

# VISION IAS

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## GENERAL STUDIES (TEST CODE : 2420)

|                   |                        |                     |                       |
|-------------------|------------------------|---------------------|-----------------------|
| Name of Candidate | K. N. CHANDANA JAHNAVI |                     |                       |
| Medium Eng./Hindi | ENGLISH                | Registration Number | 719172                |
| Center            | ONLINE                 | Date                | 22 <sup>nd</sup> JULY |

### 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 **HINDI & ENGLISH**.  
इसमें बीस प्रश्न हैं हिन्दी और अंग्रेजी 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।

16-B, 2<sup>nd</sup> Floor, Above National Trust Building, Bada Bazar Marg, Old Rajinder Nagar, Delhi-110060

Plot No. 857, 1st Floor, Banda Bahadur Marg (Opp Punjab & Sindh Bank), Dr. Mukherjee Nagar  
Delhi- 110009

## 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.

1. भारत में राज्यों की राजकोषीय स्थिरता से संबंधित मौजूदा मुद्दों का परीक्षण कीजिए। इन मुद्दों के समाधान हेतु किन उपायों की आवश्यकता है?

Examine the persisting issues related to fiscal stability of states in India.

What measures are needed to address these issues? (Answer in 150 words) 10

RBI's Report on "Finances of States"

outlined that states are crossing the 15th FC and N K Singh Committee recommended 20% of GDP debt levels.

PERSISTING  
ISSUES of  
FISCAL  
STABILITY  
of STATES

1. High Public debt to GDP ratios of states like Punjab, Andhra Pradesh
2. Higher REVENUE expenditure over Capital expenditure  
ex: TELANGANA's revenue expenditure is 33% higher than Capital & INFRA-STRUCTURE investment.
3. Freebies and REVENUE expenditure which is also causing MORAL hazards, ENVIRONMENT impact  
ex: Free electricity

4. LACK of long term financing plans  
leading to "CROWDING OUT" Private sector  
loans and development

5. Issues of climate change, Pandemic on STATE'S  
FUTURE Finances.

ex: HILL states, North East

### MEASURES NEEDED:

- 1) ZERO Budget approach to reduce LEGACY  
expenditure.
- 2) OUTCOME orientation, FRBM implementation  
in spirit for FINANCIAL Propriety.
- 3) MUNICIPAL Bond & user fee models of  
SERVICE delivery for DECENTRALISED Financing  
or "TRICKLE down".
- 4) Ranking States on FISCAL sustainability  
for enhancing ACCOUNTABILITY
- 5) FISCAL council on lines of GST Council  
for Cooperative Federalism.

Prudent steps can help enhance INDIA'S  
vision for SARVA SIDDH Bharat @ 2047.

2. उत्पादन से संबद्ध प्रोत्साहन (PLI) योजना आत्मनिर्भर भारत के लक्ष्य की प्राप्ति हेतु सरकार की प्रकार सहायता कर सकती है? इसके उद्देश्यों को प्राप्त करने में आने वाली चुनौतियों क्या हैं?  
How can the Production Linked Incentive (PLI) Scheme help in achieving an Atmanirbhar Bharat? What are the challenges in realizing its objectives?  
(Answer in 150 words) 10

Production linked incentive scheme (PLI)  
for 14 sectors has been LAUNCHED to  
enhance INDIA's manufacturing base and  
supply chain resilience.

ex: PLI for KSM/API for Pharma  
sector indigenization.

PLI in ACHIEVING ATMANIRBHAR BHARAT

1) Enhance FDI in INFRASTRUCTURE  
of Manufacturing ex: Apple in bringing  
supply chains to INDIA.

2) Reduce IMPORT dependency and  
strengthen global supply chains  
ex: SCRI initiative  
and PLI on APIs.

3) it can enhance Regional Balanced development

ex: PLI in solar photovoltaic cells in Gujarat.

4) It can lead to GAINFUL employment and use of Demographic dividend.

5) lead to reaching MAKE in INDIA target of MANUFACTURING as 25% of GDP.

1) at cost of SMES as PLI is attracting foreign scale.

6. Increase in R&D (0.6% of GDP)

5. PLI also needs stronger imports in first phase.

CHALLENGES in PLI

4. inverted duty structure

2) need grandfather clauses to avoid "MISSING MIDDLE" phenomenon

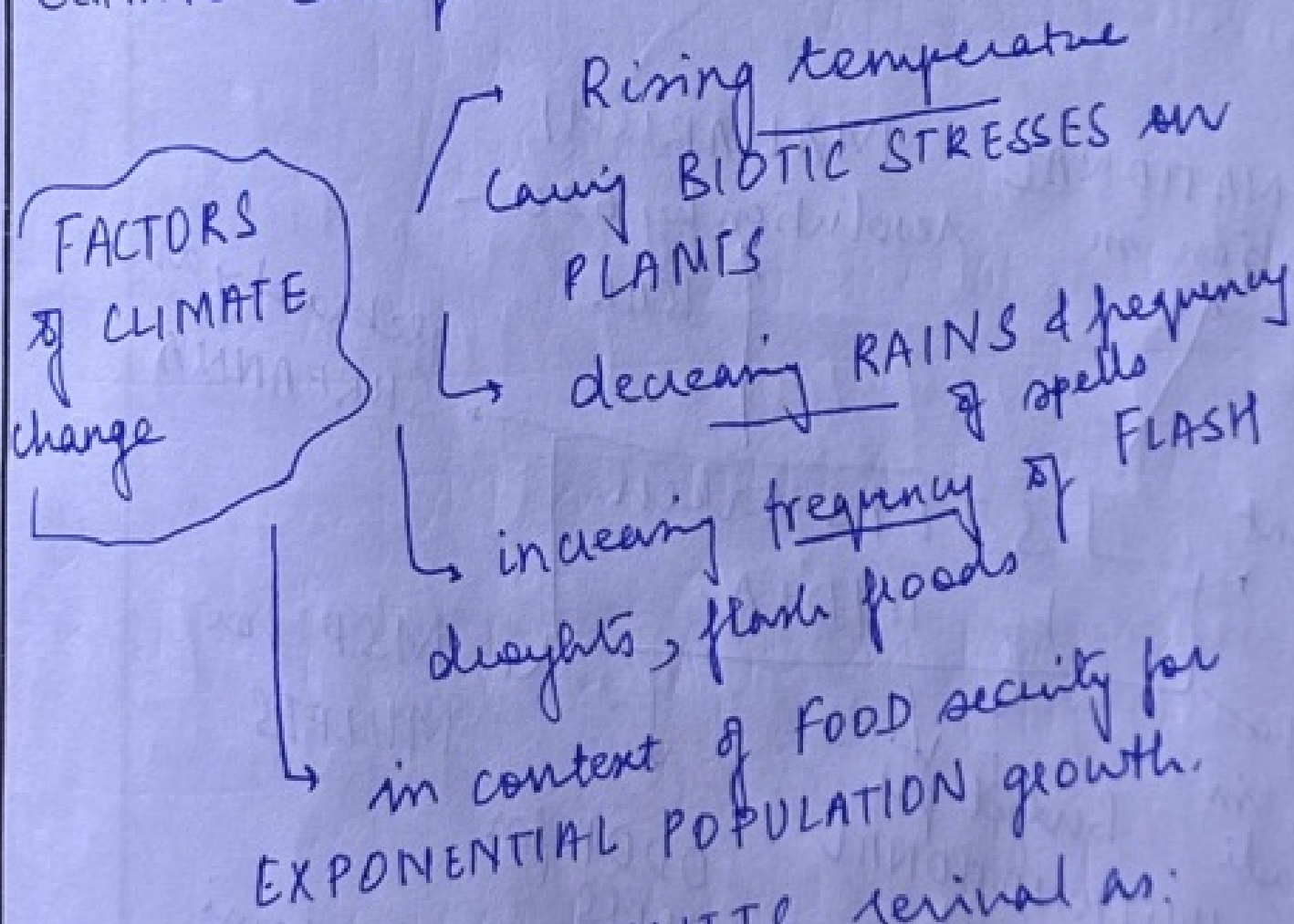
3. PLI needs stronger IPR enforcement.

Thus PLI scheme is only a Complement which must be a prong in bringing INDIA closer to 5 Trillion\$ economy

3. जलवायु परिवर्तन में वृद्धि से मोटे अनाज की खेती का पुनरुद्धार किस प्रकार हो रहा है? भारत में मोटे अनाज के उत्पादन को बढ़ावा देने के लिए सरकार द्वारा क्या कदम उठाए गए हैं?

