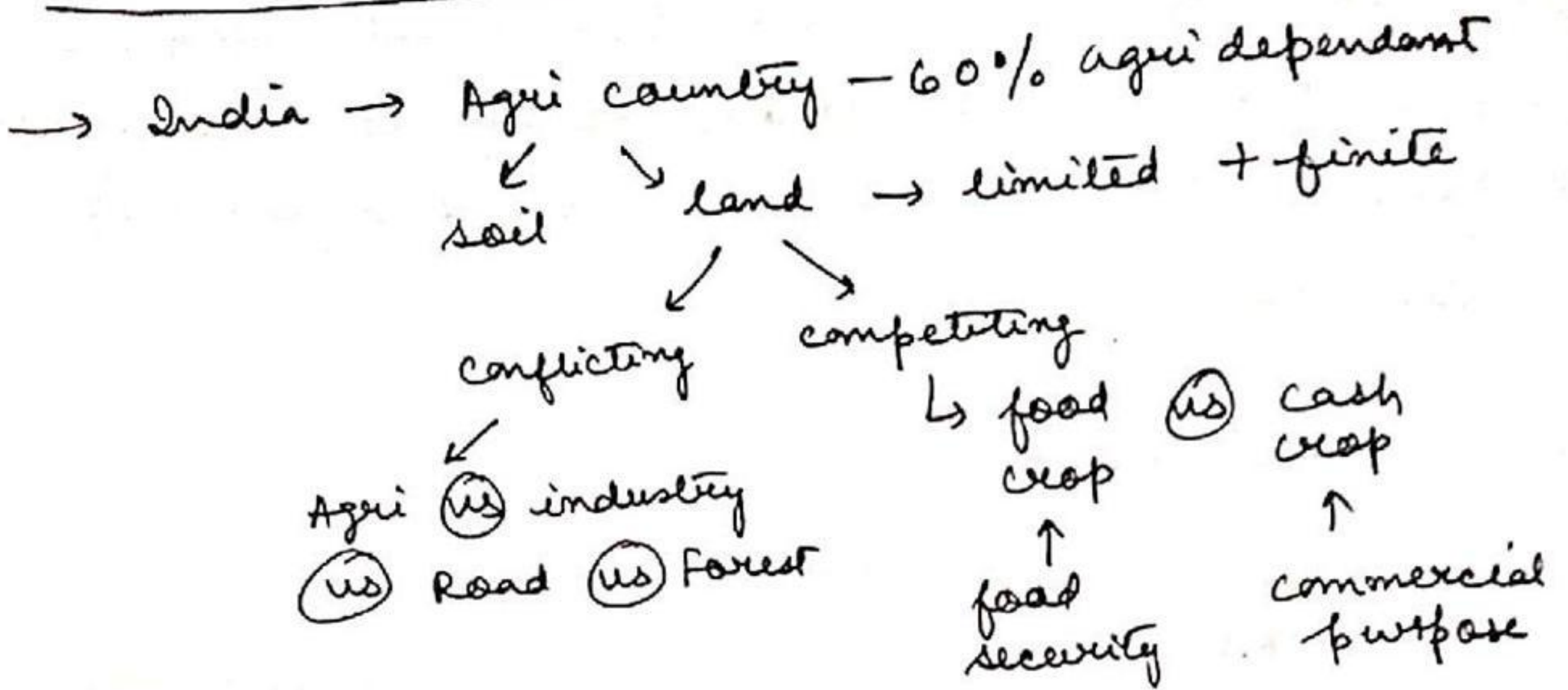




Ch: 1: Resources and Development

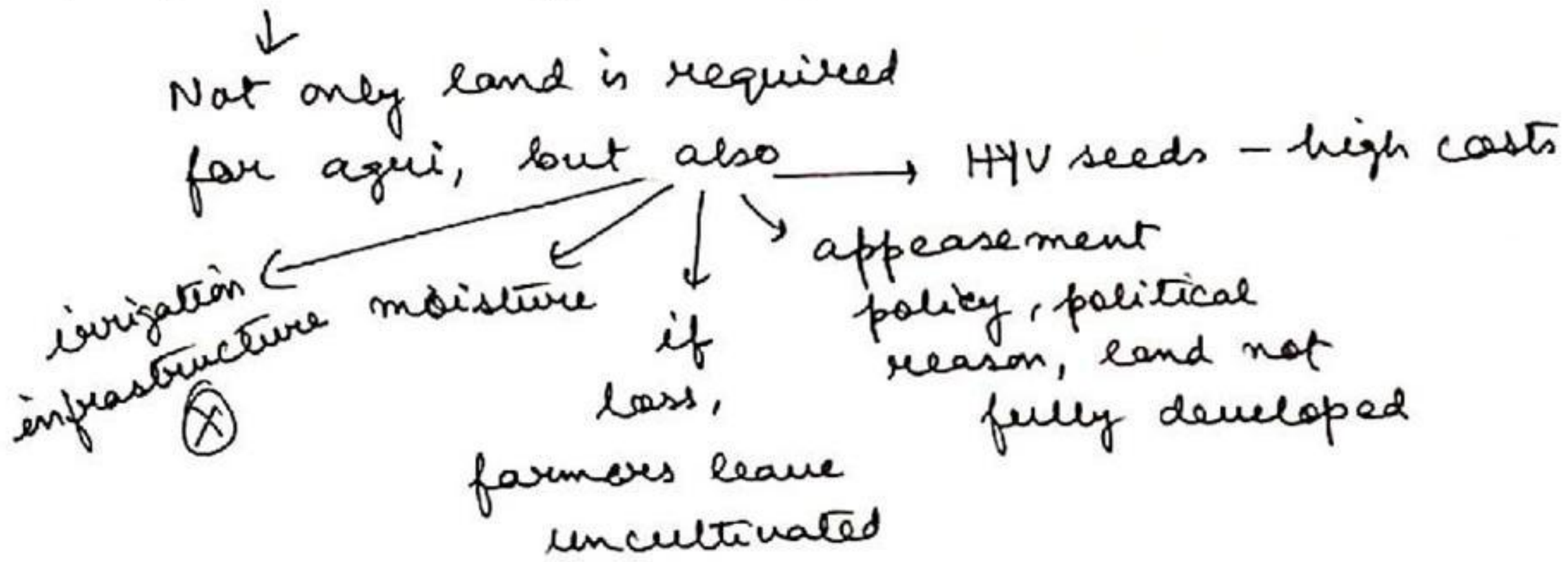


→ Land utilization: cost benefit analysis must be done.

Agri Practices that appear to be feasible, won't remain sustainable in long run.

eg. growing rice in Rajasthan.

→ Fallow land [Reasons]



→ Net sown area: Total area sown in a year.

cropped.
Gross sown area: area sown more than once in an agricultural year + net sown area
↓
Area is counted as many times as there are sowings in a year

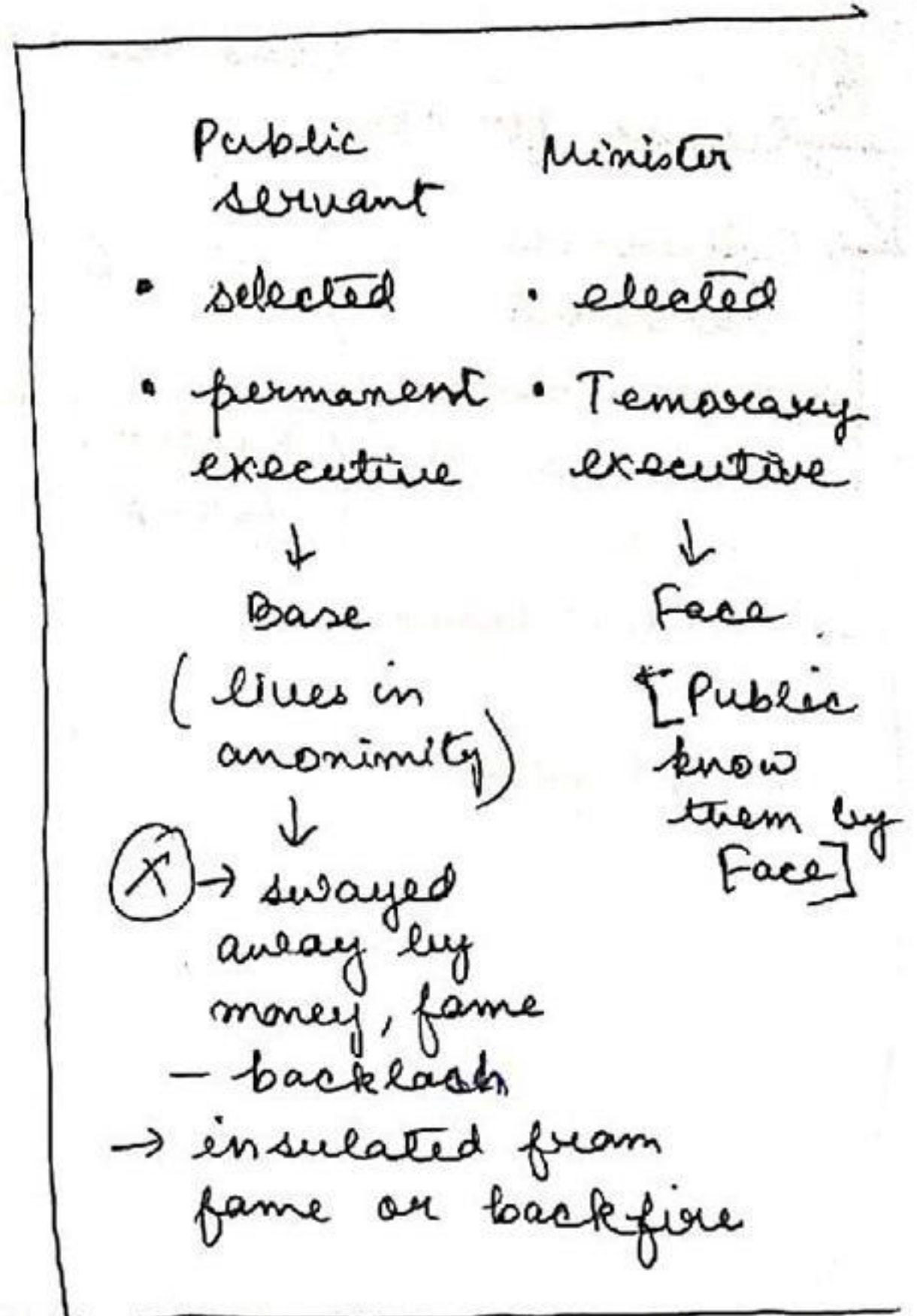


① Land use patterns

Land use + Population

determined by PA + HA

— class - 8 (refer)

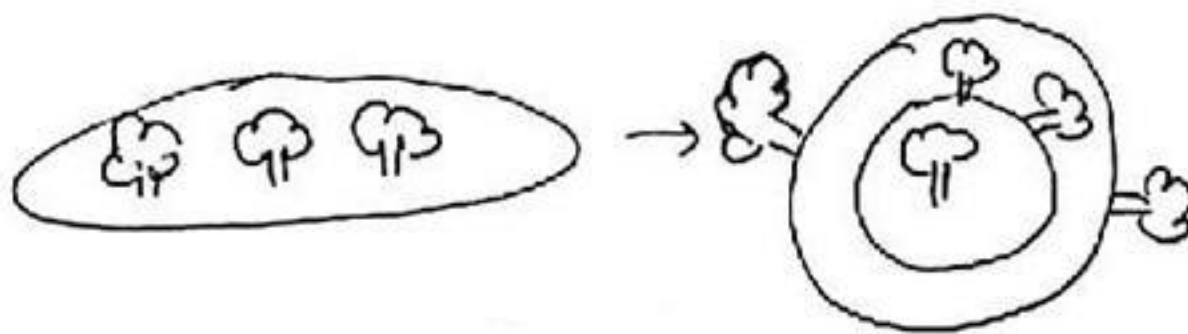


Land use 1960-61

2008-09

- Net
- ① sown area → 45.26% → 46.24% [Increased population pressure to meet food demand]
- ② Barren and uncultivable waste land → 12.01% → 8.61% [Used for different purposes - industries, homes, people encroachment, → area (↓)]

- ③ Forest area → 18.11% → 22.78%



- [old growth forests can't be built
→ political decision:
→ demarcation of forest area increases]



④

Resource for agri	Land-use 1960-61	2008-09
Culturable wasteland	→ 6.23%	→ 4.17%
Fallow other than current fallow	→ 8.50%	→ 3.37%
Current fallow	→ 3.73%	→ 4.76%

* Physical aspect - ok, lacking Human aspect

Cultivable land, but → irrigation (X)

- Private players
- Not good price for crops
- Poor farmers

when added, net sown area of agri will increase

→ 46.24% + 4% + 4% + 4% Food security

→ 58%

Malwa, Bundelkhand, Vidharva →
- Plateau interior

Potential
↑
govt support

↓
cultivable land (✓)

⑤ Permanent pastures and grazing land → 4.71 → 3.38%

Pasture (↓) - Today

↓ when realised importance
→ farm house (cow)

[Land use changes with time as per dynamic nature of society disengaging from one phase to another]

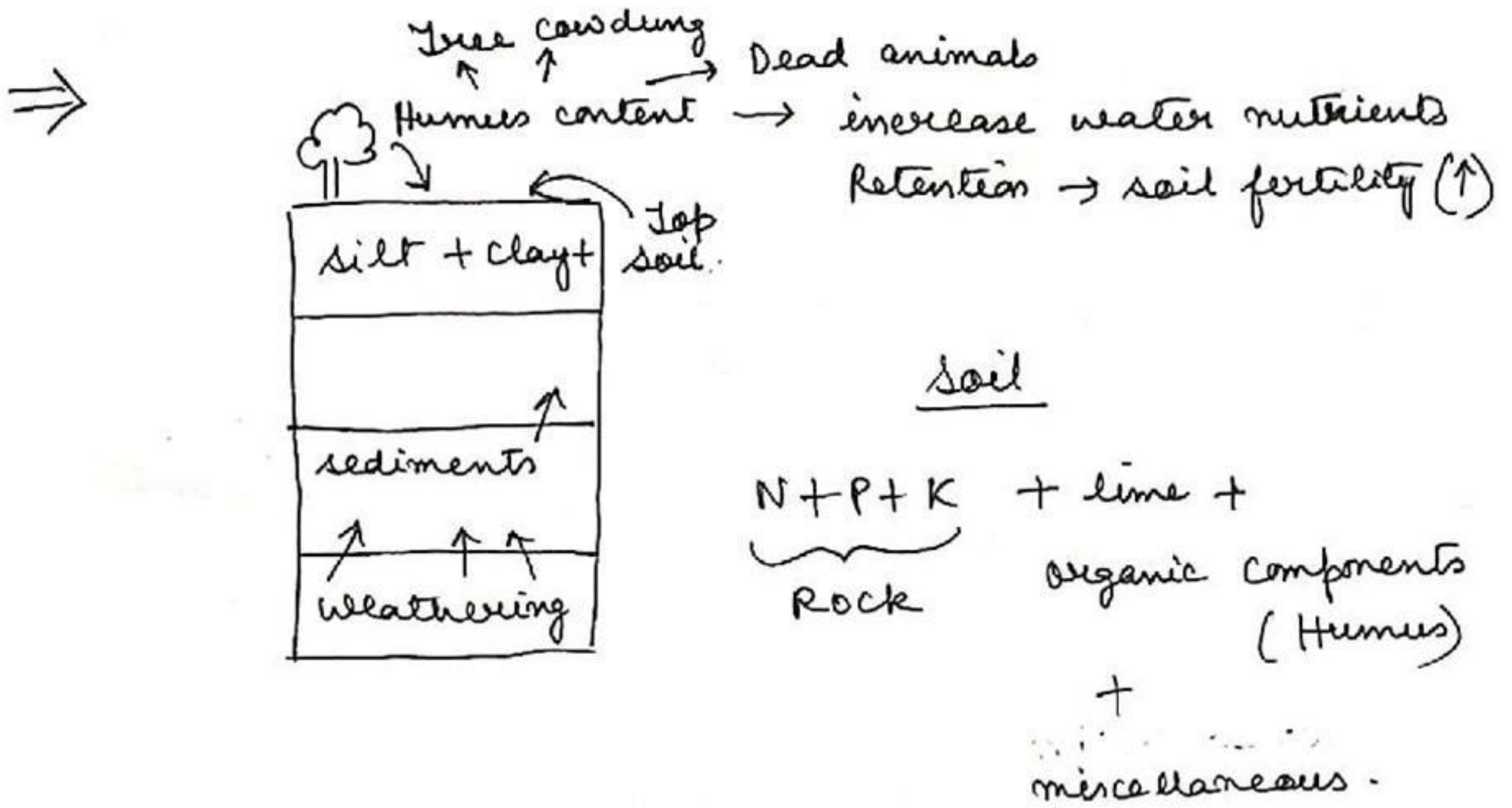
Cow → fodder (X) → Dairy (X)

- high import duty
- Trade deficit
- Impact on economy.



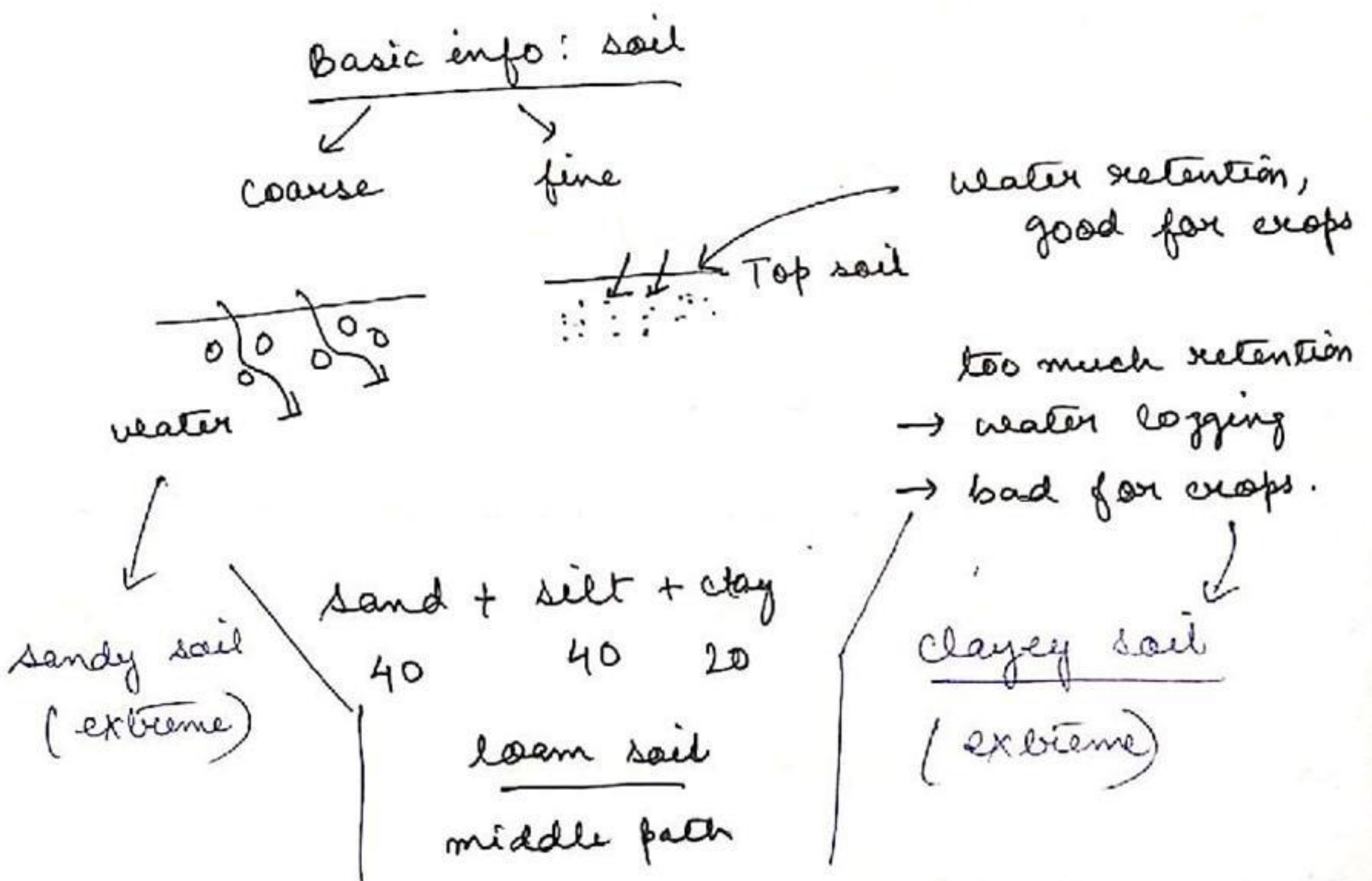
- Sahel - marginal soil - grass: overgrazing
 - unfertile
 - shelter belts → check erosion.

- Refer NCERT - 8.



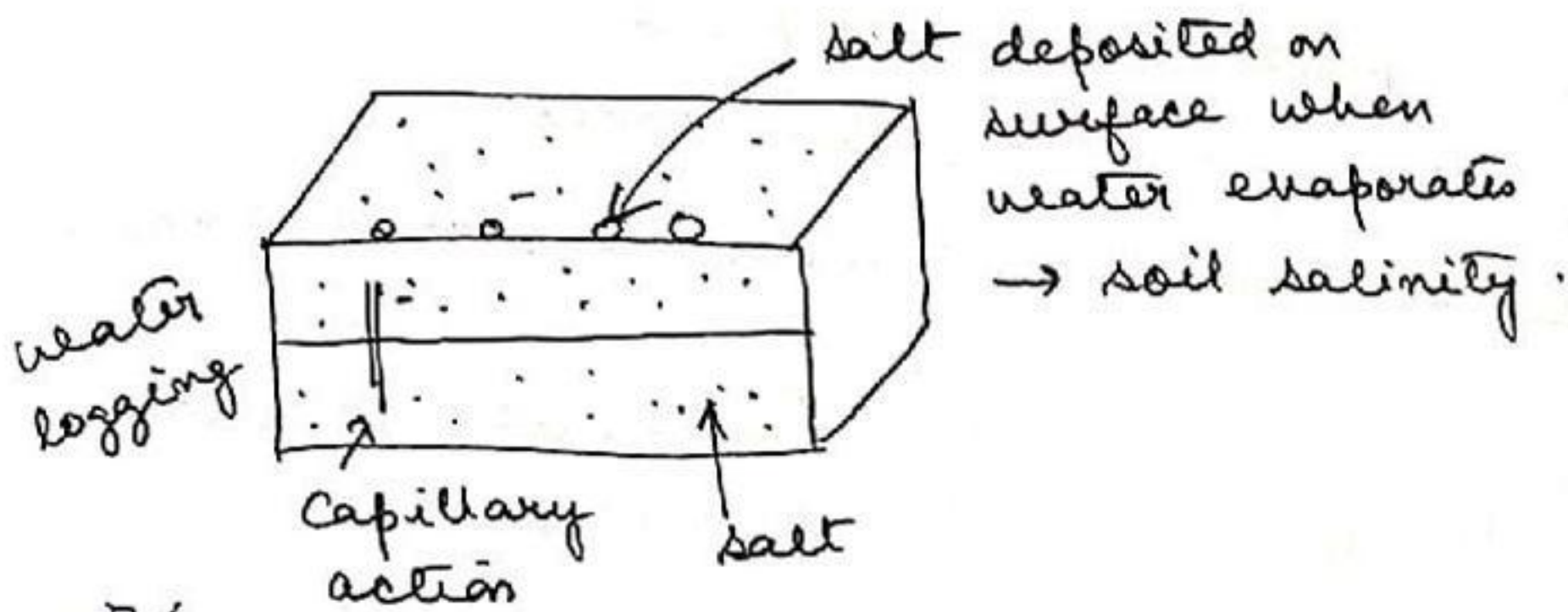
urea : 4 : 2 : 1 → N : P : K

NPK Fertilizer → govt subsidy.





- soil salinity → land degradation.
(SS)



Reasons

- water logging - clay soil → soil salinity problem
- ocean water irrigation - soil saline
- ground water saline → SS [Kerala - coastal area]
- basin topography.

④

Soils

→ 4 major types of soil

- ① Alluvial soil
- ② Red soil
- ③ Laterite soil
- ④ Black soil / Regur.

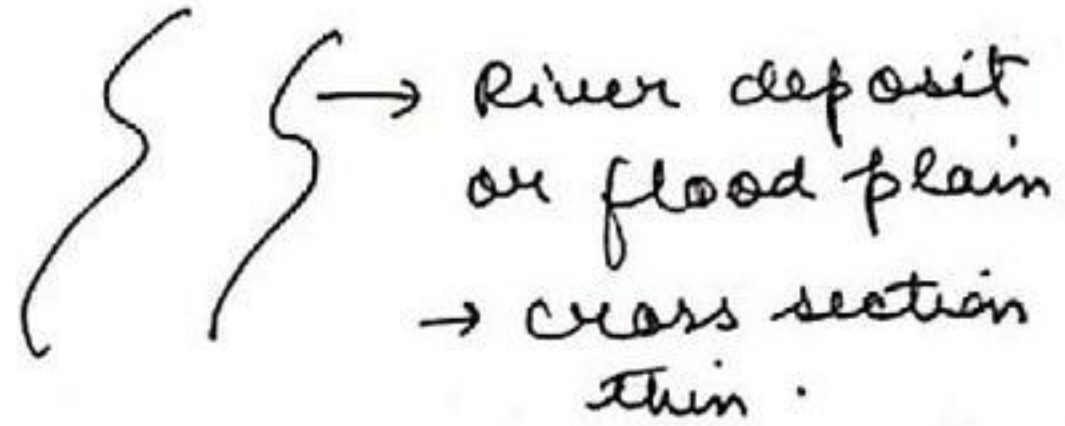
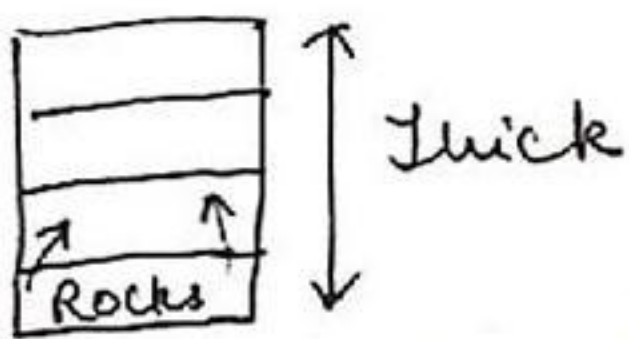
→ minor types of soil (4)

- ① Mountain
- ② Desert - composite plain
- ③ Mangrove - peat
- ④ Saline / Alkaline



⇒ ① Alluvial plain

- fluvial deposit
- Riverine plain + Coastal plain
- one of the most fertile soils
- Profile is thin (not very developed profile)



• Lime + Humus ✓ → N + P (X)

- 4 types - Bhabhar
Terai
Bangar (old)
Khadar (new)

- Drainage is medium
- 40% alluvial soil in India

⇒ ② Red soil: - 20%

granite + gneiss - Parent Rock

↓
weathering

↓
Red soil.

