

Time Allowed : Three Hours

समय : तीन घंटे

ForumIAS

Maximum Marks : 250

अधिकतम अंक : 250

GENERAL STUDIES / सामान्य अध्ययन

Name Of Candidate परीक्षार्थी का नाम	SANJEEV GUPTA		
Roll No./अनुक्रमांक	1910090633	Medium/माध्यम	English ☒ हिंदी ☐
Center Code/परीक्षा केंद्र	1901	Date/दिनांक	11/09/24

*Center Code : For Online - 1900 / Delhi : Karol bagh - 1901, ORN - 1902, Mukharji Nagar - 1903 / Patna : Boring Rd. - 2001 / Hyderabad : Jawahar Nagar - 2101

INDEX TABLE / अनुक्रमणिका			INSTRUCTION / अनुदेश	
Q. No. प्र.सं.	Max. Marks अधिकतम अंक	Marks Obtained प्राप्तांक	1. Please do furnish Name, Email, Roll No and Mobile in the answer sheet. कृपया उत्तर-पुस्तिका में नाम, ईमेल, रोल नंबर और मोबाइल नंबर भरें। 2. There are TWENTY questions printed in ENGLISH & HINDI, all questions are compulsory. उत्तर पुस्तिका में अंग्रेजी/हिंदी में बीस प्रश्न दिए गए हैं, सभी प्रश्न अनिवार्य हैं। 3. The number of marks carried by a question/part is indicated against it. प्रत्येक प्रश्न/भाग के लिए निर्धारित अंक उसके सामने अंकित किए गए हैं। 4. 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. उत्तर प्रवेश पत्र में अधिकृत माध्यम में लिखे जाने चाहिए, जो कि दिए गए स्थान में इस प्रश्न-सह-उत्तर (क्यूसीए) पुस्तिका के कवर पर स्पष्ट रूप से लिखा जाना चाहिए। 5. Word limit in questions, if specified, should be adhered to. Any page or portion of the page left blank in the Question-Cum Answer Booklet must be clearly Struck off. प्रश्नों में शब्द सीमा, यदि निर्दिष्ट हो, का पालन किया जाए। प्रश्न-सह-उत्तर पुस्तिका में खाली छोड़े गये किसी भी पृष्ठ या पृष्ठ के भाग को स्पष्ट रूप से काट दें।	
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Examiner's Discretion/मूल्यांकन कर्ता का विवेक :			For Student Only / केवल परीक्षार्थी प्रयोग हेतु	
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Total Marks/कुल अंक :			Mode Of Examination/ परीक्षा की विधि :	Online/ऑनलाइन ☒ Offline/ऑफलाइन ☐
*Examiner's Discretion is the marks awarded at the discretion of the examiner based on your overall impression, on the basis of (but not limited to) your handwriting, presentation, use of diagrams, flowcharts, facts and figures or absolutely anything that he/she liked in your copy. मूल्यांकन कर्ता का विवेक अंक, आपकी लिखावट, प्रस्तुति, आरेखों के उपयोग, फ्लोचार्ट, तथ्यों और आंकड़ों या समग्र रूप किसी अन्य विषय वस्तु, जो मूल्यांकन कर्ता को आपकी कॉपी में पसंद आयी के आधार पर (लेकिन इन्हीं तक सीमित नहीं) पर दिए गए अंक हैं।			For Office Use Only / केवल कार्यालय प्रयोग हेतु	
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Note: Students are expected to incorporate suggestions from the feedback provided in the answers. Discussion class copies of the tests are also available online in your portal to aid in your preparation. Further, students are requested to see the tests and discuss your copy with a Mentor and discover ways and means to improve your answers, or if you have any issues with this test / copy. Ask specific questions, to get specific answers.

EXAMINER'S REMARKS

CRITERIA FOR THE FEEDBACK SECTION AT THE END OF EACH QUESTION

1. **AWIS = Answered What is Asked.** This means whether you have addressed the core demand of the question or not. Addressing the core demand of the question gets you an objectively fair score. It is examiner's perception if you have understood the question and if you know the answer in the first place. Creative answer writing, sometimes missing the core demand, may fetch very high or very low scores, and exposes your answer to the subjectivity of the examiner.
2. **CD & VA = Content Density & Value Addition.** Examiner will evaluate the quality and quantity of your content in the answer. In the same word limit space limit have you (a) written what is asked (b) gone beyond what is asked (c) enriched answers through combination of (but not all!) suggestions, quotes, flowcharts, diagrams, facts and figures, data etc. This affects objective components of assessment.
3. **S & F = Structure & Flow** = Whether you have structured your answer properly or not. Whether the answer has been broken into parts and sub-parts each part has been addressed appropriately or not. Whether the flow of the answer is maintained. Affects both subjective and objective components of assessment.
4. **P & R = Presentation, ease of read, clarity and apparent effort** in writing the answer. This affects subjective components of assessment.

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Q.1) Why has there been an increased focus on negotiating, renegotiating and concluding Free Trade Agreements (FTAs) by India in recent years? (10 marks, 150 words)

हाल के वर्षों में भारत द्वारा मुक्त व्यापार समझौतों (FTAs) पर बातचीत, पुनर्वार्ता और समापन पर ध्यान क्यों दिया जा रहा है? (10 अंक, 150 शब्द)

Free Trade Agreement refers to arrangement between two or more nation to reduce tariff and non-tariff barriers to boost trade

eg) India - Sri Lanka FTA

Reason for increased focus

1. Economics

- (i) Increase in trade between nation
eg) India - Singapore FTA
- (ii) provide market for easy entry and exit
- (iii) Risk diversification through trade negotiations
- (iv) Employment generation through export led growth
- (v) Increase in forex reserve and share of India's trade (currently 62% of global trade)

II. Trade politics

(i) Increase in Bilateral Relation

⊕ Talk on India-UK FTA

(ii) Boost multilateral groups ⊕ India-Japan

FTA → boost QUAD

Challenges

- Trade diversion — using FTA as route
- Trade deficit — for India in existing FTA ⊕ India-South Korea
- Inverted Duty structure — inputs taxed more on output
- Spaghetti bowl problem — too many FTAs crossing each other (pre Bhagwati)

Sanjit Bhall committee of wide stakeholder consultation along with periodic review essential to achieve \$2 trillion for EXIM using FTA.

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Q.2) A well-designed fiscal policy can serve as a vital instrument to facilitate the equitable distribution of resources and ensure the welfare of all sections of society. Elaborate. (10 marks, 150 words)

एक अच्छी तरह से डिज़ाइन की गई राजकोषीय नीति संसाधनों के समान वितरण को सुविधाजनक बनाने और समाज के सभी वर्गों के कल्याण को सुनिश्चित करने के लिए एक महत्वपूर्ण साधन के रूप में काम कर सकती है। विस्तार से वर्णन कीजिए। (10 अंक, 150 शब्द)

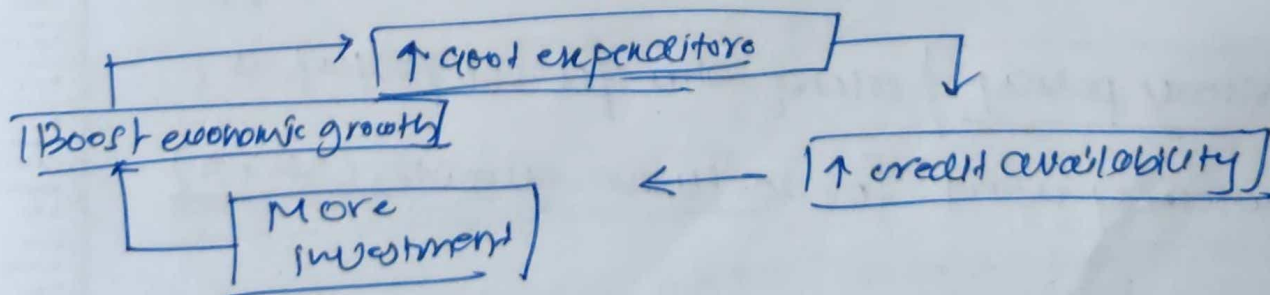
Fiscal policy refers to using taxation and government expenditure by the government to boost economic growth

③ countercyclical fiscal policy used by the government during covid-19.

