-tracking.
- **Forward Repair Team (Tracked)** – It has suitable cross-country mobility for carrying out in-situ repair during mechanised operations.
    - **Developed by** - Armoured Vehicles Nigam Ltd
- **Dornier-228 aircraft** – It is a most advanced high-wing aircraft with capabilities of long range, high utilization rates and high payload.



- **Next Generation Fast Patrol Vessels** – It has high operational features in rough weather conditions.
- **Next Generation Offshore Patrol Vessels** – NGOPVs can be operated in both deep waters and coastal areas.



- **Features** - It measures approximately 110m in length, maximum speed of not less than 25kt.
- The vessels can operate at sea for up to 60 days with minimum service life of 30 years.
- It is equipped with a sophisticated electronic warfare (EW) suite.
- **Stealth Frigates** – These are a class of stealth guided-missile frigates developed under Project-17 Bravo frigates (P-17B) or Next Generation Frigates (NGF).
    - **Developed by** - Garden Reach Shipbuilders and Engineers (GRSE) and Mazagaon Dock Shipbuilders Limited (MDL).
- **Mode of Procurement-** 99% of the procurement cost will be sourced from indigenous manufacturers under the ***"Buy (Indian)" and "Buy (Indian-Indigenously Designed Developed and Manufactured)" categories.***

Reference

[The Print | Procurement of Aircraft and Radars]

UK-India Infrastructure Financing Bridge (UKIIFB)

Recently UKIIFB agreement was signed between NITI Aayog and City of London Corporation in London.

- **UKIIFB** - UK India Infrastructure Financing Bridge is a collaborative initiative led jointly by ***NITI Aayog and the City of London Corporation***.
- It was agreed during the UK Economic and Financial Dialogue (EFD) in September 2023 and signed in September 2024.
- **Agreement Period** – 2 years.
- **Aim** – To facilitate international investments into India's ambitious infrastructure projects.
- **Functions** - Accelerate the mobilisation of international private sector investment into Indian sustainable infrastructure.
- Make recommendations on addressing barriers to international private sector investment in Indian sustainable infrastructure.
- Work together towards developing knowledge and best practices on sustainable infrastructure projects and make it investable and attractive to international investors.
- **Steering Committee** – It consists of representatives of both the countries from
    - Government's Treasury department
    - Construction Companies
    - Engineering and legal firms
- **Identified Projects** - Eight projects, including Delhi-Meerut Regional Rapid Transit System, highways and a few related to green hydrogen and renewables, have been identified for support and funding under the UKIIFB.

The FTA negotiations between India and UK is still undergoing and is not signed yet.

References

1. Indian Express | UK-India Infrastructure Financing Bridge
2. Sansad | INDIA-UK INFRASTRUCTURE FINANCE BRIDGE

SHANKAR IAS PARLIAMENT
Information is Empowering