



# VISION IAS

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## GENERAL STUDIES (TEST CODE : 2213)

Name of Candidate	SHAH MARU		
Medium Eng./Hindi	ENGLISH	Registration Number	141788
Center		Date	16/08/22

### INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
1	10	
2	10	
3	10	
4	10	
5	10	
6	10	
7	10	
8	10	
9	10	
10	10	
11	15	
12	15	
13	15	
14	15	
15	15	
16	15	
17	15	
18	15	
19	15	
20	15	

Total Marks Obtained:

Remarks:

### INSTRUCTIONS

1. Do furnish the appropriate details in the answer sheet (viz. Name, Registration Number and Test Code).  
उत्तर पुस्तिका में सूचनाएं भरना आवश्यक है (नाम, प्रश्न-पत्र कोड, विद्यार्थी क्रमांक आदि)।
2. There are **TWENTY** questions printed in **ENGLISH & HINDI** इसमें बीस प्रश्न हैं अंग्रेजी और हिन्दी में छपे हैं।
3. **All questions are compulsory.**  
सभी प्रश्न अनिवार्य हैं।
4. The number of marks carried by a question/part is indicated against it.  
प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।
5. Answers must be written in the medium authorized in the Admission Certificate, which must be stated clearly on the cover of this Question-Cum-Answer (QCA) Booklet in the space provided. No marks will be given for answers written in medium other than the authorized one.  
प्रश्नों के उत्तर उसी माध्यम में लिखे जाने चाहिए जिसका उल्लेख आपके प्रवेश पत्र में किया गया है और उस माध्यम का स्पष्ट उल्लेख प्रश्न-सह-उत्तर (क्यूसीए) पुस्तिका के मुख्य पृष्ठ पर अंकित निर्दिष्ट स्थान पर किया जाना चाहिए। उल्लिखित माध्यम के अतिरिक्त अन्य किसी माध्यम में लिए गए उत्तर पर कोई अंक नहीं मिलेंगे।
6. Word limit in questions, if specified, should be adhered to.  
प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।
7. Any page or portion of the page left blank in the Question-Cum-Answer Booklet must be clearly struck off.  
उत्तर पुस्तिका में खाली छोड़ा हुआ पृष्ठ या उसके अंश को स्पष्ट रूप से काटा जाना चाहिए।

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## EVALUATION INDICATORS

1. Contextual Competence
2. Content Competence
3. Language Competence
4. Introduction Competence
5. Structure - Presentation Competence
6. Conclusion Competence

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

4.

5.

6.

VisionIAS

1. An effective approach to green budgeting is underpinned by strong strategic framework, tools for evidence generation and an enabling budgetary governance framework. Discuss. (150 words) 10

हरित बजट के लिए एक प्रभावी दृष्टिकोण को सुदृढ़ रणनीतिक ढांचे, साक्ष्य निर्माण हेतु उपकरण और एक सक्षम बजटीय शासन ढांचे द्वारा सुदृढ़ता प्रदान की जाती है। विवेचना कीजिए।

"Green budgeting refers to use of budget - taxes, spending & policy coordination to assess & promote alignment essential to meet environmental goals." - [OECD]

• [Effective approach to green budgeting :-]

① [Strong strategic framework :-]

↳ Standardised accounting of environmental costs for economic growth.

↳ Adopting of green budgeting in all sectors i.e. corporates, private institutions like family & also the state to ensure holistic approach.

## ② Tools for evidence generation :-

↳ Clear measurements of emissions from various sectors through development of technology & necessary periodic surveys.

↳ Using Gross Environment Product as a standard tool for measuring growth.

## ③ Enabling budgetary governance framework :-

↳ Measuring success of policy initiatives of budget w.r.t achievement of environmental conservation.

↳ Calculating ecological costs of economic growth while budget preparation.

Green budgeting is the roadmap to achieve sustainable development & fulfill SDG goals by 2030.

2. State the need for circular economy in India and the challenges associated with it. Also, discuss the measures that are required to build a circular economy in India.

(150 words) 10

भारत में चक्रीय अर्थव्यवस्था की आवश्यकता और इससे जुड़ी चुनौतियों का उल्लेख कीजिए। साथ ही, भारत में एक चक्रीय अर्थव्यवस्था के निर्माण के लिए आवश्यक उपायों पर चर्चा कीजिए।

Circular economy refers to an industrial system that focuses on restoration or regeneration in intention & design.

• Need for circular economy :-

① High population :- India's population of 1.3 billion people & still rising creates greater resource demand, which can be fulfilled by circular economy.

② Inclusive growth :- Circular economy can ensure better redistribution of wealth among people by developing multiple markets.

③ Employment generation :- It can open up a new sector with opportunities for traditional.

skilled people to gain employment.

• Challenges in circular economy :-

① Lack of infrastructure :- Adequate processing facilities as well as technology is not available. for

② Public attitude :- 'Use & throw' attitude of the West has now been highly ingrained in India. eg. A study says around 23% people change their mobiles within a year.

