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UPSC Mains 2017 GS III

Year-wise PYQ pack · WRAP model answers with canonical links

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<https://wrapexams.com/upsc/mains/gs-3/2017/>

Q1 · 10 marks

Among several factors for India's potential growth, savings rate is the most effective one. Do you agree? What are the other factors available for growth potential?

GS III · 2017 · Indian Economy

Revision summary

Savings finance investment and matter for potential growth, as in the Harrod-Domar link between the savings rate and output.

India already saves a large share of GDP, mainly in households, so a higher rate is not the only or always the strongest lever.

Idle gold and land savings, or a high incremental capital-output ratio, waste the savings effort.

Other factors are investment quality, skills, infrastructure, institutions, technology and financial intermediation.

Jan Dhan, pensions, GST, **Make in India** and transport programmes try to put savings to work.

Introduction

Potential growth is the output an economy can sustain without overheating. In a simple **Harrod-Domar** story, a higher **savings rate** funds more investment and therefore more growth. India has long had a strong **household savings** habit. Savings are necessary. They are not, by themselves, the most effective lever once the rate is already high and the binding constraint is **how savings are used**.

Body

Savings and potential growth

- Domestic savings finance capital formation without a permanent **current-account** strain, so they matter for a large, investment-hungry economy.
- India's gross savings have often been near **30 per cent of GDP**, led by households, with corporate and public savings making up the rest.
- If savings sit in gold, cash or unproductive land, the **incremental capital-output ratio** stays high and growth does not rise with the savings rate.
- Public savings (a smaller fiscal deficit) free loanable funds for private investment; household financial savings need **banks, insurance and pensions** to reach firms.

- **So the claim is only half right:** a collapse in savings would cut potential growth, but a further rise in the rate is not the single most effective step if efficiency is weak.

Other factors for growth potential

- **Investment quality and total factor productivity:** better machines, logistics and firm organisation raise output per unit of capital more than a slightly higher savings ratio.
- **Human capital:** schooling, health and **Skill India / Pradhan Mantri Kaushal Vikas Yojana** raise labour productivity, which is India's demographic chance.
- **Infrastructure:** power, ports, roads and digital rails (**Bharatmala, Sagarmala, Digital India**) cut costs so the same savings buy more real capacity.
- **Institutions and reforms:** contract enforcement, GST (rolled out 2017), bankruptcy, and a sound **Reserve Bank** framework decide whether savings become factories or stalled projects.
- **Technology and openness:** imported know-how, **Make in India**, and export discipline raise the productivity of each rupee invested.
- **Financial deepening:** **Jan Dhan, Atal Pension Yojana, National Pension System**, and gold schemes try to pull physical savings into the financial system.

Judgment

- Savings remain a **necessary floor**. For India in 2017 the more effective push is to convert existing savings into **efficient, labour-using investment**, not to treat the savings rate as the only dial.

Flow diagram

Savings rate -> Investment
Investment -> Potential growth
Human capital -> Potential growth
Infrastructure -> Potential growth
Technology institutions -> Potential growth
Investment quality -> Potential growth

Conclusion

A high savings rate supports India's growth potential, but it is not the most effective factor once savings are already substantial. Potential growth rises faster when those savings meet skills, infrastructure, institutions and technology. Policy should protect household saving and, more than that, raise the productivity of investment.

Open WRAP page — <https://wrapexams.com/upsc/mains-answers/gs-3/2017/among-several-factors-for-indias-potential-growth-savings-rate-is-the-most-effective-one-do-you-agree-what-are-the-other-factors-available-for-growth-potential/>

Q2 · 10 marks

Account for the failure of manufacturing sector in achieving the goal of labour-intensive exports rather than capital-intensive exports. Suggest measures for more labour-intensive rather than capital-intensive exports.

GS III · 2017 · Indian Economy

Revision summary

India's export growth after reforms was real, but the mix was more petroleum, engineering and chemicals than garments and leather.

Rigid factory labour rules, costly land and power, and capital subsidies encouraged automation and small size.

Bangladesh and Vietnam took buyer-driven apparel chains that hire many workers.

Correctives are labour flexibility, the apparel and leather packages, MUDRA and clusters, GST refunds, Sagarmala, and skills tied to orders.

The aim is jobs per unit of export, not only a larger export bill.

Introduction

East Asia grew rich by exporting **garments, shoes and simple assembly** that hired large numbers of workers. India after 1991 expanded **merchandise exports**, but the mix tilted toward **refined petroleum, engineering goods, chemicals and pharmaceuticals**, which use more capital and skills per job. **Labour-intensive** lines stayed smaller than in Bangladesh or Vietnam. That is a failure of the employment engine, not only of the export total.

Body

Why labour-intensive exports lagged

- **Labour regulation** in the organised factory (hire-and-fire, contract labour, inspections) pushed firms to stay small or to automate, so they never reached the scale East Asian exporters used.
- **Land, power and logistics** costs are high; a garment cluster needs cheap sheds, reliable electricity and fast ports more than a capital-heavy refinery does.
- **Skill and quality gaps** in stitching, finishing and compliance with buyer codes kept India out of large global apparel chains.
- Policy often **subsidised capital** (cheap credit, tax holidays on plant) more visibly than wages, so the relative price of machines fell.
- **Inverted duties**, delayed refunds (before GST settled), and a strong rupee in some years hurt thin-margin labour exports more than high-value chemicals.
- China, then Vietnam and Bangladesh, took the **buyer relationships** in ready-made garments and leather while India specialised where it already had capital and engineers.

Measures for more labour-intensive exports

- **Complete** labour-law simplification **for export units**: easier fixed-term contracts, overtime flexibility, and one-stop compliance, as tried in some State reforms and special packages.
- Scale the **2016 apparel and made-ups package** (rebate of state levies, overtime relief) and similar support for **leather, footwear, gems and jewellery, and marine products**.

- Use **Make in India**, **MUDRA**, and **cluster and mega food park** tools so MSMEs can meet volume without each unit buying heavy capital.
- Cut turnaround time at ports through **Sagarmala**, electronic trade facilitation, and full **GST** refunds so working capital is not trapped.
- **Pradhan Mantri Kaushal Vikas Yojana** and apparel training centres should be tied to actual export orders, not only certificates.
- Coastal **employment zones** and plug-and-play sheds lower the land-and-power barrier that kills labour-intensive scale.
- Keep a competitive real exchange rate and avoid inverted duty structures that tax the labour-using input more than the finished good.

Flow diagram

Labour rules logistics capital bias -> Capital-intensive export mix
Apparel leather packages -> Labour-intensive exports
Skills GST refunds Sagarmala -> Labour-intensive exports
Clusters coastal sheds -> Labour-intensive exports

Conclusion

India failed at labour-intensive exports because regulation, logistics and a capital-biased incentive mix made machines cheaper than large workforces. Apparel, leather and food packages, skills, GST refunds and coastal clusters can still shift the mix. The test is factory jobs in export sheds, not only a higher engineering-export number.

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Q3 · 10 marks

Examine the developments of Airports in India through Joint Ventures under Public-Private Partnership (PPP) model. What are the challenges faced by the authorities in this regard.

GS III · 2017 · Infrastructure

Revision summary

AAI could not fund metro airport expansion alone, so PPP joint ventures were used for greenfield and brownfield hubs.

Bengaluru, Hyderabad and Cochin show greenfield JVs; Delhi and Mumbai show brownfield OMDA with AAI equity.

AERA regulates major-airport tariffs; later AAI rounds tried to PPP more State capitals.

UDAN supports regional routes that do not attract the same private capital.

Challenges are land, tariff disputes, high revenue-share bids, exclusive contract clauses, and weak PPP appetite for small airports.

Introduction

Airports Authority of India (AAI) long ran most civil airports. Traffic growth after the 2000s needed terminals and runways faster than the public budget could build. **Public-private partnership (PPP)** joint ventures brought private capital and operators into **greenfield** and **brownfield** airports. The model expanded capacity at a few hubs. It also created disputes over **tariffs, land and revenue share** that the State still has to manage.

Body

Developments through PPP joint ventures

- **Greenfield city airports were built as joint ventures: Bengaluru International Airport Limited and Hyderabad International Airport Limited** combined State and private equity with long concessions, replacing constrained old airfields.
- **Cochin International Airport** is an earlier, distinctive PPP in which the State and a large set of public investors built India's first major greenfield airport in this mode.
- **Brownfield** modernisation used the **operate-maintain-develop route: Delhi International Airport Limited and Mumbai International Airport Limited** (GMR and GVK-led consortia with AAI equity) rebuilt Indira **Gandhi** and Chhatrapati Shivaji hubs under **Operation, Management and Development Agreements**.
- AAI typically keeps a **shareholding** (often 26 per cent in the metro JVs) so the public interest sits inside the company, not only in a licence.
- **Airports Economic Regulatory Authority (AERA, 2008)** was created to regulate tariffs at major airports after private operators entered.
- Later bids (for example **Ahmedabad, Jaipur, Lucknow, Guwahati** in the 2016-18 AAI PPP round) extended the JV idea beyond the first four metros.
- **Ude Desh ka Aam Nagrik (UDAN, 2016)** is not a metro JV, but it is the parallel public attempt to make **regional** air connectivity viable with viability-gap funding while PPP money concentrates on busy hubs.
- Non-aeronautical revenue (retail, ads, hotels) became central to the business model of the JV airports.

Challenges for authorities

- **Land acquisition and rehabilitation** delay greenfield sites and second airports; State governments control land while aviation is Union.
- **Tariff fights:** developers want a return on a large regulated asset base; airlines and passengers want lower user charges; AERA orders are often litigated.
- **Revenue-share** bids can be aggressive, so the operator then pushes up non-aero charges or seeks a higher aeronautical yield, which the authority must police.
- **Right of first refusal** and exclusive clauses in early OMDA contracts limit competition for a second airport in the same city.
- **Security, slot allocation and airspace** remain sovereign; PPP does not remove the need for Central Industrial Security Force, Directorate General of Civil Aviation and Airports Authority coordination.
- **Environment and noise** clearances, and city-side road and metro links, sit outside the airport JV but decide whether the asset works.
- Small and **non-metro** airports often fail a pure PPP test; AAI or UDAN must still carry them, or regional connectivity thins.

