



# VISION IAS

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## GENERAL STUDIES (TEST CODE : 1515)

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Medium Eng./Hindi		Registration Number	714260
Center	Online	Date	20 <sup>th</sup> November, 2021

### 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

- 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)।
- There are **TWENTY** questions printed in **ENGLISH & HINDI** इसमें बीस प्रश्न हैं अंग्रेजी और हिन्दी में छपे हैं।
- All questions are compulsory.**  
सभी प्रश्न अनिवार्य हैं।
- The number of marks carried by a question/part is indicated against it.  
प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।
- 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।
- Word limit in questions, if specified, should be adhered to.  
प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।
- 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. Explain the meaning of off-budget borrowings and its role in helping the government raise funds for various expenditures. Also, comment on its desirability.

(150 words) 10

बजटेतर उधारी (ऑफ-बजट बॉरोइंग्स) का अर्थ स्पष्ट कीजिए और विभिन्न व्ययों के लिए धन जुटाने में सरकार की सहायता करने में इसकी भूमिका का उल्लेख कीजिए। साथ ही, इसकी वांछनीयता पर टिप्पणी कीजिए।

Off-budget borrowings are borrowings made by government agencies (like FCI) in the name of government. Such borrowings do not reflect in fiscal deficit, but are included under government debt.

Role in helping government raise funds:

- ① Since they are not included in fiscal deficit calculations, government can raise funds without fear of foreign credit ratings.
- ② It allows government to utilise its own scarce resources on developmental projects while allowing its agencies to raise funds on their own.

③ Such borrowings compensate for shortfall in revenue.

Deniability :-

Off-budget borrowings of GOI touched ₹ 1.5 lakh crore as of 2019-20.

15<sup>th</sup> Finance Commission recommended to not use the off-budget borrowing route, because:-

- Such borrowings evade parliamentary scrutiny
- Do not communicate true picture of government's finances.
- Promotes inefficiency & lack of accountability
- May threaten financial stability (Ex:- FCI debt touched ₹ 3 lakh crore)

Hence, government should stop resorting to off-budget borrowing.

2. It is argued that genetically modified food crops are required to ensure food security of India. Examine in view of concerns regarding introduction of GM crops.

(150 words) 10

यह तर्क दिया जाता है कि भारत की खाद्य सुरक्षा सुनिश्चित करने के लिए आनुवंशिक रूप से संशोधित खाद्य फसलों की आवश्यकता है। जी.एम. फसलों की शुरुआत से संबंधित चिंताओं के आलोक में परीक्षण कीजिए।

Genetically modified (GM) crops are those where genes are inserted/modified/removed to achieve desired characteristics. For example, BT Cotton contains gene of 'Bacillus Thuringensis'  
↓  
resistance against 'Pink bollworm'

GM food crops to ensure food security:-

- ① To increase yield of the crops
- ② To create widely tolerant varieties.  
(Ex:- Withstanding high temperature, drought)
- ③ To create disease-resistant crops
- ④ To improve nutritional security.  
(Ex:- Golden rice - Vitamin A)
- ⑤ To enhance life-span of produce

so that it can be stored in godowns  
for long

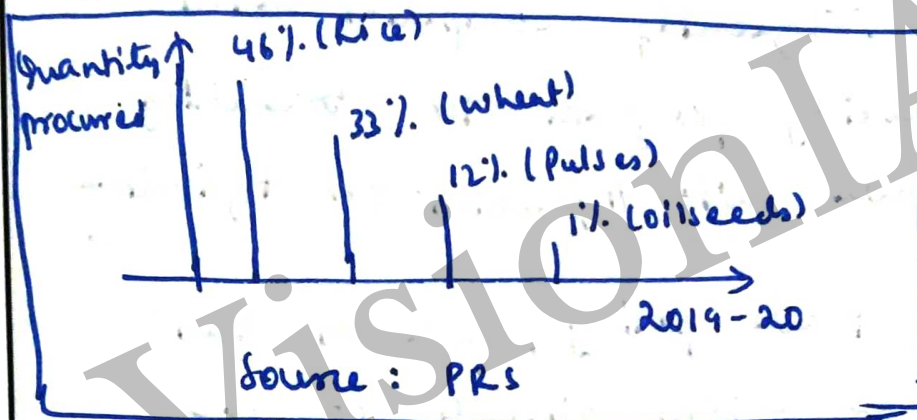
### Concern regarding GM crops:-

- ① Ecological concern : Fear of modified genes escaping into nature unintentionally
- ② Susceptibility of non-target pests which threatens bio diversity
- ③ Long term consequences of GM crops on human health
- ④ Fear of near increased dependence on developed countries which control the majority of GM food crop research.

Genetic engineering appraisal committee must take into account advantage and concerns of GM crops and frame a national policy to ensure orderly development of GM industry.

3. India's price intervention policies to support its agricultural sector not only create a broken system but also complicate matters related to international trade rules. Critically discuss. (150 words) 10
- अपने कृषि क्षेत्र का समर्थन करने के लिए भारत की मूल्य हस्तक्षेप नीतियां न केवल एक अप्रभावी व्यवस्था का निर्माण करती हैं बल्कि अंतर्राष्ट्रीय व्यापार नियमों से संबंधित मामलों को भी जटिल बनाती हैं। समालोचनात्मक विवेचना कीजिए।

Government of India announce MSP for 23 crops and out of them, procures rice & wheat for public distribution system.



