

**AGRICULTURE**

**Understanding curbs on rice exports**

**In Context:** The Indian government has recently prohibited the export of white rice.

➤ **India's rice production & exports**

✓ About: According to the third Advanced Estimate of the Department of Agriculture and Farmers Welfare, during the Rabi season 2022-2023, rice production was 13.8% less, at 158.95 lakh tonnes against 184.71 lakh tonnes during Rabi 2021-2022.

✓ India's rice exports: India is the largest rice exporter globally with a 45% share in the world rice market.

• Overall rice exports in April-May of 2023 were 21.1% higher compared with the same period last financial year.

• In May alone, the export of Basmati rice was 10.86% higher than its exports in May 2022.

• Non-Basmati rice shipments were 7.5% more, despite the government introducing a 20% export duty on white rice and prohibiting the export of broken rice in September 2022.

✓ **Position of Global exporters:**

• Thailand expects nearly 25% lower production in 2023-2024;

• Myanmar has stopped raw rice exports; and

• The crop is said to be hit in Iraq and Iran as well.

➤ **Indian government's recent move rice exports**

✓ On rice exports:

• In a move to check domestic rice prices and ensure domestic food security, the Indian government has

▪ Prohibited the export of white rice,

▪ Levied a 20% export duty on par-boiled rice till October 15, and

▪ Permitted the export of Basmati rice for contracts with value of \$1,200 a tonne or above.

• Export of broken rice:

▪ The export of broken rice has been prohibited since last September. However, it is allowed on the basis of permission granted by the government to other countries to meet their food security needs and based on the request of their government.

✓ Rise in MSP:

• The government has increased the Minimum Support Price (MSP) for rice, and the paddy procured now by rice millers are at a price higher than the MSP. The prices will not decline for farmers.

➤ **About rice production:**

✓ **Location:**

• Rice is grown in almost all the states in the country however the major 5 states in rice production are West Bengal, UP, Andhra Pradesh, Punjab and Tamil Nadu. West Bengal produces 15 per cent of the total quantity of rice produced in the country.

✓ **Climatic requirements:**

• Rice cultivation in India extends from 8 to 35°N altitude and from sea level to as high as 3000 meters.

• Rice crops need a hot and humid climate. It is best suited to regions which have high humidity, prolonged sunshine and an assured supply of water.

• The average temperature required throughout the life period of the crop ranges from 21 to 37 degree Celsius. At the time of tillering the crop requires a higher temperature than for growth.

• Photoperiodically, rice is a short-day plant. However, there are varieties which are non-sensitive to photoperiodic conditions.

➤ **Rationale behind government's move**

✓ Impact of monsoon/El Nino:

• The possibility of India's rice production declining significantly because of deficient monsoon rainfall in Uttar Pradesh, Bihar, Jharkhand and Gangetic West Bengal.

• According to Trade and rice millers, El Nino effects are likely to impact new season crop arrivals to some extent.

✓ Depleting stocks for rice:

• The stocks for rice, at 40.99 mt, was quite comfortable, but the government is worried about their depletion in the event of a sub-par kharif harvest.

• This is more so, given the political pressure to continue the free-foodgrains scheme (Pradhan Mantri Garib Kalyan Anna Yojana).

➤ **Suggestions & way ahead**

✓ Prices of Indian par-boiled rice in the international market are competitive even with the levy of a 20% duty.

✓ When the global rice market is bullish, it will absorb volume in high prices too.

✓ The government should look at classifying rice as common rice and speciality rice for export policy decisions rather than classifying them as Basmati and non-Basmati.

✓ As many as 12 varieties of rice have Geographical Indication (GI) recognition and these should be insulated from general market interventions.

