GSSCORE

An Institute for Civil Services

IAS TOPPER'S

TEST COPY

RUPAL SRIVASTAVA

AIR - 113

(CSE 2022)

GEOGRAPHY OPTIONAL

8448496262 www iasscore.in

34377 (1195)

GS SCORE

Geography Test Series 2022

TEST - 06

144

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 RUPAL SRIVASTAVA

Mobile No. _____

Date _____

Signature Rupal

1. *Invigilator's Signature* _____

2. *Invigilator's Signature* _____

* Try to add more diagrams of India & show prospective regions.
* you have explained most of the Question with data, facts, examples & case studies keep it up.
* All the Best

Roll No. 34377

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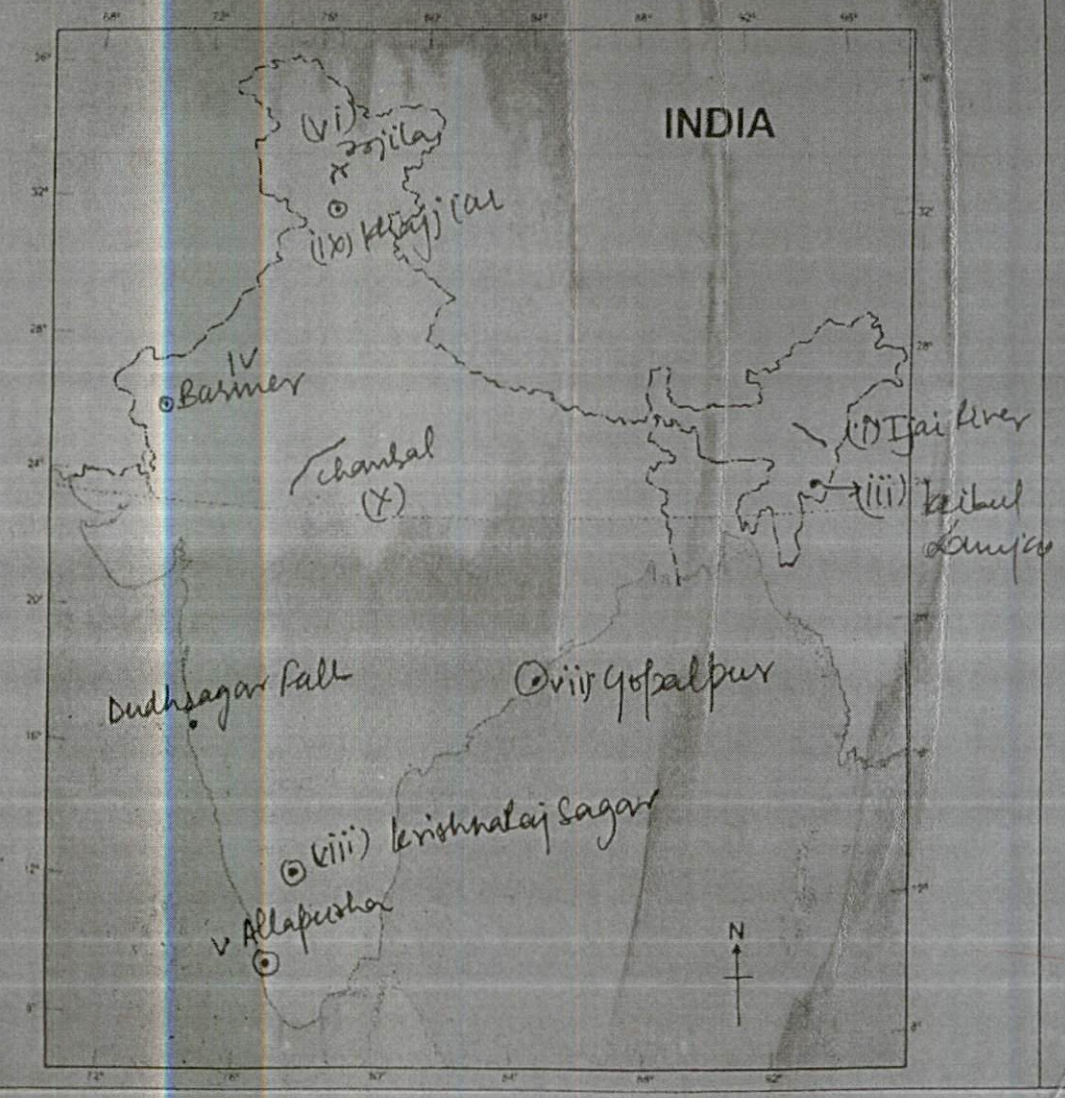
Section - A

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

(i) Tiau River
- Cuts across Manipur - Assam Border
- Lies in Seismic zone V
- Recently, threatened due to construction of Manipur Bairabi Sairang Rail link project

Good

(ii) Dudhsagar Falls
located in Goa, one of the highest falls of the Western ghats flowing across the rigid basaltic terrain. It is an important tourist attraction.

(iii) Kibul Lamjao
- located near Loktak Lake in Manipur
- famous for the floating 'phumdis' and the 'sangai deer' (endangered - IUCN) - endemic to this area
- Important tourist attraction and part of Indo-Burma hotspot

(iv) Barmer
- Part of the 'Nagusthali' of Gujarat and has shifting sand dunes called 'Barchan'

Remarks

b has oil fields formed during Tertiary period due to Marine transgression
b Important centre of Rajasthan Desert Tourism

(v) Alapuzzha
- located near the Malabar coast
- Important centre of 'Backwater Tourism' in Kerala.
- The soils in this area are 'bog' called Karri Soils.

(vi) Zoji La
b connects Ladakh and Manali (Ladakh & Kashmir valley.)
b Link between the Zaskar and Great Himalaya
b one of the highest notable passes of India
b has geostrategic importance

(vii) Gopalpur
- also called 'Gopalpur on sea' - a beach in Odisha
- a site for the mass nesting of Olive ridley turtles (Arribada)
- Has deltas of Brahmi and Baitrani rivers.

Remarks

16

(viii) Krishna Raj Sagar
- situated in Karnataka, between Mysore and Bangalore, on Kaveri River
- Important to meet the water needs of Bangalore city.

