

P2. NATIONAL



Supreme Court seeks response on pleas challenging data protection law - The DPDP–RTI interface involves balancing individual privacy with public transparency.

P3. NATIONAL



Delhi HC drops 2015 Maggi 'MSG' content case - The Maggi case illustrates how scientific reliability, laboratory accreditation and evidentiary consistency shape the legitimacy of food-safety regulation and criminal prosecution.

P4. NATIONAL



SC directs Rajasthan to set up coordination group, river commission to restore polluted rivers - Rajasthan's river-restoration framework combines institutional coordination, scientific monitoring, industrial wastewater management, public reporting and ecological restoration to address degradation of the Jojari–Bandi–Luni river system.

P7. ENERGY



No renewable energy project within 1 km of border: govt. - India's border-area renewable-energy guidelines seek to reconcile clean-energy expansion with national security through geographical restrictions, security clearances, foreign-participation controls and security-oriented infrastructure planning.

Editor's Note

As the first week of August draws to a close, the latest edition of the Pala Civil Times brings together a range of important national and international developments and examines them through the lens of public policy, governance and institutional response. The Supreme Court's examination of the relationship between data protection and the Right to Information highlights the continuing need to balance individual privacy with transparency, accountability and the space required for investigative journalism. The latest development in the decade-old Maggi controversy offers valuable insights into the importance of credible scientific evidence, regulatory standards and judicial scrutiny in ensuring that public-interest enforcement remains both effective and fair. The decoded editorials turn to emerging policy debates, including the proposed framework for UPI charges and the challenge of expanding healthcare access without compromising professional competence and patient safety. Meanwhile, new security guidelines for renewable-energy projects in border areas underline the growing intersection between clean-energy expansion, infrastructure development and national security. Together, these issues offer a connected understanding of contemporary policy challenges and institutional responses, helping aspirants move beyond isolated news events towards a more analytical understanding of current affairs. Happy reading!

Editorials Decoded



Maharashtra shortcut to rural healthcare is risk



The debate over permitting homeopathic practitioners to prescribe allopathic medicines highlights the tension between expanding rural healthcare access and preserving clinical competence, patient safety and professional standards.



Pay Wall



UPI's proposed MDR framework seeks to address payment-system costs while balancing ecosystem sustainability against affordability, digital inclusion and possible migration towards cash.

Supreme Court seeks response on pleas challenging data protection law

The Digital Personal Data Protection (DPDP) Act, 2023 and the Right to Information (RTI) Act, 2005 represent two important public-policy objectives: protecting personal data and enabling transparency in public affairs. The Supreme Court is examining whether changes made through the DPDP Act have excessively restricted access to information under the RTI framework, particularly by permitting information to be withheld as 'personal' data. The case also raises concerns about investigative journalism, as broad data-protection restrictions may affect access to information necessary for public-interest reporting.

Legal Interface between Data Protection - RTI

Two central laws: The Court has emphasised the need to harmonise the DPDP Act and RTI Act rather than treating them in isolation.

Different domains: RTI operates over a wider domain covering all forms of data, whereas DPDP primarily concerns digitally held data.

Section 44(3): The challenged provision amended the RTI framework concerning disclosure of personal information.

Earlier safeguard: RTI permitted withholding where information lacked connection with public activity or disclosure would cause unwarranted privacy invasion.

Public-interest test: Earlier, authorities had to consider whether public interest outweighed privacy before deciding disclosure.

Supreme Court Examination and Journalistic Concerns

Constitutional question: The Court will examine whether the later DPDP framework effectively repeals or restricts transparency protections under the earlier RTI legislation.

En-bloc restriction: Concern has been raised that treating information broadly as personal could create an excessive embargo on disclosure.

Investigative journalism: Restrictions may affect journalists seeking information for public-interest investigations.

Consent requirement: Journalists may have to obtain the data principal's consent, while the individual may also exercise control over the data.

No special category: The Court has indicated that journalists cannot automatically claim unrestricted access to data merely because of their profession.

Privacy, Transparency and Public Interest

Privacy protection: Data protection seeks to prevent inappropriate use or disclosure of personal information.

Transparency protection: RTI enables access to information and supports accountability in public affairs.

Balancing mechanism: Earlier RTI provisions required decision-makers to weigh privacy concerns against public interest.

