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HUMAN GEOGRAPHY

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POPULATION & SETTLEMENT

Population Growth & Demographics

1. **Population growth rate** is the percentage change in population over time (birth rate - death rate + migration).
2. **Demographics** is the statistical study of human populations (age, sex, income, etc.).
3. **Birth rate** is the number of live births per 1,000 people annually.
4. **Death rate** is the number of deaths per 1,000 people annually.
5. **Natural growth rate** = (Birth rate - Death rate) excluding migration.
6. **Total Fertility Rate (TFR)** is the average number of children born to a woman in her lifetime.
7. **Infant Mortality Rate (IMR)** is deaths of children under 1 year per 1,000 live births.
8. **Life expectancy** is the average number of years a person is expected to live.
9. **Population density** is the number of people per unit area (e.g., per km²).
10. **Sex ratio** is the number of females per 1,000 males in a population.
11. **Age structure** shows the distribution of different age groups (pyramid shape).
12. **Dependency ratio** compares non-working (young + old) to working-age population.
13. **Demographic Transition Model** has 5 stages showing population changes with development.
14. **Stage 1 (High stationary)**: High birth & death rates (pre-industrial societies).
15. **Stage 2 (Early expanding)**: Death rates fall due to healthcare, but birth rates remain high.
16. **Stage 3 (Late expanding)**: Birth rates decline as education and family planning improve.
17. **Stage 4 (Low stationary)**: Low birth and death rates (developed countries).
18. **Stage 5 (Declining)**: Birth rates fall below death rates (e.g., Japan, Germany).
19. **Population explosion** occurs when birth rates remain high while death rates drop rapidly.
20. **Zero Population Growth (ZPG)** occurs when birth rate = death rate (no net growth).
21. **Urbanization** increases as more people move from rural to urban areas.
22. **Migration** (internal/external) affects population distribution and density.

23. **Census** is the official count of a population conducted every 10 years in India.
24. **National Population Policy (2000)** aims for stable population growth by 2045.
25. **Challenges:** Overpopulation strains resources, while aging populations burden economies.
8. **Brain drain** is the emigration of skilled professionals (doctors, engineers) to developed nations.
9. **Refugees** flee due to persecution/war (e.g., Rohingya to Bangladesh).
10. **Remittances** are money sent by migrants to families back home, boosting local economies.

Migration Patterns

1. **Migration** is the permanent or semi-permanent movement of people from one place to another.
2. **Emigration** is leaving one's country, while **immigration** is entering a new country.
3. **Internal migration** occurs within a country (e.g., rural to urban).
4. **International migration** involves crossing national borders (e.g., India to UAE).
5. **Push factors** drive people out (poverty, conflict, disasters), while **pull factors** attract them (jobs, education, safety).
6. **Seasonal migration** is temporary, often for agriculture (e.g., sugarcane workers).
7. **Urbanization** is fueled by rural-urban migration for better opportunities.
11. **India's largest diaspora** is in the UAE, USA, and Saudi Arabia.
12. **Kerala and Punjab** are top Indian states for international migration.
13. **Interstate migration** in India is highest to Maharashtra, Delhi, and Gujarat.
14. **MGNREGA** reduces distress migration by providing rural employment.
15. **Step migration** involves moving in stages (village → town → city).
16. **Chain migration** occurs when migrants follow relatives/friends to a destination.
17. **Guest workers** temporarily migrate for jobs (e.g., Indian laborers in Gulf countries).
18. **Climate refugees** relocate due to environmental disasters (floods, droughts).
19. **India's Census** tracks internal migration based on place of last residence.
20. **Female migration** in India is often marriage-driven (80% of internal migrants).
21. **Remittance inflow** to India is the world's highest (\$100+ billion annually).

22. **Silk Route** historically facilitated migration and cultural exchange.
23. **Partition (1947)** caused one of history's largest migrations (15 million people).
24. **Government policies** like *Pravasi Bharatiya Divas* engage the Indian diaspora.
25. **Challenges:** Migrants face exploitation, poor living conditions, and lack of social security.