Flow diagram

AAI public airports -> PPP joint ventures
PPP joint ventures -> Greenfield BLR HYD COK
PPP joint ventures -> Brownfield DEL BOM
PPP joint ventures -> AERA tariffs
AERA tariffs -> Challenges land revenue share litigation
PPP joint ventures -> UDAN regional gap

Conclusion

PPP joint ventures rebuilt India's busiest airports and created new greenfield hubs with AAI as a partner. Capacity and passenger experience improved. Authorities still struggle with land, tariff litigation, aggressive revenue shares, and the airports that private capital will not take. The model works at hubs if regulation is predictable and the public share in the JV is used to protect users, not only to collect a dividend.

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Q4 · 10 marks

Explain various types of revolutions, took place in Agriculture after Independence in India. How these revolutions have helped in poverty alleviation and food security in India?

GS III · 2017 · Crops, Irrigation and Marketing

Revision summary

The Green Revolution raised wheat and rice with seeds, water, fertiliser and procurement, ending ship-to-mouth cereal shortage.

Operation Flood built cooperative milk; Blue, Yellow and Golden revolutions targeted fish, oilseeds and horticulture.

PDS, FCI buffers and NFSA 2013 converted grain surplus into household cereal access.

Dairy, fish and horticulture add protein, micronutrients and daily income that grain alone does not.

Gains were regionally uneven; nutrition and rainfed poverty remain unfinished.

Introduction

After Independence, India faced **food shortage** and rural poverty. A series of **commodity revolutions** raised output of grain, milk, fish, oilseeds, horticulture and related products. They did not all start in the same decade, and they did not all reach the same regions. Together they moved the country from **ship-to-mouth** grain toward **self-sufficiency in staples**, and they created new rural incomes. Poverty and nutrition gaps did not disappear.

Body

Types of revolutions after Independence

- **Green Revolution (1960s-70s):** high-yielding wheat and rice, irrigation, fertiliser and procurement in Punjab, Haryana and western Uttar Pradesh, later spreading in the rice bowl. **National Food Security Mission** later tried to take the grain push to eastern India.
- **White Revolution / Operation Flood (1970s-90s):** Amul-style dairy cooperatives under the National Dairy Development Board raised milk production to the world's largest, with village collection and urban markets.
- **Blue Revolution:** inland and marine fisheries, hatcheries and, later, **Blue Revolution schemes** to raise fish protein and coastal livelihoods.
- **Yellow Revolution:** oilseeds (and related pulses effort) to cut edible-oil imports; results were uneven, so import dependence remains.
- **Golden Revolution:** horticulture (fruit, vegetables, spices, honey) under missions that expanded orchards and kitchen nutrition.
- Related labels include **Grey** (fertiliser), **Silver** (eggs and poultry), **Pink** (onions, prawn or meat in different usages), and **Evergreen Revolution** (M.S. Swaminathan: productivity with ecology).
- Supporting tools today include **Pradhan Mantri Krishi Sinchayee Yojana**, **soil health cards**, **e-NAM (2016)**, and the **National Food Security Act, 2013** for the consumption side.

Food security

- Green Revolution grain plus **Food Corporation** buffers and the **public distribution system** ended famine-scale cereal shortage and allowed NFSA entitlements of rice and wheat.

- White and Blue revolutions added **protein and fat** that cereals alone cannot give, which is food security in a wider sense.
- Horticulture improved **micronutrients** where markets and roads exist.
- The same Green Revolution mix also locked some regions into **rice-wheat**, groundwater stress and micronutrient-poor diets, so calorie security is not the same as nutrition security.

Poverty alleviation

- Higher cereal output lowered real food prices for **net buyers**, which include most of the urban and land-poor rural poor.
- Dairy, poultry, fisheries and horticulture created **daily cash** for smallholders and women in cooperatives, which grain harvests do not always provide.
- **Gains were** uneven: irrigated north-west and some coastal belts gained more than rainfed central and eastern tracts, so poverty fell slower there.
- Landless labour gained from cheaper grain but not always from asset revolutions that need a cow, a pond or a well.

Flow diagram

Green grain -> Cereal food security PDS
White milk -> Protein and daily cash
Blue fish -> Protein and daily cash
Yellow oilseeds -> Cereal food security PDS
Golden horticulture -> Nutrition
Cereal food security PDS -> Poverty relief for net buyers
Protein and daily cash -> Poverty relief for net buyers

Conclusion

Post-Independence agricultural revolutions raised staple grain, milk, fish and horticulture and underpinned PDS food security and some rural cash incomes. They cut mass hunger more than they cut regional and nutritional poverty. The next step is an evergreen mix: water, protein, eastern grain, and markets, not only another wheat-rice spike.

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Q5 · 10 marks

What are the reasons for poor acceptance of cost effective small processing unit? How the food processing unit will be helpful to uplift the socio-economic status of poor farmers?

GS III · 2017 · Crops, Irrigation and Marketing

Revision summary

Cost-effective small food plants are still weakly taken up because of working capital, power, cold chain, FSSAI and GST fixed costs, and mandi cash habits.

Fragmented farm supply without FPOs leaves units idle.

Processing can raise poor farmers' status by storing glut, cutting waste, and adding rural jobs.

Mega Food Parks, cold-chain schemes and SAMPADA provide shared infrastructure.

The farmer gains when payment is timely and the unit is linked to an FPO, as dairy cooperatives already showed.

Introduction

A large share of Indian fruit, vegetables, milk and grain is still sold **raw and perishable**. **Small processing units** - village crushers, pulp plants, millers, dehydrators - can add value close to the farm at modest capital cost. Farmers and local entrepreneurs still **accept them poorly**. The gap is not only technology. It is credit, power, compliance, raw-material flow and a market that still prefers the mandi cash today to a processed rupee tomorrow.

Body

Why small processing units are poorly accepted

- **Working capital and credit:** processors must buy harvest in a few weeks and sell through the year; banks want collateral that a small unit does not have, even when **MUDRA** or priority-sector labels exist on paper.
- **Power, water and cold chain:** a cost-effective machine still fails if voltage drops or there is no **cold store** for pulp and milk, so wastage stays high.
- **Seasonal and fragmented supply:** smallholders cannot guarantee volume and quality; without a **Farmer Producer Organisation**, the unit runs below capacity.
- **FSSAI, labelling and GST compliance** are fixed costs; they are heavy for a micro unit even when the process itself is cheap.
- **APMC and trader links:** the farmer gets cash at the gate; processing means delay, rejection risk and a new middleman, so take-up is low.
- **Skills and brand:** village units struggle with hygiene, shelf life and retail listing against established brands.
- **Land and pollution** clearances, and irregular raw-material prices, make even a low-cost plant look risky.

How food processing can uplift poor farmers

- Processing converts a **perishable glut** into a storable good, which cuts distress sale and raises the farmer's share of the consumer rupee.
- It creates **rural non-farm jobs** (sorting, packing, transport) for land-poor households, including women.

- Linked procurement gives a **second market** besides the mandi, which is socio-economic insurance.
- **Mega Food Parks**, the **cold-chain scheme**, and **SAMPADA (2016-17)** (later the umbrella for parks, agro-processing clusters and backward linkages) are meant to put shared infrastructure around small units so the farmer does not buy a full factory.
- **Operation Flood** already showed that village-level processing plus a brand can lift millions of small milk producers; the same logic applies to fruit, spices and fish.
- Nutrition improves if millets, pulses and horticulture are processed locally instead of only rice-wheat moving through PDS.
- For the poorest, the gain is real only if the unit is **FPO-owned or contract-linked** with timely payment, not a distant mill that extracts crop and leaves waste.

Flow diagram

Reasons credit power FSSAI supply -> Low acceptance of small units
FPO plus Mega Food Park SAMPADA -> Local processing
Local processing -> Less wastage more jobs
Less wastage more jobs -> Better farmer status

Conclusion

Small processing units stay poorly accepted because credit, power, compliance and irregular supply outweigh the cheap machine. Food processing can still lift poor farmers by cutting wastage, adding jobs and offering a second market, if SAMPADA-type shared parks, FPOs and working-capital reach the village, not only the park's showpiece plant.

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Q6 · 10 marks

Stem cell therapy is gaining popularity in India to treat a wide variety of medical conditions including leukaemia, Thalassemia, damaged cornea and several burns. Describe briefly what stem cell therapy is and what advantages it has over other treatments?

GS III · 2017 · Indian Economy

Revision summary

Stem cells self-renew and become specialised tissue; therapy transplants or grafts them to repair damage.

Adult haematopoietic cells treat leukaemia and can cure matched thalassemia; limbal cells treat some corneal surface failure; cultured skin treats severe burns.

Autologous grafts reduce rejection compared with many organ transplants.

ICMR-DBT 2017 guidelines distinguish approved use from experimental and commercial misuse.

Unproven injections for many other diseases are not the same as these established indications.

Introduction

Stem cells can divide and become specialised tissues. **Stem cell therapy** uses that property to repair or replace damaged blood, eye surface or skin. In India it is already standard in some **bone-marrow transplants** and **limbal** eye procedures, while many private clinics oversell unproven injections. The science is real for a defined set of conditions. It is not a cure-all.

Body

What stem cell therapy is

- A stem cell is **unspecialised** and can self-renew; under signals it **differentiates** into blood, nerve, muscle or other lines.
- **Embryonic** stem cells are pluripotent but raise ethical and tumour-risk issues; **adult** (somatic) stem cells, such as haematopoietic cells in bone marrow and cord blood, are the workhorses of current therapy.
- **Induced pluripotent stem cells** are adult cells reprogrammed in the lab; they are a research tool more than a routine Indian hospital treatment in 2017.
- Delivery may be **autologous** (the patient's own cells) or **allogeneic** (a donor, including matched family or unrelated registries).
- For **leukaemia**, high-dose therapy wipes diseased marrow; transplanted haematopoietic stem cells rebuild the blood system.
- For **thalassemia major**, a matched allogeneic transplant can replace the defective blood-forming system, which transfusions and iron chelation only manage.
- For a **damaged cornea**, **limbal stem cell** grafts restore the eye surface when the limbus is injured; this is not the same as a simple corneal button transplant when the stem-cell niche is gone.
- For **burns**, cultured **keratinocytes** and skin substitutes grown from the patient's cells can cover large areas when donor skin is scarce.

- **Indian Council of Medical Research** and **Department of Biotechnology** guidelines (updated 2017) separate approved clinical use from experimental research and warn against unregulated commercial stem-cell tourism.

