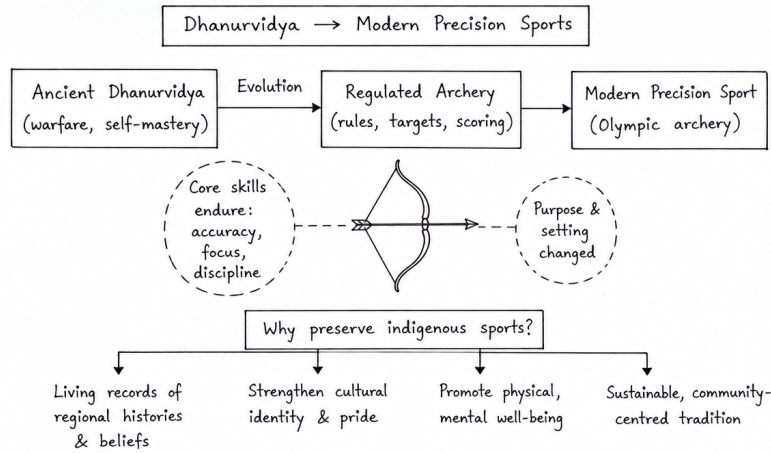


1. Point out how traditional practices like Dhanurvedya have evolved into modern precision sports. Why is preserving traditional indigenous sports crucial for India's cultural heritage?

Word limit: 150 words | 10 marks

Dhanurvedya, the ancient Indian discipline of archery, combined combat training with concentration, breath control and ethical self-mastery. Its core skills endure, although their purpose and setting have changed.



From warfare to sport

- Archery moved from hunting and warfare to regulated competition. Standardised bows, targets, safety rules and scoring transformed it into an Olympic precision sport, while accuracy, repetition and mental focus remain recognisably linked to Dhanurvedya.
- Similar adaptations can make traditional techniques accessible without erasing their cultural context.

Why preservation matters

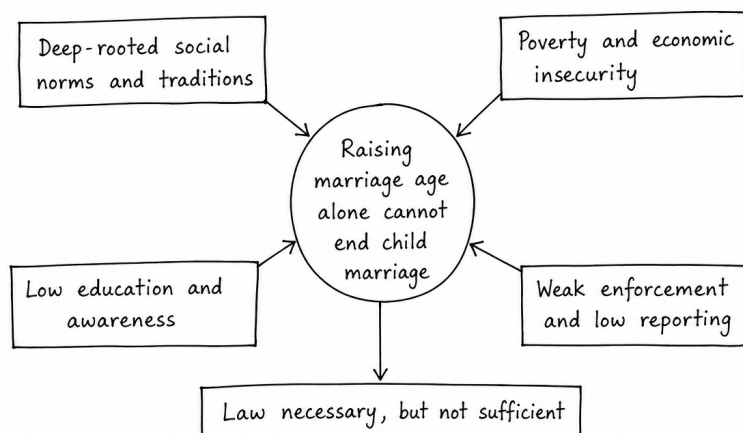
- Indigenous games are living records of regional histories, beliefs and knowledge, strengthening community identity and intergenerational transmission.
- They encourage fitness, teamwork, strategy and resilience, often with little equipment. Revival can support local coaches, craftspeople, tourism and livelihoods; leagues in kabaddi and kho-kho show how heritage can gain modern audiences.

Schools and grassroots programmes should document and teach these sports, while adapting safety and access without reducing them to spectacle.

2. Explain why raising the statutory marriage age alone cannot eradicate child marriage. How do deeply entrenched socio-economic factors limit the effectiveness of such legislative reforms?

Word limit: 250 words | 15 marks

India's law sets minimum marriage ages at 18 for women and 21 for men. Yet child marriage persists because legal prohibition does not by itself change the conditions and social norms that make early marriage appear necessary or acceptable.



Limits of a legal threshold

- A statute can prohibit, punish and provide remedies, but cannot ensure compliance where births are unregistered, marriages are informal, and officials lack capacity or community support. Low reporting and fear of social backlash further weaken enforcement.
- Under the Prohibition of Child Marriage Act, marriages are generally voidable at the minor's option, rather than automatically void. A girl may therefore remain exposed unless she can access support, pursue a case and secure protection.

Socio-economic constraints

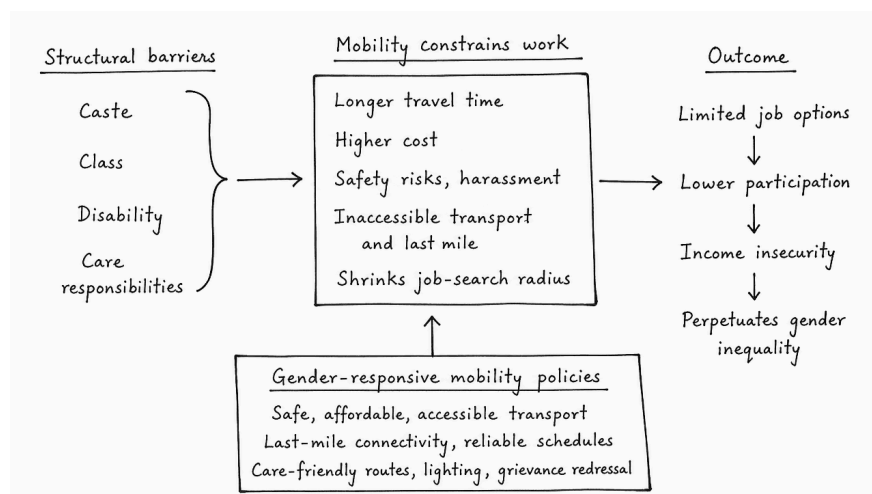
- Poverty makes daughters seem an economic liability; early marriage may reduce household costs or settle debt. Dowry expectations and insecurity can encourage families to marry girls early despite the law.
- Limited access to safe, affordable secondary schooling and few livelihood prospects leave girls with weak alternatives. School dropout raises exposure, while patriarchal norms treat girls' sexuality as family honour, fear harassment or elopement, and view marriage as protection. These pressures can override a legal age.
- Risk is concentrated among poorer, rural and less-educated households; enforcement alone cannot remedy unequal access to schools, income and services.

Pair the law with secondary schooling, scholarships, safe transport, social protection and livelihood options. Trained officers, confidential reporting and community engagement should enable prevention and protection. The threshold matters, but change requires girls' choices and social norms to shift.