Urbanization & Smart Cities

1. **Urbanization** is the growth of cities due to migration and natural population increase.
2. **India's urban population** is ~35% (2021) and expected to reach **50% by 2050**.
3. **Metropolis** (10+ lakh people) and **mega-city** (50+ lakh) are classifications of large urban areas.
4. **Push factors** (rural unemployment) and **pull factors** (urban jobs) drive urbanization.
5. **Slums** are densely populated urban areas with poor living conditions (e.g., Dharavi, Mumbai).
6. **Urban sprawl** is unplanned city expansion into surrounding rural lands.
7. **Smart Cities Mission (2015)** aims to develop **100 sustainable cities** with tech-driven infrastructure.
8. **Key features of smart cities:**
 - **Digital governance** (e-governance, online services)
 - **Smart mobility** (metro, electric buses)
 - **Waste management** (recycling, waste-to-energy plants)
 - **Renewable energy** (solar power, LED streetlights)
9. **Top smart cities in India:** Bhubaneswar, Pune, Surat, Chennai, and Ahmedabad.
10. **AMRUT (Atal Mission)** focuses on water supply, sewage, and transport in 500 cities.
11. **Urban Heat Island Effect** makes cities hotter than rural areas due to concrete and pollution.
12. **Public-Private Partnership (PPP)** funds smart city projects.
13. **Challenges:** Traffic congestion, pollution, housing shortages, and waste disposal.
14. **Sustainable urban planning** includes green spaces (e.g., urban forests).
15. **E-vehicles and cycle lanes** reduce carbon emissions in smart cities.
16. **Integrated Command and Control Centres (ICCCs)** monitor city operations in real-time.
17. **Swachh Bharat Mission (Urban)** improves sanitation and waste management.
18. **Metro rail networks** ease traffic in Delhi, Bengaluru, Hyderabad, and other cities.

19. **Affordable housing** schemes like **PMAY (Urban)** provide homes for the poor.
 20. **GIS mapping** helps in efficient land use and infrastructure planning.
 21. **Urban local bodies** (Municipal Corporations) manage city administration.
 22. **Mixed land-use** in smart cities combines residential, commercial, and recreational spaces.
 23. **India's first smart city** was developed in **Bhubaneswar (Odisha)**.
 24. **Chandigarh** is India's first planned city (designed by Le Corbusier).
 25. **Future focus:** AI, IoT (Internet of Things), and 5G for smarter urban living.
6. **Intensive Farming** – High inputs (fertilizers, irrigation) for max yield (West Bengal rice).
 7. **Extensive Farming** – Large land, low labor (e.g., US wheat fields).
 8. **Dryland Farming** – Rain-dependent crops (millets in Rajasthan).
 9. **Irrigated Farming** – Uses canals/tubewells (e.g., Punjab's wheat-rice cycle).
 10. **Organic Farming** – No chemicals (Sikkim is India's first organic state).
 11. **Horticulture** – Fruits/flowers (Maharashtra grapes, Karnataka roses).
 12. **Sericulture** – Silk production (Karnataka, West Bengal).
 13. **Aquaculture** – Fish farming (Andhra Pradesh shrimp).
 14. **Apiculture** – Beekeeping (Himachal Pradesh honey).
 15. **Dairy Farming** – Milk production (Amul cooperatives in Gujarat).
 16. **Green Revolution** – High-yield crops (1960s Punjab-Haryana wheat/rice boom).
 17. **Kharif Crops** – Monsoon-grown (rice, cotton).
 18. **Rabi Crops** – Winter-grown (wheat, mustard).
 19. **Zaid Crops** – Summer-grown (watermelon, cucumber).
 20. **Cooperative Farming** – Farmers pool resources (e.g., AMUL dairy).

ECONOMIC GEOGRAPHY

Agriculture - Types

1. **Subsistence Farming** – Farmers grow food only for family needs (e.g., rice in Bihar).
2. **Commercial Farming** – Crops grown for sale (e.g., wheat in Punjab, tea in Assam).
3. **Shifting Agriculture (Slash & Burn)** – Forest land cleared, cultivated temporarily (NE India).
4. **Plantation Agriculture** – Large-scale monoculture (tea, coffee, rubber).
5. **Mixed Farming** – Crops + livestock rearing (e.g., dairy with maize in Haryana).