Advantages over other treatments

- **Regeneration rather than only suppression:** unlike lifelong immunosuppressants or repeated transfusions, a successful graft can restore function.
- **Autologous** use cuts **rejection** and some infection risk compared with a foreign organ transplant.
- In blood cancers, transplant can be **curative** where chemotherapy alone leaves residual disease.
- In thalassemia, it can end **monthly transfusion** dependence if a donor match exists.
- Limbal therapy can succeed where a cornea graft **fails** because the surface cannot maintain itself.
- Skin culture can treat **extent of burn** that cadaver grafts cannot cover in time.
- **Limits remain:** graft-versus-host disease in allogeneic transplants, cost, donor shortage, tumour risk if cells are poorly controlled, and **no proven benefit** for many advertised neurological claims.

Flow diagram

Stem cells self-renew -> Blood marrow leukaemia thalassemia
Stem cells self-renew -> Limbal cornea
Stem cells self-renew -> Skin burns
Blood marrow leukaemia thalassemia -> Advantage rebuild not only suppress
Limbal cornea -> Advantage rebuild not only suppress
Skin burns -> Advantage rebuild not only suppress
ICMR-DBT guidelines -> Approved vs unproven clinics

Conclusion

Stem cell therapy uses self-renewing cells to rebuild blood, ocular surface or skin. For leukaemia, thalassemia, limbal damage and extensive burns it can outperform repeated drugs, transfusion or simple grafts when protocols are followed. ICMR-DBT rules must keep hospital practice inside evidence, so patients are not sold unproven injections in the name of the same science.

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Q7 · 10 marks

India has achieved remarkable successes in unmanned space missions including the Chandrayaan and Mars Orbiter Mission, but has not ventured into manned space mission, both in terms of technology and logistics? Explain critically.

GS III · 2017 · Indian Economy

Revision summary

Chandrayaan-1 mapped the Moon and supported lunar water-related findings; MOM reached Mars orbit in 2014 on a PSLV-class budget.

Unmanned probes can fail without loss of life; crew flight cannot.

India still needed a human-rated heavy launcher, life support, abort, and qualified re-entry after CARE 2014.

Recovery ships, medicine and tracking are logistics that an orbiter does not need.

The delay is both remaining technology and a choice to fund earth and planetary robots first.

Introduction

The **Indian Space Research Organisation** showed that a developing country can do **deep-space science** at low cost. **Chandrayaan-1** (2008) and the **Mars Orbiter Mission** (Mangalyaan, 2013-14) are unmanned successes. A **human spaceflight** needs a different stack: crew safety, life support, abort, re-entry and recovery. India had building blocks by 2017. It had not yet accepted the cost and the remaining technology risk of putting a crew in orbit.

Body

Unmanned successes

- **Chandrayaan-1** orbited the Moon, mapped minerals, and, with the Moon Impact Probe and NASA's Moon Mineralogy Mapper, contributed to the detection of **lunar water/hydroxyl** signatures.
- It used a **PSLV** launch and a modest spacecraft mass, proving lunar transfer without a heavy-lift culture like NASA's Apollo-era budget.
- **Mars Orbiter Mission** reached Martian orbit in September 2014 on a **PSLV-XL** and a carefully timed Hohmann-like path; it was among the cheapest successful Mars orbiters and worked on the first attempt.
- Unmanned work also includes **INSAT/GSAT** communications, **IRS** earth observation, **navigation (NavIC)**, and planetary planning for a second lunar mission.
- These missions tolerate **loss of a probe**. They do not require a human-rated launcher, a crew module that can abort, or a medical recovery chain.

Why manned flight lagged: technology

- A crew needs a **human-rated launch vehicle** with reliability far above a typical PSLV/GSLV cargo flight; **GSLV Mk III** (later LVM3) was only then proving a heavier cryogenic launcher.
- **Life support** (oxygen, carbon dioxide, thermal control, waste) and **radiation** shielding for even a short low-earth orbit stay were not operational systems.

- **Re-entry** of a crew capsule at orbital speed, with a reliable heat shield and parachutes over Indian waters, was still at test stage: the **Crew Module Atmospheric Re-entry Experiment (CARE, 2014)** was a first step, not a qualified spaceship.
- **Launch escape / pad abort**, spacesuits, crew training, and human-rating of avionics add years after an unmanned orbiter succeeds.
- Docking, extra-vehicular activity and a space station are further rungs India had not climbed; even a short autonomous orbit is a large jump from Mangalyaan.

Logistics and a critical view

- Logistics include **recovery ships**, hospitals, a crew selection pipeline, and a ground tracking network that must not fail during a few-minute re-entry window.
- **Cost and opportunity**: the same rupees buy many remote-sensing and navigation satellites that serve farmers, disaster managers and the military; a human mission is politically visible but economically heavier.
- ISRO's culture of **frugal unmanned science** was a strength; it also meant human spaceflight was not the organisational priority until capacity and a political go-ahead aligned.
- Critically, the gap is **real in crew safety engineering**, not a myth. It is also a **choice**: Russia, the United States and China spent decades and lives on that ladder. India could still fly humans later without having failed as a space power in 2017.
- Dependence on foreign human-rating know-how would raise **strategic autonomy** questions; building it in-house takes time after CARE-type tests.

Flow diagram

Unmanned Chandrayaan MOM -> Science at low cost
 Manned needs -> Life support abort re-entry
 Manned needs -> Human-rated launcher
 Manned needs -> Recovery logistics
 CARE 2014 tests -> Manned needs
 Budget priority satellites -> No crew mission yet

Conclusion

Chandrayaan-1 and the Mars Orbiter Mission proved unmanned lunar and interplanetary skill at low cost. Manned flight had not followed because human-rating, life support, abort and recovery were incomplete, and because logistics and budget favoured satellites over a crew. The lag is both a technology gap and a rational sequencing choice, not proof that India cannot eventually fly a crew.

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Q8 · 10 marks

Not many years ago, river linking was a concept but it is becoming reality in the country. Discuss the advantages of river linking and its possible impact on the environment.

GS III · 2017 · Environment and Conservation

Revision summary

The National Perspective Plan and NWDA studies framed Himalayan and peninsular inter-links; Ken-Betwa is an early project moving toward implementation.

Advantages are flood control, irrigation in deficit basins, some navigation, hydropower and city supply.

Environmental costs include forest and tiger habitat loss, fisheries and silt change, delta salinity, seismic risk in the Himalaya, and displacement.

Climate change can reverse which basin is surplus.

Links need basin-wide assessment, not only a canal that looks good on a drought map.

Introduction

River linking was long a map in the **National Perspective Plan** (1980s) with the **National Water Development Agency** studying Himalayan and peninsular links. By 2017 some links were moving from paper to **detailed project reports and clearances**, notably **Ken-Betwa**. The promise is to move water from **flooded** basins to **dry** ones. The risk is that rivers are not pipes: they carry silt, fish, and the rights of people downstream.

Body

Advantages of river linking

- **Flood moderation** in surplus basins (parts of the Ganga-Brahmaputra and some monsoon-swollen peninsular rivers) if water is stored and diverted before it inundates plains.
- **Drought proofing** and extra **irrigation** in deficit regions such as Bundelkhand (the Ken-Betwa logic) and rainfed peninsular tracts.
- **Navigation** on more reliable channels, which can cut diesel trucking if inland waterways are actually maintained.
- **Hydropower** at dams and drops along transfer canals, adding peaking power to the grid.
- **Urban and industrial supply** for growing cities that have outrun local rivers and groundwater.
- **Employment** in construction and, later, in irrigated agriculture, which is the political case in dry districts.
- Intra-basin and smaller links can be less disruptive than a full Himalayan-to-peninsular grid; not every advantage needs the entire map built at once.

Possible impact on the environment

- **Terrestrial ecology:** canals and reservoirs submerge forests and wildlife corridors (Ken-Betwa has faced **Panna tiger** habitat concerns).
- **Aquatic ecology:** altered flow, temperature and silt change **fisheries**, dolphins and the pulse that floodplain agriculture needs.

- **Delta and coast:** less water and silt downstream can worsen **salinity**, mangrove stress and relative sea-level problems in already sinking deltas.
- **Himalayan links** add seismic, landslide and glacial-lake risk; climate change makes surplus and deficit **non-stationary**, so a link sized on old hydrology may fail.
- **Displacement and command-area waterlogging** or salinity if irrigation is heavy and drainage is weak.
- **Interstate and transboundary** harm: a link that is an advantage for one State can cut lean-season flow for another, or for Bangladesh on Himalayan rivers.
- Construction **embodied carbon** and quarry damage are large for a national grid of canals.
- Environmental impact assessment and **wildlife clearances** must therefore be basin-wide, not project-sliced, or the 'reality' of linking will export drought and extinction downstream.

Flow diagram

River linking -> Irrigation drought proofing
 River linking -> Flood moderation
 River linking -> Power navigation
 River linking -> Ecology silt deltas wildlife
 Ecology silt deltas wildlife -> Need environmental flows
 Irrigation drought proofing -> Choose viable links only

Conclusion

River linking can move monsoon surplus to dry fields, cut some floods, and add power and navigation if projects are chosen carefully. It can also drown forests, starve deltas, and lock India into canals based on an old climate. Ken-Betwa-type links should proceed only with honest environmental flows, wildlife offsets that work, and consent of downstream users, not as a single national pipe dream.

Open WRAP page — <https://wrapexams.com/upsc/mains-answers/gs-3/2017/not-many-years-ago-river-linking-was-a-concept-but-it-is-becoming-reality-in-the-country-discuss-the-advantages-of-river-linking-and-its-possible-impact-on-the-environment/>

Q9 · 10 marks

Discuss the potential threats of Cyber attack and the security framework to prevent it.

GS III · 2017 · Cyber Security and Money Laundering

Revision summary

Cyber attacks can halt power and payments, steal identity and defence data, and spread ransomware or disinformation.

The **IT Act 2000** as amended in 2008 is the legal base for offences and CERT-In.

National Cyber Security Policy 2013 and NCIIPC address resilience and critical information infrastructure.

Sectoral CERTs, RBI rules, Cyber Swachhta Kendra and cyber police cells complete the map.

Skills, private compliance and a full data-protection law were still thin in 2017.

Introduction

India's banks, power grids, railways, Aadhaar-linked welfare and defence networks now run on **code**. A **cyber attack** can steal data, freeze payments, or damage industrial controls without a soldier crossing the border. Threats have grown with **Digital India**. The preventive framework is a mix of the **Information Technology Act**, **CERT-In**, sectoral teams, and the protection of **critical information infrastructure**. Capacity and private-sector hygiene still lag the threat.

