



**TATHASTU**  
Institute of Civil Services

# DAILY CURRENT AFFAIRS



**11<sup>th</sup> January, 2024**



S.NO.	TOPIC
1.	TIME-BOUND APPROACH CRUCIAL FOR EFFECTIVENESS OF ORGAN TRANSPLANTATION, EXPLAIN.
2.	THE QUESTION OF MSP: IS INCOME SUPPORT FOR FARMERS BETTER THAN PRICING THAT IS DELINKED FROM MARKET DEMAND?
3.	PRELIMS POINTERS

## TIME-BOUND APPROACH CRUCIAL FOR EFFECTIVENESS OF ORGAN TRANSPLANTATION

**SOURCE:** [INDIAN EXPRESS](#)

**TAG:** GS Paper II- **Government Policies & Interventions, Human Resource, Health**

### Mains Practice Question:

Q. Do you think the Transplant of Human Organs Act 1994 adequately addresses the ethical and legal complexities of organ donation in India? Suggest improvements.

Q. Critically analyse the National Organ Transplant Program (NOTP) in terms of its effectiveness in bridging the organ shortage gap. What are the challenges in its implementation?

Q. How can India overcome the issue of low deceased organ donation rates? Discuss the feasibility and potential impact of introducing financial incentives for donors.

### WHY IN NEWS?

- In a significant judgment, the Delhi High Court has ruled that “the entire process” of transplanting organs from living donors, from the submission of application to the final decision, “ought not to ideally exceed 6 to 8 weeks”.
- It also directed the Health Ministry to prescribe specific timelines for each stage of the process to be followed by the Authorisation Committee under the Transplantation of Human Organs and Tissues Rules, 2014.
- This verdict came after a petitioner seeking a kidney transplant died waiting for permissions to come through.

### WHAT IS ORGAN DONATION AND TRANSPLANTATION?

- **Organ donation and transplantation is a surgical process to replace a failing organ with a healthy one from someone else who willingly ready to donate or who doesn't need it.**
- **Organ donors are usually recently deceased people** who either volunteered before their death to donate their organs afterward, or their family donated them on their behalf.
- **Organ recipients are usually people who are critically ill in the end stages of organ failure.** Organ donation and transplantation can save these people's lives. But due to scarcity, unfortunately, not everyone who needs an organ transplant gets one in time.
- Healthy people can choose to donate certain organs and tissues that they can spare while protecting their own state of health.
  - For example, you can live with only one kidney and donate your other kidney.
  - You can also donate a portion of your liver, and your liver will grow back to nearly full size. The piece of liver that you donate will also grow to a full functional size in the recipient.
- Most people who need an organ transplant have a long and uncertain wait ahead. Living donors can spare them that wait and leave the next organ available for someone else.

### LAW GOVERNING ORGAN DONATION IN INDIA

#### ❖ Transplantation of Human Organs & Tissues Act, 1994

- The **primary legislation** related to **organ donation and transplantation in India, Transplantation of Human Organs & Tissues Act, was passed in 1994** and is aimed at **regulation of removal, storage and transplantation of human organs for therapeutic purposes** and for prevention of commercial dealings in human organs. Some of the main provisions of the Act are as follows:



