



**CURRENT AFFAIRS**



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## **Sunanda Khajuria and Gouri Vemula : An Artist of Marginal People (GS Paper I : Art and Culture )**

### **Context**

Recently Sunanda Khajuria and Gouri Vemula presented their art work in an exhibition appropriately titled “Liminal Worlds”. This artwork is dedicated to the women of the marginal region

### **Sunanada Khajuria**

Jammu Based Artist born in 1979. She did her masters from Delhi University and did research at China Academy of Fine Art . During her research he learnt Chinese culture and traditional Chinese Art . She is now internationally recognised artist Her works are very well recognised in many countries like Australia, Italy , China and Russia

## Gouri Vemula

- Hyderabad Based Gouri Vemula was born in 1972 . She did her graduation from Jawaharlal Nehru Architecture and fine Art university, Hyderabad and masters from Sarojini Naidu School of Art, Hyderabad . She is also well known artist of India
- Her work is enriched by using of drypoint technique as well as pen and ink drawing

## Works of Sunanda Khajuria and Gouri Vemula

- Generally both used pen and ink for drawing .
- Both used generally monochromatic pen
- The subject of both artist is related to the women of marginal regions
- Title of their work is “Liminal Worlds”,
- There is some distinguishable difference between the artworks of the Khajuria and Vemula . One side Vemula populates his works with the drawing of animals and beasts while Khajuria used Chinese tradition with the mixing of Indian Tradition
- Because of the influence of the Chinese tradition of art The works of Khajuria reflect her close relationship with nature.
- Among her important works are Sunanda Khajuria, *Waiting Room* (2015) & *The End and the Beginning*. In the *Waiting Room*, we see that there is a woman *depicted on canvas and she is integrating with a bird . The birds floating on the canvas are described as “talismans imbued with mysterious symbolic meaning”* and in her work *The End and the Beginning*.we see there is a masked man who is thinking about his future . In Fact this shows the situation of humans in corona period who are uncertain for their future
- Generally there are two types of world: inner world and outer world. The inner world is everything that happens in our minds, such as our thoughts, emotions, feelings, beliefs, etc. Her inspiration of the work

is her inner world Therefore in her work we see the human emotions and the feelings

- Inspiration of the Vemula is deep forest and conjures a fantasy world where nature and urban spaces as well as the real and the imagined coexist. Since She has been related with a tribe so she has depicted the emotions of the tribal people
- “Gouri draws from indigenous classical and popular traditions of Indian iconography, creating imagined landscapes where gods, humans and nature coexist in a tempestuous cosmic play.”
- There couldn't have been a better phrase than 'Kaagitham kalam and sera' to describe the simplicity of Gouri Vemula's art series

The works of these artisans are definitely commendable. They had depicted the emotions of the people on canvas and through their art they explained the pathetic condition of the marginal women and the man who are victimised of this corona pandemic

**Dr. Anshul Bajpai**

## **COP26 Climate Conference GS- 3**

### **Environmental Pollution & Degradation, International Treaties & Agreements**

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## CONTEXT

The **COP 26 United Nations Climate Change Conference** will be hosted by the UK from **31st October to 12th November**. Earlier, **Intergovernmental Panel on Climate Change (IPCC)** published its **assessment report** on Earth's climate, highlighting **heat waves, droughts, extreme rainfall** and **sea-level rise** in the coming decades.

## ABOUT COP

The Conference of Parties comes under the **UNFCCC** which was formed in 1994. The UNFCCC was established to work towards "stabilisation of greenhouse gas concentrations in the atmosphere."

COP is the apex decision-making authority of UNFCCC. It laid out a list of responsibilities for the member states which included Formulating measures to mitigate climate change. Cooperating in preparing for adaptation to the impact of climate change. Promoting education, training and public awareness related to climate change.

COP members have been meeting every year since 1995. The UNFCCC has **198 parties including India**, China and the USA. Generally it meets in Bonn, the seat of the secretariat, unless a Party offers to host the session. The office of the COP President normally rotates among the five United Nations regional groups which are – **Africa, Asia, Latin America and the Caribbean, Central and Eastern Europe and Western Europe and Others**. The President is usually the **environment minister** of his or her home country. S/he is elected by acclamation immediately after the opening of a COP session.