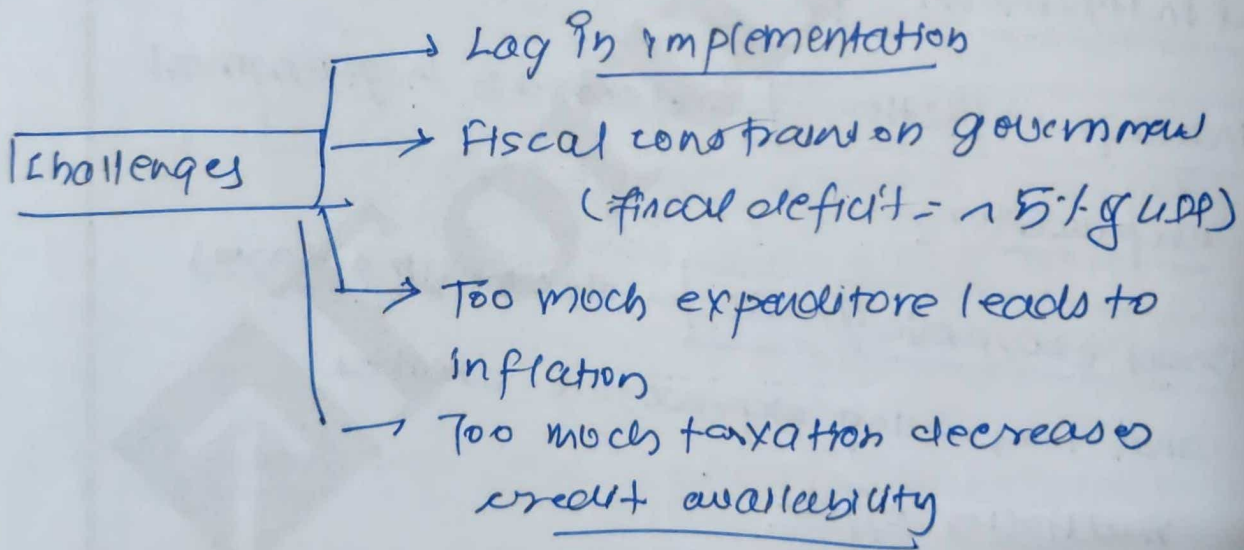
Vital Instrument

① Manage inflation — decrease in government expenditure

② Boost economic growth — decreasing taxes and increasing expenditure creates multiplier effect



- ③ Social security net for poor and vulnerable (eg) increase in MGNREGA during slowdown
- ④ Effective mobilisation through progressive taxation (eg) increase in income tax rates
- ⑤ Infrastructure development of basic necessities (eg) railways.



Monetary policy along with fiscal policy is widely used for inclusive growth (SPU8)

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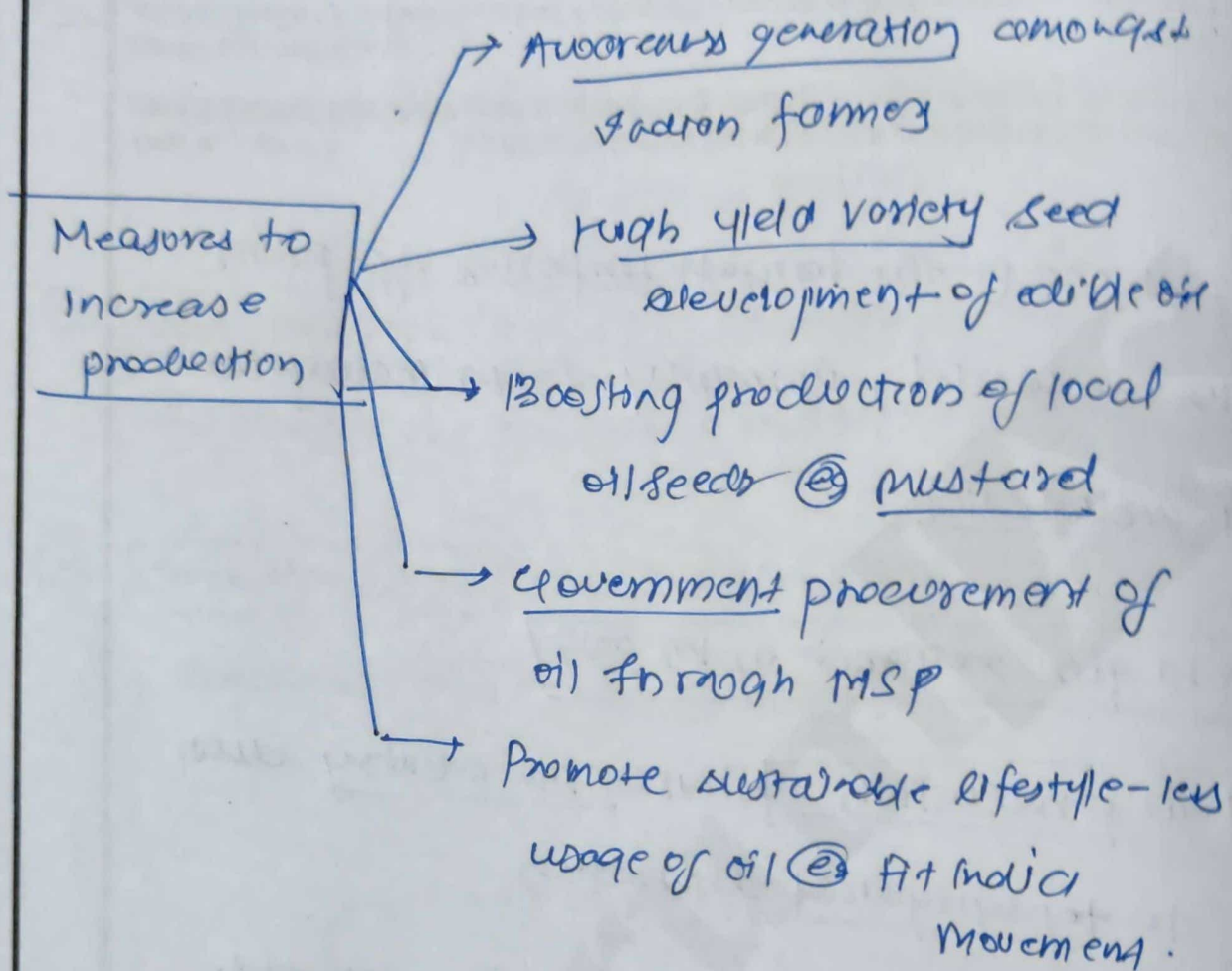
Q.3) What are the primary factors contributing to India's significant reliance on imported edible oils? What measures do you suggest to increase domestic production and to reduce India's reliance on imported edible oils? (10 marks, 150 words)

आयातित खाद्य तेलों पर भारत की महत्वपूर्ण निर्भरता में योगदान देने वाले प्राथमिक कारक क्या हैं? घरेलू उत्पादन बढ़ाने और आयातित खाद्य तेलों पर भारत की निर्भरता को कम करने के लिए आप क्या उपाय सुझाएंगे? (10 अंक, 150 शब्द)

India is one of the largest importers of palm oil in the world, primarily from Malaysia and Indonesia.

Factors for reliance on import

- ① Low production inside the country due to topographical limitation
- ② cheap availability of oil from abroad.
- ③ Industrial usage of edible oil in soap, detergents and other products
- ④ Large Demand in India owing to its large population and food habits
- ⑤ Comparative Advantage of Malaysia and Indonesia (accounts for 90% palm oil production)



Government has taken measures like National Mission on Promotion of Oil seeds in North East to boost oil seed production in India

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Q.4) With the growing water crisis in India, micro irrigation offers a sustainable solution for water conservation; however, its adoption remains skewed and below its potential. Discuss.

(10 marks, 150 words)

भारत में बढ़ते जल संकट के साथ, सूक्ष्म सिंचाई जल संरक्षण के लिए एक स्थायी समाधान प्रस्तुत करती है; हालाँकि, इसका उपयोग अभी भी विषम है और इसकी क्षमता से कम है। चर्चा कीजिए।

(10 अंक, 150 शब्द)

India is home to 16% population but has only 4%
water resources, moreover per capita water
availability has reduced to 1545 cu (census 2011).
This is alarming water crisis in India

Role of micro irrigation

- ① Land productivity to water productivity
through efficient usage of water.
- ② Reduces soil erosion through utilization of
water than runoff ~~in~~ drip irrigation
- ③ Reduces power usage for irrigation as
MI provides enough water in limited time.
- ④ Prevent alluviation of soil through
better absorption of nutrients

Adoption
remains low

- high initial cost - with MI
like sprinklers, drip
- Low awareness among
farmers → traditional method
(Flood irrigation)
- high MRO cost associated
with micro irrigation
- Low farmers income (₹10/28
HSSO)
- Subsistence nature of farming -
makes MI economically unviable

Way forward

- Government incentives @ NABARD
Micro irrigation corpus ₹5000 cr
- Customising centres for micro
irrigation tools
- Promotion through PM Kisan
Sachet Yojana.

Narayana committee and Murthy committee

recommendation to make micro irrigation
should be followed.

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Q.5) The following railway accidents highlight the urgent necessity for addressing the myriad challenges related to safety, undercapacity and lack of modernization within Indian Railways. Analyse.