(ix) Khajjiar
- small mountain town, situated near Dalhousie (Shimla) in Himachal Pradesh
- Lies in the middle Himalayan zone and Zone V seismicity

(x) Chambal River
- a right bank tributary of Yamuna, originating in the 'Mhow' plateau
- trijunction of UP, MP and Rajasthan
- Flows through badland topography of ravines.
- important Dam called 'Gandhisagar Dam' built on it

Remarks

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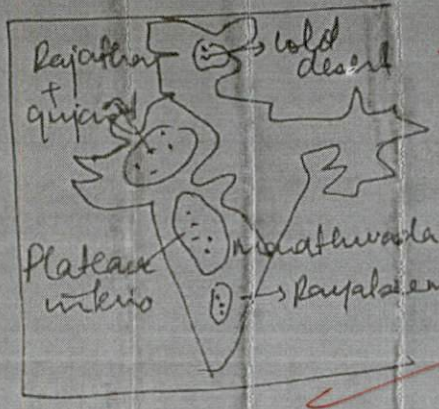
1. (b) Write a short note on Dry Land farming. (150 Words) (10)

According to FAO, Dryland farming refers to the farming in areas of marginal rainfall, (or less than 500 mm) without any external irrigation under the natural conditions.

Dryland farming can be used for growing hardy and resistant crops like millets, oilseeds etc.

Areas in India

- below the 100 cm isohyet
- areas of high crop failure and agrarian distress



* Also some regions of North east Karnataka here
* Bundelkhand also

Components

- **Crop choices**
  - millets, oilseeds
  - ⇓
  - hardy and drought resistant
- **Farm management**
  - ⇓
  - use of rainwater harvesting structures like ponds, tankas
- **Institutional support**
  - ⇓
  - (1) crop insurance under Fasal Bima to prevent failure
  - (2) MSP support

Remarks - mention some contribution of dryland farming, as most of India's oilseeds are met from these areas.

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Benefits

(1) Eco sensitive agriculture based on the ecological condition of rainfall, soil moisture

(2) Income diversification and low input intensive for small and marginal farmer

(3) Reduce distressed out migration due to the push factors and also cases of farmer suicides

(4) Overall regional development of these backward areas

Dryland farming can be utilised to its best potential in the UN 2023- Year of millet cultivation

* write some prospect of developing these region as Zone of Animal husbandary by supplying fooder, which helps small & marginal farmers.

Remarks

GS SCORE

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

The launch of Digital India Mission in 2015 aimed at boosting internet connectivity to 2.5 lakh Gram Panchayats (Bharatnet), digital service delivery (via CSC - common service centres) and rural empowerment.

Role in rural development

(1) Agriculture modernisation
- use of smart-models like climate predicting apps 'Krishi Megh', 'soil Health card' on input management etc. — good example
- b Digitization of crop insurance under Fasal Bima Yojana.

(2) Employment - access to internet at the gram panchayats and home holds can provide means for the self employment under National Rural Livelihood Mission.

(3) Virtual connectivity to the urban areas, hence, possibility of work from home options.

Remarks
- * geo tagging of Infrastructure created under MGNREGA.
- * Land record digitization SVAMITVA Scheme.

(4) Development of human capital - by access to digital education via SWAYAM MOOCs.

(5) Direct benefit transfers without any fund leakages. Eg: DBT in Public Distribution System on pilot mode.

5

Challenges

- Infrastructure: only 25% of villages till now integrated
- Digital Divide in Accessibility: only 14% of rural women
- Cost: high cost of internet plans etc

Digital India Mission needs to stepped up on war footing along with capacity building to use the internet.

*mention some govt schemes like PM digital Saksharat Scheme, Bharat net, Project Loon of Facebook in penetration of Digital medium in India.

Remarks

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

The Green Revolution during 1960s was an outcome of acute food shortage leading to import of grains from US - under PL-480.

This mission by M.S. Swaminathan in India aimed at agriculture modernization and food self sufficiency

Features

① Rice and wheat

Crop selective

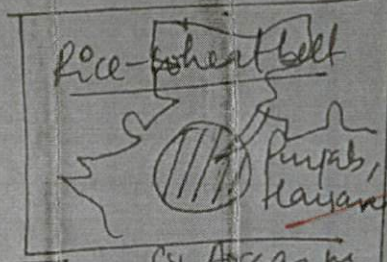
Region selective

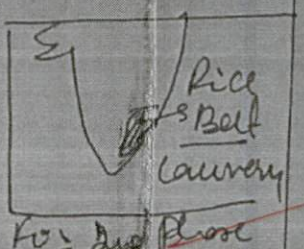
① West UP, Punjab Haryana

② Cauvery basin

Farmer selective

② Targetted large farmers as more property to invest hence selected Punjab Haryana who had risk taking behaviour





③ Agriculture modernisation

① high yielding seed like 'Dwarf wheat from Mexico', 'Pusa' Rice from fertilizine

② Chemical fertilizers like Urea and Pesticide

③ Farm mechanisation - Eg: Use of combine harvestors.

Remarks

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5

Impact

Positives

1. Increased crop production

1950s	1960s-70s	2020
50mT	75-80 mT	309 mT

2. Agriculture self sufficiency and net agri surplus
3. Large scale farm based employment (47% of workforce at present)

Negatives

1. Monoculture practice - Rice Wheat only
2. Decline in ground water table
   Eg: Punjab = 60% of districts
3. Suction pump effect of Gunnar Myrdal - backwardness of other areas.
4. Inequalities = 86% of small farmers.

this presents a need for green Revolution 2.0 based on sustainable agri practices as also suggested by Dalwai Committee

+ write do India need second green revolution or Evergreen revolution.

Remarks

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2. (a) "India is the largest producer of milk in the world and has the largest cattle population in the world." In the backdrop of this Do you think that India needs New White Revolution? If yes then highlight the scope and challenges for the same. Also Discuss the government's effort in the development of the dairy sector. (250 Words) (20)

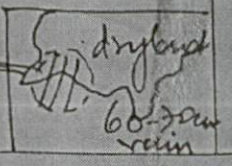
According to the Economic Survey 2022, India is the largest producer of milk in the world. However, it lags in terms of productivity. (Ex) Per capital availability of milk more than 300ml.

Compared to India's productivity of 1800kg/ha Israel has a productivity of 13600 kg/ha. India thus needs a New White Revolution to harness the potential.

the Scope of New White Revolution

① Improving the milk productivity levels to comparable levels of competitors like Australia and New Zealand.