State accountability: Excessive expansion of personal-data protection could potentially shield public functionaries from legitimate scrutiny.

Press freedom: Broad restrictions on access to information may affect investigative journalism and consequently public-interest reporting.



Way Forward

The interaction between data protection and transparency requires careful legal harmonisation rather than an absolute preference for either privacy or disclosure. Personal data deserves protection, but an expansive interpretation of 'personal' information could weaken established transparency safeguards and affect legitimate public-interest scrutiny. At the same time, journalists cannot claim unrestricted access merely by invoking their professional role. The central challenge is therefore to preserve meaningful privacy protection while ensuring that data-protection rules do not unnecessarily erode transparency, accountability and investigative journalism.

PYQ Compass

UPSC questions previously asked from the themes discussed on this page.



Q. "Recent amendments to the Right to Information Act will have a profound impact on the autonomy and independence of the Information Commission". Discuss. (GS II – 2020)

RELEVANCE GS II : Right to Information

Delhi HC drops 2015 Maggi 'MSG' content case

The 2015 Maggi controversy arose from food-safety testing that allegedly found lead levels above the permissible limit in the product's tastemaker, along with an allegation concerning its "No Added MSG" labelling. Criminal proceedings were subsequently initiated against retailers, distributors and representatives of the manufacturer under the Food Safety and Standards Act, 2006. Subsequent testing by accredited laboratories and the Central Food Technological Research Institute (CFTRI) found lead within permissible limits, leading the Delhi High Court to conclude that the scientific foundation of the prosecutions had substantially eroded.

Scientific and Regulatory Basis of the Controversy

Original finding: Food analysts reported lead above the permissible 2.5 ppm limit in the tastemaker.

Misbranding allegation: The product was also alleged to be misbranded because of its "No Added MSG" declaration.

Laboratory concerns: The Bombay High Court found serious legal infirmities in the laboratory reports underlying the regulatory action.

Accredited testing: Subsequent testing by accredited and notified laboratories found lead within the permissible limit.

Scientific verification: CFTRI testing, conducted following Supreme Court directions, also found lead within prescribed limits.



Judicial Developments and Present Position

Bombay High Court: In 2015, the Court set aside the nationwide ban after finding deficiencies in the reports supporting the regulatory action.

Supreme Court direction: In 2016, CFTRI was directed to examine lead and glutamic acid levels and clarify whether testing covered MSG.

NCDRC finding: In the consumer proceedings, the Commission found no evidence establishing that Maggi noodles were unsafe and accepted Referral Food Laboratory reports.

Delhi High Court: Criminal complaints and consequential proceedings against retailers and supply-chain persons were quashed.

Reasoning: Continuing prosecution was considered unjustified because the same original testing constituted its scientific foundation and later evidence had substantially weakened it.

RELEVANCE GS II : Government Policies and Interventions

Food-Safety Enforcement and Evidentiary Concerns

Scientific reliability: Regulatory action involving food safety must rest on scientifically sound and legally valid testing.

Accreditation: Laboratory competence and statutory accreditation are important to the credibility of food-safety findings.

Evidentiary continuity: Later proceedings become difficult to sustain when the original scientific evidence is substantially undermined.

Proportional enforcement: Criminal prosecution should not continue where its foundational evidence has materially eroded.

Consumer protection: Effective regulation requires both protection from unsafe food and dependable scientific processes for establishing safety violations.

Way Forward

The Maggi controversy demonstrates that effective food-safety regulation depends not only on strict enforcement but also on the reliability of the scientific evidence supporting regulatory and criminal action. Subsequent accredited and supervised testing can materially alter the evidentiary position when it contradicts the original findings. Regulatory authorities therefore need scientifically robust testing, appropriate laboratory standards and legally sound evidence. Such safeguards can protect consumers while ensuring that criminal proceedings remain proportionate, credible and capable of withstanding judicial scrutiny.

PYQ Compass

UPSC questions previously asked from the themes discussed on this page.



Q. Due to improper / indiscriminate disposal of old and used computers or their parts, which of the following are released into the environment as e-waste? (2013)

1. Beryllium 2. Cadmium 3. Chromium 4. Heptachlor
5. Mercury 6. Lead 7. Plutonium

Select the correct answer using the codes given below.