• Measures to build circular economy :-

① Incentivise 3Rs :- schemes like Deposit Refund scheme can provide help.

② Greater formalisation :- Formalisation of recycling sector can help in tracing & tracking waste generated. eg. Currently, only 6% formalisation. Circular economy can help in in achieving SDG 6, 7 & 12 & should be worked towards.

3. The Major Port Authorities Act, 2021, seeks to grant greater autonomy and flexibility to the major ports and professionalise their governance. Discuss.

(150 words) 10

प्रमुख बंदरगाह प्राधिकरण अधिनियम, 2021, प्रमुख बंदरगाहों को अधिक स्वायत्तता और लचीलापन प्रदान करने तथा उनके शासन को पेशेवर बनाने का प्रयास करता है। विवेचना कीजिए।

Major Ports Authorities Act, 2021  
aims to replace Major Ports Trusts Act, 1963  
applicable to 12 major Indian ports.

• Granting greater autonomy :-

① Creation of a Board :- Board of Major Port  
Authority shall be created for each major  
port, decentralising decision making.

② Authority to fix tariffs :- The Board can  
fix the tariffs for each major port.

③ Authority to use assets :- Board is free  
to use the assets, property & funds as  
they deem fit for the development of  
port.

- Professionalizing its governance :-

① Inclusive Board :- It will have members from state government where port is located, Ministry of Railways, Defence, Customs, Central Government.

② Private participation :- Public-Private Partnership operators shall have independence to fix tariffs, thus providing greater efficiency.

- Hurdles:

↳ It may lead to graded privatisation of ports & dilution of state role in its land use.

Changing the governance structure is the first step towards improving ports & steps further should be addressing to improving service delivery & seamless connectivity.

4. Analyse the need for shifting from presumptive land titling to conclusive land titling system in India. Also, highlight the hurdles in its implementation.

(150 words) 10

भारत में अनुमानित भूमि स्वामित्व से निर्णायक भूमि स्वामित्व प्रणाली में स्थानांतरण की आवश्यकता का विश्लेषण कीजिए। साथ ही, इसके क्रियान्वयन में आने वाली बाधाओं को रेखांकित कीजिए।

Conclusive land titling system  
refers to title contract between State & the  
landholder, rather than land records  
present only based on selling records,  
survey, etc.

• Need for conclusive land titling :-

① Reduce legal disputes :- By maintaining  
clear land records.

② Quick land acquisition :- For development  
projects of state like bullet train, etc.  
reducing the cost of inflation.

③ Protecting landholder rights :- As state  
shall be responsible for providing

compensation in case of loss of land rights.

• Hurdles in implementation :-

① Unclear land records :- Presently, land is not clearly recorded as well as demarcated.

② Family disputes :- Mostly land disputes are between families & face a huge pendency of cases in judiciary.

③ Difficulty for administration :- Due to lack of training as well as manpower, this exercise shall be cumbersome to complete.

Conclusive land titling is desired and universal digitization of land records can be the first step towards achieving it.

5. What do you understand by methanol economy? Critically discuss its role in achieving India's energy security and economic prosperity. (150 words) 10

मेथनॉल अर्थव्यवस्था से आप क्या समझते हैं? भारत की ऊर्जा सुरक्षा और आर्थिक समृद्धि प्राप्त करने में इसकी भूमिका की समालोचनात्मक विवेचना कीजिए।

Methanol economy refers to the use of methanol in energy generation, as fuel in both transportation & cooking.

NITI Aayog recently launched 'Methanol Economy' programme as it is low carbon, hydrogen-carrier fuel that can be India's pathway for achieving its COP 21 commitments.

• Role in achieving energy security :-

① Reduced global dependence :- Methanol can be produced from high ash coal & thus, reduce India's dependence on natural gas that needs to be imported.

② Reduce India's import effect of geopolitics :- It will reduce India's dependence on oil price fluctuations due to changing geopolitics. eg. Ukraine-Russia crisis.

→ Role in Economic Prosperity :-

① Reduce India's import bill

② Employment :- Will create close to 5 million jobs through methanol production & distribution services.

③ Gas prices :- By blending 20% dimethyl ether with LPG, ₹ 6000 cr can be saved annually.

India thus with 125B tonnes of coal reserves has huge potential and it should focus on methanol economy as much as it does on electrical mobility.

6. Discuss the role of geospatial technologies in developing effective approaches for disaster risk reduction and disaster management.

(150 words) 10

आपदा जोखिम न्यूनीकरण और आपदा प्रबंधन के लिए प्रभावी दृष्टिकोण विकसित करने में भू-स्थानिक प्रौद्योगिकियों की भूमिका की विवेचना कीजिए।

Geospatial technologies refers to use of location-based information like GIS (Geographical Information System), GPS (Global Positioning System) for various sectors.