② Diversification - According to Ashok Dalwai Report, milk revolution can help in non crop diversification in rural areas especially in drylands. Eg: Bundelkhand Milk farming



good Interlinkage

Remarks

↳ It is sustainable for small & marginal farmer with small land holdings. Further it employees women in huge number.

→ Also add demand side ie Increased disposable Income in urban areas.

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* Also add role of Population growth & young Population in India

③ Since milk industry is largely labour intensive it can help absorb surplus labour in form of disguised unemployment. this can limit the rural out migration due to Lee's push factor. (73% of all SMF = at least 1 bovine)

④ Meeting the food security requirements by micro-nutrient management

Eg: 195mn people malnourished in India (Global Hunger Report 2022)

⑤ Expand the export potential and alignment to regional blocks like RCEP etc.

Challenges

① Genetic make up of Indian breeds is of lower quality (Eg: Deoni, ?). This leads to lower productivity

② High degree of informalisation in the sector due lack of organized cooperatives (60% informal sector – Agri Census 2014)

Remarks

low value addition

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(3) Weak forward linkages in terms of milk processing centres and supply chain issues.

Eg: Shantakumar Committee Report - 53% shortage of milk reefer vans.

(4) Competition from international high production players like New Zealand, Australia etc

(5) Capital intensive, hence needs heavy investment initially. Hence issue of agriculture credit access

(6) Threat of livestock diseases like FMD, Brucellosis which have increased due to climate change

Steps taken by government

(1) Creation of an umbrella scheme for Dairy Development

- National Livestock Mission → High quality germplasm.
- Animal Husbandry Infrastructure Fund → Post processing infrastructure
- Animal Disease Control Program → tackle FMD, Brucellosis

(2) Creation of DIDF (Dairy Infrastructure Development

Remarks

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12.5

fund)

⑧ e-Pashu Aadhar for geotagging of cattle for regular vaccination etc

⑨ Vit D milk fortification by NDDB and Tata Trusts and inclusion in Mid Day meals to incentivise production

New White revolution should aim at increasing milk production, doubling farmers income and regional development of dryland areas along with environmental sustainability.

* You have written a good answer with examples, data keep it up
* try to add few more diagrams, know some potential areas for new dairy or milk revolution.

Remarks

2. (b) Discuss the impact of climate change on agricultural productivity and farm revenue. Also, discuss its implications on agricultural performance in the long run. (200 Words) (15)

According to IPCC Climate change land, there is a direct and reinforcing nature of impact between climate change and agriculture productivity. Globally 68% of area under agriculture is thus vulnerable.

Impact on agriculture productivity

① Increase in temperature by 2.5°C leading to crop loss by wilting and evaporation of soil moisture

(en) recent case of wilting of wheat crop in Punjab & western UP in India, due to heatwaves.

Zimbabwe → 18% decrease in maize yield in last decad
Case - Africa

② Higher variability in monsoon cycle, leading to intense floods and droughts affecting crop productivity.

Eg: Decline in average rice productivity in India by 13% in last 20yrs

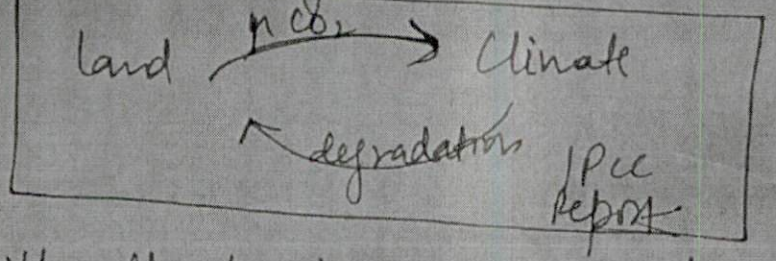
③ Threat of pest attacks due to climate change leading to large scale damage

Eg: 2020 locust attack (Min of Agriculture)

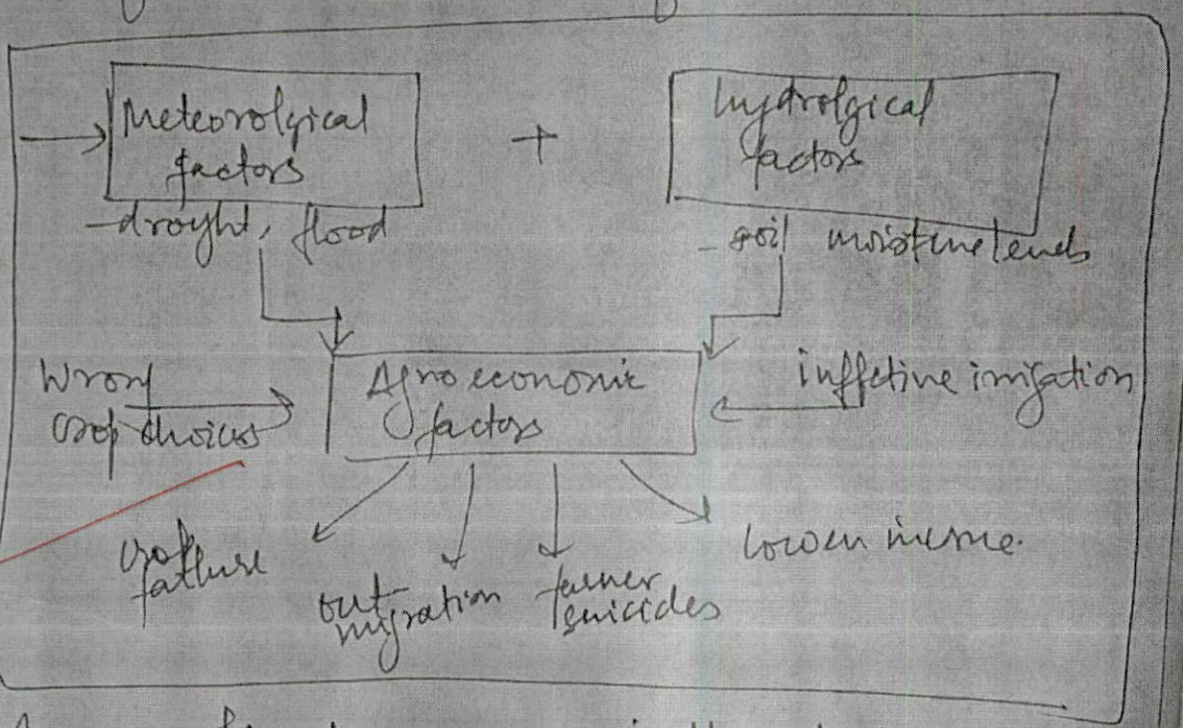
Locust - Westworth - 6000000 ha crop area damage

Remarks

(iv) Increased land degradation leading to crop failures.



this will all lead to an impact on the farm revenue as follows.