Price intervention created broken system :-

- ① Distortion in cropping pattern in favour of rice-wheat system.
- ② Disincentives to private sector investment in storage & transport due to stock holding & Price orders under Essential Commodities Act, 1955

③ Frequent inflation in food prices due to mismanagement of government stocks  
(Ex:- Onion prices)

Complicating International trade rules:-

① Exceeding De-minimis level : Countries like USA frequently complains about India's subsidy program for breaching limits under WTO Agreement on Agriculture

② Uncertain trade policy, such as ban on export of onions, oilseeds to curb domestic inflation → against international free trading rules.

Thus, several experts suggest that, India must move from price support (USP) to income support (PM KISAN) to support its farmers while minimising trade distortion.

4. India has an opportunity to become a leading global food supplier provided it has an efficient supply chain and the right marketing strategies. Elucidate. (150 words) 10

भारत के पास एक अग्रणी वैश्विक खाद्य आपूर्तिकर्ता बनने का अवसर है बशर्ते उसके पास एक कुशल आपूर्ति श्रृंखला और सही विपणन रणनीति हो। विशदीकरण कीजिए।

India is 2<sup>nd</sup> largest producer of food in the world. However, its share in global food trade is about 3% and is ranked 9<sup>th</sup> (WTO) due to inefficient supply chain.

Opportunity :-

- ↳ largest arable land (51% of land area - ICAR)
- ↳ 43% workforce dependent on agriculture
- ↳ Leading producer of milk, 2<sup>nd</sup> largest producer of eggs, fruits & vegetables, etc.

An efficient supply chain and right marketing strategies help in becoming leading food supplier in following ways:-

- ① By Promoting value addition.  
(Ex:- Rice → rice biscuits, cakes, etc.)

② By reducing wastage of food products.  
(Ex:- ICAR estimate ₹ 95,000 crore loss due to wastage as per 2013 estimates)

③ By promoting investments from private sector in agro-food processing

④ By promoting crop diversification  
(Ex:- lack of cold storage facilities → low cultivation of horticultural crops)

⑤ By connecting farmers with processors & exporters

⑥ By promoting research in product diversification

(Ex:- Indian Millets Research Institute  
↳ Ragi biscuits ←

Recent government's steps such as allowing 100% FDI in food processing, e-NAM, Kisan SAMPODA yojana will go a long way in promoting efficient supply chains.

5. Land banks are increasingly gaining prominence in India to encourage land-use efficiency and enable economic growth. In this context, discuss the benefits of a land bank and state the concerns associated with it.

(150 words) 10

भूमि उपयोग दक्षता को प्रोत्साहित करने और आर्थिक वृद्धि को सक्षम बनाने के लिए भूमि बैंक भारत में तेजी से प्रमुखता प्राप्त कर रही हैं। इस संदर्भ में, भूमि बैंक के लाभों तथा इससे संबंधित चिंताओं का उल्लेख कीजिए।

Land banks are online portals (GIS enabled) that help investor to easily acquire clearances for their projects on designated lands.

Benefits of land banks :-

- ① Removes hurdles in acquiring land clearance  
(Ex:- GMR exited Udaipur highway project for non-granting land clearance)
- ② Allows investor to plan their projects well (Ex:- GIS maps → proximity to airports, etc.)
- ③ Helps in freeing large land parcels with government entities
- ④ It will promote ease of doing business  
(India was ranked 154<sup>th</sup> in acquiring property - WB EODB 202)

⑤ It will improve coordination between various ministries with respect to utilisation of land lying with their respective ministries.

Concerns associated with land banks :-

① A centralised land information database may be prone to cyber attack.

② Federal issues : Since land is state subject, effective implementation of land bank requires coordination from state governments.

③ absence of documentation of land records may invite disputes.

By resolving the above concerns, the recently setup land bank by DPIT can boost investments into the country.

6. Desertification has been described as one of the greatest environmental challenges of our time and climate change is making it worse. Discuss.

(150 words) 10

मरुस्थलीकरण को वर्तमान समय की सबसे बड़ी पर्यावरणीय चुनौतियों में से एक के रूप में वर्णित किया गया है तथा जलवायु परिवर्तन इसे और बदतर बना रहा है। चर्चा कीजिए।

Desertification is the extreme form of land degradation. It implies complete deterioration of soil quality and damage to ecosystem services.

Desertification: great environmental challenge:-

- ① It poses threat to food security
- ② It threatens bio-diversity  
(Desertification → disappearance of forests)
- ③ It exacerbates climate change, as land's role as Carbon-sink gets diminished
- ④ It enhances soil's vulnerability to erosion, flooding & landslides
- ⑤ It decreases water percolation capacity resulting in droughts.

Climate change is making it worse:-

① Increasing surface temperatures and heatwaves

(Ex:- IPCC reported an increase of  $1.2^{\circ}\text{C}$  in average temperature since pre-industrial times)

② Altered vegetation patterns due to climate change contribute to desertification

(Ex:- lack of dead leaves → low addition of organic matter)

③ Increase in soil microbial activity due to increased temperature → fast depletion of organic matter

Desertification can be countered using sustainable land management practices such as mulching, afforestation, shelter belts, etc.