3. Analyse how gender-responsive urban mobility policies can address structural barriers to labor force participation for marginalized genders in India.

Word limit: 250 words | 15 marks

Urban mobility shapes who can reach work, at what cost and with what degree of safety. For women, transgender persons and other marginalised genders, transport barriers combine with caste, class, disability and care responsibilities to narrow employment choices.



How mobility constrains work

- Women's trip-chaining—combining work journeys with school, care and market trips—is poorly served by routes planned around peak-hour, home-to-office commutes. Infrequent services, unsafe stops, harassment, inaccessible pavements and unaffordable fares increase travel time and risk. These constraints shrink job-search radius, especially for poor women, migrants and those in peripheral settlements; time poverty then limits training and regular employment. Transgender people may face harassment or denial of service, while disabled commuters encounter inaccessible vehicles and stations.

Policy levers

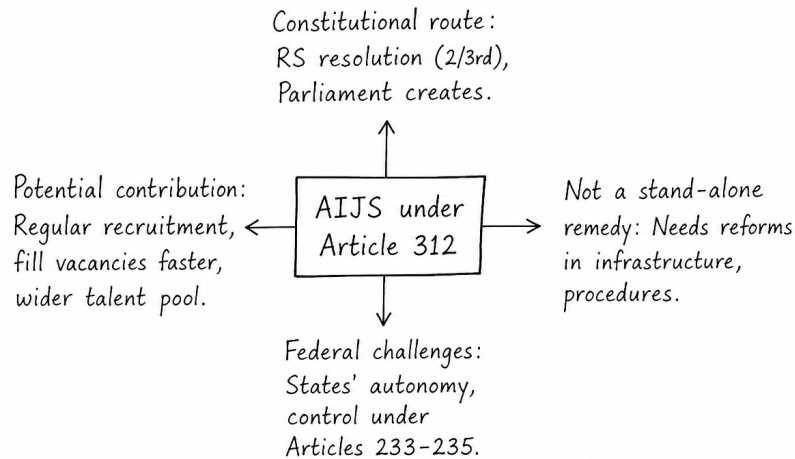
- Plan routes and timetables around trip-chaining, shift work and care destinations; use frequent feeder buses and safe last-mile links, including in low-income peripheral areas.
- Combine affordable fares or targeted concessions with reliable frequency, integrated ticketing and accessible vehicles; fare-free travel helps, but cannot compensate for poor service.
- Design for safety through lighting, clear sightlines, functioning toilets, staffed stops, emergency response and confidential reporting. Consult women, transgender groups, disabled people and informal workers in safety audits; disaggregate travel and employment data.
- Recruit and retain women and transgender people as drivers, conductors, planners and mechanics through training, fair pay, safe facilities and protection from workplace harassment.

Mobility policy must therefore complement transport with childcare, safer workplaces and flexible work, while monitoring whether improved access translates into decent jobs—not merely more journeys.

4. With suitable examples, discuss how the creation of an All India Judicial Service under Article 312 can resolve judicial pendency in India. What are the federal challenges?

Word limit: 250 words | 15 marks

India's subordinate courts face heavy pendency, worsened by vacancies and uneven recruitment. An All India Judicial Service (AIJS) under Article 312 could strengthen staffing, but is no stand-alone remedy.



Constitutional route

Article 312 requires a Rajya Sabha resolution supported by two-thirds of members present and voting before Parliament creates a service common to Union and states for posts not below district judge. Articles 233–235 retain Governors' and High Courts' roles in appointments and control.

Potential contribution

Regular national examinations could replace irregular state recruitment, fill vacancies faster and widen the merit pool. A common calendar may help states where examinations are delayed. Standard induction training can strengthen case management, evidence assessment and e-Courts use. National reservation safeguards could widen access for women and under-represented groups; inter-state exposure can spread good practice.

Federal challenges

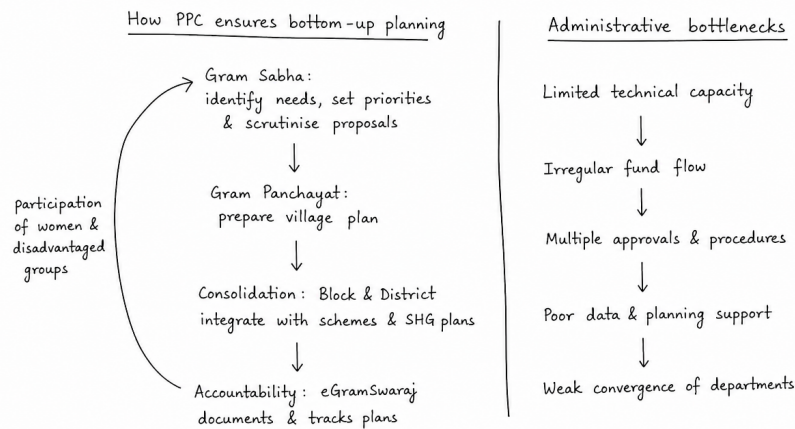
Yet centralisation raises federal concerns. Articles 233–235 give High Courts a central role in district-judge appointments, postings and discipline; states fear loss of control over a constitutional function. A national test may inadequately assess local laws and language: litigants must be understood in languages Tamil, Bengali or Marathi. State reservation rules, promotion prospects of serving officers and regional diversity also require accommodation. Executive control of selection could weaken judicial independence.

Design therefore matters: the Union should build consensus with High Courts and states, retain judicial oversight, test local-language competence, harmonise reservation arrangements and protect state-cadre promotions. Phased implementation, alongside filling posts, better infrastructure, technology and case-flow management, can make AIJS a useful part of a pendency strategy.

5. Critically discuss how the People's Plan Campaign ensures bottom-up planning. Why do Gram Panchayats face administrative bottlenecks while converting local deliberations into viable development plans?

Word limit: 250 words | 15 marks

The People's Plan Campaign (PPC) seeks to align village development with locally identified needs, fulfilling Panchayats' constitutional role in planning for economic development and social justice.



Bottom-up planning

- **Gram Sabha:** Residents identify needs, set priorities and scrutinise proposals. Participation by women and disadvantaged groups can broaden deliberation.
- **Integration:** Gram Panchayats prepare plans for consolidation at block and district levels, linking local priorities with departmental schemes and Self-Help Group plans.
- **Accountability:** Localising Sustainable Development Goals connects projects to wider outcomes, while eGramSwaraj supports plan documentation and public tracking.

