Evolve IAS
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Geography Test Series 2022

TEST - 06

GEOGRAPHY

Time Allowed: 3 *Hrs.* | *Max. Marks: 250*

Instructions to Candidate

- **Please read each of the following instructions carefully before attempting questions.**
- **There are EIGHT questions divided into TWO SECTIONS and printed in ENGLISH.**
- **The candidate has to attempt FIVE questions in all.**
- **Question Nos. 1 and 5 are compulsory and out of the remaining, THREE are to be attempted by choosing at least ONE question from each Section.**
- **The number of marks carried by a question/part is indicated against it.**
- **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 a medium other than the authorized one.**
- **Word limit in questions, wherever specified, should be adhered to.**
- **Illustrate your answers with suitable sketches/maps and diagrams, wherever considered necessary. These shall be drawn in the space provided for answering the question itself.**
- **Attempts of questions shall be counted in sequential order. Unless struck off, the attempt of a question shall be counted even if attempted partly. Any page or portion of the page left blank in the Question-cum-Answer Booklet must be clearly struck off.**

Name ABHISHEK RANJAN

Mobile No. _____

1. *Invigilator's Signature* _____ *Date* _____

2. *Invigilator's Signature* _____ *Signature* _____

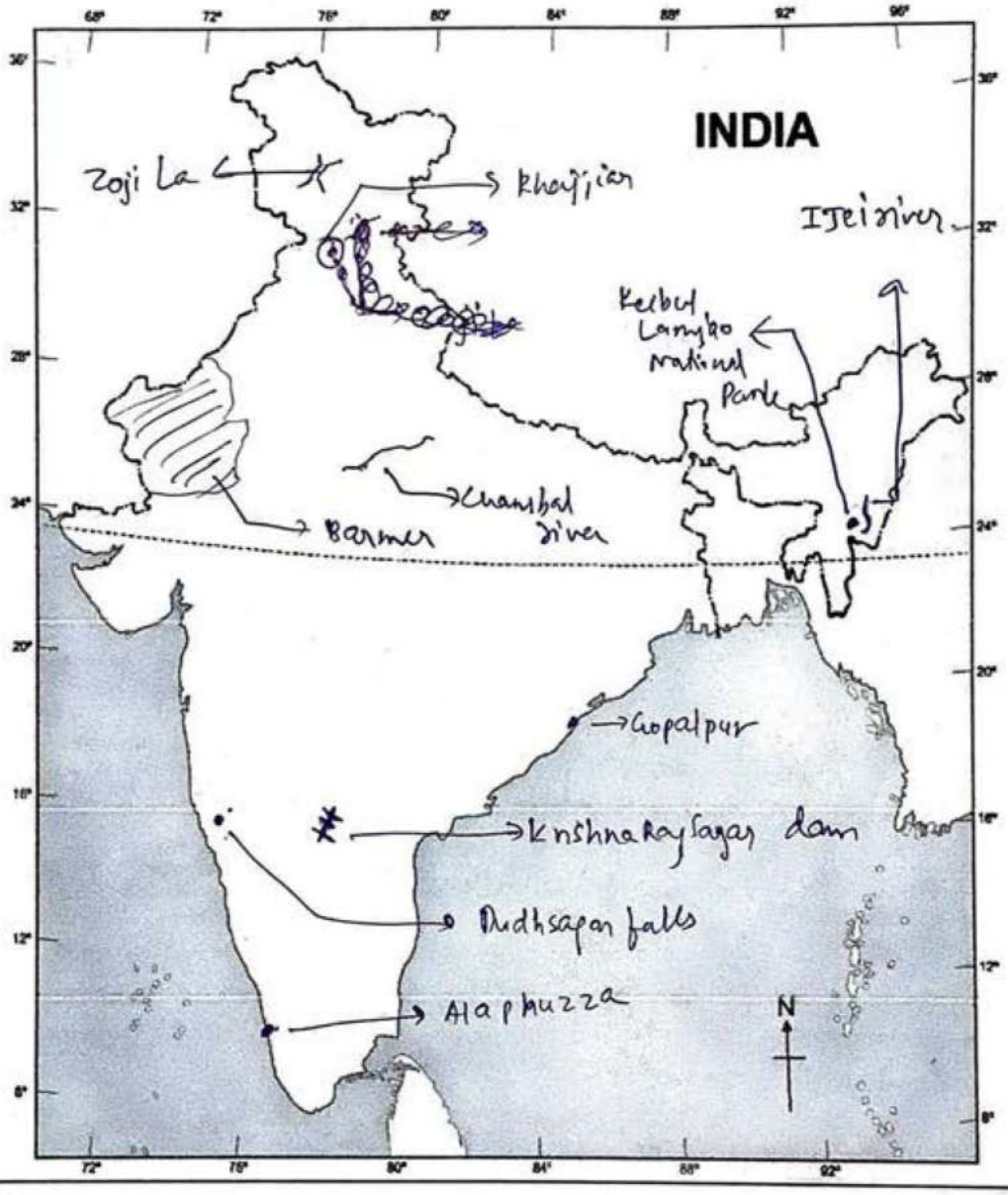
REMARKS

Roll No._____

Section - A

1. (a) Locate these map entries on the map and write about 50 words: (20 Marks)

i) IJAI RIVER
ii) Dudh Sagar
iii) Keibul-Lamjao
iv) Barmer
v) ALAPHUZZA
vi) Zoji la
vii) Gopalpur
viii) Krishnaraja sagar dam
ix) Khajjiar
x) Chambal River



Remarks

(ii) IJAI river

- river flowing in manipur
- passes through Tupul village → recently in news for landslide and many deaths of construction workers

(ii) Dudhsagar

- waterfalls on Mandovi/ Mahadayi river in Goa in Mollem district
- located inside Bhagwan mahavir wildlife sanctuary in western Ghats

(iii) Keibul Lamjao ~~node~~

- National park in manipur
- only floating park in India and world
- floating plants called Phumdi
- recently people protested to prevent govt. shift heritage centre from here to other place

(iv) Barmer

- one of largest districts in Rajasthan
- famous for its vegetation like khejari, Ber, etc.

Remarks

↳ majority part lies in Thar desert.

↳ Emergency landing facility of IAF inaugurated.

(v) Alapuzzha

↳ City in kerala

↳ known for houseboat cruises in kerala backwaters.

↳ called "Venice of the east".

↳ National waterway 3 passes through it.

(vi) Zoji La

↳ high mountain pass

↳ in Ladakh (UT)

↳ connects kashmir valley to Dras, Kargil

↳ remains closed during winters

↳ recently opened for civilian traffic over Ladakh from Sonmarg

(vii) Gopalpur

↳ ~~Port~~ deepsea port in Odisha state on eastern coast

↳ natural

↳ Just below mouth of Rushikulya river → Olivea Ridley turtle breeding point

Remarks

↳ INS khanjar called at this post for Azadi Ka Amrit mahotsava

(viii) Krishnarajsagar dam

↳ in mandya - karnataka
↳ On river Cauvery (Brahmagiri hills originates)

(ix) Khajjiar

- Called "mini Switzerland of India"
- hill station in Himachal pradesh
- News: Khajjiar lake is on verge of extinction due to shrinking

(x) Chambal river

- tributary of yamuna
- create badlands / ravine topography in chambal region.

Remarks

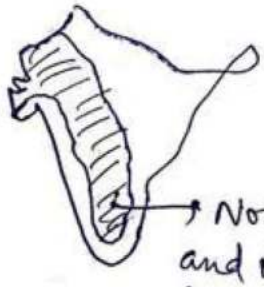
1. (b) Write a short note on Dry Land farming. **(150 Words) (10)**

Dry land farming is peculiar characteristic of regions with annual rainfall less than 75 cm.

