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The Hindu Analysis

Daily Current Affairs for UPSC · HPAS / HAS · State PSCs

23 OCTOBER 2026 · FRIDAY

◆ IN THIS EDITION ◆

01	India–Poland: Doubling Bilateral Trade by 2030	GS 2	2
02	Tunnelling Through: China's Curbs on Tunnel-Boring Machines	GS 3	4
03	Emissions Gap Report 2026: "The Point of Return"	GS 3	6
04	Graded Response Action Plan (GRAP) Stage I Invoked	GS 3	7
05	Badr Defence Cooperation MoU: Qatar–Türkiye–Pakistan–Indonesia	GS 2	10
06	Practice Zone — Mains, MCQs & Revision	PRACTICE	11

INDIA–POLAND · TBM EXPORT CURBS · EMISSIONS GAP 2026 · GRAP · CAQM · BADR MoU · 2 MAINS · 10 MCQs

Compiled by

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◆ READ · REVISE · RISE ◆

GS 2 International Relations · The Hindu · Page 1

India–Poland: Doubling Bilateral Trade by 2030

WHY IN NEWS Polish PM **Donald Tusk**, on his first visit to India as Prime Minister since 2010, held talks with PM Modi in New Delhi. No agreement was signed, but both sides set the goal of **doubling bilateral trade from about $6 billion by 2030**.

ANALYSIS

- **"No conflicts of interest":** Mr. Tusk described India and Poland as partners without conflicting interests and hailed PM Modi as a "beacon of hope" in a time of political uncertainty and instability.
- **Areas of cooperation:** Space, transportation, renewable energy and technology were identified for expansion; India also spoke about its **"four-point proposal"** to mitigate the effects of the Russia–Ukraine conflict.
- **Trade target:** Trade stands at a low $6 billion; it is expected to rise after the **India–European Union Free Trade Agreement** is signed in December, as Poland is an EU member.
- **Trusted supply chains:** PM Modi said companies from both countries would work together to develop trusted supply chains for the world.
- **Business engagement:** A large Polish business delegation engaged with Indian firms in Delhi and Bengaluru on rail transport, clean coal and mining — sectors where Poland has developed its own technology.
- **Trillion-dollar club:** PM Modi congratulated Poland on joining the group of nations with trillion-dollar GDPs.

India and Poland will achieve shared goal of doubling bilateral trade by 2030: Modi

Suhasini Haidar
NEW DELHI

India and Poland have no "conflicts of interest", said Polish Prime Minister Donald Tusk, who hailed his Indian counterpart Narendra Modi as a "beacon of hope" in a time of "political uncertainty and instability" after talks here on Thursday.

Mr. Tusk, who is visiting as Prime Minister for the first time since 2010, discussed expanding India-Poland cooperation in a number of fields including space, transportation, renewable energy, and technology, and also spoke about India's "four-point proposal" to help mitigate the effects of the Russia-Ukraine conflict.

Steadfast partnership: Prime Minister Narendra Modi with Polish PM Donald Tusk in New Delhi on Thursday. SUSHIL KUMAR VERMA

While the two sides did not sign any agreement after bilateral talks, India and Poland targeted doubling trade between them from a low figure of $6 billion, which is expected to rise after the India-European Union Free Trade Agreement is signed in December.

"We are confident that companies from both countries will work together to develop trusted supply chains for the world and achieve our shared goal of doubling bilateral trade by 2030," said Mr. Modi.

Feat lauded

The Prime Minister added that he was pleased that a large business delegation had accompanied Mr. Tusk to engage with Indian businesses in Delhi and Bengaluru on collaborations in areas such as rail transport, clean coal, and mining, where Poland has developed its technology.

Mr. Modi congratulated Poland for entering the group of nations with trillion-dollar GDPs.