7. In the context of intellectual property rights, discuss the advantages and disadvantages of releasing projects under an 'Open Source' license.

(150 words) 10  
बौद्धिक संपदा अधिकारों के संदर्भ में, 'ओपन सोर्स' लाइसेंस के तहत परियोजनाओं को जारी करने के लाभ और हानियों पर चर्चा कीजिए।

'Open source' license implies the product can be used by anyone under the condition that they do not license their product developed using an open source licensed product.

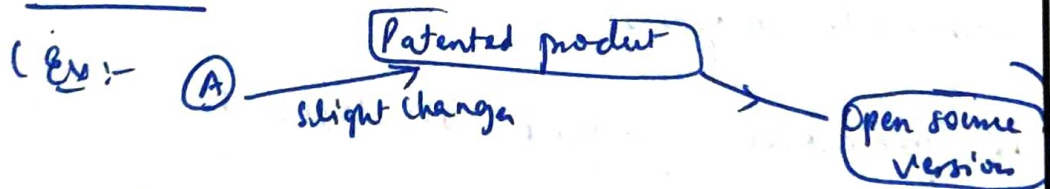
Advantages of 'Open source license' :-

- ① It makes new innovation accessible to anyone (Ex:- Open source software for research purposes)
- ② It promotes product development (Ex:- Several applications on playstore are developed using opensource softwares)
- ③ It promotes cooperation among developer community working on similar products.

- ④ It promotes development of cost-effective solutions (Ex: cheap heart rate monitor using open source technology)
- ⑤ It enables easy sharing of innovations across borders without worry of IP-enforcement laws.

### Disadvantages :-

- ① Lack of accountability : Generally, software (open source) contain privacy issues
- ② It may result in stealing of innovation



Thus, open source is like a double-edged sword. There is need for a global convention on dealing with open source licenses to prevent misuse.

8. "Indian space sector has been dominated by a single umbrella of government and government institutions." In light of the statement, discuss the significance of Indian Space Association in providing an impetus to space technology in India. (150 words) 10

"भारतीय अंतरिक्ष क्षेत्र पर सरकार की एकमात्र संस्था का प्रभुत्व रहा है।" इस कथन के आलोक में, भारत में अंतरिक्ष प्रौद्योगिकी को प्रोत्साहन प्रदान करने में भारतीय अंतरिक्ष संघ के महत्व की विवेचना कीजिए।

Indian space sector is expected to reach value of \$ 250 billion by 2025 (Nasscom study).

However, dominance of single umbrella of government entities (ISRO) poses following challenges like:-

- Disincentive for private sector to make investments
- Low research in cutting-edge technologies to gain edge over competitors
- Overburdening of ISRO <
  - research activities
  - Commercial activities (Exp launch of Cartosat, etc)

## Indian space Association

Recently, prime minister gave call for Indian space association as an umbrella body that brings together all private players in space. It can help in

- Promoting private investment in space
- Improve investor confidence
- Well-informed policy making addressing concerns of private players
- Freeing up of resources of ISRO
- Promoting space exports  
(Exr launch of small satellites)

Success of private space entities like SPACEX (USA) shows that private sector in India can play an important role in promoting competitiveness of India's space sector. Indian space association can help achieve this.

9. Man and machine both have an important role in national security and making urban areas secure. In this context, discuss how technology is a major stakeholder in addressing the internal security challenges of India.

(150 words) 10

राष्ट्रीय सुरक्षा और शहरी क्षेत्रों को सुरक्षित बनाने में मानव और मशीन दोनों की महत्वपूर्ण भूमिका है। इस संदर्भ में, चर्चा कीजिए कि प्रौद्योगिकी किस प्रकार भारत की आंतरिक सुरक्षा चुनौतियों से निपटने में एक प्रमुख हितधारक है।

Technology is a double-edged sword, which can greatly enhance vulnerability (or) security of a country.

Technology: addressing internal security challenges

- ① Surveillance using technologies like AI, UAV to keep track of terrorist activities.
- ② Fast dissemination of information in times of emergency through medium like Whatsapp.
- ③ Enhancing border security through LIDAR, Distress Alert Transmitter (DAT), etc.
- ④ Smart integrated border checkpoints

Can help in reducing transnational organized crime (Ex: Drug trafficking)

⑤ Mobile jammers can be used to block communication between terrorists (Ex: 26/11 Mumbai attacks)

⑥ Modernization of police force using integrated control rooms with state of the art technologies

Thus, technology can significantly improve India's national security.

However, to prevent its misuse, it must be ensured that it doesn't enter wrong hands.

10. National Security Guard (NSG) has emerged as a formidable force equipped to handle various manifestations of terrorism. Discuss the mandate and achievements of this force. (150 words) 10

राष्ट्रीय सुरक्षा गार्ड (NSG) एक पराक्रमी बल के रूप में उभरा है जो आतंकवाद के विभिन्न रूपों से निपटने के लिए सुसज्जित है। इस बल के अधिदेश और उपलब्धियों की विवेचना कीजिए।

National Security Guard played a crucial role in neutralising terrorists during 26/11 Mumbai attacks.