How is the advent of climate change leading to the revival of cultivation of millets? What steps have been taken by the government to give an impetus to millet production in India? (Answer in 150 words) 10

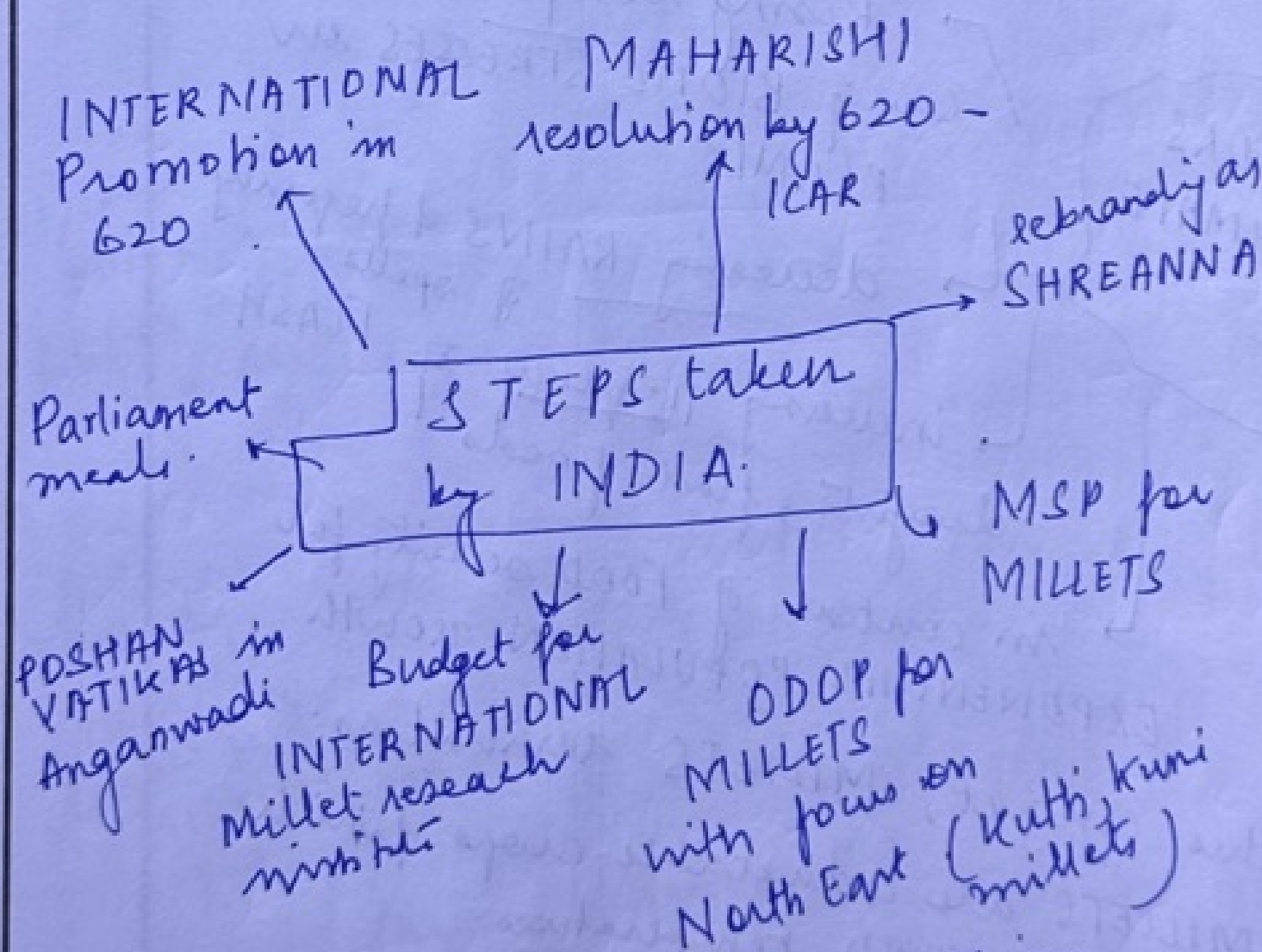
2023 as INTERNATIONAL YEAR of MILLETS  
is INDIA'S pragmatic push for recognizing  
role of MILLETS in strengthening  
AGRICULTURAL resilience in context of  
CLIMATE change.



in this context, MILLETS revival as:

- 1) MILLETS are adaptable crops which can WITHSTAND temperatures.

- 2) Require lesser WATER per capita than RICE (water guzzling crop)
- 3) limited farmer investment in fertilizer, Pesticides
- 4) Can withstand droughts [ABRO climatic STURDINESS]
- 5) strong proteins & vitamin produce to tackle NUTRITION insecurity



Thus INSTITUTIONALIZATION of MILLETS in CLIMATE Smart Agriculture is need of hour for SDG 1, 2, 4, 7.

4. चारे की खराब गुणवत्ता और उसकी अपर्याप्त उपलब्धता भारत में पशुधन की कम उत्पादकता के लिए उत्तरदायी प्रमुख कारण हैं। चर्चा कीजिए।

Poor quality and inadequate availability of feeds and fodder are the major reasons behind the low productivity of the livestock in India. Discuss.  
(Answer in 150 words)

10

As per LIVESTOCK Census, 2019, INDIA has largest LIVESTOCK population with BUFFALDES as highest, while its Productivity is 3 times lower than AUSTRALIA, NEW ZEALAND (FAO report)

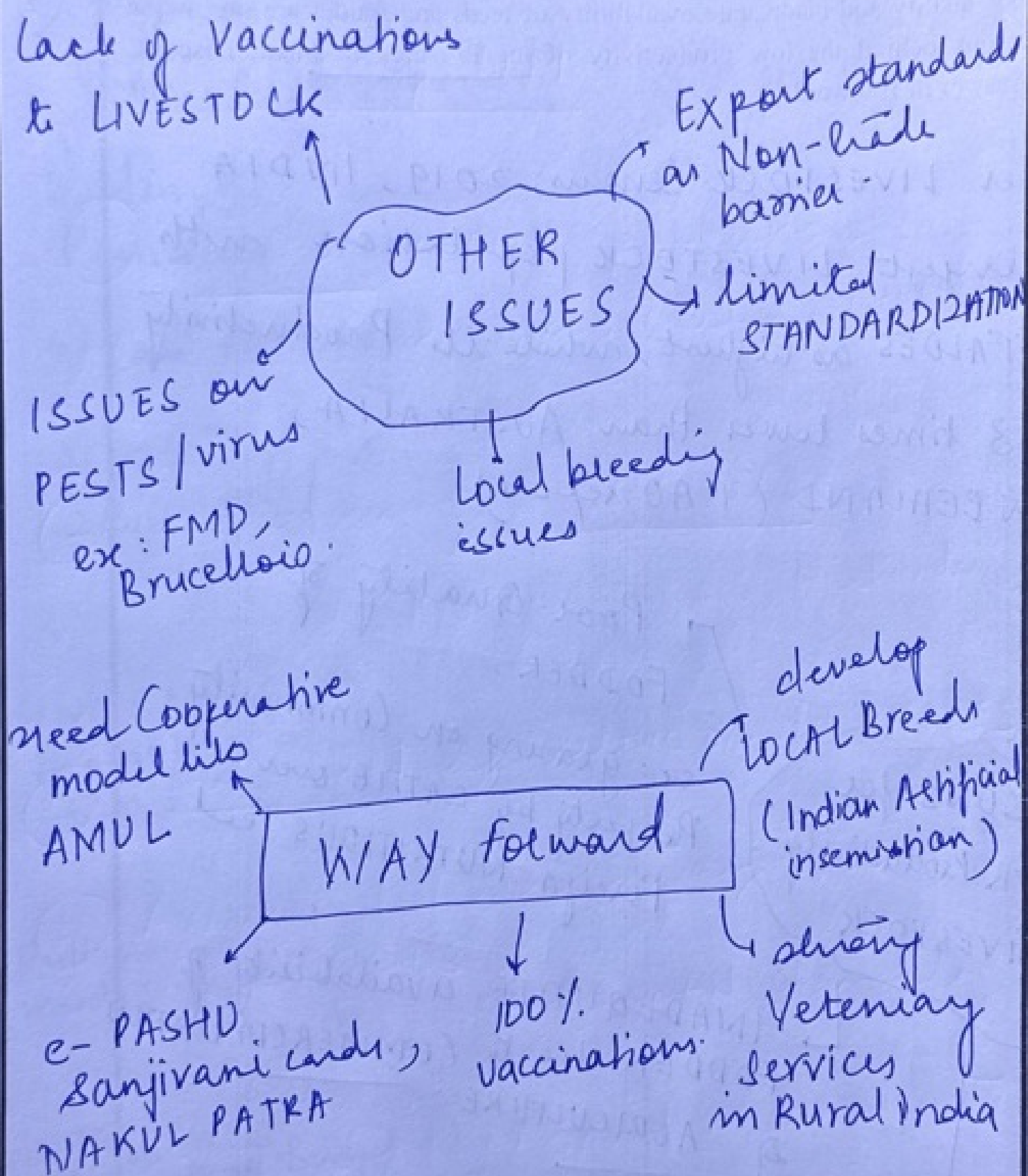
REASONS for  
LOWER Productivity  
of LIVESTOCK

Poor Quality of  
FODDER.

ex: grazing on Community  
Property by CATTLE over  
Foreign NUTRITIOUS feed

INADEQUATE availability of  
FODDER due to COMMERCIALIZATION  
of AGRICULTURE.