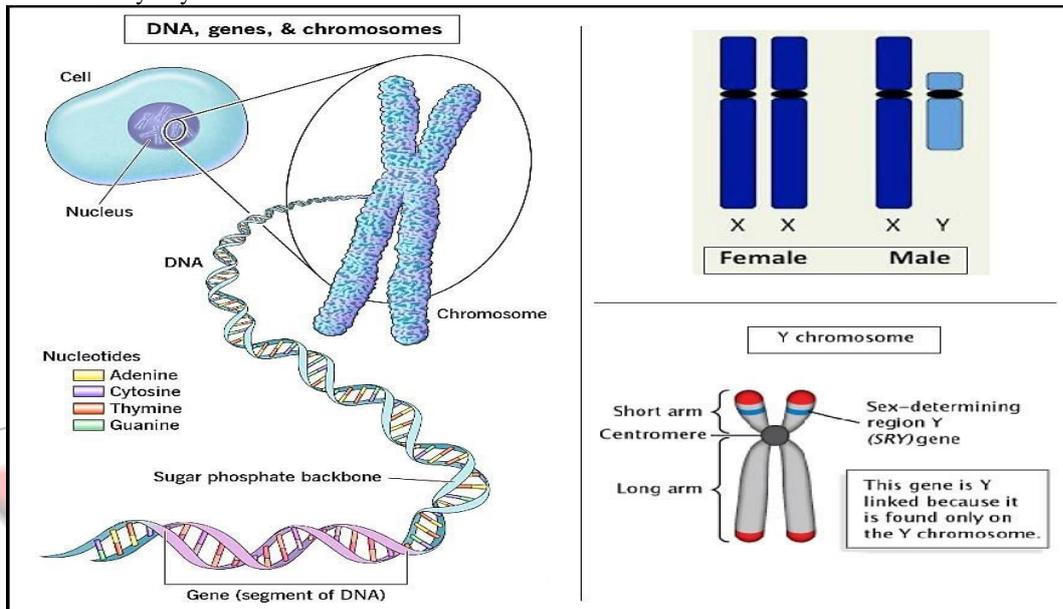
**SCIENCE AND TECHNOLOGY**

**Sequencing the Y Chromosome:**

**IN CONTEXT:** Scientists have fully sequenced the Y chromosome for the first time, uncovering information that could have implications for the study of male infertility and other health problems.

**ABOUT:**

- ✓ DNA is a molecule that carries genetic information for the development and functioning of an organism.
- ✓ In the nucleus of a human cell, each DNA molecule is packaged into a long thread like structure called chromosome.
- ✓ Most human cells contains 23 pairs of chromosomes. One half of each pair of chromosomes from one parent, while other half comes from other parent.
- ✓ The 23rd pair are X and Y chromosomes, often called as sex chromosomes. The other 22 pairs called as autosomes.
- ✓ Females have a pair of X chromosomes, whereas males have X and Y chromosome.
- ✓ The Y chromosome is male-determining because it bears a gene called SRY, which directs the development of a ridge of cells into a testis in the embryo.
- ✓ The embryonic testes make male hormones, and these hormones direct the development of male features in a baby boy.



**What is the difficulty in sequencing Y chromosome?**

- ✓ Repetition - The Y chromosome was a particularly hard nut to crack because it is unusually repetitive.
- ✓ While all human chromosomes contain repeats, more than 30 million letters of the Y chromosome — out of 62.5 million — are repetitive sequences, sometimes called satellite DNA or junk DNA.
- ✓ Repetitive DNA complicates the assembling of data from genetic sequencing.
- ✓ Palindromes - The Y chromosome also contains palindromes — sequences of letters that are the same backward and forward, like radar.
- ✓ Degeneration of Proto- Y - The proto-Y is degenerating at a faster pace, losing about 10 active genes per million years, reducing the number from its original 1,000 to just 27.
- ✓ There has been great debate about whether this degradation continues, because at this rate the whole human Y would disappear in a few million years
- ✓ The Y is the last human chromosome to have been sequenced end-to-end, or telomere to telomere (T2T)