Its implication on agriculture performance on longer run are-

(1) Decline in agriculture productivity by 12-14% by 2100 (As per IPCC Report)

(2) Can lead to extreme food shortages,

Remarks

* give case study of Kerala, which is seeing decreased farmer income in area, plantation crops due to climate change.

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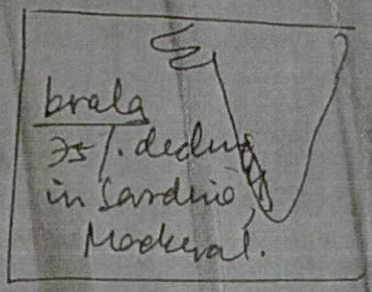
pushing globally 195mn people towards hunger. (35mn in India)

8.5

(3) Submergence of coastal cities like Mumbai, Kolkata etc. affect the fishery productivity by 40%.



(4) Increase in the environmental cost of food by $ 1.5 tn / year by 4% (FAO Food Security Report)

Wayforward

Shift of climate Smart Practices - like conservation Agriculture, Dryland farming

Diversification towards non-crop, agro allied.

It is essential to change agricultural patterns to mitigate the effect. Natural farming in India can help.

Remarks

2. (c) Our nation's inland waterways and rivers are the hidden backbone of our transpo network. In the context of the given statement, analyze the problems and prospect for inland waterways in India. (200 Words) (15

India has a 14500 km long inland waterway network, this is the hidden backbone of our transport network.

Some of the major inland waterways are -

NW 1 - Prayagraj - Haldia
NW 2 - Sadia - Dhubri
NW 3 - Kollam - Kottapuram
NW 4 - Kakinada - Puducherry
NW 5 - Talcher - Dhamra

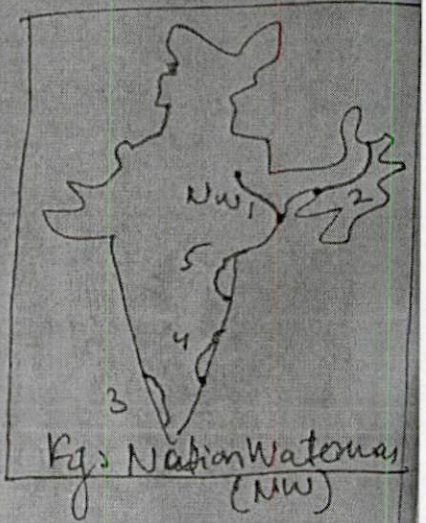


Fig: National Waterways (NW)

Problem of Inland Waterways

① Physiographic factor

Terrain

① Peninsular rivers flow through rock granite, gneissic rocks (Archaean and Dharwar) difficult for shipping

Climate

① Issue of rainfall regime fluctuation - seasonality

② Also incidence of flooding and riverbank in North
Eg: Brahmaputra

Remarks

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(2) Diversion towards agricultural activities by the canal and dams construction

Eg: On river Gomti, 12 minor dams constructed between Lucknow and Varanasi

(3) High sediment load, therefore issue of periodic dredging and limiting the cargo size (in Brahmputra & ganga in lower reaches.

(4) threat to critical ecosystem and species

Case: Gangetic Dolphin Endanger in the stretch of Varanasi - Bihar.

(5) Lack of inland port infrastructure and 'dry docks'.

Prospects

(1) Since currently, inland waterway has <1% freight share, huge scope to expand.

(2) Cost comparison for bulk cargo

Road	Rail	Waterw
1.5₹/km	1.0 ₹/km	0.5₹/km

source: WorldBank - India Report

(3) Can complement the existing rail infrastructure by motor boats and jetties

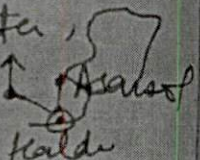
Remarks → Also Inland waterways are cheaper & greener with low emission prospect.

(8)

(iv) Development on inland ports and drydocks as 'growth centres'

(v) Can be combined with sustainable inland aquaculture at ports

Eg: the Haldia terminal link to Kolkata, Asansol



Inland waterways can be utilised in the form of a national waterway grid. They are the cleanest source of transport and can help met India's Panchamrit targets

* mention some successful cases like netherland, germany & Great Lakes region of USA.

Remarks

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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)

Indian agriculture has low irrigation coverage of only 49%. This puts it at a risk of erratic monsoon. Recent climate change is expected to further increase the erraticity of monsoon with extremes of floods & droughts

thus it is essential to go for monsoon proofing of Indian agriculture especially in dryland areas with high variability of monsoons

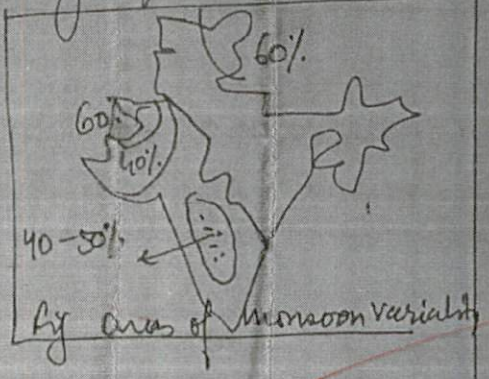


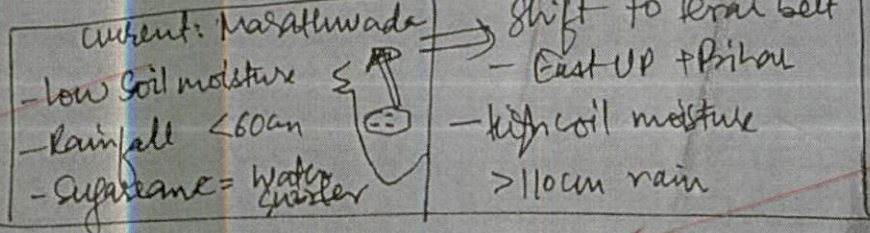
fig: areas of monsoon variability

Importance of

(A) Soil moisture map

(B) Agro climatic planning of crops based on suitable soil moisture requirement

Eg:



Remarks

(2) Also cultivation of millets as dryland crops in the low soil moisture regions under 'Dryfarming'

'Dryfarming'	Eg: Bundelkhand - Kodo & kutki cultivation by the locals.