- moderate fertility
- Responds very well to fertilizers application.
- Coarse texture
- well drained soil for eg. tea
- ↓
less prone to salinity

- very dry regions → moisture (↓)
- less agriculture

→ brick mafia

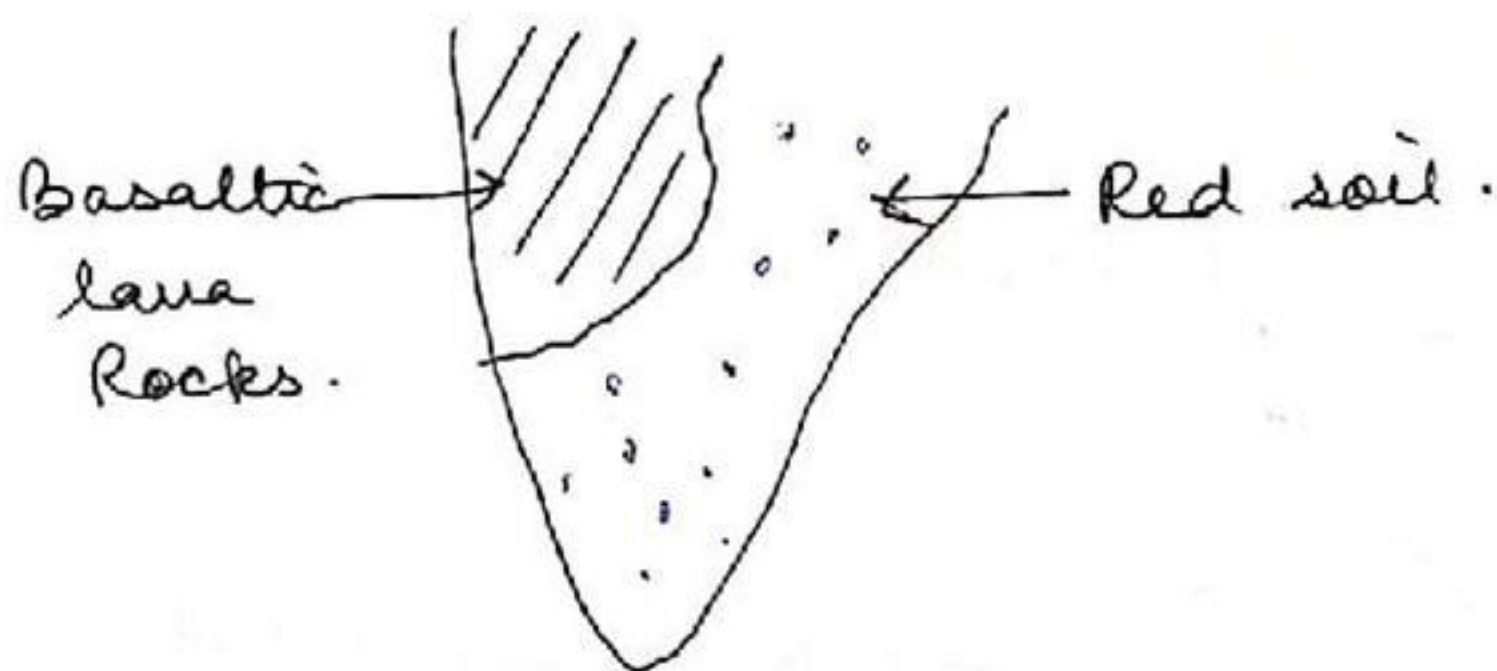
brick industry - Robber's industry.



- Chronic drought, extreme poverty, BPL, fallow land, soil erosion - land degradation.

⇒ Black soil (Regur soil - 15% in India)

- Disintegration and weathering of Basaltic lava rocks.
- Regions of peninsular plateau in Gujarat, Telangana, MP, MH, whereas rest of the peninsular plateau is granite + gneiss rock



- High clay content → water logging → soil salinity
↓
good for cotton.
- also known as Khar region. (← salinity)
- Clay → difficult to work → ploughing is difficult
- Ploughing is done after drizzling, not heavy Rain.
- Self ploughing soil, self aeration soil
wet - sticky
dry - cracks

- middle path is preferred, a balance b/w wet and dry which makes it easier to plough
- N₂ fixation due to self ploughing and aeration.
- Region is rich in lime.
- They are dry regions



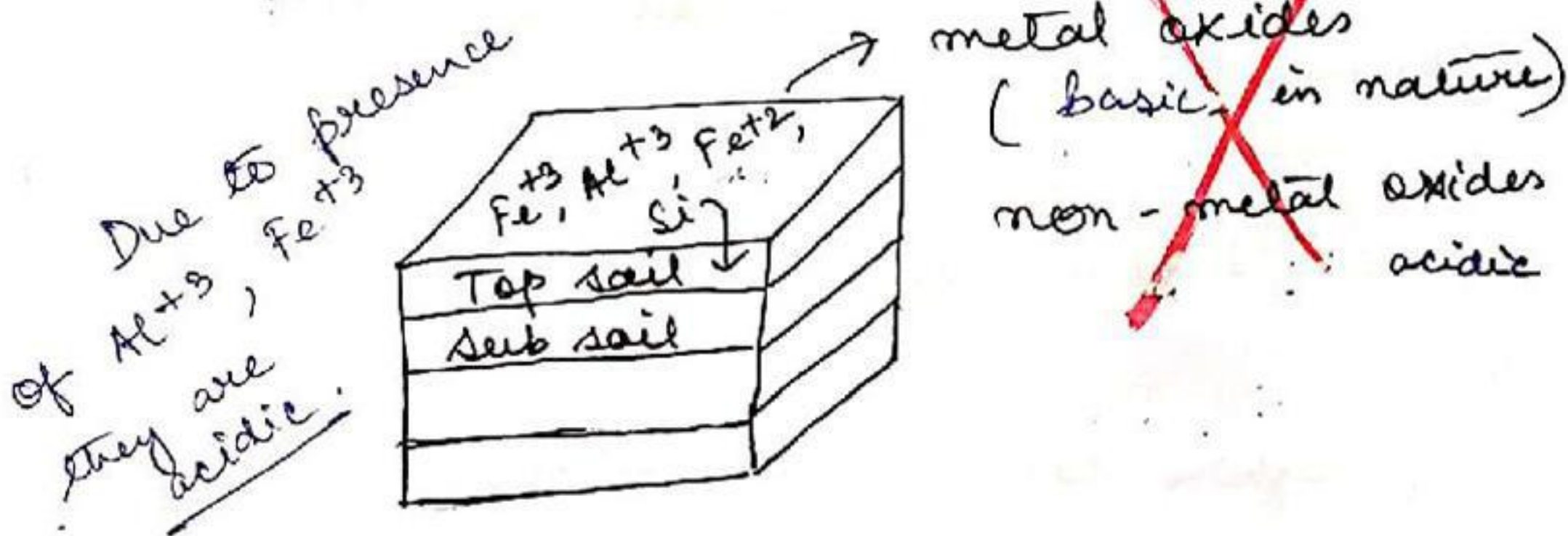
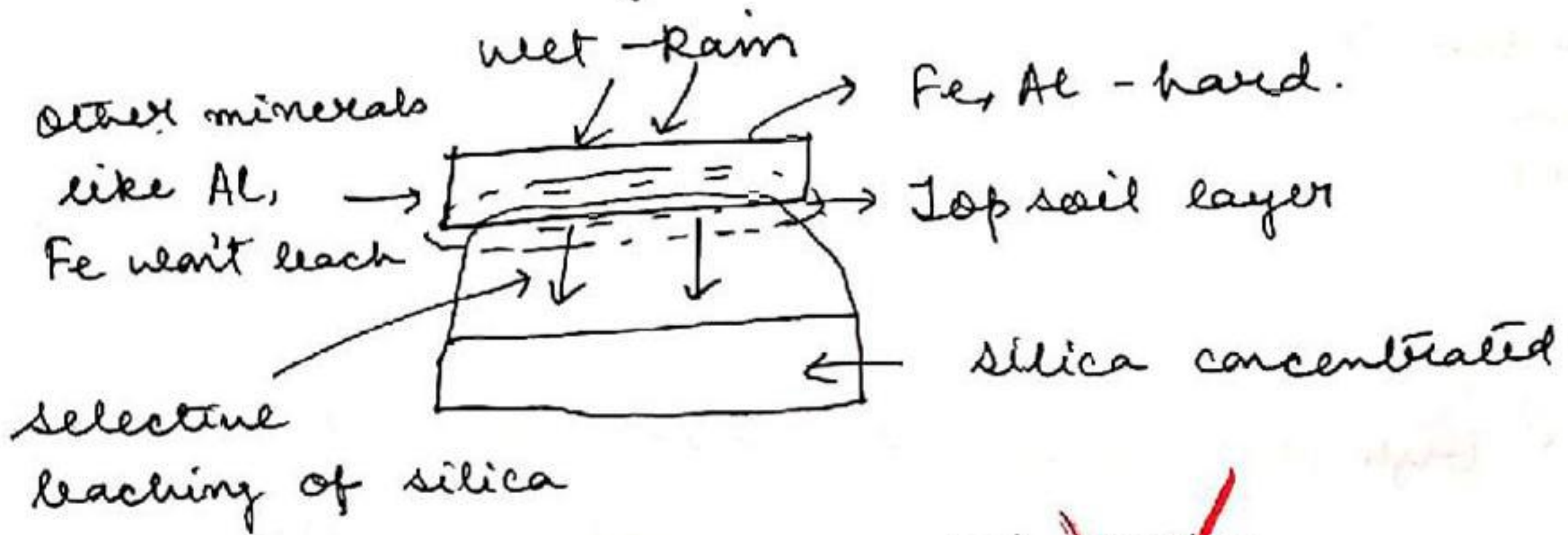
Cotton → dicey crop
→ Risk of failing

Farmers: cotton → Sugarcane → maintain soil salinity
(water guzzling crop)

⇒ ④ Laterite soil: (4%)

- later - brick

- Weathering and leaching activity in highland region.
- under humid and hot climate with alternate wet and dry season.

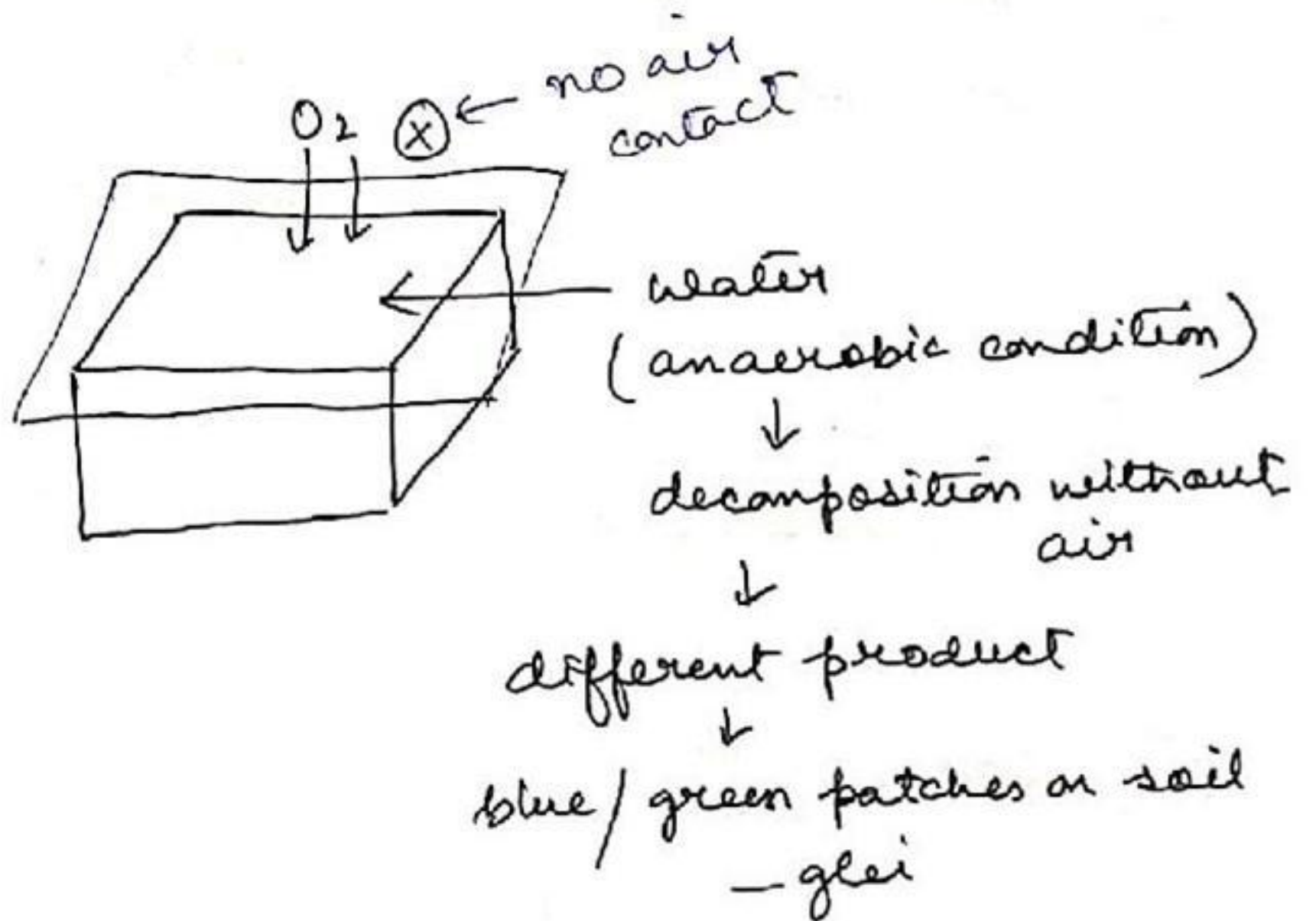
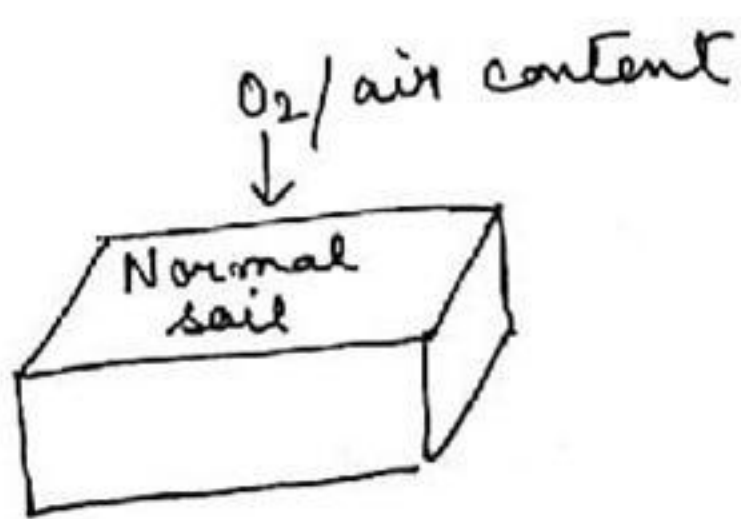
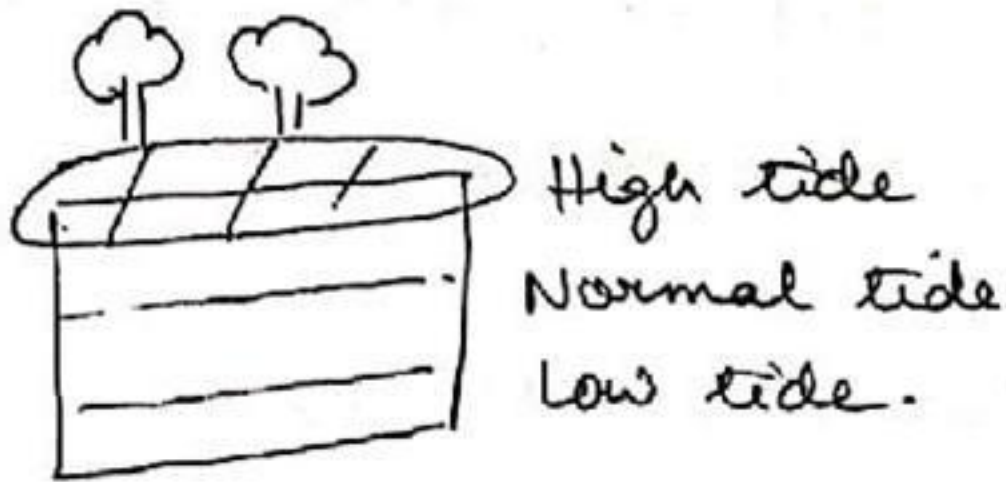


- These soils are not very fertile as they are acidic in nature.
- These soils are vulnerable to soil erosion



⑤ ⇒ Mangrove soil

① Along the coast - intertidal zones



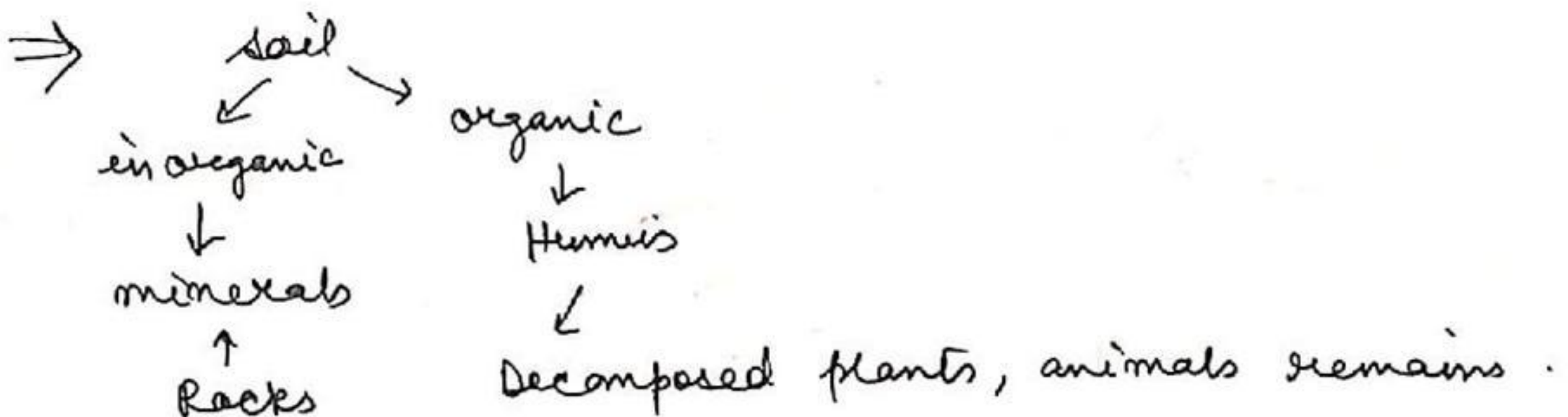
② They are swamps.

③ Because of reduction/decomposition in absence of O₂ (anaerobic) these soils have blue-green patches (even any soil with waterlogged conditions).

④ They are high in organic contents.

eg. Peat coal are found here.

Mangrove soil - Kerala (Kari soil)





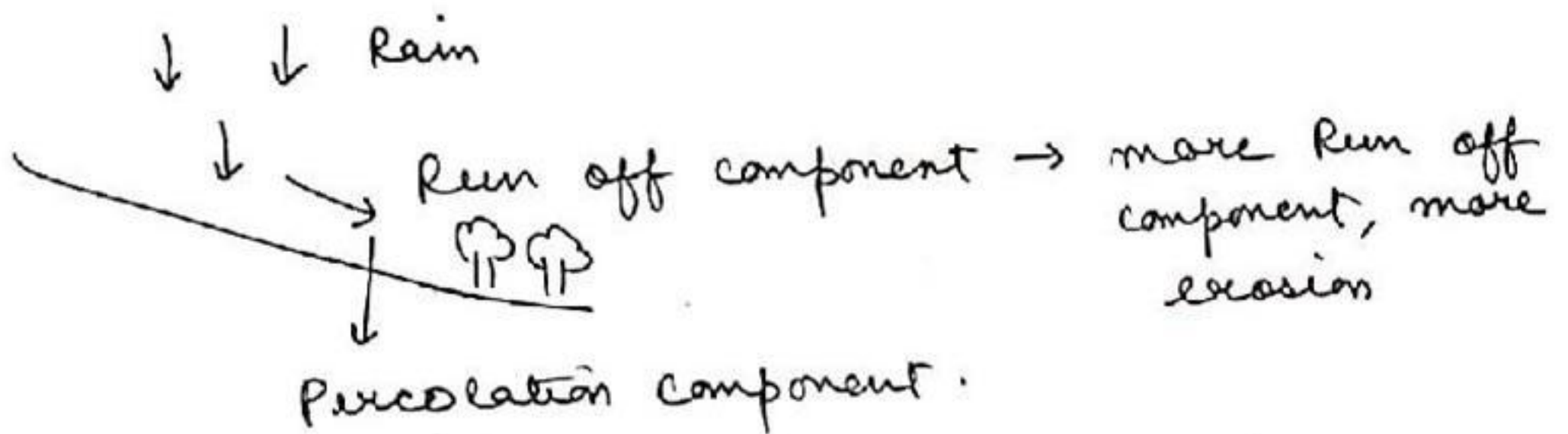
⇒ Uses / Functions : Humus

- ① Nutrient supply - gradually and slowly release nutrients into soil → plants uptake
- ② water holding capacity / retention capacity of soil (↑)
- ③ soil aggregation by forming soil clumps of soil particles, they also reduce soil erosion

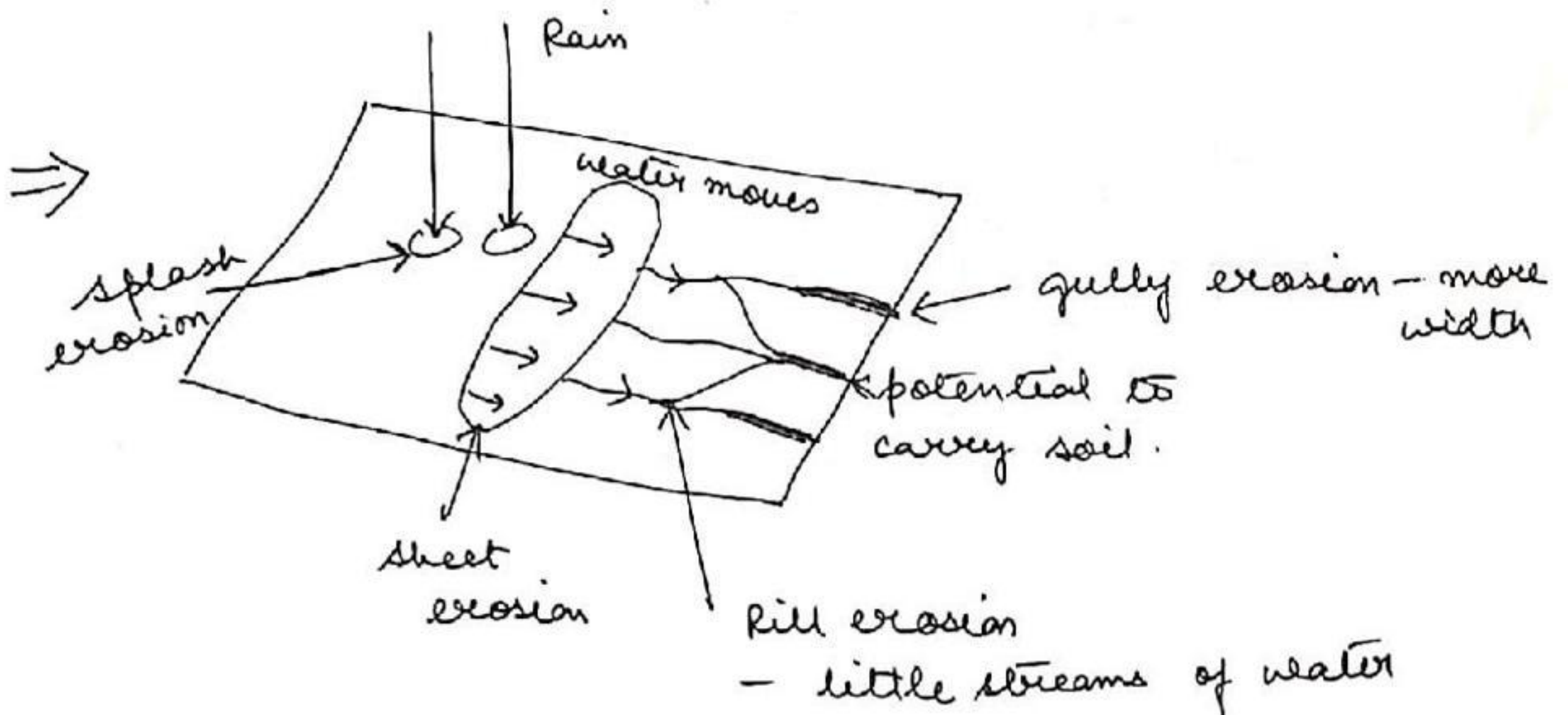
... ○ : ○ → aggregate (Humus) - wind / water erosion - less impact