(10 marks, 150 words)

बार-बार होने वाली रेल दुर्घटनाएँ भारतीय रेलवे के भीतर सुरक्षा, अल्प-क्षमता और आधुनिकीकरण की कमी से संबंधित असंख्य चुनौतियों के समाधान की तत्काल आवश्यकता को उजागर करती हैं। विश्लेषण कीजिए। (10 अंक, 150 शब्द)

Recent railway accidents like Odisha train

crash highlight significant challenges on

Railway safety

Challenges

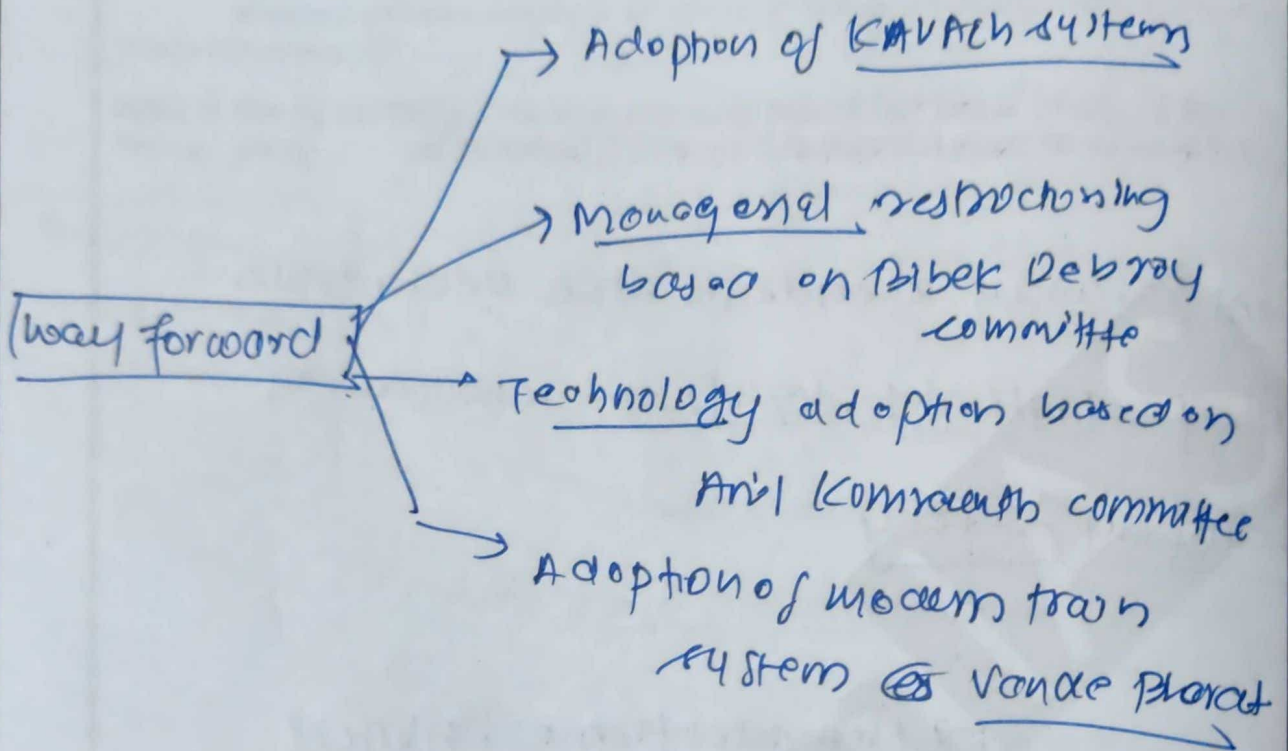
→ Non adoption of KAVACH system in all train

→ Poor training of loco pilot

→ Operational challenges - due to old train tracks, signal system

→ Financial constraints - due to cross subsidization

→ Managerial challenges - due to complacency and inefficiency in work culture



Indian Railways function as lifeline for India's passenger and freight movement and hence must be strengthened for safety and modernization

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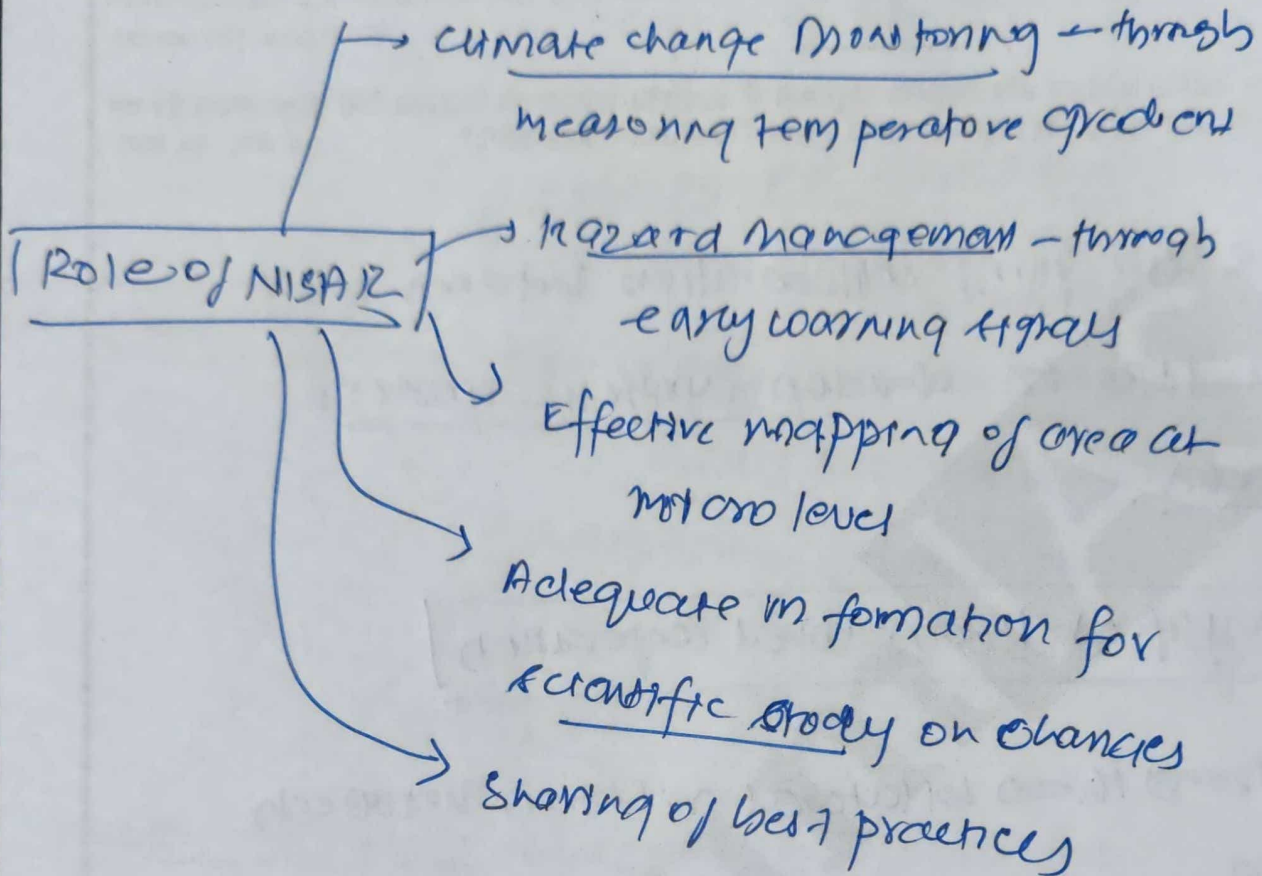
Q.6) How does NISAR mission exemplify international cooperation in space exploration and scientific research? In what ways will it help in climate change monitoring and natural hazard management? (10 marks, 150 words)

NISAR मिशन अंतरिक्ष अन्वेषण और वैज्ञानिक अनुसंधान में अंतर्राष्ट्रीय सहयोग का उदाहरण कैसे प्रस्तुत करता है? यह जलवायु परिवर्तन की निगरानी और प्राकृतिक आपदा प्रबंधन में किस तरह से मदद करेगा? (10 अंक, 150 शब्द)

NISAR is a joint collaboration between NASA and ISRO to develop synthetic aperture radar.