- **Brain stem death** identified as a form of death. Process and criteria for brain stem death certification defined.
- **Allows transplantation of human organs and tissues** from living donors and cadavers (**after cardiac or brain stem death**).
- **Regulatory and advisory bodies for monitoring transplantation** activity and their constitution defined.
- ❖ **Transplantation of Human Organs (Amendment) Act, 2011**
  - The Government of India enacted the **Transplantation of Human Organs (Amendment) Act, 2011** that allows **swapping of organs** and **widens the donor pool by including grandparents and grandchildren in the list**. Some of the important amendments under this Act are as follows.
    - Provision of '**Retrieval Centres**' for retrieval of organs from deceased donors and their registration under the amended Act.
    - **Definition of near relative expanded to include grandparents and grandchildren**.
    - **Swap Donation (Donor Exchange)** included.
    - **Brain death certification Board** has been simplified and more experts have been permitted for this certification.
    - '**Mandatory**' inquiry and informing option to donate in case of unfortunate event of brain stem death of ICU patient for the purpose of organ donation.
    - **Mandatory 'Transplant Coordinator' for coordinating all matters** relating to removal or transplantation of human organs.
    - **National Human Organs and Tissues Removal and Storage Network** at one or more places and regional network.
    - **National Registry of Donors and Recipients**.
- ❖ **Transplantation of Human Organs and Tissues Rules (THOT), 2014**
  - It has many provisions to remove the impediments to organ donation while curbing misuse/misinterpretation of the rules.
  - **Rule 7 of the 2014 Rules provides for the constitution of the Authorisation Committee** and the nature of enquiry and evaluation conducted by it.
  - **Rule 7(3) says the Committee must ensure there is no commercial transaction involved** in cases where the donor and recipient are not near relatives.
  - **But Rule 7(5)** says that if a recipient is in a critical condition and needs transplantation within a week, the hospital can be approached for an expedited evaluation.

### THE AUTHORISATION COMMITTEE: GUARDIAN OF ETHICAL ORGAN DONATION IN INDIA

- ❖ The **Authorisation Committee plays a critical role in safeguarding ethical organ donation in India**. Established under the **Transplantation of Human Organs Act of 1994**, it acts as a **watchdog, overseeing and approving organ transplant procedures when the donor and recipient are not biologically related**.
- ❖ **Law and Importance:**
  - **Established by Section 9(4) of the Transplantation of Human Organs Act, 1994.**
  - **Purpose:** To prevent exploitation and unethical practices in organ donation, especially when driven by emotions or commercial motives
  - **Focus:** Non-familial organ donation cases, where the relationship between donor and recipient is based on affection, attachment, or other extraordinary circumstances.
- ❖ **Function and Process:**
  - **Composition:** Varies based on regulations by the Central Government and nominations by state/union territory governments.
  - **Review and Inquiry:** Committees thoroughly scrutinize applications for transplant approval, verifying donor/recipient authenticity and ensuring non-commercial motives.



- **Authorization:** Granting approval for transplants that meet ethical and legal requirements.

## STATUS OF ORGAN DONATION IN INDIA: FACTS

India faces a critical shortage of organ donors, with a vast waiting list and limited transplants.

- **Over 3 lakh patients wait for organ transplants in India.**
- **At least 20 people die every day waiting for an organ.**
- Organ donations **have increased modestly, from 6,916 in 2014 to 16,041 in 2022.**
- Deceased donations remain low, with only 1,589 kidney transplants, 761 liver transplants, and 250 heart transplants in 2022.
- **Living donors constitute 85% of all donors.**
- **Kidney transplants are the most common, followed by liver, heart, lung, pancreas, and small bowel transplants.**
- In 2022, 12,791 living donor transplants and 2,765 deceased donor transplants were performed.
- **Only 14% of organs came from deceased donors in 2022.**
- 15 states conducted nearly all deceased organ donations in 2021, with the top five accounting for over 85% of the total.

## CHALLENGES IN ORGAN DONATION

### 1. Awareness and Education Gap:

- Limited public understanding of organ donation's life-saving potential.
- Inadequate training for medical professionals in identifying potential donors and effectively guiding families.

### 2. Family Consent and Dilemmas:

- Hesitancy among families to consent, even if deceased intended to donate.
- Emotional and ethical complexities faced by families during decision-making.

### 3. Organ Trafficking Threat:

- Existence of illegal organ trafficking networks exploiting high demand.
- Undermining trust in ethical organ donation processes.

### 4. Medical Compatibility Hurdles:

- Difficulty matching donor and recipient due to organ availability and tissue compatibility.
- Extended waiting periods for patients awaiting suitable organs.

### 5. Ethical Debates on Incentives:

- Discussions around offering financial incentives to increase donation rates.
- Balancing increased donations with ethical considerations concerning exploitation.

### 6. Infrastructure and Logistics Constraints:

- Lack of infrastructure for efficient organ retrieval, preservation, and transplantation.
- Challenges in timely organ transportation across vast distances.