21. **Contract Farming** – Companies buy produce at pre-set prices (PepsiCo potatoes).
22. **Terrace Farming** – Hillside steps to prevent soil erosion (Himachal apples).
23. **Nomadic Herding** – Tribes rear animals (e.g., Gujjars in Himalayas).
24. **Vertical Farming** – Urban stacked-layer crops (experimental in Bengaluru).
25. **Sustainable Agriculture** – Protects soil/water (Zero Budget Natural Farming – ZBNF).
7. **Golden Fiber Revolution** - Focused on jute production increase.
8. **Golden Revolution (1991-2003)** - Made India 2nd largest fruit & honey producer (horticulture boom).
9. **Silver Revolution** - Revolutionized egg production through poultry farming.
10. **Red Revolution** - Tomato/meat production boost (led by Vishal Tewari).
11. **Round Revolution** - Potato production increase (India now 2nd largest producer).
12. **Brown Revolution** - Leather/cocoa production focus.
13. **Black Revolution** - Petroleum production emphasis.
14. **Grey Revolution** - Fertilizer production enhancement.
15. **Evergreen Revolution** - Sustainable agriculture without ecological harm (concept by Dr. Swaminathan).

Agriculture – Revolutions

1. **Green Revolution (1960s)** - Introduced HYV seeds, fertilizers & irrigation to boost foodgrain production (wheat/rice).
2. **Father of Green Revolution in India** - Dr. M.S. Swaminathan.
3. **White Revolution (Operation Flood)** - Made India world's largest milk producer (led by Dr. Verghese Kurien).
4. **Blue Revolution** - Enhanced fish production through aquaculture & inland fisheries.
5. **Pink Revolution** - Modernization of meat & poultry processing industry.
6. **Yellow Revolution** - Boosted oilseed production (1986-90 through **Technology Mission on Oilseeds**).

Minerals Resources

1. India has the **world's largest reserves** of mica and 4th largest of coal.
2. **Jharkhand** is India's richest state in mineral resources (iron, coal, copper).
3. **Singbhum (Jharkhand)** is famous for copper deposits.
4. **Kolar (Karnataka)** was India's major gold field (now mostly depleted).

5. **Bauxite** (aluminum ore) is mainly found in Odisha (50% of India's reserves).
6. **Iron ore** types: Hematite (70% Fe, best quality) and Magnetite (60% Fe).
7. **Bailadila (Chhattisgarh)** has the richest hematite iron ore deposits.
8. **Kudremukh (Karnataka)** was Asia's largest iron ore mine (now closed).
9. **Manganese** is essential for steel production; Odisha is the top producer.
10. **Coal types**: Anthracite (best), Bituminous (metallurgical), Lignite (lowest grade).
11. **Jharia (Jharkhand)** has India's best coking coal reserves.
12. **Neyveli (Tamil Nadu)** is famous for lignite coal mines.
13. **Petroleum** resources are found in Assam (Digboi), Mumbai High, and KG Basin.
14. **Mica** belt extends across Jharkhand, Bihar, Andhra Pradesh and Rajasthan.
15. **Uranium** is mined at Jaduguda (Jharkhand) and Tummalapalle (AP).
16. **Thorium** reserves are found in Kerala's monazite sands (world's largest).
17. **Diamond** mines are located in Panna (Madhya Pradesh).
18. **Limestone** (cement industry) is abundant in Madhya Pradesh and Rajasthan.
19. **Zinc & Lead** reserves are concentrated in Rajasthan (Zawar mines).
20. **India imports** 85% of its crude oil and 50% of natural gas needs.
21. **National Mineral Policy 2019** focuses on sustainable mining with private participation.
22. **Coal India Limited** is the world's largest coal mining company.
23. **MMDR Act 2015** (Mines and Minerals Development and Regulation) governs mining.
24. **Rat-hole mining** (Meghalaya) was banned for being hazardous to workers.
25. **Mineral Belts of India**:
 - North-Eastern Peninsular Belt (iron, coal, manganese)
 - Central Belt (manganese, bauxite, limestone)
 - Southern Belt (gold, iron, bauxite)

Energy Resources

1. **Coal** accounts for ~55% of India's primary energy supply (Jharkhand, Odisha major producers).
2. **Lignite** reserves are concentrated in Tamil Nadu (Neyveli mines).
3. **Petroleum** meets ~30% of energy needs; Mumbai High produces 40% of India's crude oil.
4. **Natural Gas** reserves are found in KG Basin, Assam and Rajasthan.
5. **Renewable energy** contributes ~40% of India's installed power capacity (2023).