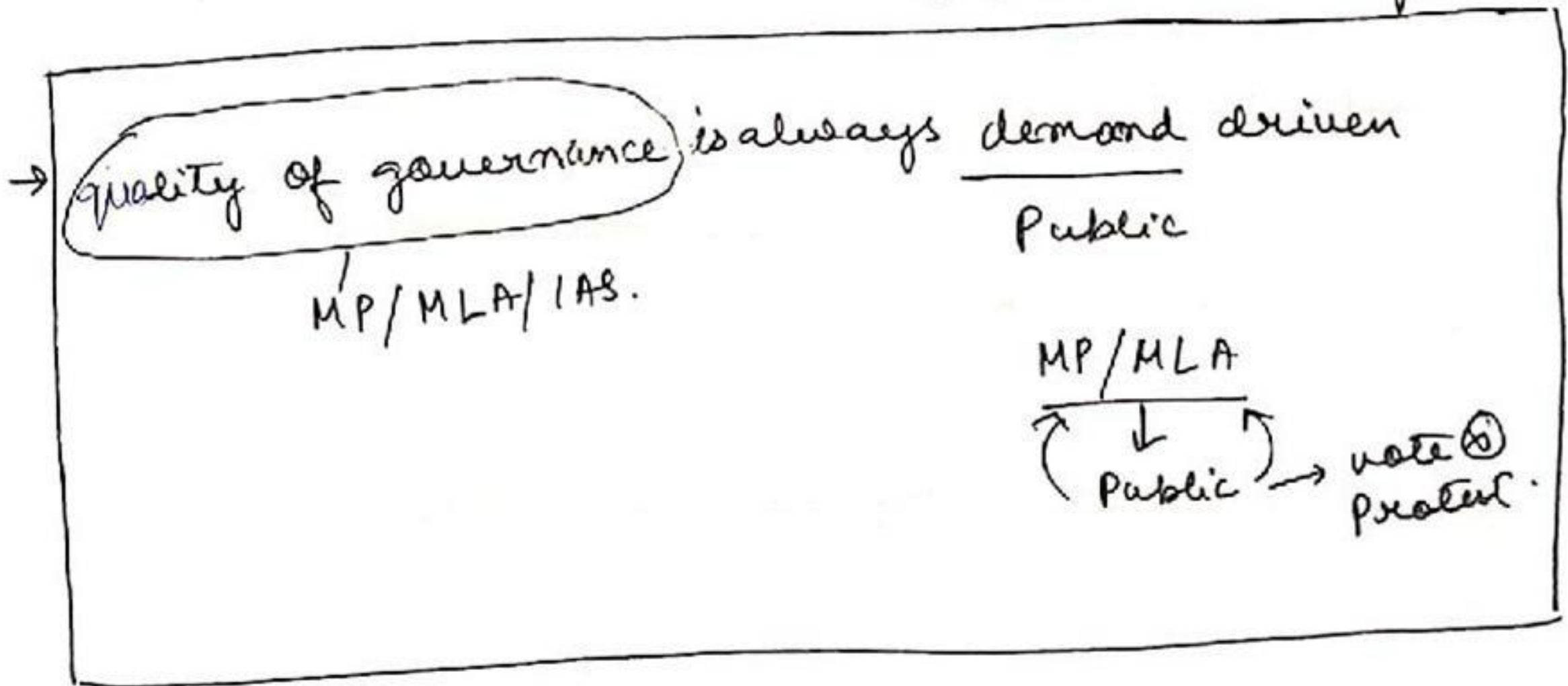
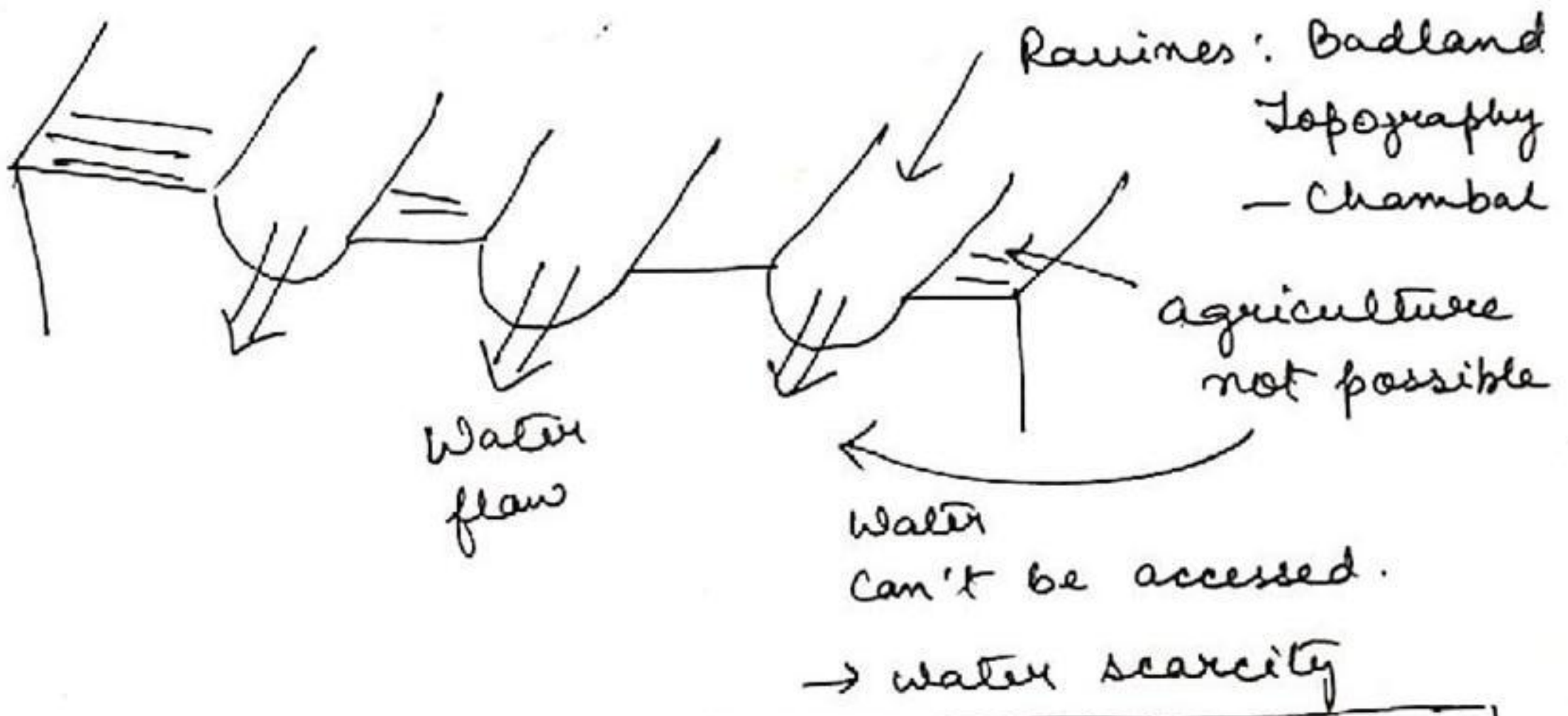
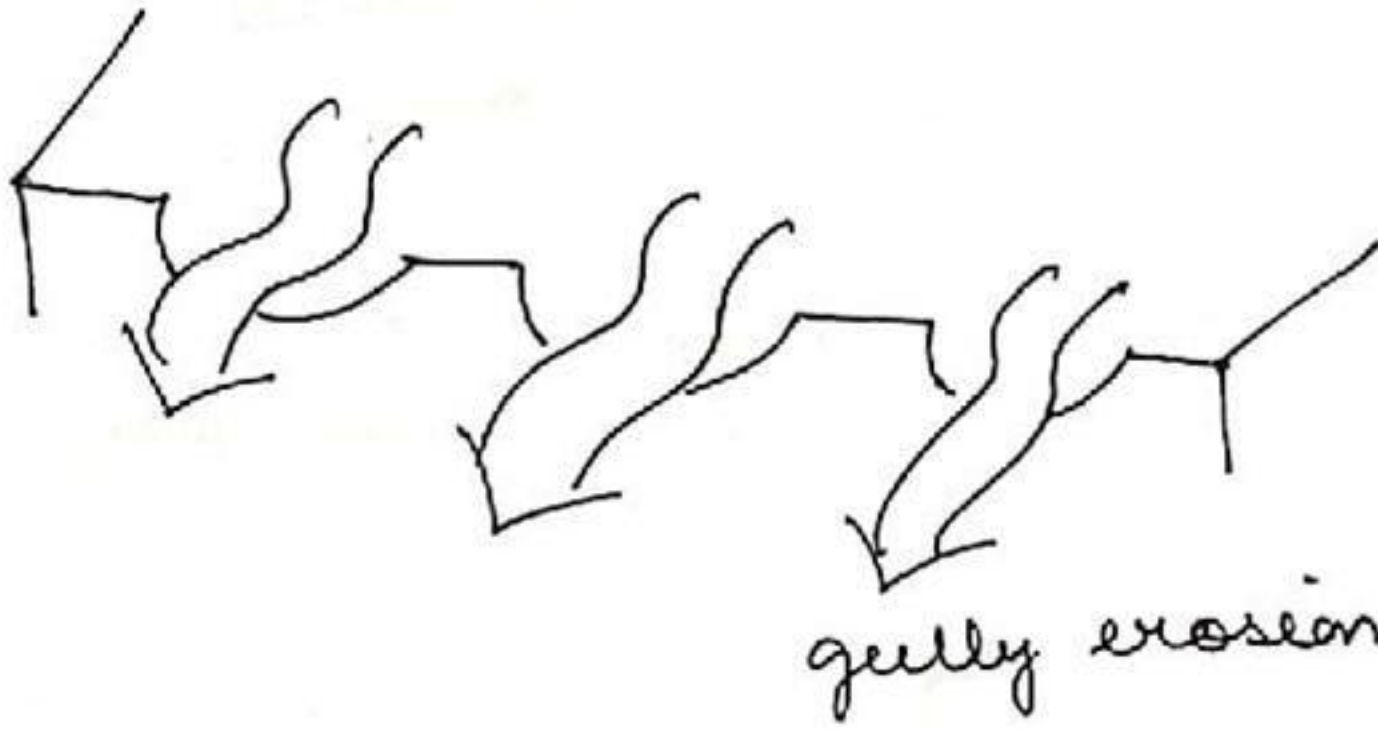
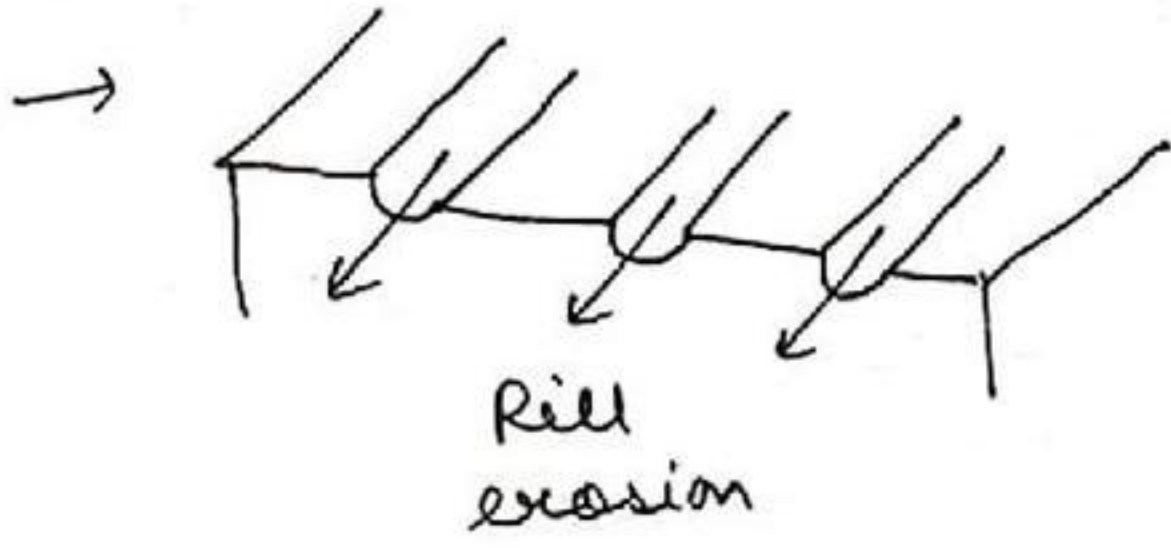
- ④ It increases soil fertility and attracts microorganisms. [earthworms increase fertility]

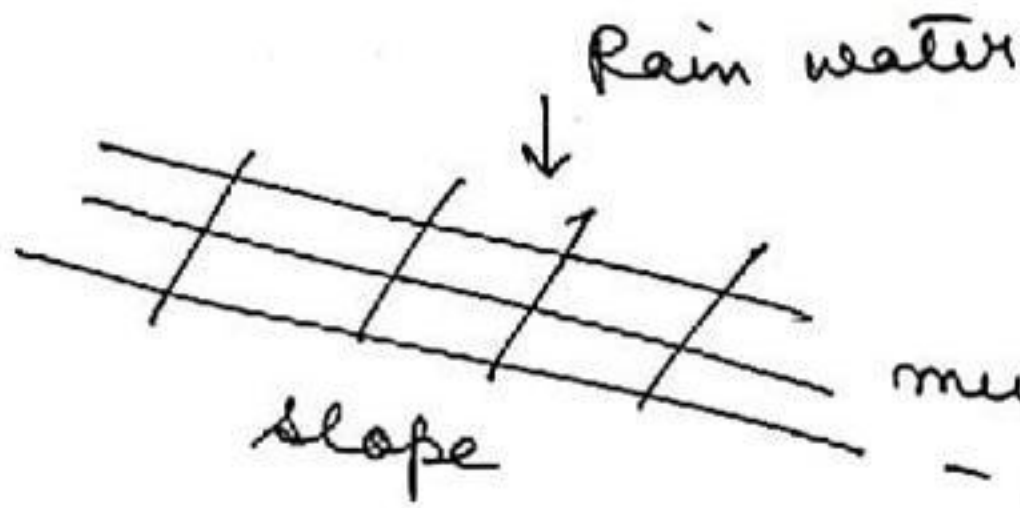
⑤ soil erosion



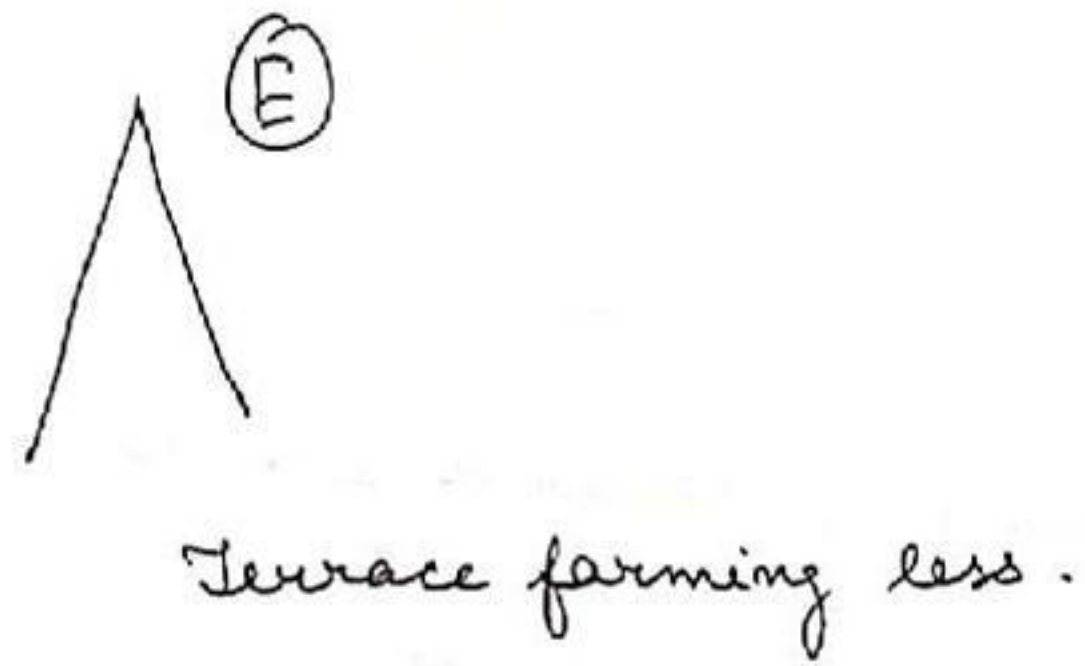
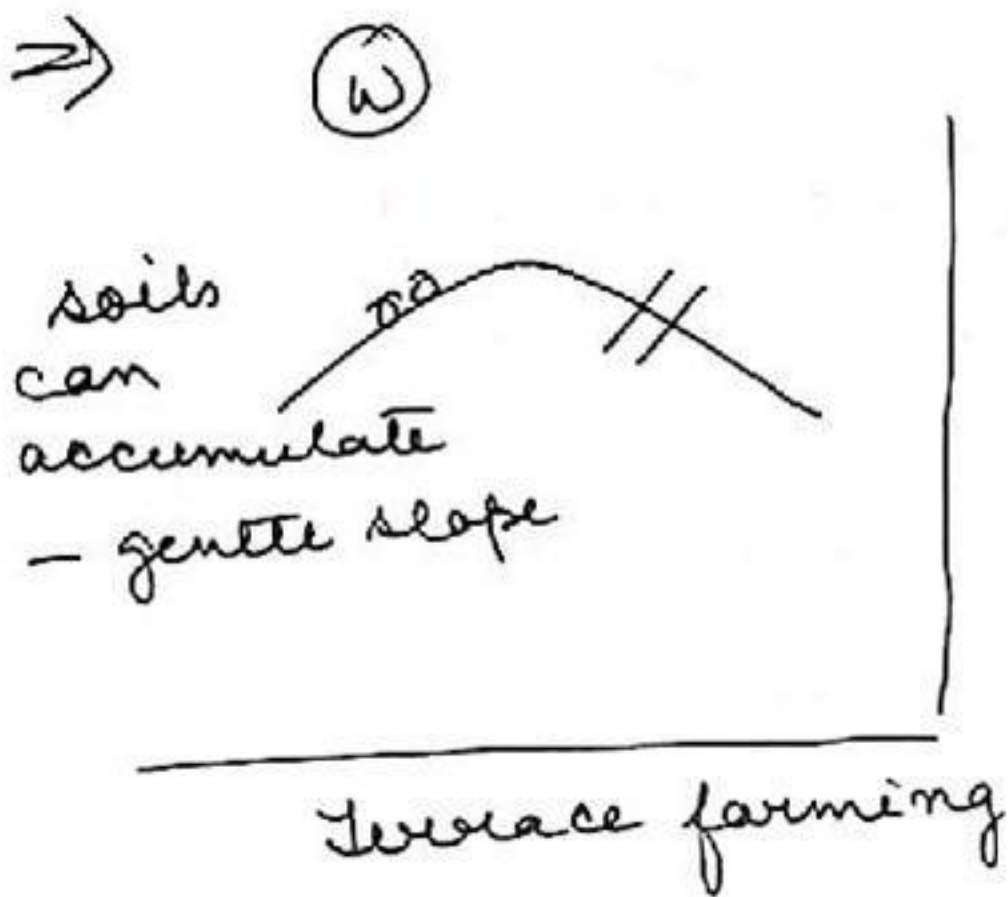
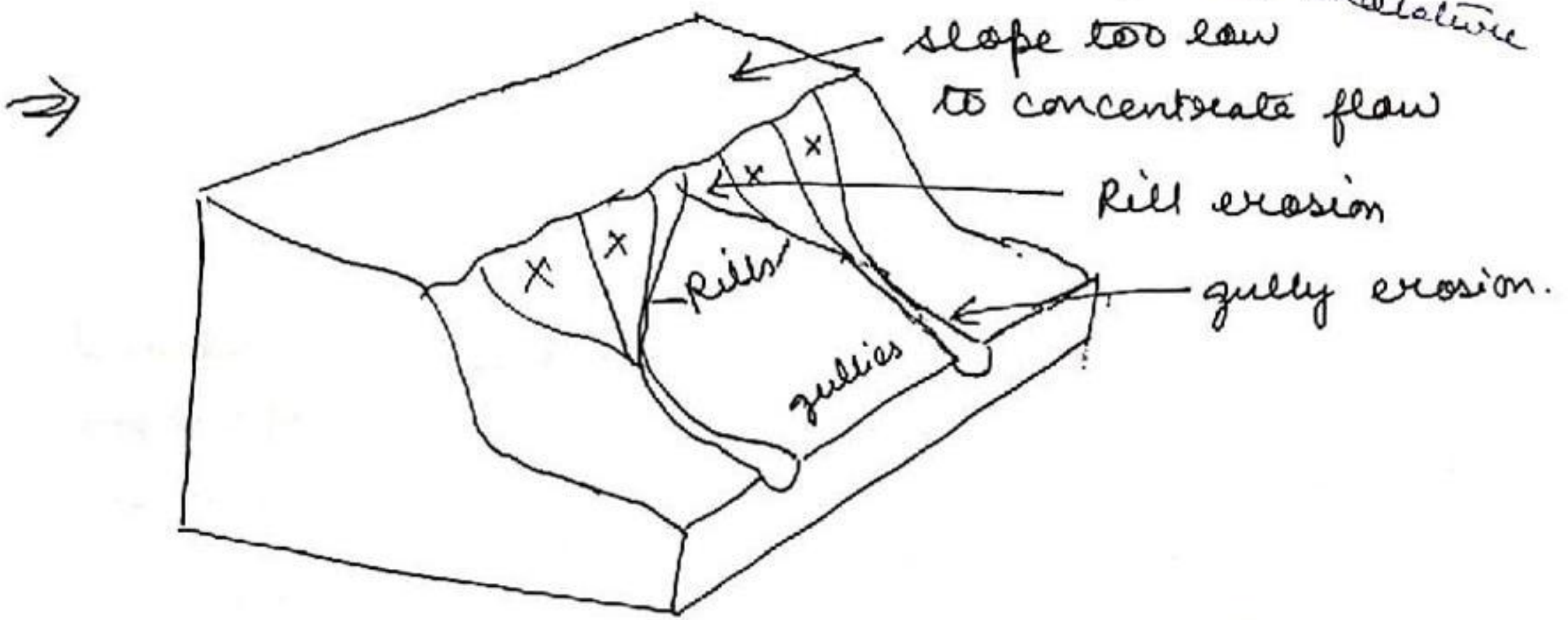
with time percolation component (↑)
run off " (↓)



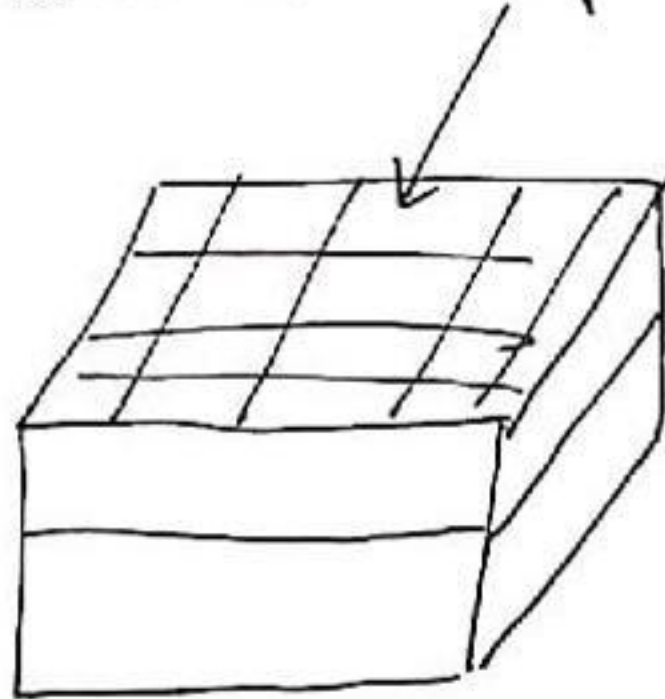




- soil conservation
- not much weathering
- splash erosion eliminated
- retention of soil moisture



sheet-erosion - top soil eliminates





- Sukhomajri Village Project
 - eg: how we can get back degraded land
- Amlabari Project
- Anna Hazare Project - Ralegan Siddhi (H/W)
- People's participation is not about ethics/morality fitness, but about practicality of formulating policy
 - People involved - policy outcome improves
 - Top-down approach fails
 - So, e-gov/media - grassroots → interact with top level
 - ↓
 - Bottom to top approach



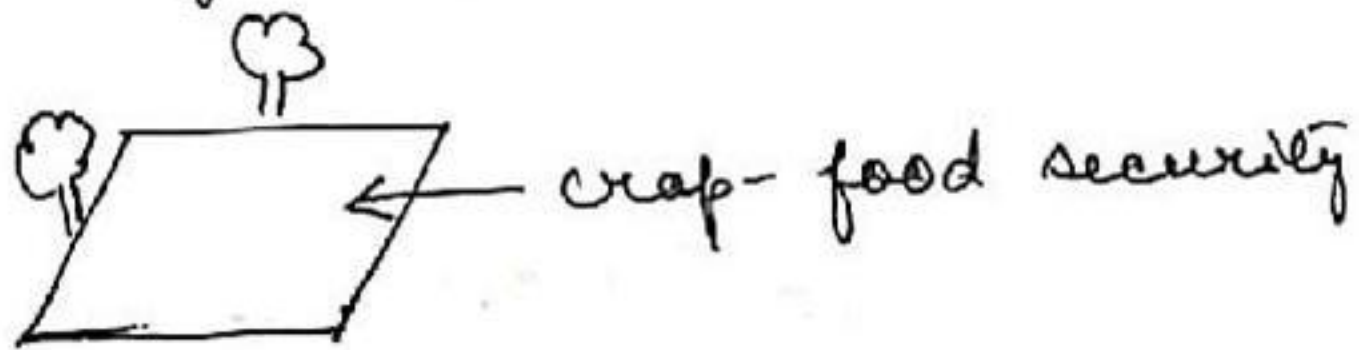
Ch 2: forest and Wildlife Resources

① Sikkim, Nepal, Darjeeling - Lepcha tribe
Sikkim - Sherpa

②
Extinct in wild: Natural Habitat (X)
Zoo, captivity ✓

Extinct altogether: Nowhere found.

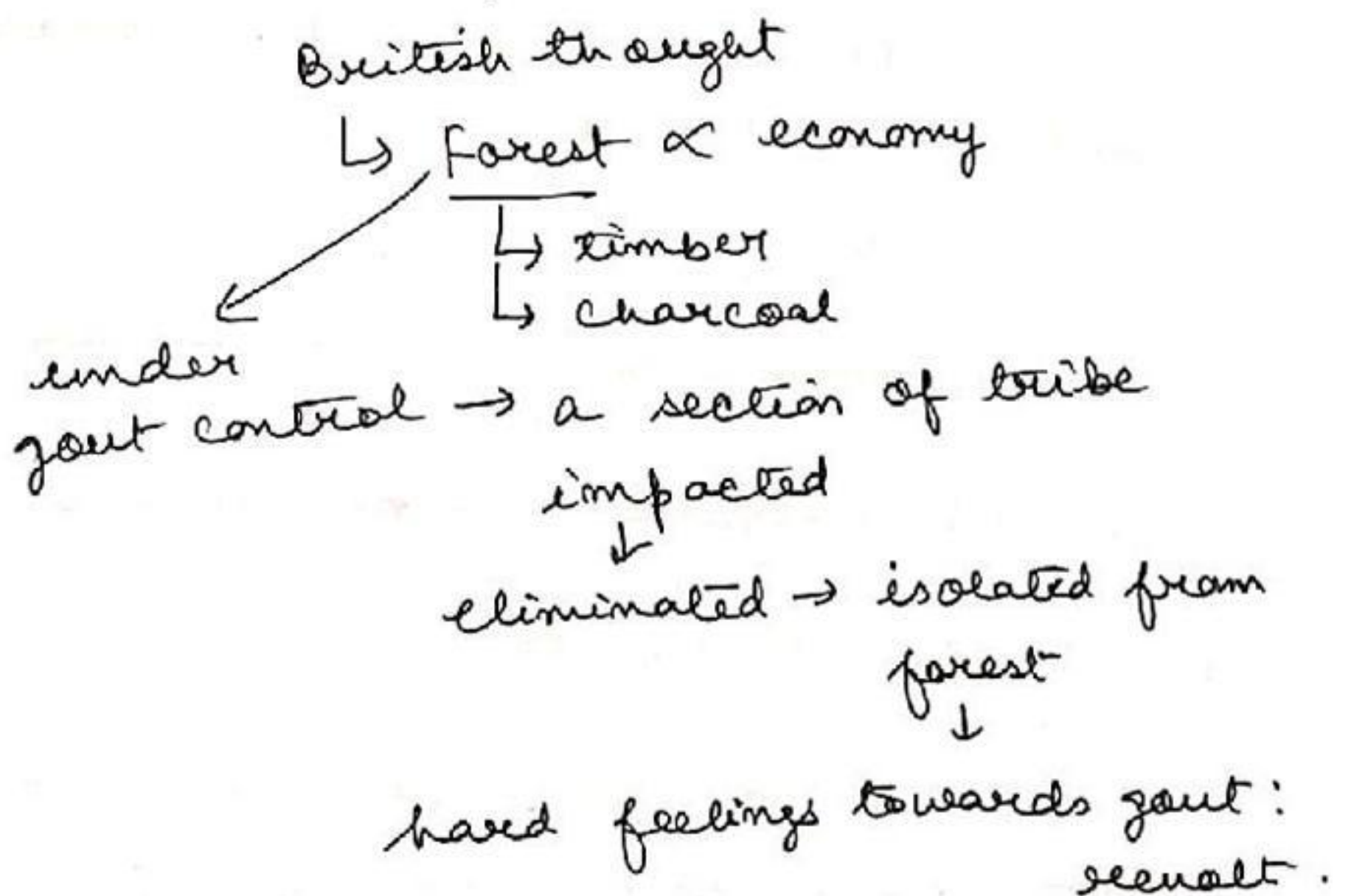
③ Agro-forestry - Agri + Forest



Farm-forestry - to grow forestry in place of crops
- people focused more on farm-forestry,
food security ignored.