Body

Potential threats of cyber attack

- **Critical infrastructure:** malware in power, telecom, ports, oil and nuclear plants can cause physical outage, as global incidents on industrial control systems have shown.
- **Financial crime:** phishing, ransomware, ATM and **SWIFT**-style fraud, and attacks on payment systems hit households and correspondent banking.
- **Data theft and espionage:** state and criminal actors target ministries, defence labs, and Aadhaar-seeded databases for identity and strategic intelligence.
- **Military and space networks:** degraded command, navigation or satellite links in a crisis would be a force multiplier for an adversary.
- **Disinformation and election systems:** compromise of parties, media or voter databases can undermine trust even without changing a result.
- **Supply-chain and insider threats:** tainted hardware, unpatched software, and contractors with excess privilege.
- **Distributed denial of service** on government portals during unrest or disaster blocks public communication.
- Attribution is hard, so **proxy and non-state** groups can strike with deniability.

Security framework to prevent it

- **Information Technology Act, 2000** (amended 2008): defines offences (including critical-infrastructure damage), electronic evidence, and intermediary duties; it is the basic criminal and compliance law.
- **Indian Computer Emergency Response Team (CERT-In)** under the IT Act: national incident response, advisories, vulnerability notes, and mandatory reporting directions for

intermediaries and firms.

- **National Cyber Security Policy, 2013:** the Union's policy umbrella for a secure and resilient cyberspace, public-private partnership, and capacity building (a successor architecture has been debated, but 2013 remained the named policy).
- **National Critical Information Infrastructure Protection Centre (NCIIPC)** under the **National Technical Research Organisation:** identifies and advises protection of CII in power, banking, telecom, transport and government.
- Sectoral **CERTs** (finance, power, telecom) and **Reserve Bank** cyber guidelines for banks sit beside CERT-In.
- **National Cyber Coordination Centre** and related monitoring aim to share threat intelligence across agencies.
- **Cyber Swachhta Kendra** (botnet cleaning) and public digital-literacy drives try to cut the large pool of infected home machines.
- **Defence and intelligence** cyber units, and police cyber cells in States, handle military and criminal tracks; coordination among them is still a weak joint.
- Prevention also needs **procurement standards**, encryption, backup drills, and **Make in India** trusted electronics so the stack is not only a foreign black box.
- **Gaps:** shortage of skilled analysts, uneven private compliance, slow forensics, and the tension between **surveillance powers** and a still-thin data-protection statute in 2017.

Flow diagram

Threats CII finance espionage -> Incidents
 IT Act 2000-2008 -> CERT-In response
 NCIIPC -> Protect critical infrastructure
 Policy 2013 sectoral CERTs -> Hygiene and drills
 CERT-In response -> Hygiene and drills
 Protect critical infrastructure -> Hygiene and drills

Conclusion

Cyber attacks threaten grids, banks, identity systems and military networks, often below the threshold of open war. India's framework is the IT Act, CERT-In, the 2013 policy, NCIIPC and sectoral rules. It will prevent damage only if reporting is honest, CII is actually hardened, and skills reach banks and State police, not only a few national teams.

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Q10 · 10 marks

The north-eastern region of India has been infested with insurgency for a very long time. Analyze the major reasons for the survival of armed insurgency in this region.

GS III · 2017 · Internal Security and Extremism

Revision summary

North-East insurgency survives, not only starts, because of hill terrain and retreat across Myanmar and other borders.

Identity, homeland and migration politics continue to supply recruits after decades.

Extortion on contracts and highways, plus narcotics, fund groups when popular support falls.

Splinter factions outlive peace talks; AFSPA-era resentment can still be used in propaganda.

Mizoram-type accords plus Act East connectivity show that persistence is political and economic, not inevitable.

Introduction

The **North-East** has seen armed groups since the 1950s, from Naga hills to Assam, Manipur and Tripura. Some peace accords have worked in part; other outfits splinter and return. **Survival** of insurgency is not the same as its origin. Groups last because **terrain, identity politics, money, and a porous frontier** still give them a living, even when the original demand has been diluted.

Body

Major reasons the armed insurgency survives

- **Terrain and logistics:** hills, forest and monsoon tracks favour ambush and hideouts; security forces cannot hold every ridge the way they hold a plains district.
- **Porous borders** with Myanmar, Bangladesh and Bhutan (historically) allow **safe havens**, arms, and retreat; even after Bhutan's 2003 operations, Myanmar camps have mattered for several groups.
- **Identity and homeland claims:** Naga integration, Assamese versus 'foreigner' politics after **migration**, Kuki-Meitei-Naga triangles in Manipur, and tribal autonomy demands keep a political story that recruits youth.
- **Demographic fear** in Assam and Tripura, rooted in Partition and later migration, feeds groups that claim to defend the 'sons of the soil' even after electoral politics occupies the same space.
- **Underdevelopment and isolation:** a thin industrial base, the old **Chicken's Neck** connectivity, and high unemployment make **extortion and 'taxes'** on highways, contractors and oil a parallel economy that funds cadres.
- **Splintering of talks:** when a faction signs an accord, a hard-line split continues the gun; Naga talks illustrate how a ceasefire can coexist with residual violence.
- **Easy weapons and narcotics** on the Myanmar-China edge, and links with **organised crime**, replace declining political donations.
- **Governance gaps:** delayed accords, corruption in local contracts, and heavy-handed security (including resentment around **Armed Forces (Special Powers) Act** in notified areas) can refresh the recruiter's narrative even when the public is tired of the underground.

- **Ethnic inter-group rivalry** means one surrender does not pacify a district; another community's outfit fills the vacuum.
- **External political sympathy** and, in earlier decades, alleged foreign intelligence play, gave oxygen; even reduced, the habit of looking across the border remains.

Why this is persistence, not fate

- Where roads, **Act East** trade, and credible **Sixth Schedule or accord** politics deliver jobs, cadres fade, as in parts of Mizoram after the 1986 accord.
- Survival is therefore **reproduced** by money, hills, and unfinished political settlement, not by a single ancient hatred that policy cannot touch.

Flow diagram

Terrain porous borders -> Survival of armed groups
Identity migration homelands -> Survival of armed groups
Extortion narcotics -> Survival of armed groups
Splintered accords AFSPA resentment -> Survival of armed groups
Act East jobs political settlement -> Fade of cadres

Conclusion

Armed insurgency has lasted in the North-East because hills and borders give sanctuary, identity and migration politics still recruit, and extortion plus narcotics pay the gun when ideology thins. Splintered talks and development that does not reach the hill district keep the cycle. Lasting peace needs settlement of core political claims, Myanmar-border cooperation, and livelihoods that beat the underground tax, not only more battalions.

Open WRAP page — <https://wrapexams.com/upsc/mains-answers/gs-3/2017/the-north-eastern-region-of-india-has-been-infested-with-insurgency-for-a-very-long-time-analyze-the-major-reasons-for-the-survival-of-armed-insurgency-in-this-region/>

Q11 · 15 marks

One of the intended objectives of Union Budget 2017-18 is to 'transform, energize and clean India'. Analyse the measures proposed in the Budget 2017-18 to achieve the objective.

GS III · 2017 · Government Budgeting

Revision summary

Union Budget 2017-18 branded itself Transform, Energise and Clean India after demonetisation and before GST.

Transform used a merged railway budget, housing as infrastructure, MGNREGA, rural roads, irrigation, and digital payments.

Energise used farm credit and insurance, e-NAM, dairy funds, MSME tax cuts, skills, and transport capital.

Clean used cash-transaction limits, tighter party donations, electoral bonds, **Swachh Bharat**, and a coal cess.

The slogan matches the list of schemes; results still hang on GST, banks, States, and whether clean politics and clean air actually follow.

Introduction

The Union Budget 2017-18, presented after **demonetisation** and just before the **Goods and Services Tax**, set its story as **Transform, Energise and Clean India (TEC India)**. Transform meant better public goods and a less cash, more digital State. Energise meant farms, firms, youth, and infrastructure. Clean meant less black money, cleaner politics, and a cleaner environment. The question asks whether the **measures**, not the slogan, could do that work.

Body

Transform: quality of life and of government

- The **Railway Budget was merged** with the Union Budget and the **Plan / non-Plan** split was dropped, so capital for rail, roads, and housing could be read as one investment story.
- **Affordable housing** was given **infrastructure status**, which cheapens long credit for **Pradhan Mantri Awas Yojana** and private builders of small units.
- Rural transformation tools were a record **Mahatma Gandhi National Rural Employment Guarantee Act** outlay, **Pradhan Mantri Gram Sadak Yojana**, and irrigation under **Pradhan Mantri Krishi Sinchayee Yojana** - jobs, roads, and water as the basic three.
- Digital rails - **Bharat Interface for Money (BHIM)**, Aadhaar-enabled payments, and incentives for less-cash retail - tried to lock in the post-note-ban shift so leakages fall and **Direct Benefit Transfer** can travel.
- **Human capital**: more medical seats and colleges attached to district hospitals, and an innovation fund in secondary education, aimed at services quality, not only brick outlay.

Energise: farms, industry, youth, energy

- Farm credit was scaled up; **Pradhan Mantri Fasal Bima Yojana**, **electronic National Agriculture Market**, soil health, and a **Dairy Processing and Infrastructure Development Fund** tried to raise income, not only grain tons.

- For firms, a **25 per cent corporate tax** for companies below a turnover threshold, and easier **Micro, Small and Medium Enterprise** credit, were meant to pull units into the tax net before GST.
- **Youth: Skill India, Start-up India**, and stand-up credit were the employment limb of "energise".
- **Energy:** rural household electrification, **solar parks**, and efficient lighting (**UJALA**) linked growth to power that is more available and somewhat cleaner.
- Transport capital - dedicated freight, highways, metro, and airports - was the classic multiplier the Budget used to claim jobs.

Clean: money, politics, and the environment

- A **Rs 3 lakh** ceiling on cash transactions, tighter political **cash donations (Rs 2,000)**, and the announcement of **electoral bonds** were the black-money and political-funding package.
- **Swachh Bharat** toilets and open-defecation-free claims were the sanitation limb of "clean".
- Clean energy cess on coal, electric-vehicle support, and city pollution talk sat beside growth in thermal capacity - a real tension.
- Aadhaar-PAN linking and more digital trails were meant to make evasion costlier after demonetisation.

How far the objective is met

- **The Budget** aligned instruments **with the three words:** housing and rural works for transform; credit, skills, and infra for energise; cash limits and Swachh for clean.
- Delivery still depended on States, GST transition, bank health after note-ban, and whether electoral bonds would **hide** donors rather than clean politics.
- **Cleaning the air and the fisc together is harder than a cess:** farm power and coal still sit in other ministries' facts.