- (a) 1, 3, 4, 6 and 7 only (b) 1, 2, 3, 5 and 6 only (c) 2, 4, 5 and 7 only (d) 1, 2, 3, 4, 5, 6 and 7

SC directs Rajasthan to set up coordination group, river commission to restore polluted rivers

The Jojari, Bandi and Luni river system in Rajasthan has faced severe ecological degradation associated with illegal industrial effluent discharge and other environmental violations. Responding to the deteriorating riverine ecosystem, the Supreme Court has directed the State to establish coordinated institutional mechanisms for restoration, monitoring and enforcement. The approach combines administrative coordination with scientific river mapping, digital surveillance, public reporting, industrial wastewater treatment and ecological restoration.

Institutional Framework for River Restoration

Integrated Coordination Group: Rajasthan must constitute a Chief Secretary-led group within seven days to coordinate implementation.

Restoration roadmap: The group must prepare a time-bound plan specifying responsibilities, targets and timelines.

River Commission: A Chief Secretary-led commission with domain experts will oversee river conservation across Rajasthan.

River corridors: High-flood lines and ecological buffer zones are to be scientifically demarcated.

Institutional continuity: The framework addresses ineffective functioning of existing river and water-planning bodies.

Monitoring, Enforcement and Industrial Wastewater Management

Digital surveillance: Satellite mapping and AI-based surveillance are to strengthen environmental monitoring and enforcement.

Public reporting: QR-code platforms will allow confidential reporting of violations using photographs, videos and geo-tagged information.

Industrial violations: Reporting covers illegal effluent discharge, unauthorised units, groundwater extraction and hazardous-waste dumping.

HRTS restoration: Accumulated wastewater at HRTS facilities must be scientifically treated before infrastructure is dismantled.

Captive treatment: Industries generating below 100 kilolitres of effluents daily may be encouraged to establish captive treatment facilities.

Food-Safety Enforcement and Evidentiary Concerns

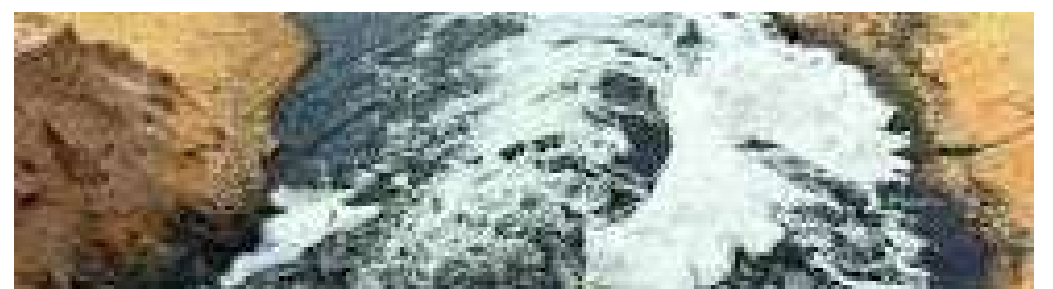
Development restrictions: Fresh commercial or residential permissions within identified river corridors are barred until ecological demarcation is completed.

Zero liquid discharge: Captive treatment is intended to facilitate decentralised wastewater management and progress towards zero liquid discharge.

Ecological restoration: HRTS sites are to be restored as green ecological zones or urban forests using native species and biodiversity measures.

Public participation: Confidential reporting and possible incentives can strengthen detection of serious environmental violations.

Administrative integration: Coordinated responsibilities and timelines can improve implementation across government and pollution-control institutions.



Way Forward

The restoration framework represents an integrated approach to river conservation in which pollution control, ecological protection, institutional coordination and public participation operate together. Effective implementation will depend on translating judicial directions into measurable responsibilities, timelines and continuous monitoring. Scientific demarcation of river corridors can also help prevent environmentally damaging development, while decentralised wastewater treatment can address industrial pollution at source. The approach, if successfully implemented, can provide a governance model for restoring degraded river systems.