Administrative bottlenecks

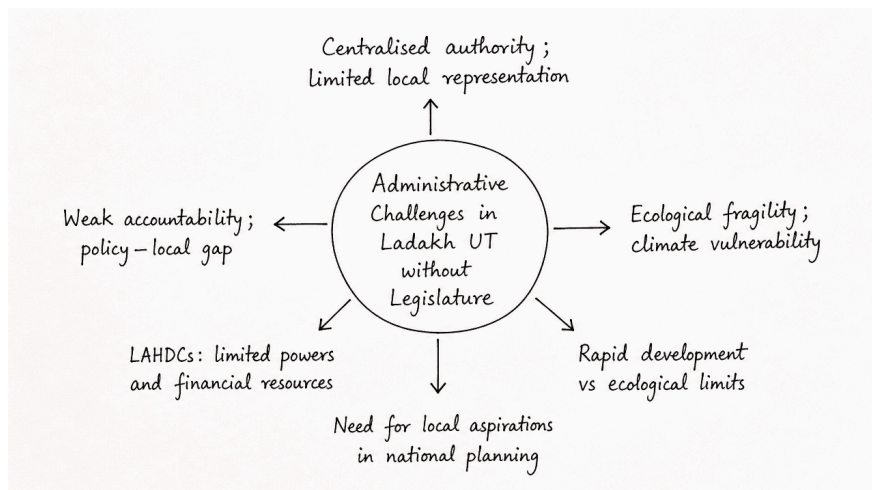
- **Limited devolution:** Inadequate control over funds, functions and staff, alongside tied grants, constrains Panchayats' choices and leaves priorities unfunded.
- **Capacity gaps:** Staff shortages and limited technical expertise impede needs assessment, costing, feasibility studies and project design.
- **Weak deliberation and data:** Low attendance, elite influence and gender barriers can exclude voices; incomplete local data weakens prioritisation.
- **Fragmented delivery:** Departmental silos, poor budget alignment, delayed funds and weak monitoring undermine implementation.

PPC provides a participatory framework, but viable plans require predictable flexible funds, adequate staffing, technical support and inclusive scrutiny.

6. Critically discuss the administrative challenges in governing ecologically fragile Union Territories without a legislature. How can local developmental aspirations in Ladakh be effectively integrated into national planning?

Word limit: 250 words | 15 marks

Ladakh's governance must reconcile national strategic oversight with local democracy in a high-altitude ecosystem where ecological damage can be irreversible. Without a legislature, decisions may be swift, but can lack representation, local knowledge and public accountability.



Administrative challenges

- Union administration through an appointed Lieutenant Governor centralises authority. Without an elected legislature, residents have limited influence over laws, budgets and land-use decisions; LAHDCs may lack the powers and funds to shape outcomes. This weakens accountability and can widen the gap between policy and local priorities.
- Climate change intensifies glacier retreat, water stress and disaster risks. Roads, energy projects and tourism create livelihoods, but can exceed water and waste capacity, damage habitats and erode customary practices; uniform standards may ignore local carrying capacity.

Integrating local aspirations

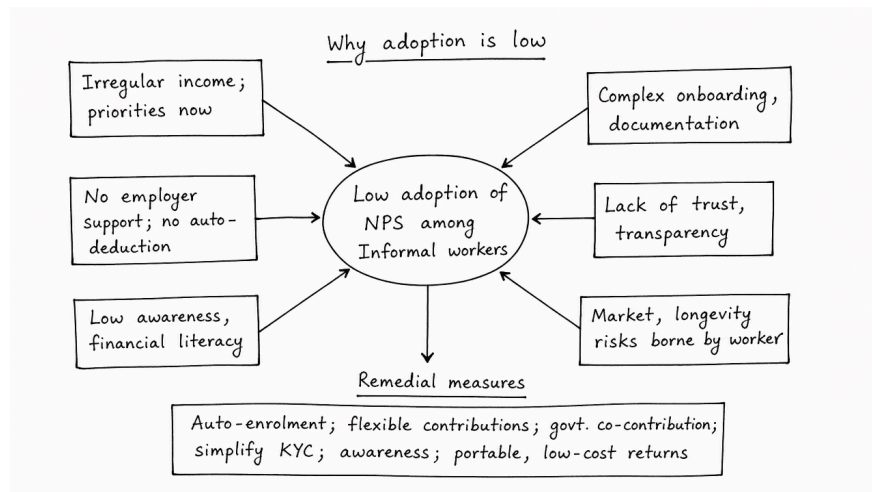
- Strengthen Leh and Kargil councils with predictable funds and authority over local services, land use and development; require their consent or meaningful consultation on major projects. Negotiate constitutional safeguards, including Sixth Schedule-type protection or a locally designed alternative, through inclusive dialogue.
- Integrate community and climate plans into national investment frameworks. Apply cumulative impact assessments, water budgets, tourism limits, waste-treatment standards and disaster-risk screening; publish monitoring data and involve residents in oversight.
- Tie public investment to local jobs and value addition in pashmina, apricots and sea buckthorn; support locally owned tourism, renewable energy and skills. Share benefits fairly and coordinate strategic infrastructure with elected local bodies.

National planning must meet strategic needs and deliver services, while ecological limits and local consent shape growth.

7. Critically examine why a defined-contribution pension model like the National Pension System faces low adoption rates among India's informal workforce. Suggest remedial measures.

Word limit: 250 words | 15 marks

India's vast informal workforce needs old-age security, yet voluntary defined-contribution pensions have limited reach in practice. Such schemes link retirement income to contributions and investment returns; this can support portability, but transfers longevity, market and income risks to workers least able to bear them. **Why adoption remains low**



- Irregular earnings make regular saving difficult; immediate food, rent, debt and health needs outweigh distant retirement.
- Without employers, workers lack matching contributions and payroll deductions; seasonal work, migration and job changes interrupt saving.
- Low awareness, limited financial literacy, complex onboarding and scarce trusted advice deepen exclusion. Digital systems also leave out workers facing connectivity, skills or documentation barriers.
- Market-linked returns and restricted liquidity deter workers with little savings. NPS does not assure a fixed pension, and inflation can erode income. APY's modest pension ceiling and eligibility limits also constrain appeal.