④ Forest Conservation:

(i) British time (1874) - Forest policy - 1874

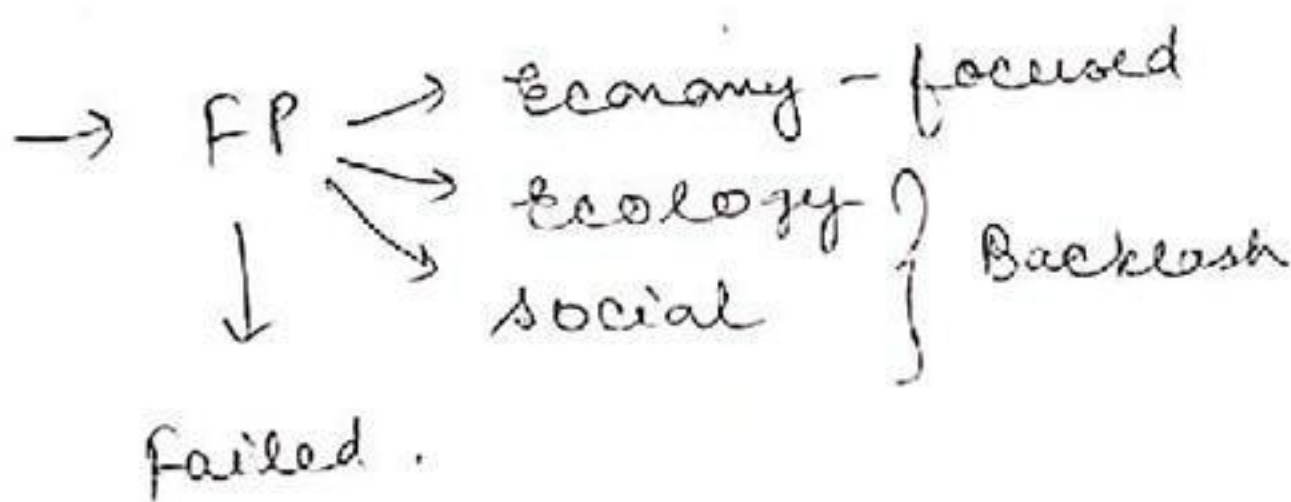




(ii) Forest policy 1952: (FP)

- Ecological, social needs must be focused on besides economic needs

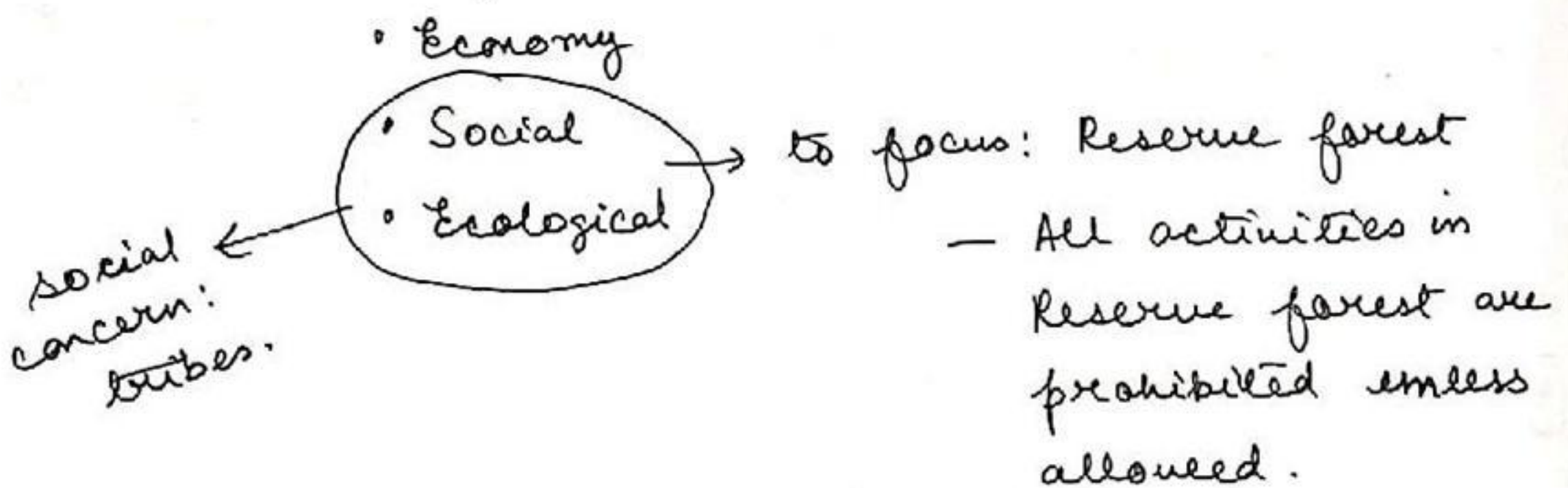
India - welfare state - tribes must be helped



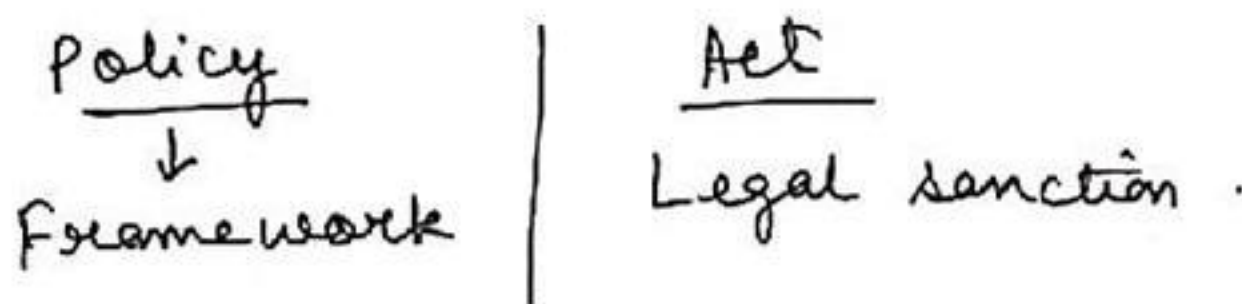
It was expected that India should have 33% of its area under forest cover.

(iii) FP - 1988

↳ JFM - Joint Forest Management
 ↓ ↓
 govt people.



Protected forest -
 all activities in this forest are allowed unless restricted



→ not adequate, tribes still in problem.

(iv) Forest Rights Act - 2006

→ Local dwellers of forest / tribes with the immunity from forceful displacement / eviction.

• take care of loss of livelihood / homes.

(v) CAMPA - Compensatory Afforestation fund Management and Planning Authority.



Q. Mention forest conservation efforts from British period to present time. Our forest policy was enacted in 1988, do you think we need a new forest policy in line with present dynamics of the economy and society.

→ British time,

1952

1988 → very absolute

CAMPA

FR A 2006

↓

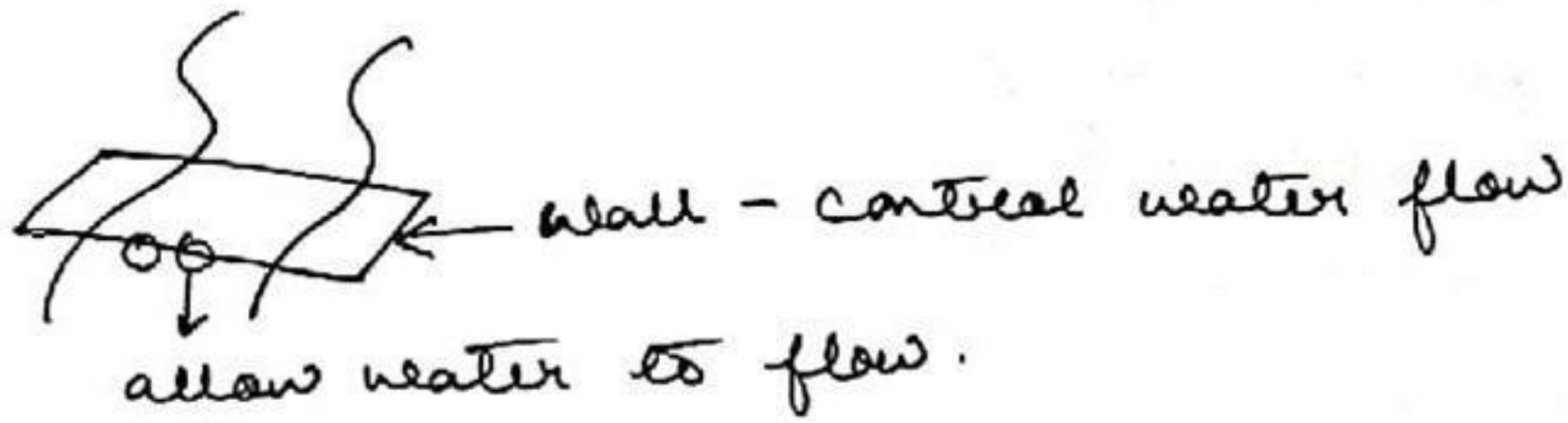
Need: New India with new global challenges

- ↳ ce
- ↳ Ozone-layer depletion
- ↳ sea-level rise
- ↳ CC - affecting agri

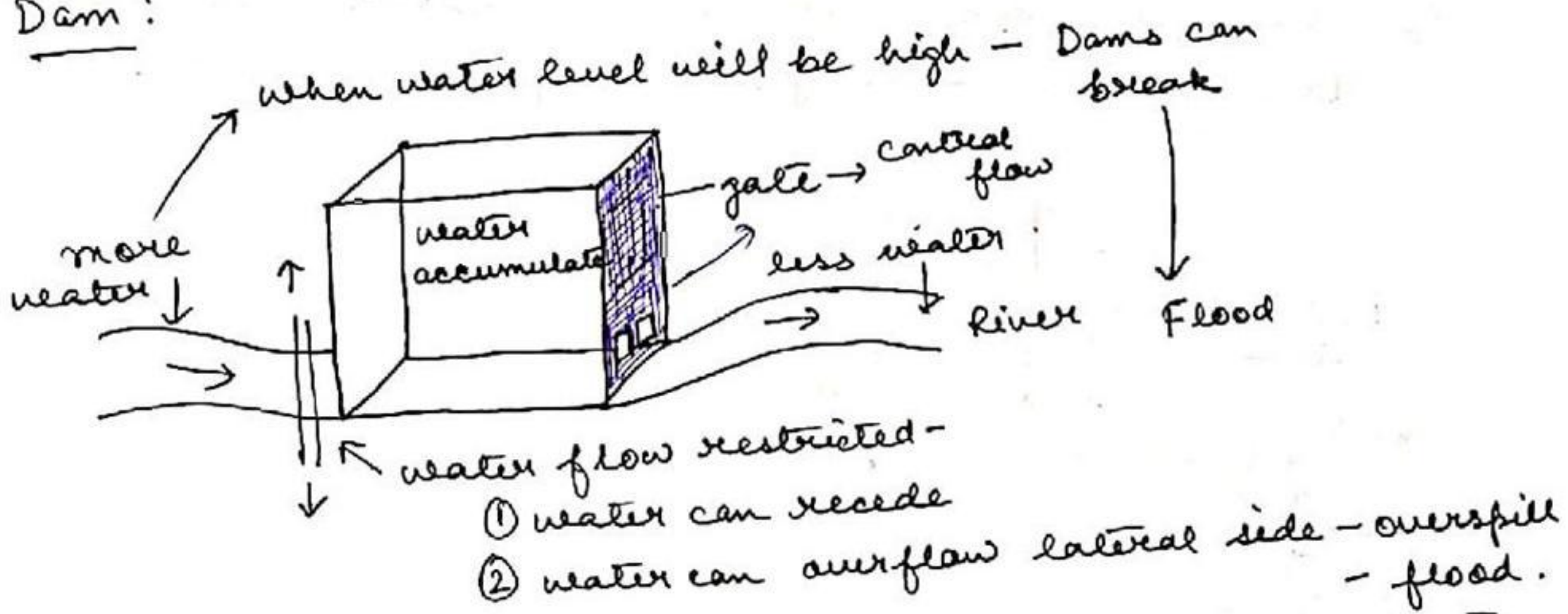


Ch 3: Water Resources

- ① Water scarcity: Refer Class VIP
- ② Multi-purpose River Projects and integrated Water Resources Management:



Dam:



→ gate should be opened so that every side gets water

eg: ① Bihari ② Farakka Barrage ③ WB

→ Negatives:

① Water: Water Bomb: eg: China - open dam gate
Politics → NE flood → Restricted space
Meghalaya Plateau

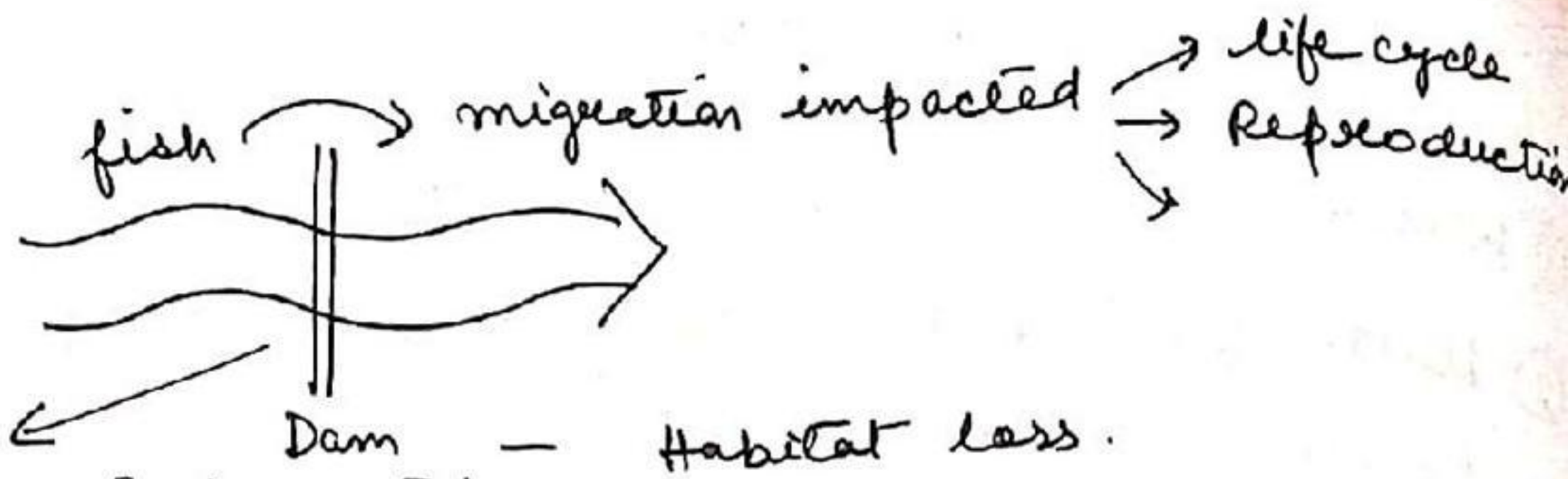
② River: Dam gate - Inter-state/international conflict

③ Gate closed: affect agriculture; economy impacted
Dam & Economy

④ Reservoir induced seismicity:
→ water spread across large area - not a problem
• large volume of water concentrated at small place - earthquake.

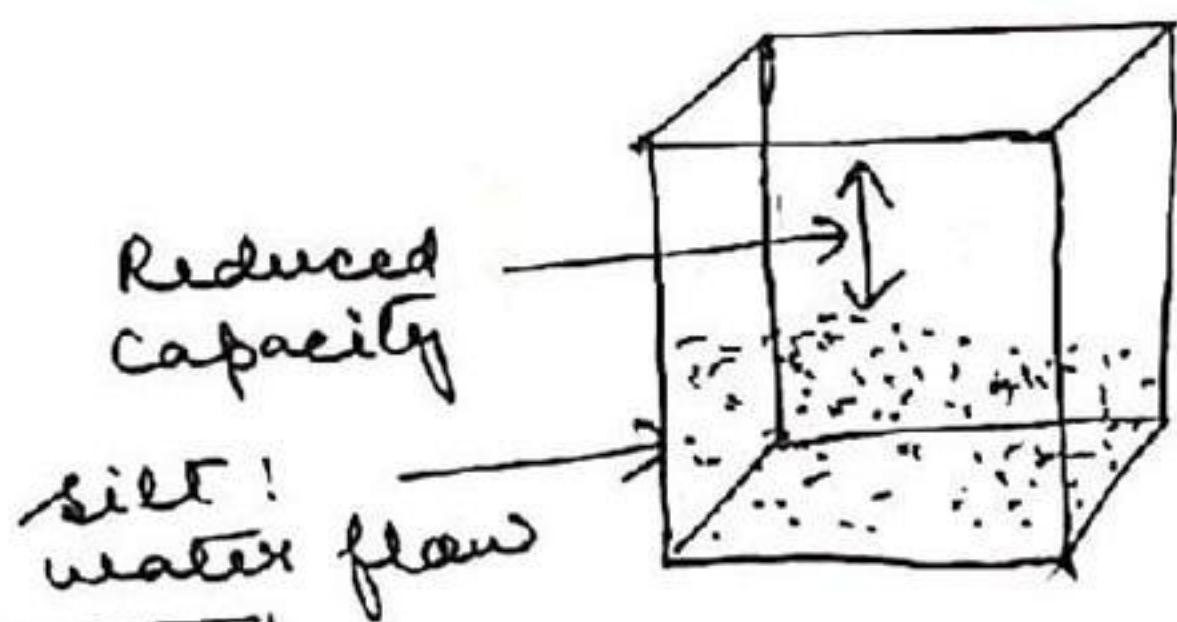


⑤



Reproduction impacted
cross genetic flow (X)
genetic viability (X)
species diversity (↓)
biodiversity (↓)

⑥ Ungauge capacity of river → Dam design if faulty will have great impact on society.



Uses:

① Economy:

- Canal irrigation, agriculture boost
- Inland navigation
- Recreation
- fish breeding

② HEP generation

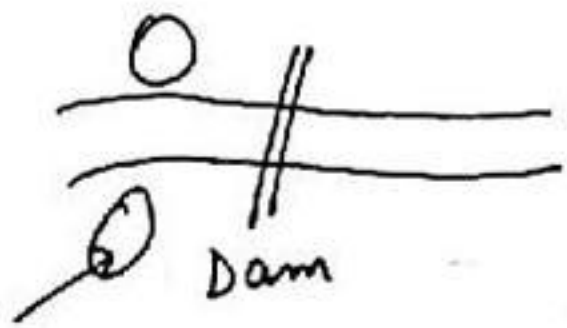


② Multi-purpose Project (MPP)

↓
+ve

↓
-ve

• Irrigation (traditional use)



agriculture

→ agri development in drought prone area

eg: Maharashtra, Vidharba, Chambal region

• Flood control - Rain water store.

• HEP - Home Industry - Economy.

eg: Bhadrabati I/S plant
→ Jog Falls → HE

• Recreation

• Fish Breeding



so, MPP can revive economy of entire area.

J. Nehru: Dams are temples of modern India

• Impacting flow of river water.

• Siltation / sedimentation

• Flood plains submerge

• Can trigger flood

• Reservoir induced seismicity

• Soil erosion

• Habitat fragmentation leading to lesser genetic diversity, biodiversity impacted.

• Development Refugees (Narmada - Bachao Andolan) - Push - Pull Factor

• Inter state / international dispute

• Due to access to irrigation it breeds monocrop culture - All area growing water intensive crop like sugarcane & rice

⇒ Irrigation - Agri - Rural Development - Urban Development



Irrigation

veg ↓ → moisture
→ Temperature

→ Punjab
↓
wheat ✓ → Rice → hindrance: water (irrigation)
← if supplied ←

→ Kaveri Basin - sugarcane: water guzzling crop (irrigation)

→ Previously, there was only agro-climatic crop - good

↓
Dam
↓

monoculture Breed - entire India will produce 1/2 crops.

impact - food/nutritional security.

→ Irrigation: Impacts

→ cropping pattern - shift to water intensive and commercial crops
→ soil salinization.

④ Rain water harvest - TN, Rajasthan practise RWH.

⑤ Ground water Table may go down, so RWH must be practised.

⑥ Ground water is a decentralized mode of water usage.

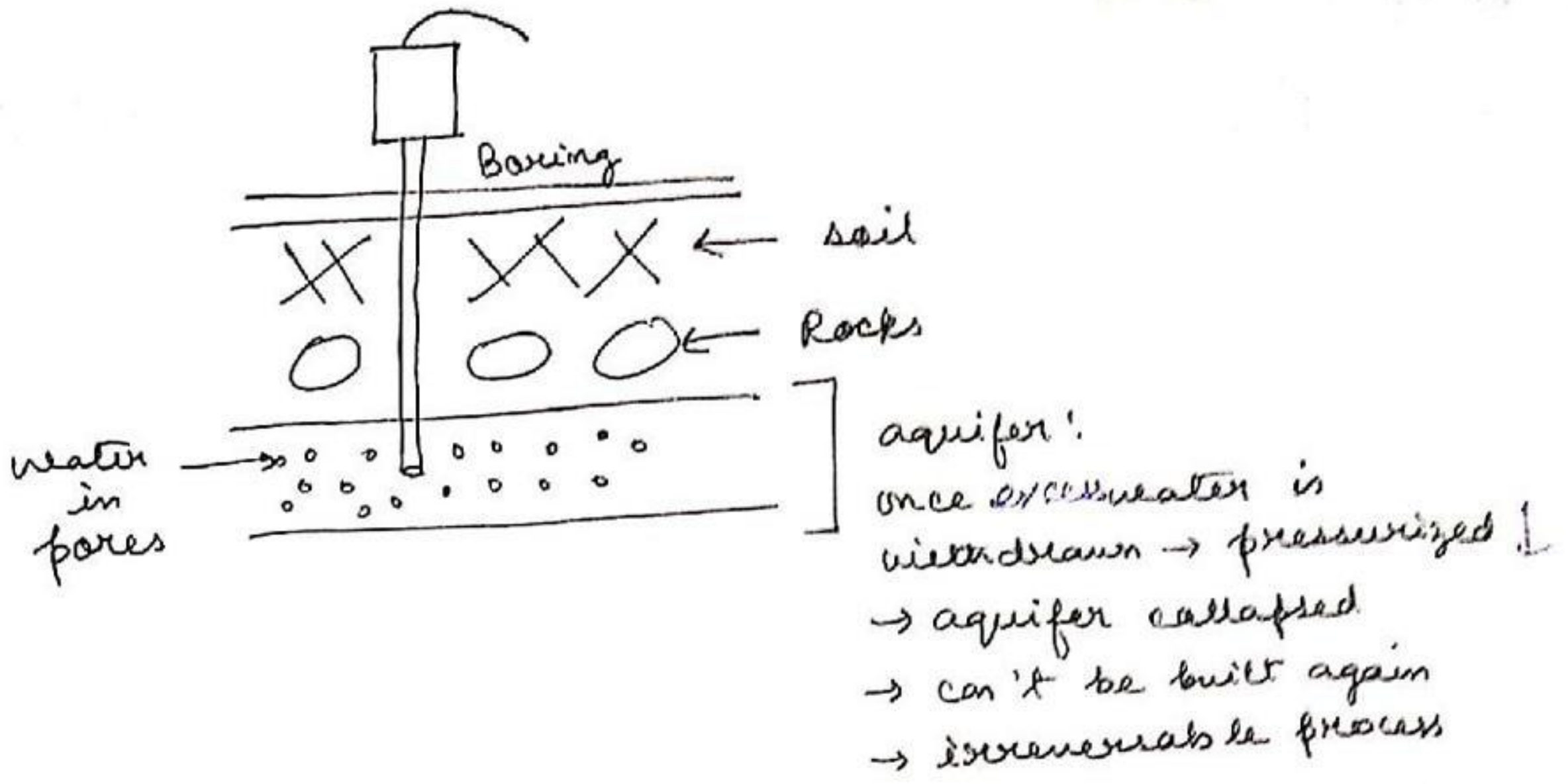
- Can be done by individual
- less costly
- easier to extract water

But, it must be the last Resort.

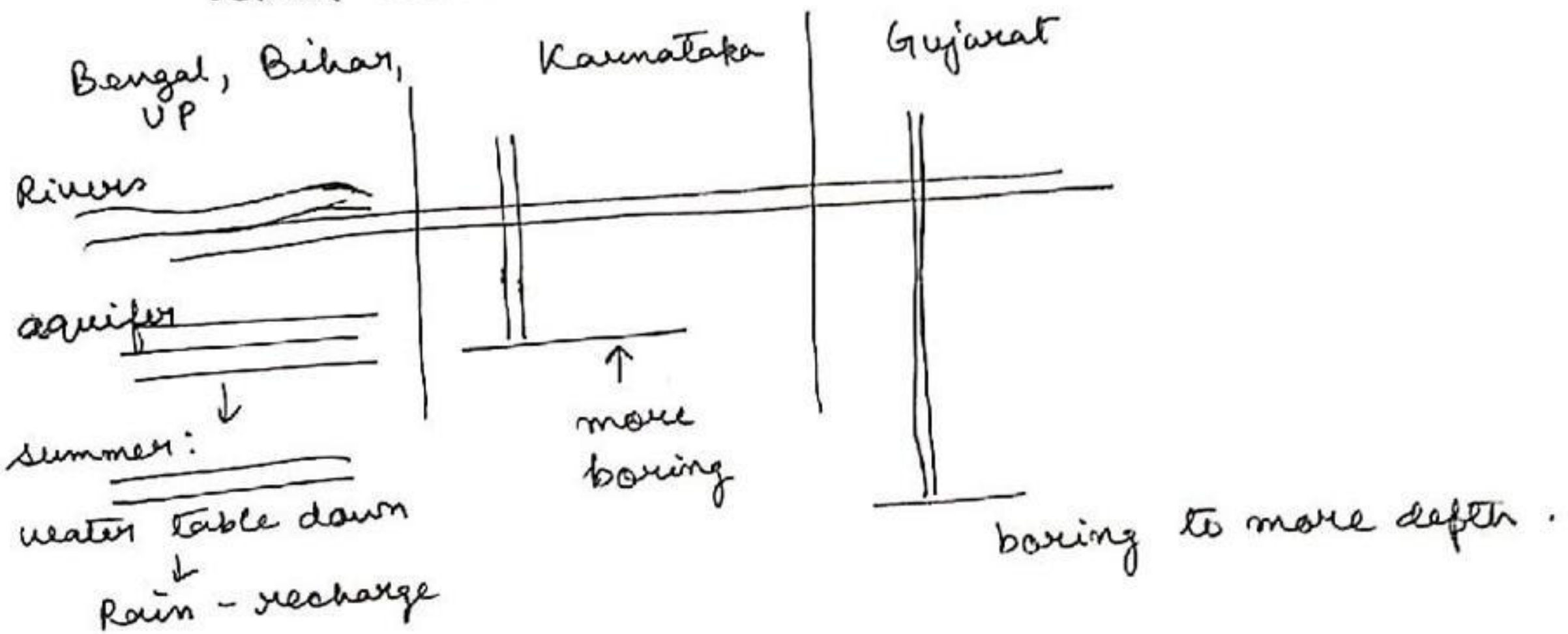
-ues

- Can get polluted
- overexploitation of GWR.
- Aquifer collapse

⑦ Canal irrigation: water: govt maintained → costly.
↓
farm

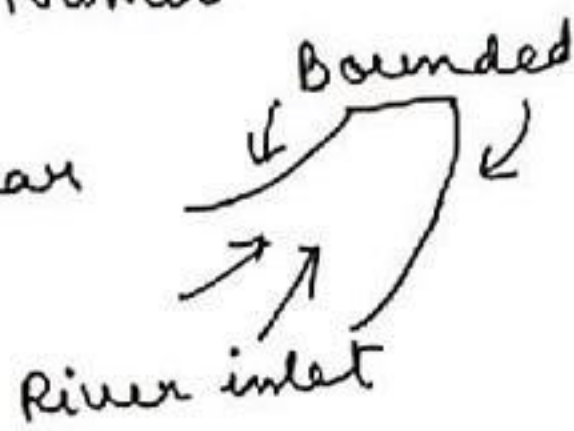


→ water table fluctuates depending on climate of that area:



→ Water Harvesting: Names

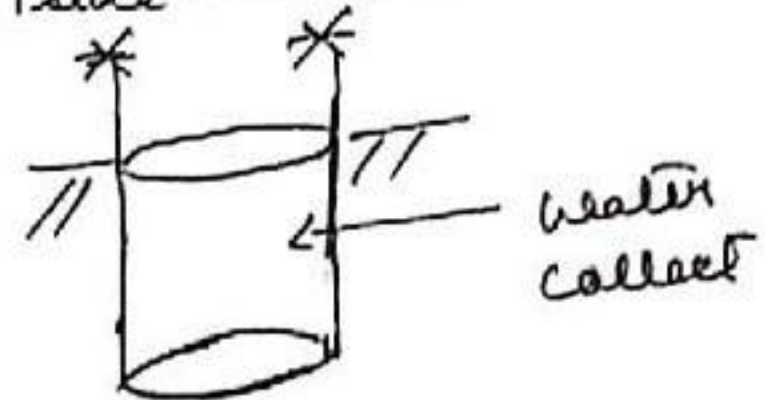
→ ① Ahar Pynes: S. Bihar



② Johad - Rajasthan → [Natural Boundary: 3 sides, store water] / [embankment: 1 side]

③ Tanka - Rajasthan

④ Panam Keri - Kerala

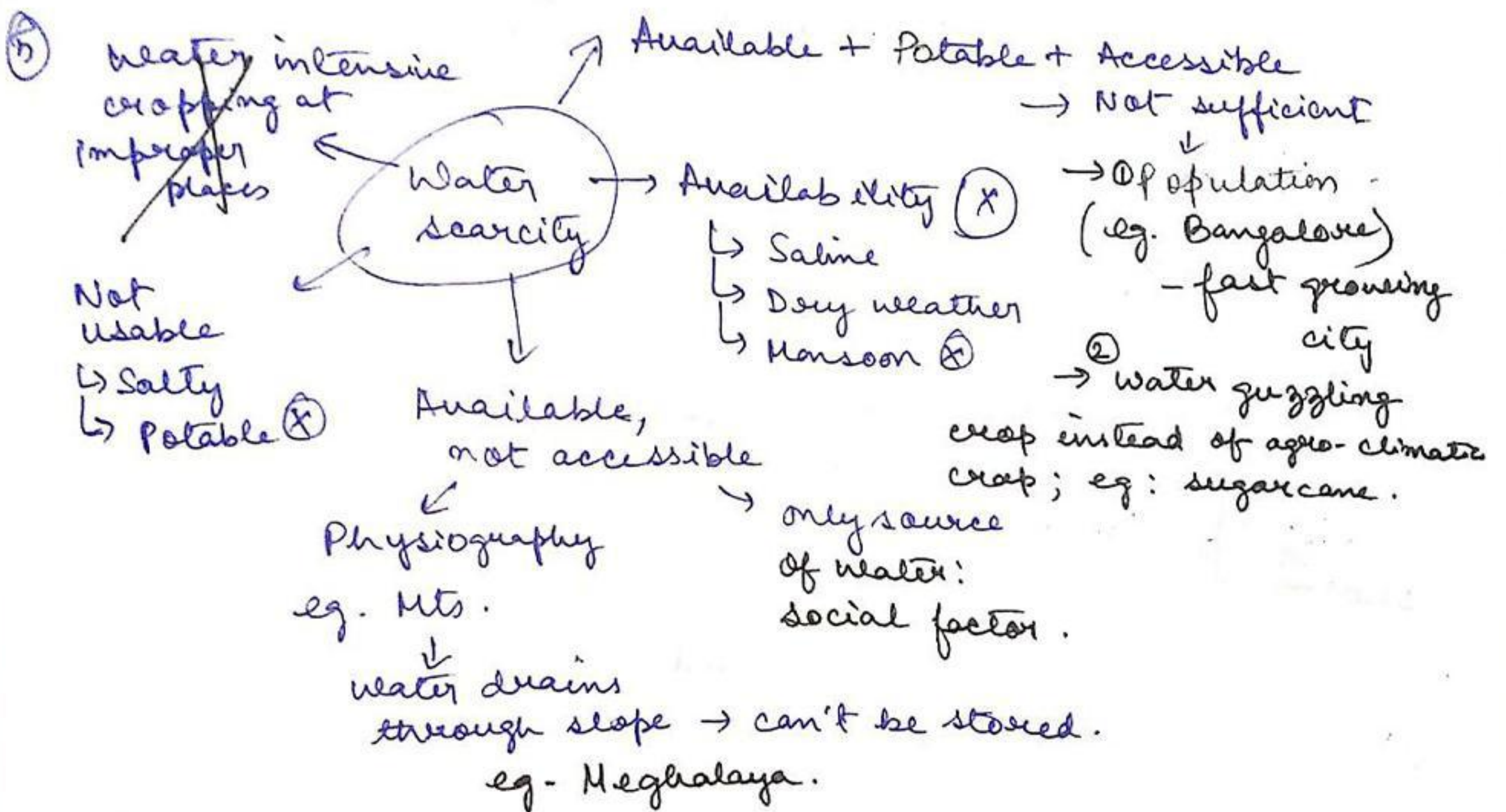


⑤ Baolis (steepwell) - Rajasthan, Gujarat

Rani - Ki - Van.