→ Livestock only as an supplementary  
"tool" in Agriculture.

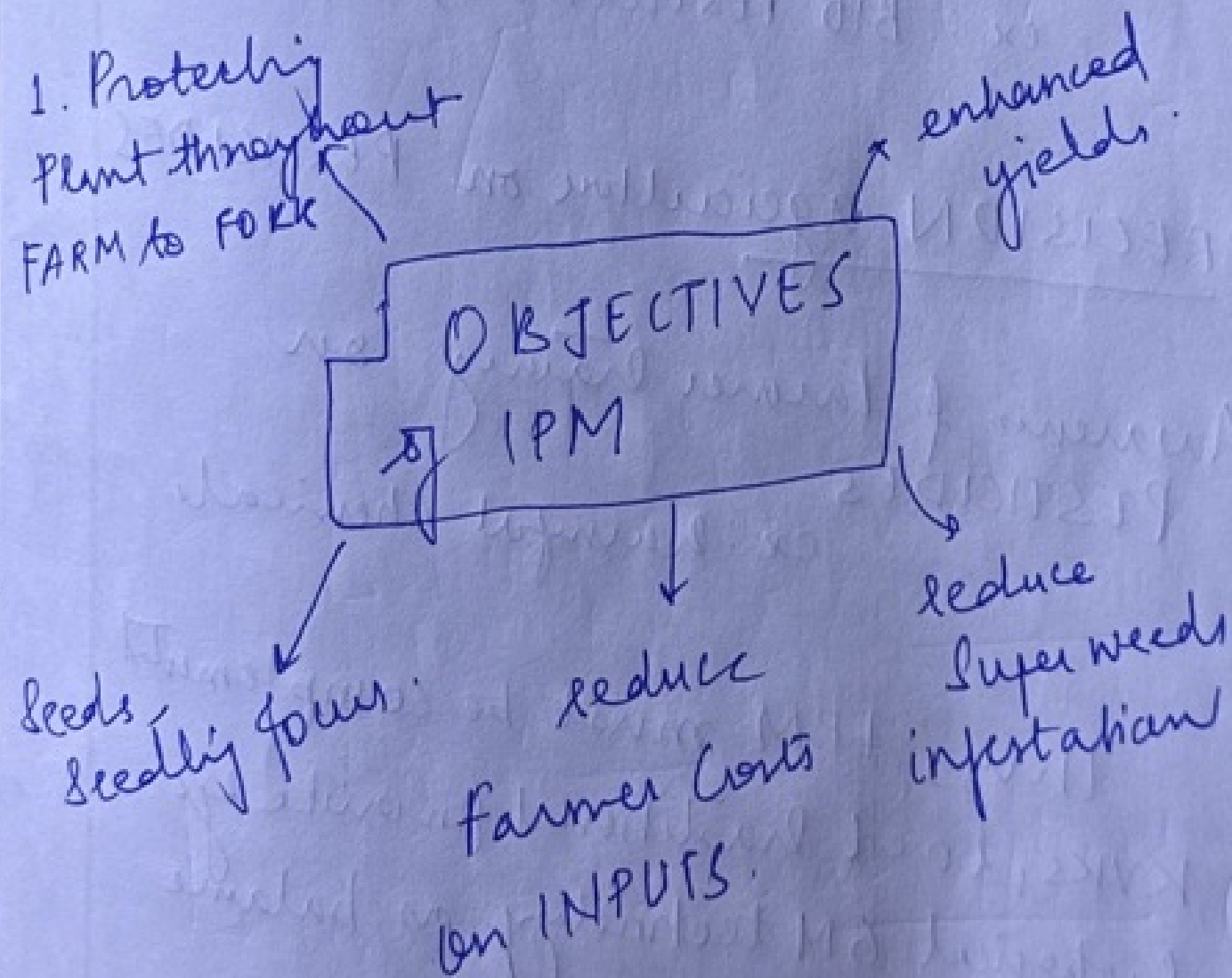


As per Dalwai Committee, LIVESTOCK and MIXED farming must be central key for Doubling farmer income & rural prosperity.

5. एकीकृत कीट प्रबंधन (IPM) क्या है? IPM के उद्देश्यों पर प्रकाश डालते हुए, इसके विभिन्न घटकों पर चर्चा कीजिए।

What is Integrated Pest Management (IPM)? State its objectives and discuss its various components. (Answer in 150 words) 10

INTEGRATED Pest management (IPM) is holistic mission on ensuring safety, security & sustainability of crops in lifecycle from seed to grain.



## COMPONENTS of IPM

- ① SEED & SEEDLING protection  
ex: Neem coated SEEDS
- ② Reduced use of PESTICIDES  
ex: BIO PESTICIDES, Herbicides
- ③ PRECISION agriculture on PESTICIDES
- ④ Awareness of farmer training on  
PESTICIDES  
ex: harmful chemical

Thus, IPM must be complemented  
with KVKS, local traditional knowledge  
and Biological GM technology as balance  
for FOOD & NUTRITION security.

6. आपदा जोखिम न्यूनीकरण में अंतर्राष्ट्रीय सहयोग के महत्व की व्याख्या कीजिए। भारत ने आपदाओं को कम करने के लिए क्षेत्रीय सहयोग को मजबूत करने के लिए क्या पहल की है?
- Explain the significance of international cooperation in disaster risk reduction. What initiatives has India taken to strengthen regional cooperation for reducing disasters? (Answer in 150 words) 10

Hyogo Framework followed by SENDAI Framework for "DISASTER RISK reduction" highlight need for INTERNATIONAL cooperation in DISASTER adaptation, mitigation.

### SIGNIFICANCE of INTERNATIONAL Cooperation :

1. in line with SDG 17 - creating SUSTAINABLE Partnerships built on PEACE & MUTUAL respect [Article 51]
2. Tackle TRANSNATIONAL Impact of disaster  
ex: LOCUST attack and effects from AFRICA upto INDIA.
3. Rise of CLIMATE Change driven frequency of disaster
4. Provide BEST Practices and co-ordination  
ex: INDIA's Operation Dost for Turkey

5. BUILD on "PEOPLE FIRST" approach  
ex: Fast fund mobilization for  
HADR activities, UN peace keeping forces  
in disaster mitigation.

### INITIATIVES taken by INDIA.

- 1) Centre for Disaster Resilient Infrastructure (CDRI) for strengthening research & development.
- 2) DISASTER Aid & Humanitarian Assistance in Region  
ex: Operation Neele for MALDIVES.
- 3) Capacity Building of Forces with JOINT partnerships
- 4) INDIAN Ocean regional centre for TSUNAMI.
- 5) role of NET Security provider in INDIAN Ocean as "FIRST responder"  
[VISION: Sagar]

Thus INDIA as "AAPDA MITRA" is setting  
an example which must be complemented with  
strong funding, partnerships

7. अत्यधिक और अविवेकपूर्ण रेत खनन की पारिस्थितिक लागत इसके आर्थिक लाभों से कहीं अधिक है। संधारणीय रेत खनन के महत्व के संदर्भ में चर्चा कीजिए।

The ecological cost of excessive and indiscriminate sand mining far outweighs its economic benefits. Discuss in context of the importance of sustainable sand mining. (Answer in 150 words)

10

Sand mining from areas of river front, agricultural areas, coastal zones in excess and unregulated manner has high Tradeoff costs for ECOSYSTEM as a whole.

CONSEQUENCES  
of Excessive  
sand mining

1. Loss of WATER  
reservoir barrier.  
ex: SAND as tool of  
ground water nourisher

2. Leads to RIVER  
channel dislocation  
ex: Assam floods.

3. impacts Biodiversity  
ex: Turtle mass breeding  
ARIBADA in Chilika.

4. SALINE water INTRUSION  
and reduce crop yields  
ex: COASTAL Kerala.

5. Also reduces mitigation in  
disasters like Cyclones, Tsunamis,  
Floods.  
ex: Cyclone Amphan.

1. as per LAWS  
on SAND MINING.  
(mineral  
mineral as  
per STATES)

SUSTAINABLE  
SAND MINING

5. Strengthen  
local coastal  
ecosystems

2. Respecting  
RIVER ecological  
flow.

3. using  
m-SAND as  
Alternative

4. geotextiles  
in construction  
(technical  
textiles)

Thus, Sustainable mining can  
help in SUSTAINING local ecosystems  
and balance priorities of development  
& sustainability.

8. थिएटराइजेशन योजनाओं के पीछे निहित तर्क पर चर्चा कीजिए, जो भारत में रक्षा बलों को विशिष्ट थिएटर कमांड में एकीकृत करना है। इससे जुड़ी चुनौतियां क्या हैं?

Discuss the rationale behind theaterisation plans, which seek to integrate the defence forces into specific theatre commands in India. What are the associated challenges? (Answer in 150 words) 10

As outlined in Kargil Review Committee & Shethkar Committee, THEATRIZATION of Commands of Army, Navy and Airforce under unified leadership has been envisioned.