CONTINUED ON » PAGE 12

Source: **The Hindu**, 23 October 2026, Page 1 — Suhasini Haidar

Poland and its neighbourhood (Source: Britannica)

POLAND AT A GLANCE

Capital	Warsaw
Currency	Złoty (not euro)
Sea	Baltic Sea (north)
Main rivers	Vistula, Oder (Odra)
Mountains	Carpathians, Sudetes (south)
Land borders	7 — Germany, Czechia, Slovakia, Ukraine, Belarus, Lithuania, Russia (Kaliningrad)
Memberships	EU, NATO, Schengen, OECD, V4

◆ VALUE ADDITION

- **Diplomatic ties** were established in 1954. PM Modi visited Warsaw in August 2024 — the first Indian PM visit in 45 years — when ties were elevated to a **Strategic Partnership** with a Joint Action Plan (2024–28).
- **"Good Maharaja" legacy:** During World War II, Jam Saheb Digvijaysinhji of Nawanagar sheltered Polish children at Balachadi (Jamnagar), and the Valivade camp in Kolhapur housed thousands of Polish refugees. Warsaw honours him with the "Good Maharaja Square".
- **Strategic location:** Poland borders Ukraine and Belarus and was a key transit route for evacuating Indian students under **Operation Ganga** (2022).
- **Groupings:** NATO (1999), EU (2004), Schengen (2007), Visegrad Group (V4 — Poland, Czechia, Slovakia, Hungary), Weimar Triangle (with France and Germany) and the Three Seas Initiative. Poland is in the EU but **not in the Eurozone**; its currency is the złoty.
- **Why it matters for India:** Poland is a gateway to Central and Eastern Europe; an India–EU FTA plus a strong Polish partnership can diversify India's European trade beyond the traditional Western European economies.

PRELIMS POINTERS

◆ Capital: Warsaw, on the Vistula — Poland's longest river

◆ Neighbours: Germany, Czechia, Slovakia, Ukraine, Belarus, Lithuania, Russia (Kaliningrad)

◆ Donald Tusk: former President of the European Council (2014–19)

◆ Coastline on the Baltic Sea

◆ Suwałki Gap: the Poland–Lithuania border strip between Belarus and Kaliningrad

◆ Bilateral trade at present: about $6 billion

SYLLABUS LINK › GS 2 — Bilateral, regional and global groupings and agreements involving India and/or affecting India's interests.

GS 3 Economy · Infrastructure · The Hindu · Editorial, Page 6

Tunnelling Through: China's Curbs on Tunnel-Boring Machines

WHY IN NEWS China's Ministry of Commerce and General Administration of Customs placed **tunnel-boring machines (TBMs)** on an export control list, effective **November 18**. The editorial argues this reveals a blind spot in India's supply chain diversification.

ANALYSIS

- **Scope of curbs:** TBMs, walking excavators and high-altitude wet shotcrete machines are covered.
- **Two-tier licensing:** Shipments to countries or regions deemed "sensitive" due to disputes with China will need an export licence. For others, exporters must be registered, obtain an export certificate and submit end-use declarations that the equipment will not be re-routed to sensitive locations.
- **China's dominance:** China has cornered about **70% of the global TBM market**; even prominent Western manufacturers keep large component supply chains there to cut costs.
- **Dual-use nature:** TBMs are configured to the geology of each site and perform numerous tasks; a suitable TBM can serve **civilian or military** purposes.
- **India's exposure:** India has faced TBM-related hold-ups with China for at least two years, including for the **Mumbai–Ahmedabad High-Speed Rail** project. Germany's **Herrenknecht AG** set up an assembling and refurbishing facility in Chennai in 2007–08.
- **Production economics:** Unlike ordinary construction equipment, new TBM plants need a minimum number of orders and access to industrial capability to design, manufacture and repair specialised components.
- **Cost trade-off:** India is one of the world's largest TBM importers, but insisting that every machine be made domestically would send infrastructure costs soaring. India may have to redirect procurement to Germany or Japan and absorb higher capital costs.
- **The way forward (editorial view):** The BEML experience shows partnerships can fail without secure licensing and sustained demand. India should pair domestic manufacturing with foreign partnerships and build **shared industrial capabilities** — common testing and precision-manufacturing infrastructure — rather than singular "national champions".
- **Bigger picture:** Beijing is systematically identifying sectors where it commands global capacity and imposing export controls to counter Western restrictions, such as on advanced semiconductors. Any critical infrastructure sector relying on Chinese supply lines faces a **compounding geopolitical risk**.