Dry land farming areas of world

Characteristics of dry land areas

1. **Low rainfall**
   - coincide with low rain areas and, semi-arid regions. eg. India
   - mostly rain dependent



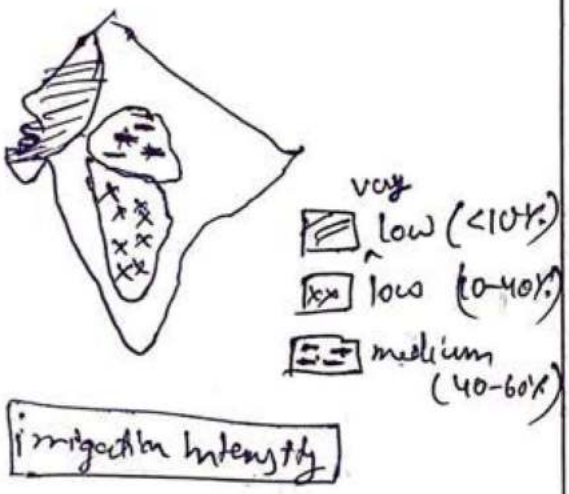
→ Northwest and interior of Peninsula

Remarks

② **Lack assured irrigation**

↳ poor irrigation Coverage

↳ low to medium irrigation Intensity



irrigation intensity

③ **Mainly Subsistence**

↳ occupied by small marginal farmers

↳ low income, low risk

↳ drought prone areas eg. Vidarbha Marathawada

↳ unemployment in case of monsoon failure

Maharashtra
Agriculture census data
↓
79.52% small, marginal farmers

④ **Importance of allied** → Livestock, fisheries, horticulture

↳ 70% of agri-GDP of arid and 40% of semi-arid regions

⑤ **Culture of Common pool resources** → more successful Co-operatives

Environmental constraints limit production in such regions due to limited carrying capacity. Thus instead of agriculture as sole sector, need for diversifying economy.

Remarks

1. (c) Write a short note on Role of digital India mission in rural development.
(150 Words) (10)

Time and space are resources, availability and unavail-ability of which supports or constrain human activity. Digital connectivity brings contraction in time-space continuum.

Digital India mission with its ~~abi~~ objective to provide digital infrastructure as core utility to every citizen brings development in various aspects of ~~soci~~ rural life.

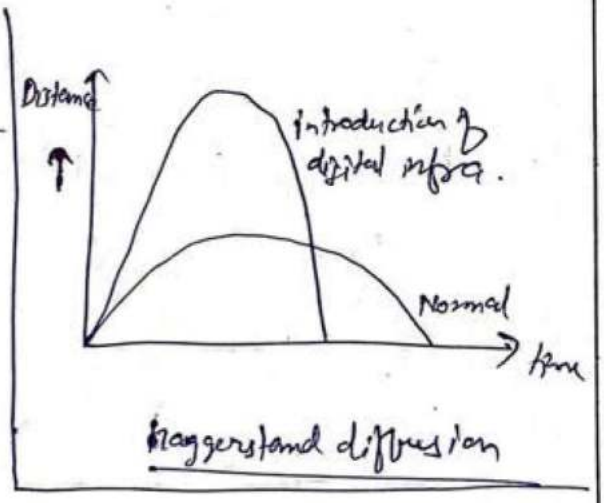
(A) **Information diffusion**

↳ always protracted in time & limited in space

↓

~~Digitize~~ Digital connections reduce time & expand space

↓



eg. SMS-based farmer advisories, info on climate predictions, satellite based crop monitoring etc. would help agriculture development.

(B) **Rise of Platform economy**

Remarks

↳ accessibility to skills increased irrespective of geographical barriers

↓

thus provide livelihood → increase income → reduce dependency on agriculture.

(C) Footloose industry → formalisation

↳ especially IT services → boost employment in region due to better 5G technology under PM-WANI (digital India)

(D) CREDIT access → Financial inclusion

↳ PM KISAN Samman Nidhi → 10 crore families benefited help realise one nation, one aasp

↳ improved banking facilities → 16 lakh crore transacted in 6 years of Digital India

(5) Social development

↳ e-pathshala, e-telemedicine could help improve literacy of rural areas (less than urban), improve IMR, MMR.

Data and demographic dividend would make this decade as "India's techade".

Remarks

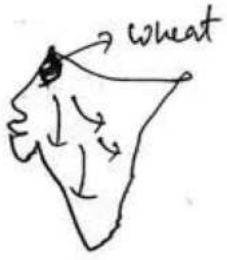
1. (d) Write a short note on Green revolution in India. **(150 Words) (10)**

Till mid 1960s, focus was on increasing area under agriculture. However, rapid population rise and incapacity of food systems to meet demand called for action to ~~immedia~~ increase yield which came in form of Green revolution. (GR)

Green Revolution focused 3 basic elements —

- High yield variety seeds (HYVs), fertilisers, pesticides.
- mechanisation to promote commercialisation
- increasing irrigated areas.

Phases of GR → Evolution



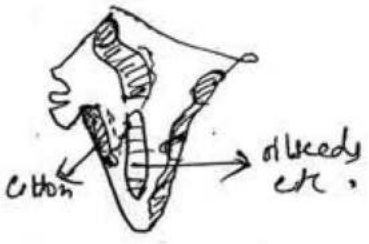
I^st phase

↓

Wheat core area in Northwest

II^nd phase

Wheat areas expanded + Rice core areas



III^rd phase

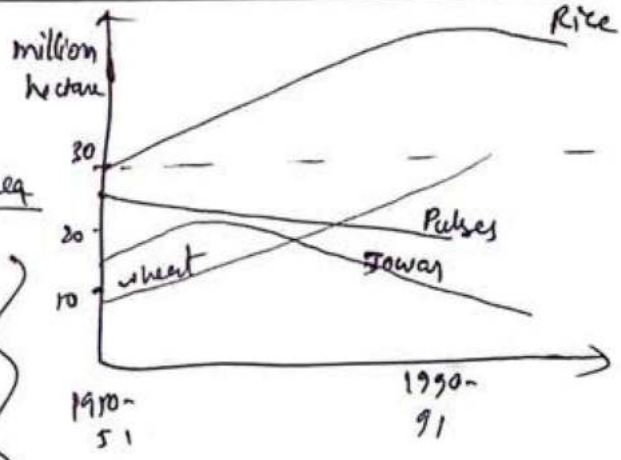
Wheat, rice + newer crops → yellow revolution, cotton, sugarcane.