## MAJOR INITIATIVES BY INDIA TO BOOST ORGAN DONATION:

### 1. Streamlining Recipient Registration:

- **Eliminating domicile restriction:** Patients can receive organs from any state/union territory, regardless of their registered address.
- **Free registration:** No fees are charged for organ recipient registration in any state/union territory.
- **Unified ID system:** NOTTO assigns a unique ID to each registered patient, facilitating organ allocation even when they switch hospitals across states.

### 2. Expanding Access for All:

- **Lifting age bar:** Age is no longer a limiting factor for organ registration, upholding the right to life for all ages.
- **Prioritizing fair allocation:** Focus shifts from younger patients to ensuring equitable access based on medical compatibility and waiting list position.

### 3. National Organ Transplant Program (NOTP):



- **Goal:** Bridging the gap between organ demand and supply in India through ethical and efficient organ retrieval and transplantation, especially from deceased donors.
- **Objectives:**
  - Promote deceased organ donation: Raise awareness, encourage pledging, and streamline retrieval processes.
  - Public awareness: Educate the public about organ and tissue transplantation.
  - Infrastructure development: Establish and strengthen transplant facilities in public institutions.
  - Manpower training: Train medical professionals in all aspects of organ donation and transplantation.
  - Monitoring and improvement: Track transplant services and adapt policies as needed.
  - Digital Registry: Create a national registry for organ and tissue donation and transplantation data.

## WAY FORWARD

### 1. Enhancing Infrastructure and Resources:

- Develop high-caseload hospitals into transplant/retrieval facilities.
- Establish organ/tissue retrieval centers in medical colleges, district hospitals, and trauma centers.
- Increase PG seats and trainings for transplant specialists.
- Develop training calendars and identify training institutions.
- Increase transplant fellowships and explore a dedicated Transplant University.
- Organize annual conferences for transplant/retrieval hospital representatives.

### 2. Raising Awareness and Public Engagement:

- Promote organ donation through leaders, celebrities, and inter-ministerial meetings.
- Simplify organ donation pledging process.
- Include organ donation and brain stem death concepts in school and medical curricula.
- Leverage electronic media, social media, and NGOs for outreach.
- Involve PSM departments, legal experts, police, and social workers.
- Promote organ donation as a CSR activity.





## THE QUESTION OF MSP: IS INCOME SUPPORT FOR FARMERS BETTER THAN PRICING THAT IS DELINKED FROM MARKET DEMAND?

**SOURCE:** [INDIAN EXPRESS](#)

**TAG:** GS Paper II- **Government Policies & Interventions, Human Resource**

GS Paper III- **Issues Related to Direct & Indirect Farm Subsidies & Minimum Support Prices, Agricultural Pricing Policy**

### ***Mains Practice Question:***

Q. What do you mean by Minimum Support Price (MSP)? How will MSP rescue the farmers from the low income trap? (150 words, 10 marks, asked in UPSC Mains-GS3-2018)

Q. Compare and contrast the advantages and disadvantages of income support schemes, like PM-Kisan Samman Nidhi, with traditional price support mechanisms such as MSP. Which approach do you think is more sustainable and equitable for farmers?

Q. Discuss the roles of both the Central and state governments in ensuring the success of MSP initiatives. How can collaborative efforts be streamlined to achieve comprehensive and effective nationwide MSP implementation?

### WHY IN NEWS?

- Recently **Madhya Pradesh** and **Haryana** have demonstrated the feasibility of guaranteeing **MSP** on crops other than rice, wheat and sugarcane.
- A **nationwide scheme of price deficiency payments with 50% Central funding** could incentivise other states to follow their example.
- **Niti Aayog's three-year agenda for the Centre** includes a focus on doubling farmers' income. **Key recommendations for agriculture reform** involve changes to the **APMC Act, tenancy laws, and improvements to the eNAM.**
- The introduction of a '**Price Deficiency Payment**' system is proposed to address gaps in **Minimum Support Price (MSP) based crop procurement.**