Remedial measures

- Allow small, seasonal or UPI contributions, pauses and catch-up payments. Offer portable accounts and assisted, low-cost enrolment through banks, post offices, cooperatives and Common Service Centres.
- Use e-Shram and worker groups for regional-language outreach, trusted counselling and women pension facilitators. Explain fees, risks and withdrawal rules plainly.
- Offer progressive public co-contributions or matching for low-income savers, inflation-aware support and

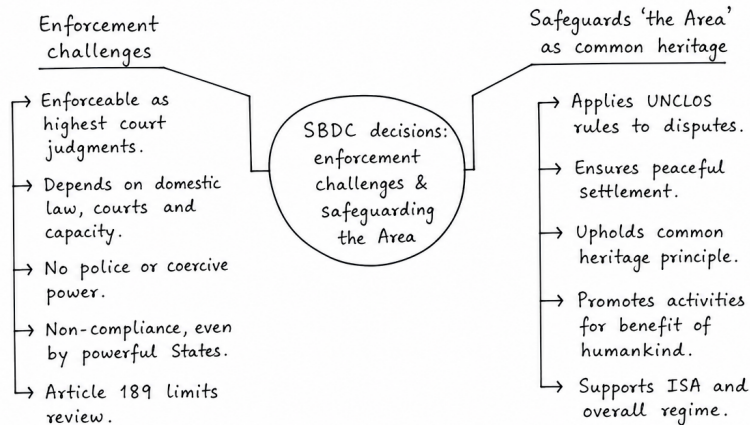
accessible tax incentives. Require platforms to contribute for gig workers, while preventing cost-shifting.

Defined contribution supports portability and fiscal sustainability, but cannot replace social protection. Combine voluntary saving with targeted public support, a reliable minimum old-age income and accessible health services, so retirement security does not depend on individual investment choices alone entirely.

8. Point out the challenges in enforcing the decisions of the Seabed Disputes Chamber. How does it safeguard "the Area" as the common heritage of humankind? Analyse.

Word limit: 150 words | 10 marks

The Area—seabed beyond national jurisdiction—contains resources held in common trust. Under UNCLOS, the Seabed Disputes Chamber (SBDC) adjudicates disputes concerning activities there and helps uphold this regime. Its decisions are legally binding, but enforcement remains decentralised.



Enforcement challenges

- Although UNCLOS requires decisions to be enforceable in each State Party as judgments of its highest court, implementation depends on domestic law, courts and administrative capacity. The SBDC has no police or coercive arm, so non-compliance, especially by powerful states, may persist despite legal obligation.
- Article 189 limits review: the Chamber cannot replace the ISA's discretion or invalidate its rules. Narrow jurisdiction, alternative forums and unresolved exploitation regulations can create gaps, delay and uncertainty.

Safeguarding the common heritage

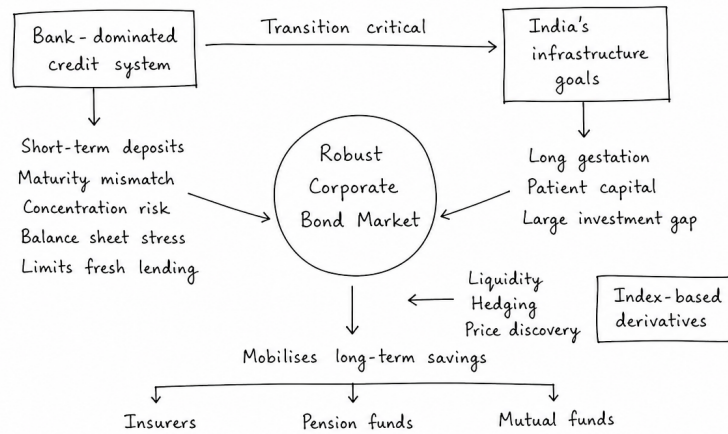
- It interprets Part XI consistently and can advise the ISA. Its rulings clarify sponsoring States' due-diligence duties, including precaution and environmental assessment, while requiring effective national controls over contractors.

Ultimately, effectiveness needs compliance.

9. Why is transitioning from a bank-dominated credit system to a robust corporate bond market critical for India's infrastructure goals? Analyse how index-based derivatives facilitate this transition.

Word limit: 250 words | 15 marks

India's infrastructure ambitions need patient capital for projects with long construction periods and slow returns. A bank-led system cannot meet this need alone without maturity and concentration risks; corporate bonds can mobilise wider savings. **Why transition matters**



- Banks rely on shorter-term deposits, while infrastructure loans may run 15–20 years. This mismatch creates liquidity and concentration risks; project stress can weaken bank balance sheets and curb fresh lending. Public budgets cannot meet the investment gap.
- A deeper bond market channels long-term savings from insurers, pension and mutual funds directly to firms. It diversifies funding, matches long-term liabilities to project cashflows, and enables market pricing. Bonds also ease pressure on banks. Outstanding corporate bonds grew from 17.5 trillion in FY2015 to 53.6 trillion in FY2025, but secondary-market depth remains limited.

Role of index-based derivatives

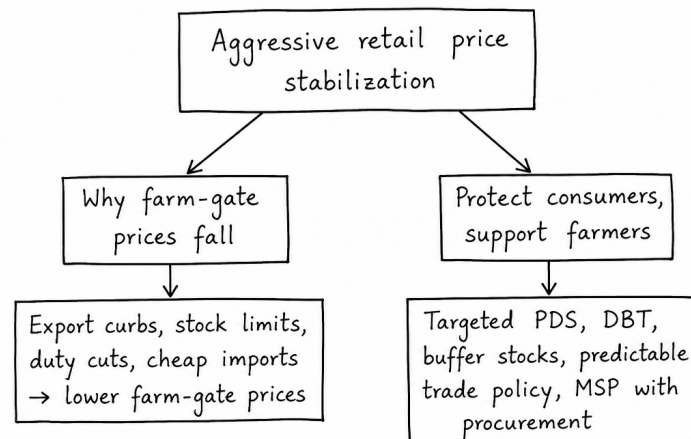
- Index futures, options and total-return swaps can hedge interest-rate changes and broad portfolio exposure without trading each bond. This cuts transaction costs and helps investors manage duration; credit-index contracts can transfer basket-level credit risk with safeguards. Standardised derivatives aid price discovery, provide benchmarks and let market-makers hedge inventories, potentially improving cash-bond liquidity and attracting institutional and foreign investors.