⑥ Zing - Ladakh

⑦ Ramtak Model - MH



→ Agro-climatic crop - as per climate of that area



Agriculture

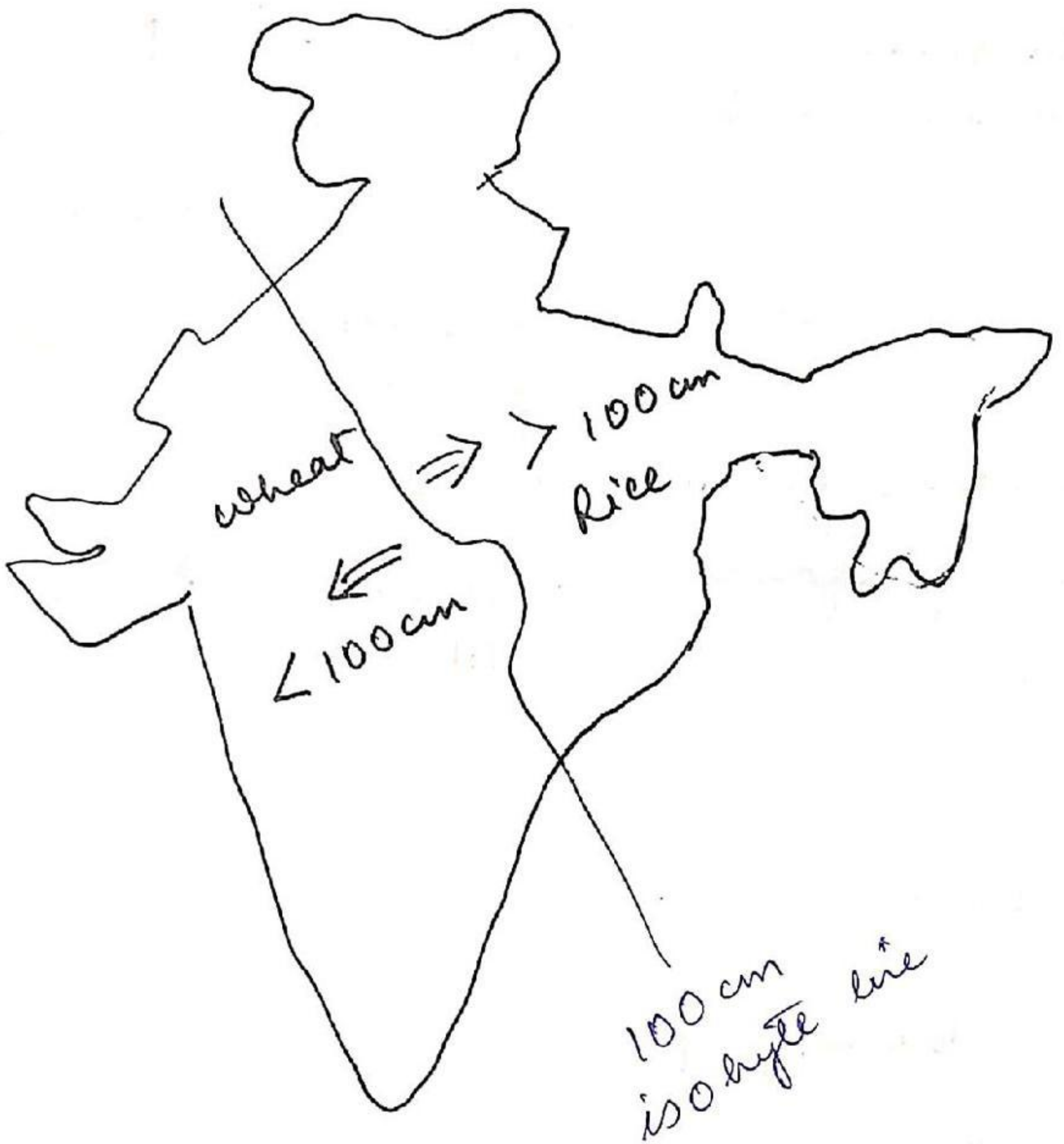
- ① 'Slash and burn' agriculture: Imp
Refer class VII - NCERT
- ② Types of farming: Refer class VIII - NCERT.
- ③ Rice → Punjab, Haryana → not agro-climatic crop
→ grown for commercial purpose
∴ Rice - Commercial crop here
↓
WB/Bihar
(subsistence crop)
→ Same crop can be subsistence as well as commercial depending on the region.
- ④ Physical diversity = different cropping patterns:
N. mountain complex → Tea/Rubber
N. Plain - Rice
Plateau - cotton
- ⑤ Rabi, Kharif, Zaid
 - a) Rabi crops:
 - October - sowing (eg. wheat)
 - March - Harvest → cutOctober - March - Rabi crops season
Crops - wheat, barley, gram, mustard, rapeseeds
 - b) Kharif crops:
 - Sowing - June
 - Harvest - October.Crops: Rice, Jowar, Bajra, Raji, all pulses except gram, all oilseeds except mustard, rapeseeds.

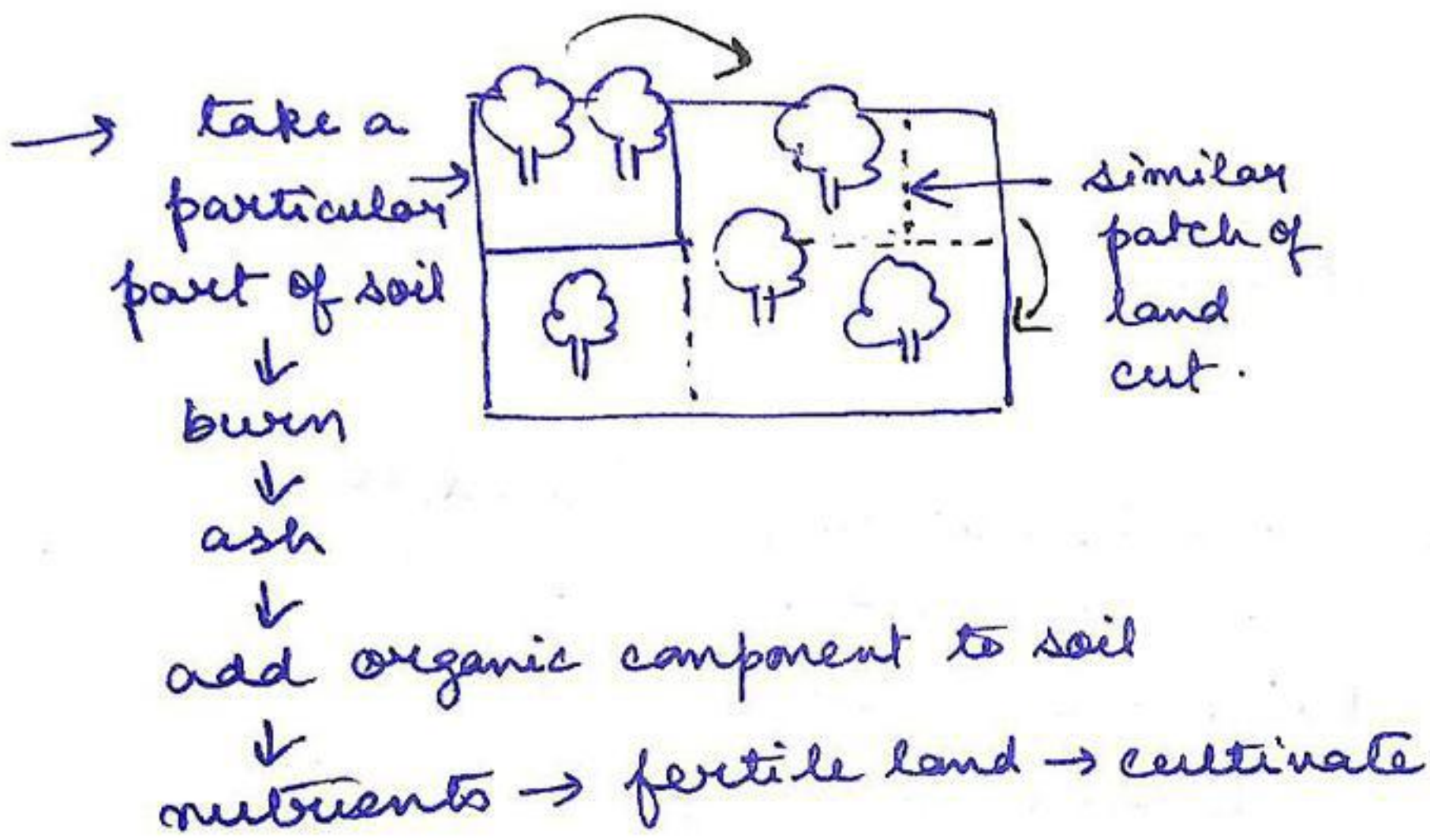


③ Zaid crops:

- Fruits and vegetables
- in b/w kharif and Rabi crops.

April - May -





Slash and Burn
Agriculture

* cycle goes on.



⑥ Types of farming

- Based on - geographic condition
- demand
- labour
- Tech.

① Subsistence farming:

→ done to meet needs → [if saved ↓ sold] ← But s.f is not done for selling purpose

subsistence farming

⊗

- machines
- expensive seeds
(because to recover cost → sell)
- labour

⊙

- organic fertilizer
- family members
- simple tools
- less chemical fertilizers

⇒ intensive s farming

↓
land ← small/costly

- buy limited land
- cultivate intensively
- fallow ⊗
- simple tool + machines
- more labour
- in wiser area: to make up cost → aggressively farm.

Extensive subsistence farming

- Not utilized fully
- may be land is left fallow

intensive commercial farming - eg. England

→ Primitive s.f.

- shifting cultivation [Heavy Rainfall → quick regeneration]
- Nomadic herding.

⇒ Market component lacking in s.f.



(ii) Commercial farming.

→ a) mixed: food + fodder + rearing livestock.

→ b) Plantations: tea, coffee, sugarcane, cashew, Rubber, Banana, Pineapple etc.

exotic
crops

← single land
↓
single crop.

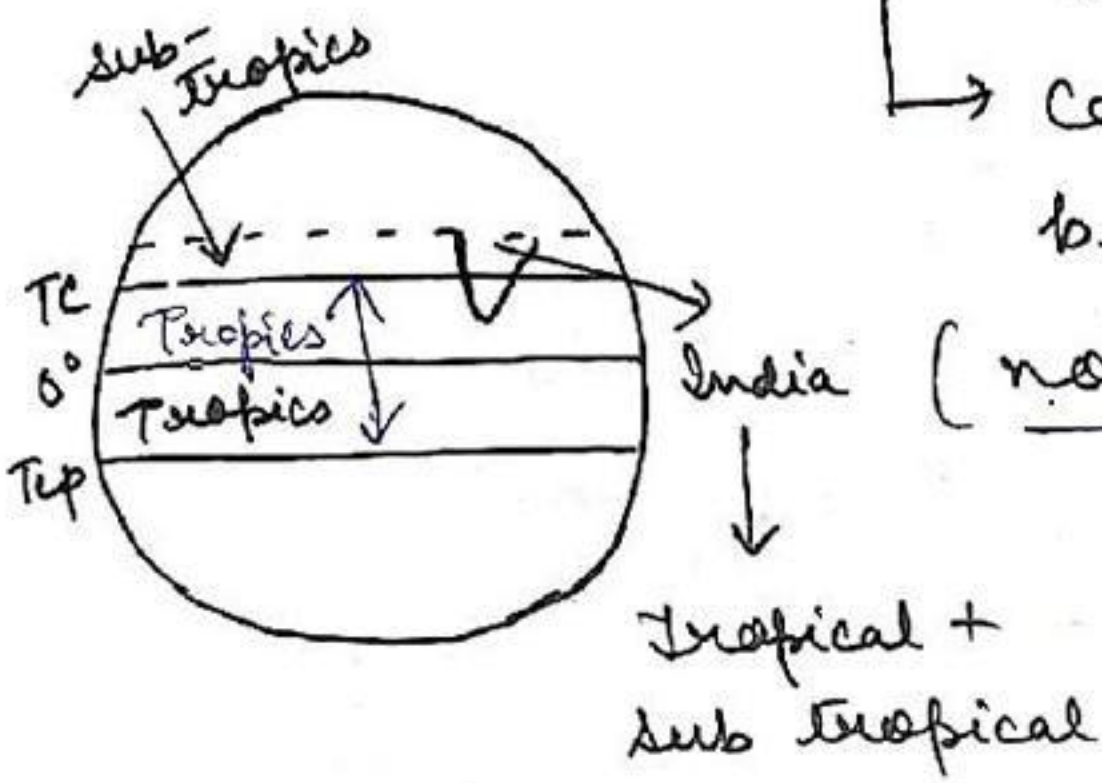
- sell in market, earn money for that
- primary purpose ←
- pesticides, HYV.



⑥ Sugarcane

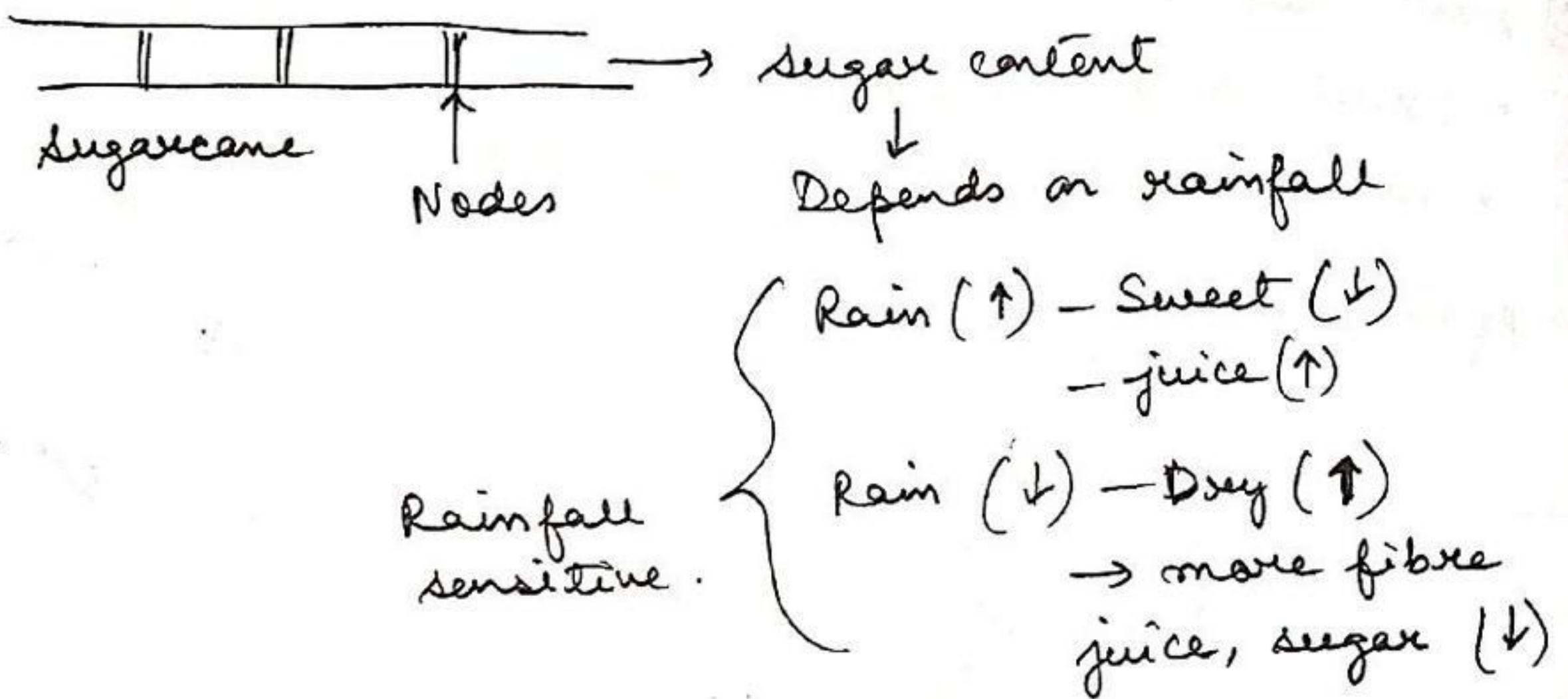
11-

- ① • Temperature
- $21^{\circ}\text{C} - 27^{\circ}\text{C}$
 - Tropical/sub-tropical Region
 - Can tolerate temperature above and below this range
- India (not very sensitive to temperature) =



- Rainfall
- 100-150 cm
 - yield is very sensitive to rainfall =

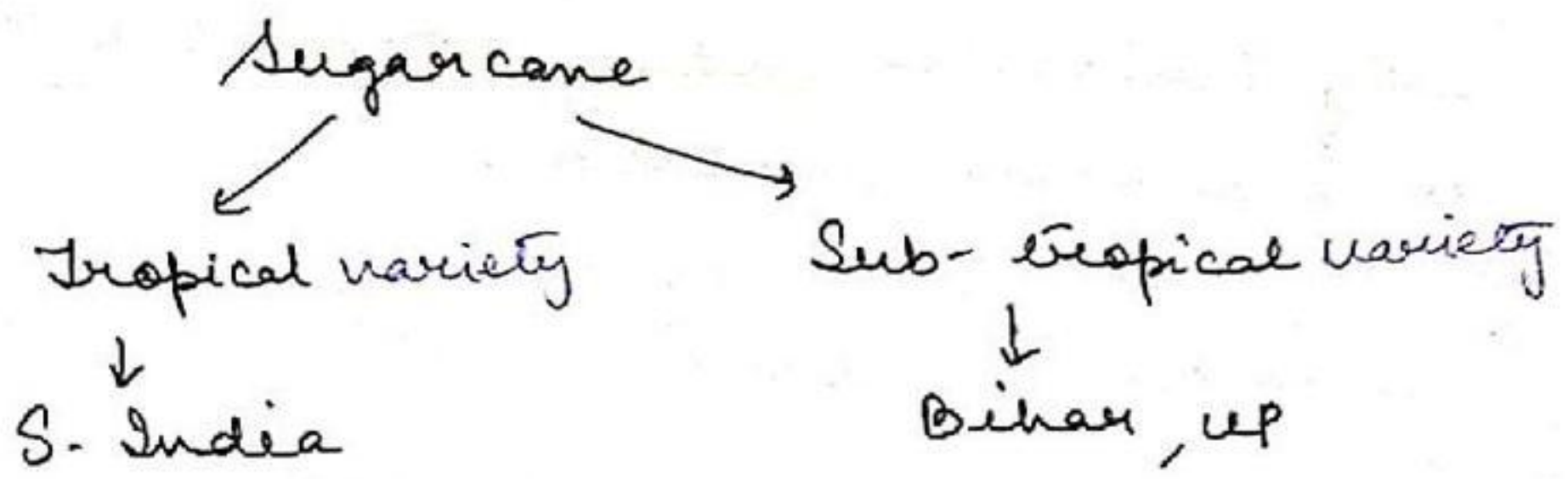
• Frost-free condition.



→ Irrigation → control water → sugarcane growth possible

→ Probability of mono culture breed

S. India - Dams → sugarcane → Bihar UP, WB → S. India
Temp (↑)



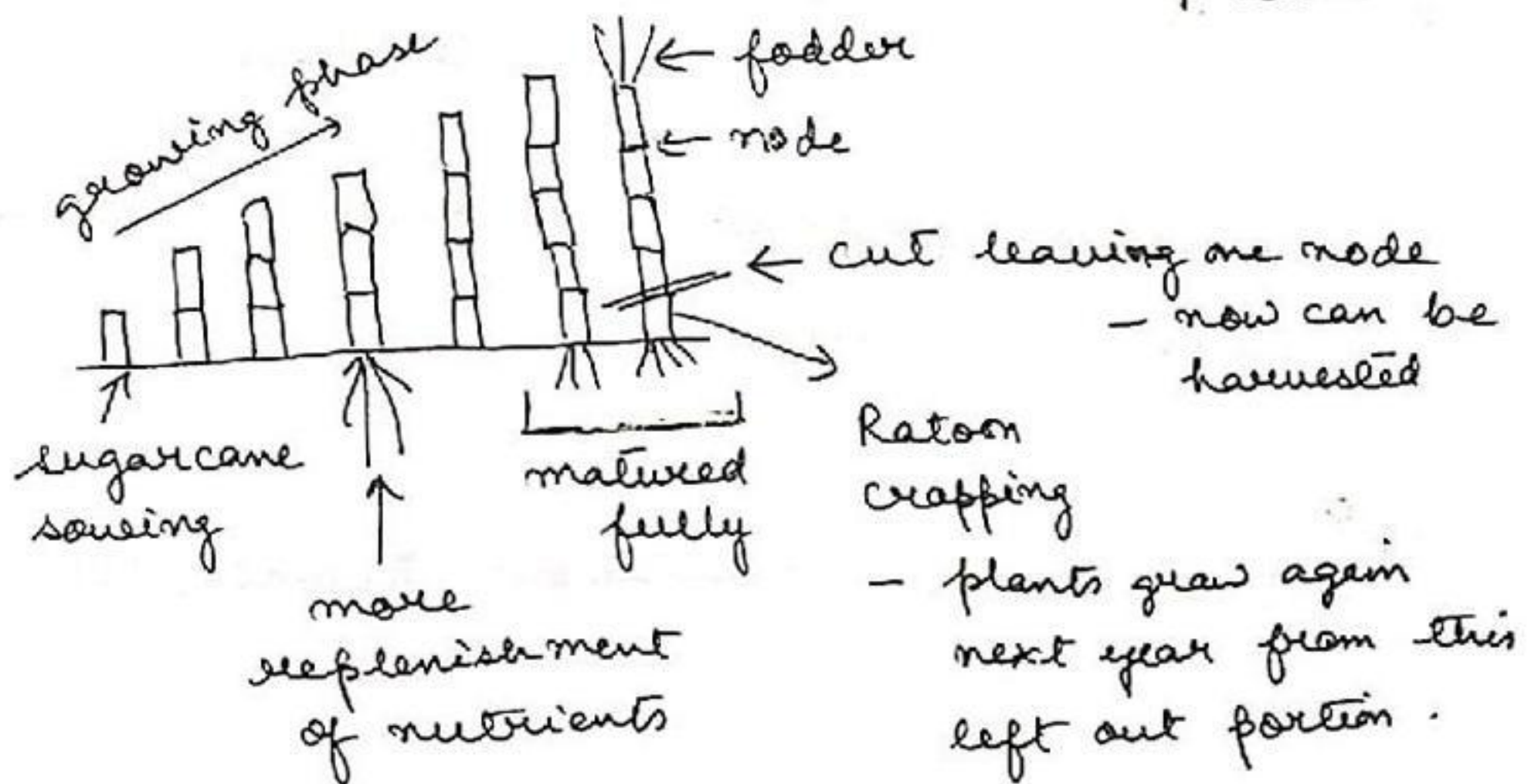
- long harvest period (7-8) mons
- less load on storage
- sugar mill will get access to continuous raw materials for 9/10 mons.

• more sugar content

- short harvest period (Oct - mid Dec)
- more load on storage
- sugar content will gradually decrease
- sugar mill remains open for 3/4 mons max
- sugar mill will get access to raw materials for shorter period.