### WHAT IS MINIMUM SUPPORT PRICE (MSP)?

- **Minimum Support Price (MSP)** is a **government intervention in India** to safeguard agricultural producers from sharp price declines.
- **Announced at the start of the sowing season** based on **Commission for Agricultural Costs and Prices (CACP) recommendations, MSP acts as a guaranteed price for farmers.** It aims to protect them from low prices during abundant harvests, prevent distress sales, and ensure an adequate supply of food grains for public distribution.
- Government agencies step in to purchase the entire crop at the announced minimum price if the market value falls below it due to surplus production.
- The **Government of India announces Minimum Support Prices (MSPs) for 22 crops and Fair and Remunerative Price (FRP) for sugarcane.**
  - The **14 kharif season crops** include paddy, wheat, barley, jowar, bajra, maize, and ragi. The **6 rabi crops** consist of gram, arhar/tur, moong, urad, and lentil.
  - The **2 other commercial crops** are raw cotton and raw jute.
  - Additionally, **MSPs for toria and de-husked coconut** are determined based on rapeseed/mustard and copra prices, respectively.
  - The list also includes oilseeds like groundnut, soyabean, sunflower seed, sesamum, safflower seed, and nigerseed, along with copra, de-husked coconut, and Virginia flu cured (VFC) tobacco.

### PRICE VERSUS INCOME SUPPORT

- The **debate between government-fixed Minimum Support Prices (MSPs) and income support for farmers** is centered on economic perspectives. Critics argue that **MSPs, based on cost-plus pricing, can distort farmers'**



production decisions, leading to **oversupply of some crops** and **undersupply of others**.

- **Economists favor income support, transferring a fixed sum directly into farmers' accounts**, as it is considered **market-neutral and benefits all farmers**, regardless of the crops they grow or sell.
- **Direct income support schemes**, such as **PM-Kisan Samman Nidhi** and **Rythu Bandhu (Telangana)**, **avoid market distortions** but raise concerns about fairness. Some argue that real producing farmers, investing more resources and effort, may deserve additional consideration.
- Additionally, **proponents of MSPs suggest that they can encourage crop diversification by assuring farmers of a minimum price for certain crops like pulses and millets**. The **challenge is to strike a balance**, ensuring MSPs align reasonably with market rates and promote inter-crop price parity.
- Ultimately, **the choice between MSP and income support involves addressing the needs of both individual farmers and the broader agricultural landscape**.

## GUARANTEEING MSP: EXPLORING CONVENTIONAL APPROACHES

### 1. Mandatory Buyer Payments

- Sugar mills legally obligated to pay a "fair and remunerative" or "state advised" price.
- Challenges include implementation hurdles and potential reluctance from private traders.

### 2. Government Purchase of Entire Produce

- Government agencies buying entire marketable produce at MSP.
- Unsustainable both physically and fiscally.

## ❖ Introducing a Novel Approach: Price Deficiency Payments (PDP)

### 1. Concept of PDP

- Government avoids physically purchasing or stocking crops.
- Farmers receive the difference between market price and MSP if the former is lower.

### 2. PDP Implementation in Madhya Pradesh

- **Bhavantar Bhugtan Yojana as a pilot in Madhya Pradesh.**
- Market price determined by the average modal rate in APMC mandis during the sale month.

### 3. Crop Coverage in Madhya Pradesh Scheme

- Implemented for crops like urad, soyabean, maize, arhar, moong, groundnut, sesame, and nigerseed.
- Despite 21 lakh farmers participating and Rs 1,952 crore payments, lack of Central support led to discontinuation.

## ❖ A Model in Haryana: Bhavantar Bharpai Yojana (BBY)

### 1. BBY Implementation

- Applied mainly to crops like **bajra, mustard, and sunflower seed**.
- Technically covers groundnut, chana, moong, along with 16 vegetables and 3 fruit crops.

### 2. Operational Platform: 'Meri Fasal, Mera Byaura' Portal

- Farmers register with land details and sown crop information.
- Facilitates the implementation of Haryana's BBY scheme.