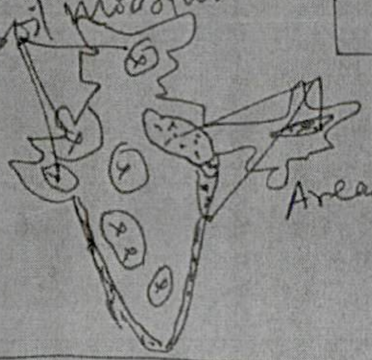
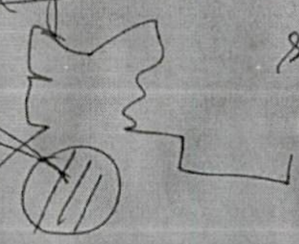
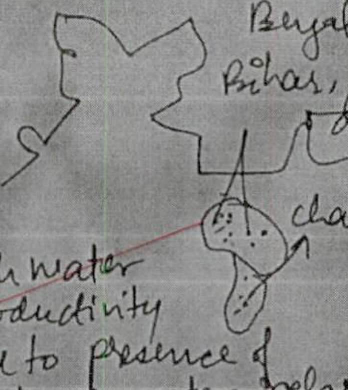


Fig: Soil moisture map

(b) Water productivity Mapping.

- Similar to the 'Kenya - Kalimo Salina' effort, mapping of water productivity instead of crop productivity can help in planning crop and irrigation needs.

Crop (Agri) Productivity	Water Productivity
 - Punjab and Haryana - intensive irrigation - led to ground water decline by 60-100 cm/year - but high crop productivity	 - High water productivity due to presence of natural water recharge >100 cm rain

Remarks

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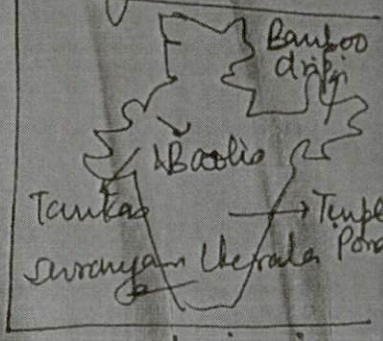
Q Institutions → Revitalising Rainfed Agriculture Network

① this is in line with the idea of Rainwater Harvesting by Mihir Shah for the Jal Shakti Abhiyan.



② Revival of traditional structures can help in developing rainfed agriculture.

Eg: Bundelkhand - 'Kuan Talab Jiyao Abhiyan' for pushing the pulse production under Matar Mahotsav

Jhansi, Banda etc.

good example

③ They can help in decentralised water management for the crops by collaborating with the Paani Panchayats.

Transforming Rainfed Agriculture

① the above discussed initiatives can help in increasing agriculture productivity levels from average 1200 - 1300 kg/ha to comparable levels of China (3570 kg/h

Remarks

(2) According to IPCC Report on Climate change and Land, shifting to rainfed managed agriculture is the need of hour as it can prevent the decline of agriculture productivity by 12-14%

Indian agriculture, thus is the watershed moment of improving its resilience and productivity by sustainable water management

* you have written good answer with most case study, examples & maps keep it up.

Remarks

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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)

India has an ambitious target of 30% eVehicles by 2030. to achieve this National Mission on Electric Mobility

The different schems covered under this

① FAME (Faster Adoption of Mobility in Electric Vehicles
- under Main of Heavy Engineering

Phase I
- direct incentive to the eV manufactures

Phase II
- Increasing demand by eV charging infrastructure

② National eV Plan – to increase the development of electric vehicle by domestic manufacturing under the Production Linked Incentive scheme for Advanced chemical cels.

③ Natron hydrgen Mission - development of hydrogen powered eVehicles and hybrid models based on battery and fuels.

Remarks

* mention National mission on enhanced energy efficiency (NMEEE) role in keeping e-mobility.

(4) 'Green Mobility' mission for the public transport buses.
Ex: Launch of e-buses in Puruandhal

(5) Development of technologies like Metroneo, hyperloop and 100% rail electrification under National Rail Plan.

These schemes can make EVehicles more affordable as follows-

(1) Reduction of GST on EV from 12% to 5% will reduce the costs from the demand side

(2) Availability of 'Green Car Loan' by SBI can also help in credit availability for costly EVehicles

(3) governments push for increased production by credit guarantee and Infrastructure will reduce cost of production

(4) Domestic EV manufacturing will reduce dependence on China, USA thus giving Indian

Remarks

* Also mention role of PLI schemes in semiconductors, electronic chips for e-mobility scheme.

a cost advantage.

eVehicles in India are the emerging sector of opportunity. They can help in transitioning towards 'greener and cleaner mobility' and reduce the carbon emission under India's committment @ COP 26 glasgow

- Also mention role of various state govt ie Delhi diversifying & making a fleet of atleast 5,000 e buses by 2025, similarly Banglore giving a tender to recruit more e-vehicle in its fleet.

Remarks

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

The 1st cotton textile industry was setup at Bombay. Cotton textile industry has from then became an important pillar of India's growth.

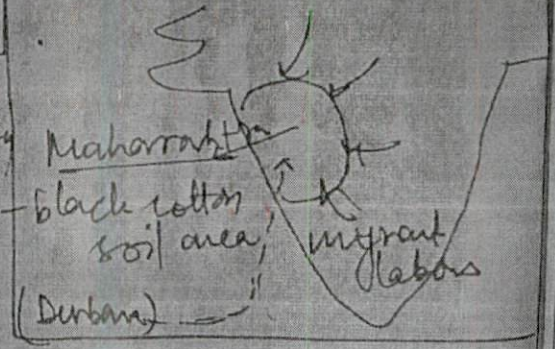
Since cotton is as pure raw material, hence its location can be closer to the markets or to labour, as per Weber's theory.

good interlinking of concepts

I Stage of cotton textile

Factors

(1) Raw material availability
(2) migrant labours from UP, Bihar etc.
(3) Port city for export
(4) Energy needs → Durban imported.
(5) Rich capitalist class → Parsis etc.



However, with time, increase in congestion, pollution and higher import dependence from Durban, led to shift.