Derivatives are an enabler, not a substitute for sound projects, transparent disclosure, credible ratings and insolvency resolution. India must deepen cash-market liquidity and investor protection alongside phased, well-regulated contracts. This can shift financing towards a diversified ecosystem while retaining banks' role in appraisal, construction finance and co-lending. Careful margining and reliable indices are essential to limit leverage and basis risk.

10. Analyse why aggressive retail price stabilization measures often depress farm-gate realizations. How can policy design protect vulnerable consumers without hurting agrarian livelihoods?

Word limit: 250 words | 15 marks

Retail price stabilisation protects household purchasing power, but blunt interventions can transfer the burden of low prices upstream to farmers. When policy repeatedly prioritises consumers over predictable markets, farm-gate returns fall and investment weakens.



Why farm-gate prices suffer

- Export bans, quotas and minimum export prices restrict access to remunerative markets and create uncertainty; traders discount prices when future policy reversals are likely.

- Stock limits or sudden import-duty cuts can force rapid sales, deter private storage and expose farmers to harvest-time gluts. Imports used to cool retail prices may undercut local produce.
- Retail prices may ease only briefly, while farm prices respond immediately; weak storage and fragmented markets leave smallholders little bargaining power.

Protect consumers, sustain livelihoods

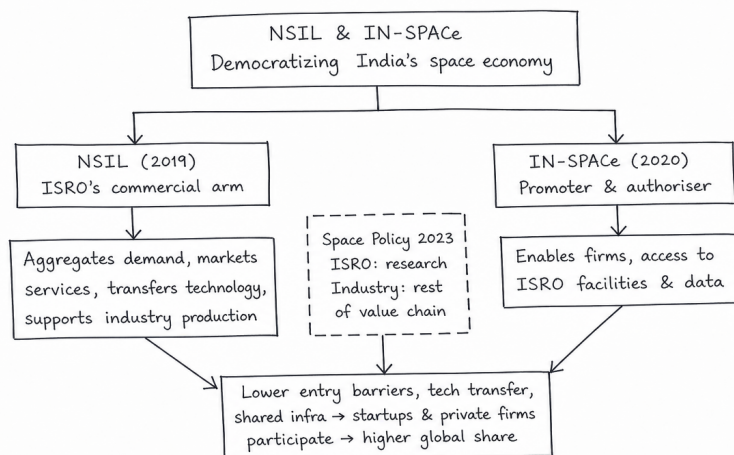
- Target assistance rather than suppressing prices across the market: strengthen the National Food Security Act and Public Distribution System, and use temporary, well-targeted cash or food support for vulnerable households.
- Release buffer stocks transparently when supply is tight; procure replenishment at remunerative prices, and use time-bound, rule-based interventions rather than surprise restrictions.
- Protect a credible farm-price floor through accessible procurement, price-deficiency payments where feasible, and timely compensation for perishable crops during gluts.
- Publish predictable trade triggers, consult producer groups, and assess effects on farm-gate prices before changing tariffs or export rules. Invest in warehouses, cold chains, processing and competitive markets so farmers can store, diversify and sell when returns improve.

The aim is not to freeze prices, but to share volatility fairly: shield consumers directly while preserving incentives and dependable markets for producers.

11. Explain how the establishment of NewSpace India Limited (NSIL) and IN-SPACe aims to democratize and boost India's share in the global space economy.

Word limit: 150 words | 10 marks

India is opening its space sector beyond the state-led model. NSIL commercialises capabilities, while IN-SPACe enables participation by non-government entities.



Institutional roles

NSIL, established in 2019, is ISRO's commercial arm. It aggregates demand, markets services, transfers technology and supports industry-led production. IN-SPACe, operationalised in 2020, is a promoter and authoriser, enabling firms to undertake activities and access ISRO facilities and data.

Democratising participation

The Space Policy 2023 reserves research for ISRO while opening the value chain to industry. Lower entry barriers, technology transfer and shared infrastructure allow startups to develop satellites, launch vehicles and ground systems, attracting skills and investment.

Global reach

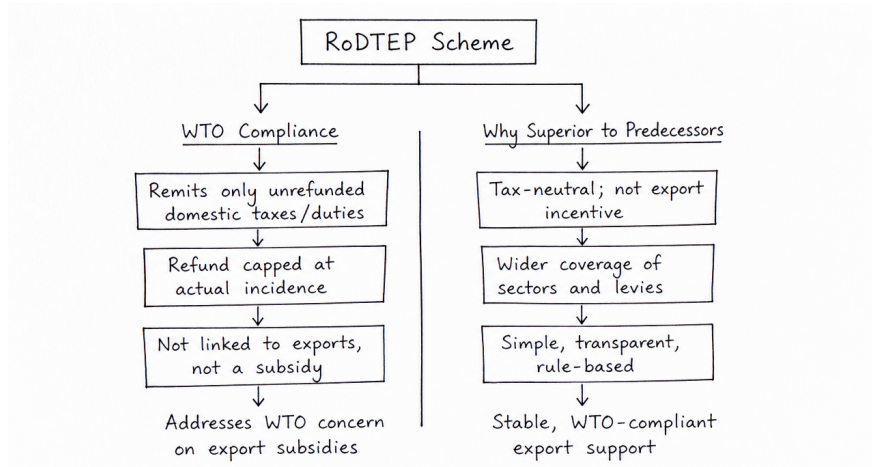
NSIL turns capability into export revenue. Its LVM3 missions placed 72 OneWeb satellites in 2022–23, showcasing India's launch capacity. These institutions can expand exports in launch, communications and Earth observation while attracting clients and capital. However, global gains depend on predictable regulation, sustained research and infrastructure.

12. Analyse how the RoDTEP scheme ensures WTO compliance and why it is superior to predecessor export incentive schemes.

Word limit: 150 words | 10 marks

RoDTEP (Remission of Duties and Taxes on Exported Products), introduced in 2021, replaces export incentives with reimbursement of unrefunded domestic levies. Its design seeks to make exports tax-neutral, not subsidised. **WTO**

compliance



- The WTO panel found MEIS and other schemes prohibited export subsidies under the Agreement on Subsidies and Countervailing Measures.
- RoDTEP instead remits only taxes and duties embedded in production and distribution, where these have not been refunded elsewhere. Refunds are capped at actual incidence; they are not calculated as an export-linked reward.
- This addresses the WTO concern that benefits contingent on exporting distort competition; it also prevents exporters bearing domestic taxes.