Exemplifies International cooperation

- ① Strengthens bilateral relation between India and USA
- ② Technological exchange
- ③ Boost to Artemis Award that India recently signed
- ④ India's learning can be developed for upcoming Gaganyaan mission



NISAR mission will help India to boost space economy and help it to develop its own space mission by 2040 as PM Modi

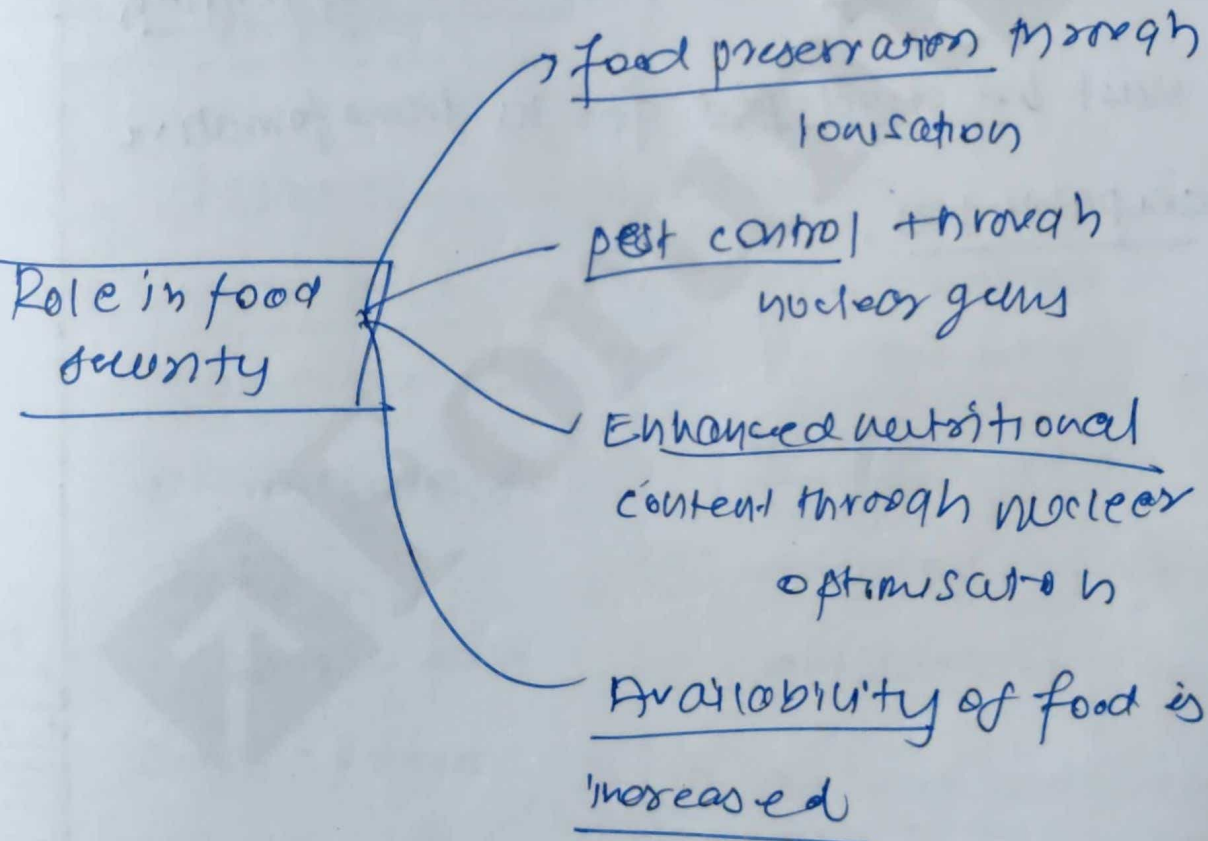
has said — 'Today is the time to space inspire'

311341 713304 1910090633 (2024-09-11 18:50:51)
Q.7) Nuclear technology can play a transformative role in enhancing food security and agricultural sustainability. Discuss. (10 marks, 150 words)

परमाणु प्रौद्योगिकी खाद्य सुरक्षा और कृषि स्थिरता को बढ़ाने में एक परिवर्तनकारी भूमिका निभा सकती है। चर्चा कीजिए।
(10 अंक, 150 शब्द)

Nuclear technology refers to use or harnessing
of nuclear energy for benefit of human

(Eg) Nuclear fission used in energy
generation.



Role in Agricultural
sustainability

Soil management through
nuclear analysis

Adoption of climate
friendly crops

Development of high yielding
seeds.

Nuclear technology has thus wide application
and must be developed for its transformative
capabilities.

Feed

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Q.8) Increasing frequency of forest fires in India underscores the urgent need for sustainable forest management practices. In light of the statement, bring out the causes and multidimensional impact of forest fires. Also, suggest measures for their prevention and management. (10 marks, 150 words)

भारत में जंगल की आग की बढ़ती आवृत्ति स्थायी वन प्रबंधन प्रथाओं की तत्काल आवश्यकता को रेखांकित करती है। इस कथन के प्रकाश में, वनाग्नि के कारणों और बहुआयामी प्रभावों का उल्लेख कीजिए। साथ ही इनकी रोकथाम और प्रबंधन के उपाय भी सुझाएं। (10 अंक, 150 शब्द)

Forest fires witnessed recently in Uttarakhand
and Simpur tiger reserve highlights wildlife
issue

Causes of forest fire

Natural	Human
① <u>Thunder and lightning</u> — sparks leads to fire	① <u>Tourist activities</u> — like throwing <u>cigarettes</u>
② <u>Dry winds and</u> <u>leaves</u> — friction at times create fire	② <u>Controlled fire</u> for deforestation
	③ <u>Shifting cultivation</u>

Multiphase environmental impact

- ① land degradation effect
 - soil erosion
 - land degradation
 - wind erosion
 - landslides / mud flow
- ② on human - loss of human lives & property
 loss of livelihood ③ NFP for tribal
- ③ on ecosystem - destruction of flora and fauna
 disturbance in ecosystem services

Remedial measures

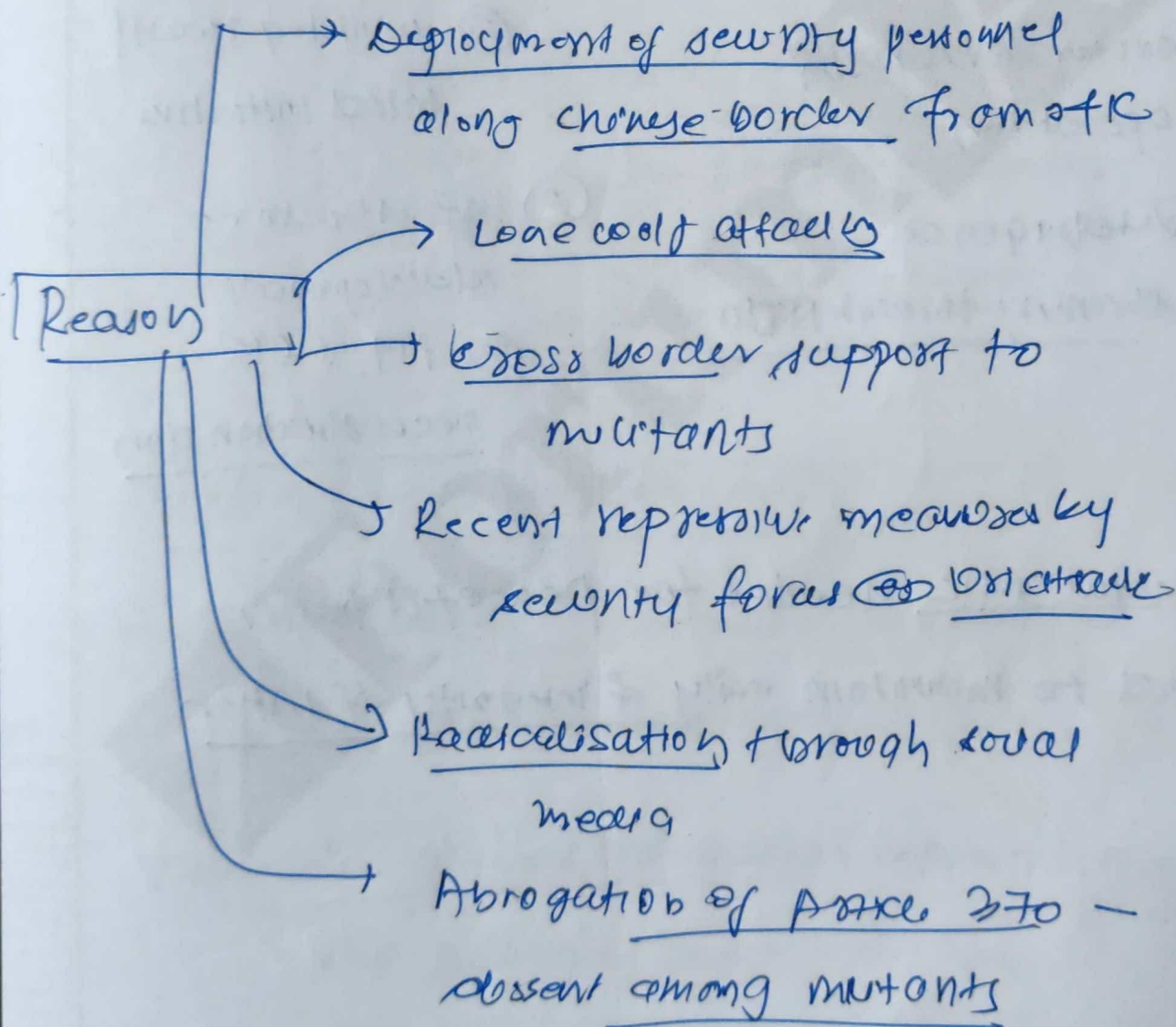
- ① wild fire teams - for quick response
 - ② check on tourist activities - ban on cigarette
 banned in national parks
 - ③ local community participation - through
 awareness
- wild fires need to be managed to protect
pristine biodiversity.