Remarks

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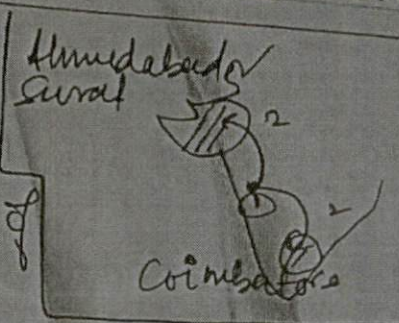
Phase II

- Shift to Ahmedabad (called Manchester of India) and to Coimbatore (Manchester of south)



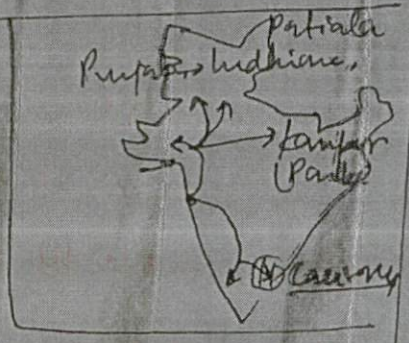
Factors →
- less carted compared to Mumbai
- availability of raw cotton
- Energy → Ahmedabad → oil refinery - Mehsana
  - Coimbatore - Neyveli coal
- Also labour migrants from hinterland

However, with the advent of green Revolution and development of irrigation system, cotton area began to grow. then locational shift happens

Phase III

(1) Shift to Punjab - Haryana
  - (1) Artificial humidifiers for cotton production
(2) SHG movement for women led Phulkari industry
(3) Capital Availability from rich landholding farmers

(2) Shift to Kanpur - market centre - Panki



Remarks

* Use words like distance decay words & cost of operations as reasons for relocation

-also 'break of bulk' centre for ports.

(8) Shift to Cauvery Delta

↳ ① cotton production due to green Revolut
② southern cotton demand due to humid climate.

8

Thus cotton textile industry witnessed in various phases. Now it has led to spread to growth centres towards Delhi/NCR, Kolkata etc by rise of Arvind Mill Centre, Welspun etc.

* Also mention how the Industry has now been relocated to even small cities, due to technology upgradation (Ex) Salem, Dharmavaram, Kancheepuram (TN) from main centres.

* Also add role of delocalisation, Industrial complex phenomenon in relocation to new cities.

Remarks

Remarks

GS SCORE

Section - B

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

Agg Agriculture efficiency refers to ratio of agricultural output to input. It is often expressed in terms of 'yield'.

Methods for determination

There can be different methods like-

(a) Yield = $\frac{\text{Agriculture output}}{\text{Agriculture input}} = \frac{\text{kg}}{\text{ha (area of farm)}}$

(b) However, inputs can be subjective - fertilizer, seeds, labour etc

(b) Agricultural efficiency can be measured based on

- Crop Productivity = $\frac{\text{Value of Crop (kg) or standard value}}{\text{Area}}$
- Cropping intensity = $\frac{\text{Gross sown area}}{\text{Net sown area}}$
- Water productivity = $\frac{\text{Crop output}}{\text{Amount of water}}$

In India, the most common method of measurement is crop yield in terms of kg/ha.

Benefits of this method-

Remarks

* Show the various regions & classify them into high, medium & low efficiency regions.

(5)

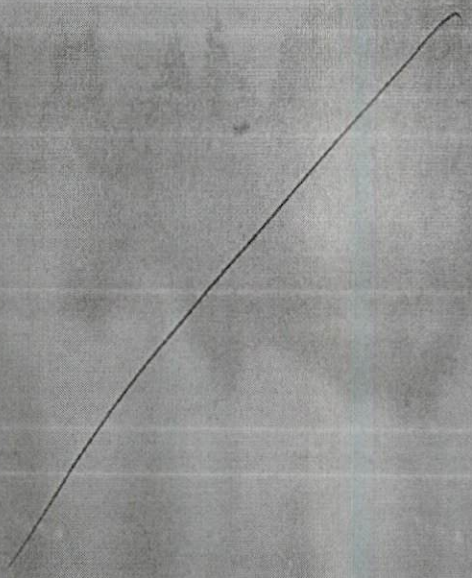
① Assessing the level of land use intensity

② Eliminate the subjectivity of inputs.

However, to get a better picture of input use efficiency, it is essential to switch to measures like water productivity (Eg: Kalima Salmo scheme of Kenya).

good example

Crop/Agriculture efficiency should take into account the environmental costs. Hence we must go for productivity optimisation and not just maximization



Remarks

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

GS SCORE

Cement industry has the largest share in the construction sector of India. It is also one of the 8 core industries by the Min of Commerce

Cement Industry location

(1) the raw materials are not very weight losing materials. Hence the industry can be closer to market according to Weber's theory.

(2) However, the cost of transportation can increase (based on isotim pattern). thus a balance of market profit and cost is needed.

(3) Beginning in the sedimentary rock belt of Vindhyan Basin and cuddapah

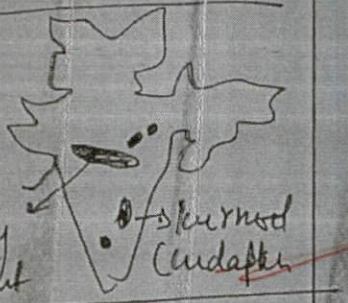


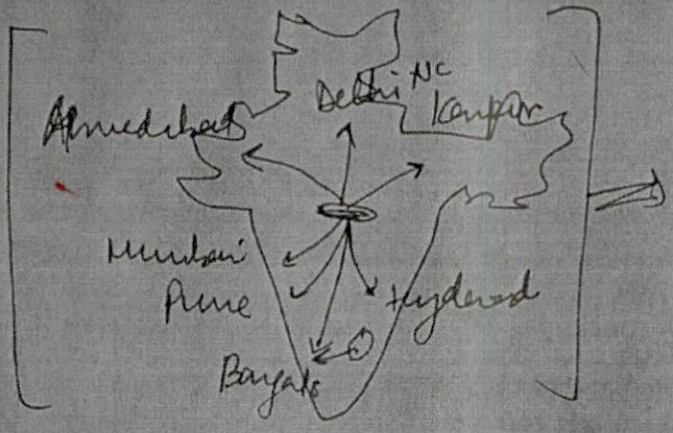
Fig:

(4) In recent times, there have been shifts towards urban centres due to increasing

Remarks *give some shortcomings or threats to the sector

Trend of urbanisation

Shifts



Cement industry is a highly polluting industry especially with respect to PM 2.5 and 10. Hence proper environmental safeguards are needed.