6. **Solar Power:** India ranks 4th globally in solar capacity (Rajasthan leads in installations).
7. **Jawaharlal Nehru National Solar Mission** aims for 100 GW solar capacity by 2024.
8. **Wind Energy:** Tamil Nadu has 25% of India's wind power capacity (Muppandal wind farm).
9. **Hydropower** contributes 12% of electricity; largest plant is Koyna (Maharashtra).
10. **Nuclear Power** (3% of mix): Kudankulam (TN) is India's largest nuclear plant.
11. **Uranium** for nuclear plants comes from Jaduguda (Jharkhand).
12. **Thorium** (in Kerala sands) fuels India's 3-stage nuclear program for energy security.
13. **Biomass Energy:** Punjab and Maharashtra lead in bagasse-based power.
14. **Geothermal** potential exists in Himachal Pradesh and Gujarat (unutilized significantly).
15. **Tidal Energy** experimental project in Gujarat's Gulf of Kutch.
16. **Coal India Limited** produces 80% of India's coal (world's largest coal miner).
17. **OPEC** supplies 60% of India's crude oil imports (Iraq largest supplier).
18. **Strategic Petroleum Reserves** are maintained in Visakhapatnam, Mangaluru and Padur.
19. **PNG (Piped Natural Gas)** network covers 70+ cities via GAIL pipelines.
20. **LNG Terminals** operate at Dahej (largest), Hazira and Kochi.
21. **Energy Conservation Act 2001** promotes efficiency via BEE (Bureau of Energy Efficiency).
22. **National Wind-Solar Hybrid Policy** maximizes renewable output.
23. **UDAY Scheme** (2015) aimed to reduce discom losses in power distribution.
24. **PM-KUSUM** promotes solar pumps for farmers to reduce diesel dependence.
25. **India's energy target:** 500 GW renewable capacity by 2030 (Paris Agreement commitment).

Industries - Iron & Steel

1. **Iron & Steel Industry** is the backbone of industrial development, providing raw materials for infrastructure, machinery, and construction.
2. **India is the 2nd largest steel producer** globally, after China.
3. **Iron ore, coking coal, and limestone** are the three key raw materials required for steel production.
4. **Jamshedpur (Jharkhand)** – Home to **Tata Steel**, Asia's first and India's oldest steel plant (1907).

5. **Bhilai (Chhattisgarh)** – Established with Russian collaboration, known for rail and structural steel production.
6. **Durgapur (West Bengal)** – Developed with British help, specializes in alloy steel.
7. **Bokaro (Jharkhand)** – Built with Soviet assistance, one of India's largest steel plants.
8. **Rourkela (Odisha)** – First plant set up with German collaboration, uses local iron ore.
9. **Burnpur (West Bengal)** – IISCO (Indian Iron & Steel Co.) plant merged with SAIL.
10. **Vijayanagar (Karnataka)** – JSW Steel's largest private-sector plant.
11. **Salem (Tamil Nadu)** – Specializes in stainless steel production.
12. **Visakhapatnam (Andhra Pradesh)** – Rashtriya Ispat Nigam Ltd. (RINL) operates here.
13. **Mini Steel Plants** – Use scrap metal and electric furnaces (e.g., ESSAR, Jindal).
14. **Steel Authority of India Ltd. (SAIL)** – Government-owned, manages major steel plants.
15. **JSW Steel** – Largest private steel producer in India.
16. **Sponge Iron** – Produced through direct reduction of iron ore (used in mini plants).
17. **Challenges:** High coal import costs, outdated technology, and environmental pollution.
18. **DRI (Direct Reduced Iron)** – Eco-friendly alternative to traditional blast furnaces.
19. **National Steel Policy 2017** aims for **300 million tonnes** production capacity by 2030.
20. **Purvodaya Initiative** focuses on steel clusters in Eastern India (Odisha, Jharkhand, Chhattisgarh).
21. **India exports steel** to the USA, Europe, and Southeast Asia.
22. **Lack of high-grade coking coal** forces India to import from Australia.
23. **Electric Arc Furnaces (EAF)** are used in recycling scrap metal for steel.
24. **Iron ore reserves** are concentrated in Odisha, Jharkhand, Chhattisgarh, and Karnataka.
25. **Future focus:** Green steel (using hydrogen instead of coal) to reduce carbon emissions.

Industries – IT

1. **India's IT industry** contributes ~9% to GDP and employs over 5 million professionals.
2. **Bangalore** is called the "Silicon Valley of India" for its IT hub status.
3. **Tata Consultancy Services (TCS)** is Asia's largest IT company by market cap.
4. **Infosys** was India's first IT company listed on NASDAQ (1999).