PYQ Compass

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Q. "Membrane Bioreactors" are often discussed in the context of: (2024)

- Assisted reproductive technologies
- Drug delivery nanotechnologies
- Vaccine production technologies
- Wastewater treatment technologies

Pay wall (The Hindu : 08-08-2026)

Unified Payments Interface (UPI) is a digital payment platform whose transactions have remained free from Merchant Discount Rate (MDR) charges since 2020. The government has now amended the legal framework to permit notification of UPI transactions that may attract charges. Although no final charging structure has been officially announced, a possible MDR on selected transactions raises questions about who should bear the cost of maintaining the payment ecosystem, while balancing payment-system sustainability with affordability, digital inclusion and the risk of a shift towards cash

Merchant Discount Rate and UPI Cost Structure

MDR: A fee paid by merchants to banks and payment processors for using payment networks.

Components: MDR can include interchange, processing, network fees and GST.

UPI exemption: Since 2020, UPI and RuPay debit-card transactions have not attracted MDR charges.

Cost sharing: UPI costs are currently absorbed partly by banks/payment processors and partly through government subsidies.

Government support: The subsidy covers UPI transactions below ₹2,000 made by small merchants.

Recent Policy Change and Possible Charging Structure

Legal amendment: The Taxation and Other Laws (Amendment) Bill, 2026 modifies the Payment and Settlement Systems Act framework.

Government power: The amended provision enables notification of transactions that may attract charges.

Possible scope: Charges may apply to large merchants with annual turnover above ₹1–1.5 crore and transactions exceeding ₹2,000.

Likely rate: A possible MDR of 0.25–0.4% of transaction value is being considered.

Limited coverage: Such criteria could exclude about 95% of existing UPI transactions, though the legal power permits wider coverage.

Payment Ecosystem Concerns and Policy Choices

Cost sustainability: Payment players have borne part of UPI's operating costs since it became free, creating pressure for an alternative funding mechanism.

Taxpayer burden: Government subsidies have already supported processing costs, including ₹11,349 crore paid so far and ₹2,000 crore budgeted for 2026–27.

Consumer impact: Merchants may pass MDR costs to customers, potentially reducing the attractiveness of UPI.

Cash substitution: Higher digital-payment costs could encourage users to return to cash, which remains free to use.

Alternative funding: Using RBI resources for UPI development could reduce the surplus transferred to the Centre while avoiding a potentially unpopular user charge.

Way Forward

The UPI charging debate reflects a broader policy choice between preserving free digital payments and ensuring the financial sustainability of the payment ecosystem. A carefully targeted MDR could provide payment players greater capacity for infrastructure, innovation and security without substantially affecting ordinary users. However, wider charges could weaken UPI's affordability advantage and encourage cash usage. The policy direction therefore needs to balance sustainable financing with low-cost access, limited consumer impact and continued digital and financial inclusion.

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PYQ
COMPASS

- Q. Which one of the following best describes the term "Merchant Discount Rate" sometimes seen in news? (2018)
- The incentive given by a bank to a merchant for accepting payments through debit cards pertaining to that bank.
 - The amount paid back by banks to their customers when they use debit cards for financial transactions for purchasing goods or services.
 - The charge to a merchant by a bank for accepting payments from his customers through the bank's debit cards.
 - The incentive given by the Government to merchants for promoting digital payments by their customers through Point of Sale (PoS) machines and debit cards.

RELEVANCE

GS III : Indian Economy - Inclusive Growth



Maharashtra shortcut to rural healthcare is risk (I.E : 08-08-2026)

Maharashtra's decision to permit homeopathic doctors to prescribe allopathic medicines after completing a bridge course seeks to address shortages of allopathic practitioners in rural areas. While improving access to healthcare is an important public health objective, combining distinct therapeutic systems raises concerns about professional competence and patient safety. Allopathic medicine depends on extensive training in diagnosis, pharmacology, clinical research and supervised practice, which cannot necessarily be replicated through a short bridge course. The issue therefore involves balancing healthcare access with the integrity of medical practice.

Medical Training & Professional Competence

Allopathic training: MBBS education integrates classroom learning, laboratory work, clinical postings, internship and supervised practice.

Clinical reasoning: Training develops abilities in diagnosis, understanding disease processes, drug action, interactions and adverse reactions.

Evidence assessment: Medical education includes evaluation of clinical evidence and interpretation of diagnostic investigations.

Bridge-course limitation: Familiarity with selected medicines and treatment protocols cannot recreate the broader intellectual and clinical training required for diagnosis.