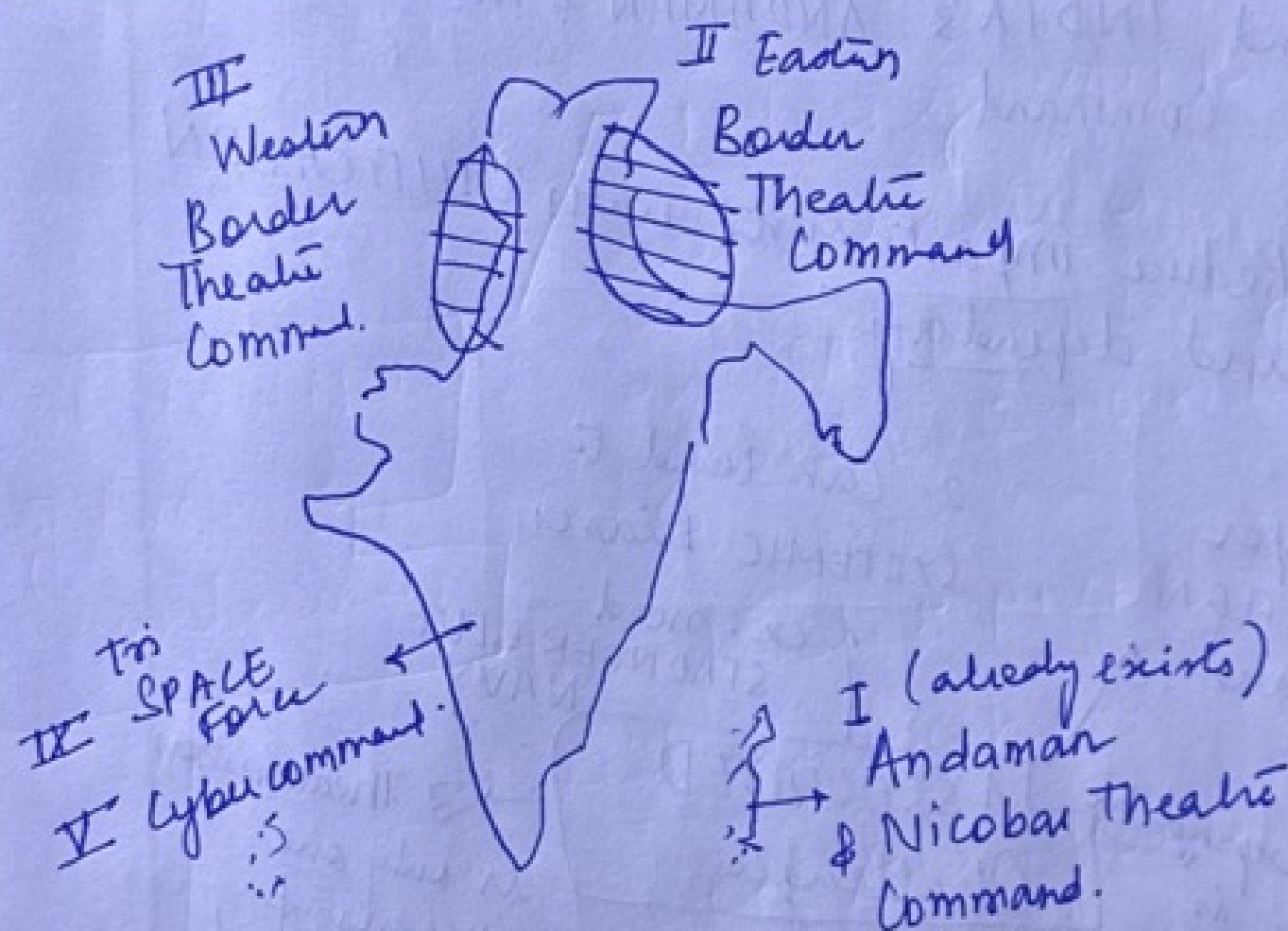


Fig: Theaterization.

FACTORS  
RATIONALE

1. Better Effective and Efficient usage of ASSETS

ex: Vehicles, manpower, Jets across  
forces in UNIFIED attempt

2. BRING single authority over assets  
for UNIFIED action

ex: today, disjointed over  
SEPARATE legal acts

3. Threat of 2.5 front war for INDIA

4. Successful studies from CHINA, US  
and INDIA'S ANDAMAN & NICOBAR  
Command

5. Reduce import costs with UNIFICATION  
and dependency

1. Time for  
INTEGRATION  
of Commands.

2. Can lead to  
SYSTEMIC Biases

↑ ex: need  
STRONGER BLUE  
NAVY

6. Capital expenditure  
in defence is  
LOW (66% on  
revenue)

ASSOCIATED  
Challenges

→ 3 Theaterization  
as only one  
means &  
not an end.

↓  
5 need to  
enhance R+D

↓  
4. Challenge of  
hybrid warfare

Thus phase wise integration + feasibility  
studies must be prioritized for Sovereignty of India

9. व्याख्या कीजिए कि धन शोधन (मनी लॉन्ड्रिंग) के लिए शेल कंपनियों का उपयोग कैसे किया जाता है। भारत में धन शोधन के लिए शेल कंपनियों के उपयोग को रोकने के लिए क्या कदम उठाए गए हैं?

Describe how shell companies are used for money laundering. What steps have been taken to curb the use of shell companies for money laundering in India? (Answer in 150 words) 10

Shell Companies are "ON Paper Companies" that perform no-substantial legal activity and showcase funds that are appropriated from ILLEGAL modes [WHITIZATION of BLACK Funds]

### ROLE of COMPANIES in MONEY LAUNDERING

STEP I: Creation of shell company under COMPANIES Act, 2013 in INDIA.

↓  
STEP II: Create SUBSIDIARIES in TAX HAVENS like MAURITIUS, CAYMAN ISLANDS

↓  
STEP III or 1st PHASE of Money LAUNDERING in INTERNATIONAL Bank accounts and Foreign Subsidiaries.

PLACEMENT of Funds.

↓  
STEP IV

[Layer] funds as source  
of BUSINESS transaction

↓  
STEP V in INTEGRATION of funds  
via shell companies as  
Proceeds in NATIONAL  
and usual business domain

1. Role of FATF.  
Recommendation  
or IMPLEMENTATION

step of  
Demonetization  
in 2016.  
to find  
shell companies

2. Companies  
Act 2013  
amendment on  
Winding up companies  
ex: Shell  
Company Ltd.

MEASURES  
taken to curb  
shell companies

3. Prevention  
of money laundering  
Amendment on Accountability  
of CA/CS

4. Strengthening  
PMLA, POCA  
(Legal framework)

Thus, DETERRENCE framework must go hand  
in hand with strong ENABLING framework.  
(ex: Honey the hunter)

10. भारत ने हाल ही में अपना पहला जैविक डेटा केंद्र स्थापित किया है। इसके उद्देश्य और महत्व क्या हैं?

India has recently set up its first Biological Data Centre. What are its objectives and significance? (Answer in 150 words) 10

MINISTRY of Science and technology and  
DEPARTMENT of Biotechnology has set up  
India's first Biological Data Centre (IBDC) in  
FARIDABAD, Haryana.