5. **Wipro** pioneered India's IT revolution under Azim Premji's leadership.
6. **HCL Technologies** founded in 1976, pioneered computer hardware before shifting to IT services.
7. **NASSCOM** (National Association of Software and Service Companies) governs India's IT sector.
8. **India's IT exports** exceed \$200 billion annually (major markets: US, EU).
9. **Software Technology Parks (STPs)** provide infrastructure for IT companies (established 1991).
10. **Indian IT sector** specializes in BPO, KPO and software development.
11. **Cyberabad** (Hyderabad) and **Electronic City** (Bangalore) are major IT clusters.
12. **Aadhaar** - World's largest biometric ID system, developed by Indian IT professionals.
13. **Digital India** (2015) boosted IT adoption in governance and public services.
14. **IT Act 2000** provides legal framework for e-commerce and cyber security.
15. **India ranks 1st** globally in software services exports.
16. **Indian IT firms** serve 75% of global Fortune 500 companies.
17. **Tech Mahindra** leads in telecom software solutions globally.
18. **Indian engineers** developed popular tech like Hotmail, Pentium chips, and USB.
19. **IT sector growth** began with 1991 economic reforms and Y2K solutions demand.
20. **Bengaluru, Hyderabad, Pune, Chennai, NCR** form India's top 5 IT hubs.
21. **India produces** over 1.5 million engineering graduates annually for IT sector.
22. **UPI** (Unified Payments Interface) revolutionized digital payments globally.
23. **AI and Machine Learning** are new focus areas for Indian IT companies.
24. **IT sector challenges:** Automation threats, visa restrictions, and rising competition.
25. **Future trends:** Cloud computing, IoT, blockchain and quantum computing adoption.

Industries - Electronics

1. **India's electronics market** is projected to reach \$400 billion by 2025 (3rd largest globally).
2. **Mobile phone production** in India increased from 60 million (2014) to 300+ million (2023) units annually.
3. **PLI Scheme** (Production Linked Incentive) boosted smartphone manufacturing with ₹41,000 crore investment.
4. **Apple now manufactures** 7% of iPhones in India through Foxconn and Wistron plants.

5. **Semiconductor Mission** aims to make India a chip manufacturing hub with \$10 billion incentives.
6. **Bengaluru** is India's electronics R&D hub with 85+ chip design companies.
7. **Taiwan's Foxconn** operates world's largest iPhone factory in Sriperumbudur (Tamil Nadu).
8. **Pegatron** and **Salcomp** have set up manufacturing near Chennai.
9. **Electronic City** (Bengaluru) and **Sri City** (AP) are major electronics manufacturing clusters.
10. **India imports** 80% of its electronics components (China being largest supplier).
11. **TV manufacturing** grew 3X after 2014 due to phased manufacturing program.
12. **Dixon Technologies** is India's largest electronics contract manufacturer.
13. **Micromax** was India's top mobile brand before Chinese companies dominated.
14. **Make in India** boosted electronics manufacturing with 200+ new factories.
15. **Electronics exports** crossed \$20 billion in 2023 (mobile phones contribute 44%).
16. **Vedanta-Foxconn** will setup India's first semiconductor plant in Gujarat.
17. **IT hardware PLI** covers laptops, tablets and servers manufacturing.
18. **Noida** has emerged as mobile manufacturing hub with Oppo, Vivo, Samsung plants.
19. **Samsung's largest mobile factory** is in Noida (120 million phones/year capacity).
20. **Tata Group** acquired Wistron's iPhone operations to become Apple's 1st Indian vendor.
21. **Electronics manufacturing** employs over 2 million workers directly.
22. **Challenges:** High import dependence, low value addition (only 18% currently).
23. **Future focus:** 5G devices, EV electronics, and semiconductor ecosystem.
24. **Government initiatives:** SPECS, EMC 2.0 and Modified EDF schemes.
25. **Vision:** 300billionelectronicsproduction and 300billionelectronicsproduction and 120 billion exports by 2026

Industries - Automobile

1. **India is the 4th largest automobile market** globally, after China, USA, and Japan.
2. **Chennai** is called the "**Detroit of India**" due to its major auto manufacturing hub.
3. **Maruti Suzuki** dominates India's passenger vehicle segment with ~50% market share.
4. **Tata Motors** launched India's first indigenous car, the **Tata Indica (1998)**.
5. **Mahindra & Mahindra** is a leader in utility vehicles and tractors.