• Role of geospatial technologies in risk reduction:-

① Hazard-mapping:- Zoning of areas for earthquakes, landslides could be done. & eg. Earth Observation Satellites

② Disaster-resilient infrastructure:- Geo-tagging of resilient infrastructure could be undertaken to provide safe shelter.

③ Early Warning System:- eg. Mumbai's IFLWS

• Geospatial technologies in disaster management :-

- ① Marking of areas for accessing the affected region through Satellites, etc
- ② Geo-tagging of available resources during disasters. eg. Water resources in flood-prone areas of Assam to avert drinking water problem.

Thus, geospatial technologies & its indigenisation like NavIC has huge potential in disaster risk reduction & quick action for disaster management.

7. The focus of Environmental Impact Assessment (EIA) needs to shift from utilization and exploitation of natural resources to conservation of natural resources. Discuss. (150 words) 10

पर्यावरणीय प्रभाव आकलन (EIA) का मुख्य ध्यान प्राकृतिक संसाधनों के उपयोग और दोहन से हटाकर प्राकृतिक संसाधनों के संरक्षण पर केंद्रित होना चाहिए। विवेचना कीजिए।

Environmental Impact Assessment  
under the Environment Protection Act, 1986  
aims to assess the impact of construction  
projects on the surrounding environment.

• Problems with focus on preventing exploitation

① Short-term ~~Approach~~ approach :- This approach shall  
only be suitable for short-term as it  
ultimately consumes natural resources.

② Post-facto approval :- SC judgement that EIA  
does not prohibit post-facto approval defeats  
the very purpose & equates economic  
compensation to environmental exploitation.

③ Narrow focus : It majorly focuses only on environment, neglecting spillover effects on surrounding population, biodiversity, etc.

• Need for focus on conservation :-

① Broadened focus : It will ensure the ecological sanctity of the area & sustainable development. eg. Aquatic biodiversity in <sup>urban</sup> wetlands.

② Inter-generational parity :- Focus on conservation will maintain natural resources for future generations as well.

• Other measures :-

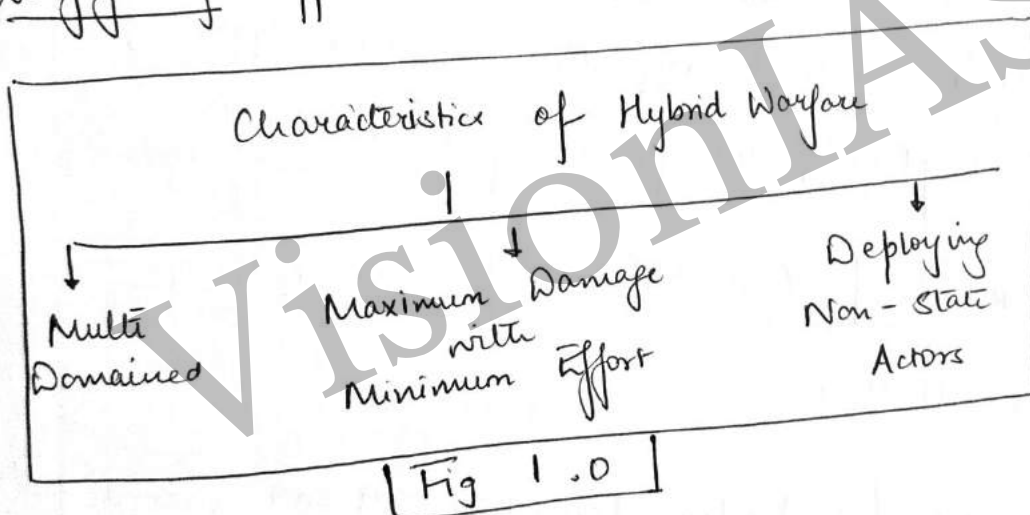
① Changing measure of growth :- Gross Environmental Product needs to replace GDP as a measure of sustainable growth.

② Calculating economic costs of ecosystems & biodiversity will ensure greater conservation.

8. What do you understand by hybrid warfare? Discuss India's preparedness in this context. (150 words) 10

हाइब्रिड वारफेयर से आप क्या समझते हैं? इस संदर्भ में, भारत की तैयारियों की विवेचना कीजिए।

Hybrid warfare refers to the use of unconventional methods like perception management, propaganda, etc. along with conventional military tactics as a part of multi-domain warfighting approach.



• Recent Usage:-

① China :- Chinese company Zhenua Data monitored over 10,000 Indian individuals & organisations & created an information library.

② Lebanon - Israel :- Hezbollah group used tactics like guerrilla warfare & information campaigning.

• India's preparedness :-

① Integrated Theatre Commands :- Apart from Andaman & Nicobar command, India is to setup 5 theatre commands for integrated & quicker action.

② National Critical Information Infrastructure Protection Centre :- It aims to protect India's critical infrastructure like banking, nuclear plants, etc. from cyber attacks.