Flow diagram

TEC India Budget 2017-18 India Budget 2017-18 -> Transform housing rural digital
 TEC India Budget 2017-18 -> Energise farm MSME skills power
 TEC India Budget 2017-18 -> Clean cash politics Swachh
 Transform housing rural digital -> Better public goods
 Energise farm MSME skills power -> Better public goods
 Clean cash politics Swachh -> Bonds opacity coal tension

Conclusion

Budget 2017-18 put TEC India into housing-as-infra, a merged rail budget, rural jobs and water, farm insurance and e-NAM, MSME tax relief, BHIM, cash-transaction limits, electoral-bond language, and **Swachh Bharat**. Those measures can transform and energise if GST, banks, and States deliver. Clean India stays incomplete if political funding is opaque and coal-and-subsidy practice contradicts the cess.

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Q12 · 15 marks

"Industrial growth rate has lagged behind in the overall growth of Gross-Domestic-Product(GDP) in the post-reform period" Give reasons. How far the recent changes in Industrial Policy are capable of increasing the industrial growth rate?

GS III · 2017 · Liberalisation and Industrial Policy

Revision summary

After 1991, services pulled GDP while manufacturing stayed a modest share of output.

Causes include infrastructure, land and labour frictions, inverted duties, Chinese imports, and weak SME credit.

The National Manufacturing Policy already set a 25 per cent-of-GDP ambition that was missed.

Make in India, FDI liberalisation, industrial corridors, GST, and the IBC are the recent toolkit.

They can raise industrial growth only with working tax credit, time-bound insolvency, and real power-and-logistics delivery.

Introduction

After **1991**, India's **Gross Domestic Product** rose mainly on **services**. **Industry**, especially **manufacturing**, grew, but more slowly, so its share of GDP stayed stuck near the mid-teens. That lag is the puzzle in the question. Recent policy - **Make in India**, easier **foreign direct investment**, the **Insolvency and Bankruptcy Code**, and the coming **Goods and Services Tax** - tries to close it. Capacity on paper is not the same as factories that hire.

Body

Why industry lagged GDP after reforms

- **Services** (information technology, finance, telecom) faced fewer land-labour-power knots and rode a world demand boom; factories still needed plots, inspectors, and stable electricity.
- **Infrastructure**: ports, freight, and quality power remained dear; inventory and downtime killed competitiveness against East Asia.
- **Land and labour**: acquisition conflict and rigid industrial-labour law (and a thick inspector raj) pushed capital toward capital-intensive plants or toward services, not mass-employment lines.
- **Inverted duties and cheap imports**, especially from **China** after it joined the World Trade Organization, undercut domestic capital goods and light manufactures.
- **Credit**: small units stayed informal; banks preferred large names or retail; the later **non-performing asset** pile froze new project loans.
- **Skills** did not match shop-floor need; engineers queued for services jobs.
- Public-sector disinvestment was slow; many **Navratna** firms did not become globally aggressive manufacturers.
- The **National Manufacturing Policy (2011)** already admitted the lag and aimed at about **25 per cent** of GDP and 100 million jobs - a target that showed how far the post-reform path had drifted.

Recent industrial-policy changes (mid-2010s)

- **Make in India (2014)** and easier **FDI** caps in defence, railways, construction, and single-brand retail tried to import capital and technology into factories, not only into software.
- **Industrial corridors** (Delhi-Mumbai and others) and **National Investment and Manufacturing Zones** offered plug-and-play land.
- **Ease of Doing Business** (single window, labour compliance easing on paper) cut some entry cost.
- **GST (from July 2017)** promised one market and an end to cascading tax that had punished value-addition in manufacturing.
- **IBC (2016)** aimed to recycle stuck steel and other plants instead of keeping zombie capacity.
- **Start-up India, Mudra**, and MSME tax cuts in Budget 2017-18 addressed the small-unit layer.
- **Sector missions:** textiles, electronics (**Phased Manufacturing**), food parks, and defence offsets.
- A **new industrial policy** discussion (Department of Industrial Policy and Promotion, 2017) talked of technology, jobs, and sustainability together - still a draft, not a finished statute.

How far can this raise industrial growth?

- GST plus IBC plus FDI can lift **formal, tradable manufacturing** if implementation is clean: input-tax credit must work, and resolution must be time-bound.
- Corridors help **coastal and hinterland** plants only if power, water, and labour housing arrive with the fence.
- They **cannot** by themselves fix farm-to-factory labour transition, State-level land politics, or a world of cheap Chinese surplus.
- Without cheaper logistics and a skill pipeline, **Make in India** stays a logo on assembly of imported kits.
- Policy is **capable in direction**, not yet proven in a sustained industrial growth rate above GDP.

Flow diagram

Post-1991 Post-1991 GDP -> Services lead
 Post-1991 GDP -> Industry lag
 Industry lag -> Land labour power China credit
 Make in India GST IBC FDI -> Industry lag
 Make in India GST IBC FDI -> If logistics skills States deliver

Conclusion

Industry lagged post-1991 GDP because services were easier, factories faced land, labour, power, China, and credit knots, and manufacturing's GDP share did not rise. **Make in India**, FDI, corridors, GST, and IBC point the right way. They will raise industrial growth only if the single market, bankrupt-plant recycling, and real infrastructure arrive together - not as separate press notes.

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Q13 · 15 marks

What are the salient features of 'inclusive growth'? Has India been experiencing such a growth process? Analyze and suggest measures for inclusive growth.

GS III · 2017 · Inclusive Growth

Revision summary

Inclusive growth is broad jobs, falling poverty, regional and gender balance, rights, and sustainability - not GDP alone.

India cut poverty and built MGNREGA, NFSA, education and health missions, and Jan Dhan access.

Regular jobs, women's paid work, learning and nutrition, and lagging regions still show incomplete inclusion.

Measures are labour-intensive industry, quality rural works, nutrition and schools, women's time-saving public goods, and honest targeting.

Inclusion that busts the fisc is not durable inclusion.

Introduction

Inclusive growth is growth whose **pace, pattern, and participation** reach the poor, women, Scheduled Castes and Tribes, and lagging districts - and that can last. A high **Gross Domestic Product** with jobless urban islands is not inclusive. India after 1991 grew faster than before. Whether that process was inclusive is a mixed, region-and-group story, not a yes or no.

Body

Salient features

- **Broad-based employment**, not only output in capital-heavy sectors.
- **Falling poverty** and a narrower gap in consumption and human development (health, school, nutrition).
- **Voice and rights**: land, forest, and labour rights so growth is not only a transfer from the weak.
- **Regional balance**: BIMARU and the North-East not left as labour-exporting hinterlands.
- **Gender**: women in paid work and in assets, not only as unpaid care.
- **Sustainability**: inclusion that does not eat the next generation's water and air.
- **Financial and digital access** so the poor can save, insure, and receive transfers without a tout.
- The **Eleventh and Twelfth Plans** already used "inclusive" as official language; the **Sustainable Development Goals** later locked the same idea internationally.

Has India been experiencing it?

- **Yes, in parts**: poverty headcount fell; **National Food Security Act**, MGNREGA, **Right to Education**, **National Rural Health Mission / National Health Mission**, and rural roads raised a floor. **Jan Dhan**, Aadhaar, and mobile payments widened account access. Some social groups saw faster school enrolment.

- **No, in the job and wage sense:** growth was **services-and-construction** heavy; **regular salaried** work grew slowly; farm still holds too many people at low productivity. **Female labour-force participation** stayed weak.
- **Inequality:** urban-rural and top-end wealth gaps remained wide; capital share rose relative to labour in many formal firms.
- **Human development** (stunting, anaemia, learning outcomes) moved slower than GDP. Inclusion of calories is not inclusion of capability.
- **Regions:** western and southern industrial belts pulled ahead of eastern and dryland India except where mining or a State compact worked.
- **Verdict:** India experienced **poverty-reducing growth with incomplete inclusion** - a floor rose; the ladder into decent work did not widen enough.

Measures

- Labour-intensive manufacturing and care jobs (see industrial policy and food processing), not only capital subsidies to robots.
- **Quality** of MGNREGA assets (water, trees) and timely wages; skills linked to local vacancies.
- **Health and school** outcomes, **not only buildings:** frontline workers, nutrition, and learning.
- **Women's time:** fuel, water, crèches, and property rights.
- **Agricultural inclusion:** irrigation for rainfed lots, pulses and millets in procurement, and Farmer Producer Organisations - not only paddy-wheat belts.
- Targeted **Direct Benefit Transfer** with a still-physical food and health safety net where markets fail.
- Eastern and North-Eastern infrastructure and rule of law so private jobs can exist.
- Tax the broad base honestly so inclusion is **fiscally durable**.

Flow diagram

Inclusive growth -> Jobs
 Inclusive growth -> Health school nutrition
 Inclusive growth -> Regions gender rights
 India since 1991 -> Poverty down floor schemes
 India since 1991 -> Job gender regional gaps
 Industry care DBT quality public goods -> Inclusive growth

Conclusion

Inclusive growth means jobs, services, regions, gender, and a path that lasts. India after reforms cut poverty and built a legal welfare floor, but jobless patches, weak female work, stubborn human-development lags, and regional skew show the process is only partly inclusive. The measures that matter are labour-absorbing industry, rural assets, nutrition and learning, women's time, and a solvent, targeted transfer State.

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Q14 · 15 marks

What are the major reasons for declining rice and wheat yield in the cropping system? How crop diversification is helpful to stabilize the yield of the crop in the system?

GS III · 2017 · Crops, Irrigation and Marketing

Revision summary

The rice-wheat system is losing yield momentum because soils, aquifers, pests, and heat are stressed.

Puddling, urea bias, residue burning, and a narrow variety base make the decline worse.

Diversification with pulses, oilseeds, millets, maize, and horticulture breaks pest cycles and saves water.

System yield and farm income stabilise only if the new crops have a buyer.

Eastern India still has a rice-wheat yield gap to close; the north-west needs less paddy on overdrawn blocks.

Introduction

The **rice-wheat** rotation, especially in **Punjab, Haryana and western Uttar Pradesh**, was the **Green Revolution's gift: high yield** on irrigation, dwarf seed, and fertiliser. Yield **growth has slowed**, and in many plots **absolute yield is flat or falling** once soil and water are exhausted. That is a **system** problem - the same two cereals, the same aquifers - not a single bad monsoon. **Diversification** is the yield-stability answer, not a slogan against grain.