VALUE ADDITION

- **What is a TBM?** A cylindrical machine with a rotating cutterhead that excavates a tunnel and simultaneously installs a precast concrete segment lining. These machines can weigh around 3,000 tonnes.
- **Types:** *Earth Pressure Balance* (EPB) TBMs suit soft, urban soils (metros); *Slurry* TBMs suit water-bearing and mixed ground (under rivers and seas); *Hard-rock* (*gripper*) TBMs suit solid rock.

- **TBM vs drill-and-blast:** The New Austrian Tunnelling Method (NATM) uses drilling, blasting and shotcrete support. It is flexible in variable Himalayan geology — the **Atal Tunnel** (Rohtang, HP) was built this way. TBMs are safer and cause less vibration in densely populated areas.
- **MAHSR:** India's first bullet train corridor, 508 km from Mumbai to Ahmedabad, uses Japanese Shinkansen technology with JICA financing and is executed by NHSRCL. It includes a 21-km tunnel between BKC and Shilphata, with about **7 km under the sea** (Thane Creek).
- **China's export-control toolkit:** Export Control Law (2020); curbs on gallium and germanium (2023), graphite, and rare earth elements and magnets (2025). This is a case of "weaponised interdependence".

Tunnelling through

Domestic manufacturing and foreign partnerships must go hand-in-hand

The Chinese Ministry of Commerce and the General Administration of Customs decision to place tunnel-boring machines (TBMs) on an export control list reveals a blind spot in India's supply chain diversification. The curbs include TBMs, walking excavators, and high-altitude wet shotcrete machines. From November 18, if a shipment is intended for countries or regions deemed sensitive due to ongoing disputes with China, exporters will need an export licence from commerce authorities. For other countries/regions, exporters will need to be registered, obtain an export certificate, and submit end-use declarations stating that the equipment will not be re-routed to sensitive locations. While China has cornered around 70% of the global TBM market, prominent manufacturers in the West also maintain substantial component supply chains in the country to cut manufacturing overhead. Further, TBMs are complex to build as they have to be configured to geological characteristics at the project site and perform numerous tasks. Where a suitable TBM exists, it can be used for civilian or military purposes. India has struggled with TBM-related hold-ups with China for at least two years now, including for the Mumbai-Ahmedabad high-speed rail project. Germany's Herrenknecht AG set up an assembling and refurbishing facility in Chennai in 2007-08. TBM production economics differ significantly from conventional construction equipment as new plants need a minimum number of orders and must be able to access the industrial capability required to design, manufacture and repair specialised components.

However, even though India is one of the world's largest TBM importers, expecting every sophisticated machine to be produced domestically will send public infrastructure costs soaring. Even now, depending on China's decision on the TBMs set for India, India may have to redirect its procurement to facilities based directly in Germany or Japan, say, and absorb the higher capital cost. The BEML experience shows that manufacturing partnerships can fail without secure licensing arrangements and access to sustained demand. India should pursue domestic manufacturing alongside international partnerships, e.g., making equipment in the country under agreement with established foreign firms, and develop shared industrial capabilities rather than singular 'national champions', as TBM manufacturers and their suppliers can benefit from access to common testing and precision manufacturing infrastructure. Overall, Beijing is systematically identifying sectors where it commands a significant global capacity and establishing export controls to counter western technological restrictions, such as on advanced semiconductors, so any critical infrastructure sector relying on Chinese supply lines will face a compounding geopolitical risk.

Source: **The Hindu**, 23 October 2026, Editorial — "Tunnelling through"

PRELIMS POINTERS

◆ China's TBM market share: about 70%

◆ Curbs also cover walking excavators and high-altitude wet shotcrete machines

◆ MAHSR: 508 km; about 7-km undersea tunnel

◆ Curbs effective from November 18

◆ Herrenknecht AG (Germany): Chennai facility, 2007–08

◆ BEML: Bengaluru-based PSU (rail, mining, defence equipment)

SYLLABUS LINK › GS 3 — Infrastructure: railways; Indian economy and issues relating to growth and industrial policy; effects of liberalisation on the economy.