③ CERT-In :- Central agency for intercepting cyber attacks.

④ ASAT :- India launched ASAT missile that could shoot down any satellite threatening to India's infrastructure, protecting against space warfare.

Hybrid warfare should thus be developed via continuous self-assessment & threat analysis to effectively respond to hybrid threats.

9. Discuss the challenges associated with inclusion of women in armed forces, particularly in combat roles in India. How can these challenges be addressed? (150 words) 10

सशस्त्र बलों, विशेष रूप से भारत में युद्धक भूमिकाओं में महिलाओं को शामिल करने से संबंधित चुनौतियों पर चर्चा कीजिए। इन चुनौतियों का समाधान कैसे किया जा सकता है?

Recently, women were allowed to undertake combat roles in the army after Supreme Court's judgement, making it a landmark in history.

• Challenges associated with women's inclusion:

① Primary targets :- They could be the first targets during a war due to the honour & prestige associated with women.

② Acceptance among fellow soldiers :- Stereotypical attitude towards women can affect their working as fellow soldiers may not be willing to accept their orders.

③ Heinous crimes :- Crimes like rape, heinous killing of women can be used.

• Measures to address challenges :-

① Gender sensitisation :- Portraying Armed forces as a gender-neutral place, greater interactions between men & women in forces, etc.

② Self-defence :- Women can be given additional self-defence lessons to protect themselves during war.

③ Graded inclusion :- The role of women should be gradually increased to allow time for adjustments to fellow male soldiers for acceptance.

Women's mental strength with emotional intelligence can help the armed forces in winning tactically.

10. S. Chandrasekhar was one of the greatest scientists of the 20th century whose prolific contributions spanned across astrophysics, space and mathematics. Elaborate. (150 words) 10

एस. चंद्रशेखर 20वीं सदी के महानतम वैज्ञानिकों में से एक थे, जिनका खगोल भौतिकी (एस्ट्रोफिजिक्स), अंतरिक्ष और गणित के क्षेत्र में विपुल योगदान था। सविस्तार वर्णन कीजिए।

S. Chandrasekhar was an Indian mathematician & physicist who received Padma Vibhushan for his exceptional contribution to science.

### • Prolific Contributions of S. Chandrasekhar

① Chandrasekhar limit :- He said that mass of white dwarfs cannot be more than 1.44 times that of Sun.

② Nobel Prize in Physics :- For studying physical processes that affect the creation & evolution of stars.

- ③ Study of stellar structure & stellar molecules.
- ④ He also gave a mathematical theory on blackholes, combining mathematics & astrophysics.
- ⑤ His theory on colliding gravitational waves contributed to development of gravitational lensing.

• Recognitions :-

- ① Chandra X-Ray Observatory :- Named after him by NASA.
- ② Himalayan Chandra Telescope is also named after him.

Thus, he laid the foundations for further discoveries in the field of astrophysics, space by his groundbreaking work.

11. State finances in India present a worrying picture, with debt sustainability being a major concern. Discuss in context of the recent RBI report on state finances. (250 words) 15

भारत में राज्य वित्त एक चिंताजनक स्थिति प्रस्तुत करता है, जिसमें ऋण संधारणीयता एक प्रमुख चिंता का विषय है। राज्य वित्त पर आर. वी. आई. की हालिया रिपोर्ट के संदर्भ में विवेचना कीजिए।

RBI recently released a report,  
"A Study of state Finances in 2020-21",  
majorly focusing on the issues &  
challenges in state Finances.

- Worrying state of affairs
- ① Increased fiscal deficit : States' fiscal deficit increased to 4.5% of GDP in 2020-21 from 2.9%.
- ② Rising public debt :- States' debt increased to 25.1% of GDP (2020-21) from 17.2% (2017).
- ③ Low tax collection :- States' collected

property taxes of only 0.2% of GDP due to issues like undervaluation of property ineffective administration, etc.

④ Power sector issues :- state-owned

DISCOMs prove to be a major burden on states' exchequer.

• Rising issues in state finances :-

① Low tax devolution :- States face a horizontal & vertical imbalance in tax devolution which has recently reduced due to growth in cesses & surcharges.

② Reduced untied funds :- 15<sup>th</sup> Finance Commission recommended reduced funds of untied nature & generally, focused on centrally sponsored schemes.

③ Populist measures :- Like farm loan waivers also burden the state finances, the recent issue on freebies also indicates the same.

④ Suggestions for improving State finances :-

① Independent Fiscal Council :- As

recommended by 15<sup>th</sup> Finance Commission to evaluate states' fiscal decisions.

② Overhaul of FRL :- Fiscal Responsibility

Legislation of states should be more aligned to FRBM.

③ Power sector reforms :- UDAY scheme

should be effectively used supported by reduced T&D losses & smart metering.

States' finances largely impact the national economy & hence, its good health is imperative for economic development.