Body

Why rice and wheat yields decline in the system

- **Soil fatigue:** continuous cereals mine organic carbon; puddled paddy destroys structure for the next wheat; micronutrients (zinc, iron, manganese) run short while urea is poured.
- **Water:** paddy on a falling water table raises pumping cost and stress; wheat on late-sown, moisture-poor beds after a delayed paddy harvest loses grain-fill.
- **Salinity and sodicity** from canal seepage and poor drainage in command areas.
- **Pests, weeds, and resistance:** brown plant hopper, blast, Phalaris and other weeds; overuse of the same pesticide and herbicide.
- **Variety plateau:** a narrow genetic base after the first dwarf-wheat and HYV-rice wave; seed replacement is weak on small lots.
- **Climate:** warmer nights cut wheat grain weight; untimely rain at harvest; extreme heat at flowering.
- **Residue burning** after combine harvest strips organic matter and pollutes; it is a symptom of a tight paddy-wheat calendar.
- **Extension and tenancy:** hired machines and absentee owners chase short-run tons, not soil tests.
- Outside the classic belt, rainfed rice and wheat fail on **monsoon breaks** and poor seed, which looks like "declining yield" in State averages when drought years cluster.

How diversification stabilises yield in the system

- **Break the pest and weed cycle:** a pulse, oilseed, maize, or vegetable year cuts the specialised enemies of rice and wheat.
- **Nitrogen fixation** by pulses and green manure restores fertility so the next cereal needs less urea for the same grain.
- **Water:** replacing some kharif paddy with **millets, maize, or short pulses** in Punjab-Haryana rest the aquifer; system yield (calories plus cash) can hold even if rice tons fall.
- **Risk:** a second crop type fails on different weather; farm income and **calorie supply at national level** are more stable than a two-crop bet.
- **Soil structure:** maize, cotton (where fit), and horticulture with residue return raise organic matter versus perpetual puddling.
- **Market:** diversification only stabilises if **procurement, processing, and price** exist for the new crop. Otherwise the farmer returns to paddy because the Food Corporation of India is the only certain buyer.
- **Tools: crop holidays** for paddy in over-exploited blocks, **direct-seeded rice, happy seeder** wheat without burning, **MSP and PDS space for millets and pulses**, and horticulture clusters with cold chain.
- Diversification is **not** abandoning rice-wheat in the eastern **Gangetic plain** where groundwater is still kinder and yield gaps are large; there, **closing the gap** with drainage and seed is the first stability move.

Flow diagram

Rice wheat monoculture -> Yield slowdown
 Yield slowdown -> Soil water pests heat
 Diversification pulses millets horticulture -> Break pest water cycle
 Break pest water cycle -> More stable system yield
 MSP processing for new crops -> Diversification pulses millets horticulture

Conclusion

Rice-wheat yields fall in the old Green Revolution system because soil, water, pests, heat, and a tight calendar are exhausted. Diversification - pulses, oilseeds, millets, maize, horticulture - breaks that calendar, rests aquifers, and spreads weather risk, but only if markets and procurement move with the seed. Stabilise the system; do not only chase last year's paddy ton.

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Q15 · 15 marks

How do subsidies affect the cropping pattern, crop diversity and economy of farmers? What is the significance of crop insurance, minimum support price and food processing for small and marginal farmers?

GS III · 2017 · Crops, Irrigation and Marketing

Revision summary

Input and paddy-wheat procurement subsidies push a cereal pattern and shrink crop diversity. They support small-farm cash this season but capitalise into rents, borewells, and soil imbalance.

PM Fasal Bima Yojana is the main income hedge for a failed crop if claims are timely.

MSP helps small farmers only where procurement is real, including pulses and oilseeds.

Food processing and FPOs turn perishable output into a market for the one-acre household.

Introduction

A **subsidy** changes what is cheap to grow. In India, **fertiliser, power, canal water, and cheap credit**, plus **Minimum Support Price** procurement of rice and wheat, have built a **cereal-heavy pattern**, thinned **diversity**, and given many small farmers a **cash cushion that is also a trap**. **Crop insurance**, a wider MSP, and **food processing** are the tools that can protect the small lot without locking the whole village into paddy.

Body

How subsidies affect pattern, diversity, and the farmer's economy

- **Power and canal water** that are free or flat-rate make **paddy and sugarcane** rational even on thirsty land; coarse cereals and pulses lose the calendar.
- **Urea subsidy** (and a weaker phosphate-potash signal for years) pushed nitrogen-heavy doses; soil balance and **crop mix** suffered.
- **MSP plus Food Corporation of India** procurement is a de facto subsidy to **rice and wheat belts**; oilseeds and millets stay on the rainfed margin.
- **Diversity falls**: fewer intercrops, fewer legumes, more specialised pest pressure - the yield problem of the previous question.
- **Farmer economy**: subsidies **cut the cash cost** this season and can keep a marginal farmer afloat. They also **capitalise into land rents and borewell races**, so the tenant and the water table lose. Leakage to large farmers and to the fertiliser plant is well known.
- Export and livestock get less policy energy than grain, so income sources stay narrow.
- When a subsidy is delayed (fertiliser shortage, unpaid cane dues), the small farmer's liquidity breaks at once because she has no buffer.

Crop insurance for small and marginal farmers

- **Pradhan Mantri Fasal Bima Yojana (2016)** cut premium rates and used more technology for crop-cutting. For a one-hectare household, a failed monsoon is ruin; insurance is the substitute for the savings she does not have.
- **Gaps**: delayed claims, village-level assessment that misses plot-level loss, and awareness. Insurance stabilises **income**, not the cropping pattern, unless premiums and products also cover

horticulture and livestock.

MSP for the small lot

- MSP is a **price floor** where procurement actually happens. For small farmers in Punjab-Haryana it is real; in much of eastern and rainfed India it is a newspaper number.
- A declared MSP for pulses and oilseeds without purchase does not change the pattern. **Price deficiency** or local procurement through cooperatives can.
- MSP must not mean open-ended paddy in overdrawn blocks; that "helps" the farmer while mining her children's water.

Food processing

- A plant or pack-house near the village turns a **perishable glut** into a cheque. That is more valuable to a one-acre horticulture or milk producer than another urea bag.
- **Mega Food Parks**, cold chain, and **Farmer Producer Organisations** let small lots aggregate. Without them, the small farmer remains a price-taker at the mandi in a two-week harvest.
- Processing also absorbs women and landless labour - the household economy, not only the landowner.

A less distorting mix

- Direct income support and **Direct Benefit Transfer** of fertiliser subsidy where leakage is high; keep kind support where markets fail.
- Meter irrigation energy; pay a cash equivalent for saving power.
- Insurance that pays on time; MSP that is **implemented** for pulses, millets, and oilseeds; processing linked to those crops.

Flow diagram

Power urea paddy MSP that actually buys -> Cereal heavy pattern
 Cereal heavy pattern -> Less diversity
 Cereal heavy pattern -> Short-run cash long-run trap
 PMFBY -> Short-run cash long-run trap
 MSP that actually buys that actually buys -> Less diversity
 Food processing FPO -> Short-run cash long-run trap

Conclusion

Fertiliser, power, and rice-wheat procurement subsidies cheapen a narrow cropping pattern, cut diversity, and give small farmers short-run relief that can become a water-and-soil trap. Crop insurance is their disaster hedge. MSP matters only where someone buys. Food processing is the demand limb for perishables. Shift from unmetered inputs toward income support, real pulse-millet purchase, and plants next to the farm.

Open WRAP page — <https://wrapexams.com/upsc/mains-answers/gs-3/2017/how-do-subsidies-affect-the-cropping-pattern-crop-diversity-and-economy-of-farmers-what-is-the-significance-of-crop-insurance-minimum-support-price-and-food-processing-for-small-and-marginal-farmers/>

Q16 · 15 marks

Give an account of the growth and development of nuclear science and technology in India. What is the advantage of fast breeder reactor programme in India?

GS III · 2017 · Indian Economy

Revision summary

India's nuclear programme runs from the 1948 **Atomic Energy Act** and BARC through indigenous PHWRs, 1974 and 1998 tests, and the 2008 NSG waiver.

The three-stage plan uses PHWRs, then fast breeders, then thorium because uranium is scarce and thorium is not.

IGCAR's Fast Breeder Test Reactor trained the sodium-cooled line; PFBR is the commercial prototype.

FBRs stretch fuel, open the thorium stage, and can ease some waste burdens.

They are a strategic energy bet, not a quick cheap plant.

Introduction

- **India built** nuclear science **as a State project from the late 1940s: energy, isotopes, and later weapons.** The civilian spine is the **Department of Atomic Energy, pressurised heavy water reactors**, and a **three-stage** plan toward **thorium**, because India has little **uranium** and a lot of **thorium** in beach sands. The **fast breeder reactor (FBR)** is the bridge of that plan.

Body

Growth and development

- **1948 Atomic Energy Act** and the **Atomic Energy Commission**, with **Homi Bhabha**, set research as a sovereign goal. **Department of Atomic Energy (1954)** and **Bhabha Atomic Research Centre** (Trombay) became the core.
- **Apsara (1956)** was Asia's early research reactor. **Cirus** and later **Dhruva** trained people and made isotopes.
- **Power: Tarapur** boiling-water reactors with the United States (late 1960s), then **Rajasthan** (Canadian CANDU lineage) and an indigenous **pressurised heavy water reactor (PHWR)** line under **Nuclear Power Corporation of India Limited** - Kakrapar, Narora, Kaiga, and others.
- **1974** peaceful nuclear explosion and **1998** tests brought **sanctions** and a long dual-use isolation: limited imported fuel and technology, so self-reliance in PHWR, fuel fabrication, and heavy water was forced, not chosen.
- **Indira Gandhi Centre for Atomic Research**, Kalpakkam, ran the **Fast Breeder Test Reactor** (1985, sodium-cooled) as the school for breeders.
- **Applications beyond power: radiation** in food and medicine, **isotope** diagnosis, and strategic propulsion research - the DAE umbrella is wider than electricity.
- **2005 Indo-US civil nuclear agreement**, **2008 Nuclear Suppliers Group waiver**, and IAEA safeguards on separated civilian plants reopened imported uranium and reactor offers (**Kudankulam** VVER with Russia; talks on other light-water units).
- Liability law, local protest (Kudankulam, Jaitapur), and project delays remain the political half of the technology story.

Three-stage programme (Bhabha)

- **Stage 1:** PHWRs on **natural uranium**; spent fuel yields **plutonium**.
- **Stage 2:** FBRs burn plutonium and **breed** more fissile material from **uranium-238**, multiplying a scarce uranium base.
- **Stage 3:** **thorium-uranium-233** cycles in advanced reactors, using India's large **monazite / thorium** resource.
- Without stage 2, stage 3 stays a paper option.