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Q.9) What reasons can be attributed to the recent surge in terror related violence in Jammu and Kashmir? What strategies would you suggest to counter it? (10 marks, 150 words)

जम्मू-कश्मीर में हाल ही में आतंकवाद से संबंधित हिंसा में वृद्धि के क्या कारण हो सकते हैं? इसका मुकाबला करने के लिए आप क्या रणनीति सुझाएंगे? (10 अंक, 150 शब्द)

Recent surge in terror violence in Poonch region
of Jammu & Kashmir has amplified



Strategies

Hard measures

- ① Deployment of security forces
- ② counter terrorism operation
- ③ Intelligence showing through NITRO

Soft measures

- ① Development Initiative
- ② winning heart & mind Initiative
- ③ Infrastructure development
- ④ PM JAK reconstruction plan

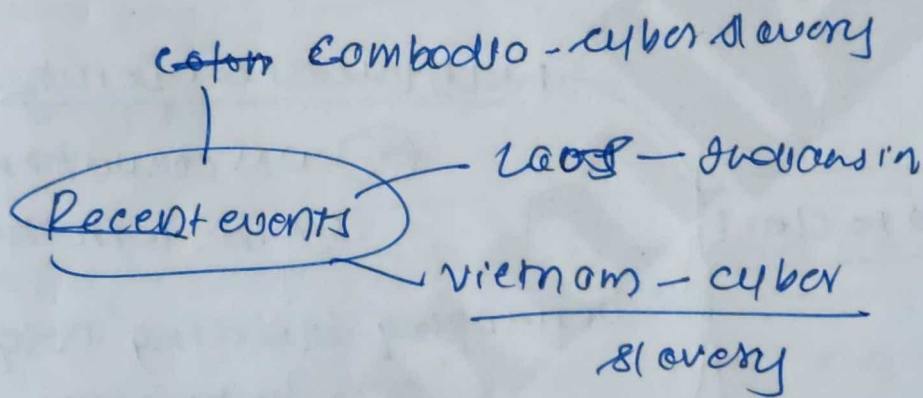
Peaceful JAK needed for peaceful India
and to maintain unity & integrity of nation

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Q.10) In the light of recent events, throw light on the possible implications of 'cyber slavery' on internal security of India. (10 marks, 150 words)

हाल की घटनाओं के आलोक में, भारत की आंतरिक सुरक्षा पर 'साइबर स्लेवरी' के संभावित प्रभावों पर प्रकाश डालिए। (10 अंक, 150 शब्द)

Cyber slavery refers to forceful use of
humans to conduct cybercrimes and
cyber frauds

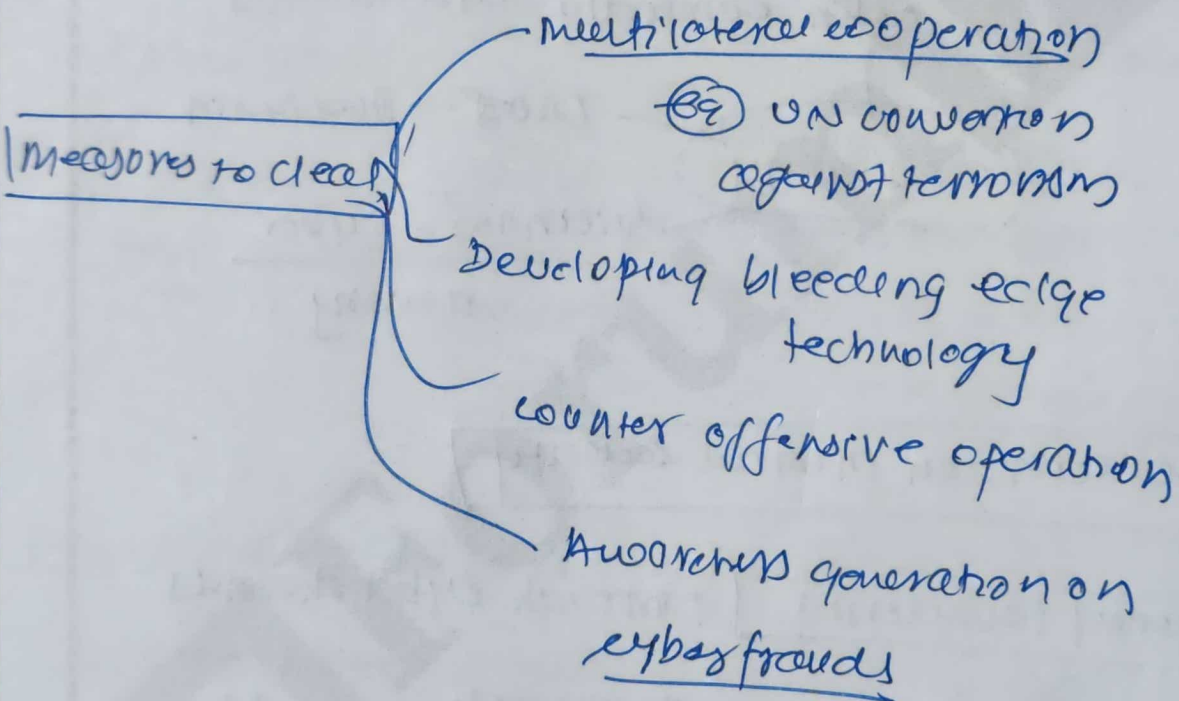


Implication on internal security

- ① Money laundering through cyber channels
 - ⊗ NFT, cryptocurrency
- ② Attack on critical information infrastructure
 - ⊗ Downfall power grid attack
- ③ cyber frauds - like phishing attacks,

④ cyber crimes — such as online harassment, identity theft, deepfakes

⑤ cyber terrorism — using cyber space to plan and conduct terrorist activities



With increasing digital economy, cyber slavery will increase and hence cybersecurity measures should be taken based on Halim's model.

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Q.17) The liberalisation policies of 1991 significantly enhanced India's economic dynamism, but the evolving global and domestic landscape necessitates 'Reforms 2.0' for sustained economic development and prosperity." Comment. (15 marks, 250 words)

"1991 की उदारीकरण नीतियों ने भारत की आर्थिक गतिशीलता को महत्वपूर्ण रूप से बढ़ाया, लेकिन उभरते वैश्विक और घरेलू परिदृश्य में सतत आर्थिक विकास और समृद्धि के लिए 'सुधार 2.0' की आवश्यकता है।" टिप्पणी कीजिए। (15 अंक, 250 शब्द)

Liberalisation policies of 1991 was adopted
in backdrop of Balance of Payment crisis,
high inflation, weak forex and growing
fiscal deficit.

Significantly enhanced India's economic dynamism

- ① India's GDP growth pushed to 7-8% and compared to former growth of 4-5%.
- ② Boom in services sector → today India is IT hub of world (74% of GDP)
- ③ Increase in forex reserve — \$600 Bn
- ④ Foreign Direct Investment increase — India in top 10 destination
- ⑤ Trade competitiveness — India exports more products, basmati rice etc

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Need for Reforms 2.0

- ① Income inequality — Gini coefficient 0.5 as share 1% hold 40% wealth (Oxfam)
- ② Decline in agriculture share from 29% of GDP to 18% of GDP
- ③ Jobless growth — Capital intensive industries as opposed to labor intensive
- ④ Low trade competitiveness — due to limited diversification of market and products
- ⑤ Stagnant manufacturing — contributes to -17% of GDP

Way forward

- 1) Inclusive growth — through creation of job opportunities
- 2) SKILL development — of labor force
~~PM~~ PM Koushik Vikas Yojana

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3) Incentives to boost domestic manufacturing

② Make in India, PLI

4) Infrastructure development — PM Caitika,

Bharatmala, Sagarmala

5) Labour intensive growth — promotion of

MSME, Agr Economy, Tourism etc

Reforms to along with industry 4.0 will

push India to attain \$ 5 trillion economy

Feedback

(For OFFICE use only)

#	G	A
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CD & VA		
S & F		
P & R		

Please put tick
marks in the above
table.

Here G is Good, A
Average and P is
Poor.

TOTAL
MARKS



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Q.12) Infrastructure development is essential not just for economic transformation but also for sustainable development and societal well-being. Elaborate with examples. (15 marks, 250 words)

बुनियादी ढांचे का विकास न केवल आर्थिक परिवर्तन के लिए बल्कि सतत विकास और सामाजिक कल्याण के लिए भी आवश्यक है। उदाहरणों के साथ विस्तार से समझाइए। (15 अंक, 250 शब्द)

As per Economy survey, India needs to
invest \$1.4 trillion in infrastructure to
reach a \$5 trillion economy.