Remarks

Impact of GR

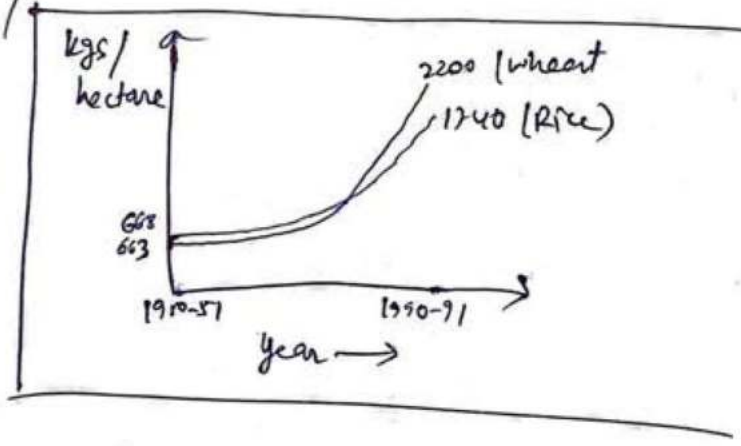
① Rise in production area of various cereal crops.
↓
Rise in wheat

② Fall in area under pulses, millets such as jowar



→ Thus change in cropping pattern

③ Rise in yield improving food sufficiency
↓
Despite fall in area, even pulses yield increased from 441 kg/hectare to 630 (1999-2000)



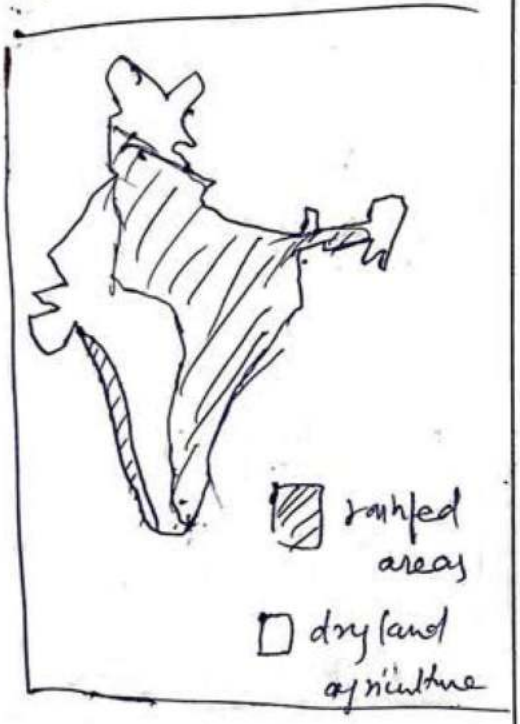
However, the benefits of green revolution has saturated now and creating ecological problems as evident in Punjab. Monocropping & cereal-centric production adding to soil degradation. Thus, there is a demand for 2nd green revolution with more focus on sustainable methods of production for longevity.

Remarks

3. (a) **More than 2/3rd of Indian agriculture is dependent on erratic Indian monsoon. Discuss the importance of soil moisture map, water productivity mapping of Indian crops and role of institutions such as Revitalizing Rainfed Agriculture (RRA) Network in improving Indian agriculture.** **(250 Words) (20)**

Rain-fed areas of India produce nearly 90% of millets, 80% oilseeds, pulses, 60% cotton & support 40% of population, 60% of livestock.

These areas have little or no irrigation. Thus these areas impacted due to erratic nature of monsoon



(1) Monsoon breaks

(2) El Nino - La Nina frequency disturbed due to climate change

(3) Topography & relief
↳ many interior monsoonal rain falls drastically

(4) Winter rain in Coromandel only while western disturbance in North west

(5) Large geographical spread
↳ almost 2 months to cover whole India while 1.5 months to retreat.

Remarks

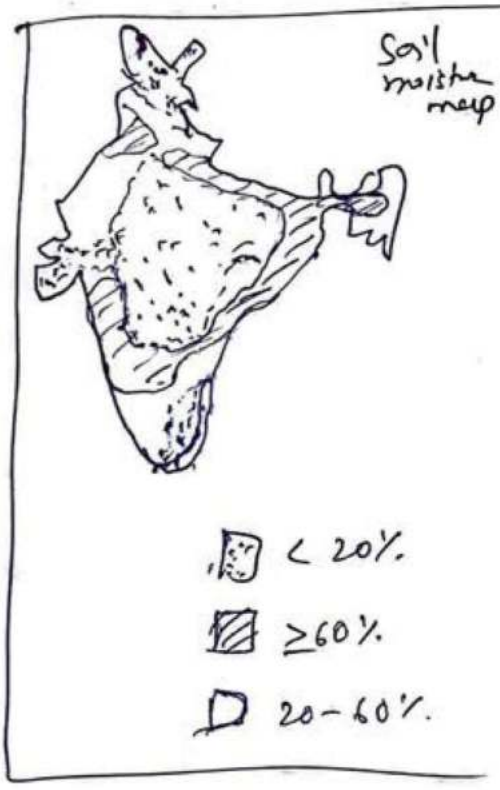
Thus, soil moisture map, water productivity mapping and RRA networks offers following benefits :-

(A) Soil moisture map

↳ help gauge need for irrigation

↳ crop combination as per moisture content in soil

↳ avoid water logging issues



(B) Water productivity mapping of different crops

(1) Water guzzlers

eg. paddy & sugarcane

↳ consume more than 60% of water available in country

However, despite good amount of water in eastern states, they lag in rice production due to poor crop

Remarks

productivity per unit of water consumed.

↳ Thus, productivity mapping could help

(i) reorient crop selection of area

(ii) prevent salinisation or excess water use due to waterlogging.

(iii) reduce input cost on irrigation by using precision agriculture

(iv) help maintain soil fertility without affecting production

(c) RRA

↳ Network of civil society organisations, researchers, practitioners and policy makers with vision to establish productive & resilient rainfed agriculture.

↳ provides advantages like

→ policy thinking & action within a paradigm relevant to needs of rainfed farmer

→ facilitates & catalyses unity in action towards

Remarks

evolving policy narrative based on evidence & grassroots innovation

→ delivery of investment in rainfed areas

↳ RRA works in 12 states through pilot projects.

↓

Thus as per areal differentiation (considering uniqueness of place) & thus correcting agro-ecology.

Case study : RRA in Rajasthan

↳ Projects undertaken
- Khaif campaign for food crops
- Camel milk collection
- RRAN – Tribal

RRA Presence

However, other steps for Indian agriculture are :-

(1) Land consolidation → First need to digitise land records
eg. DILRMP scheme

(2) Procurement → assurance for non-cereal crops too

(3) Covering irrigation areas

PM-Krishi Sinchayee yojana could provide the required impetus.

Remarks

3. (b) Write about the different schemes launched under National Mission on Electric mobility. How these schemes are helping to make electric vehicles more affordable? (200 Words) (15)

Under National electric mobility mission Plan, govt. is targetting to achieve 6-7 million sales of electric & hybrid vehicles in India by 2020.

NEMMP is a composite scheme focusing on

→ demand side incentives
→ promoting R&D in technology
→ promoting charging infra.
→ supply side incentives,
→ encouraging retro-fitment of hybrid kits of on-road vehicles.

(1) Department of heavy industry launched FAME scheme under NEMMP.
↳ to boost electric & hybrid-tech

(2) Also govt came up with FAME II to provide incentive for public transport in localities
↳ 10000 crore outlay for 3 years.

(3) other steps

Remarks

↳ Reduce rates of GST

↳ sale of electricity as 'service' for charging

↳ permit exemptions for battery powered vehicle

↳ tax breaks on loan amount taken for purchase of EV

(4) Schemes supporting mobility

↳ reforms in DISCOMs → for electricity

↳ Renewable parks

↳ Vehicle scrappage policy → to remove outdated IC-engine automobiles from road.

↳ PLI Schme for ACC & Auto-Automotive components (batteries

Helping make EVs affordable

(1) GST

↳ @ 12% (no cess)

while conventional is taxed @ 28% with 22% cess

(2) Tax incentives of different states

Case study : FAME Scheme

↳ a nodal body Inter-Ministerial Technology advisory group setup

↳ long term projects underway under auto cen funded R&D program

↳ Industry - academia Collab industry RPI projects

↳ of global 8 million EV fleet, 1.3 million is in India

Remarks

eg. Bihar → ₹10000 /kWh & 100% road tax exempted

(3) Create an EV ecosystem

PLI → battery components & battery
↓
Cost reduction by agglomeration

Tax breaks to EVs

Renewable energy (reducing cost)

'Electricity' as service
↓
less cost

Vehicle scrappage
↓
getting certificates could be used for buying vehicles further reduce cost.