Advantages over predecessors

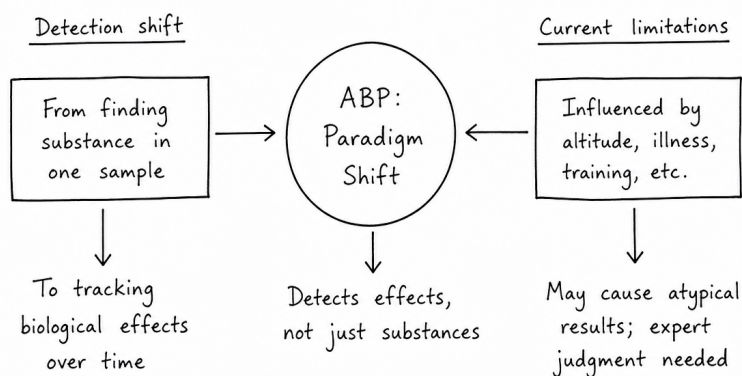
- Unlike MEIS, which granted percentage-based scrips on export value, RoDTEP targets otherwise unreimbursed central, state and local taxes, including electricity duties and mandi levies.
- It covers sectors and both manufacturer and merchant exporters, supporting competitiveness without tying relief to a prescribed export reward.

Yet sound measurement and regular review are vital to preserve neutrality and fiscal discipline.

13. Explain how the Athlete Biological Passport (ABP) represents a paradigm shift in detecting sophisticated doping. What technological limitations does it currently face?

Word limit: 150 words | 10 marks

The Athlete Biological Passport (ABP) shifts anti-doping from finding a prohibited substance in one sample to tracking biological effects over time. It can reveal sophisticated doping without identifying the drug itself. **Detection shift**



- Repeated blood and urine results build an individual profile. Haematological and steroidal modules use ADAMS' Adaptive Model to flag unusual changes for expert review and targeted testing.
- It detects effects, not just substances: micro-dosing or manipulation of endogenous hormones may leave a longitudinal signal, supporting sanctions even without a positive drug test.

Current limitations

- Altitude, illness, training, medicines and menstrual cycles can alter markers; laboratory variation and sampling conditions complicate interpretation.

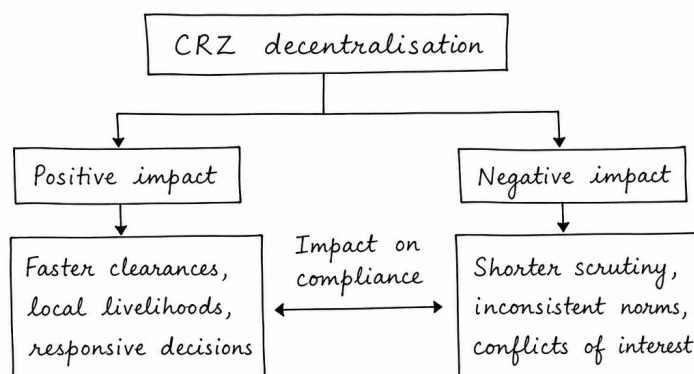
- Very small doses or new agents may evade current markers. Biomarkers need lengthy validation; repeated testing, cold-chain transport and expert analysis are costly.
- Physiological variability and cross-border logistics also create procedural and legal challenges. Standardised collection and evolving modules are essential.

Its value depends on safeguards.

14. Examine how the decentralisation of clearances under the Coastal Regulation Zone (CRZ) Rules has impacted environmental compliance. Suggest measures to bridge the Centre-State enforcement gap.

Word limit: 250 words | 15 marks

CRZ decentralisation has shifted many project clearances from the Union environment ministry to State and district authorities, while retaining central control over sensitive stretches. It seeks faster, locally informed decisions, but makes compliance more dependent on unevenly equipped sub-national institutions. **Effects on environmental compliance**



- Delegating CRZ-II and CRZ-III clearances to State Coastal Zone Management Authorities (SCZMAs), with limited smaller proposals handled by District Level Committees, can cut delays, recognise local livelihoods and make approvals more responsive.
- Yet shorter scrutiny and proximity to developers may encourage inconsistent interpretation, conflicts of interest and post-facto regularisation. Capacity constraints, weak inspections and poor penalties raise the risk of unauthorised construction, habitat loss and harm to fishing access.
- Incomplete or outdated Coastal Zone Management Plans (CZMPs) leave boundaries unclear. This weakens enforcement, while coastal erosion, flooding and cumulative impacts may be inadequately assessed. Local consultations can also be tokenistic.

Measures

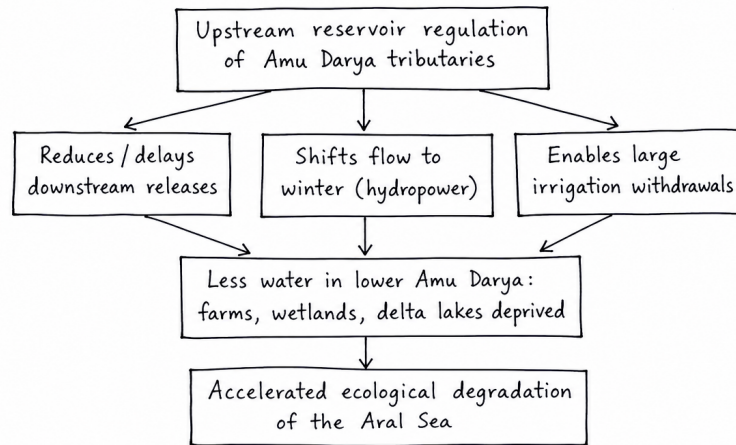
- Complete and periodically update scientifically mapped CZMPs, with Union funding, common standards and public access. Use satellite imagery and geospatial tools to identify violations.
- Provide SCZMAs and district committees with trained staff, independent technical expertise, inspection budgets and clear accountability. Track applications, conditions, inspections and action on a transparent digital platform.
- Require risk-based impact assessment, cumulative coastal studies and genuine consultation with fisherfolk before decisions. Publish reasons for approval or rejection, and impose proportionate penalties; prevent routine regularisation.
- Establish central-State audits, shared compliance indicators and time-bound escalation of serious breaches. Build local awareness and link permits to post-clearance monitoring.