**How the scientists unravelled the complex Y chromosome?**

- ✓ Sequencing - Advanced "long-read" sequencing technology and computational methods enabled researchers to achieve a complete reading of the Y chromosome.
- ✓ This accomplishment added over 30 million repetitive base pairs to the human reference genome.
- ✓ The new technology has allowed sequencing of bases along individual long DNA molecules, producing long-reads of thousands of bases.
- ✓ It effectively dealt with repetitive sequences and transformed raw sequencing data into a usable resource.
- ✓ These longer reads are easier to distinguish and can therefore be assembled more easily.
- ✓ Findings- Overall, the combined research determined that the Y chromosome has 106 protein-coding genes.
- ✓ 42 were found that were new, but many still appear to be repeats.

**What is the importance of the study?**

- ✓ Advanced diagnostics- The study empowers future sequencing endeavours to explore into health and disease aspects through comprehensive Y chromosome inclusion.

- ✓ To study whether loss of the Y chromosome is a biomarker of biological aging or has a direct effect on the health of men.
- ✓ Infertility- It will help to study conditions and disorders linked to the chromosome, such as lack of sperm production that leads to infertility.
- ✓ Health- Genes have been identified on the Y chromosomes that have been shown to be required for the prevention of cancer and cardiovascular disease.
- ✓ Dark matter- It represents the 'dark matter' of the genome. This analysis will allow us to better understand the regions of the Y chromosome that have regulatory functions and may encode mRNA and proteins.
- ✓ Human evolution- Assembling complete sequences of Y chromosomes across space and time not only helps to investigate sex chromosome evolution but also human evolution.
- ✓ Gene therapy- It will open up avenues to treat diseases that may linked to Y chromosomes.
- ✓ Future studies- The findings provide a solid base to explore how genes for sex and sperm work, how the Y chromosome evolved, and whether as predicted will disappear in a few million years.

**PRELIM FACTS**

**1. World Sanskrit Day:**

**IN CONTEXT:** PM Modi extends greetings on World Sanskrit Day, emphasizes the significance of the language and encourages people to share a sentence in Sanskrit.

**ABOUT:**

- ✓ World Sanskrit Day, also referred to as International Sanskrit Day, Sanskrit Diwas and Vishwa Samskrita Dinam is observed on the day of Shravana Poornima in the Hindu calendar, which is also marked as Raksha Bandhan. This year we will be celebrating Sanskrit Diwas On 31st August.
- ✓ Sanskrit is one of the oldest languages in the world, and it is considered to be the mother of all Indo-Aryan languages.
- ✓ World Sanskrit Day has a history that can be traced back, to 1969. It was during this year that the Indian Government decided to honor and celebrate the contributions of Pāṇini, a figure, in the realm of Sanskrit language and linguistics. The declaration was made to commemorate Pāṇini's work on the occasion of his birth anniversary.

**2. Utkela Airport:**

- ✓ **In context:** Civil Aviation Minister Jyotiraditya M Scindia is expected to flag off the inaugural flight via video conferencing. Utkela Airport at Bhawanipatna, Odisha's Kalahandi.

**About:**

- ✓ IndiaOne Air will engage a nine-seater aircraft to start air service between Utkela Airport and BPIA in Bhubaneswar in the first phase.
- ✓ The service is likely to be extended to Raipur in Chhattisgarh in the subsequent phase.
- ✓ The airline will connect Utkela to Bhubaneswar with 2X weekly flights on Tuesday and Thursday.
- ✓ Utkela Airport is among the airstrips listed under the regional connectivity scheme UDAN. The state government has spent around Rs 162 crore for acquisition of land, construction of runway and terminal building for the airport in Bhawanipatna.

**3. Meghalaya Shawl and Chhattisgarh's Dhokra Art and Telangana Bidri Art vases.**

**In context:** The Prime Minister gifted to the President and Prime Minister of Greece, Meghalaya Shawl and Chhattisgarh's Dhokra Art, along with the Telangana Bidri Art vases.