However, affordability of EVs is affected by :-

(1) Cost of batteries eg. Tata Nexon → battery pack cost Rs. 7 lakh (more than 50%)
↓
due to supply chain issues, lack of Lithium production & monopoly of few states

(2) Limited charging infrastructure & Range anxiety → only 2.1% of global vehicles fleet is comprised by EVs.

India is one of few countries focusing on EV@30 campaign. It need to be supported by smart infrastructure to increase its appeal to public & boost demand.

Remarks

3. (c) Explain successive development of cotton textile industry in India while describing factors affecting localization of cotton textile industry? (200 Words) (15)

Textile industry of India contributes 2.3% of India's GDP, 12% of export earnings & employ 21% (45 million) workforce directly.

Successive development of cotton textile industry

(A) Incipient phase upto 1900

- Bombay focal point → parsis with finance
  - → technology from Europe (British)
  - → port availability
  - → Climatic advantage
  - → Soil → black cotton areas around

(B) 1st half of 1900

- demand increased in world war I → dispersed to other centres eg. Ahmedabad
- ~~import~~ British policies → cotton other areas too
  - land cost high in bombay
  - role of trade unions
- Kolkata due to Port; Kanpur due to finance

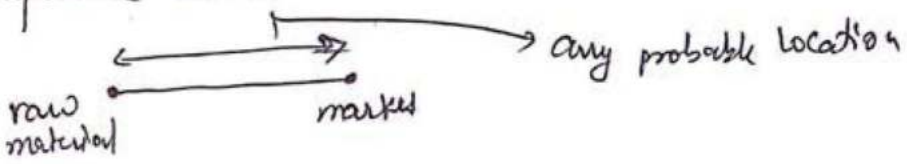
(C) Post Independence

- Intensive cotton growing programs 1971-72
- Irrigation development in cultivated region

Remarks

↳ shifted to low labor cost areas like Ujjain, agra etc.

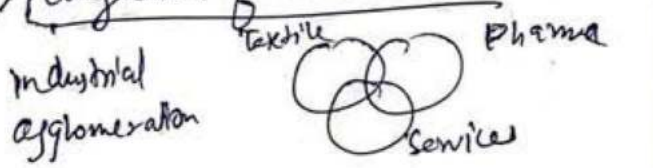
Cotton textile industry is based on pure raw material - cotton (not loose weight). Hence its location can be anywhere between market & raw material



However cotton industry in India has a delocalised pattern strongly dominated by market pull. But other factors too determine its localisation :-

PUSH FACTORS

① **Congestion of industries** (from mumbai)

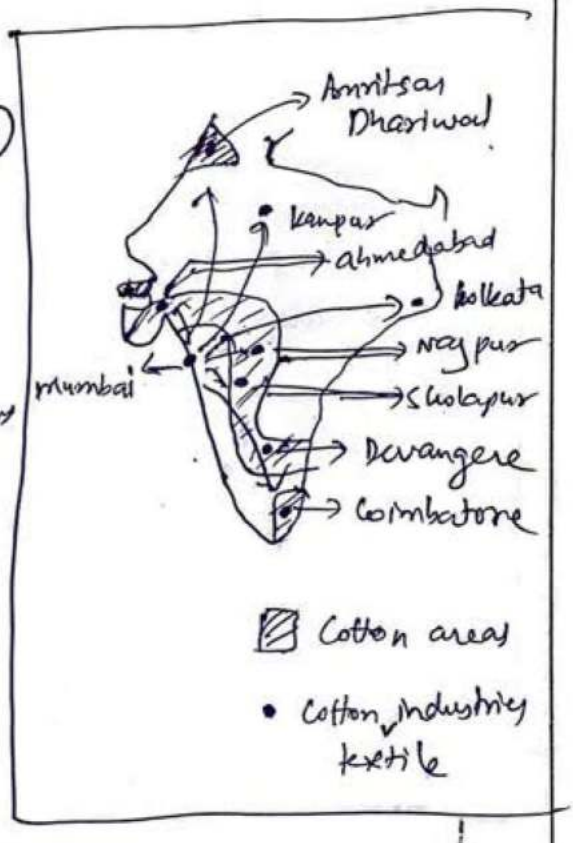


↳ increased land rent, labor unions

↳ Cost of production high

② **willingness of Capitalist**

↳ to shift when Labor cost saved [As per Harvey]



Remarks

③ Raw material.

↳ Maharashtra → short & medium staple (depends on imports)

PULL FACTORS

① Market → Sub tropical → 9-10 month cotton garments requirement in north

↳ South → tropical → whole year need

② Raw material → HYVs (Bt-cotton) → increased productivity

↳ electricity → input good → for powerlooms

③ Cheap labor → to poor states or interior regions

④ Connectivity

↳ rail, ports all along coastline

However, it faces issues of obsolete machines, power issues (DISCOMS in debt) etc.

Govt. focusing on boosting sector through MITRA scheme, PLI, SAMARTH scheme. It has potential to absorb large number of unemployed youth.

Case study : Kanpur

↳ nearness to skilled labor (Lucknow ~~Zari~~ workers, 'Zari')

↳ Raw material → Green revolution region nearby

↳ woollen industry already available ↳ agglomerative impacts

↳ nearness to Delhi NCR → major market.

Remarks

Section - B

5. (a) Define agricultural efficiency and discuss the methods of its determination, as applied in case of India. (150 Words) (10)

Agricultural efficiency is a qualitative term defined as ratio of farm output by input.

In India, however, agricultural productivity is taken as synonymous with efficiency. Productivity is output per hectare of land.

Remarks

Remarks

5. (b) Analyze the locational pattern of cement industry in India. (150 Words) (10)

Cement industry location is controlled by availability of raw material, transport facility & market.

It is a core industry and thus widespread in India.

Raw material

~~need heavy weight, low value & weight losing material~~

→ Limestone (60-65% weight)