Development is legitimate only within enforceable ecological, social and livelihood safeguards.

15. How does upstream reservoir regulation of major tributaries within the Amu Darya basin accelerate the ecological degradation of the Aral Sea? Comment.

Word limit: 150 words | 10 marks

Reservoirs on Amu Darya tributaries regulate when and how much water reaches the lower basin. They accelerate Aral Sea decline chiefly when hydropower and irrigation operations combine with large withdrawals and inefficient canals.



Key mechanisms

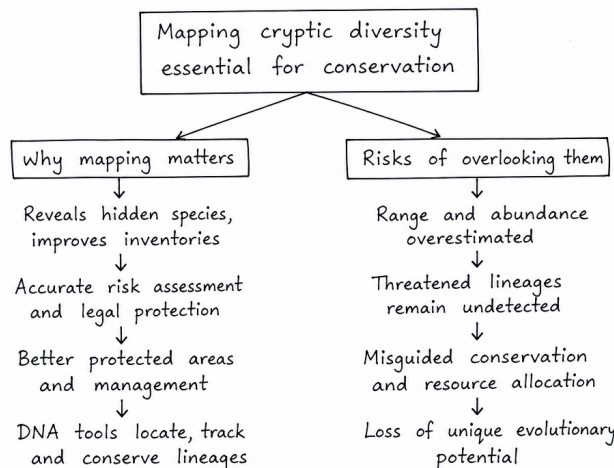
- Storage in reservoirs can reduce or delay downstream releases, especially during filling, while winter-peaking hydropower releases shift water away from the summer irrigation season. This disrupts timing for farms, wetlands and delta lakes.
- More decisively, reservoirs enable irrigation withdrawals; the Karakum Canal alone diverts about 13 billion cubic metres annually, with substantial losses through leakage and evaporation. Consequently, less Amu Darya water reaches the sea.
- Lower inflow shrinks and fragments the sea, raises salinity, and damages fisheries. Reduced flooding also dries delta wetlands and tugai forests; exposed seabed generates salt-dust storms carrying agricultural pollutants, harming soils, health and livelihoods.

Reservoirs amplify, but do not alone cause, decline; coordinated releases and efficient irrigation can restore river flows.

16. Why is mapping cryptic diversity essential for effective conservation strategies? Point out the ecological risks of overlooking morphologically identical species.

Word limit: 150 words | 10 marks

Cryptic species are genetically distinct organisms that look alike, so appearance-based surveys can conceal biodiversity. Mapping them ensures conservation decisions reflect biological, geographic and ecological realities.



Why mapping matters

- It improves species inventories and prevents a widespread, apparently secure population from masking restricted, declining lineages.
- Sound delimitation supports extinction-risk assessments, legal listing, protected-area design and locally tailored management.
- DNA barcoding, genomic analysis and environmental DNA can locate these taxa, track distributions and preserve distinct evolutionary potential.

Risks of overlooking them

- Unrecognised species can inflate estimates of range and abundance, understating extinction risk and misdirecting

resources.

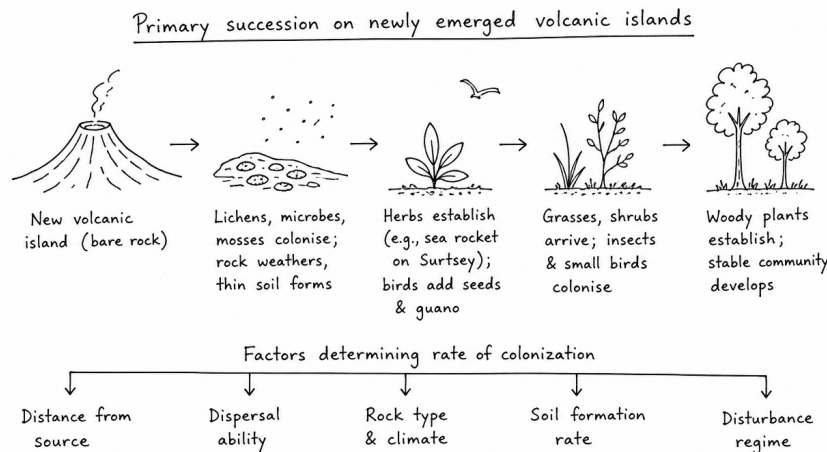
- Local extinctions may erase unique genes and adaptations before they are recognised.
- Look-alikes may differ in ecosystem roles, pathogen susceptibility and responses to climate or habitat change; lumping them can weaken ecosystem stability and pest control.

Molecular evidence should complement, not replace, field ecology and taxonomic expertise.

17. With suitable examples, discuss how primary ecological succession occurs on newly emerged volcanic islands. What factors determine the rate of biological colonization on such sterile landforms?

Word limit: 150 words | 10 marks

Primary succession starts on newly emerged volcanic land, initially bare of soil and life. Pioneer organisms gradually weather rock, build soil and enable more complex communities.



Stages

- Wind-borne microbes, lichens and mosses arrive first; lichens weather rock, while dust and dead biomass form thin soil. On Surtsey, formed in 1963, sea rocket established; seabirds later added seeds and nutrient-rich guano. Grasses, shrubs and woody plants follow, supporting insects and birds. Hawaiian *hi* a lehua pioneers colonise lava; Krakatoa recolonised after its 1883 eruption.

Rate factors

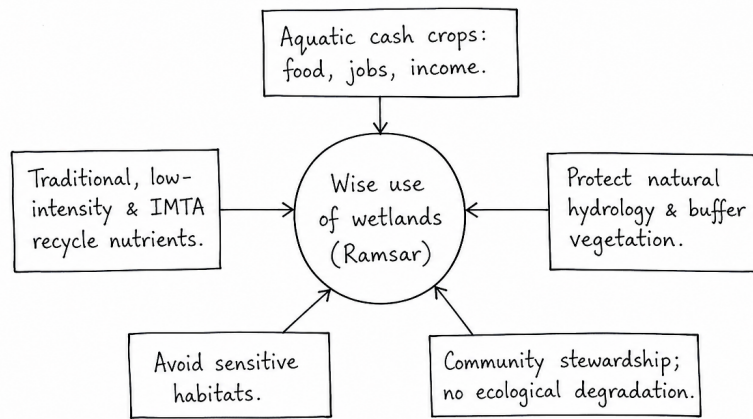
- Rates depend on distance from source populations and dispersal by wind, water or animals. Larger, varied islands offer more niches. Rainfall, temperature, exposure, substrate stability and nutrient availability affect survival and soil formation. Stress-tolerant, fast-reproducing or nitrogen-fixing pioneers accelerate establishment. Repeated eruptions reset succession; nearby older vegetation supplies colonists.