**Meghalaya shawls**

- ✓ Meghalaya shawls were originally woven for the Khasi and Jaintia royalty, who considered them a symbol of their power and status.
- ✓ The shawls were worn during ceremonial occasions and festivals, and their intricate designs and vibrant colours were a reflection of the royal family's wealth and prestige.
- ✓ The designs used in Meghalaya shawls were highly symbolic. For instance, the use of animal motifs such as tigers and elephants was a symbol of power and strength, while the use of floral patterns was a symbol of beauty and grace.
- ✓ The weavers, mostly women, spend hours weaving intricate designs and patterns using traditional weaving techniques. The shawls are made using locally sourced wool, and natural dyes.
- ✓ The shawls are highly prized for their exquisite craftsmanship and intricate designs.



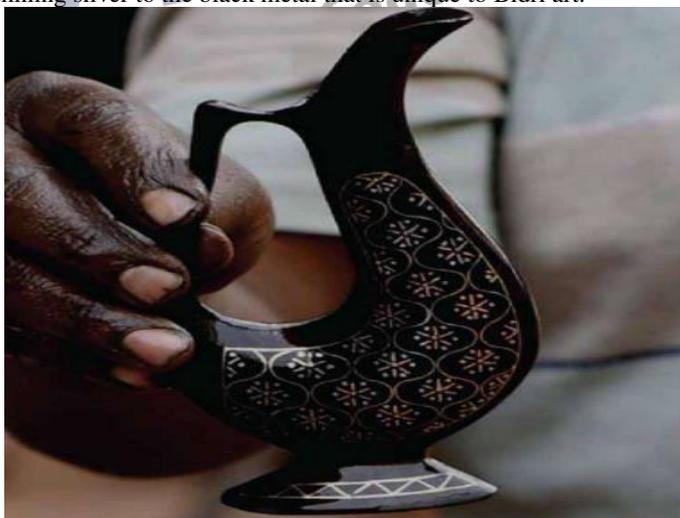
**Chhattisgarh's Dhokra Art**

- ✓ One of the earliest expressions of this ancient art is the dancing girl artifact found from Mohenjo-Daro and Harappan excavations.
- ✓ Traditionally the Gadwas, Gonds and Dhurwas tribes of Chhattisgarh practise the Dhokra art with lost wax technique or hollow casting.
- ✓ It is named after 'Dhokar Damar', a nomadic Indian tribe belonging to the central and eastern part of the country.
- ✓ The common themes of Dokra art revolve around figurines of Hindu gods & goddesses and different animals.
- ✓ Dokra Art is a non-ferrous metal casting art using the lost-wax casting technique.
- ✓ This sort of metal casting has been used in India for over 4,000 years and is still used. There are two main processes of lost wax casting: solid casting and hollow casting.



**Bidri Art vases**

- ✓ It originated in the town of Bidar in Karnataka, in the 14th century.
- ✓ Bidar in Karnataka and Hyderabad in Telangana are the most vibrant centres of the artform.
- ✓ Bidri Work handicraft is an art of inlaying alloys. Soil at Bidar fort, magically imparts black color to the primary metals & the artform has been accorded prestigious GI Status.
- ✓ Technique: A new mould must be prepared to make a cast in which molten metal, an alloy of zinc & copper is poured. Motifs are sketched on them to be etched with a chisel and hammer. The engravings are inlaid with silver wire.
- ✓ It is this contrast of shining silver to the black metal that is unique to Bidri art.



**4. Haryana's Parivar Pehchan Patra**

**In context:** A political party announced to scrap the current government's flagship Parivar Pehchan Patra (PPP) scheme.

**About Parivar Pehchan Patra**

- ✓ Under the PPP, a unique eight-digit Identity number is issued to each family as a single unit.
- ✓ Any family residing in Haryana is required to enroll in the PPP to avail various government services and social security schemes.
- ✓ The PPP ID can be made through three channels:
  - ✓ Common Service Centers managed by Village Level Entrepreneurs,
  - ✓ SARAL Kendras managed by the state government, and through PPP operators registered for data collection.
  - ✓ The data for a family is collected on the basis of a signed self-declaration made by an adult member.