Mandate of NSG :-

- ① To specialize in <sup>various</sup> anti-terror operations like diffusing bombs, etc.
- ② To support state police in counter-terrorism operations.
- ③ To inculcate best practices in counter terror operations from across the world.
- ④ To undertake mock-drills to keep citizens & state police aware of Do's & Don't's in case of crisis.

### Achievements

- ① During 2010, Delhi Coalt - 60 diffused ~~accide~~ incident, NSG's expertise played a crucial role.
  - ② It has proven itself as one of the top most security agencies across the world in counter-terror operation.
  - ③ It even gives training to security forces in neighbourhood such as Bangladesh.
- Thus, NSG is like a jewel in the crown of India's terror preparedness.

11. What do you understand by asset monetisation? Why is it needed in India? In this context, discuss the issues that need to be addressed for the National Monetisation Pipeline to succeed. (250 words) 15

परिसंपत्ति मुद्रीकरण से आप क्या समझते हैं? भारत में इसकी आवश्यकता क्यों है? इस संदर्भ में, उन मुद्दों पर चर्चा कीजिए- जिन्हें राष्ट्रीय मुद्रीकरण पाइपलाइन के सफल होने के लिए समाधान करने की आवश्यकता है।

Asset monetisation implies converting an asset into financial resource through selling or leasing it.

For example, NHAI leases highways to private parties for a period of 50 years, in return for lumpsum amount initially.

Need for asset monetisation in India:

① To productively utilise large number of assets lying idle.

(Ex:- Land with Indian Railways)

② To augment government's financial resources.

(Ex:- National asset monetisation pipeline is expected to generate ₹ 20,000 crore).

- (3) To fund government's social sector schemes
- (4) To channelize resources towards infrastructure creation.

(Ex:- Tax fore on NIP estimated that India needs to spend ₹ 1.4 trillion on infrastructure by 2025 to achieve ₹ 5 trillion economy)

- (5) To bring about efficiency in manage-  
-ment of government assets

(Ex:- Govt run posts → Private hands  
↓  
reduced turnaround time)

In this context, government has unveiled ambitious National Monetisation Pipeline comprising of assets like -

→ Highways

→ Posts

→ Power distribution lines, etc.

to enhance capital expenditure.

Issues to be addressed:-

① Terms of contract must clearly specify the expected quality standards for asset maintenance.

(Ex:- Newly inaugurated public road  
potholes ← private hands ←

↓  
(This must be avoided):

② Concern of national security associated with private sector involvement in critical infrastructure like Discom lines

③ Prices quoted should be realistic and must not stretch private sector finances.

④ Dispute adjudication with respect to monetisation of assets (Vijay Kelkar committee)

⑤ Resources generated from monetisation must be used only for capital formation

National Monetisation pipeline can play an important role in generation resources to make India atmanirbhar

Don't miss anything  
margin  
(इस शीर्षक में कुछ नोट्स)

12. What is social stock exchange (SSE)? Discuss the need for setting up of SSEs and key challenges in their effective implementation. (250 words) 15

सोशल स्टॉक एक्सचेंज (SSE) क्या है? SSEs की स्थापना की आवश्यकता और उनके प्रभावी कार्यान्वयन में विद्यमान प्रमुख चुनौतियों पर चर्चा कीजिए।

Social Stock Exchanges (SSE) are platforms where shares of companies involved in social sector (education, health, etc.) are listed so that impact investors can invest in them.

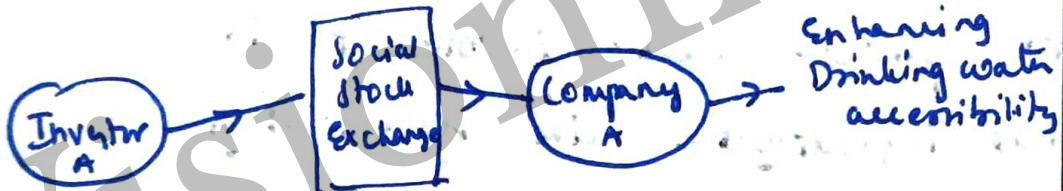


Fig: Working of social stock exchange

Need for setting up SSE :-

- ① Lack of sufficient flow of funds to companies involved in social sector
- ② To attract investment in social service.  
(India's current spending on health is only 1.7% of GDP. NHP 2013 envisages 3% GDP)

- ③ To attain twin goals of economic development & inclusive growth.
- ④ To encourage innovation in areas of public health, sanitation, education, etc.
- ⑤ To make India an attractive destination for foreign impact investment funds  
(Ex:- Bill & Melinda Gates fund)
- ⑥ To bring foreign technology and expertise to improve India's social outcomes  
(Ex:- Israel recycles 90% of water → required to solve India's water crisis)
- ⑦ To encourage startups in the field of social development.

In this context, recent SEBI's move to issue guidelines regarding

SSE is a step in right direction.

However, certain challenges remain:-

① Developing framework to evaluate the impact of projects.

(Ex:- Investment → education enterprise → Evaluate learning outcome)

② To ensure transparency and accountability in fund utilisation.