Remarks

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

GS SCORE

Beekeeping sector is an important component of the Agro-allied services for the rural economy.

Role of bee keeping in Rural Development

(1) Diversification towards off-farm sectors and reduce the stress on farm based income generation by providing off-season income

(2) Since labour intensive, absorb the surplus labour (disguised and feminised)

(3) Regional rural development by connecting to urban export clusters and market due to high export demand

Honey, challenges of beekeeping sector

(1) Lack of trained manpower in the beekeeping sector

(2) Indian honey not meeting the sanitary

* helps tribal people
* prospect for small & margin al farmers
* Nutritional security
* Income security
* prospect for small scale cottage industry by its raw material.

Remarks

barriers for export

good example ← E.g. Recent 'Dabur' Honey case of impurity

(3) Low investment in the sector due to lesser visibility

(4) the climate change is leading to a decline in the bee population (Accordeing to IUCN Report) ← can also add colony collapse disorder seen in bees as a threat

(5) It is essential to revive the Beekeeping Mission under the National Bee Board for income diversification and export led growth of Indian agriculture.

Remarks

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

GS SCORE

Food processing sector currently shares 10.6% in agriculture GVA. Being a sunrise sector, it has tremendous potential in India.

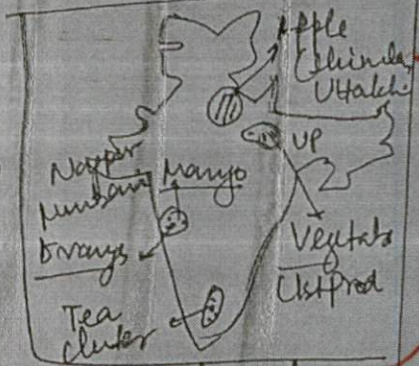
Scope

① Rising demand - According to Angus deaton, increase in demand of organic food in India by (23 times) by 20^{50}

② India food processing sector is export oriented - hence scope of markets like West Asia.

③ Currently, 10-12% food goes wasted and FPI covers only 11% of agriculture. Hence scope to reduce wastage

④ With 12 Agro climatic zones, diverse product options available



Significance

① Farmer income diversification
has higher demand and better price realization

Remarks

* Scope - urbanized society with demand for ready to eat foods (Instant foods)
⇒ raising disposable income
⇒ Nutritional Drive requires food processing Industry.

S.S

② Mainly labour intensive, thus employment generation. Eg: Women in tea processing plants in Munnar

③ Export led growth under cluster model of One district one product

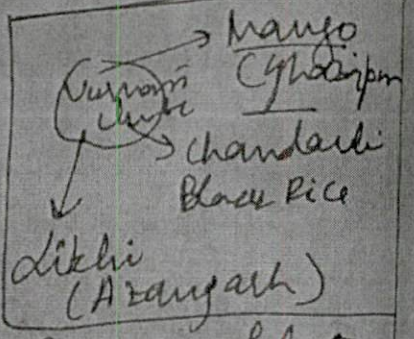


Fig: Case of cluster

Challenges

① Heavy initial investment needed and low credit facility by banks

② Lack of post harvest warehousing (33% shortage as per Shantakumar committee)

③ Issue of sanitary, phytosanitary barriers to export Eg: Europe rejecting Indian Tomatoes, Onion.

It is essential to attract private investment under SAMPADA and Mega Food Park scheme to pick up the growth of food Processing Sector

* In challenges add policy uncertainity as freavent amendment of Essential commodities act - prevent hoarding by big companies for processing.

Remarks

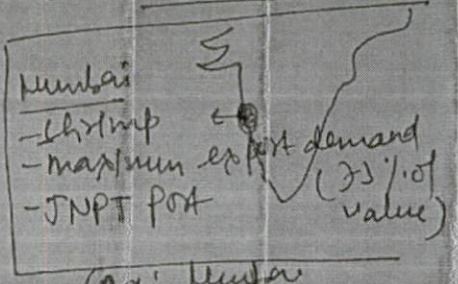
GS SCORE

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

India is the 2nd largest fisher producer in the world (Economic survey 2022). Thus with a 14mT of fish production fishery sector offers huge potential

Scope

1. Vast coastline of 7500km for coastal fishery and a long network of inland rivers for inland fishery
2. Off season employment and income diversification
3. Regional development of coastal communities via port led growth



Case: Mumbai

4. Meeting the food security goal as import for protein, ~~Calc~~ vitamin K nutrition

* It is suitable for small & marginal farmers
* Export potential
* Food security
* Income security

However: challenges

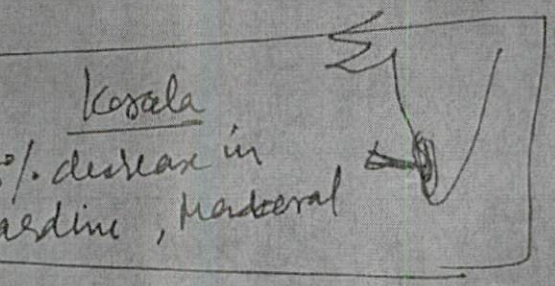
1. Initial investment needed to develop fishery Centres of processing as it is perishable

Remarks

(2) Heavily dominated by inland fishery but demand globally higher for coastal fishery
(Eg: Demand for Shrimp, prawn, lobster = 75% of export)

(3) Climate change affecting fish breeding and availability

Case:- Warming of Arabian Sea >2°C	Kerala — 75% decrease in Sardine, Mackeral



→ could also add formation of dead zone in Bay of Bengal

Fishery Wayforward

- Processing infrastructure under Marine Food Parks
- Credit availability under Kisan Credit Card
- Climate proofing of coastal areas under CRZ model

The Matsyay Sampada Yojana can play a role in fishery development.

Remarks

GS SCORE

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)

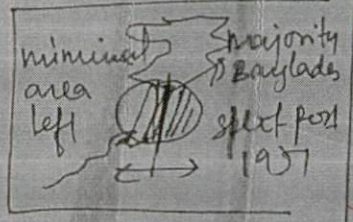
The 1st jute mill was set up at Rishra (West Bengal) in 1853. However, with the advent of time the sustainability of this industry declined

Issues responsible for poor performance of this industry

(1) Post World War II, Britain banned the export of jute to germany and other countries.