## THE ROAD AHEAD FOR MSP IMPLEMENTATION

### 1. Leveraging Existing Infrastructure

- Utilizing the already-created APMC mandi infrastructure.
- Implementing systems for precise recording of transactions, including quantities sold and prices.

### 2. Nationwide Implementation of PDP Scheme

- Proposal for a nationwide Price Deficiency Payment (PDP) scheme.
- Suggests 50% Central funding to incentivize states for adoption.

### 3. Potential Impact on Other States

- Encourages states to emulate the models of Madhya Pradesh and Haryana.



- States can invest in building market infrastructure and systems to ensure MSP benefits for their farmers.

**4. Legal Framework Consideration**

- Evaluation of legal provisions for MSP, either by law or alternative means.
- Establishment of mechanisms that guarantee fair MSP to farmers nationwide.

**5. Ensuring Sustainable Farmer Support**

- Continued commitment to building and maintaining market infrastructure.
- Developing systems that facilitate timely and accurate MSP payments to farmers.

**6. Balancing Central and State Roles**

- Defining the roles of both the Central and state governments in ensuring the success of MSP initiatives.
- Collaborative efforts for comprehensive and effective nationwide MSP implementation.







TOPIC

DESCRIPTION

**DENSE FOG IN NORTH INDIA**

**WHY IN NEWS?**

- ❖ *The Indo-Gangetic plains face these challenges due to low temperatures, slow wind, abundant moisture, and aerosols, making the region prone to fog during the winter season.*

**WHAT IS FOG?**

❖ **Definition of Fog:**

- ☞ Fog is a **collection of tiny water droplets** formed **when evaporated water cools** and condenses close to the Earth's surface.

❖ **Mechanisms of Fog Formation:**

- ☞ **Infrared cooling**, occurring **during the transition from summer to winter**, contributes to fog formation.
- ☞ **During summer**, the **ground absorbs sun radiation**, warms up, and moistens the air.
- ☞ **When cooler weather arrives**, **warm, moist air collides with cooling processes**, causing rapid condensation and fog formation.
- ☞ Radiation fog occurs after an unseasonably **warm day with high humidity** followed by **rapidly dropping temperatures**.



❖ **Environmental Conditions and Fog Types:**

- ☞ Specific fog types, duration, and **effects depend on various environmental conditions**.
- ☞ Fog occurrence can be linked to factors such as **Western Disturbance**, a **precipitational pattern**, and moisture incursion from the **Arabian Sea**.

**REASONS FOR DENSE FOG**

❖ **Temperature Disparity and Moisture:**

- ☞ Former IMD director Madhavan Nair Rajeevan explains that **fog is like a thick cloud near the ground**, requiring **lower temperatures and abundant moisture**.
- ☞ Frequent in Indian winters **due to temperature drops at night**, **condensing aerosols**, and **high humidity**.

❖ **Geographical Vulnerability:**

- ☞ The **entire Indo-Gangetic plains** are prone to fog during the winter season.
- ☞ **Moisture incursion** can occur with the **passage of a Western Disturbance** or **from the Arabian Sea**.

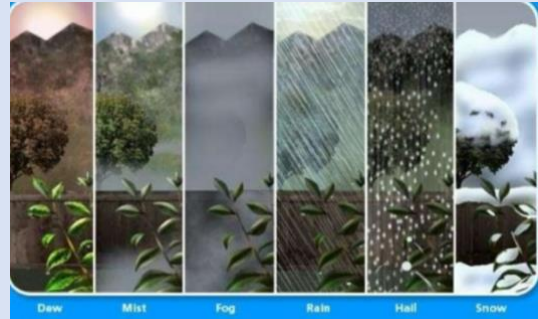
**FORMS OF CONDENSATION**

❖ **Dew:**

- ☞ **Water droplets** on cooler surfaces.