System differences: Allopathy and homeopathy are based on different therapeutic principles, making unrestricted cross-practice professionally problematic.



Maharashtra's Approach & Healthcare Context

Rural shortage: Despite Maharashtra having roughly one physician for every 700 people, rural areas continue to experience shortages of allopathic practitioners.

Proposed measure: Homeopathic doctors may prescribe allopathic medicines after undergoing a bridge course.

Intended rationale: The measure seeks to expand access to medical care where qualified allopathic practitioners are insufficient.

Limited capability: A bridge course may familiarise practitioners with common conditions, selected medicines and standard protocols, but may not provide comprehensive diagnostic competence.

Systemic alternative: Expanding medical education, strengthening institutions and improving incentives for rural service can address shortages more sustainably.

Significance and Challenges

Patient safety: Inadequate diagnostic and pharmacological training can increase risks associated with inappropriate treatment and adverse reactions.

Professional standards: Cross-practice may weaken the distinct standards and competencies associated with different medical systems.

Public trust: Blurring disciplinary boundaries could undermine confidence in both modern medicine and homeopathy.

Plural healthcare: Homeopathy can retain a place within India's healthcare system without requiring therapeutic boundaries to be blurred.

Capacity building: Expanding medical education and institutions, alongside stronger rural-service incentives, offers a broader response to healthcare-access deficits.

Long-Term Implications

Healthcare accessibility and professional competence are complementary objectives rather than competing ones. Addressing rural shortages through cross-practice may offer an immediate response, but effective medical care requires adequate diagnostic knowledge, clinical judgement and understanding of treatment risks. A stronger long-term approach lies in expanding medical education, strengthening healthcare institutions and encouraging doctors to serve underserved areas. Respecting the integrity of different therapeutic systems while improving healthcare capacity can help reconcile wider access with patient safety and public trust.

PYQ Compass

UPSC questions previously asked from the themes discussed on this page.



PYQ
COMPASS

Q. In a crucial domain like the public healthcare system, the Indian State should play a vital role in containing the adverse impact of the marketisation of the system. Suggest measures through which the State can enhance the reach of public healthcare at the grassroots level. (GS II – 2024)

RELEVANCE

GS II : Issues relating to development and management of Social Sector/Services relating to Health

ENERGY

No renewable energy project within 1 km of border: govt.

The Ministry of Home Affairs (MHA) has introduced national security guidelines for solar, wind and hybrid renewable-energy projects proposed near India's international borders, including the Line of Control (LoC) and Line of Actual Control (LAC). The guidelines respond to growing interest in renewable-energy development in strategically sensitive areas. They establish geographical restrictions, mandatory security clearances, controls on foreign participation, security infrastructure requirements and limits on associated construction. The framework seeks to enable renewable-energy development while ensuring that energy infrastructure does not create security vulnerabilities in border regions.

Geographical Restrictions and Approval Framework

Restricted zone: No project activity is permitted within 1 km of the international border, LoC or LAC.

Security clearance: Projects within 50 km of these borders require MHA security clearance.

Defence NOC: Projects between 1 km and 20 km additionally require an NOC from the Ministry of Defence.

Application route: Developers apply through MNRE after obtaining in-principle land allotment approval from the State government.

Time frame: The MHA will seek to decide security-clearance proposals within 60 days on a case-by-case basis.



Security Conditions for Renewable-Energy Projects

Foreign participation: Employment of engineers, staff or labour from Pakistan, Bangladesh or China requires MHA permission.

Land transfer: Transfer of project land to foreign companies requires Central government approval and MHA security clearance.

Security infrastructure: Developers must provide comprehensive security arrangements, including anti-drone systems operated by CISF or State police.

Personnel monitoring: Employees, construction workers and foreign nationals entering project areas must undergo strict monitoring and verification.

Operational access: Project roads must facilitate use by armed forces or border-security personnel during emergencies.

RELEVANCE

GS III : Infrastructure and Energy

Infrastructure Controls and Security Preparedness

Project layout: Stretches of construction parallel to the border should be avoided.

Accommodation: Hotels and crowd-attracting establishments are discouraged, while accommodation facilities must be at least 5 km from the border.