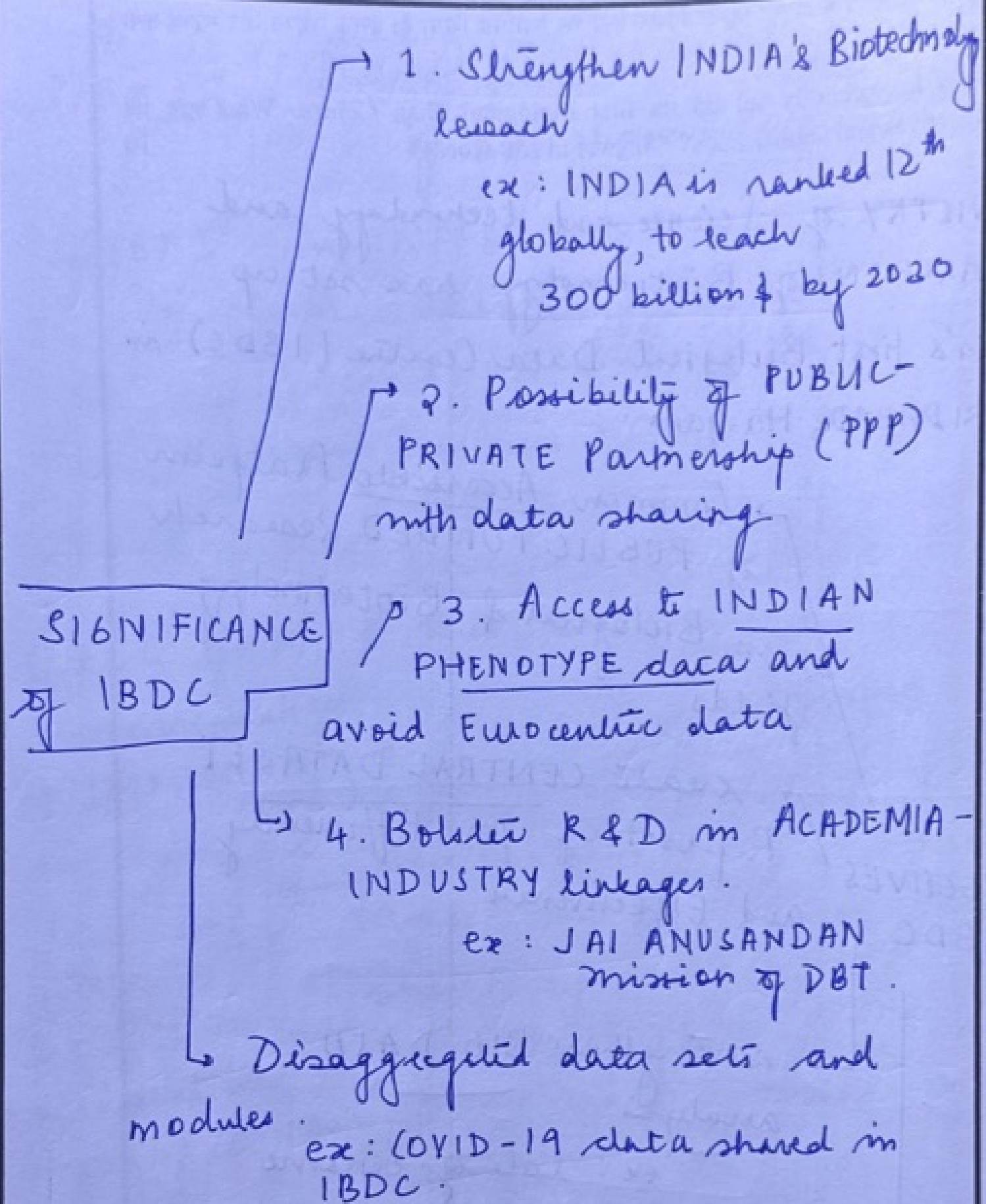
→ Common Accessible Platform  
of PUBLIC FUNDED Research  
in Biological & Biotechnology  
fields

OBJECTIVES  
of IBDC → create CENTRAL DATASET  
Repository for Efficiency  
and Effectiveness

→ strengthen BIO DATA  
analysis

ex: role of genome  
Sequencing in COVID-19

→ Enhance ease of research and  
availability of POOLED research  
options



However, IBDC needs to be strengthened with SOPs, IPR protection, enhanced funding for it to be strong pillar in INDIA's NATIONAL BIOTECHNOLOGY growth strategy.

11. भारत में तीव्र शहरीकरण को देखते हुए, शहरी क्षेत्रों में पूंजी निवेश की बढ़ती मांग को पूरा करने के लिए म्युनिसिपल बॉण्ड्स का उपयोग करना आवश्यक हो गया है। चर्चा कीजिए।  
In view of India's rapid urbanisation, it has become imperative to tap into municipal bonds to meet the rising demand of capital investment in urban areas. Discuss. (Answer in 250 words) 15

As per UNFPA's report, from today's 33%, 45% of INDIA's population will be living in cities by 2045. This rapid pace of urbanization can be seen in MUSHROOMING cities, slum proliferation, unplanned urbanisation, push and pull factors of migration.

This provides CONTEXT for need to TAP into MUNICIPAL BONDS for urban INFRASTRUCTURE INVESTMENT:

1) High dependence of Urban Local Bodies on grants as per FINANCE Commission.

2) Limited state level fund devolution and FUNCTIONAL devolution as per NITI Aayog report.

3) Rapid Pace of Urbanization

ex: Delhi's population density  
is enhancing to 900-1000 <sup>people</sup> / sq km.

4) ISSUES in REGIONAL balanced development

ex: SMART CITIES MISSION of 100 cr to  
100 cities is not effective in tackling  
Regional development.

5) Lack of urban finances to tackle issues  
of FLOODS, heat waves, cold waves

① Reduce dependence  
on GRANT driven  
FINANCING.

⑥ Growing in  
PRIVATE sector  
Funds.

② Promote  
FISCAL  
Propriety

Role of  
MUNICIPAL  
BONDS

⑤ Enhance  
CAPITAL  
Expenditure.

③ PERFORMANCE  
ORIENTATION  
for lower rates  
of INTEREST

④ Competitive  
mode of DEVELOPMENT  
between Urban Bodies  
(Decentralisation  
of COMPETITIVE  
spirit)

### ISSUES in MUNICIPAL BONDS

- 1. Lack of Precedents in many urban local bodies  
ex: PUNE's action plan on Municipal Bonds.
- 2. Shortage of FUNCTIONARIES in ULB for utilizing funds.  
ex: 4F course as per National INSTITUTE of Panchayati Raj
- 3. Lack of credit rating framework for Municipal Bonds.
- 4. Need long term planning & stability.
- 5. Need themed MUNICIPAL Bonds & include "SOCIAL impact investing".

Budget 2023's grant linked to Municipal Bonds channelizing for RESOURCE mobilization must be linked to Planning, local employment generation, CITY specific development models.

12. भारत ने आर्थिक संवृद्धि, महिला शिक्षा और प्रजनन दर जैसे विभिन्न विकास मानदंडों पर महत्वपूर्ण प्रगति हासिल की है। हालांकि, देश की महिला श्रम बल भागीदारी दर (FLFPR) वैश्विक स्तर पर सबसे कम है। चर्चा कीजिए। भारत में FLFPR में सुधार के लिए कौन-से कदम उठाए जा सकते हैं?
- India has achieved significant strides in various development parameters such as economic growth, women's education, and fertility rates. However, the country's Female Labour Force Participation Rate (FLFPR) remains amongst the lowest in the world. Discuss. What measures can be taken to improve the FLFPR in India? (Answer in 250 words)

15

INDIA has enhanced various socio-economic indicators with Proactive Policies, targetted approach and vision of "LEAVING NO one Behind".

### INDIA'S SIGNIFICANT STRIDES

1. INDIA has pulled out 40 crore from poverty in period of 1990-2011.
2. As per IMF, INDIA with 6.3 - 6.4% growth is GLOBAL Bright spot in era of global slowdown.
3. Women's 100% GER ratio as per ASER in Primary level.
4. INDIA produces highest Women STEM graduates (38-39% of global women STEM)

5. As per NFHS 5, INDIA has reached  
2.0 or <sup>near</sup> Replacement level Total Fertility  
ratio (TFR)

Despite this, recent NSS survey showed FLFPR  
of women at 25.8%, which is very low in  
world.

Ex: US and China have > 40%.

FACTORS  
for low  
FLFPR

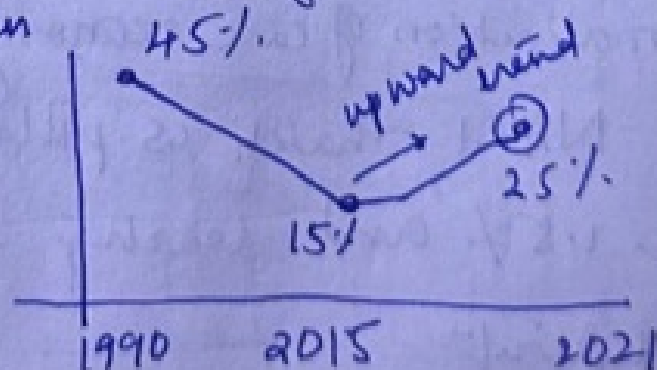
1. HISTORICALLY, low investment  
in girl child education and  
handoff to Dowry savings

ex: NITI Aayog on girl child  
"crowding in" in public schools.

2. ISSUES of Rising Household  
income on Restricting Working Women

ex: HARYANA case study

3. as per ES 2018-19, higher education  
PULL has led to temporary drop in  
women participation



4. Problems of FEMINIZATION of low wage sectors leading to Lack of SKILLING, upward mobility

ex: tailoring, agriculture labour.

5. ISSUES of SAFETY, transport and migration vis a vis other gender

ex: sexual harassment in work place.

STEPS needed to strengthen FLFPR:

1. JAYA JAITLEY Committee recommendation on enhancing MARRIAGE age to 21 for enhancing INVESTMENT in girl education

2. GENDER AFFIRMATIVE policies in employment, Entrepreneurship

ex: MUDRA Yojna.

3. skilling women for enhanced GAINFUL employment

ex: MAHILA Shashaktikaran Yojna on women SHG driven vocationalization

4. Role model of women ex: SEVA of Ela Bhatt.

5. Formalization of care economy for 3% GDP.

Thus, NARI Shakti is pillar for enhancing INDIAN GDP by 1.5% and launching SDG 5 in LETTER & spirit.