Essential for economic transformation

① Multipplier effect on economy - Infrastructure
increases productivity (e.g.) machines reduces
labour cost

② Crowding-in private investment - currently
private investment is 35% of total investment

③ Government revenue increase through
infrastructure (e.g.) toll tax on highways

Infrastructure for sustainable development

① Blue-green infrastructure - to manage
disaster risks.

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- ② Energy transition (eg) Rooftop solar in fast track
Sagar Park - Bhadla
(Rajasthan)
- ③ Green Growth — through infrastructures
development.

Infrastructure for societal well being

- 1) Poverty reduction (eg) Agriculture Infrastructure
Fund
- 2) Job creation for rural mass (eg) MGNREGS

Yet, challenges remain

- ① High gestation period
② High capex requirement
③ Low acquisition problem
- } cost overrun
in infrastructure
- ④ weak development for corporate bond
market
- ⑤ Bureaucratic lethargy — red tapism,
corruption
- ⑥ Environmental clearance

Way forward

- ① Single window clearance system
- ② Technological adoption ~~to~~ Bhoomi in KMS
- ③ Financing through public-private model or
viability gap funding
- ④ Ease of doing business - to attract FDI

India's 4 pillar of — PM Gati Shakti, National
Infrastructure Pipeline, National Monetization
Scheme and National Logistics Policy are
step in right direction for Infra led growth

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Q.13) Bring out the significance of aquaculture towards nutrition security, livelihood generation, and economic growth. Also, mention various measures taken by the government to promote aquaculture in the country. (15 marks, 250 words)

पोषण सुरक्षा, आजीविका सृजन और आर्थिक विकास के लिए जलीय कृषि के महत्व पर प्रकाश डालिए। साथ ही, देश में जलीय कृषि को बढ़ावा देने के लिए सरकार द्वारा उठाए गए विभिन्न उपायों का उल्लेख कीजिए। (15 अंक, 250 शब्द)

Aquaculture refers to agricultural practices in aquatic system i.e. fisheries production, integrated farming system, Aquaponics etc.

Significance of Aquaculture

- ① Nutritional security - fisheries good source of protein - can tackle hidden hunger
- ② Livelihood generation - for coastal community and terrestrial farmers
 - ⊕ Fish development in rural India
- ③ Economic growth - through better income realization, value addition and export potential
 - ⊕ India is largest marine product exporter

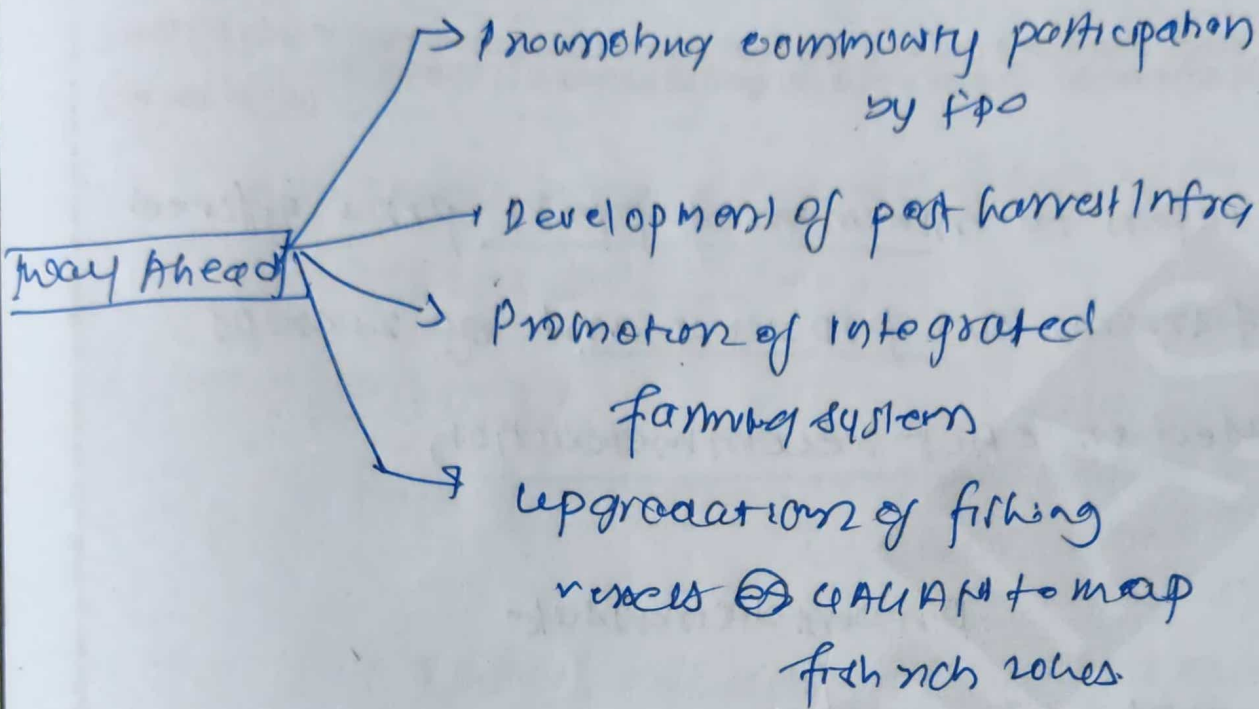
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- ④ social development - through better health and educational outcomes
- ⑤ prevent distress migration - from rural coastal areas

measures taken by government

- 1) Fisheries and Aquaculture Infrastructure Development Fund
- 2) PM Matsya Sampada Yojana
- 3) National policy on marine fisheries (2020)
- 4) Marine Products Export Development Agency (MPEDA)
- 5) National Fisheries Development fund
- 6) Extension of Kisan Credit facility to Fisheries farmers

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Meena Kumar committee recommendation to

review fishing policy should be adopted to
reap Blue Economy.

Feedback

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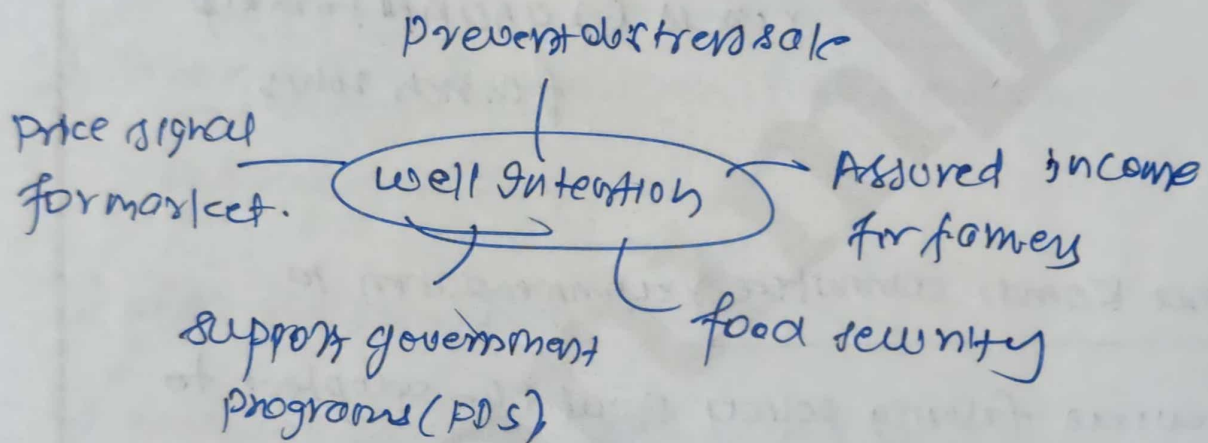


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Q.14) The MSP system, though well-intentioned, has led to market distortions and ecological stress, necessitating reforms to make it more inclusive and efficient. Examine. (15 marks, 250 words)

MSP प्रणाली, हालांकि अच्छी नीयत से बनाई गई है, लेकिन इसने बाजार में विकृतियां और पारिस्थितिकी तनाव पैदा किया है, जिससे इसे और अधिक समावेशी और कुशल बनाने के लिए सुधारों की आवश्यकता है। परीक्षण कीजिए।
(15 अंक, 250 शब्द)

MSP refers to minimum support price offered to farmers on procurement of crops based on CACP recommendation



challenges

- ① Ecological distress - water logging crops like rice grown in water deficit areas
 - groundwater depletion @ Punjab
 - soil alkalization due to excess fertilizer usage

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② market distortion — violates Agreement on
Agriculture treaty

— against natural demand & supply to
realise true price

③ Other challenges

— high fiscal drain on government
(₹21-Cr on food
security)

— limited procurement (58% Rice and
wheat)

— MSP benefits only by farmers
(Shanta Prasad comm)

— low awareness among farmers

Reforms to make it more inclusive & efficient

① MSP for wider crops like Millets

② procurement should be decentralized
to states (Ashok Dalwai committee)