Advantages of the FBR programme

- **Fuel security:** breeds more fissile atoms than it consumes (with a blanket); stretches domestic and imported uranium.
- **Path to thorium:** produces the inventory and the operating skill for U-233 systems.
- **Waste:** can burn some long-lived actinides relative to a once-through thermal cycle (design-dependent), reducing the high-level waste burden in principle.
- **Base-load, low-carbon** power once commercial - a complement to coal and to variable renewables.
- **Indigenous learning:** sodium technology, fuel fabrication, and safety culture stay inside Indian labs rather than as a perpetual import.
- **Caution:** FBRs are **complex** (sodium fire risk, cost, delays). The **Prototype Fast Breeder Reactor** at Kalpakkam has been a long construction. Advantage is **strategic**, not a cheap kilowatt-hour in the first unit.

Flow diagram

Stage 1 PHWR natural U -> Plutonium
 Plutonium -> Stage 2 FBR
 Stage 2 FBR -> Breed more fissile
 Stage 2 FBR -> Stage 3 thorium U-233
 India thorium sands -> Stage 3 thorium U-233
 NSG waiver imported U -> Stage 1 PHWR natural U

Conclusion

Indian nuclear science grew from Bhabha's AEC and Apsara through PHWRs, isolation after 1974 and 1998, IGCAR's breeder school, and a partial reopening after the civil nuclear deal. The FBR programme's advantage is to multiply scarce uranium, open the thorium third stage, and keep a low-carbon base-load option under national control - if safety and project delivery catch up with the physics.

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Q17 · 15 marks

'Climate Change' is a global problem. How India will be affected by climate change? How Himalayan and coastal states of India will be affected by climate change?

GS III · 2017 · Environment and Conservation

Revision summary

Climate change is global; India is exposed through monsoon swings, heat, food, water, and health.

Himalayan states face glacier melt, glacial-lake floods, landslides, and shifting horticulture.

Coastal states face sea-level rise, saline deltas, stronger cyclones, and urban flooding.

Fisheries, mangroves, and island freshwater lenses are part of the coastal loss.

Adaptation is State-specific; the cause remains global emissions.

Introduction

Climate change is global because greenhouse gases mix in one atmosphere: no State can buy a private climate. India is a tropical, monsoon, glacier-and-delta country with a large poor population on the land. It will be hit through heat, water, food, coasts, and health, even though its per capita emissions are far below the old industrial world. Himalayan and coastal States sit on two different edges of the same warming.

Body

India in a warming world

- **Monsoon:** more erratic onset, longer dry spells, and heavier downpours when rain comes - floods and drought in the same year.
- **Heat:** more extreme heat days; outdoor labour, cities without trees, and the old suffer first.
- **Agriculture:** wheat at grain-fill, rice at flowering, and rainfed millets all face yield risk; pests shift range.
- **Water:** groundwater already overdrawn in the north-west; climate adds uncertainty to recharge and glacier-fed rivers.
- **Health:** malaria and dengue windows, heat stroke, nutrition after crop failure.
- **Energy and cities:** peak cooling load, urban heat islands, and storm damage to networks.
- **Paris Agreement (2015)** and India's nationally determined contribution (energy intensity, non-fossil capacity, carbon sink) are the diplomatic frame; physical risk does not wait for targets.

Himalayan states

- **Glacier melt:** short-run higher runoff, long-run **lean season** water stress for the Ganga-Brahmaputra-Indus headwaters that feed the plains as well as hill States.
- **Glacial lake outburst floods (GLOF)** and landslides as permafrost and slopes weaken; hydropower dams and hill roads sit in the path.
- **Snow-to-rain** shift changes timing of streams that hill agriculture and towns use.
- **Biodiversity and livelihoods:** alpine pastures, apple belts (chill-hour loss), and pastoral routes move upslope until there is no upslope left.
- **Seismic plus climate:** a cloudburst on a deforested slope (Uttarakhand-type tragedy) is the compound disaster.

- **States:** Jammu and Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, Arunachal Pradesh, and hill districts of West Bengal and the North-East - tourism and hydropower economies are both exposed.

Coastal states

- **Sea-level rise:** saline intrusion into deltas (**Sundarbans**, Godavari-Krishna, Mahanadi, Cauvery) and loss of low islands and beaches.
- **Cyclones:** warmer seas can feed more intense storms on the **Bay of Bengal** and, increasingly, the **Arabian Sea**; Odisha, Andhra Pradesh, Tamil Nadu, West Bengal, Gujarat, and Maharashtra face surge and wind.
- **Fisheries:** catch composition shifts; small fishers lose days at sea.
- **Cities:** Mumbai, Chennai, Kochi, and Kolkata already flood on high tide plus rain; drainage designed for an old climate fails.
- **Livelihoods:** salt on fields, dying mangroves if squeezed between sea and concrete, and migration out of the Sundarbans and dry-coast villages.
- **Andaman and Nicobar and Lakshadweep:** coral bleaching and freshwater lens loss on atolls.

Shared policy thread

- **Adaptation is local:** slope rules and lake monitoring in the Himalaya; mangrove, zoning, and cyclone shelters on the coast. Mitigation is **national and global:** coal path, forests, and a Paris coalition. Himalayan and coastal States cannot adapt alone if the monsoon and the ice still follow world emissions.

Flow diagram

Global warming -> India monsoon heat crops
 Global warming -> Himalaya glaciers GLOF slopes
 Global warming -> Sea level cyclone salt cities
 Himalaya glaciers GLOF slopes -> Downstream river lean flow
 Sea level cyclone salt cities -> Displacement fisheries loss

Conclusion

Climate change will hit India through a jerkier monsoon, heat, crop and water stress, and disease. Himalayan States face glacier melt, GLOFs, slope failure, and shifting orchards. Coastal States face sea level, salt, stronger cyclones, and drowning cities. The global problem becomes two Indian maps - ice and tide - that need both local adaptation and a lower-carbon world.

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Q18 · 15 marks

On December 2004, tsunami brought havoc on 14 countries including India. Discuss the factors responsible for occurrence of Tsunami and its effects on life and economy. In the light of guidelines of NDMA (2010) describe the mechanisms for preparedness to reduce the risk during such events.

GS III · 2017 · Indian Economy

Revision summary

The 2004 Indian Ocean tsunami was driven by a Sumatra-Andaman megathrust earthquake that displaced the sea.

India's Tamil Nadu, island, and other coasts lost lives, boats, fields, and ports.

NDMA 2010 guidelines rest on INCOIS early warning, inundation maps, CRZ siting, and last-mile alerts.

Evacuation routes, vertical refuge, mangroves, and community drills are the physical preparedness.

A warning that does not reach the beach is not preparedness.

Introduction

On **26 December 2004** a giant undersea earthquake off **Sumatra** drove an **Indian Ocean tsunami** onto **fourteen** countries. In India it killed thousands on the **Tamil Nadu** coast, **Puducherry**, **Andhra Pradesh**, **Kerala**, and above all the **Andaman and Nicobar Islands**. A tsunami is not a monsoon flood. It is a **long sea wave** born of a sudden shove of the seafloor. **National Disaster Management Authority guidelines (2010)** exist because 2004 found India almost without a public warning.

Body

Factors responsible

- **A tsunami needs a** vertical displacement of the ocean column: usually a **thrust earthquake** on a **subduction zone** (the 2004 Sumatra-Andaman megathrust, magnitude about **9.1**).
- **Other sources:** undersea **landslides**, volcanic flank collapse, and, rarely, a large meteorite. Wind waves are not tsunamis.
- Wave speed in deep water is high (jet-airliner order); height is small at sea and **piles up** in shallow coastal water - run-up, not a single Hollywood wall everywhere.
- **Bay shape**, continental-shelf width, and coral or mangrove belts change local height. The 2004 wave hit the open Coromandel and island coasts hardest in India.
- Aftershocks and a second wave kill people who return to the beach too soon.

Effects on life and economy (2004 and generic)

- **Death and injury** from drowning and debris; children and the old die first; many bodies never identified in the Nicobars.
- **Livelihoods:** fishing boats and nets smashed; salt in fields; tourism and ports stopped.
- **Infrastructure:** roads, power, water, and the **Port Blair** and mainland harbour systems; contamination of wells.
- **Ecology:** coral breakage, mangrove damage, and saline wetlands - a long recovery.

- **Economy:** local GDP shock in coastal districts; reconstruction cost; insurance gaps for informal fishers.
- **Psychosocial** trauma and displacement camps; Andaman tribal communities were partly spared where traditional knowledge read the sea, a lesson for warning design.

NDMA (2010) preparedness mechanisms

- After 2004, the **Indian Tsunami Early Warning Centre** at **INCOIS**, Hyderabad (Ministry of Earth Sciences) sits on seismic and **ocean-buoy / tide-gauge** data and issues bulletins to NDMA, States, and the coast guard. India is a regional service provider in the **Indian Ocean Tsunami Warning System**.
- **NDMA's Guidelines for Management of Tsunamis (2010)** ask for: **hazard maps** and inundation modelling; **land-use** that keeps critical buildings and dense housing off the highest-risk strip; **Coastal Regulation Zone** discipline as a safety tool, not only an environment file.
- **End-to-end warning:** from INCOIS to State and district **Emergency Operations Centres**, police, fisheries department, and **last-mile** sirens, radio, SMS, and public address - a warning that dies in a closed office is not a mechanism.
- **Evacuation:** marked routes, **assembly grounds**, and **vertical evacuation** (upper floors of strong public buildings) where horizontal flight is too far.
- **Community:** village disaster-management plans, fisher-community training to read official alerts, school drills, and mock exercises on the 26 December memory calendar.
- **Structural:** cyclone-tsunami shelters on the east coast, mangrove and shelter-belt restoration, and port design that does not trap water.
- **Response:** pre-positioned boats, medical kits, and a clear incident command under the **Disaster Management Act, 2005**, so the 2004 chaos of overlapping agencies is not repeated.
- **International:** share seismic data; receive Pacific and Indonesian alerts as a back-up clock.

Flow diagram

Megathrust quake seafloor -> Tsunami wave
 Tsunami wave -> Coastal run-up
 Coastal run-up -> Death boats fields ports
 INCOIS ITEWC ITEWC -> State district State district EOC
 State district EOC -> Siren SMS evacuation
 NDMA 2010 guidelines 2010 guidelines -> Hazard map CRZ drills

Conclusion

Tsunamis come from sudden seafloor (or landslide) displacement; 2004 showed India the death, salt, and livelihood cost. NDMA 2010 preparedness is early warning through INCOIS, mapped coasts, last-mile alerts, evacuation and vertical refuge, community drills, and CRZ-and-mangrove buffers. The mechanism works only if the bulletin reaches a fisher who still has a path off the beach.