13. फसल कटाई के बाद की मूल्य श्रृंखला में अक्षमताओं के कारण लघु और सीमांत किसानों की आजीविका पर अत्यधिक प्रतिकूल प्रभाव पड़ने के साथ-साथ फसल की हानि हो रही है। भारत के संदर्भ में चर्चा कीजिए। इन चिंताओं को दूर करने के लिए सरकार ने क्या कदम उठाए हैं?

The inefficiencies in post-harvest value chain are leading to crop losses, with significant adverse impact on the livelihood of small and marginal farmers. Discuss in the context of India. What steps has the government taken to address these concerns? (Answer in 250 words) 15

As per FAO report, almost 33% of crop is lost in wastage, inefficient storage during POST harvest which is valued at 18,000 crore worth losses impacting 86% of INDIA's farmers who lack scale.

ex: recent TOMATO INFLATION vs  
small and marginal farmer dumping tomatoes  
at ₹ 1.00 each

ISSUES in  
INDIA'S  
POST Harvest  
Value chains

1. INFORMATION asymmetry  
at FARMER LEVEL on  
Prices.

2. Lack of transport to  
MANDIS

ex: NITI aayog proposed GraAMS  
for VILLAGE level procurement.

3. LIMITED storage for Small & marginal farmers.

ex: Lack of cold chain storage for HORTICULTURE.

4. HIGH Perishability of food grains, produce.

ex: PEST attacks

5. LOWER realised income of farmers due to POST Harvest losses, as per DALWAL Committee.

ex: 10,000 per month farmer income in er of 9% - 6% inflation YoY.

6. Lower agricultural marketing and lack of CONTRACTUAL farming practices.

ex: repeated farm LAWS.

STEPS TAKEN by GOVERNMENT

1. e-NAM: DIGITIZATION of ONE NATION - ONE MARKET for farmer price realisation by SFAC.

2. Creation of 10,000 FPOs to enhance  
BUYER-SELLER negotiations

ex: ONE DISTRICT One Product  
model FPOs

3. Loans to FPOs as Priority sector  
lending ex: FPO in enhancing cold chain  
storage infrastructure.

4. Women driven SHGs for storage as  
"DHANYA LAKSHMI" (gainful employment)

5. Promoting FOOD Processing as Sunrise  
Sector via - SAMPADA Yojna, TRIFOOD,  
etc.

6. Schemes such as PM-AASHA for  
price deficiency support.

Thus, this must be complemented with  
push for KRISHI Udan, KISAN rails,  
e-NAM universalisation, Food Processing  
to enhance storage, value and in turn DOUBLE  
farmer income as per DALWAI Committee.

14. ऊर्जा क्षेत्र के संदर्भ में डीकार्बोनाइजेशन, विकेंद्रीकरण और डिजिटलीकरण की प्रवृत्तियां तेजी से उभर रही हैं। चर्चा कीजिए।  
When it comes to the energy sector, the trends of decarbonisation, decentralisation and digitisation are fast emerging. Discuss. (Answer in 250 words) 15

Energy sector in midst of rapid climate change, events of PANDEMIC and Russia-Ukraine war is seeing trends of "3Ds" - decarbonising, decentralization and digitization

### DECARBONIZATION of Energy sector.

1. GLOBAL North on Coal Phase out (reduce CO<sub>2</sub> emissions)  
ex: INDIA greening COAL sector with FLY Ash policy
2. Rise in EVs over fossil fuel powered vehicles.  
ex: FLEXI Fuel policy on automobiles
3. GREEN hydrogen and GREEN Ammonia policy (17000 crore in Budget 2023)
4. Building Advance Chemical cells for energy storage (Li ion cells)

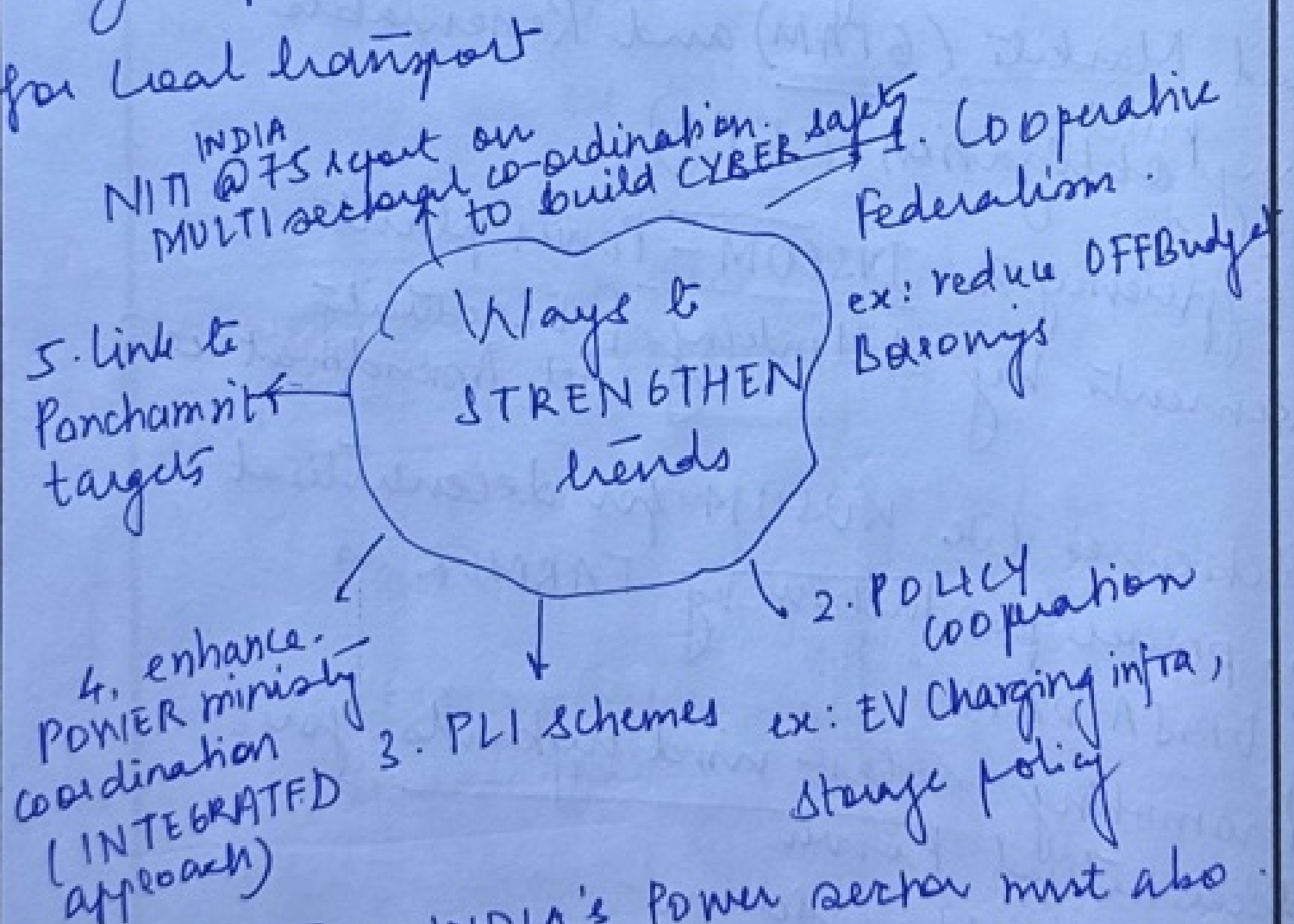
5. Recent SEBI's Yellow Bands for Solar energy
6. Focus of India on RENEWABLE energy [Panchmit strategy on 500 GW from Renewable energy]

### DECENTRALISATION of POWER sector

- ① recent Policy on Green Trade Ahead Markets (GTAM) and Renewable energy <sup>purchase</sup> obligation (RPO)
- ② Efficiency in DISCOM - Power plant agreements by delinking [Electricity Act Amendment 2020]
- ③ Schemes like KUSUM for decentralized solar power production by FARMER as "URJA DATA"
- ④ Promoting solar-wind hybrids for decentralized power
- ⑤ SOLAR Charkha Scheme -

## DIGITIZATION of POWER sector

1. SMART METERS at Consumer end for PLANNED & Proactive consumption (SDG 12)
2. reducing INEFFICIENCY in transmission  
ex: AT & C losses
3. GREEN GRIDS initiative of INTERNATIONAL solar alliance (ISA)
4. Focus of ONE NATION ONE GRID, digital portals like KOYLA, PRAKASH for local transport



Thus, INDIA's Power sector must also build on trends to ensure energy for all and LEAVE no one behind

15. भारत में रासायनिक आपदाओं को कम करने संबंधी चुनौतियों पर चर्चा कीजिए। इन चुनौतियों का समाधान कैसे किया जा सकता है?

Discuss the challenges in mitigating chemical disasters in India. How can these challenges be addressed? (Answer in 250 words) 15

"Bhopal Gas Tragedy" is a grim reminder on need to MITIGATE Chemical Disasters Proactively, as outlined in INDIA'S NATIONAL DISASTER RISK and Management Strategy, 2016.