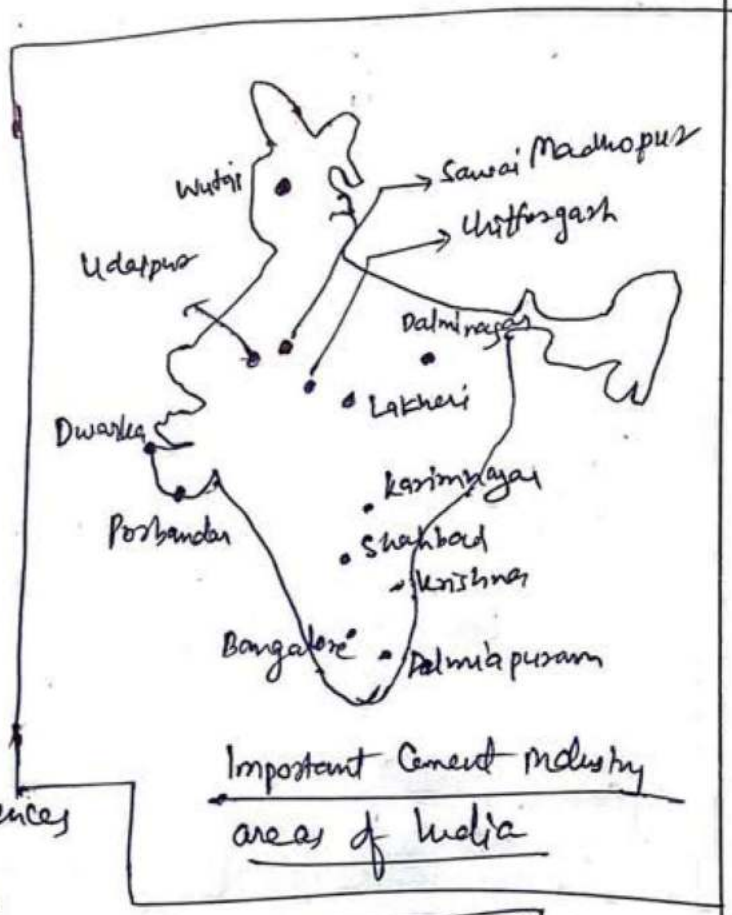
↓

Sedimentary origin

↓

Exist in geological sequences from Pre-cambrian to tertiary except Gondwana

⟹ Thus **widespread** both major & mini



Important Cement industry areas of India

Limestone leading Producers

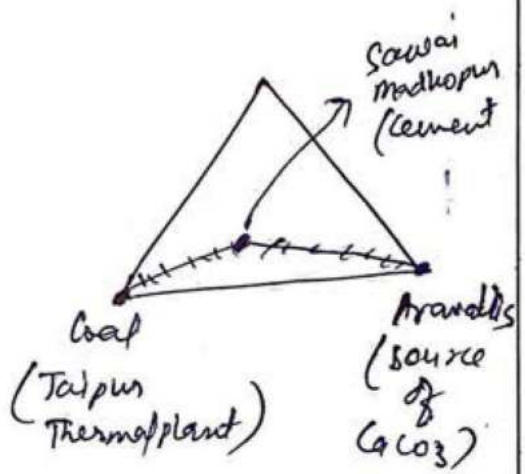
- Interior Karnataka → Gulbarga, Mysore region
- Andhra → Cuddapah deposits

Remarks

* Vindhyan (Rajasthan to Jharkhand) → good quality limestone.
* Indo Gangetic → devoid of $CaCO_3$ thus, not suppost cement; Major Project by Dalmia group

Power

↳ Coal source of power important
↓
40% Cost of cement production.



Transport

↳ low value, bulk material → Long distance transportation would cost huge → Thus mostly near to limestone areas
(Limestone, silica)

Govt. policy

↳ mini plants role after 1979 deregulation
↳ 50% reduction in excise duty → to exploit scattered limestone deposits. → further added to widespread presence.

However, despite only 2nd to China, it faces issues of power shortage, low per capita consumption. Recent push to infrastructure under NIP, Bharatmala could help boost industry's growth.

Remarks

5. (c) What is the role of beekeeping in rural development? Discuss the challenges this industry is facing. (150 Words) (10)

Beekeeping can help augment rural income, increase resilience to climate change and reduce agricultural pressures on land.

Rural income

- hilly areas → traditional beekeeping practices
  - eg. HP → 'Apis dorsata' species
    - more than 10000 colonies
- Commercial beekeeping → alternate income source in crop rich areas
  - eg. west UP → 60000 colonies

Climate resilience

- Rajasthan dry conditions
  - oilseeds act as bee-flora
  - help raise region's productivity despite less agriculture.

Industry growth

- eg. Haryana, Punjab → "Apis mellifera" beehives eg. Badal village in Bhatinda famous.

Case Study: Meghalaya

- village: Nongtymai
- keeping bees, a household practice
- farmer Stevenson Shadap realised economic potential
- got training from Krishi Vigyan kendra
- Then expanded bee colonies, started packaging honey and market to Nongpoh & Shillong.
- earns 1-2 lakh annually from honey sale.
- It encouraged the local community to strengthen activity as collective endeavour through beekeeper's society.

Remarks

↳ more than 1 lakh bee colonies

production → 25 kg / colony → provide to wax, honey industries

↳ Could help reduce agricultural pressure on land.

Challenges faced by industry

(1) **Quality of bees** → diseases : sac brood

eg. kerala — largest honey production but inferior quality → low price realisation.

↳ mostly Apis Cerana → 90% species in India (inferior)

(2) **Low domestic consumption** — India 8 g/s capita, world 200 g per capita

(3) **Lack of forward & backward linkage** → less focus on value addition

↳ mostly traditional & low scale or subsistence

eg. madhya pradesh, north east

(4) **Flowering - rearing seasons mismatch** → less forage for bees

Govt of India focus via National Beekeeping mission; Also PLI scheme for FPIs where honey is an important raw material for pharma, confectionery and food industries could boost apiculture.

Remarks

5. (d) Write about Scope and significance of food processing industry in India. Also discuss the challenges of this industry. (150 Words) (10)

India primarily an agrarian economy with 46% labor force dependency & directly and more than 70% overall dependency offers various opportunity for food processing industries (FPIs).

Scope of FPIs

(1) **Agriculture raw materials** → 282.5 million tonne fruit-vegetables;

- cropped land → 169 million hectare
- varieties of crops ← rice 22%, wheat 15%, coarse cereals 14%, oilseeds 14.5%
  - → large possibility of value addition
  - → surplus almost 90000 crore lost due to poor storage in post-harvest
- milk global share → 19%.

(2) **Cheap labor**

- 46% agri-dependent → disguised labor
- semi-skill upgradation could boost FPI production

(3) **Govt. policies**

- PLI for FPIs
- PM-formalisation of micro enterprises scheme (PMFME)

Significance of FPIs

- Share in Gross value added → 20.2%.
- Employment share → 11.6% of work force
  almost 11 million employed.

Remarks

↳ Share in exports → 10.4%.

↳ Sunrise sector → absorb surplus labor (demographic bulge)

↳ Demand in global market → only 3-4% high value addition of products send to EU market

↳ Help curb migration flows to urban areas → prevent agri-beautrisation as well as urban congestion.

CFTRI-CSIR story

↳ established for research in food processing in Mysore

↳ Now produce more than 300 products. eg, Ragi cake, multigrain bread, flavour concentrates ↓ huge demand in metros & outside

Challenges

1. Informalisation → more than 75%.
2. Primary processing mostly → low value addition. eg. horticulture crops more avenues than cereals for high value addition.
3. Poor farm yield → 85% small marginal, subsistance
4. Climate change → disruption of supply.
5. Inadequate infrastructure → eg. cold storage facilities
6. Low demand for processed foods → poverty high; PDS dependence.

Remarks

5. (e) Write the Scope and challenges in fish processing industry in India.
(150 Words) (10)

PM-matasya sampada yojana aimed at creating fisheries clusters through forward and backward linkages could boost fish processing sector.

Scope

1. **2nd largest produces**
   - ↳ 9.6 million tonne production
2. **less processing levels**
   - ↳ only 23%; huge potential
3. **large export potential**
   - ↳ estimated 5.5 bn USD export from India.
4. **India's Geography**
   - ↳ suited for both marine & inland fisheries
   - ↳ long coastline, rivers, canals, brackish water etc.
5. **value addition**
   - ↳ mostly exports in frozen form
   - ↳ immense potential for exporting.
6. **Govt policy**
   - ↳ 100% FDI through auto route in processing sector

Remarks

↳ Concessional Customs duty rate.

↳ priority sector lending loans to processing units & Cold chains

↳ Mega Food park scheme.