12. The Indian experience provides several lessons of an inclusive digital economy model that enables formal digital governance structure at a low cost and with easier access. Discuss. (250 words) 15

भारतीय अनुभव एक समावेशी डिजिटल अर्थव्यवस्था मॉडल के कई सबक प्रदान करता है जो कम लागत पर और आसान पहुंच के साथ औपचारिक डिजिटल शासन संरचना को सक्षम बनाता है। विवेचना कीजिए।

Recently, India's Unified Payments Interface crossed 90 bn transactions making it a huge success & a case study for countries like USA & China to understand its success.

Inclusive digital economy → digital governance at low cost & easier access :-

① Financial inclusion :- Through PM Jan

Dhan Yojana made it easier for

government to implement schemes like Direct Benefit Transfer & also tracking

its implementation +

② Improving feature-phone access :- Models like OPI 123 allow financial inclusion to feature phone users, schemes like MAA Card that can be received via feature-phones itself.

③ Multilingual interface :- It makes digital governance accessible & available for all citizens. eg. MyGov.in

Thus, Indian digital economy model served as a foundation to build a universally accessible digital governance framework.

Don't write anything in this margin  
(इस भाग में कुछ ना लिखें)

*VisionIAS*

13. Dairying is a viable livelihood option for a large section of the population. In this context, discuss the significance, challenges faced and associated government initiatives for the dairy sector in India. (250 words) 15

डेयरी व्यवसाय, आबादी के एक बड़े हिस्से के लिए आजीविका का एक व्यवहार्य विकल्प है। इस संदर्भ में, इसके महत्व, विद्यमान चुनौतियों और भारत में डेयरी क्षेत्र के लिए सरकार द्वारा की गयी पहलों की विवेचना कीजिए।

Dairy industry provides 30%  
extra income to rural households,  
thus improving their lifedances by  
improving livelihood.

• Significance of dairy sector :-

① Largest livestock :- India is home to  
533 M livestock, highest globally. (Agri.  
census 2015-16)

② Largest milk producer :- India is the  
largest producer of milk globally.

③ Employment :- It offers employment to  
over 16% of total population of India.

④ Diversity :- Dairy sector encompasses all cattle,  
alongwith camel, goat, etc.

• Challenges faced by dairy sector :-

① Diseases in animals :- Diseases like

Foot & Mouth Disease impact the

livestock & milk yield.

② Processing facilities :- The value addition

through processing of milk products is not fully achieved due to lack of infrastructure

③ Logistics :- India lacks robust 'farm-to-gate' infrastructure leading to wastage.

④ Competition globally :- Indian dairy industry faces international competition from Australia & New Zealand due to high-yielding breeds.

⑤ Product quality :- Dairy industry lacks standardization & international quality products

making it less preferable for exports.

• Government Initiatives :-

① National Dairy Development Board :- It undertakes initiatives for greater growth of dairy sector & promotes research & development.

② Dairy Infrastructure Development Fund :-

With ₹ 2000 crore fund to provide stimulus to dairy sector.

③ Kanrdhenu Mission :- Focuses on research on indigenous breeds for higher yield & greater quality products.

④ Mega Food Parks :- It will integrate the processing facilities thus improving the export competitiveness of Indian dairy products.

Dairying is a sunrise sector for India that can contribute to \$5 trillion economy by adequate technological development.

14. The imperative to increase farmers' income must shift to creating value chains and must not be reliant on the MSP regime and subsidy bias prevalent in the current Indian agricultural system. Examine.

(250 words) 15

किसानों की आय बढ़ाने की अनिवार्यता को मूल्य श्रृंखलाओं के सृजन से जोड़ा जाना चाहिए और इसे वर्तमान भारतीय कृषि प्रणाली में प्रचलित एम. एस. पी. व्यवस्था एवं पूर्वाग्रहयुक्त सब्सिडी पर कतई निर्भर नहीं होना चाहिए। परीक्षण कीजिए।

Almost 90% of small & marginal farmers depend upon MSP for trading their produce, however only 10% are able to attain its benefits.

• Problems in reliance on MSP :-

① Lack of incentive :- MSP reduces incentive for farmers to take steps to improve agricultural productivity.

③ Increased fiscal burden :- Burden on state exchequer is rising due to rising demands for MSP. eg. 80% over cost given for pulses.

② Skewed benefits :- Only 10% small & marginal farmers avail MSP benefits,

while 70% of it is appropriated by large farmers.

④ Discourages crop diversification :- High MSP

mostly on wheat & rice discourages crop diversification leading to soil degradation.

⑤ Declining water table :- MSP also prevents

cropping according to agro-climatic zones resulting into declining groundwater table.

• Reasons for creating value chains :-

① Greater market access :- Farmers will gain

greater market access ensuring better price discovery.

② Reduce distressed sale :- Creation of

logistics infrastructure like cold storage will reduce distressed sale by farmers &

ensure better price realisation.