- ☛ **Conditions:** Clear sky, calm air, high humidity, cold nights.
- ☛ Dew point above freezing point.
- ❖ **White Frost:**
  - ☛ Condensation **below freezing point.**
  - ☛ **Minute ice crystals** on cold surfaces.
- ❖ **Fog:**
  - ☛ Air mass temperature **drop leads to condensation.**
  - ☛ **Base at/near ground,** poor visibility.
  - ☛ **Types:** Radiation, advective, frontal/precipitation.
  - ☛ **Visibility in Fog:** Less than one kilometer.
- ❖ **Mist:**
  - ☛ More moisture than fog.
  - ☛ **Thicker moisture layer** in each nucleus.
  - ☛ Forms over mountains, **less dense.**
  - ☛ **Visibility in Mist:** More than one kilometer, less than two kilometers.
- ❖ **Haze:**
  - ☛ **Dry particles obscure sky clarity.**
  - ☛ No condensation.
  - ☛ **Sources:** Farming, traffic, industry, wildfires.
- ❖ **Smog:**
  - ☛ **Smoke + fog.**
  - ☛ Caused by coal burning, **vehicular emissions, industrial fumes.**



## ILO'S WORLD EMPLOYMENT AND SOCIAL OUTLOOK: 2024

### WHY IN NEWS?

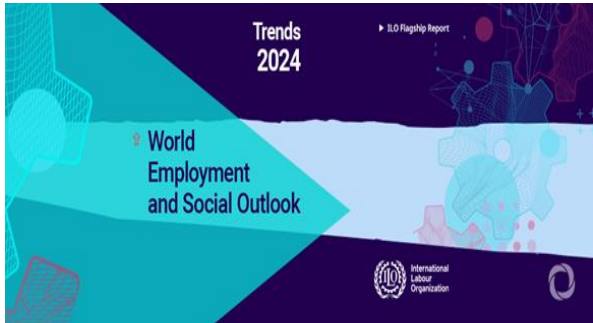
- ❖ *The International Labour Organization (ILO) has highlighted in its 'World Employment and Social Outlook: Trends 2024' report that the global unemployment rate is expected to increase in 2024.*

### KEY HIGHLIGHTS OF THE REPORT

- ❖ **Global Unemployment Projections (2024):**
  - ☛ The ILO report indicates a **forecasted increase in the global unemployment rate in 2024**, despite a **decrease in joblessness** and the **jobs gap below pre-pandemic levels.**
- ❖ **Improvements in 2023:**
  - ☛ In 2023, both the **global unemployment rate (5.1%)** and the **jobs gap rate improved, standing at 8.2% in high-income countries** and **20.5% in low-income countries.**
- ❖ **Projected Worsening in 2024:**
  - ☛ The report projects a **worsening labour market outlook in 2024**, with an additional two million workers expected to be seeking jobs, **raising the global unemployment rate to 5.2%.**
- ❖ **Income Decline and Inequality:**



- ☛ Disposable incomes declined in most G20 countries, contributing to income inequality.
- ☛ Working poverty is expected to persist, with a rise in extreme poverty by about one million workers in 2023.
- ❖ Informal Work and Global Workforce:
  - ☛ Rates of informal work are expected to remain at 58% of the global workforce in 2024.
- ❖ ILO's Outlook on India:
  - ☛ While specific data refers to 2022 relative to 2021, the ILO recognizes positive real wage growth in India compared to other G20 countries.



**ISRAELI  
DRISHTI-10  
STARLINER  
MEDIUM  
ALTITUDE  
LONG  
ENDURANCE UAV**

**WHY IN NEWS?**

- ☛ The head of the Naval Staff recently initiated the inaugural launch of the domestically produced Drishti 10 'Starliner' Unmanned Aerial Vehicle (UAV) for the Navy.

**ABOUT DRISHTI 10 STARLINER UAV HANDOVER**

- ❖ The Drishti 10 Starliner, an indigenous Unmanned Aerial Vehicle (UAV) manufactured by Adani Defence & Aerospace, was officially handed over to the Indian Navy in a ceremony in Hyderabad.
- ❖ This UAV is a cutting-edge intelligence, surveillance, and reconnaissance (ISR) platform with impressive capabilities.

**KEY FEATURES OF DRISHTI 10 STARLINER UAV**

- ❖ Home-assembled version of the Hermes-900 MALE UAV.
- ❖ Boasts 70% indigenous content.
- ❖ 36-hour endurance and a robust 450 kg payload capacity.
- ❖ Holds NATO's STANAG 4671 certification for airworthiness.
- ❖ Unique capability for all-weather military operations.