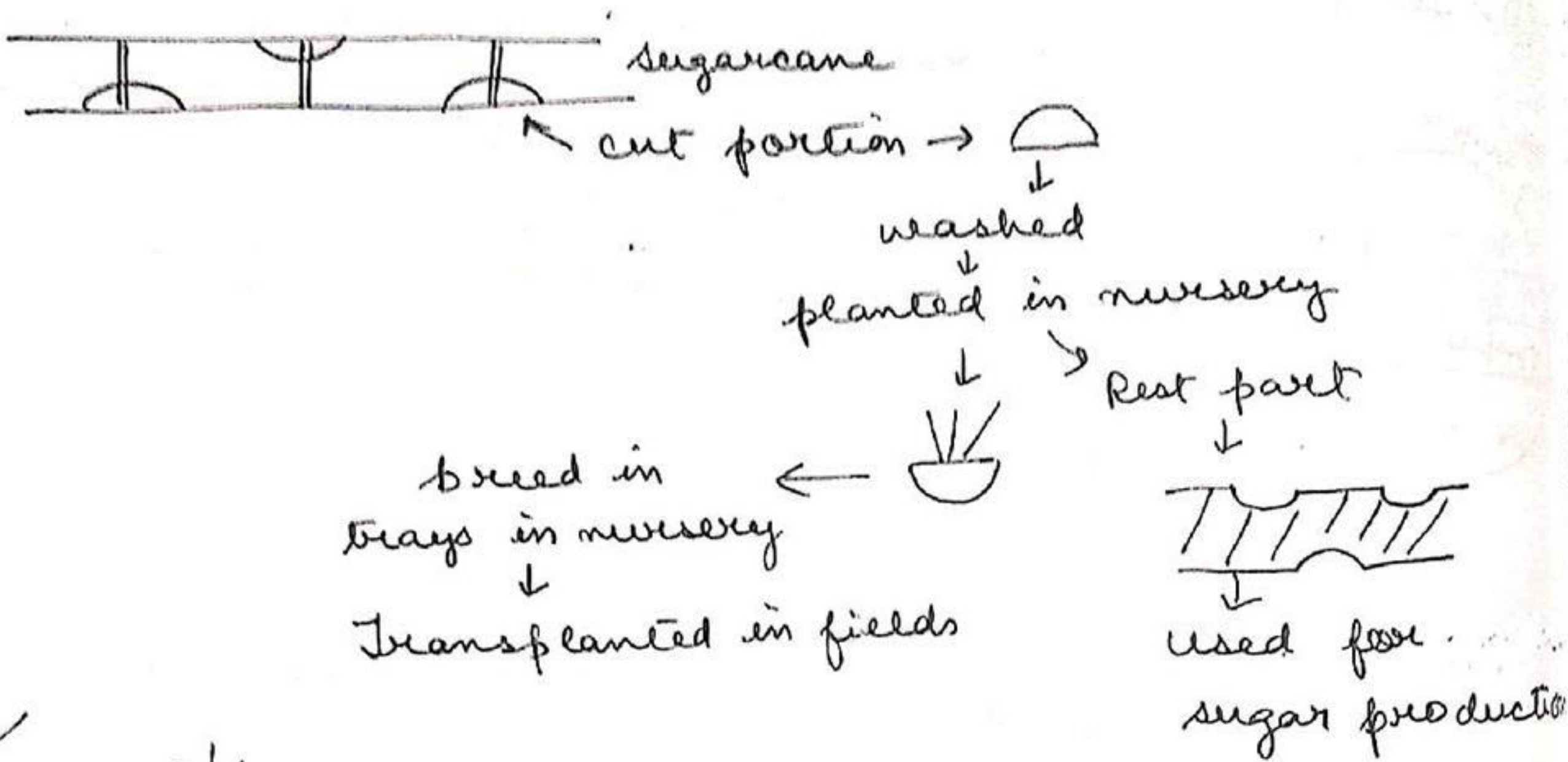
⇒ Exhaustive crop


- Requires much nutrient from soil - more invest + time.





Bud chip



✓ If,  → infected → treated, not cured → get to know about infection in nursery, not taken to field



Q. Why peninsular India witnessed a late phase in sugarcane plantation.

① N. India → Indigo (X) → Dye

↓
more exhaustive crop,
make farm less fertile

Indigo cultivation closed → switched to sugarcane
↳ commercial crop
↳ relatively less labour intensive than indigo

S. India - no such restriction.

② S. India was obsessed with cotton, so ignored sugarcane but, cotton → bollworm, whitefly → devastated cotton farms.

so, S. India → cotton → sugarcane

* Indigo, cotton → sugarcane [switched from one crop to other]

sugarcane seemed less risky to them than cotton cultivation.

NEPES

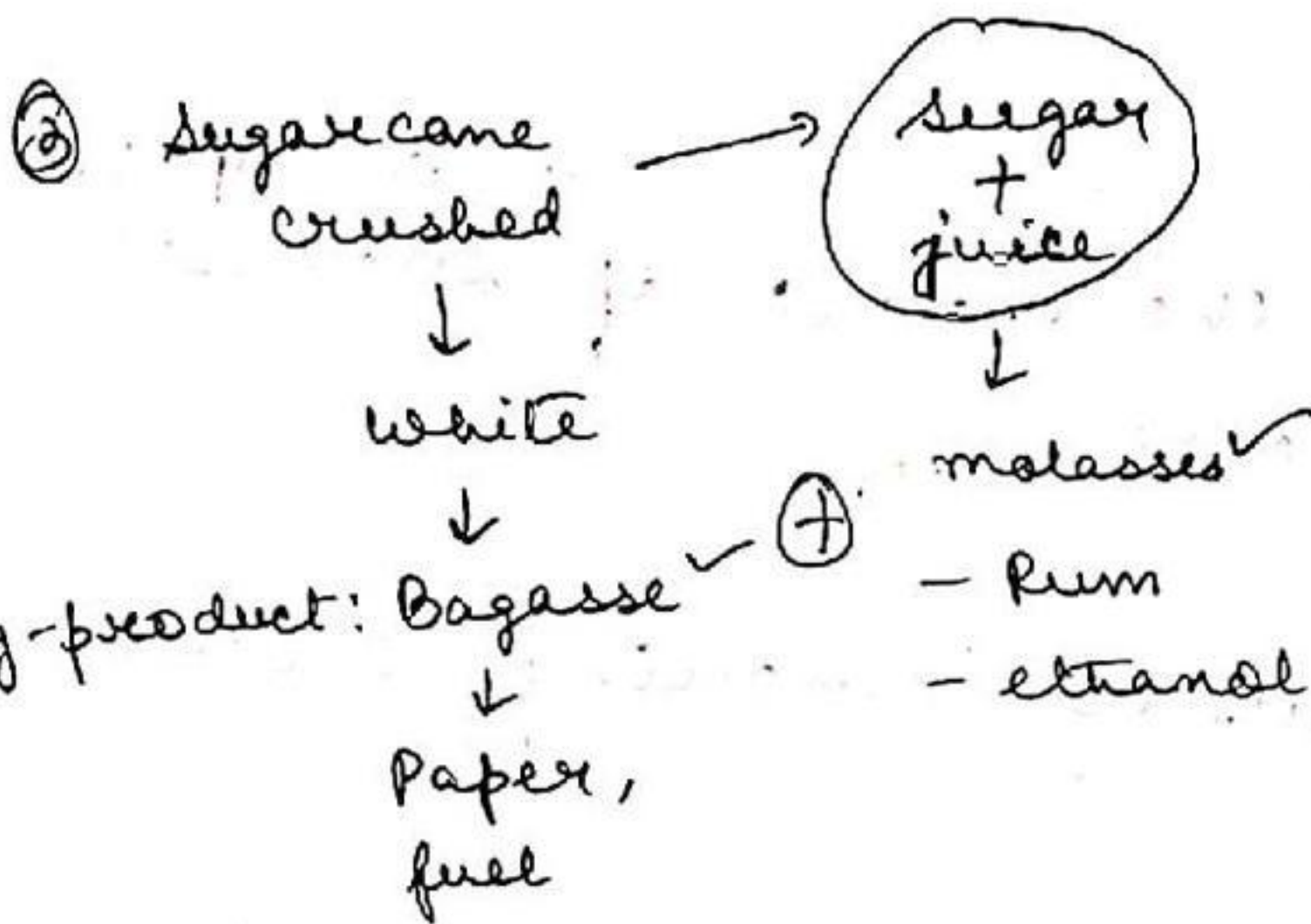
1st sugarmill - Pratappur, Deoria, UP



① Sugarcane - not losing industry.

↓
factory near its field, otherwise transport cost

② Sugarcane → cut → kept in storage → sugar content (↓)
↓
Harvest → crush in mill → otherwise → decrease



→ Crude oil import - Kerosene, petroleum etc.

gout: 1 l petrol if needed, added 10% ethanol

crude oil import (↓) - ~~unleaded petrol blended with 10% ethanol~~

National Biofuels Policy

eg: Brazil, 3/4 cars run on ethanol-blended fuel.



⇒ Locational factor of sugarcane industry

Sugar industry is located near cane producing industry because:

- Sugarcane is a weight losing industry and locating the industry near sugarcane cultivating area to save transportation cost.
- Sugarcane has to be crushed within 24 hrs of harvest else the amount of sucrose/sugar content decreases.

⇒ Why sugar industry is moving towards S. India?

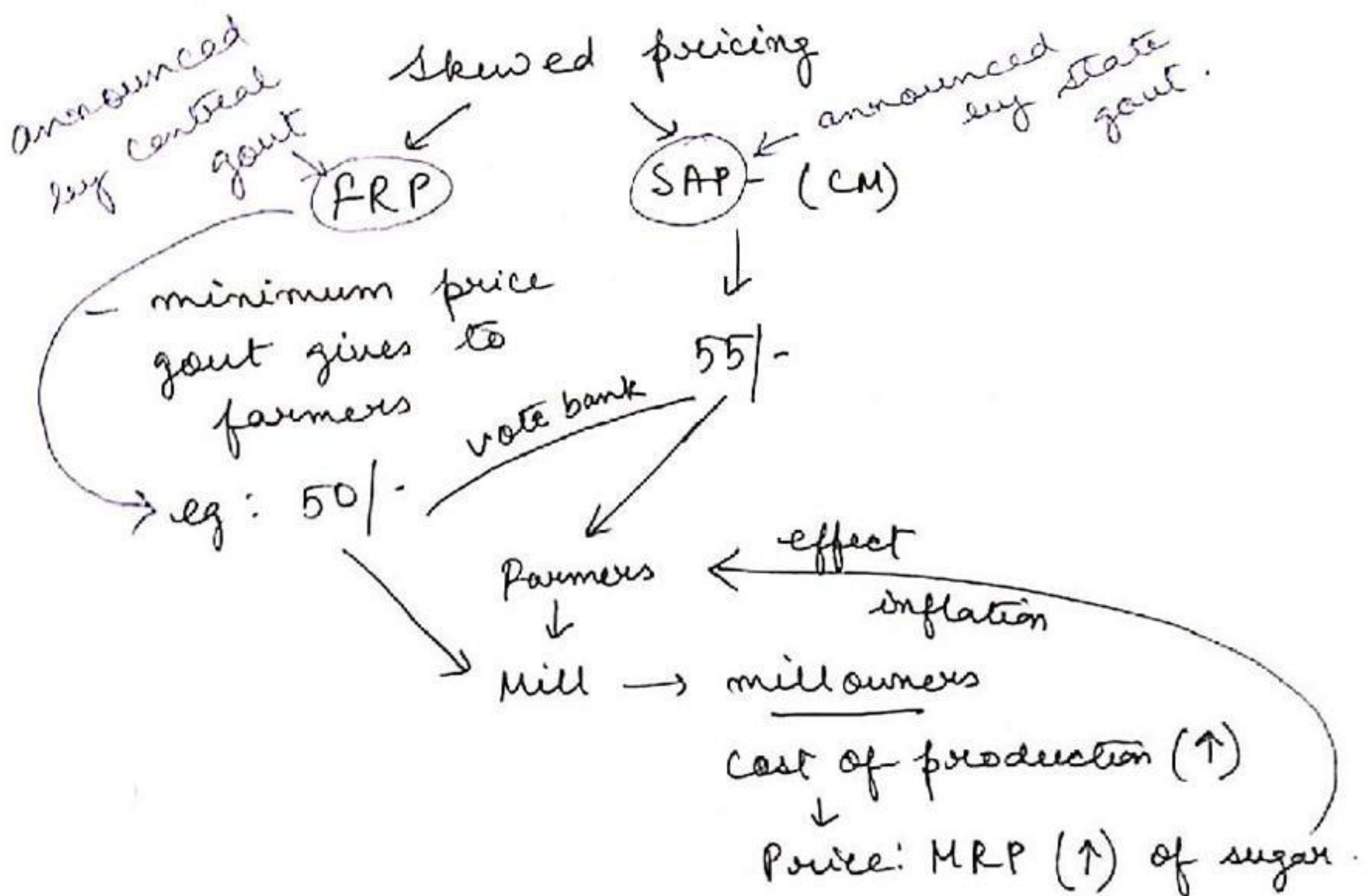
- S. India cultivates tropical variety of sugarcane which has higher yield and greater sucrose content compared to sub-tropical variety which is cultivated in N. India.
- Harvesting season in S. India are very long so the mills are under operation for 8/9 months whereas mills in N. India operate for 3/4 months.
- Sugar industry thrives best in cooperative sectors and S. India has better cooperative culture.
- Most mills in S. India has new machinery and hence better productivity.
- Sugarcane industry is emerging as an



alternative to cotton which are prone to risk/crop losses.

⇒ Problems of sugar industry:

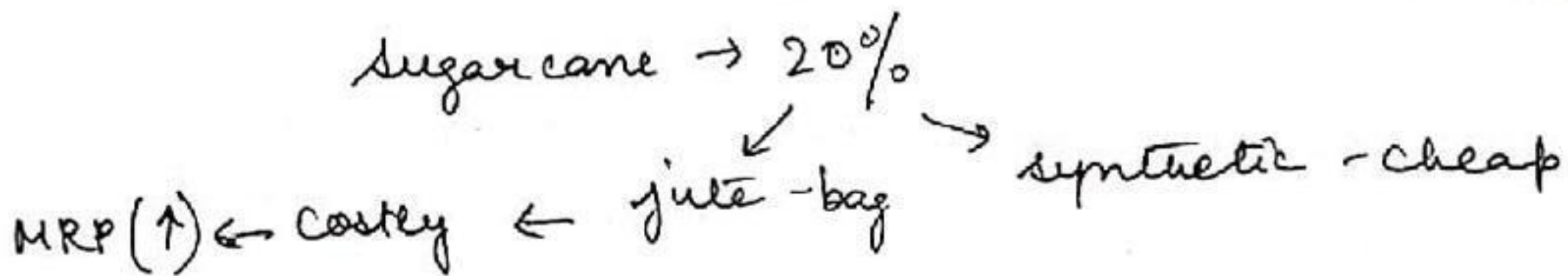
① Skewed pricing of sugar - central govt announces fair remunerative price (FRP), however the st govt also announces state Administered price (SAP). To please the farmers SAP are much higher than FRP which increases the cost of production and consequently lowers the profit margin



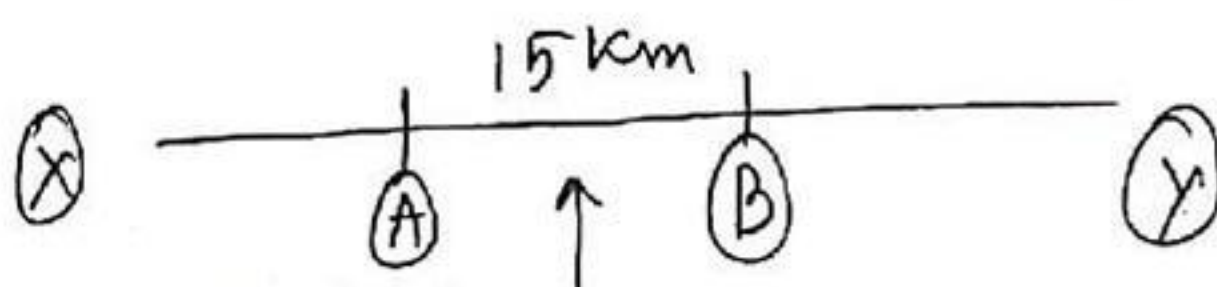
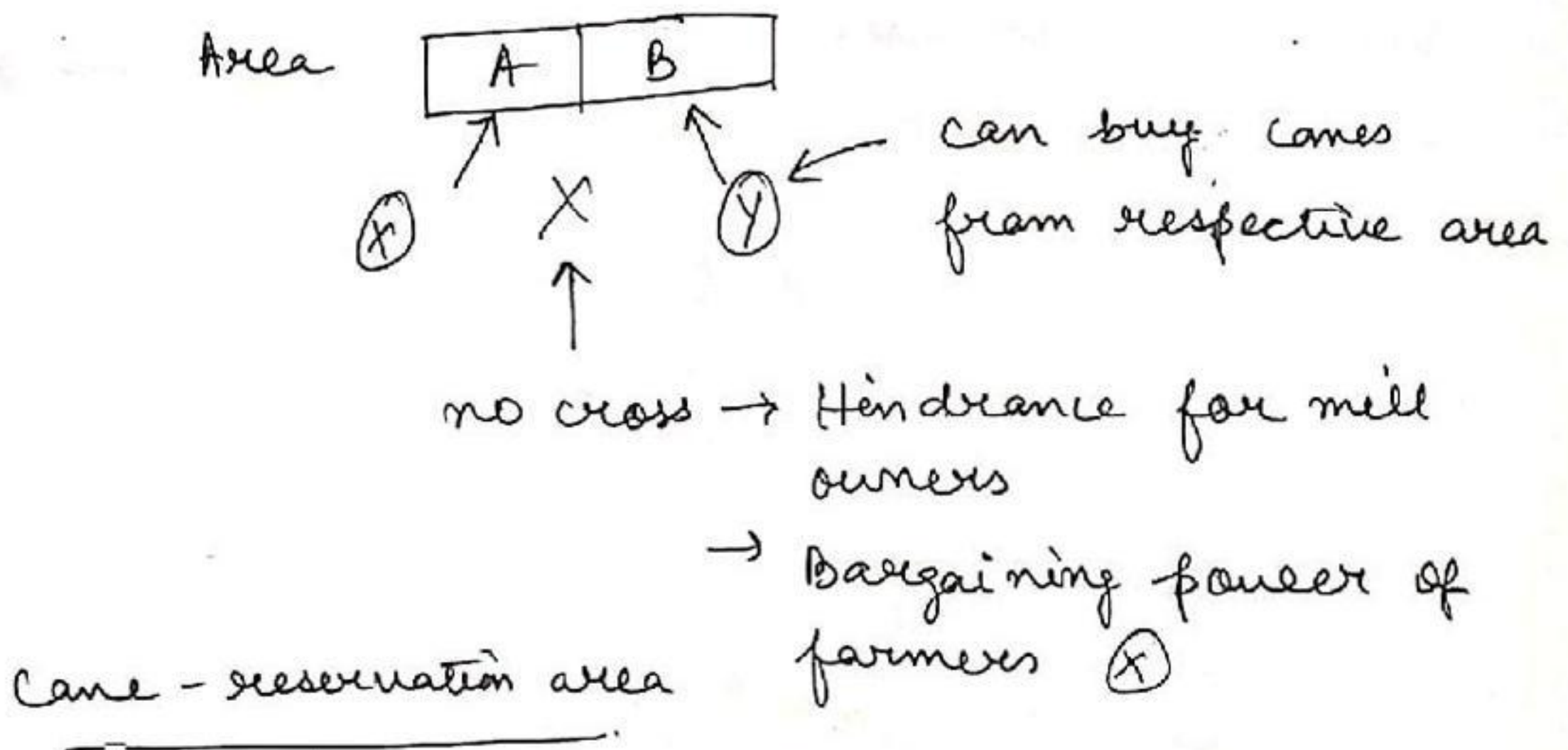
② A good amount of revenue is also generated by selling the by products like baggasse and molasses. The govt imposes restrictions on movements of these by-products.



- ③ The govt forces the mills to pack 20% of their output in jute sacks which increases the cost of packing and also compromises with the quality.



- ④ The govt. interferes in the functioning of the mills by mechanisms like cane reservation area and minimum distance criteria.



No mills can come in b/w

advantage: mill owners will get continuous supply,

but, farmers → loss.

Minimum distance criteria



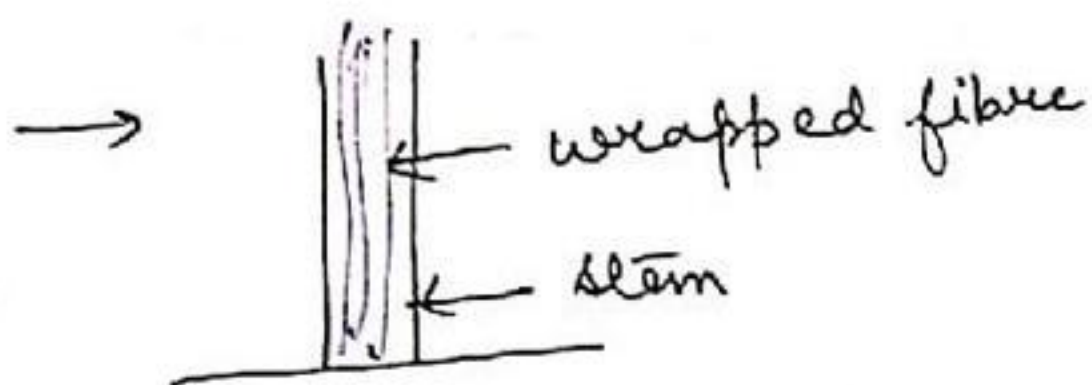
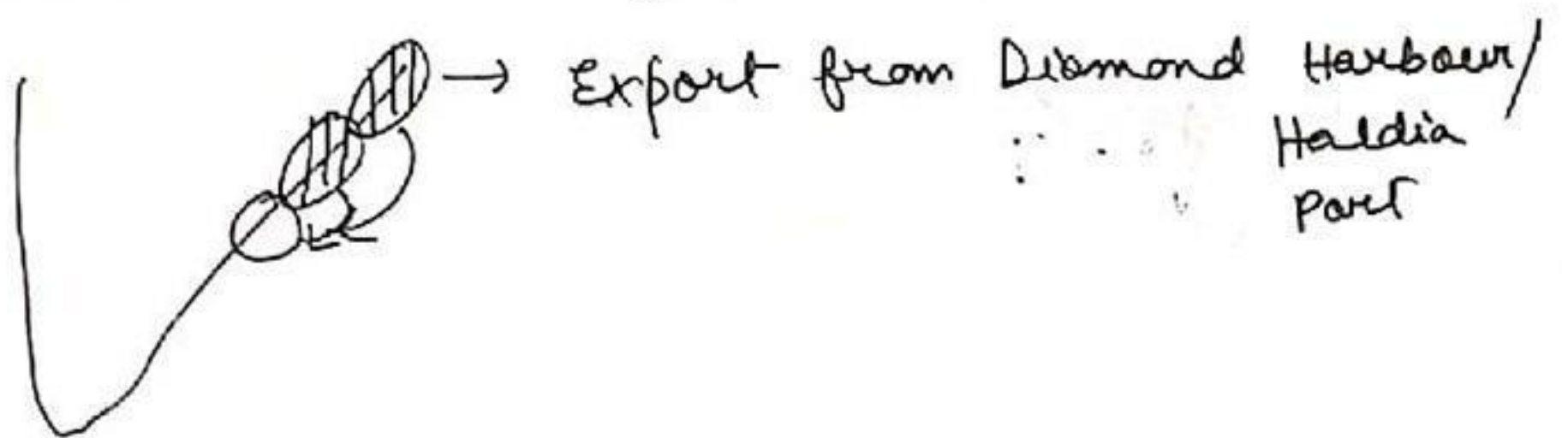
- ⑤ The short crushing season / harvest period in N. India where mills are lying idle for most part of the year.
- ⑥ Competition from local mills manufacturing jaggery.

JUTE

Temperature - $24^{\circ}\text{C} - 35^{\circ}\text{C}$ (High Temperature)

Rain - 125 - 150 cm (good amount of water)

- Initial processing of jute requires a lot of water
- large amount of cheap labours
- exhaustive crops. available in Hooghly
- Region - narrow Hooghly Belt (80% jute production)
Andhra Pradesh (upcoming centre)



Retting - to separate fibres from stem (left in water)

1st jute mill - Rishra



Jute industry

① Jute is pure fibre, so the location of industry depends on factors other than the market and raw materials.

② The narrow Hugli Belt in WB with centres like Budge Budge, Rishra, Naihati, Kolkata accounts for more than 80% jute production

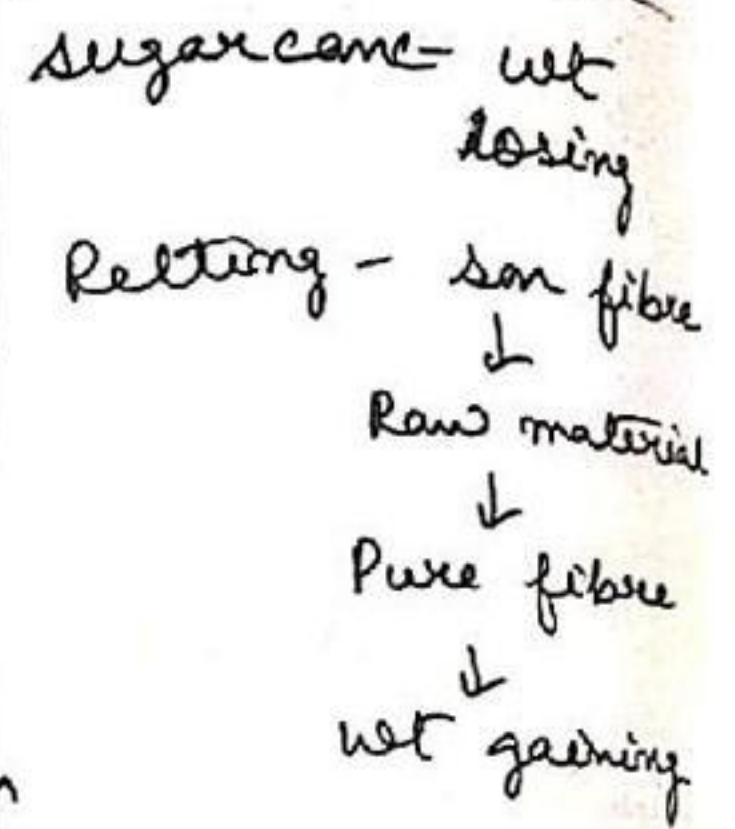
③ AP with Gyntur and Vishakhapatnam is an upcoming centre with 10% of total production

Factors - Godavari Delta - River water: Retting
- fertile soil
- power supply.

④ Gorakhpur (UP), Gaya, Darbanga, Purnia in Bihar are also imp jute industry. (1st jute park in India)

⑤ Hugli Belt has advantages like

- Transport (i) Port Facility
- RM (ii) Proximity to raw material producing area
- water (iii) Availability of water for retting purpose.
- Labour (iv) Availability of cheap labour
- Power (v) Power from Raniganj coal field.
- (vi) Hugli R. provides cheap mode of transport (inland)



- salt → packed in jute bags previously → problem: moisture
salt reacts with water → effects floor of wagon (iron sheet)
- shirt → cotton [silk, nylon] mix
jute Demand (↓)
- sugar should be packed in jute bags to increase demand → but, illegally smuggle jute from Bangladesh, Nepal (good product), no Indian jute used - demand impact.



Problems of Jute industry

- ① Inability of jute industry to modernize, diversify and stay competitive
- ② Its survival to a large extent depends on JPM act where 90% of food grains and 10% * of sugar is to be packed in jute bags.
[100% food grains, 20% sugar]
- ③ Issue of illegal imports from Nepal and Bangladesh
- ④ The productivity of labour is low.
- ⑤ Political turbulence in some of the key markets of W. Asia.



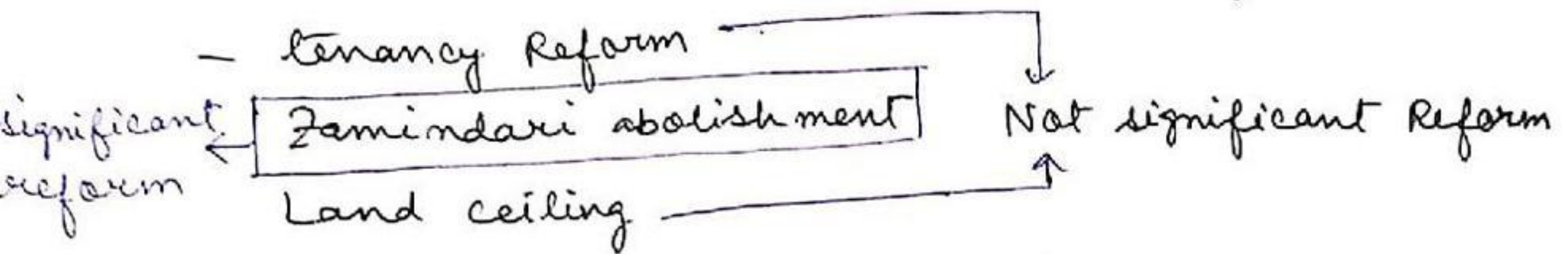
Green Revolution (GR)

⇒ Background.