③ Value addition :- Access to processing facilities through schemes like Mega Food Parks will also allow value addition to agri. products.

④ Improved product quality :- Creation of value chain can allow growing products of international quality improving its export potential.

Farmers Producer Organisations, increased access to formal credit and technology adoption like AI & Big Data can double farmers' income.

15. What are the challenges in ensuring sustainable river management in urban areas? Highlight the remedial measures that can be taken for river management with a special focus on the recently launched River Cities Alliance.

(250 words) 15

शहरी क्षेत्रों में संधारणीय नदी प्रबंधन को सुनिश्चित करने में कौन-सी चुनौतियाँ विद्यमान हैं? हाल ही में प्रारंभ रिवर सिटीज एलायंस पर विशेष ध्यान देते हुए नदी प्रबंधन के लिए किए जा सकने वाले उपचारात्मक उपायों को रेखांकित कीजिए।

Inadequate river management in urban areas has made Indian cities a locus of urban floods eg. Chennai

• Challenges in sustainable river management :-

① High population :- 38% of India's population lives in urban areas leading to huge resource demand.

② High land demand :- For greater employment creation & economic growth, constant concretization has made rivers disappear.

③ Inadequate planning :- Haphazard growth of infrastructure in urban areas lead to unsustainable river management

④ Lack of effective administration:- Inadequate focus on river conservation by municipalities has led to its depletion.

• Remedial measures:-

① Effective implementation of EIA:- Inclusion of a comprehensive EIA during projects targeted on river-course changes should be done with adequate expertise & no post-facto approval.

② AMRUT:- The AMRUT scheme for rejuvenation & urban transformation must focus on river management & its ecological costs.

③ Living status:- Living status to rivers as done for Ganga by judiciary can be a way to protect its rights.

④ Planned development :- Projects like River Front and Ganga Ghats should be encouraged making it a source of revenue & also conserving its nature.

• River Cities Alliance :-

↳ A programme by Ministry of Housing & Urban Affairs alongwith World Bank.

↳ It aims to bring all the river cities together for adequate planning & sustainable use of rivers to stop its depletion.

↳ It is a voluntary alliance, that also promotes cooperative federalism alongwith decentralised decision-making.

In the times of changing rainfall patterns due to climate change & frequent urban floods, sustainable river management is a necessity.

16. Haphazard growth and poor management make the Indian cities the locus of disasters, both large and small. Comment. Also, discuss the current gaps in policies in addressing these challenges. (250 words) 15

अव्यवस्थित विकास तथा निम्न स्तरीय प्रबंधन ने बड़े और छोटे दोनों प्रकार के भारतीय शहरों को आपदाओं का केंद्र बना दिया है। टिप्पणी कीजिए। साथ ही, इन चुनौतियों का समाधान करने में नीतियों में विद्यमान वर्तमान अंतराल पर चर्चा कीजिए।

Around 49.8 M hectares of land in India is flood-prone & recent instances of urban flooding in Chennai show the cities' vulnerability to disasters.

- Haphazard growth leading to disasters :-
- ① Excessive concretization :- Lack of channels for water seepage during excessive rainfall leads to flooding. eg. Chennai
- ② No clear mapping :- For urban construction, leading to high-rise buildings in earthquake prone areas. eg. Buildings in Zone - 4 around Koyna R.

• Poor manggement leading to disasters :-

① Wetland encroachment :- This leads to closed channels for water drainage & hence flooding eg. Bangalore

② Clogged drainage systems :- Inadequate & closed water drainage systems due to plastic waste, etc. leads to disasters.

③ Concentration in coastal areas :- Population living along coastal areas is high making them prone to cyclonic hazards.