## KEY DISCUSSIONS AT COP- 26

COP 26 Goals: According to the United Nations Climate Change Framework Convention (UNFCCC), COP26 will work towards four goals:

**Net Zero by 2050:** To secure Global Net-Zero by Mid-Century and keep 1.5 Degrees within reach. Countries are being asked to come forward with ambitious 2030 emissions reductions targets that align with reaching net zero by the middle of the century.

To deliver on these stretching targets, countries will need to:

- Accelerate the phase-out of coal
- Curtail deforestation
- Speed up the switch to electric vehicles
- Encourage investment in renewables.

**Adapt to Protect Communities and Natural Habitats:** Countries will work together to 'protect and restore ecosystems and build defences, warning systems and resilient infrastructure and agriculture to avoid loss of homes, livelihoods and even lives.'

**Mobilise Finance:** Developed countries must make good on their promise to mobilise at least USD100bn in climate finance per year.

**Work Together to Deliver:** Another important task at the COP26 is to 'finalise the Paris Rulebook'. Leaders will work together to frame a list of detailed rules that will help fulfil the Paris Agreement.

**Suggestions for India:**

**Update its Nationally Determined Contributions (NDCs).**

(NDCs detail the various efforts taken by each country to reduce the national emissions). Sector by sector plans are needed to bring about development. Decarbonisation of the electricity, transport sector and starting to look at carbon per passenger mile is needed. Aggressively figure out how to transition the coal sector.

## **COP's with Significant Outcomes**

- **1995: COP1 (Berlin, Germany)**
- **1997: COP 3 (Kyoto Protocol)**-It legally binds developed countries to emission reduction targets.
- **2002: COP 8 (New Delhi, India) Delhi Declaration**-Focuses on the development needs of the poorest countries and the need for technology transfer for mitigating climate change.
- **2007: COP13 (Bali, Indonesia)**-Parties agreed on the Bali Road Map and Bali action plan, which charted the way towards a post-2012 outcome. The Plan has five main categories: shared vision, mitigation, adaptation, technology and financing.
- **2010: COP 16 (Cancun)**-Resulted in the **Cancun Agreements**, a comprehensive package by governments to assist developing nations in dealing with climate change. The **Green Climate Fund**, the **Technology Mechanism** and the **Cancun Adaptation Framework** were established.
- **2011: COP 17 (Durban)**-Governments commit to a new universal climate change agreement by 2015 for the period beyond 2020 (Resulted in the Paris Agreement of 2015).
- **2015: COP21 (Paris)**-To keep global temperature well **below 2.0C** above pre-industrial times and endeavor them to limit them **even more to 1.5C**. It requires rich nations to maintain USD 100bn a year funding pledge **beyond the year 2020**.
- **2016: COP22 (Marrakech)** –To move forward on writing the **rule book of the Paris Agreement**. Launched the **Marrakech Partnership** for Climate Action.
- **2017: COP23, Bonn (Germany)**-Countries continued to negotiate the finer details of how the agreement will work from 2020 onwards.

First set of negotiations since the US, under the presidency of Donald Trump, announced its intention earlier this year to withdraw from the Paris deal. It was the first COP to be hosted by a small-island developing state with Fiji taking up the presidency, even though it was being held in Bonn.

- **2018: COP 24, Katowice (Poland)**-It finalized a “rulebook” to operationalise the 2015 Paris Agreement. The rulebook covers climate financing facilities and the actions to be taken as per **Nationally Determined Contributions (NDC)**.
- **2019: COP25, Madrid (Spain)** It was held in Madrid (Spain). There were no **concrete plans regarding the growing climatic urgency**.

**BY ANSHUM VERMA**

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# **Hypersonic Missile Technology GS-3**

## **DEFENCE TECHNOLOGY, SCIENCE & TECHNOLOGY**

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### **CONTEXT**

Recently, it has been reported that China tested a nuclear-capable hypersonic glide vehicle that circled the globe before speeding towards its target. Several countries, including the US, Russia and China, are developing hypersonic missiles which travel at a speed five times that of sound. Though slower than ballistic missiles, they are harder to intercept and can be manoeuvred.