③ To ensure that the platform is not misused by for-profit enterprises.

④ Policy uncertainty with respect to SSE must be removed to attract investments.

⑤ Effective coordination among various govt's ministries like environment, health, education, etc.

Following the international success, SSE offer immense potential in India.

13. In the context of India, highlight the importance of agriculture extension services. What are the challenges faced in provisioning of agriculture extension services? How does the National Mission on Agricultural Extension & Technology (NMAET) address these issues?

(250 words) 15

भारत के संदर्भ में, कृषि विस्तार के महत्व पर प्रकाश डालिए। कृषि विस्तार सेवाओं के प्रावधान में सामना की जाने वाली चुनौतियां कौन-सी हैं? कृषि विस्तार और प्रौद्योगिकी पर राष्ट्रीय मिशन (NMAET) इन मुद्दों का कैसे समाधान करता है?

Agriculture extension involves services offered to farmers with respect to latest technologies, inputs, weather advisories, and so on.

Need for agriculture extension :-

- To ensure sustainable farming  
(Minimise water / fertiliser use)
- To ensure adaptation of latest technology  
(ex:- Drum seeder for sowing)
- To educate farmers about best practices
- To enhance farmer's income.

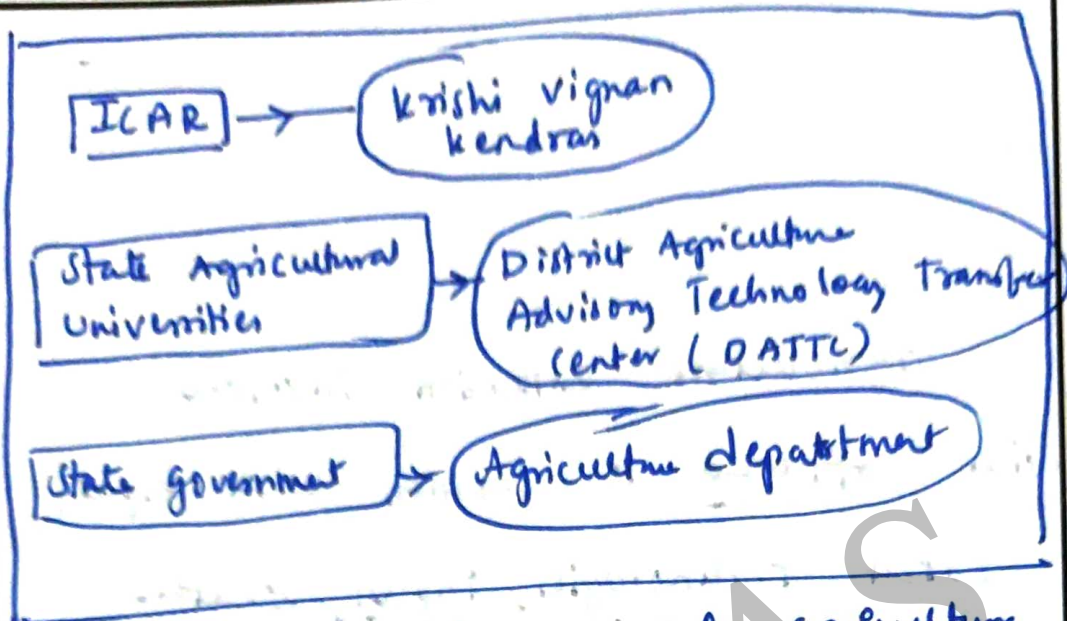


Fig: Institutional framework for agriculture extension in India.

Challenges in agriculture extension :-

- ① Lack of sufficient number of staff in KVKs & DAATTCs.
- ② Lack of awareness among farmers about extension agencies.
- ③ Lack of connectivity & digital infra (smartphones) to access extension services.
- ④ Apathy among officials about farmers' concerns.
- ⑤ Problem of corruption among officials.  
(Ex:- Divesting demonstration technologies)

NMAET address these challenges in following ways :-

- ① To augment manpower, NMAET envisage bridge courses & training programs in agriculture universities.
- ② Clear targets to public officials about dissemination of agri-related information.
- ③ Crop-specific information pamphlets for easily understanding of farmer.
- ④ Mandatory use of regional languages in Tv & radio broadcasts.
- ⑤ Toll-free helpline numbers in every state to ensure accessibility to farmer.
- ⑥ Development of model villages so that farmer can emulate best practice.

Thus, NMAET can play significant role in achieving target of doubling farmer's income.

14. Clearly delineate the 'employment problem' that India currently faces. Also, explain the fundamental reasons behind existence of this problem. (250 words) 15

भारत वर्तमान समय में जिस 'रोजगार समस्या' का सामना कर रहा है, उसे स्पष्ट रूप में निरूपित कीजिए। साथ ही, इस समस्या के अस्तित्व के मूल कारणों की व्याख्या कीजिए।

According to PLPs 2017-18 data,  
Unemployment rate in India is 6.1%,  
a 25 year high.

According to a McKinsey report,  
India needs to generate 90 million  
jobs over next decade to provide  
employment to its bourgeoning workforce.  
But, actual number of jobs generated  
are far too less.