**ADVANTAGES AND FUTURE NAVAL OPERATIONS**

- ❖ Drishti 10's advantages include state-of-the-art sensors, extended endurance, and advanced communication capabilities.
- ❖ The incorporation of new-age technologies such as Automatic Take Off and Landing (ATOL) positions it as a formidable asset.

**SUPER-  
ENERGETIC**

**WHY IN NEWS?**



## PARTICLE & AMATERASU

- ❖ *The discovery of the Amaterasu cosmic ray, the second-highest-energy cosmic ray ever recorded, by Japanese scientist Toshihiro Fujii has garnered attention for its extraordinary energy level of 240 exa-electron-volt (EeV).*

### ABOUT THE DISCOVERY

- ❖ **Discoverer and Institution:**

- ☛ Dr. Toshihiro Fujii, an astronomer at **Osaka Metropolitan University, Japan.**
- ☛ Analyzed data from the Telescope Array Project in the U.S. collected between **May 2008 and November 2021.**



- ❖ **Significance:**

- ☛ **Second-highest-energy cosmic ray** ever discovered.
- ☛ Reveals mysteries about **cosmic rays and their properties.**
- ☛ Named it 'Amaterasu' after the **sun goddess in Japanese mythology.**

- ❖ **Cosmic Rays Overview:**

- ☛ Streams of energetic particles **from outer space and the sun.**
- ☛ Include **protons and alpha particles.**
- ☛ **Low-intensity cosmic rays reach Earth's surface,** crucial for sustaining life.

- ❖ **Energy Level of Amaterasu:**

- ☛ Amaterasu cosmic ray had an **energy of 240 exa-electron-volt (EeV).**
- ☛ **Extremely high energy,** about **40 million times higher than the Large Hadron Collider's proton energy.**

- ❖ **Cosmic Ray Energy Range:**

- ☛ Typical cosmic rays range from about **one billion eV to about 100 billion billion eV.**
- ☛ **Amaterasu's energy is 240 EeV,** highlighting its extraordinary nature.

- ❖ **Challenges for Ultra-High-Energy Cosmic Rays (UHECRs):**

- ☛ UHECRs have **energies greater than 1 EeV.**
- ☛ **Cosmic microwave background (CMB) radiation** suppresses UHECRs above 60 EeV.

### SUPER-ENERGETIC PARTICLES

- ❖ **About:**

- ☛ **Super-energetic particles,** also known as **ultra-high-energy particles,** refer to **subatomic particles such as protons and atomic nuclei** that possess **extremely high kinetic energies.**
- ☛ They are typically observed in **cosmic rays, which are high-energy particles** originating from space.

- ❖ **Sources:**

- ☛ Some potential sources include **active galactic nuclei, supernovae, and other cosmic phenomena.**

### AMATERASU

- ❖ **About:**



**INTERNATIONAL COURT OF JUSTICE**

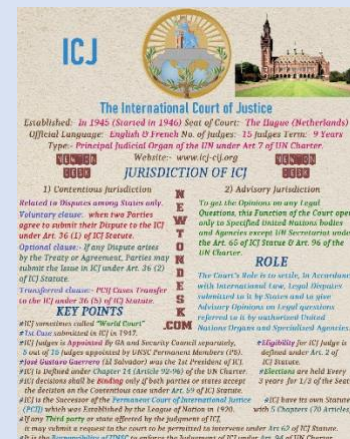
- ☛ Amaterasu refers to the **space-based solar power project proposed by Japan.**
- ☛ Named after the **Shinto sun goddess Amaterasu**, the project aims to **harness solar energy in space and transmit it wirelessly to Earth for power generation.**
- ❖ **Objective:**
  - ☛ The goal of Amaterasu is to address **Earth's increasing energy needs by capturing solar power in space**, where sunlight is not affected by atmospheric conditions or night-time.
- ❖ **Technology:**
  - ☛ The concept involves **deploying solar panels in space**, converting **solar energy into electricity**, and then transmitting it to **Earth using microwave or laser beams.**