## ABOUT HYPERSONIC TECHNOLOGY

- Hypersonic speeds are **5 or more times** the Mach or speed of sound. Mach Number: It describes an aircraft's speed compared with the speed of sound in air, with Mach 1 equating to the speed of sound i.e. 343 metre per second.
- **Hypersonic cruise missiles:** These are the ones that use rocket or jet propellant through their flight and are regarded as being just faster versions of existing cruise missiles.
- **Hypersonic Glide Vehicle (HGV):** These missiles first go up into the atmosphere on a conventional rocket before being launched towards their target.
- **Technology Used:** Most hypersonic vehicles primarily use the scramjet technology, which is a type of Air Breathing propulsion System. This is extremely complex technology, which also needs to be able to handle high temperatures, making the hypersonic systems extremely costly.

### Implications for India

Hypersonic technology developments, in the backdrop of **growing US-China rivalry** and a year-long **standoff with Indian forces in eastern Ladakh**, is certainly a threat for India's space assets along with the surface assets. The offence system operating at these speeds would **mean a requirement to develop defence systems at these speeds.**

### Ballistic Missile vs Cruise Missile

Ballistic Missile	Cruise Missile
<ul style="list-style-type: none"> <li>• Travel in projectile motion and trajectory depends on gravity, air resistance and Coriolis Force.</li> </ul>	<ul style="list-style-type: none"> <li>• Comparatively follows a straight trajectory of motion.</li> </ul>
<ul style="list-style-type: none"> <li>• Leave the earth's atmosphere and re enter it.</li> </ul>	<ul style="list-style-type: none"> <li>• The flight path is within the earth's atmosphere.</li> </ul>
<ul style="list-style-type: none"> <li>• Long-range missiles (300 km to 12,000 km)</li> </ul>	<ul style="list-style-type: none"> <li>• Short range missiles (range upto 1000 km)</li> </ul>
<ul style="list-style-type: none"> <li>• E.g. Prithvi I, Prithvi II, Agni I, Agni II and Dhanush missiles.</li> </ul>	<ul style="list-style-type: none"> <li>• E.g. BrahMos missiles</li> </ul>

**Hypersonic Technology in India**

**India**, too, is working on hypersonic technologies. As far as space assets are concerned, India has already proved its capabilities through the test of **ASAT under Mission Shakti**.

Hypersonic technology has been developed and tested by both DRDO and ISRO. Recently, DRDO has successfully flight-tested the **Hypersonic Technology Demonstrator Vehicle (HSTDV)**, with a capability to travel at 6 times the speed of sound. Also, a **Hypersonic Wind Tunnel (HWT)** test facility of the DRDO was inaugurated in Hyderabad. It is a pressure vacuum-driven, enclosed free jet facility that simulates Mach 5 to 12.

### **Air Breathing Propulsion System**

These systems **use atmospheric oxygen**, which is available up to about 50 km of earth's surface to burn the fuel stored on-board thereby making the system much lighter, more efficient and cost effective. **Examples** of Air Breathing Propulsion System include the Ramjet, Scramjet, Dual Mode Ramjet (DMRJ).

**Ramjet:** A ramjet is a form of air breathing jet engine that uses the vehicle's forward motion to compress incoming air for combustion without an axial compressor. Fuel is injected in the combustion chamber where it mixes with the hot compressed air and ignites. Ramjets **cannot produce thrust at zero airspeed**; they cannot move an aircraft from a standstill. A ramjet-powered vehicle, therefore, **requires an assisted take-off**, like a rocket assist, to accelerate it to a speed where it begins to produce thrust. The ramjet **works best at supersonic speeds** and as the speed enters the hypersonic range, its efficiency starts to drop.

**Scramjet:** A scramjet engine is **an improvement over the ramjet engine** as it operates at hypersonic speeds and allows supersonic combustion, which gives it its name — **supersonic combustion ramjet, or scramjet**.

The scramjet is composed of **three basic components**:

- A converging inlet where incoming air is compressed,
- A combustor where gaseous fuel is burned with atmospheric oxygen to produce heat,
- A diverging nozzle where the heated air is accelerated to produce thrust. The exhaust gases are accelerated to hypersonic speeds using a divergent nozzle.

The speed at which the vehicle moves through the atmosphere causes the air to compress within the inlet. As such, no moving parts are needed in a scramjet, which reduces the weight and the number of failure points in the engine.

**Dual Mode Ramjet (DMRJ):** The third concept is **a mix of ramjet and scramjet**, which is called DMRJ. There is a need for an engine which can operate at both supersonic and hypersonic speeds. A DMRJ is an engine design where a ramjet transforms into a scramjet over Mach 4-8 range, which means, it can operate in both the subsonic and supersonic combustor mode.

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