Newer methods

↳ eg. 10-12 ~~MT~~ MT per hectare in brackish water Coastal aquaculture → sharply increased from 2-4 MT

Challenges

(1) **Infrastructure**

↳ Shortage of cold chain as per NITI Aayog

(2) **Productivity**

↳ Norway 250 kg/fisherman; India 4-5 kg

(3) **Climate issues**

↳ opposition to bottom trawling

↳ depleting fish stocks due to marine heat waves etc. → FAO → 90% overexploited

(4) **Insufficient mechanization**

↳ lack of motorised vehicles for fish catch

(5) **Regional disparity** → Andhra, Bengal, Gujarat, Tamil Nadu, Kerala → more than 60% fish

↳ Frozen shrimp dominated; need diversification

Remarks

6. (a) **Discuss the challenges India is facing in promoting rural tourism. Also, examine the socio-economic impact of rural tourism.** **(250 Words) (20)**

The major challenge to India's Post-covid recovery is K-shaped growth due to poor rise in sectors such as tourism. Thus, Government of India formulated a Draft national strategy and roadmap for rural tourism.

Tourism in India has grown manifold with contribution of 6.3% to GDP & employ 8.3% of working population. But Rural tourism is still in growing stage & faces various challenges:-

(1) **Inadequate information & knowledge access**

- Laggards in information diffusion - ICT slow
- Reduce exposure to outside world & little avenues for marketing themselves

(2) **Infrastructure**

Remarks

↳ 2011 data → Still 58% rural roads
↳ not properly maintained

↳ Lack housing → mostly local dependent
eg. Pushkar → mostly locals provide accommodation
in peak times → Holi

(3) Lack finances
↳ prevent rural entrepreneurs
↳ mostly startups are urban centric

(4) Connectivity
↳ poor linkages of rural projects with traditional tourist destinations.
eg. Munroe island (Kerala) → have to take conventional boats.

(5) Human resource
↳ lack of trained & qualified guides - especially well verse in vernaculars

(6) Social factors
↳ dividends less accessible to women because of

Remarks

eg. Ranthambore Jungle safari → improved tourist attraction & thus 24x7 electricity.

(8) **Investment**

↳ Diffusion in core & periphery of villages improves overall economic health.

Case study : Shaam-e-Sarhad project (Gujarat)

↳ UNDP selected gujarat village for rural tourism in 2004
↳ Kodki community offer camping sites
↳ attractions : embroidery units, local artwork (industry)
↳ annual income increased → 1 lakh/year to 45 lakh/year
↳ another community → Banni → help popularised banni breed buffalo

However it may cause negative impacts :-

- local resource inaccessible to local people
- part-time nature of employment.
- urbanism → adapt urban culture loosing rural tradition
- localised price inflation
- waste management → eg. Manali & around villages.

Govt need model policies, developing tourist circuits, Clusters for rural tourism and capacity building of stakeholders.

Remarks

domestic objections, rural myths.

Socio-Economic impact of rural tourism

1. **Sense of pride**
   - ↳ linked to heritage & traditions
2. **Job opportunities**
   - ↳ prevent migration & demographic changes
3. **Correct urban hierarchy**
   - ↳ create intervening opportunities (Ravenstein)
4. **Women empowerment**
   - ↳ gain financial stability.
5. **Improved standard of living**
   - ↳ hygienic places
6. **Additional income**
   - ↳ to farmers & other backward communities dependent on unskilled jobs.
7. **Infrastructure development**
   - ↳ boost to power, connectivity, sanitation, health etc.

Remarks

6. (b) **Discuss the growing importance of ports in socio economic development of a nation and in international trade development.** **(200 Words) (15)**

Sagarmala, flagship program of India for Port-led development completed 7 years.

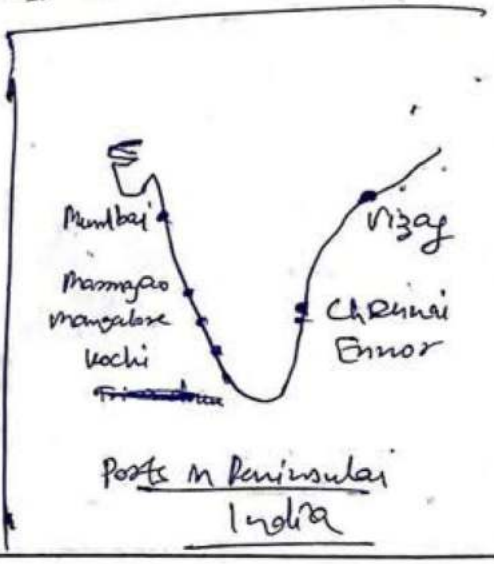
India, 95% of country's trade by volume and 70% by value moves through maritime transport, highlighting importance of Ports & their role in sustaining socio-economic development of nation:-

(1) **Hinterland to Overseas**

- facilitate to & fro movement of goods from hinterland.
- One of the reasons why southern states are better developed even in rural areas & multiplicity of ports → lot of gateway cities.

(2) **Cities development**

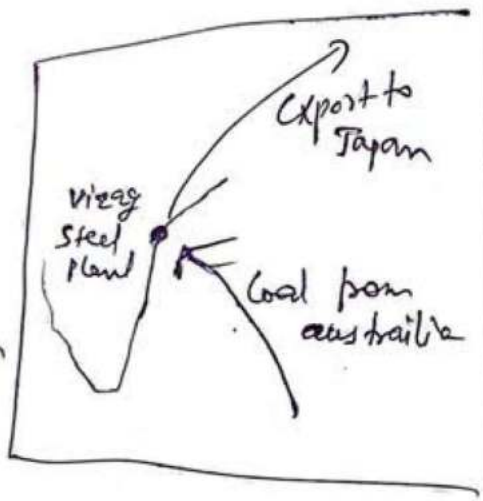
- major world cities are port
- ports spur economic activities around them like banking,



Ports in Peninsular India

Remarks

finance, logistic, insurance etc.
eg. Mumbai & Kolkata.



③ **Employment**
↳ post related activities
↳ also post-induced industrialisation
eg. vizag steel plant

④ **Economic integration**
↳ help become World cities [Saskia Sassen]
↳ eg. Mumbai show strong tendencies

⑤ **Infrastructure development**
↳ increased economic activity → boost to roads, rail, inland waterways.
↳ makes export competitive & spillover effect.

Case study: Singapore → outstanding port-infra; trans-shipment hub
↳ fewer resources, still a leading hub
↳ close collab with shipping lines to build maritime network
↳ FTAs with trade partners
↳ e-doc with digitalised trade permit.; Port corporatisation
↳ spurred service industries too.

Remarks

International Trade development

① **Counter natural resource disparity**

↳ eg. Japan, Israel → lack natural resource post trade help exchange resources for technology.

② **Distribute marketable surplus**

↳ production or potential > domestic needs

petroleum (middle east)
coffee (Brazil).
Jute (Bangladesh)

③ **Trade policies**

↳ Trade agreements → Converging space & time increased velocity.

④ **Sea Lines of Communication**

↳ ports on such SLOCs are major ports → boost trade.

⑤ **Develop global value chain**

eg. Network products → India focusing "assemble in India → attracted Foxtron (Apple's subsidiary) → in Tamil Nadu (Port state).