6. **Hyundai** is India's 2nd largest carmaker, with its manufacturing base in **Sriperumbudur (Tamil Nadu)**.
7. **Hero MotoCorp** is the world's largest two-wheeler manufacturer by volume.
8. **Bajaj Auto** is a major exporter of two-wheelers and three-wheelers.
9. **Royal Enfield** (Eicher Motors) is famous for its iconic Bullet motorcycles.
10. **Ola Electric** is leading India's electric two-wheeler revolution.
11. **Tesla** plans to enter India with its electric vehicles (EVs).
12. **FAME India Scheme (Faster Adoption of Manufacturing of Electric Vehicles)** promotes EV adoption.
13. **Gurugram and Manesar (Haryana)** host major auto plants like **Maruti and Honda**.
14. **Pune (Maharashtra)** is another auto hub with **Volkswagen, Bajaj, and Tata Motors**.
15. **Automobile industry contributes ~7% to India's GDP** and employs millions.
16. **BS-VI norms (2020)** were introduced to reduce vehicular pollution.
17. **India exports vehicles** to Africa, Latin America, and Southeast Asia.
18. **Toyota Kirloskar** operates in Karnataka, manufacturing SUVs like Fortuner.
19. **Ford and GM exited India** due to low sales but continue via imports.
20. **EV Policy 2024** aims for **30% electric vehicles on roads by 2030**.
21. **Challenges:** High GST (28%), fuel price fluctuations, and supply chain disruptions.
22. **Auto component industry** is a key supplier, with **Delhi-NCR and Pune** as major hubs.
23. **Tesla & BYD** are negotiating to set up EV plants in India.
24. **India's first electric highway** is proposed on the **Delhi-Mumbai Expressway**.
25. **Future focus:** Hybrid vehicles, hydrogen fuel cells, and autonomous driving tech

Industries – Agriculture and allied

1. **Agriculture contributes ~16% to India's GDP** and employs **45% of the workforce**.
2. **Food processing** is the largest segment under agro-based industries.
3. **Dairy industry** (White Revolution) makes India the **world's largest milk producer**.
4. **Amul (Anand Milk Union Limited)** is Asia's largest dairy cooperative.
5. **Fisheries sector** (Blue Revolution) contributes **1% to GDP** and employs **16 million people**.
6. **Marine fisheries** dominate in **Kerala, Gujarat, and Tamil Nadu**.
7. **Inland fisheries** thrive in **Andhra Pradesh, West Bengal, and Bihar**.
8. **Poultry industry** (Silver Revolution) grows at **8-10% annually**.

9. **India is the 2nd largest fruit & vegetable producer** but only **2% are processed**.
10. **Meat & leather industry** (Pink Revolution) exports buffalo meat globally.
11. **Sericulture** (silk production) thrives in **Karnataka, Andhra Pradesh, and Assam**.
12. **India is the 2nd largest silk producer** after China.
13. **Jute industry** (Golden Fiber) is concentrated in **West Bengal (75% production)**.
14. **Sugar industry** is the **2nd largest agro-based industry** after cotton.
15. **Maharashtra, Uttar Pradesh, and Karnataka** lead in sugarcane production.
16. **Cotton textile industry** is the **oldest and largest organized industry** in India.
17. **Gujarat, Maharashtra, and Telangana** are major cotton-producing states.
18. **Handloom & handicrafts** employ over **10 million artisans** (mostly rural women).
19. **Fertilizer industry** is crucial for crop productivity (**NPK – Nitrogen, Phosphorus, Potassium**).
20. **Organic farming** is promoted under **Paramparagat Krishi Vikas Yojana (PKVY)**.
21. **Food parks & Mega Food Processing Schemes** aim to reduce post-harvest losses.
22. **APEDA (Agricultural & Processed Food Products Export Development Authority)** boosts agri-exports.
23. **Challenges:** Low processing levels (10%), supply chain gaps, and climate risks.
24. **Future focus:** Precision farming, AI in agriculture, and cold chain infrastructure.
25. **Allied sectors** (dairy, fisheries, poultry) contribute **30% to agricultural GDP**.