### CHALLENGES in CHEMICAL DISASTERS:

1. Lack of CLEAR Industrial zone mapping for HAZARD zonation.
2. Decentralized and small chemical plants that make regional specific planning difficult.
3. Lack of SOPs, inspections of chemical plants  
ex: VIZAG Styrene gas leak

4. Limited Capacity of INDUSTRY Inspector for PERMITS.

5. Lack of technology, R & D in chemical safety procedures.

ex: Flue gas desulphurization to avoid FLAMMABILITY

6. Labour awareness and occupational health hazards.

ex: Loss of lives in Fertilizer PLANT Mumbai

7. limited Public awareness on tackling gas leaks and fires in VICINITY

8. LACK of EFFLUENT treatments

ex: Ludhiana H<sub>2</sub>S linked deaths due to untreated effluents.

ADDRESSING challenges:

1) Mainstreaming Chemical disaster lessons in form of BHOPAL GAS tragedy

and ways to reduce DISASTER risks.

- 2) SPECIAL onsite inspections and surprise inspections-
- 3) using Prime Minister's 10 POINT agenda ex: AAPDA MITRAS
- 4) ZONATION of INDUSTRIAL zones and mapping harmful gases & effluents
- 5) Capacity Building of NDRF, local fire authorities
- 6) Mock drills in VICINITY areas  
ex: Covering nose,  
wet cloth on eyes, ears
- 7) Sharing Best Practices National  
ex: Platform (NPDRR)

Thus, Sendai Framework must be  
INSTITUTIONALISED proactively to SAVE  
LIVES and avoid disaster

16. जलवायु क्षतिपूर्ति (क्लाइमेट रेपेरेशन) के विचार से आप क्या समझते हैं? इस विचार को वर्तमान संदर्भ में लागू करने की आवश्यकता पर चर्चा कीजिए। इसके कार्यान्वयन के समक्ष आप क्या चुनौतियां देखते हैं?

What do you understand by the idea of climate reparations? Discuss the need to implement this idea in the current context. What are the challenges you foresee in its implementation? (Answer in 250 words) 15

CLIMATE REPARATIONS refer to payments by DEVELOPED world that utilized high emissions based DEVELOPMENT at cost of today's LEAST developed countries.

ex: it is analogous to War time reparations imposed on GERMANY in World War - I.

3. DISPROPORTIONATE IMPACT on Poor & LDC

ex: SIDS and rising sea level.

2. needed to ACHIEVE PARIS Agreement

ex: AR6 report on URGENTLY to stop emissions

1. Built on GLOBAL EQUITY and CLIMATE JUSTICE.

4. GLOBAL Carbon space MONOPOLY by GLOBAL North

ex: INDIA only accounts for 3% per capita emission

FEATURES

CLIMATE REPARATIONS

5. in line with

"CBDR-RC principle

of Rio Summit.

- 1. To achieve NET Zero EMISSIONS by 2050 and also in EBUITABLE manner
- 2. PARIS agreement mandated Technology transfer and Funding are not in PACE to restrict temperature to  $1.5^{\circ}\text{C}$  above INDUSTRIAL level.
- NEED to IMPLEMENT CLIMATE Reparations → 3. Warsaw Loss & Damage Fund is not enough for SMALL ISLAND States, Global South.
4. IMPACT of CLIMATE change felt on GLOBAL South while CAUSE was GLOBAL North  
ex: POLLUTER must PAY principle.
5. in line with BRUNTLAND Commission's OUR COMMON FUTURE.

CHALLENGES in IMPLEMENTATION :

1) LACK of RESPONSIBILITY for HISTORICAL EMISSIONS  
ex: PARIS agreement built on  
"Current needs over PAST actions"

2) APPROPRIATION of share of reparations  
in GLOBAL NORTH

ex: Europe, USA may want inclusion  
of China and India also in "DEVELOPED"  
nations.

3) EQUITABLE sharing to GLOBAL SOUTH  
which is spread in LATIN America, Africa,  
Asia, Islands.

4) ISSUE of ONE-time payments and MISUSE

ex: CONFLICTS in Sudan, dictatorships

Thus, "Climate Reparation" must be used  
as principle for bringing CLIMATE justice.  
via LOSS & DAMAGE funding, faster technology  
transfer, longer timeline for NET2050 to global  
South

17. अदृश्य युद्ध (इनविजिबल वारफेयर) क्या है? भारत की सुरक्षा के समक्ष उत्पन्न होने वाली चुनौतियों को ध्यान में रखते हुए, अदृश्य युद्ध के खतरे से निपटने के लिए उठाए गए कदमों पर चर्चा कीजिए।  
What is invisible warfare? Keeping in view the challenges it poses to India's security, discuss the steps that have been taken to tackle the menace of invisible warfare. (Answer in 250 words) 15

INVISIBLE WARFARE refers to activities carried out by STATE and non state actors that are "non-conventional", owing to which are unaccounted and invisible to INDIA'S security infrastructure.

Forms of  
INVISIBLE  
WARFARE.

1. LONE wolf attacks are form of INVISIBLE warfare.  
ex: attacks in JAMMU in 2023

2. INFORMATION warfare via Negative Propaganda.

ex: recent FARMER protest and TOOLKIT [DISHA Rai case]

3. Role of Foreign funded NBOs in ANTI-national development activities  
ex: FCRA regulation on Amnesty International.

#### 4. Radicalization with Fundamentalism

ex: ZAKIR NAIK videos that has led  
to UAPA ~~restrictions~~ stringent  
prohibitions.

#### 5. CYBER espionage and TERRORISM that are invisible

ex: impact on CRITICAL INFORMATION  
INFRASTRUCTURE (CI) on Power lines,  
Banks.

CHALLENGES  
Posed by  
INVISIBLE  
Warfare &  
SECURITY

1. LACK of THREAT VISIBILITY  
for PLANNING and STRATEGY.

2. DIFFICULTY in force  
Co-ordination and deployment  
ex: CYBER command &  
TR Force Space command.

3. IMPACT of FAKE NEWS on  
LAW & order situations.

4. Difficulty in creating DETERRENCE  
due to archaic LAWS, acceptance of  
digital evidence & Pendency in COURTS.

## STEPS taken to counter INVISIBLE WARFARE :

- 1) PIB's FACT CHECKER on GOVERNMENT ACTIVITIES
- 2) IT INTERMEDIARY GUIDELINES 2021 on "Source track" and removing objectionable content.  
ex: MANIPUR horrific video and removal from TWITTER in 24 hours
- 3) FCRA guidelines on TRANSPARENCY in Foreign Funding
- 4) UAPA amendment on naming INDIVIDUAL as Terrorists
- 5) OPERATION Sadbhawna to tackle radicalization by Army.

Thus, INVISIBLE Warfare's threats must be countered by COMMUNITY centric approach, awareness and Proactive nature of state

18. भारत की राष्ट्रीय सुरक्षा को बनाए रखने में भू-स्थानिक डेटा और संबद्ध तकनीकों के महत्व पर चर्चा कीजिए।

Discuss the significance of geospatial data and associated technologies in safeguarding the national security of India. (Answer in 250 words) 15

GEOSPATIAL data refers to "EARTH referenced" data on positions, locations, terrain, imaging that AID in enhancing Awareness of particular region, which in turn are crucial for INDIA'S NATIONAL SECURITY.