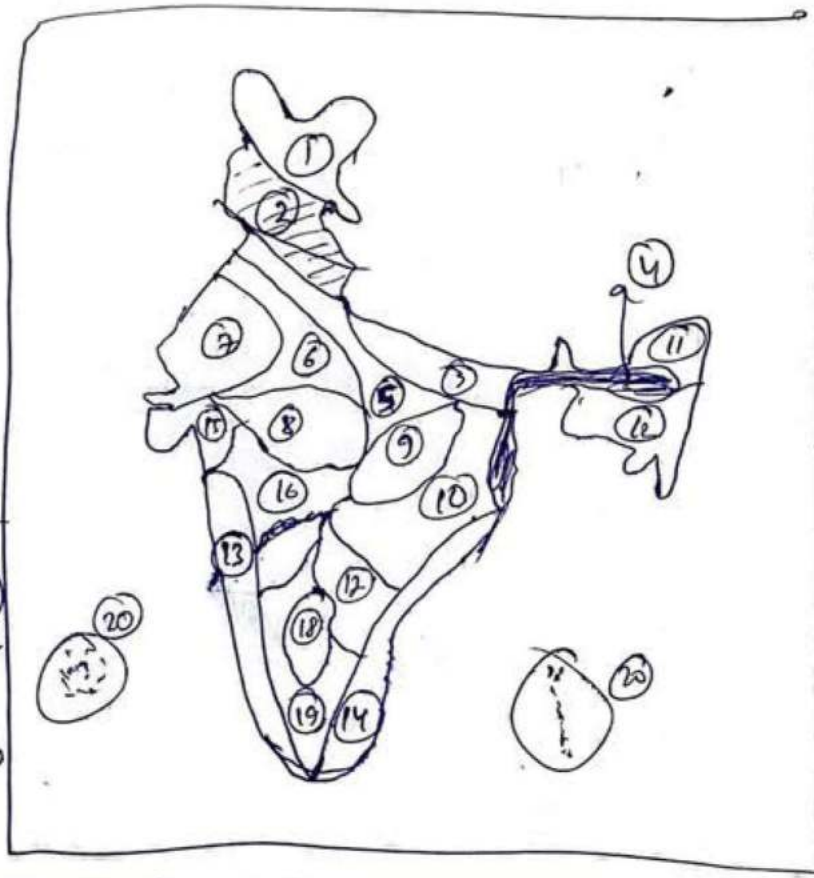
Port led development could help attain SDG-9.

Remarks

6. (c) Divide India into major agro-ecological regions and briefly write the agricultural characteristics of these regions. (200 Words) (15)

~~Concept of~~ Agro-ecological regions is a land unit carved out of agro-climatic region when superimposed on land form and soil condition that act as modifiers of length of growing period.

India has been divided into 20 agro-ecological regions.



(1) Western Himalayas (Cold & arid)
- ↳ < 20cm rain
- ↳ not suitable for cultivation
- ↳ Growing period < 90 days

(2) Western Himalayas (warm sub humid to humid)
- ↳ Brown podzolic soil support fruit, orchards plantation crops

(3) Eastern plains → fertile alluvium; 2 crops per year possible.

Remarks

(4) Bengal & Assam Plains
- fertile alluvial
- rice cultivation intensive
- 180–210 growing days

(5) Northern Plain
- Rich alluvial
- rain decreases west
- west: wheat ; east: rice

(6) Northern Plains & central highlands (Aravalli)
- range from alluvial to laterite
- 90–150 growing days

(7) Western Plain
- Saline & sandy soil
- fallow or waste land
- growing period < 90 days

(8) Malwa highlands
- deep black soil
- potential if irrigated

(9) Eastern Plateau (Chattisgarh)
- red & yellow soil
- known for rice

(10) Eastern Chotanagpur Plateau
- red & laterite soil
- not agri-suitable
- despite long season 150–180

(11) Eastern hilly
- brown & red soils
- hilly terrain → limited crops

(12) Purvanchal
- > 210 days agriculture
- SAll red & laterite soil

(13) Western coastal plain
- laterite & alluvium
- rice suitable

(14) Eastern Coastal plain
- big river deltas → rice cultivation
- alluvium

(15) Kathiawar
- black soil → potential

(16) Deccan Plateau
- rich black soil → cotton
- 90–150 days.

(17) Deccan (Telegana)
- hot & semi-arid
- irrigation help cultivate on black soil

(18) Deccan (hot, arid)
- agriculture where tank irrigation available.

Remarks

(19) Tamil Nadu Plateau & Karnataka

↳ red & loamy soil
↳ 90-150 growing days
↳ depend on tank irrigation

(20) Islands

↳ red loamy & sandy soil
↳ coconut main crop.

Parameters taken for such regionalisation is ←

Physiographic features; Soil characteristics; Bio-Climatic features & length of growing period.

Contemporary relevance

(1) Focus on sustainable agriculture → to adopt crop pattern as per agro-ecology

(2) For 2nd Green revolution → reverse negatives of monoculture caused by Green revolution

(3) Help improve productivity & food security → prevent crop failure due to climate changes

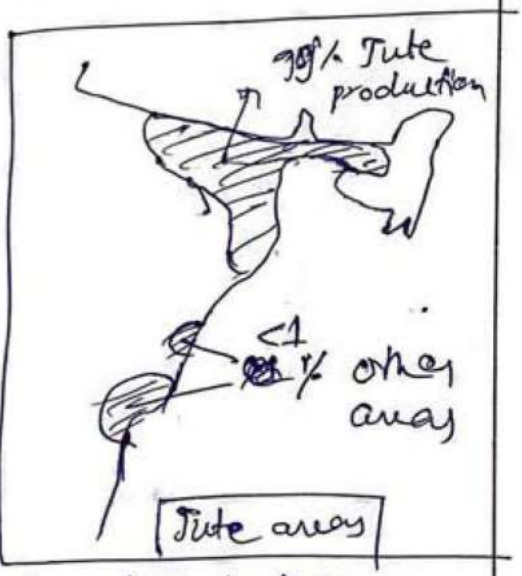
(4) Boost nutritional security → dry area farming & millets, oilseeds production.

Remarks

7. (a) Sustainability of the jute industry is being questioned on different occasions. But its utility has increased in recent times. Discuss the issues which were responsible for poor performance of this industry. Also, examine its potential in the backdrop of climate change. (250 Words) (20)

West Bengal which supports 75% of Jute textile mills is facing crisis in industry leading to closure of several Jute mills.

The industry's sustainability is questioned on multiple grounds:-



① Geographical Concentration
↳ west Bengal, Assam, Bihar almost 90%
↓
poor states

② Prone to disasters
↳ Bihar, Assam → Ganga-Brahmaputra floodplains
↳ west Bengal → eg. cyclone amphan 2020 led to lower acreage & thus low production; Also poor quality.

③ Water scarcity → Need for huge amount for retting

④ Soil fertility → exhausts; need regular replenishment by river silt.

However, its utility has increased for various reasons

① Environmental concerns

Remarks

↳ Synthetic, non-biodegradable → adding to waste
Jute - ~~blog~~ biodegradable

(2) **Employment**
↳ rising unemployment
↳ Jute industry → labor intensive ; support livelihood of around 40 lakh families

(3) **Crop diversification**
↳ as per agro-ecology
↳ reverse negatives of Green revolution.

Its poor performance have been due to multiple factors :-

(1) **Historical** → Partition caused unique issue
- → 90% mills in India
- → 80% Jute producing area to Bangladesh
- ↳ demand-supply gap

(2) **Export oriented industry**
↳ Survival depends on demand in international, national market

(3) **Monsoon dependence**
↳ erratic due to increasing climate change

(4) **Govt. policies**
↳ govt bulk buyer → FCI buy 35-40% from mills
↳ delay in support prices

Remarks

⑤ **Labor issues**

↳ lot of political interference → leading to strikes.

⑥ **Transportation**

↳ inland waterways could reduce production cost

↓

not well developed → dependent on rail & roads.

eg. Assam → mostly on road.