① 1, 2, 3 FYP Plannings - Agriculture not focused
 1951-1966 FYP

steel plants. → Focused on heavy industries
 (should be growth pole of India;
 Industrialization is synonymous to modern
 India - Nehru's idea)

- much obsessed with industry
- not much focus on agriculture - Backfire
- Dams were built, but no significant investors



⇒ Mahalanobish model



② Drought - 1960

③ War - China - Pak

↳ economy collapse

↳ Hunger crisis

↳ Food crisis

↳ Starvation

↳ BOP crisis - 1966

↳ Famine.

→ India → USA : Food aid programme : PL-480

- Humiliating for India (agro-based country)

(Begging Bowl image)

Begging Bowl $\xrightarrow{\text{GR}}$ Food surplus

④ Traditional

- Manure ✓ | Chemical (X)
- Pest (X)
- HYV (X)
- Subsistence farming

Modern

HYV seeds ✓

→ Dwarf variety → Produce (↑)

Rock feller

←

Rice

Philippines

↓

wheat

Mexico

Positive result → India

HYV : Input intensive.

HYV + Chemical + pesticides
+ water + insecticides

should be supported by

- costly - not poor farmers can use it.

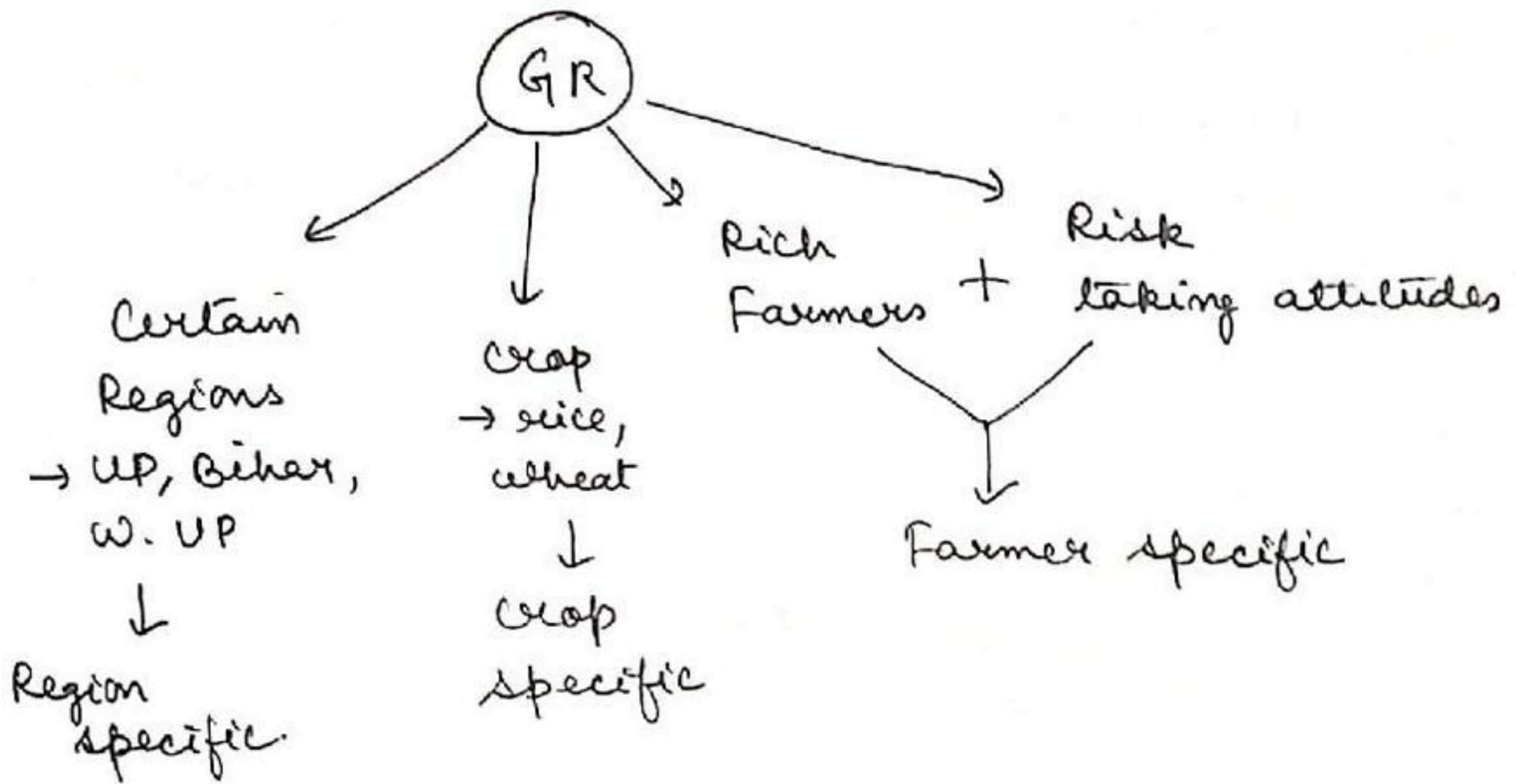
• Farmers should be \rightarrow Risk takers
 \rightarrow Rich



- region specific - Punjab, Haryana, Western UP
- HYV in rice, wheat

Farmers of these regions have done commercial farming before GR
- infrastructure present

Deliberate
⇒ Imbalance approach. → can export outside also



→ Disparity → Imbalance approach



Green Revolution (GR)

- ① GR was an agriculture modernisation programme based on introduction of high productivity seeds for increasing agriculture yields.
- ② The technology developed dwarf variety of wheat and rice with high productivity.
- ③ It was already a successful programme in Philippines and Mexico
- ④ It was launched as HYV programme and informally changed as GR in 1966-67 to address food crisis and imminent hunger due to:
 - a) economic policy of 1956 focused on industrial development to modernise India. It neglected agriculture
 - b) Massive drought of 1950s and 60s
 - c) India's war with Pakistan and China almost collapsed India's economy

India had to depend on food aid from US. India's experience with PL 480 treaty with US for food aid was a humiliating experience that compromises India's sovereign and its global standing.



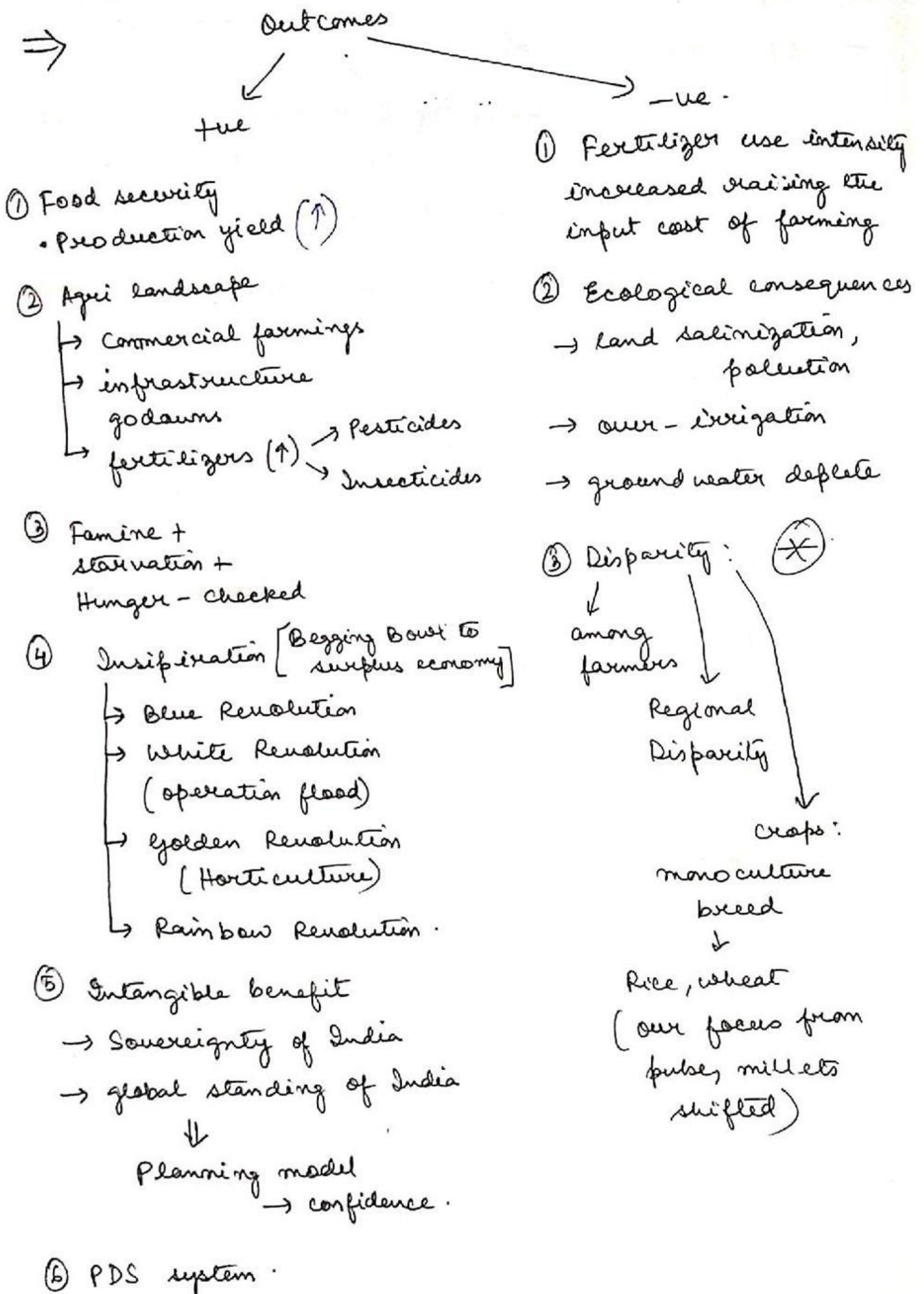
→ Objectives of GR

- Short-term immediate objective of managing India's hunger and food crisis
- Long-term objective of agriculture modernisation, rural development and also developed agri as the ~~background~~ backward linkage for industrial and economic development of India.

→ The strategy:

- ① Replacing traditional practices and input by modern technology which was productive but very input intensive, the new technology was water fertiliser pesticides intensive and was also input sensitive
- ② We adopted the strategy of deliberate imbalance. The intention was quick fast returns with minimum possible investment so as to achieve high level equilibrium in the long run but managing the hunger crisis in the short run. With subsidy support the programme was encouraged in Punjab, Haryana and W. U.P. which already had ^① infrastructure and ^② plenty of ground water resources, ^③ rich and large farmers who had the experience ^④ of commercial and profitable agriculture and who had the higher risk of taking ability and were willing adopters. Hence .ll

Hence the programme was deliberately launched as crop specific, farmer specific and region specific programme, which is often considered as a reason for crop, regional and social disparities.





⇒ ⊗ Disparities were due to 3 reasons:

① Deliberate imbalance approach

→ Crop specific / Region specific / Farmer specific

② Trickle down theory failed.

↓
assumption: growth in agri sector will take care
(misplaced assumption) of rural development, industries,
urban development,

But, Agri → Rural Development ⊗ → Industries ⊗ → Urban development ⊗

③ GR was not scale neutral, small farmers could not afford it.

⊗ Profit; when done in both large and small farms.

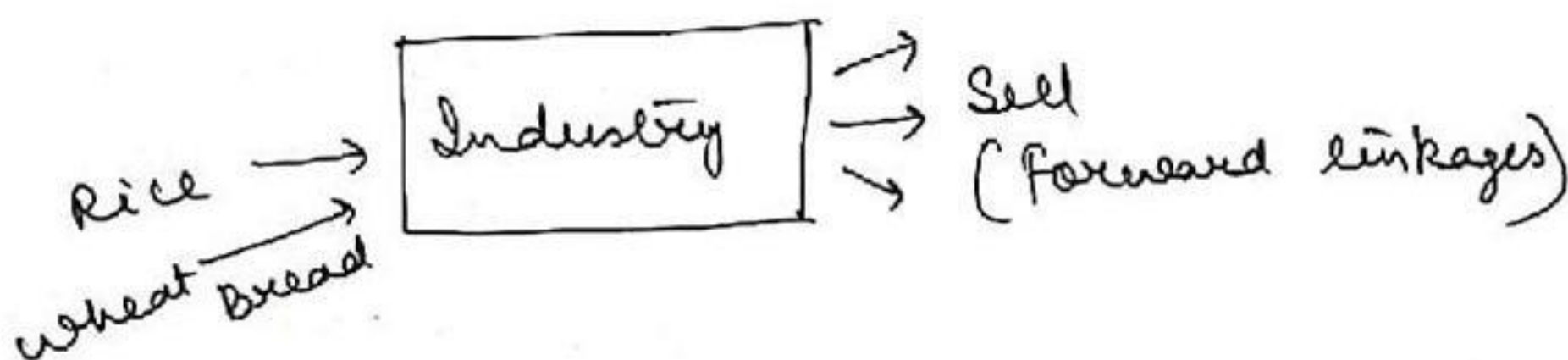
Small farmers with small land holdings → ⊗

- Punjab, Haryana

- Land fragmentation ⊗

- Risk taking, Rich farmers ✓

→ Back/Forward linkages:





III

Food security

Availability
↳ sufficient stock

Physical stock present

- Farmer support/
- Cash vs food crop
- Commercial vs subsistence

①

Accessibility

→ ① Physical access

eg. Reaching food to soldiers of Ladakh

② Economic access

③ Social access

→ cast, untouchability (X)

②

absorption/
utilization

- must be utilized by body
- water must be available (req. for balanced diet)
- sanitation
- Hygiene etc

③

When all 3 will combine

→ Food security (FS)

↓

Should be available to all (24x7x365)

i.e stability component



⇒ Impact of globalization on agriculture:

+ve

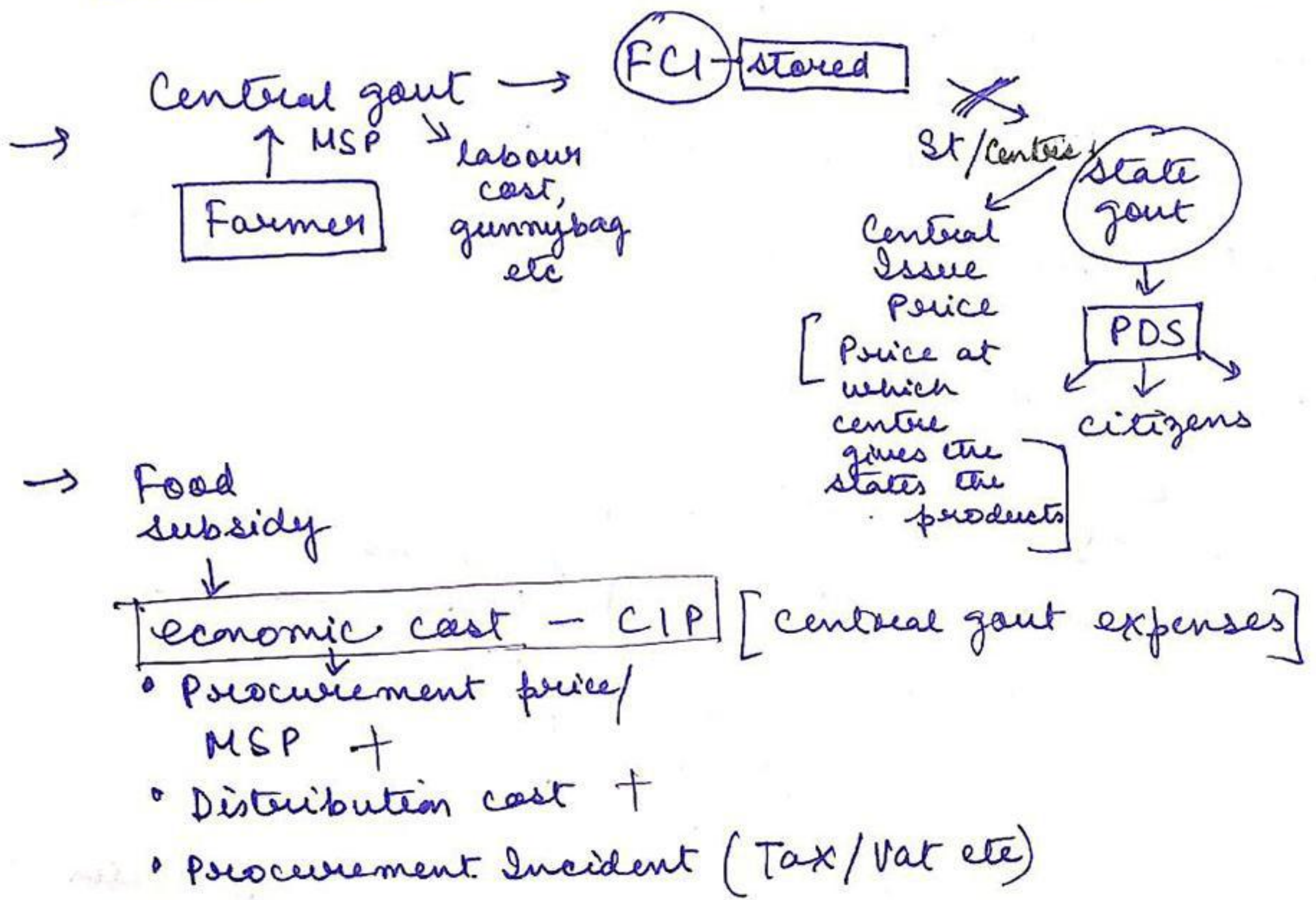
- ① Trade
- ② Technology (GR)
- ③ seeds - Monsanto (Bt)
(Bollworm resistant)
- ④ Economy - 15%
- ⑤ Employment opportunity
(↑)

-ve.

- ① market volatility
- ② global recession
- ③ costly - fertilizers
- ④ IPR - seed
- Monsanto
↓
local company can't
make them
- Lays (special potato, IPR)
- ⑤ Competition / Isolation
- ⑥ export > FS ↓
- ⑦ cash crop cultivated
if more demand in
market.
- ⑧ GM crops -
entry into Indian
market → don't know
about its future impact



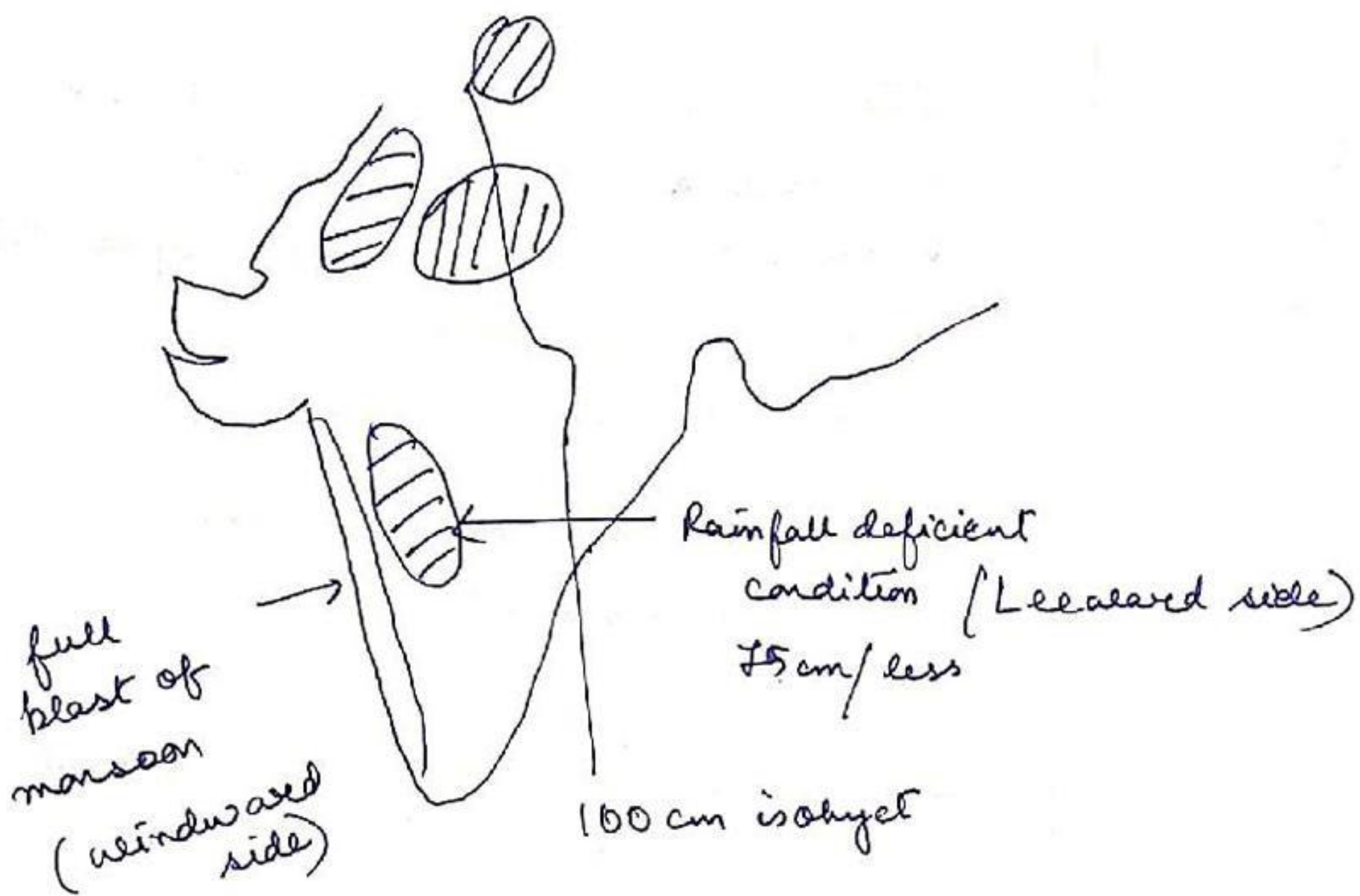
Food subsidy





Dryland Farming (DF)

→ Not every region of India gets same amount of rainfall.



Dryland

- ① Rainfall: ≤ 75 cm or less
- ② Semiarid, subhumid
- ③ Conventional irrigation infrastructure
 - ↓
 - Canal → River } ⊗ ← Dryland
 - groundwater } ⊗
 - gw. extraction, accessing it ⊗
 - Perennial Rivers ⊗
 - sufficient resource of water to develop canal irrigation ⊗
- ④ Rainfed.

DF are farming in those areas where there is a compulsion to develop agriculture and sustain it, but in rainfed condition without opting for conventional irrigation practices (canal, gw etc)



→ Compulsion to do farming
↓
Profitable ← Rainfed
↓
Sustainable

⇒ Importance:

- ① $\frac{1}{3}$ rd of Net Sown Area (NSA) ⇒ Dryland Region.
- ② 75% of our Pulses (protein - nutritional security)
Millets, oilseeds - 90%
Cotton - 70%
Spices and tobacco - 95%
- ③ BPL + Tribes (mankind heritage)
Should be supported with proper livelihood.
- ④ Ecology (Vulnerable)
→ if farming undeveloped → soil erosion,
desertification.

⇒ Main dryland farming regions are:

- Kutchh; Rajasthan
- Plateau interiors of Vidarbha region, N. Karnataka and Telengana
- Highland regions of Malwa, Bundelkhand, Vidhya, Bastar, Chota Nagpur Plateau

⇒ Solution to farming technique:

① Water related solution:

- a) Rainwater harvesting.
- b) Drip irrigation, sprinkler
- c) soil mulching technique

② Drought resistant variety:

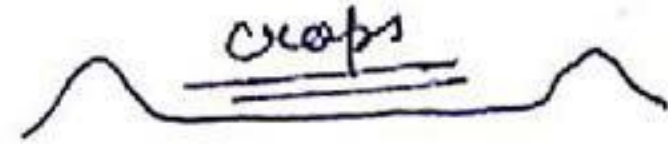
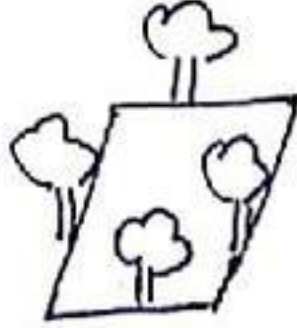
→ ICRIAT → R/D → [Rice - Drought Resistant Variety]



- agro-climatic crop
- mixed farming (crop + livestock)

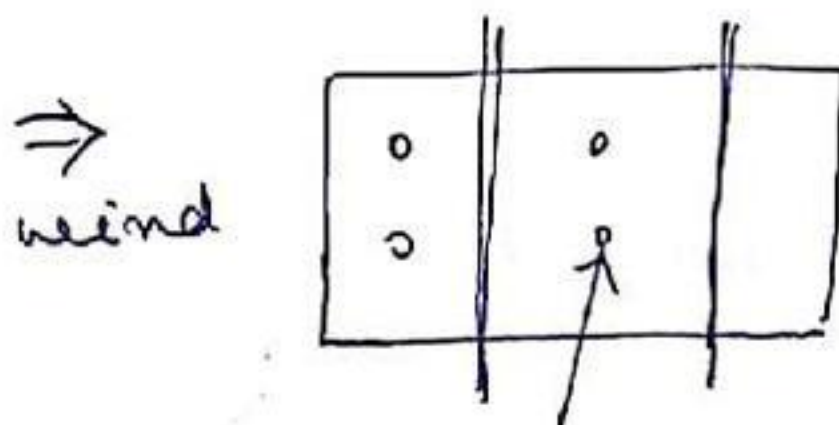
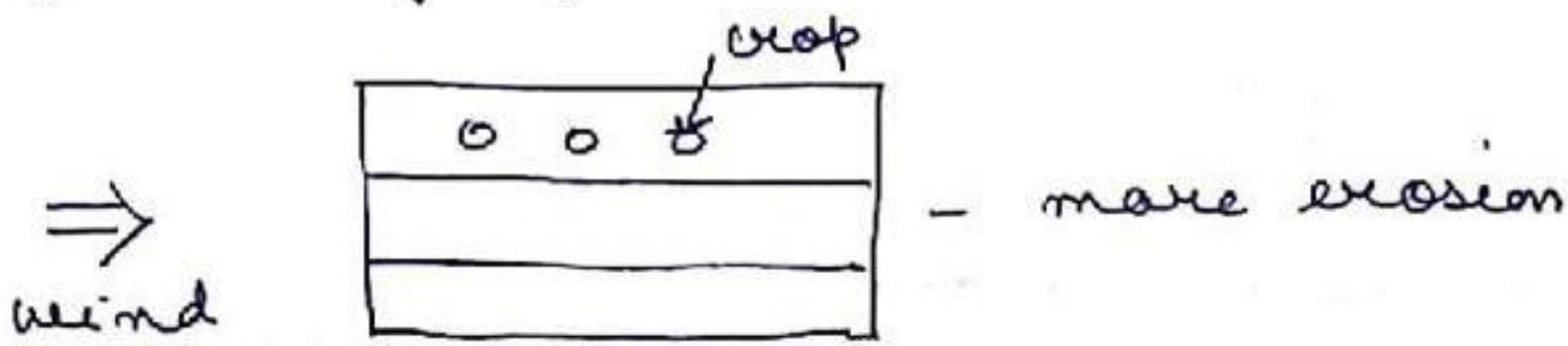
③ Modification:

a) agro-forestry
"Medh Par Pedh"



b) Shelter belt

c) sowing against wind direction



sowing against direction of wind.

→ Deep sowing.

d) social + employment generation programme.