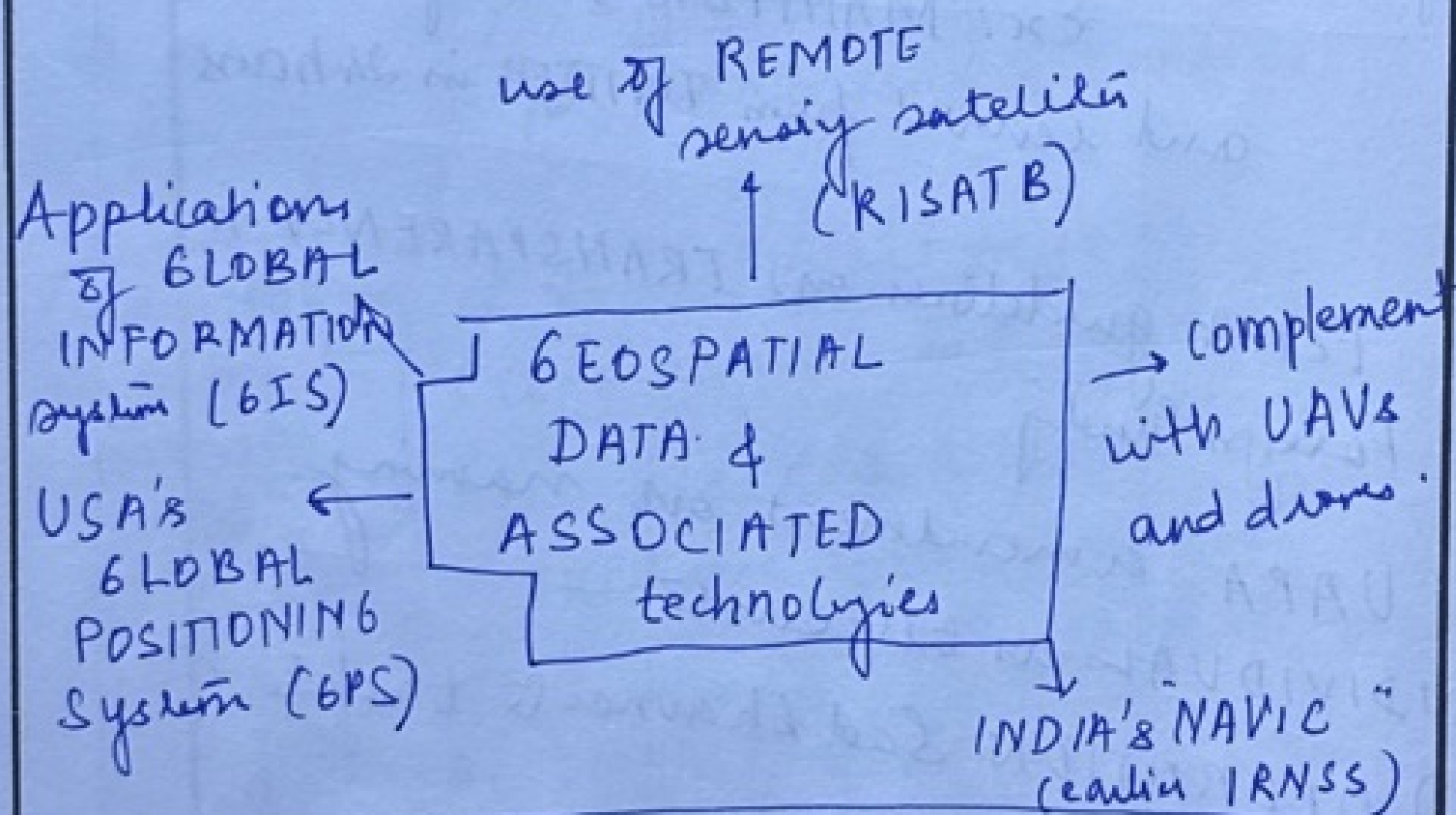


Fig: Various technologies.

SIGNIFICANCE

of Technology & Data

1. HELP in checking EXTERNAL threats

ex: using REMOTE sensing images

to see Border INCURSION activity along LAC.

2. Enhance TERRAIN specific training for forces  
ex: LTBP personnel trained as per hilly and rocky terrain

3. Co-ordinate activities along maritime border.

ex: NATIONAL geospatial tech policy outlines COMPLETE maritime border outlining for NAVY-COAST GUARD - Police unison

4. Protect SAFETY of MILITARY sites

ex: NAVIC's RESTRICTED SERVICES (RS) for MILITARY sites

5. Protect NUCLEAR establishments & CRITICAL INFORMATION INFRASTRUCTURE (CII) from cyber terrorism.

### ISSUES in GEOSPATIAL DATA & tech

→ LOW resolution MAPPING,  
with GIS in comparison to  
US, China's BAIDU.

→ Limited R & D funding of  
INDIA (0.7%) which is  
PUBLIC sector driven

→ STARTUPS in GEOSPATIAL  
technology are limited due  
to Restrictions

→ Rise in HYBRID way are  
that needs COMPLEMENTARY  
approach

→ need stronger updation of GIS &  
GPS data for ACCURACY

hence, potential must be leveraged through  
IMPLEMENTING Geospatial technology policy 2022,  
training personnel and investing in R & D for  
TERRITORIAL Sovereignty, Unity and INTEGRITY of India

19. शिक्षा में कृत्रिम बुद्धिमत्ता (AI) का अनुप्रयोग पारंपरिक शिक्षण विधियों में कैसे क्रांति ला सकता है और छात्रों के लर्निंग आउटकम्स में सुधार कर सकता है? व्याख्या कीजिए।

How can the application of artificial intelligence (AI) in education revolutionize traditional teaching methods and improve student-learning outcomes? Explain. (Answer in 250 words) 15

AI is one of the EMERGING technologies of INDUSTRIAL SOCIETY 4.0 where Algorithms can ensure MIMICKING HUMAN INTELLIGENCE.

ex: today's GENERATIVE AI in form of CHATGPT 4.0 of OPENAI, BARD, Google Nest etc.

ROLE AI can PLAY in REVOLUTIONIZING TEACHING METHODS

1) It can reduce time spent by teachers on Administration work.

ex: NIEPF report highlighted that Teachers spend only 19% time in Core Teaching.

2) Reduce MANUAL work of teachers

ex: ATTENDANCE collection, Homework checking

3. Aid in LESSON PLANNING and attaining  
LEARNING OUTCOMES as per NEP 2020

ex: NEP visions teachers as core  
pillar in OUTCOME approach

4. COMPLEMENTARY AID in enhancing STUDENT  
Understanding

ex: AI can help cross language barriers for  
migrant children

5. using AI for STANDARDIZATION of  
GRADING.

ex: eliminate teacher & human biases.

6. Enhance Teacher - Parent - Child interaction  
for PERSONALISED monitoring

ex: PARAKH Portal of MoE to  
have AI Module.

ROLE in STUDENT'S LEARNING OUTCOMES

1) AI can ensure FOCUSED monitoring  
of each STUDENT instead of group

approach

ex: PERSONALISED remedial  
courses

- 2) It can counter student stigma in  
approaching for doubts with INTERACTIVE  
MODULES.
- 3) Complement CLASSROOM teaching with  
PERSONALISED TESTS, ASSIGNMENTS
- 4) It can eliminate LANGUAGE Barrier in  
MULTICULTURAL Society like INDIA.
- 5) Maintain clear record of student  
Performance & outcomes that can propel  
DEMOGRAPHIC DIVIDEND

However excessive AI can lead to student  
dependency, issues of PLAGIARISM, addiction  
which INHIBIT holistic growth

"AI for ALL" strategy lead with Article 21A  
must help in optimal use of AI for education  
of INDIA'S Bright future

20. भारत में परमाणु प्रौद्योगिकी के विकास में होमी जहांगीर भाभा का योगदान क्या है? क्या आपको लगता है कि भारत को अपनी ऊर्जा सुरक्षा सुनिश्चित करने के लिए परमाणु ऊर्जा के विकास को प्राथमिकता देनी चाहिए?

What are the contributions of Homi Jahangir Bhabha in the development of nuclear technology in India? Do you think India should prioritise the development of nuclear energy to ensure its energy security? (Answer in 250 words)

15

HOMI. J. BHABHA is known as "FATHER of INDIA'S NUCLEAR PROGRAMME", is known as PIONEER in INDIA'S SCIENCE & TECHNOLOGY VISION during Post Independence Era.

CONTRIBUTIONS  
of HOMI BHABHA

1. PLAN: Created the 3 STAGE NUCLEAR Plan for INDIA tapping nuclear energy

I  $^{235}\text{U}$  PRESSURISED HEAVY WATER Reactor

II Plutonium FAST Breeder Reactors

III. Thorium fuelled Reactors

2. Created INSTITUTIONS like Atomic Energy Regulation Council (AERC) and BARC in Trombay is named after Bhabha

3. Role in Formulating ATOMIC Energy Act

4. Created strong FUNDAMENTAL SCIENCE  
Research institutions like TIFR for applying  
nuclear energy in Medicine, Food technology

ex: today  $\gamma$  irradiation tech in  
FOOD Safety.

His all round developments have led to  
INDIA'S 6780 MW power coming from  
Nuclear energy.

NUCLEAR  
energy in  
INDIA'S  
energy security

1. Currently 1.6% of  
TOTAL Power capacity,  
as per IAEA can be doubled  
by INDIA by 2032

2. High import dependency  
on Oil & NATURAL  
gas. (80%)

ex: Supply chain issues  
seen during COVID & war.

3. Ensure DIVERSIFICATION of  
Sources of ENERGY Basket as INDIA'S  
energy is to EXPONENTIALLY GROW.

4. Nuclear energy is Renewable in comparison to Fossil Fuels.

ex: nuclear fuel of  $U^{235}$  can run small modular reactor for 3-7 years.

5. LOWER Carbon Footprint due to almost NO emissions.

6. Essential for INDIA'S PANCHAMRIT strategy to be Carbon neutral by 2040.

1. SAFETY:  
Fukushima Daiichi  
Plant &  
recent closedowns  
in GERMANY

2. PUBLIC APPREHENSIONS  
ex: Protests in Kudankulam

ISSUES  
in Nuclear  
energy

4. not part  
of NUCLEAR suppliers  
group and low access to  
Uranium, Plutonium.

3. R & D  
investment is  
0.7% with  
low internal  
INDIGENIZATION  
ex: Russian  
dependency with  
Kudankulam

Thus, Nuclear energy challenges must be  
countered with CIVIL agreements, Public awareness  
and stronger implementation of SoP & Safety for