Industries – Fisheries

1. **India is the 2nd largest fish producer** globally, contributing ~8% to global fish production.
2. **Fisheries sector contributes ~1.1% to India's GDP and 7.3% to agricultural GDP.**
3. **Blue Revolution (1985-1990)** boosted fish production through modern techniques.
4. **Marine Fisheries (60% of total catch)** thrive in **Kerala, Gujarat, Tamil Nadu, and Maharashtra**.
5. **Inland Fisheries (40% of total catch)** dominate in **Andhra Pradesh, West Bengal, and Bihar**.
6. **Aquaculture** (fish farming) accounts for **70% of India's fish exports**.

7. **Shrimp farming** is prominent in **Andhra Pradesh, West Bengal, and Odisha**.
8. **India exports seafood worth ~\$8 billion annually** (USA & EU are top buyers).
9. **Frozen shrimp** is India's **largest seafood export item (75% of earnings)**.
10. **MPEDA (Marine Products Export Development Authority)** promotes seafood exports.
11. **Kochi (Kerala)** is India's largest seafood export hub.
12. **Sunderbans (West Bengal)** is famous for **brackish water fishing**.
13. **Traditional fishing methods** include **gill nets, trawling, and purse seining**.
14. **Deep-sea fishing** is promoted under the **Pradhan Mantri Matsya Sampada Yojana (PMMSY)**.
15. **Fish seed production** is concentrated in **Andhra Pradesh and West Bengal**.
16. **Major marine fish species:** Indian oil sardine, mackerel, tuna, and shrimp.
17. **Major freshwater fish species:** Rohu, Catla, Mrigal (Indian Major Carps).
18. **Fish processing units** are located in **Veraval (Gujarat), Mangaluru (Karnataka), and Visakhapatnam (AP)**.
19. **Challenges:** Overfishing, climate change, and declining fish stocks.
20. **Marine fishing is banned during monsoon** (June-August) for breeding.
21. **Inland fishing** includes **ponds, rivers, lakes, and reservoirs**.
22. **India has an 8,118 km coastline**, supporting marine fisheries.
23. **Fishermen cooperatives** (e.g., Kerala's Matsyafed) ensure fair prices.
24. **Future focus:** Biofloc technology, seaweed farming, and sustainable practices.
25. **India aims to double fish exports to \$14 billion by 2025** under PMMSY.

TRADE

1. **India's total trade (2023)** crossed **\$1.6 trillion** (exports + imports).
2. **Top exports:** Petroleum products, gems/jewelry, pharmaceuticals, and software services.
3. **Top imports:** Crude oil, gold, electronics, and machinery.
4. **USA is India's largest trading partner** (~18% of total trade).
5. **China is India's largest import source** (electronics, machinery, and chemicals).
6. **Gulf countries (UAE, Saudi Arabia)** supply **80% of India's crude oil**.
7. **India's trade deficit** occurs when **imports > exports** (mainly due to oil/gold imports).
8. **Service exports** (IT, tourism, remittances) help reduce trade deficit.

9. **SEZs (Special Economic Zones)** boost exports with tax benefits (e.g., Noida, Kandla).
10. **Top exporting states:** Maharashtra, Gujarat, Tamil Nadu.
11. **Major ports:** JNPT (Mumbai), Mundra (Gujarat), Chennai Port.
12. **WTO (World Trade Organization)** regulates global trade rules; India is a founding member.
13. **FTA (Free Trade Agreement)** examples: India-UAE, India-Australia.
14. **Rupee trade mechanism** allows India to trade in INR with select countries (e.g., Russia).
15. **Top pharmaceutical export:** Vaccines, generics (India is the "Pharmacy of the World").
16. **Agricultural exports:** Basmati rice, spices, marine products.
17. **Remittances (~\$110 billion/year)** from NRIs are India's largest forex source.
18. **Foreign Trade Policy 2023** aims for **\$2 trillion exports by 2030**.
19. **Export promotion schemes:** RoDTEP, Advance Authorization.
20. **India's forex reserves** (~\$600 billion) stabilize trade imbalances.
21. **Challenges:** High import dependence on China, geopolitical tensions.
22. **Duty-free imports** allowed from **LDCs (Least Developed Countries)**.
23. **Trade surplus** in services (IT/BPO) offsets goods trade deficit.
24. **Major trade blocs:** RCEP (India opted out), BIMSTEC, G20.
25. **Future focus:** Atmanirbhar Bharat, PLI schemes to reduce import reliance.