Accordingly, isolated or harsh islands may remain sparse, while favourable conditions and biological inputs hasten ecosystem development.

18. Discuss in the light of the Ramsar Convention how the commercial cultivation of aquatic cash crops can promote the "wise use" of wetlands without ecological degradation.

Word limit: 150 words | 10 marks

Ramsar promotes the "wise use" of wetlands: maintaining ecological character through ecosystem-based management within sustainable development. Aquatic cash crops can support this goal when cultivation complements, rather than displaces, wetland processes.



Conditions for wise use

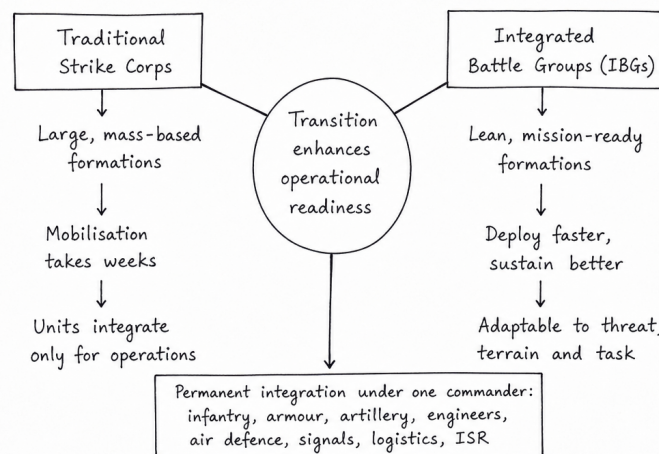
- Fish, shellfish, lotus and water chestnut can provide food, jobs and income, giving communities a stake in wetland stewardship.
- Traditional, low-intensity farming and integrated multi-trophic aquaculture can recycle nutrients and limit waste while retaining habitat; East Kolkata's wastewater-fed fisheries show productive reuse.
- Keep cultivation out of sensitive habitats; protect natural hydrology and buffer vegetation; prefer native species, moderate stocking and sustainable feed; treat effluent and prohibit harmful chemicals and indiscriminate antibiotics.
- Use wetland inventories, ecological baselines, impact assessment and water-quality monitoring to set permits and adapt management, with local communities involved.

Thus, commercial use fits Ramsar only within ecological limits. If monitoring detects declining water quality, habitat or species, production must be curtailed or halted.

19. Explain how the transition from traditional strike corps to Integrated Battle Groups (IBGs) enhances operational readiness. Why is this structural shift critical for modern warfare?

Word limit: 150 words | 10 marks

Traditional strike corps are large formations whose mobilisation can take weeks and whose combat and support units may integrate only for operations. Integrated Battle Groups (IBGs) recast this mass-based model as leaner, mission-ready formations tailored to threat, terrain and task.



Readiness gains

- Each IBG combines infantry, armour, artillery, engineers, air defence, signals, logistics and intelligence, surveillance and reconnaissance assets under one commander.
- Permanent integration builds familiarity through joint training, clarifies responsibility and improves coordination. Smaller, forward-positioned formations can deploy faster, sustain themselves better and adapt their composition to plains, deserts or mountains. Decentralised command shortens decision cycles and enables timely responses.

Strategic importance

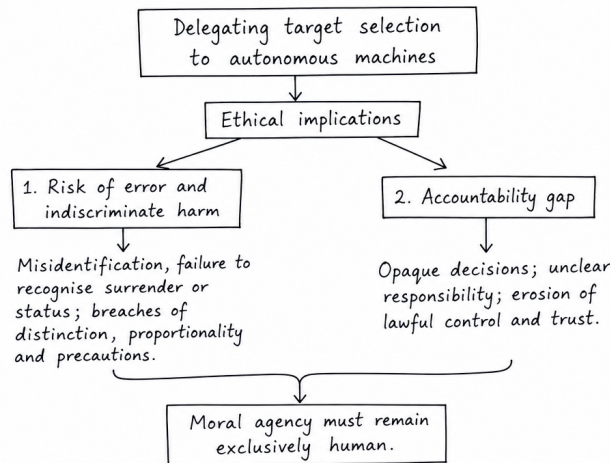
Modern conflict features drones, cyber and electronic warfare, precision fires and compressed warning times. IBGs can combine surveillance, fires and manoeuvre more effectively, strengthen deterrence on two-front borders, and pursue limited objectives without relying on slow concentration of mass.

Yet success requires logistics, training and robust jointness.

20. Critically discuss the ethical implications of delegating target selection to autonomous machines. Why must moral agency remain an exclusively human prerogative in warfare?

Word limit: 250 words | 15 marks

Autonomous weapon systems can identify and engage targets with little or no further human input. Their use may improve speed and reduce risk to soldiers, but delegating target selection raises profound questions about lawful force, responsibility and human dignity.



Ethical implications

- First, sensor errors, biased training data and opaque outputs can misidentify civilians or people hors de combat. A system may not recognise surrender, changing circumstances or a civilian's protective status, risking indiscriminate attacks and breaches of distinction, proportionality and precautions.
- Second, an accountability gap emerges when commanders cannot explain a machine's choice, while developers and operators may each shift blame. Automation bias can turn nominal oversight into rubber-stamping; rapid machine decisions may outpace meaningful review and accelerate escalation.
- Third, killing by an impersonal system risks treating people as data points, eroding dignity and weakening the operator's sense of responsibility. Algorithmic bias may also distribute lethal risk unfairly.

Why moral agency must remain human

- International humanitarian law requires distinction, proportionality and feasible precautions. Applying these standards demands judgement about context, likely civilian harm and changing facts—not merely pattern recognition.
- Only people can understand reasons, weigh competing values, show compassion or choose restraint, including when force is technically lawful. Machines calculate assigned objectives; they do not possess conscience, intent or moral understanding.
- Human commanders must therefore retain informed authority over target selection and engagement, with time, information and ability to abort; responsibility cannot be transferred to code.

Automation may assist analysis, but human control and accountability must govern every lethal decision.