**WHY IN NEWS?**

- ❖ **South Africa has taken Israel to the International Court of Justice (ICJ), filing a case under the Genocide Convention, accusing Israel of committing genocidal acts against Palestinians in Gaza.**

**INTERNATIONAL COURT OF JUSTICE (ICJ):**

- ❖ **Establishment and Succession:**
  - ☛ **Principal judicial organ of the UN, established in June 1945 by the UN Charter, succeeding the Permanent Court of International Justice (PCIJ) of the League of Nations in 1922.**
  - ☛ Commenced operations in **April 1946.**
- ❖ **Seat and Roles:**
  - ☛ **Based at the Peace Palace in The Hague, Netherlands, distinguishing the only UN principal organ not in New York City.**
  - ☛ Primary roles include settling legal disputes between States and providing advisory opinions on legal questions referred by authorized UN organs and specialized agencies.
- ❖ **Membership and Jurisdiction:**
  - ☛ **All UN members are automatically parties to the ICJ statute, but jurisdiction is only conferred when both disputing parties consent.**
- ❖ **Composition and Indian Representation:**
  - ☛ **15 judges elected to nine-year terms by the UN General Assembly and Security Council, voting simultaneously but separately.**
  - ☛ **Four Indians have served as ICJ judges, with Justice Dalveer Bhandari, a former Supreme Court judge, currently serving since 2012.**



**INDIA AT THE ICJ:**

- ❖ **Involved in six cases at the ICJ, notably with Pakistan, covering issues such as territorial rights, jurisdictional appeals, treatment of prisoners of war, and disputes related to nuclear disarmament.**



- ❖ Notable cases include the **Jadhav case (2019)** and the Obligations concerning Negotiations relating to **Cessation of the Nuclear Arms Race and to Nuclear Disarmament (Marshall Islands v. India, culminated 2016)**.

#### ABOUT GENOCIDE CONVENTION

- ❖ The Genocide Convention, **adopted by the UN in 1948**, defines genocide as specific acts committed **with the intent to destroy a national, ethnic, racial, or religious group**.
- ❖ The two key elements are physical acts and the **specific intent to destroy a group**, distinguishing it from other crimes.

## SPIRAL GALAXY

#### WHY IN NEWS?

- ❖ *The Hubble Space Telescope recently **photographed the spiral galaxy MCG-01-24-014**, unveiling the captivating allure of **what is referred to as 'forbidden' light**.*

#### CHARACTERISTICS

- ❖ Spiral galaxies are **intricate formations of stars and gas**, often displaying aesthetically **pleasing shapes dominated by hot, young stars**.
- ❖ Among the three primary galaxy shapes—**spiral, elliptical, and irregular**—**scientists have identified spiral galaxies as the most prevalent in their discoveries**.



This Hubble Space Telescope image features a bright spiral galaxy known as MCG-01-24-014, which is located about 275 million light-years from Earth. (Photo: Nasa)

#### PREVALENCE OF SPIRAL GALAXIES

- ❖ **About 60% of all galaxies** are believed to fall into the category of spiral galaxies.
- ❖ The **Milky Way, which encompasses Earth and our solar system**, serves as an exemplar of a spiral galaxy.

#### STRUCTURAL COMPONENTS

- ❖ **Most spiral galaxies exhibit a central bulge encircled by a flat, rotating disk** comprised of stars.
- ❖ **The central bulge typically consists of older, fainter stars and is presumed to harbor a supermassive black hole**.
- ❖ **Around two-thirds of spiral galaxies** feature a bar structure running through their center, **similar to the Milky Way**.
- ❖ The disk surrounding the bulge **forms arms that extend outward**, defining the spiral nature of the galaxy.

#### SPIRAL ARMS AND EVOLUTION

- ❖ The spiral arms **contain abundant gas, dust, and younger stars** that emit vibrant light before their relatively short life spans.
- ❖ There is a theoretical understanding that **spiral galaxies may transform into elliptical galaxies as they age**.