③ focus on investment in Agriculture

④ Agriculture infrastructure fund

- ④ Vigilance mechanism to prevent black marketing and hoarding
- ⑤ Technology adoption like DBT for MSP payment
- ⑥ MSP procurement from states that lag behind ⑦ Eastern UP, Bihar

Alternatives like PM-AASHA can also be explored to maximize MSP benefits and Doubling farmer's income

Q.15) 311341_718304_1910090633 (2024-09-11 18:50:51)
waste management and significant advancements in human health. Elucidate. (15 marks, 250 words)

जैव प्रौद्योगिकी में टिकाऊ खाद्य उत्पादन, कुशल अपशिष्ट प्रबंधन और मानव स्वास्थ्य में महत्वपूर्ण प्रगति हासिल करने की अपार संभावनाएं हैं। स्पष्ट कीजिए।
(15 अंक, 250 शब्द)

India ranks in top 10 destination for biotechnology
and pharmaceutical products owing to its
strong research & development in the field

Potential for food production

- ① Development of high yielded variety - ~~DMH~~ mustard
- ② Pest resistant variety - ~~BT cotton~~
- ③ Food fortification - ~~Golden Rice~~ -
contains vitamin A
- ④ Nutritional enhancement - ~~BT Brinjal~~

Efficient waste management

- ① Bioremediation - using micro organism to
dispose waste
- ② Treating waste before discharge into
rivers

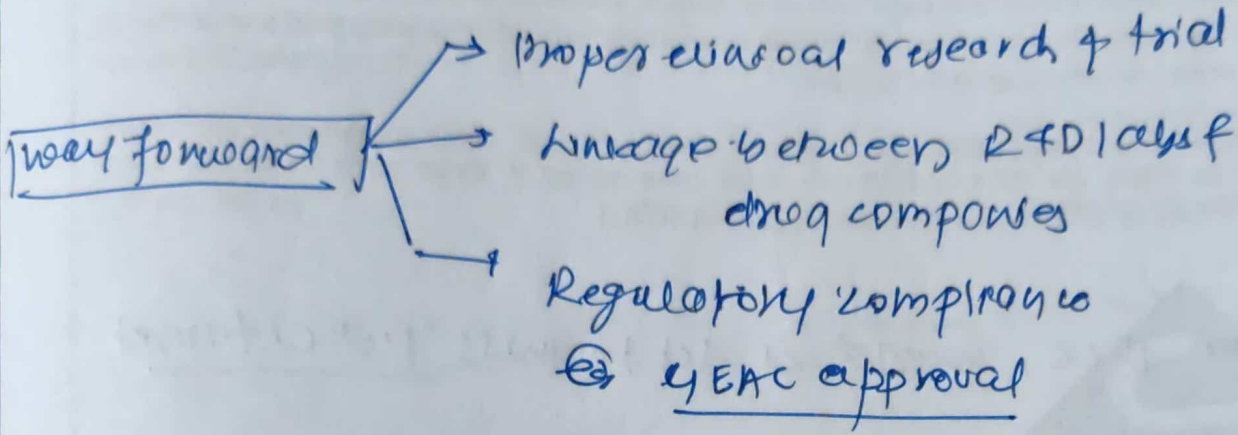
Advancement in human health

- ① CRISPR-cas9 → tool to edit and manage DNA
- ② car T-cell therapy → to treat cancer patients
- ③ development of drugs - like penicillin
- ④ genome mapping - to diagnose diseases.

Yet, challenges remain

- ① Ethical concerns - on clinical trials
- ② Low R&D → 0.65% of GDP
- ③ Issue of IPRs - India leading producer of generic drugs but not on development
- ④ Impact on Biodiversity → bioaccumulation/magnification through food crops
- ⑤ Disease outbreaks - due to GM organisms

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Government is promoting biotechnology through
Anusandhan Research and Biotech centres
of Excellence to make India leader in
biotechnology

Feedback

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TOTAL MARKS



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Q.16) Climate change is leading to significant alterations in ecosystems, resulting in cascading effects on biodiversity, ecosystem services, and human livelihoods, necessitating integrated approaches to conservation and climate adaptation. Analyse. (15 marks, 250 words)

जलवायु परिवर्तन के कारण पारिस्थितिकी तंत्र में महत्वपूर्ण परिवर्तन हो रहे हैं, जिसके परिणामस्वरूप जैव विविधता, पारिस्थितिकी तंत्र सेवाओं और मानव आजीविका पर व्यापक प्रभाव पड़ रहा है, जिसके कारण संरक्षण और जलवायु अनुकूलन के लिए एकीकृत दृष्टिकोण की आवश्यकता है। विश्लेषण कीजिए। (15 अंक, 250 शब्द)

As per IPCC, world is set to miss 1.5°C target
of temperature reduction by 2050

Climate change impacts

① Alteration in ecosystem

a) destruction of ecosystem ~~ex~~ cryosphere melting

b) disturbing food chain

~~ex~~ increased ocean warming

leading to coral destruction

② Resulting in cascading effects

a) Extreme weather events ~~ex~~ flood, drought

b) Increased disasters ~~ex~~ landslides, land subsidence

c) Water stress and scarcity

~~ex~~ 40% population to be water scarce
(NITI Aayog)

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③ Impact on human livelihood

- a) Destruction of agriculture @ Heatwaves
led to crop reduction
- b) Low productivity due to climate
fatigue
- c) Health and disease outbreaks
- ④ Permafrost thawing

Integrating approaches

- ① Climate mitigation - through reduction
in GHG emission ④ Kyoto protocol
- ② Climate Adaptation - through resilient
infrastructure ⑤ Climate Disaster Resilient
infrastructure
- ③ Fund availability to manage climate risk
⑥ Operationalization of Loss and
Damage fund

④ Technology transfer from developed countries to developing countries

⑤ Energy transition through phasing down coal plants

India has adopted LIFE mission and Global credit programme to mitigate and adapt to climate change.

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Urban areas, often referred to as the cradle of civilization and growth engines, are increasingly experiencing various natural and man-made disasters. Discuss in the Indian context. Also, suggest suitable mitigation and management strategies. (15 marks, 250 words)

शहरी क्षेत्रों को अक्सर सभ्यता और विकास के इंजन के रूप में संदर्भित किया जाता है, जो विभिन्न प्राकृतिक और मानव निर्मित आपदाओं का सामना कर रहे हैं। भारतीय संदर्भ में चर्चा कीजिए। साथ ही, उपयुक्त शमन और प्रबंधन रणनीतियों का सुझाव दीजिए। (15 अंक, 250 शब्द)

Cities account for 31% population but
contributes to more than 50% GDP and
hence referred to as growth engines

Disasters in urban areas

Natural Disaster	Man-made disaster
① <u>Storm surge</u> - due to tropical cyclones (e) Vishakhapatnam ② <u>Erosion</u> due to wave and tides (e) Mumbai coastal erosion ③ <u>Tsunami</u> - for coastal cities like Chennai ④ <u>Earthquakes</u> - Delhi in zone IV.	① <u>Urban flood</u> - due to <u>encroachment</u> ② <u>Chemical disasters</u> like Bhopal Gas tragedy ③ <u>Fires</u> due to inadequate safety norms ④ <u>Increase in sea level</u> due to global warming

Suitable mitigation and management strategies

Structural	Non-Structural methods
① <u>Blue and green Infrastructures</u> ⓐ <u>Sponge cities</u> ② <u>Retaining wall</u> for <u>high urban centres</u> ⓐ <u>Shimla</u> ③ <u>Tetrapods</u> to prevent coastal erosion ④ <u>stormwater breakers</u> in coastal cities ⑤ <u>Roofwater harvesting</u> to prevent excess drain of rainwater	① <u>Urban forestry</u> - like <u>mycocali methods</u> ② <u>Early warning system</u> & dedicated for cities ⓐ <u>IFLOWs Mumbai</u> ③ <u>Empowering urban local Bodies</u> - action against water body encroachment ⓐ <u>Bangalore floods</u> ④ <u>master plan</u> for cities should include <u>Disaster management</u> ⑤ strict enforcement of <u>building norms</u> and <u>safety norms</u>

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cities need to be disaster proof and
practices like Germany Green Roof and
Netherlands storm water management
practices need to be adopted.

Feedback

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Q.18) "India's disaster management framework has made significant progress in the 21st century, yet challenges persist in ensuring timely response and effective coordination during crises." Comment. (15 marks, 250 words)

"भारत के आपदा प्रबंधन ढांचे ने 21वीं सदी में महत्वपूर्ण प्रगति की है, फिर भी संकट के दौरान समय पर प्रतिक्रिया और प्रभावी समन्वय सुनिश्चित करने में चुनौतियां बनी हुई हैं।" टिप्पणी कीजिए। (15 अंक, 250 शब्द)

India ranks 4th on Global Disaster Related Risk
owing to its geographical location and
increasing climate change.