Height restrictions: Support structures face graded height limits of 3 m, 5 m and 15 m across the 1–8 km, 8–20 km and 20–50 km zones respectively.

Core infrastructure: Height restrictions do not apply to core facilities such as wind turbines.

Existing approvals: Projects that already received MHA security clearance or Defence Ministry NOC before the guidelines do not need fresh approval.

Way Forward

The guidelines establish a security-sensitive framework for renewable-energy development in border regions where infrastructure can have implications beyond energy generation. Geographical restrictions, institutional clearances, foreign-participation controls, personnel verification and security-oriented infrastructure design seek to reduce potential vulnerabilities. At the same time, routing applications through MNRE and providing a proposed 60-day decision period can support a more uniform approval process. The framework therefore aims to reconcile renewable-energy expansion with national security and operational preparedness in strategically sensitive border areas.

PYQ Compass

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- Q. The term 'Domestic Content Requirement' is sometimes seen in the news with reference to: (2017)
- Developing solar power production in our country
 - Granting licences to foreign T.V. channels in our country
 - Exporting our food products to other countries
 - Permitting foreign educational institutions to set up their campuses in our country

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Q. Which one of the following best describes the term “Merchant Discount Rate” sometimes seen in news? (2018)

- The incentive given by a bank to a merchant for accepting payments through debit cards pertaining to that bank.
- The amount paid back by banks to their customers when they use debit cards for financial transactions for purchasing goods or services.
- The charge to a merchant by a bank for accepting payments from his customers through the bank’s debit cards.
- The incentive given by the Government to merchants for promoting digital payments by their customers through Point of Sale (PoS) machines and debit cards.

Ans : C

Merchant discount rate on debit cards is the amount that a merchant has to pay to its service providers when a consumer swipes her card on the merchant’s pointofsales terminal. It is also applicable for online transactions and QR-based transactions. The amount that the merchant pays for every transaction gets distributed among three stakeholders—the bank that enable the transaction, the vendor that installs the PoS machine and the card network provider such as Visa or MasterCard.

Q. Due to improper / indiscriminate disposal of old and used computers or their parts, which of the following are released into the environment as e-waste? (2013)

- Beryllium
- Cadmium
- Chromium
- Heptachlor
- Mercury
- Lead
- Plutonium

Select the correct answer using the codes given below.

- 1, 3, 4, 6 and 7 only
- 1, 2, 3, 5 and 6 only
- 2, 4, 5 and 7 only
- 1, 2, 3, 4, 5, 6 and 7

Ans : b

Beryllium: Found in motherboards and connectors, it is toxic and carcinogenic when released.

Cadmium: Found in semiconductors, batteries, and resistors, it is highly toxic to kidneys and bones.

Chromium: Used in metal finishes, particularly hexavalent chromium, which is a hazardous carcinogen.

Mercury: Present in switches and flat-screen monitors, it can cause neurological damage when released.

Lead: Found in cathode ray tubes (CRTs) and solder, it is highly toxic and causes severe environmental and health issues.

Heptachlor and Plutonium: Not typically associated with e-waste; heptachlor is a pesticide, and plutonium is a radioactive element not found in consumer electronics.

PYQ Compass

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Q. Membrane Bioreactors" are often discussed in the context of:(2024)

- a) Assisted reproductive technologies
- b) Drug delivery nanotechnologies
- c) Vaccine production technologies
- d) Wastewater treatment technologies

Ans : d

Membrane Bioreactors (MBRs) are advanced systems used in wastewater treatment. They combine biological treatment (like activated sludge) with membrane filtration to remove contaminants from wastewater. The membrane filters help separate solid particles from liquids, providing higher-quality effluent and making MBRs efficient for treating both municipal and industrial wastewater. Thus, the correct answer is d) Wastewater treatment technologies.

Q. The term ‘Domestic Content Requirement’ is sometimes seen in the news with reference to: (2017)

- a) Developing solar power production in our country
- b) Granting licences to foreign T.V. channels in our country
- c) Exporting our food products to other countries
- d) Permitting foreign educational institutions to set up their campuses in our country

Ans : a

The term 'Domestic Content Requirement' (DCR) refers to a policy that mandates a certain percentage of a product's components to be sourced from domestic manufacturers or producers. In the context of solar power production, DCR policies are used to promote local manufacturing of solar panels and related equipment. These policies are designed to encourage the development of the domestic solar industry, reduce reliance on imports, and create jobs within the country. In India, for example, the National Solar Mission has included DCR requirements to boost local production of solar panels, which supports the growth of the renewable energy sector and the "Make in India" initiative. Thus, the correct answer is a) Developing solar power production in our country.