Employment problem India faces :-

- ① Large workforce (59.5% of population is in working age 15-59 years : NITI tagor), but lack of enough jobs.
- ② Disguised unemployment : Agriculture

accounts for 17.8% of GDP, but has 43% of workforce. (PLFS 2018-19)

③ Informal Sector: 90% of workforce is in informal sector with lack of access to social security (PLFS 2018-19)

Fundamental reasons behind the problem:-

① Nature of growth: Post 1991 reforms, economic growth was led by service-sector (accounts for 54% of GDP) which employs only a small fraction of population.

② Skill mismatch: 51% of graduated youth were found unemployable (AN India Skills report 2021)

③ Lack of access to resources to get upskilled

(Ex:- only 8.9% of the workforce is formally trained - Economic survey 2018-19).

④ High job to investment ratio. Some estimates suggest ₹ 1 crore generates only 4 jobs in India.

⑤ Government regulation: Complexity in labour laws made share of contractual workers increase from 26% (2011-12) to 39% (2018-19) (Economic Survey 2020)

⑥ Inequalities: Interstate & intrastate inequalities have resulted in bottom rung population to miss out on employment opportunities.

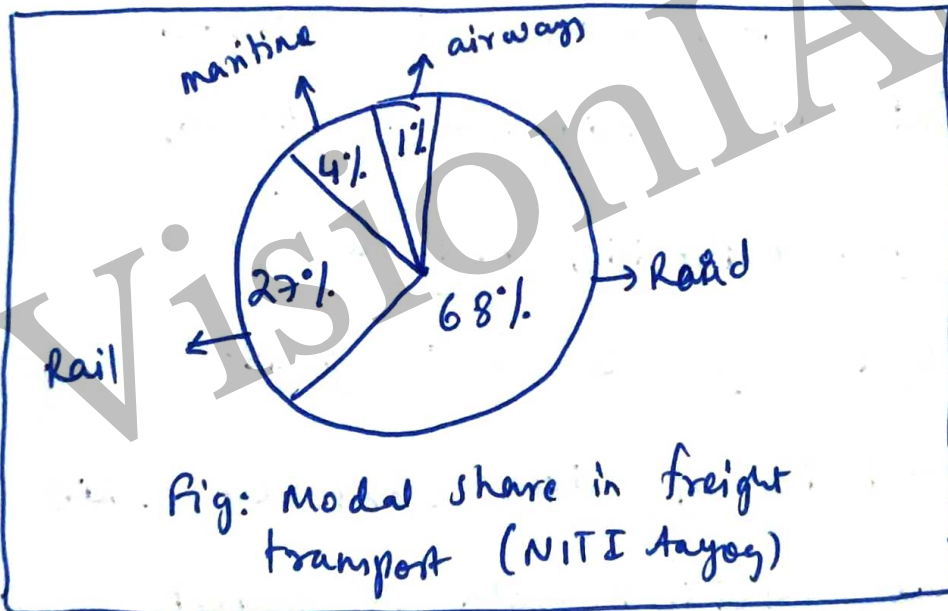
To reap demographic dividend, India must solve employment problem. For this, recent steps like consolidation of labour codes, ease of doing business reforms, etc. are steps in right direction.

15. Although steps have been taken for integrating the dispersed logistics activities of maritime trade, much more needs to be done to make India a maritime powerhouse. Discuss. (250 words) 15

हालांकि समुद्री व्यापार की विखंडित लॉजिस्टिक गतिविधियों को एकीकृत करने के लिए विभिन्न कदम उठाए गए हैं, फिर भी भारत को एक समुद्री पावरहाउस बनाने के लिए और भी बहुत कुछ किए जाने की आवश्यकता है। चर्चा कीजिए।

India has a natural advantage of 7,500 km long coastline and 14,500 km long navigable inland waterways

However, maritime trade remains poor.



Recent steps taken to integrate maritime sector :-

- ① SAGARMALA to achieve port-led economic growth.

- ② Coastal connectivity scheme to enhance last mile connectivity with ports.
- ③ Jal vikas marg project to augment capacity of national waterways 1.
- ④ Multimodal logistics parks to seamlessly integrate various modes of transport (Ex: Jhinghapa logistics park in Assam).
- ⑤ Major port authorities bill to grant more autonomy to major ports.
- ⑥ Inter-linking of rivers (Ex: Ken - Betwa) to ensure sufficient water for freight movement.

However, more needs to be done such as:-

- ① Connecting ports with Industrial corridors (Ex:- Chennai - Vishakhapatnam Corridor)

- ② Repurposing large multipurpose dams to support inland navigation.
- ③ Enhancing last-mile connectivity with ports
- ④ Involving private sector in port-led development (Ex:- ~~Integrated Coach fact~~ Mazagon Dock Limited, Mumbai).
- ⑤ Granting infrastructure status to maritime sector to enhance flow of credit

A well-developed maritime sector will significantly drive down logistics cost. Currently, logistics account for 18% cost in India, whereas 12% in China (Economic Survey 2020).

Hence, above measures will improve India's trade competitiveness.