**How is the PPP different from the Aadhaar card?**

- ✓ It is many times more complicated than Aadhaar in its delivery.
- ✓ Aadhaar primarily keeps unique identity information, whereas PPP goes far beyond to maintain socio-economic information besides the unique identity information.
- ✓ Aadhaar does not verify any data except identity, but the PPP verifies every information field available with it through specific procedures.

**5. Funga**

**In context:** United Nations Biodiversity has urged people globally to use the word 'funga' whenever they say 'flora and fauna', in order to highlight the importance of fungi.

**About:**

- ✓ Funga refers to the fungal diversity of a given place.
- ✓ It is the Fauna and Flora equivalent to the kingdom of Fungi.
- ✓ Fungi, along with Animalia (animals), Plantae (plants), Protista, Archaea/Archaeobacteria, and Bacteria or Eubacteria form the six 'kingdoms' of biology.
- ✓ This is not the first time when a request has been made to include fungi along with flora and fauna.
- ✓ The Species Survival Commission of the International Union for Conservation of Nature announced that it would use mycologically inclusive language in its internal and public-facing communications.
- ✓ This is to incorporate fungi in conservation strategies with rare and endangered plants and animals.

**ANSWER WRITTING**

**Q. The urbanization process in India has witnessed a skewed growth towards particular regions of the country as well as within the cities itself. Discuss.**

**Introduction:** Urbanization refers to the population shift from rural areas to urban areas, the gradual increase in the proportion of people living in urban areas, and the ways in which each society adapts to this change. Total urban population of India in 2011 is estimated at 377 million which is estimated at 31.16 per cent of the total population of the country.

**Skewed nature of urbanization process:**

- ✓ In states like Goa, Gujarat, Maharashtra, Punjab and Tamil Nadu more than 35 per cent people live in urban centres.
- ✓ Whereas only 20 per cent of people in Uttar Pradesh live in cities, only 14.3 of Orissa is urbanised and 10 per cent of Bihar lives in urban centres. Thus it indicates that urbanization is concentrated in few states than in others.
- ✓ Secondly, urbanisation in India has been mostly present in southern and western part of the country and not much in eastern and North-east India.
- ✓ Apart from state capitals and few urban centres, within the state urbanisation is more or less meager.
- ✓ Also state led planning is inclined towards developing new urban townships located near already urbanized centres rather than urbanizing new regions.
- ✓ Within the cities, urbanisation in sense of urban facilities is skewed towards the core region of cities, keeping the outskirts of the cities undeveloped.
- ✓ Failure of the majority of cities to deliver adequate services and infrastructure means that urbanization patterns are skewed, adding pressure on a handful of already burdened urban centres.
- ✓ Organizing principle of urban economics—spatial equilibrium, which dictates that if an urban centre has high wages and good services, it will also have a high cost of living, which in turn will make other centres attractive and lead to equalization of growth across a region—has failed to function adequately in India.
- ✓ Slums, old settlements and illegal constructions in the cities don't show signs of urbanisation, thus giving a perception of urbanisation process witnessing a skewed growth within the cities itself.

**Way forward:** Integrate urbanisation process with the development plans of the country for developing nonagricultural activities like manufacturing services and infrastructure leading to attainment of external economies. Develop rural districts, by developing towns in highly rural districts. Develop satellite townships in and around large cities. The state government of Uttarakhand, for example, is taking steps to merge peri-urban areas (areas in the periphery of the urban) with urban local bodies. This will entitle these areas to civic amenities such as piped water supply, sewerage network, and solid waste management. Develop secondary cities to divert rural migration away from the large cities toward secondary cities and to foster stronger urban-rural links.