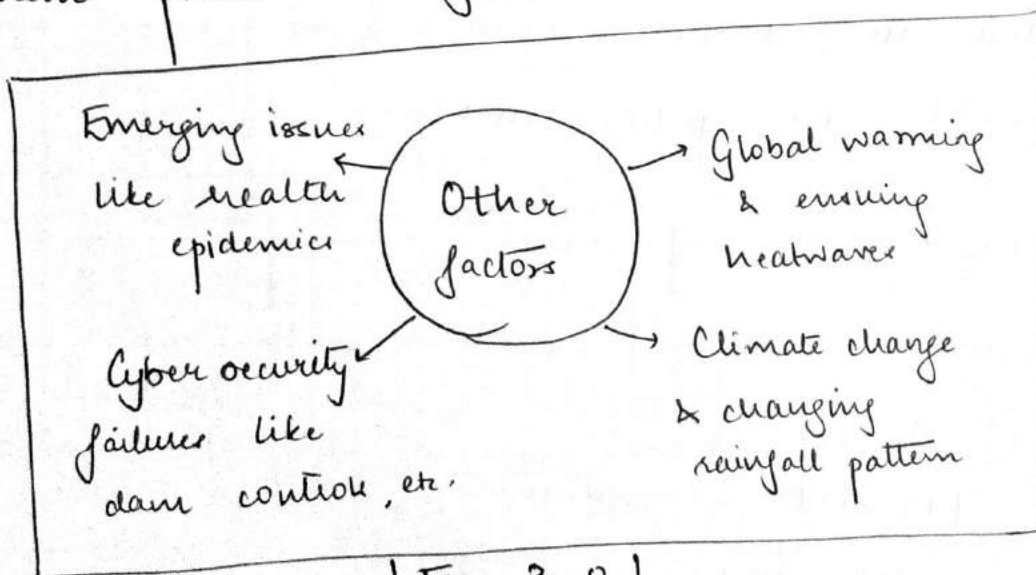


Fig 3.0

• Current gaps in policies :-

① Limited public role :- People are the first responders, however they lack adequate knowledge.

② Early Warning Systems :- Not devised for all regions & only concentrated in a few. eg. Mumbai's IFEDWS

③ Integration of Climate Change :- Emerging issues like frequent heavy rainfalls, 6% reduction in summer rain have to be incorporated in policy making.

④ Changed nature of disasters :- Rising cases of heatwaves in cities needs active policy intervention

Planned & inclusive development of cities with environmental sustainability can ensure disaster resilience.

17. Discuss the extent of the problem of narco-terrorism in India. What measures have been taken by the government to counter and control this problem? (250 words) 15

भारत में नार्को-आतंकवाद की समस्या के प्रसार पर चर्चा कीजिए। इस समस्या से निपटने और नियंत्रित करने के लिए सरकार द्वारा क्या उपाय किए गए हैं?

Narco-terrorism refers to the nexus between drug traffickers & terrorists to inflict serious threats to national security.

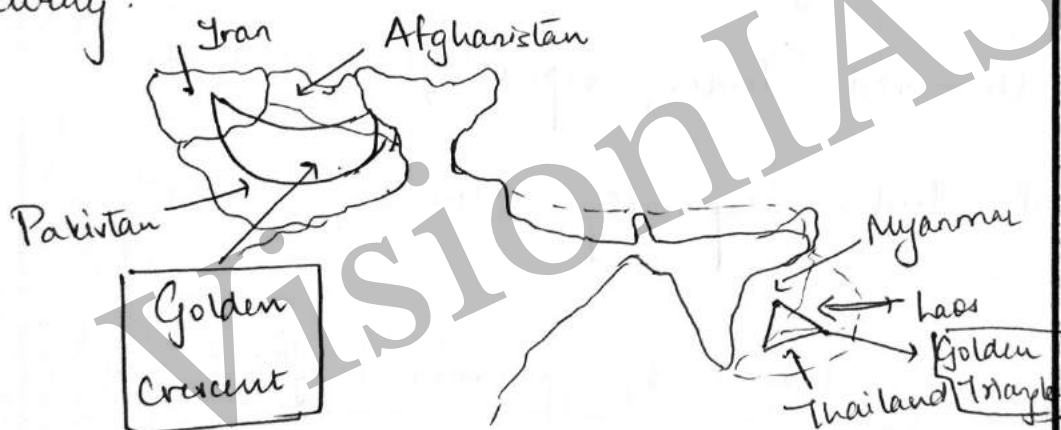


Fig 4.0

• Extent of narco-terrorism in India :-

- ① India has one of the world's largest opiate-consumers, acc to World Drugs Report, 2022.

③ Transit hub :- India is one of the transit hubs as well as destination for heroin & mashuk from Golden Crescent & Golden Triangle.

③ Seriously affected areas :- North-East India, North-west India, especially Punjab & West India, especially Mumbai.

Measures taken by government :-

① SIMS: Seizure Information Management System for large seizures.

② Demonetisation :- To check the financing to terrorist activities by delegalise demonetising existing currency.

③ Strengthened border security :- By technology adoption, strengthening coastal security, surveillance. eg. BOLD - Q17

④ Suggestions for improvement :-

① Regulate Dark web :- Dark web is source of multiple illicit drug transactions and also a source for terrorism funding

② Global acknowledgement :- Global convention acknowledging & addressing narco-terrorism is needed by clearly identifying the link between the two.

The vicious cycle of terrorism & organised drug crime needs to be stopped & active intervention from state as well as UN office on Drugs, FATF is needed.

18. The dark web can be an ideal platform for several criminal and terrorist activities. Discuss with examples. Also, suggest measures to tackle the misuse of dark web. (250 words) 15

डार्क वेब कई आपराधिक और आतंकवादी गतिविधियों के लिए एक आदर्श मंच हो सकता है। उदाहरण सहित चर्चा कीजिए। साथ ही, डार्क वेब के दुरुपयोग से निपटने के उपायों का सुझाव दीजिए।

Dark web is a part of the Internet that is not publicly accessible & is only available to specific users due to its protected nature. eg. TOR (Tomato-Onion Ring) web.