Agri + livelihood +

- Formal credit scheme (crop insurance)
- agro processing industry (Rice Packing)

MGNREGA
NFSA
MSP

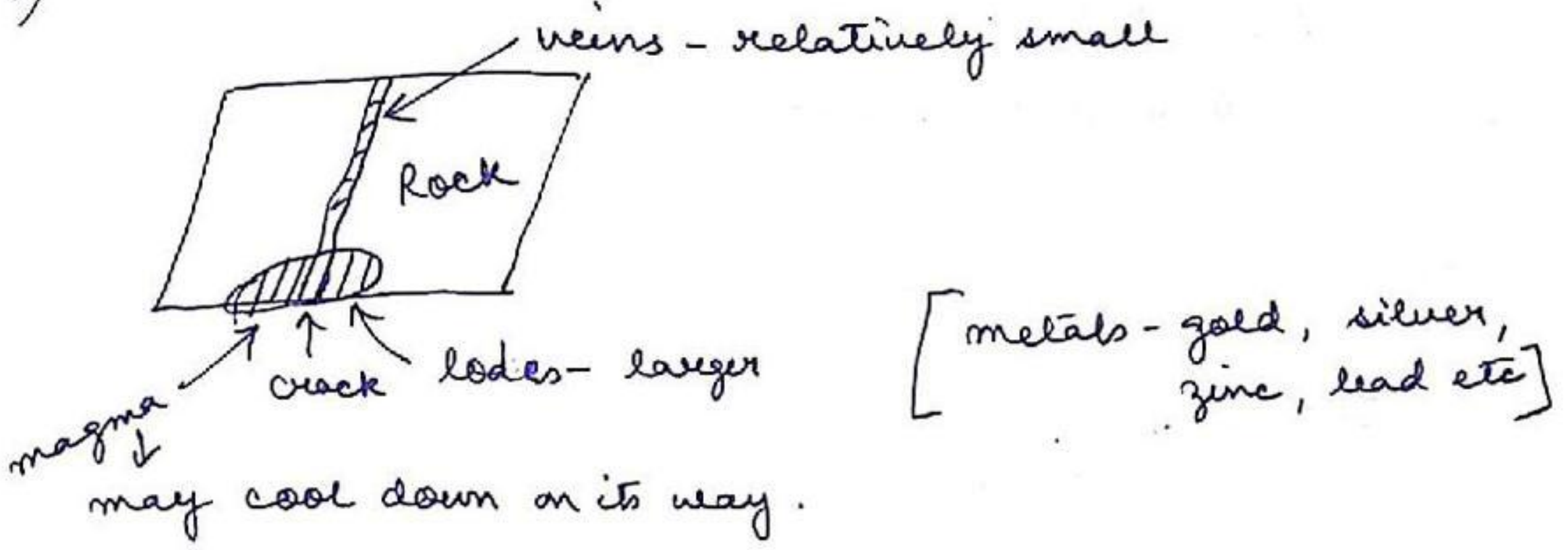
BPL reservation



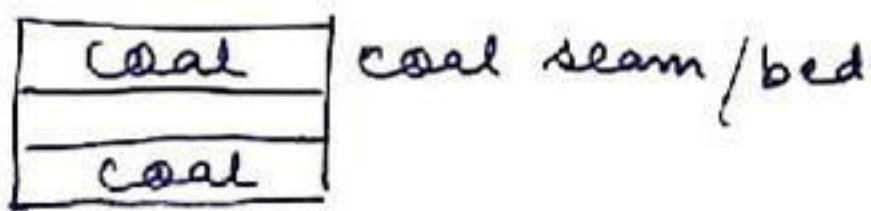
Minerals and Energy Resources - Ch-5

① Minerals generally occur in these forms

a) Veins and lodes

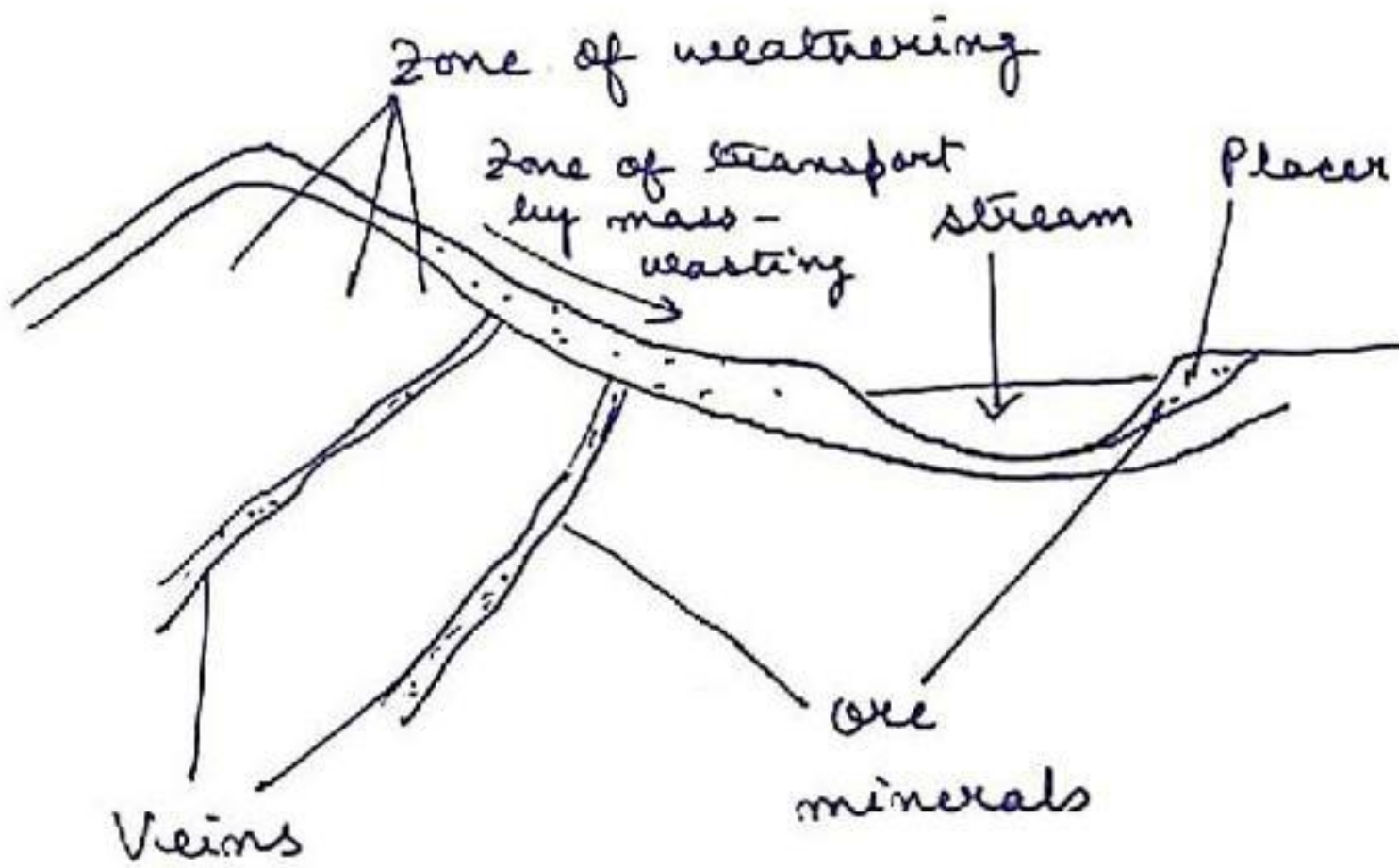


b) Sedimentary rocks: → (layers)



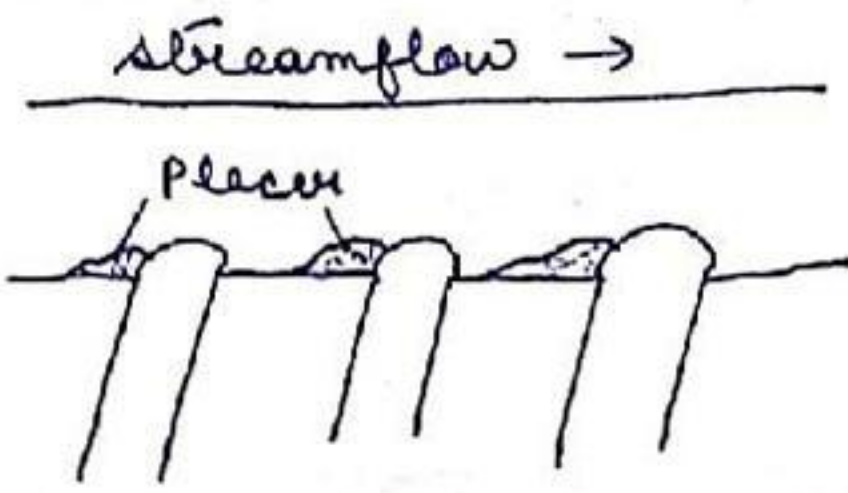
c) Weathering process + alternate wet - dry season

d) Placer deposit (minerals not soluble in water)



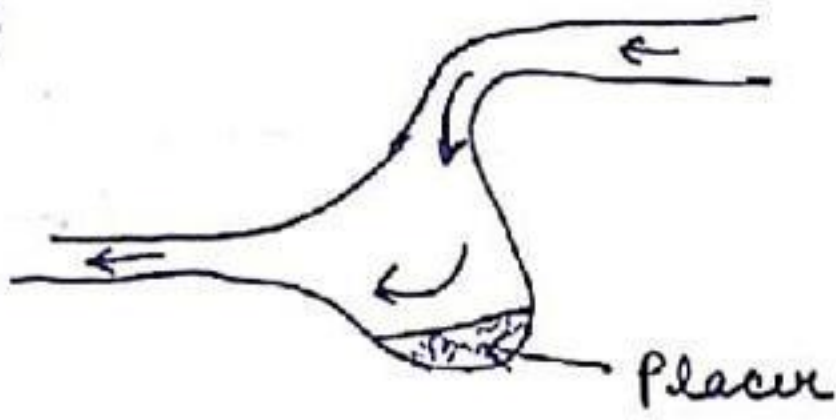


①



Behind Rock Bars

②



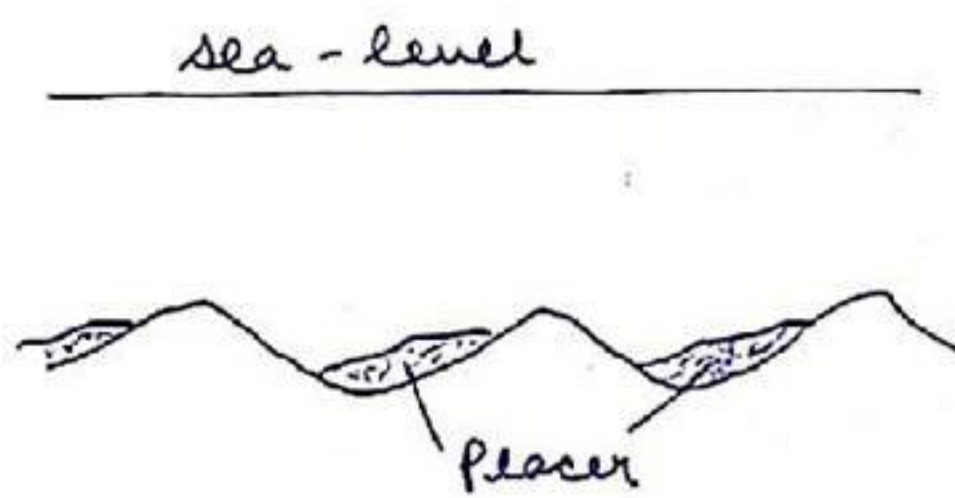
Below waterfalls

③



Inside meander loops.

④



Behind undulation on ocean floor.

⇒ minerals - ocean floor

↳ poly-metallic nodules (H/W-50)

→ central Indian ocean - extract it [India + Germany]

→ Laterite soil - Bauxite

Black soil - Bauxite (X)

Aluminium (X)



JH - 95% mica - electrical industries

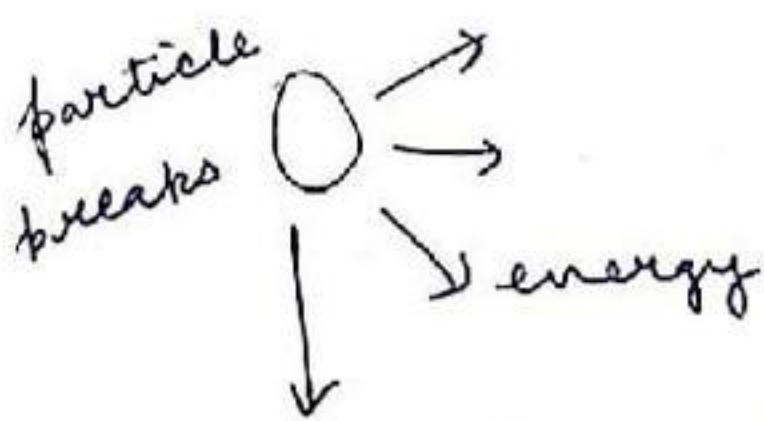
⇒ HV 5 pipelines (50)

⇒ Thermal power plants:

- Rihand
- Singrauli
- Korba
- Talcher
- Durgapur
- Baramati
- Neyveli

⇒ Nuclear energy

↓ fission ↓ fusion (sun) → more powerful



not sufficient for nuclear reaction

Fertile

- U 238
- Th 232

- monazite sand

✓ - India

vs

Fissile → nuclear energy

(nuclear reaction)

- U 235
- P 239

⊗ India

convert
↓
enrichment method.

- import dependancy
- Foreign investment
eg: Kalpakkam - Russia

Nuclear power generation - tie up with other countries

USA - sanction on Iran: discard nuclear energy programme

Iran - Diverting enrichment method for nuclear bomb use

civil use | military use.



Manufacturing Industries

① Factors for location of industry [---]

- Some factors for location of industries dominate/ overshadow other factors.

- (i) Al - Power
- cheap electricity

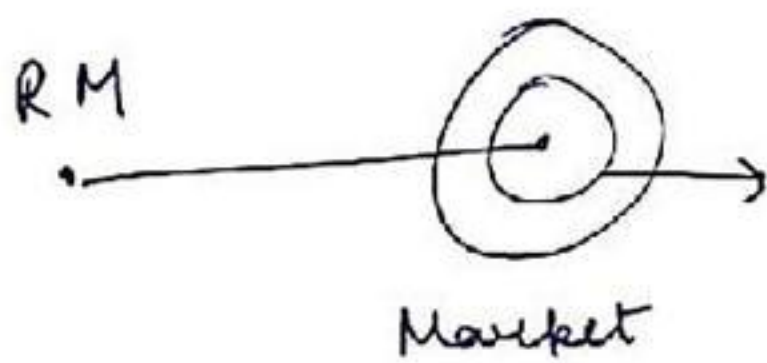
- (ii) Aligarh - immobile labour

Bhadohi carpet

Sandal wood - Mysore [labour overshadowed other factors]

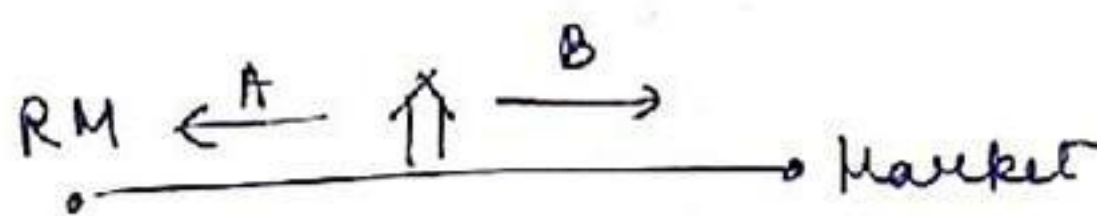
② → Raw material: (RM)

(i) Ubiquitous: omnipresent / everywhere



They will be around market because no hindrance to RM

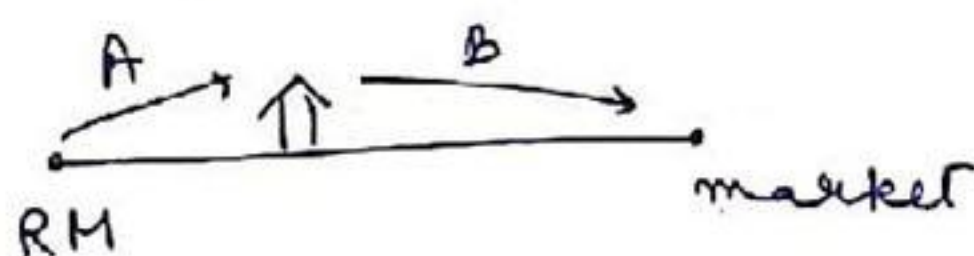
(ii) Fixed RM



A+B - transport cost
↓
costing
↓
Profit margin (↓)

a) Pure RM

↳ neither net gaining, nor net losing
eg. cotton

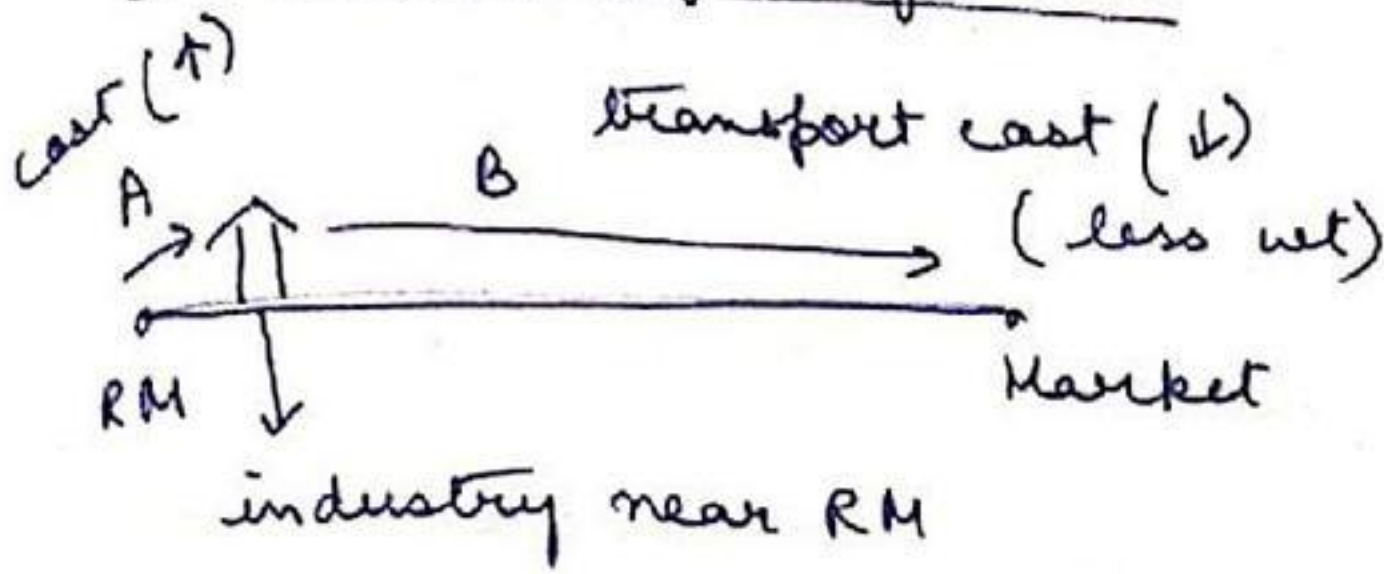


- net same, same cost



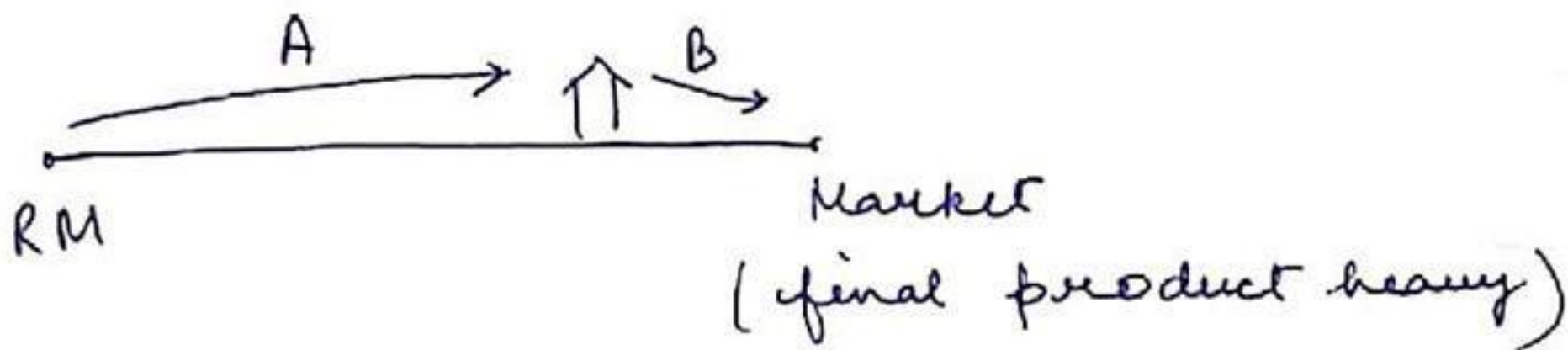
(B) Impure Raw material:

(1) wt. losing - sugarcane



(2) wt. gaining

eg - coca-cola

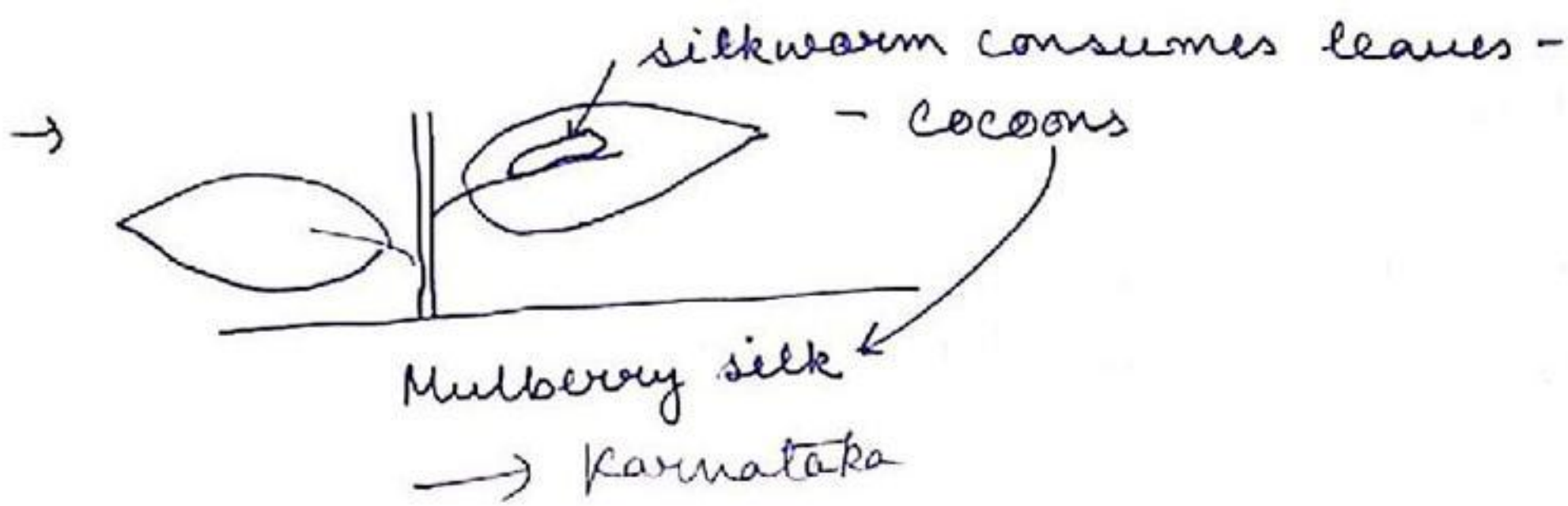


Coca-cola

↓
Carbonate + water = wt (↑)

⇒ Classification of industries - Bk

→ Climate influence industries - eg. woolen industry





③ Aluminium Industry

Al - metal

- ↳ light → Automobile sector (speed, mileage)
- ↳ aerospace industry
- ↳ Processing requires lot of energy

Ore → energy → Al, so located where electricity is cheap and abundant

• largest producer: China, Russia, Canada

India

→ Bauxite - Rich
↳ Al

→ market, developing country, middle class → buy cars.

→ major producer - HINDALCO
NALCO

⇒ 2 stages of Al processing

① Bauxite to Alumina

- wet losing process
- so located near RM area

② Alumina to aluminium

- smelting plant of Al
- electrolysis → it requires huge electricity → near cheap power source.



③

Factors	Renukut, UP	Hirakund (Odisha)
RM	→ Lohardaga (JH) Korba (CH) Bastar (CH)	Koraput
Power	→ Rihand Dam in proximity	Hirakund Dam
Transport	→ Rail + Road + Airport	Port + Rail + Road.

④ Problems of Al- industry in India:

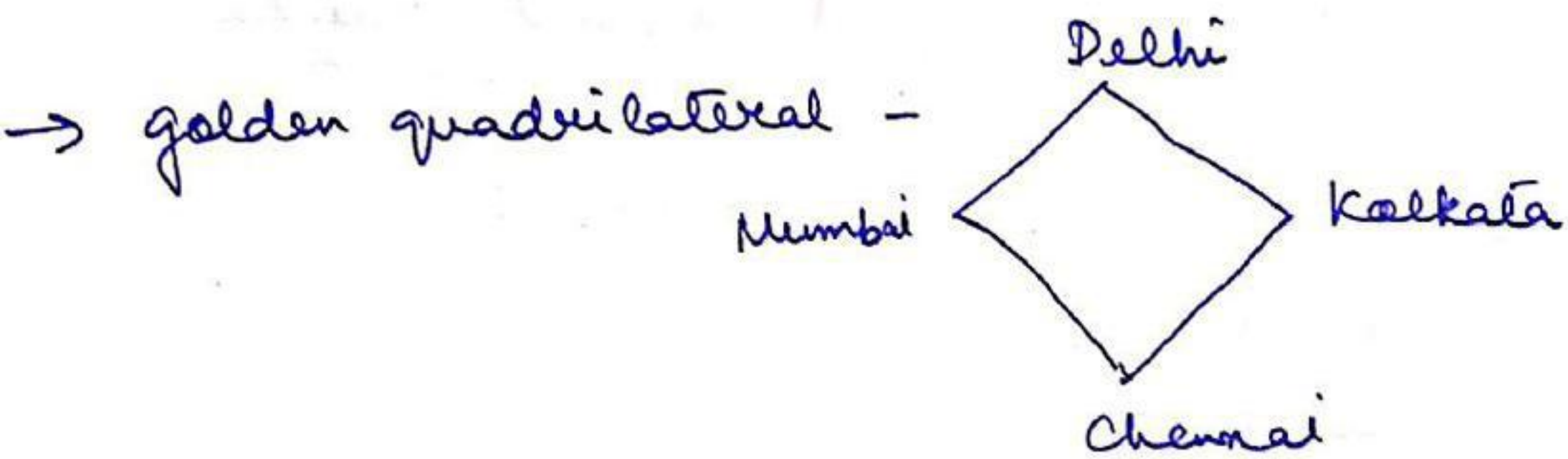
- (i) Slump in global Al price because of excess supply by China
- (ii) Dumping of Al by China in India
- (iii) Domestic issue - Resistance by Kondh's tribe in Niyamgiri Hills
+ Environment clearance + development
refugee.

→ Excess steel production in China

- global demand (↓)
- pricing cost (↓)
- domestic industry impacted (excess steel dumped)
— excess supply.



Lifelines of National Economy - Ch-7



→ 13th major port of India - Enayam near Colachel, TN

→ Longest national highway - NH 44.



Ethics

① Emotional Intelligence (EI)

↓
Hurdle for Bureaucrats (Thought earlier)

↓
if swayed away → Take wrong decisions

eg: Rape / Dowry → false claim

↓
DM → swayed away → innocent guy
considered guilty
(wrong steps taken)

EI: Right amount of attachment/detachment
to subject → equally important component

↓
not bad for bureaucracy → Helps in
administration
rather

② Ethical dilemma: choosing b/w

↳ Right (is) wrong → Not this

↓
absolutely wrong - no way
justified

↳ Options that are equally correct/right.



③ Belief system

cradle → grave

Support

Not to live in isolation →

→ Mother + Father + Family - Shape one.
Add consonant ideas about how things work in life, won't expose the externalities of world.
Achieve: theoretical part

→ School: Arith, comprehension, psychomotor skills

→ Society: learn realities, how external world operates

→ Peer - institution → shapes personality groups

↳ Pent up feelings to be shared

↳ Re-console, on same boat

↳ Decide career path

→ Religion: Not all qs can be answered by above 4.

Science becomes silent sometimes

↳ Root: Ans - solution to qs.

eg: Gautam Buddha - search for enlightenment, solution of suffering, end of greed (had left palace)