TRANSPORTATION

1. **Indian Railways** is Asia's **largest** and the world's **4th largest** rail network.
2. **First passenger train** ran in **1853** (Mumbai to Thane).
3. **Konkan Railway** (1998) is India's most scenic route, built with Japanese technology.
4. **Vande Bharat Express** is India's **semi-high-speed** indigenous train.
5. **Metro rail** operates in **15+ cities** (Delhi Metro is the largest).
6. **Golden Quadrilateral** connects **Delhi-Mumbai-Chennai-Kolkata** via highways.
7. **National Highways (NHs)** cover **1.4 lakh km** (NH44 is the longest – Srinagar to Kanyakumari).
8. **Bharatmala Pariyojana** aims to build **34,800 km** of new highways.
9. **Indian road network** is the **2nd largest globally** (~63 lakh km).
10. **Kolkata** has India's **oldest metro** (1984), while **Nagpur** has the **widest**.

11. **Major ports: JNPT (Mumbai), Mundra (Gujarat), Chennai, Visakhapatnam.**
12. **Kandla Port** is a **tax-free port** and handles maximum cargo.
13. **Inland waterways** include **Ganga-Bhagirathi-Hooghly, Brahmaputra, and Kerala backwaters.**
14. **Air transport** is managed by **AAI (Airports Authority of India).**
15. **Indira Gandhi International Airport (Delhi)** is India's **busiest airport.**
16. **Chennai Port** is the **oldest operational port** (since 1881).
17. **Pipelines** transport **crude oil (from Assam, Mumbai High), gas (HVJ pipeline).**
18. **Indian Railways** runs **13,000+ passenger trains daily.**
19. **Freight corridors (DFC)** – Eastern (Ludhiana-Dankuni) & Western (Mumbai-Delhi).
20. **Ropeways** are used in hilly areas (e.g., **Uttarakhand, Jammu & Kashmir).**
21. **Challenges:** Congestion, pollution, and lack of last-mile connectivity.
22. **Future focus:** Hyperloop, bullet trains (Mumbai-Ahmedabad), and green transport.
23. **Sagarmala Project** aims to modernize ports and promote coastal shipping.
24. **UDAN Scheme** boosts regional air connectivity with **low-cost flights.**

25. **Electric vehicles (EVs)** and **hydrogen fuel** are future transport trends.

Geographical Indications (GI Tags)

1. **GI Tag** certifies a product's origin, quality, and uniqueness tied to a specific region.
2. **Darjeeling Tea** (West Bengal) was India's **first GI-tagged product** (2004).
3. **Kancheepuram Silk** (Tamil Nadu) is famous for its traditional weaving.
4. **Alphonso Mango** (Maharashtra) is known as the "King of Mangoes."
5. **Nagpur Orange** (Maharashtra) has a distinct flavor due to regional soil.
6. **Basmati Rice** (Haryana, Punjab, UP) is prized for its aroma and long grains.
7. **Pochampally Ikat** (Telangana) is a GI-tagged handloom textile.
8. **Banarasi Paan** (UP) and **Banarasi Sarees** are both GI-tagged.
9. **Tirupati Laddu** (Andhra Pradesh) is a sacred sweet with GI status.
10. **Mysore Silk** (Karnataka) and **Mysore Sandalwood Oil** hold GI tags.
11. **Kashmir Pashmina** (J&K) is made from rare Changthangi goat wool.
12. **Kullu Shawl** (Himachal Pradesh) is handwoven with vibrant designs.
13. **Goan Feni** is a GI-tagged liquor made from cashew or coconut.

14. **Bikaneri Bhujia** (Rajasthan) is a crispy snack with a unique recipe.
15. **Alleppey Coir** (Kerala) is made from locally sourced coconut fiber.
16. **Chanderi Sarees** (MP) are lightweight with gold/silver zari work.
17. **Monsooned Malabar Coffee** (Karnataka) gets its flavor from monsoon winds.
18. **Nashik Grapes** (Maharashtra) are GI-tagged for their sweetness.
19. **Kangra Tea** (Himachal Pradesh) grows in the Dhauladhar ranges.
20. **Muga Silk** (Assam) is golden-yellow and exclusive to the region.
21. **Thanjavur Veena** (Tamil Nadu) is a GI-tagged musical instrument.
22. **Eathomozhy Tall Coconut** (Tamil Nadu) is known for its sweet water.
23. **GI protection** prevents imitation and boosts farmers/artisans' income.
24. **Odisha Rasagola** won a GI tag after a dispute with West Bengal.
25. **Total GI tags in India (2024): 500+**, covering handicrafts, foods, and agricultural products.