PRACTICE QUESTIONS

Q. With reference to security guidelines for renewable-energy projects in border areas, consider the following statements:

1. Projects within 1 km of the international border, LoC or LAC are treated as restricted areas where project activity is not permitted.
2. Every renewable-energy project within 50 km of the border requires both MHA security clearance and an MoD NOC.
3. Projects between 1 km and 20 km of the border require an MoD NOC.

Which of the statements given above is/are correct?

- (a) 1 and 3 only
- (b) 2 and 3 only
- (c) 1 and 2 only
- (d) 1, 2 and 3

Answer: (a) 1 and 3 only

(a) Correct: Statements 1 and 3 accurately describe the geographical restrictions and approval requirements.

(Statement 2 is incorrect because the guidelines do not require an MoD NOC for every project within 50 km; the specified 1–20 km zone requires the NOC.

Q. With reference to the Supreme Court's directions concerning the Jojari, Bandi and Luni river system, consider the following statements:

1. The Integrated Coordination Group is to be headed by the Chief Secretary of Rajasthan.
2. The proposed River Commission is required to scientifically demarcate high-flood lines and ecological buffer zones.
3. Fresh commercial and residential development within identified river corridors is permitted until the demarcation exercise is completed.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer: (a) 1 and 2 only

- (a) Correct: Statements 1 and 2 accurately reflect the institutional directions.
- Statement 3 is incorrect because fresh permissions for commercial or residential development within identified river corridors are barred until the demarcation exercise is completed.

Q. Which of the following measures forms part of the approach directed for restoration of Rajasthan's polluted river system?

1. AI-based environmental surveillance
2. QR-code-based public reporting of environmental violations
3. Promotion of captive effluent treatment for certain smaller industries
4. Restoration of former wastewater facilities as ecological zones

Select the correct answer using the code below:

- (a) 1 and 2 only
- (b) 1, 2 and 3 only
- (c) 2, 3 and 4 only
- (d) 1, 2, 3 and 4

Answer: (d) 1, 2, 3 and 4

BRAIN BOOSTER

LAB-GROWN DIAMONDS (LGDs)

Lab-grown diamonds (LGDs) are artificially produced diamonds created under controlled laboratory conditions using advanced technology rather than geological processes. They are chemically, physically and optically identical to natural diamonds because both are composed of pure crystalline carbon arranged in the same crystal structure. Unlike imitation stones such as cubic zirconia or moissanite, lab-grown diamonds are real diamonds and possess the same hardness, brilliance, thermal conductivity and optical properties as mined diamonds.