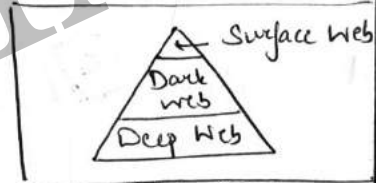


Fig 5.01

- Dark Web - platform for criminal & terrorist activities (-Reasons):-

- ① Heavily protected :- As it is not easily accessible & does not have indexed websites, it is harder to track & detect.
- ② Beyond government surveillance :- Nature of transactions is cryptographically secured

& hence, difficult to decode.

• How is Dark web used :-

① Giving 'services' :- Dark web is used for giving killings orders for someone in exchange for money. eg. Honour killings

② Platform for radicalisation :- Radicalisation of disgruntled youth for terrorist activities is done using Dark web.

③ Planning of attacks :- Attacks like terrorist attacks, lone-wolf attacks are planned here, bypassing government radar.

④ Arms & Drugs Smuggling :- Trading of illicit arms, drugs, forfeited currency is

easily done through Dark web.

⑤ Cyber Frauds :- Duplicate products at cheap prices traded through Dark web; that can potentially be used as spyware.

• Measures to Tackle misuse :-

① Develop cyber expertise: Train cyber experts who can breat into Dark web & practice ethical tracking to improve surveillance.

② Identify trading channels :- Channels of arms smuggling, etc. can be identified through continuous state presence on Dark web.

③ Global cooperation with global network of cyber experts can be developed to tackle within country as well as cross-border crimes & terrorist activities.

19. What is catalysis? Highlight the characteristics of catalysts. Also, elaborate why catalytic reactions are important for human beings. (250 words) 15  
उत्प्रेरण क्या है? उत्प्रेरकों की विशेषताओं पर प्रकाश डालिए। साथ ही, उदाहरण प्रस्तुत करते हुए समझाइए कि मानव के लिए उत्प्रेरकी अभिक्रियाएं क्यों महत्वपूर्ण हैं।

Catalysis refers to a process that is used to control the pace of a chemical reaction i.e. to quicken it or slow it down, & achieve the desired product.

• Characteristics of catalysts :-

① Neutral :- It does not have any impact on the product i.e. maintains the composition of product.

② Control pace :- It only affects the speed of the reaction, thus affecting the consumption of the source material.  
eg. Nuclear fusion using moderator to

reduce quick consumption of  $\underline{U}^{233}$ .

③ Temperature:- Catalysts depend upon temperature for the role they play in a reaction.

• Importance of catalytic reactions :-

① Industry:- Proves as an aid in commercial manufacturing of certain products.

② Health:- Carbonic acid maintains body's pH balance while digesting food.

③ Medicines:- Some Chemical reactions are not possible without catalysts as they act as a stimulus.

• Advent of organocatalysts :-

Recently, Nobel Prize in Chemistry was awarded for inventing organocatalysts i.e. they ~~do not~~ ~~are~~ have organic origin & do not produce metal waste.

VisionIAS

20. Electric mobility offers solutions to the problems associated with climate change, growing fuel prices, and urban transportation issues. Discuss in the context of India. **(250 words) 15**

इलेक्ट्रिक मोबिलिटी जलवायु परिवर्तन, ईंधन की बढ़ती कीमतों और शहरी परिवहन के मुद्दों से जुड़ी समस्याओं का समाधान प्रदान करती है। भारत के संदर्भ में चर्चा कीजिए।

## Faster Adoption & Manufacturing of

E-Vehicles (FAME) scheme of government aims to increase the production & use of electric vehicles.

• Electric mobility - a solution :-

① Climate change :-

(a) Reduced GHG emissions :- It eliminates hazardous emissions of NO<sub>x</sub>, CO<sub>x</sub> made by fossil fuels like petrol & diesel.

(b) Alternative to coal :- India's phasing out of coal can be helped replacing it with electric mobility solutions.

(c) Reduced global warming :- It can prevent

increase in temperature due to emissions by vehicles.

(2) Growing fuel prices :-

(a) Reduce India's import bill :- India's dependence on global oil resources can be reduced by moving to electric mobility.

(b) Accessibility improvement :- Electric mobility shall also allow lower class people to buy vehicles due to reduced dependence on fuel prices.

(3) Urban transportation :-

(a) Reduced noise pollution :- Electric vehicles do not produce as much noise as petrol & diesel vehicles.

(b) Increased efficiency :- Of urban transportation due to electric vehicles. eg. Delhi's Electric Buses

• Persistent challenges with electric mobility

① Dependence on lithium :- India is dependent on china for Li batteries used in electric vehicles.

② Support infrastructure :- Charging stations, battery swap, etc. is still not available according to the demand.

③ High initial cost :- Initial cost of e-vehicles is as high as ₹1,00,000 for 2-wheelers making it unaffordable.

Thus, electric mobility should be supported with relevant infrastructure, public awareness & greater affordability to prove to be an effective solution.