**Conclusion:** The skewed Urbanization that has resulted cannot be a healthy long-term model. The challenge and responsibilities of achieving the SDG 11 are imperative in India. Urbanisation must usher in a process of inclusive economic growth and counter the trends in rural-urban and intra urban inequality that have grown at an alarming rate. Although many commendable measures such as Smart Cities, AMRUT, Swachh Bharat Mission, etc. have been taken in recent time in India, yet more such measures are needed for sustainable, environmental

**MCQs**

- |   |   |
|---|---|
| <p>1. Considered the following statement regarding World Sanskrit Day</p> <p>1. It is observed on the day of Shravana Poonnima.</p> | <p>2. The English word 'candy' has been originated from the Sanskrit word 'Khanda' which means, a piece of sugar.</p> <p>Which of the above statement is/are correct?</p> |
|---|---|

- a) Only 1  
b) Only 2  
c) **Both 1 and 2**  
d) Neither 1 nor 2
2. Recently Utkela Airport is in news, considered the following statement.
1. Utkela Airport is located at Angul district
  2. Utkela Airport is among the airstrips listed under the regional connectivity scheme UDAN
  3. It is a weekly flights
- How many of the above statement is/are correct?
- a) Only 1  
b) **Only 2**  
c) Only 3  
d) None
3. Match the following
- | Place           | Art              |
|-----------------|------------------|
| 1. Chhattisgarh | Bidri Art vases. |
| 2. Telangana    | Dhokra Art       |
| 3. Assam        | Sitalpati        |
- Which of the above statement is/are correctly match?
- a) Only 1  
b) 1 and 2 only  
c) **3 only**  
d) 2 and 3 only
4. Considered the following statements regarding Parivar Pehchan Patra (PPP) scheme.
1. This scheme is lunched by Bihar government.
  2. Under the PPP, a unique eight-digit Identity number is issued to each family as a single unit.
  3. family is required to enroll in the PPP to avail various government services and social security schemes.
- Which of the above statement is/are incorrect?
1. **Only 1**  
2. 1 and 2 only  
3. 3 only  
4. None of the above
5. With reference to Red Sand Boa, consider the following statements
1. It is a venomous snake species found throughout the dry parts of the Indian subcontinent.
  2. Also known as the "Two-headed Snake".
  3. The Wildlife Protection Act 1972 lists the snake in Schedule IV, trade and possession of the red sand boa is an offense.
  4. It is illegally traded for medicinal and black magic.
- How many of the above statements are correct?
- a) Only 4  
b) Only 2  
c) **Only 3**  
d) None
6. Recently, Johannesburg Declaration was news, it is related to
- a) **Expansion of BRICS membership**  
b) Raising the collective voice of developing nations at World trade organisation forum
- c) Providing agriculture subsidies to Africans nations  
d) Strengthening the bilateral relation between India and South Africa.
7. Which one of the following is the best description of 'Warmate', that was in the news recently?
- a) It is a Surface to Air Missile.  
b) It is a Nuclear-powered submarine.  
c) **It is a loitering munition.**  
d) It is a stealth destroyer.
8. What is the main objective of the Sanchar Saathi portal?
1. To provide free internet access to citizens.
  2. To promote the sale of mobile devices.
  3. To facilitate communication between government officials.
  4. To combat cybercrimes and financial fraud related to mobile connections.
- How many of the above statements is/are correct?
- a) **Only one**  
b) Only two  
c) Only three  
d) All four
9. Which of the following statements is true about super blue moons?
- a) A moon that appears blue in color due to atmospheric conditions.
  - b) A term used to describe a moon that is exceptionally large and bright.
  - c) **The occurrence of two full moons within a single month.**
  - d) A rare alignment of a full moon with Earth's perigee.
10. Considered the following statement:
1. Oncologist Dr Ravi Kannan R has recipients of the 2023 Ramon Magsaysay Award.
  2. The Ramon Magsaysay Award is Asia's greatest honour and distinction, which was established in 1957.
- Which of the above statement is/are correct?
- a) Only 1  
b) Only 2  
c) **Both 1 and 2**  
d) Neither 1 nor 2