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16. Accounting for natural capital and ecosystem services is crucial to understand the link between the economy and environment. Discuss with specific references to India's initiatives in this regard. (250 words) 15

अर्थव्यवस्था और पर्यावरण के मध्य संबंध को समझने के लिए प्राकृतिक पूंजी और पारिस्थितिकी तंत्र सेवाओं के लिए लेखांकन महत्वपूर्ण है। इस संबंध में भारत द्वारा की गयी पहलों के विशिष्ट संदर्भ के साथ चर्चा कीजिए।

Nature capital includes stock of nature's reserves such as rivers, forests, wetlands, etc. Ecosystem services are the services rendered by ecosystem.

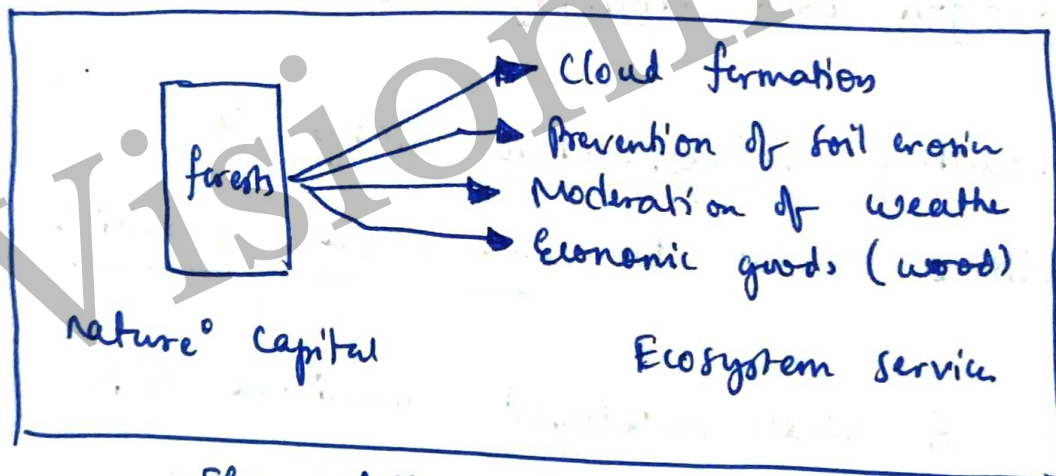


Fig: relationship between nature capital & ecosystem services.

Accounting for nature capital & ecosystem services: link for understanding relation between economy & environment :-

① Quantification of utilisation of

nature capital like water for industrial use helps in estimating link between environment & economy.

② Sustainable development: It helps in balancing economic & environmental needs  
(Ex: Cutting down forest to set up hydro power project)

③ It helps in measuring environmental costs of economic development

(Ex:- Dumping waste → water → eutrophication  
Death of fishes ) ←

④ It helps in designing more sustainable indicators of growth (Ex:- Happiness Index - Bhutan)

Recent initiatives taken by India:-

① SDG India index by NITI Aayog.

It includes environment component  
(SDG 14 - life below water)

② Ministry of statistics developed an accounting framework to estimate value of nature's capital (S VCAVBS)

③ EIA under Environment protection act, 1986 mandates environmental impact assessment of large projects like mines.

Thus, India had taken several steps to integrate economy & environmental needs to achieve sustainable development.

17. Rapid and unplanned urbanisation accompanied by population growth have increased both the risk and impact of natural disasters. Discuss the statement along with adequate measures to address the relevant concerns in India.

जनसंख्या वृद्धि के साथ-साथ तीव्र और अनियोजित शहरीकरण ने प्राकृतिक आपदाओं के जोखिम और प्रभाव दोनों को बढ़ा दिया है। भारत में विद्यमान प्रासंगिक चिंताओं के निवारण हेतु यथोचित उपायों के साथ इस कथन की व्याख्या कीजिए।

(250 words) 15

By 2030, cities in India will  
account for 40% of total population  
(NITI Aayog). However, the cities are  
not yet ready to accommodate such  
large population, resulting in unplanned  
urbanisation.

Unplanned urbanisation : risk of natural  
disasters

- ① Unscientific constructions like tall buildings  
which are prone to Earth quakes.
- ② Absence of fire safety measures in  
dense urban colonies  
(Ex :- Delhi - urban fire disaster)
- ③ Urban heat island effect is contributing

to increased instances such as cloud bursts

④ Encroachment to flood channels and deforestation are amplifying risk of Urban floods

(Ex:- Recent Hyderabad floods)

⑤ Inadequate waste disposals → threat of biological disaster

Unplanned urbanisation: impact of disaster

① High population density → chances of high casualties

② As cities are center of economic activity, disaster will have debilitating impact on economy.

③ Presence of large number of poor in cities (slums) will exacerbate social inequalities

In case of disaster.

Measures to address the concerns:-

- ① Strict enforcement of BIS building codes
  - ② Incorporating concept of rain gardens while designing public parks (NOMA guidelines on Urban floods)
  - ③ collecting data with respect to patterns of migration → informed policy making
  - ④ Easing floor space norms to facilitate construction of tall buildings, (NITI aayog) which will solve problem of lack of shelter & proliferation of slum.
  - ⑤ Redesigning drainage channels to ensure quick discharge of rain water.
- Sustainable Disaster risk reduction should be made central to long term planning to ensure sustainable cities.