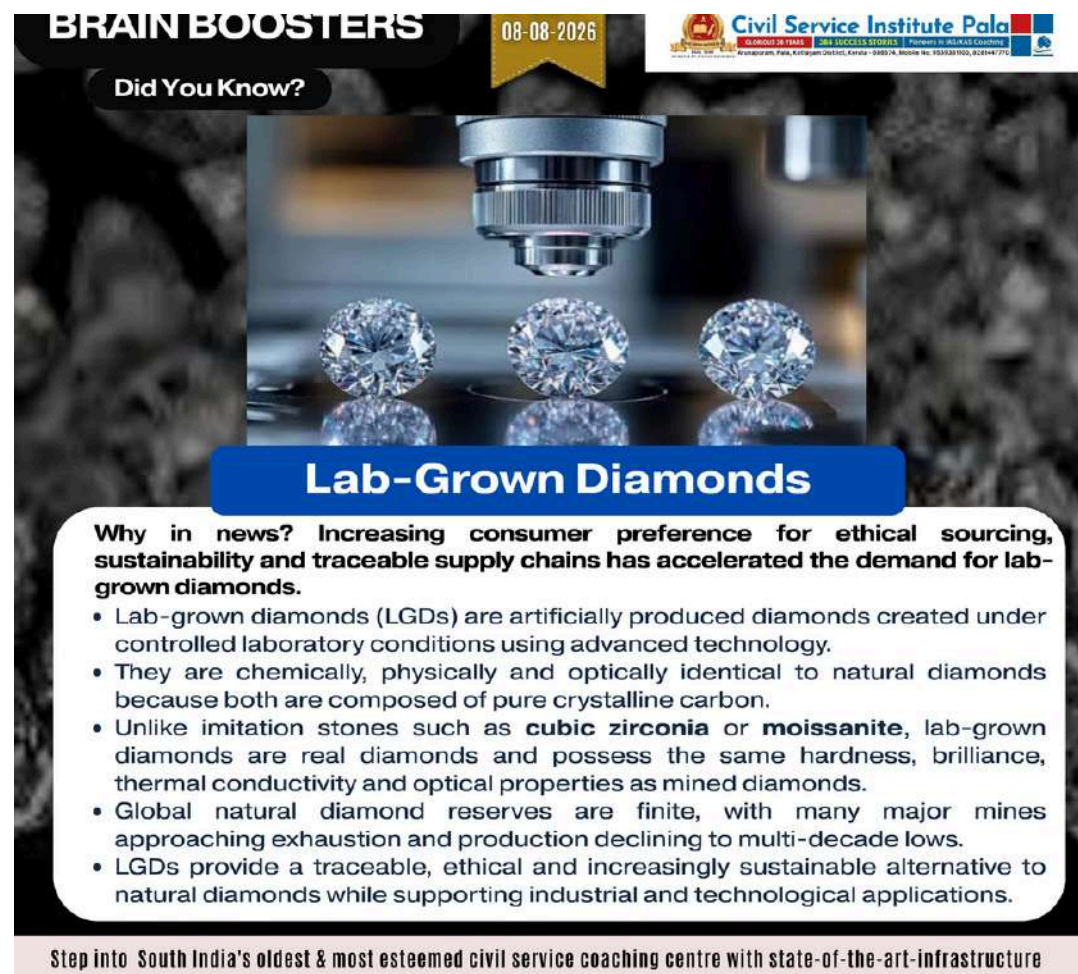
Why are Lab-Grown Diamonds gaining importance?

- Global natural diamond reserves are finite, with many major mines approaching exhaustion and production declining to multi-decade lows.
- Diamond mining causes significant environmental degradation, including deforestation, habitat destruction, soil erosion, water pollution and massive landscape alteration through open-pit excavation.
- Mining is highly resource-intensive, consuming large quantities of water and energy, while also generating considerable greenhouse gas emissions.
- Mine workers face occupational hazards such as asbestos exposure, increasing the risk of diseases like asbestosis, pleural plaques and mesothelioma.
- Increasing consumer preference for ethical sourcing, sustainability and traceable supply chains has accelerated the demand for lab-grown diamonds.

How was the Alloy Formed?

- They eliminate the need for destructive diamond mining and significantly reduce environmental damage.
- Their origin is fully traceable, reducing concerns related to conflict diamonds and unethical sourcing.
- Improvements in production technology have made LGDs far more affordable than natural diamonds.
- They support responsible manufacturing aligned with environmental, social and governance (ESG) principles.
- Production quality can be carefully controlled, resulting in highly consistent gemstones for jewellery and industrial applications.

RELEVANCE *GS III : Science and Technology*



Environmental Perspective

- Although lab-grown diamonds also require considerable energy, their environmental footprint depends largely on the source of electricity used during production.
- Facilities powered by coal-based electricity may still have relatively high carbon emissions.
- Production using renewable energy sources significantly lowers greenhouse gas emissions and makes LGDs a much more sustainable alternative.
- Renewable-energy-powered production aligns with the United Nations Sustainable Development Goals (SDGs) by promoting cleaner energy, sustainable industrialisation and responsible consumption.
- It also supports the Circular Economy by encouraging efficient resource utilisation and reducing environmental impacts throughout the production cycle.

India's Initiative on Lab-Grown Diamonds

- Recognising the strategic and economic importance of LGDs, the Government announced major support measures in the Union Budget 2023-24.
- The initiative promotes indigenous manufacturing, research and technological self-reliance in lab-grown diamond production.
- Special emphasis has been placed on developing domestic expertise in HPHT and CVD technologies.