(2) competition from the synthetic fibres like rayon developed in germany and abroad.

(3) Post 1971, India lost almost 78% of jute growing areas to Bangladesh.



good data presentation

(4) Since jute is a natural fibre, it also has lesser water resistance. Hence unsuitable for packaging of agriculture commodities.

Remarks

→ Also add role of development of geo textiles in recent times as an threat.
• Further also write how Indian jute is competitive as compared to jute due to labour costs.

good current Usage

(5) Also Indian railway had banned the use of jute bags due to their corrosive nature on the rail wagons

(6) Skewed MSP regime towards Rice and wheat system, leading to lower remuneration of jute farmers.

(7) Costlier than plastic

However, in the event of increasing climate change of 1.5°C, there is a need to shift towards the regional and organic fibres like jute instead of plastic. (IPCC Report on Sustaining Crop System)

The potential for Jute sector

(1) Jute is a carbon neutral crop, hence it can help in carbon sequestration globally around 2.8MT of CO_2 (study by 'Nature' Journal)

(2) Jute fibre can reduce the impact of green house gas emission by the disposal of plastic bags. (eg: Incineration of plastic ~~PM~~ 2.5, PM10 and SO_x emission)

Remarks

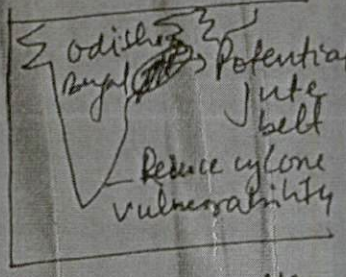
* ban of single use plastic from June 1, 2022
* Climate change & water intensiveness make it a threat can be written in Issue heading.

→ Also add GOI regulation to pack 20% of Sugar produced in mills with Jute bags

GS SCORE

③ Diversification beyond regular crops as climate change is expected to reduce productivity levels by 12-14% leading to agricultural poverty

④ Can be grown in coastal/mangrove areas – reduce their vulnerability to cyclone and storms as 'bioshields'



⑤ Can be grown in crop combination system with rice - sugarcane - jute and also the residual moisture can be used to grow pulses, oilseeds etc

But certain things need to be addressed –

① Jute itself is a water intensive crop, hence should be grown in Tropical-humid areas like Bangladesh, Myanmar, South East Asia, (West Bengal in India)

② Jute processing sectors should opt for circular economy concept in retting process

③ Price sustainability of jute compared to the plastic

Remarks

12.5

It is high time to revive the 'Golden fibre' of India by fiscal incentives of MSP, link to MSME sector in jute processing and substitute the single use plastic.

Remarks

GS SCORE

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

Zero budget natural farming refers to the practice of cultivation of crops with all the locally available inputs, without the use of any chemical components.

It was popularized by Subhas Palekar first time in Karnataka.

Components

Whaapsa	Beejmitra
- soil air and moisture maintenance - earthworm use	- Pest resistant seeds - slurry of cow dung, urine, jaggery
Acchdana	**Jeevamitra**
- live mulching - conserve soil moisture & reduce erosion	- increase microbial activity - condmy mixture in soil

These components help to achieve the goal of regenerative agriculture. It is a low cost farming system and can be replicated even crops.

marks

Benefits

① Reduce the AFOLU (Agriculture, Forestry and Land use emissions from agriculture) - currently 24% of Green house emission

good example

8.5

② Reduce the cost of production, hence improve the profit margin of farmers.

③ Capture the increasing demand for organic products in urban market (Sir Angus Deaton theory - organic demand X3 times by 2050)

④ Can be practiced on a small scale by the small and marginal farmers

However, it has certain challenges.

① Some of the faulty assumptions by Mr. Palekar that plants use 98.5% nutrition from air and only 1.5% from soil

good argument.

② No empirical evidences to prove the higher productivity under ZBNF

Remarks

GS SCORE

(3) Slower returns initially. Take time to achieve the 'break even point'

(4) Not completely zero budget - as it ignores the cost of labour, seed, etc

~~Zero budg~~ Budget

Zero budget farming can be implemented on a pilot basis until more research is done on its challenge. It can then transform the face of Indian Agriculture.

* Recent experience in Sikkim, which faced low productivity due to organic cultivation & Sri Lanka which faced food crisis due to low rice productivity has casted doubts & fear over 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)

(8.5)

Although an efficient and cheap means of transport, the share of railways in freight remains at 28% compared to global average of 70%. There is still a dominance of road network in India.

The Reasons

① Topographical constraints
b/c construction of railway lines require flat topography with consolidated soils.
Eg: Not possible in the hilly areas of North East.

② Last mile connectivity cannot be achieved compared to roadways.

③ Low capacity development

	Increase in rail capacity	Increase in freight
Since 1947	X 5 times	X 12 times

more than 60% running at >100% capacity

Remarks

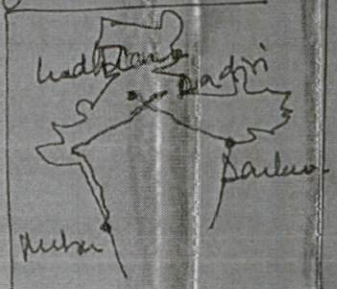
GS SCORE

④ Ineffective operating ratio (98.5) compared to the roadways.

⑤ Loss of revenue to the railways as often runs for a 'social purpose' than 'economic purpose'

⑥ Freight dependence on mainly one commodity - coal (>40% of freight share)

Thus the launch of high speed freight corridors can be seen as a ~~Parcial~~ panacea in the following ways



① Decongestion of the railways by separating passenger and freight lines.

② Can lead to development of railcoaches with speed limit >120 kmph for faster freight delivery

③ Since railways are cheaper than roadway (₹1.5/km to 1.0₹/km), they can be used for long distance bulk transport.

Remarks

(vi) Development of industrial conurbations along the freight corridors will increase their demand
E: Delhi – Ahmedabad – Mumbai

However, there is an inherent limitation of last mile connectivity with railways. Hence they need to be complement with localised road network for 100% freight delivery.

* Also add how dedicated freight corridor could usher in sector & help in reduction of logistic costs. Also add how multimodal transportation can act as supplementary for rail connection.

Remarks