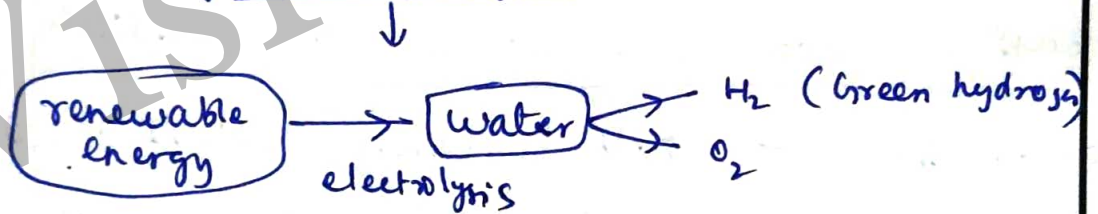
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18. National Hydrogen Mission can be a game changer for India's rising energy demands. Comment.  
 भारत की बढ़ती ऊर्जा मांगों के लिए राष्ट्रीय हाइड्रोजन मिशन एक गेम चेंजर हो सकता है। टिप्पणी कीजिए।

Government, in Budget 2021 announced national hydrogen mission with an overlay of ₹ 8,000 crore.

Components of Hydrogen mission:-

① Promoting R&D in generating electricity from green hydrogen.



② Designing new applications for green hydrogen  
 (ex: usage in fertiliser industry, domestic heating, etc.)

③ Promote private sector participation in green hydrogen sector.

Gamechangers for India's rising energy needs:-

- ① Reduce imports : India currently imports 85% of crude oil for its energy needs.
- ② Clean energy : As burning  $H_2$  doesn't emit pollutants, it can be promoted as clean energy to solve India's air pollution (Delhi) problem.
- ③ Paris targets : It helps India achieve its INDC target of having 40% installed electricity capacity from non-fossil fuel sources.
- ④ Remote areas : Hydrogen can be used as energy in areas without electricity lines.
- ⑤ Space sector energy needs can also be met using Hydrogen.
- ⑥ It gives impetus to fertiliser industries like Urea, which consume  $H_2$  as input.

However, despite several advantages, there are certain challenges with Hydrogen as energy:-

- ① Storage : Hydrogen needs to be stored at  $-253^{\circ}\text{C}$  which makes its distribution difficult
- ② Hydrogen is highly explosive in nature, so chance of accidents (industrial)
- ③ Question mark over utility of Hydrogen as fuel in a future era presumed to be dominated by electric vehicles

Despite the above concerns, the national hydrogen mission will give a much needed boost to research in application & development of Hydrogen, which may find answer to India's rising energy demand.

19. Despite geo-strategic instability of its region and a keen awareness of the cyber threat it faces, India has made only 'modest progress' in developing its policy and doctrine for cyberspace security. Critically examine.

(250 words) 15

अपने क्षेत्र की भू-रणनीतिक अस्थिरता और इसके समक्ष विद्यमान साइबर खतरों के संबंध में व्यापक जागरूकता के बावजूद, भारत ने साइबरस्पेस सुरक्षा के लिए अपनी नीति और सिद्धांत विकसित करने में केवल 'साधारण प्रगति' की है। समालोचनात्मक परीक्षण कीजिए।

According to Internet crime report 2020, India ranks 3<sup>rd</sup> in top 20 victims of cybercrime.

Cyber threat India faces :-

- ① Cyber terrorism such as malware attack on Kudankulam power plant
- ② Hybrid warfare (Ex:- Zhenhua data leak orchestrated by China against India)
- ③ Cyber crime such as phishing, hacking (NCSI 2019 data points to 63.5% increase in cybercrime compared to 2018)
- ④ Misuse of social media by extremist organisations like LIT to radicalize youth

⑤ Attempts to break down social fabric by instigating communalism through fake news

(Ex:- Attacks against North Eastern people in Bangalore)

⑥ Possible interference in electoral process (Ex:- Cambridge analytica case in USA)

Progress made in cybersecurity policy

① India recently issued a Telecom directive for private sector to choose from a verified list of vendors. (Ex:- India banned Huawei)

② India setup new post of national cybersecurity coordinator under PM to evolve a unified cybersecurity policy

③ India has put up institutional framework (CERT-In, NCCDC, Cyber swachata kendra)

to implement cybersecurity policy

Shortcomings in India's preparedness :-

- ① Lack of a national level upto date cybersecurity policy
- ② Lack of clarity on roles of various organisations involved in cybersecurity
- ③ Huge dependence on foreign vendors for Telecom hardware (TRAI estimates, India's import ₹ 1.3 trillion hardware, mostly from China)
- ④ Some estimates report that more than 50% of government organisations do not lack a cybersecurity strategy.

As cybersecurity is a dynamic domain, India's policies & actions must keep pace according to the emerging threats.

20. Developmental interventions alone cannot play a defining role in the resolution of existing and protracted internal conflicts in various parts of India within a reasonable time frame. Discuss. **(250 words) 15**

भारत के विभिन्न हिस्सों में व्याप्त और दीर्घकाल से जारी आंतरिक संघर्षों को उचित समय सीमा के भीतर हल करने में केवल विकासात्मक हस्तक्षेप एक निर्णायक भूमिका नहीं निभा सकते हैं। चर्चा कीजिए।

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