④ **Nature of farmers**

↳ poor in Bihar_Assam region

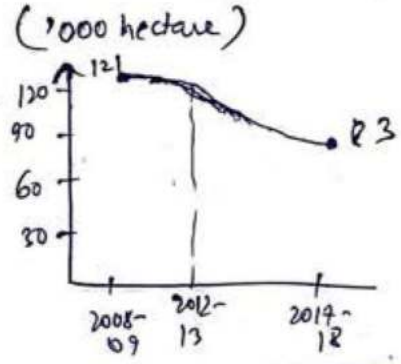
~~eg. Bihar → 85% are small & marginal~~

Case study : Bihar

↳ only 11.11% Large Jute growers (area > 10.0 hectare)

↳ high variation in productivity < madhepura 6.64 bales/hectare
kathar 1.02 bales/hectare

↳ Area declining



Potential in backdrop of Climate Change

① Shift to environment friendly products

↳ Jute bio-degradable → not produce waste menace

Remarks

② **Temperature**

↳ 25-35°C suitable

↳ climate change induced temperature rise would be suitable for jute production

③ **Sequester Carbon**

↳ Ability to absorb & fix carbon dioxide

↳ in line with India's NDC target declared in 'Panchamrit' (CoP 26)

Govt policies in India too focus on Jute Industry

① **Jute-SMART** → integrated platform for procurement of sacking by govt agencies

② **Jute Geotextiles** → within Technical textiles mission.

↳ increase Jute demand

③ **Jute Packaging materials** → Compulsory use of Jute packaging

④ **Golden Fibre revolution**

There is need for replacing old machinery, increase R+D and innovation in Jute products. Sustainable agriculture focus could give a boost to Jute sector

Remarks

7. (b) **What do you understand by Zero Budget Natural Farming? Discuss its various components, benefits and challenges.** **(200 Words) (15)**

ZBNF is a farming technique based on natural farming principles, done without use of chemicals, without using any credits or spending any money on purchased inputs.

It was promoted by agriculturist from Maharashtra - Subhash Palekar in mid 1990s as an alternative to Green revolution whose benefits has flattened out and even causing negative externality.

It has 4 major components :-

(1) Jeevamrita
- ↳ focus on input side
- ↳ replace chemical fertilisers with mixture of cow dung, cow urine, jaggery, pulse, water & soil

(2) Bijamrit
- ↳ seed treatment

Remarks

↳ to prevent seedling or planting material from fungus.
Soil borne and seed borne disease.

(3) **Acchadana**

↳ practice involved

↳ mulching rather than deep ploughing

↳ protect topsoil

(4) **Whapasa**

↳ timing of irrigation → noon

↳ ensure presence of air & water molecules in soil

Benefits

(1) **Reduce input cost**

↳ 50% farmer household in debt & 70% spend more than earn – NSSO

↳ ZBNF aim at zero cost

(2) **As per Agro-ecology** → Correct cropping pattern

(3) **Soil health improvement**

↳ soil aeration, minimal watering, mulching

↳ prevent degradation [land degradation atlas – 38% of India's land degraded]

Remarks

(4) Environment health → prevent stubble burning.

(5) Water & energy security → 50-60% less water

(6) Towards doubling farmers' income
↳ by increasing yield & reducing cost

Case study: Andhra Pradesh
↳ To become 100% ZBNF state by 2024 in Collab with UNEP.
↳ Yeraguntla → 70% farmer practice ZBNF
→ reduced production cost from 15000 to 5000
→ 136% higher yield of groundnut

However Issues & challenges too :-

(1) ICAR warn of reduced yield affecting food security
eg. Sikkim - reduced production post shift

(2) Lack of sustainability → many reverted to conventional

(3) Need for Indian breed cow → good quality less; declining
Livestock census → only 8.1% indigenous

(4) Govt. apathy → only Rs. 325 crore for Paramparagat Krishi Vikas yojna.

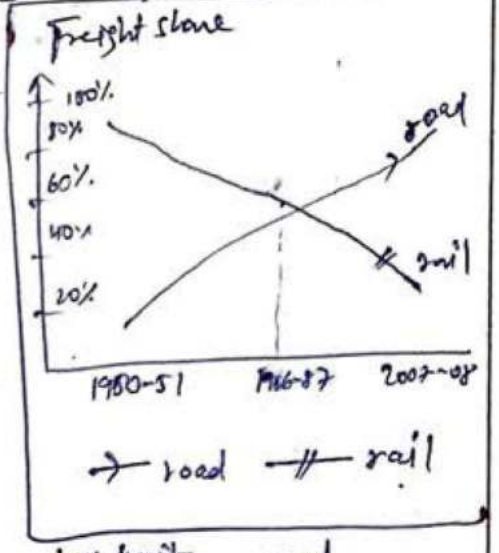
There is need for steps like MSP fixing, market support by infra, abolish minimum export price for agri., include farm work in MGNREGA to boost ZBNF.

Remarks

7. (c) **Despite being an efficient and cheap means of transport, railway has consistently lost its share of freight to road transport. Enumerate the reasons for the same. How far can the high speed freight corridor help in addressing this issue?**
(200 Words) (15)

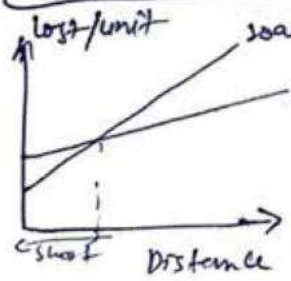
Due to its inherent differences with road, in terms of cost of transportation, route and massification, connectivity and velocity, rail has been loosing freight share.

Rail share in freight transport is declining since 1951. In 2020, it was merely 18% as compared to road's 71%. In USA, it is 40%.



Despite Rail is efficient & cheap:-

(1) Cost effective → medium to long distance due to scale of operation; Can save 10-40%.



(2) more env-friendly → Association of American railroads
- 1 gallon fuel carry one tonne weight for 480 miles;
- 75% less emission

However, loosing share because of following reasons:-

(1) Cost involved

Remarks

↳ terminal cost high initially → lack of private investments.

② **Connectivity**

↳ Roads → last mile
Rail → Terminal to Terminal

③ **Route**

↳ Rail → less flexible → mostly broadgauge & fixed
not complete electrification, issues of
engine transition diesel to electric

↳ Road → hierarchy of national, state, urban, district roads
allow easy freight carriage

④ **Congestion**

↳ due to passenger & freight running on same tracks
↳ velocity of rail avg. 40-50 km/hr for freight
↳ more than 70% rail lines saturated with limited
scope for expansion

Roads → 35 km/hr rate of expansion as per
Ministry of Road transport.

Thus, govt. came up with Dedicated freight Corridor to increase its modal share to 45% by 2030. It could address various issues!-

① ~~Increased~~ **Massification**

Remarks

↳ Increased Capacity → double decker, 'Sheshnaag' trains.

② **Velocity**

↳ Increased speed to 90-100 km/hr
↳ fully electrified route
↳ right of way to railways → No blockage
↳ improve punctuality and attract businesses.

③ **Decongestion**

↳ 70% freight being shift to DFC
↳ allow passenger Capacity increase → revenue to prevent cross-subsidy.

④ **Volume**

↳ Increase axle load → more weight Carriage.

However, it faces issues like land aquisition delays in states like maharashtra, lack of funds, infrastructural bottlenecks and even cases of corruption.

Gati shakti plan is a right step to Co-ordinate multi mode of transportation. Railway to play big role through its RORO model.

Remarks