Significant progress
by India

→ National Disaster Management
Authority Act 2005

→ National Disaster
Response Force —
to manage severe
disaster

→ NDMA Policy 2016

→ National Disaster Response
Fund at central, State &
District level

→ Signing Sendai Framework
for international
collaboration on Disaster
management

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↑ Yet challenges persist

- ① 3R (Rescue, Relief, Rehabilitation) approach
than 3P (Preparedness, proofing, prevention)
- ② Non-operationalisation of NDR fund by
many states
- ③ Lack of training to NDRF personnel on
faster rescue during disasters.
- ④ Piecemeal approach to disasters than
comprehensive guidelines on Disaster
management
- ⑤ Not following committee recommendations
 - ⑥ Kasturirangan committee → 37% of
western coast as ESZ including
wayanad. → later wayanad
landslides
 - Misra committee - for Joshimath
↳ later Joshimath land
subsidence

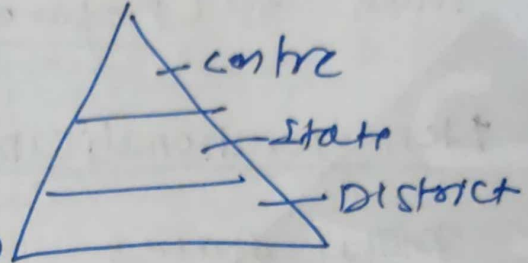
Way forward

① comprehensive disaster management plans

at each level

② proactive approach

than reactive approach



③ increase in infrastructure - like Early

warning system, Doppler Radar

④ scientific study - of disaster and

taking structural and non-structural

measures ⑤ Tetrapods for coastal erosion

NDMA guidelines are framed and

updated regularly to manage and

mitigate climate risk.

"It is not disaster that kill but lack of its preparedness"

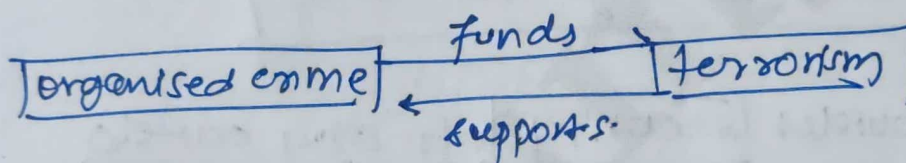
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Q.19) Explain how the symbiotic relationship between organized crime and terrorism further aggravates internal security concerns. What steps can be taken to address this linkage and the threats emerging from it? (15 marks, 250 words)

बताइए कि संगठित अपराध और आतंकवाद के बीच सहजीवी संबंध किस तरह आंतरिक सुरक्षा संबंधी चिंताओं को और बढ़ाता है। इस संबंध और इससे उत्पन्न होने वाले खतरों से निपटने के लिए क्या कदम उठाए जा सकते हैं? (15 अंक, 250 शब्द)

India is a transit hub for drug trafficking and also one of most vulnerable countries to terrorism

Symbiotic relationship - organised crime & terrorism



I. Organised crime to terrorism

- ① Arms trafficking provides guns and weapons to conduct terrorist activities
- ② Money laundering provides funds to plan and execute activities
- ③ Human trafficking - provides slaves and women to terrorist organizations
- ④ ISIS - women slaves for terrorists

Case Study

⑤ Drug trafficking - provides logistical support and act as informant for terrorism

⑥ Jem uses drug traffickers to monitor border security

Al Qaeda - used smuggling in Europe to fund its terror activities

13. Terrorism to organised crime

① provides security to drug cartels

② Act as market for arms traffickers and human traffickers

③ supports organised crime in its operation

④ kidnapping raising terrorism

Steps needed to curb this menace

① Border security should be enhanced

② comprehensive Integrated Border Management system

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② use of technology to monitor terrorism and organised crime

③ NTRC (National Technical Research Organisation Intelligence)

④ cross collaboration between security forces

⑤ NIA (terrorism) with National Narcotics Bureau

⑥ Sharing of information on all organised crime

⑦ NATGRID

⑧ multilateral cooperation @ UN convention against organised crime and comprehensive

convention on international terrorism

linkage between organised crime and terrorism

should be broken to usher a peaceful world.

Feedback

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Q.20) Strengthening security apparatus in border areas and forging developmental partnerships with the locals are essential components of a robust and effective border management strategy. Discuss, with initiatives taken by the government in this regard. (15 marks, 250 words)

सीमावर्ती क्षेत्रों में सुरक्षा तंत्र को मजबूत करना तथा स्थानीय लोगों के साथ विकासात्मक साझेदारी बनाना एक मजबूत और प्रभावी सीमा प्रबंधन रणनीति के आवश्यक घटक हैं। इस संबंध में सरकार द्वारा उठाए गए प्रयासों के साथ चर्चा कीजिए। (15 अंक, 250 शब्द)

India has a long territorial border of ~15000 km and 7500 km maritime borders that cannot be protected without community participation.

Strengthening security apparatus

- ① Border fencing along international borders
(e.g.) India-Bangladesh borders
- ② Integrated check post → to facilitate movement across the borders
- ③ Strengthening infrastructure — (e.g.) Border Area Development programme
- ④ Technological upgrades — like night goggles and UV to manage border

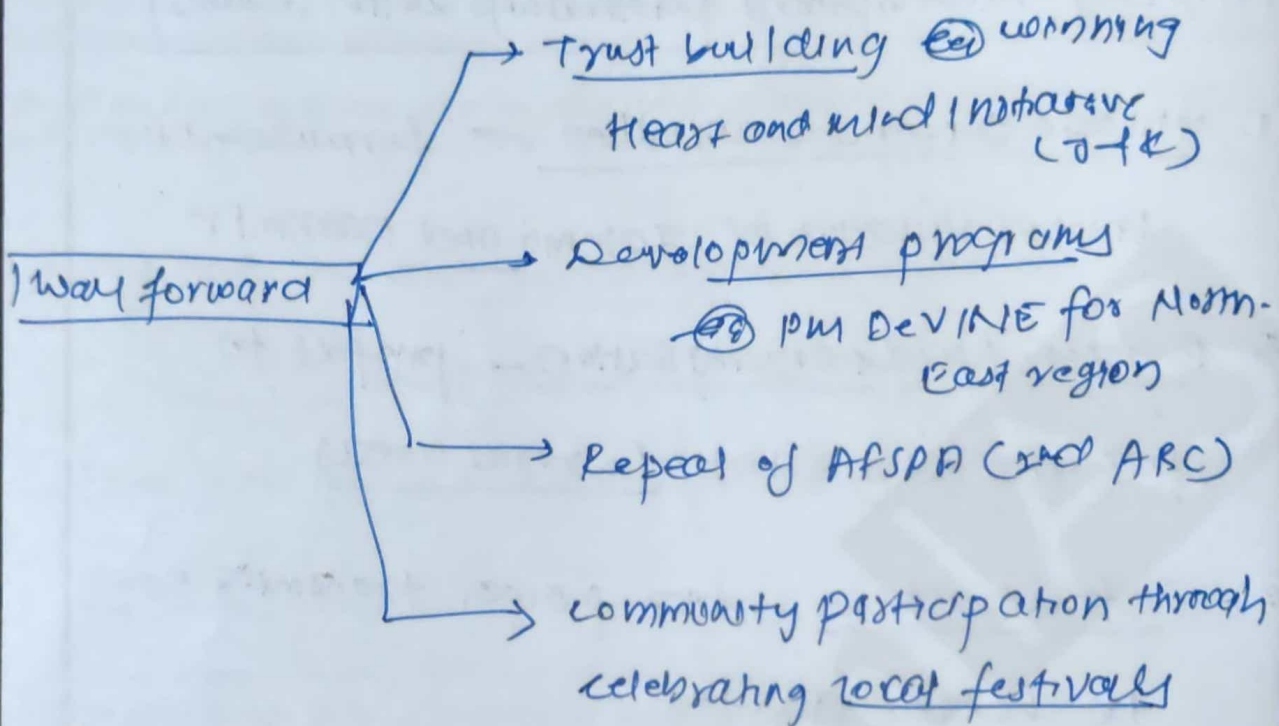
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Forging development partnership with locals

- ① Village Defence committee — formulated in border villages of Jammu and Kashmir
- ② Border Road Organisation — project to provide connectivity to remote areas
- ③ Infrastructure — like power transmission to border villages
- ④ Eco-tourism with villages to promote livelihood for locals

Yet, challenges remain such as

- ① Fragmented approach — like multiple agencies ② North East — Assam Rifles, ITBP
- ② Locals only treated as informants and not as partner — trust issue
- ③ AFSPA violation — creates fear ④ Nagaland Killing of 21 civilians



Both hard (security) and soft measures (local partnership) essential to maintain security apparatus in India.

Feedback

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