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Q19 · 15 marks

Mob violence is emerging as a serious law and order problem in India. By giving suitable examples, analyze the causes and consequences of such violence.

GS III · 2017 · Indian Economy

Revision summary

Mob violence is extra-legal crowd punishment and a direct law-and-order failure.

Causes include rumour, religious and caste honour, political protection, and thin policing, amplified by messaging apps.

Examples range from 1984 and 2002 riots to Muzaffarnagar 2013 and cow-vigilante lynchings such as Dadri 2015.

Consequences are loss of life and equality, economic shutdown, and a State that looks optional.

Deterrence is swift cases against the crowd and its patrons, plus rumour control, not a speech after the funeral.

Introduction

Mob violence is harm done by a **crowd that has slipped the law: lynching, riot, arson, and public beating. It is a law-and-order** problem because the State's first job is a **monopoly on legitimate force**. When a video crowd punishes a rumour, that monopoly is on loan to whoever shouts loudest. India has old riot patterns and a new **instant-message** pattern. Both are examples the question asks for.

Body

Causes

- **Rumour and identity:** caste honour, religious insult, and **cow-protection** vigilantism have driven lynchings (for example **Dadri 2015**, later **Alwar-Pehlu Khan 2017**, and similar cattle-transport attacks). The trigger is often a **forwarded clip**, not a verified crime.
- **Political polarisation** and a sense that the crowd will be **protected** if it matches the local majority; weak, delayed First Information Reports teach that lesson.
- **Communal riot systems: Muzaffarnagar 2013**, older **Gujarat 2002** and **Delhi 1984** anti-Sikh killings - organised mobs, not spontaneous strangers, with rumours as fuel.
- **Caste atrocity as public spectacle: Khairlanji (2006)** and other Dalit lynchings show honour and land, not only "sudden anger".
- **Witch-hunting** and kangaroo justice in parts of Jharkhand, Odisha, and the North-East: the mob as a substitute court.
- **Economic panic:** run on a shop, attack on migrant workers (**Assam** and Gujarat-type "outsider" violence), or a crash in a commodity blamed on a community.
- **Policing gaps:** understaffed rural posts, poor **forensic and cyber** skill against WhatsApp rumours, and crowd-control that arrives after the filming is done.
- **Unemployment and young men** with time; a mob is cheap to assemble where jobs are not.
- **Cinema and livestream** reward: status for the person who hits on camera.

Consequences

- **Right to life and equality** (Articles 14 and 21) fails in public; minorities, Dalits, migrants, and women in moral-policing crowds are the usual bodies.
- **Rule of law:** if the mob is faster than the court, private revenge becomes normal; **due process** dies.
- **Law and order spiral:** retaliatory riots, curfew, and a police force that then uses **excessive force** or, conversely, stands by - both destroy trust.
- **Economy:** bandhs, burned trucks, closed mandis, and tourism and investment flight from a "riot-prone" district. Migrant labour leaves, which hits construction and services.
- **Social:** ghettoisation, school dropout after a riot, and a generation taught that identity is a weapon.
- **Federal and international:** army flag marches, damaged India's rights reputation, and a thicker **hate-speech** load on the next election.
- **Policing morale:** officers who register cases against a powerful mob face transfer; officers who collude teach the next mob.

What the examples jointly show

- 1984 and 2002 show **State failure or worse** when the crowd is politically useful.
- Dadri and cattle-lynching cases show **everyday** law-and-order collapse on a highway, not only a once-a-decade riot.
- **Muzaffarnagar** shows rumour plus election timing.
- Without **fast arrest, video-based prosecution, rumour-rebuttal cells, and political cost for patrons**, examples will only multiply.

Flow diagram

Rumour identity politics -> Mob violence
 Weak police delayed FIR -> Mob violence
 Mob violence -> Death rights ghetto
 Mob violence -> Bandh migrants investment
 Fast arrest cyber rumour cell -> Restore State monopoly

Conclusion

Mob violence is the crowd taking the court's place. Causes are rumour, identity, caste, politics, and a slow police. Consequences are dead citizens, a broken monopoly of force, ghettos, and a poorer, more fearful local economy. Dadri-type lynchings and riot years such as 1984, 2002, and Muzaffarnagar 2013 are not separate genres: they are the same failure at different scales.

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Q20 · 15 marks

The scourge of terrorism is a grave challenge to national security. What solutions do you suggest to curb this growing menace? What are the major sources of terrorist funding?

GS III · 2017 · Border Security and Organised Crime

Revision summary

Curbing terrorism needs intelligence fusion, police capacity, borders and coasts, lawful investigation, and a political track in long conflicts.

Diplomacy and FATF-type pressure target State and overseas sponsors.

Major funding sources are State support, hawala, narcotics, counterfeit currency, diverted charity, extortion, and trade or crypto laundering.

UAPA, PMLA, the Financial Intelligence Unit, and UN listings are the legal money tools.

Force without politics, or politics without follow-the-money, leaves the menace intact.

Introduction

Terrorism uses **fear and spectacular violence** against civilians (and often the State) to force a political aim. For India it is a **national-security** problem on the **Pakistan-linked jihadist** belt, in the **North-East**, in leftover **Left-wing extremism** where it shades into terror tactics, and in **lone-wolf / module** form after online radicalisation. Curbing it is not one commando raid. It is **intelligence, law, borders, money, and politics** together. Money is the oxygen the second part of the question names.

Body

Solutions to curb the menace

- **Intelligence fusion:** Multi-Agency Centre, NATGRID-type data, and State Special Branches that talk to the Intelligence Bureau **before** the blast, not in the debrief. Human sources still beat a dashboard.
- **Police as the first counter-terror force:** city SWAT, forensic labs, and witness protection; the Army is for the border and a few theatres, not every module in a metro.
- **Borders:** fencing, floodlights, and **Integrated Check Posts** where they help; **boats and coastal radar** after 26/11; aviation and hotel security as a permanent drill, not a anniversary memo.
- **Law: Unlawful Activities (Prevention) Act** with **judicial oversight** so it does not become a lazy substitute for investigation; fast terror courts; **National Investigation Agency** for inter-State and cross-border cases.
- **Military and Central Armed Police** in Jammu and Kashmir and the North-East under a **political track:** deradicalisation, jobs, and honest politics so the gun is not the only career. Hard power without a political door recreates the next cohort.
- **Cyber:** take down propaganda, watch encrypted plots within the law, and **counter-speech** from credible local voices - not only a ban that drives users darker.
- **Diplomacy:** isolate State sponsors at the **United Nations, Financial Action Task Force**, and bilateral extradition; evidence dossiers, not only adjectives.
- **Community and prisons:** prevent radicalisation in madrasa fringes **and** in jails; work with genuine faith leaders; protect minorities from the backlash that **feeds** the next recruiter.

- **Left-wing and North-East:** mix of SAMADHAN-type police pressure, talks where groups bargain in good faith, and development that is not only a road for the paramilitary.

Major sources of terrorist funding

- **State sponsorship** and intelligence-agency slush: training, arms, and cash across a land or sea border.
- **Hawala and cash couriers:** the old informal rail that still outruns many bank alerts.
- **Narcotics:** Afghanistan-Pakistan **heroin** and other drugs; the **golden crescent** link to terror groups is a documented overlap (narcoterror).
- **Counterfeit currency:** high-quality fake Indian notes as a dual attack on the economy and a funding stream.
- **Charities and NGOs** that mix genuine alms with diversion; **misuse of zakat** and front trusts.
- **Crime:** kidnapping, extortion, bank robbery, and **taxation** of contractors in insurgent space (also typical of some North-East and Maoist finance).
- **Legal businesses and real estate** as **layering**; trade-based money laundering (over-invoicing).
- **Online:** crowdfunding, **cryptocurrency**, and payment wallets - a rising slice even if hawala still dominates in the subcontinent.
- **Diaspora donations** that are political on the surface and operational underneath.

Choking the money

- **Prevention of Money Laundering Act**, **UAPA** terror-finance clauses, **UN listings**, and **FATF** pressure on neighbours.
- **Financial Intelligence Unit** alerts, know-your-customer on **informal value transfer**, and cooperation with Gulf and Western banks.
- Demonetisation-type cash shocks are blunt; **targeted** follow-the-money on modules works better than a nationwide note ban as counter-terror.
- Freeze of **SIMI / LeT / JeM-type** fronts and of stone-pelting or riot funds when the law's evidence standard is met.

Flow diagram

Terrorism -> Modules attacks
 Terrorism -> Funding
 Funding -> State hawala narcotics fake notes fronts crime
 Intel police borders UAPA NIA
 Intel police borders UAPA NIA -> Modules attacks
 FIU PMLA FATF PMLA FATF -> Funding
 Political cyber community -> Terrorism

Conclusion

Terrorism is curbed by fused intelligence, a professional police, tight coasts and borders, lawful UAPA-and-NIA work, a political door in long theatres, and diplomacy that names sponsors. Funding comes from States, hawala, drugs, fake notes, fronts, crime, and newer crypto rails. Cut the money and the module shrinks; leave the politics untouched and the next module raises a new purse.

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WRAP Exams

Compiled answer key

Last pages of this pack. Each question links to the WRAP model answer on wrapexams.com.

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Q1 10 marks	Q2 10 marks	Q3 10 marks	Q4 10 marks
Q5 10 marks	Q6 10 marks	Q7 10 marks	Q8 10 marks
Q9 10 marks	Q10 10 marks	Q11 15 marks	Q12 15 marks
Q13 15 marks	Q14 15 marks	Q15 15 marks	Q16 15 marks
Q17 15 marks	Q18 15 marks	Q19 15 marks	Q20 15 marks

Question-wise key

Q1 · 10 marks Solution

Q2 · 10 marks Solution

Q3 · 10 marks Solution

Q4 · 10 marks Solution

Q5 · 10 marks Solution

Q6 · 10 marks Solution

Q7 · 10 marks Solution

Q8 · 10 marks Solution

Q9 · 10 marks Solution

Q10 · 10 marks Solution

Q11 · 15 marks Solution

Q12 · 15 marks Solution

Q13 · 15 marks Solution

Q14 · 15 marks Solution

Q15 · 15 marks Solution

Q16 · 15 marks Solution

Q17 · 15 marks Solution

Q18 · 15 marks Solution

Q19 · 15 marks Solution

Q20 · 15 marks Solution

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