GS 3 Environment · Climate Change · UNEP Report

Emissions Gap Report 2026: "The Point of Return"

WHY IN NEWS The **UN Environment Programme (UNEP)** released the **Emissions Gap Report 2026: The Point of Return**, warning that the Paris Agreement's **1.5°C guardrail without overshoot is no longer possible**.

ANALYSIS

- **About the report:** This is the 17th edition of the annual assessment of the "gap" between where countries' climate pledges will take global greenhouse gas (GHG) emissions and where emissions must be to meet the Paris temperature goals.
- **Loss of the 1.5°C window:** Inadequate cuts have made overshooting 1.5°C virtually unavoidable.
- **Required cuts:** Global emissions must fall by **18% by 2030, 45% by 2035 and 69% by 2040**, relative to 2025.
- **Widening gap:** Current 2035 NDCs leave a **16 $GtCO_2e$** gap, delivering only 11–15% cuts against the required 45%.
- **Temperature outlook:** Existing policies could cause **2.8°C** warming by 2100; full implementation of pledges may limit it to about **2.1°C**.
- **Carbon removal:** Limiting overshoot requires removing about **320 $GtCO_2$** this century, which raises concerns about technological feasibility, ecological impact and cost.
- **Mixed signals:** Solar deployment expanded seven times faster than 2015 projections, yet rising coal, oil and gas use continues to undermine decarbonisation.
- **India on track:** India is projected to meet its 2030 and 2035 NDC targets under existing policies. Because its targets are framed in terms of **emissions intensity of GDP**, absolute emissions can still rise with growth.
- **Per-capita picture:** India's projected 2035 per-capita emissions (3.6 tCO_2e) are far below China (9.3), Russia (11.5) and Saudi Arabia (15.2). India remains the **3rd largest absolute emitter**, but its per-capita emissions are less than half the global average.
- **2025 decline:** India's GHG emissions fell in 2025 versus 2024, partly due to weather and partly due to a structural shift to renewables. The EU and Russia also recorded declines, while global emissions stayed broadly at 2024 levels. India's emissions growth stems from electricity, transport, industry, agriculture and other development needs.

VALUE ADDITION

- **UNEP:** Set up in 1972 after the Stockholm Conference, with headquarters in Nairobi, Kenya. Its flagship reports include the Emissions Gap Report, the Adaptation Gap Report, the Global Environment Outlook and the Production Gap Report (with SEI and others).
- **Paris Agreement (COP21, 2015):** Article 2 sets the goal of keeping warming "well below 2°C", pursuing 1.5°C; Article 4 covers NDCs, submitted every five years; Article 6 covers cooperative

approaches and carbon markets; Article 14 covers the Global Stocktake (the first concluded at COP28, Dubai, 2023).

- **India's updated NDC (2022):** Cut emissions intensity of GDP by 45% by 2030 from 2005 levels; reach about 50% of installed power capacity from non-fossil sources by 2030; create an additional 2.5–3 billion tCO_2e carbon sink; promote Mission LiFE. Net zero by **2070** (Panchamrit, COP26).
- **Overshoot:** Temperatures temporarily exceed a threshold before being brought back down through carbon dioxide removal (CDR) — afforestation, biochar, enhanced weathering, BECCS and DACCS.
- **Equity lens:** The principle of Common But Differentiated Responsibilities and Respective Capabilities (CBDR-RC) underpins India's position that developed countries must lead deeper cuts and provide finance.

Rising GHG emissions keep the 1.5°C goal out of reach (representative image)

PRELIMS POINTERS

- ◆ Publisher: UNEP (not UNFCCC or IPCC)
- ◆ Required cuts vs 2025: 18% (2030), 45% (2035), 69% (2040)
- ◆ CDR needed: about 320 $GtCO_2$ this century
- ◆ 2035 NDC gap: 16 $GtCO_2e$
- ◆ Warming: 2.8°C (current policies), about 2.1°C (pledges)
- ◆ India 2035 per capita: 3.6 tCO_2e

SYLLABUS LINK › GS 3 — Conservation, environmental pollution and degradation, environmental impact assessment; important international institutions (GS 2).

◆ ◆ ◆

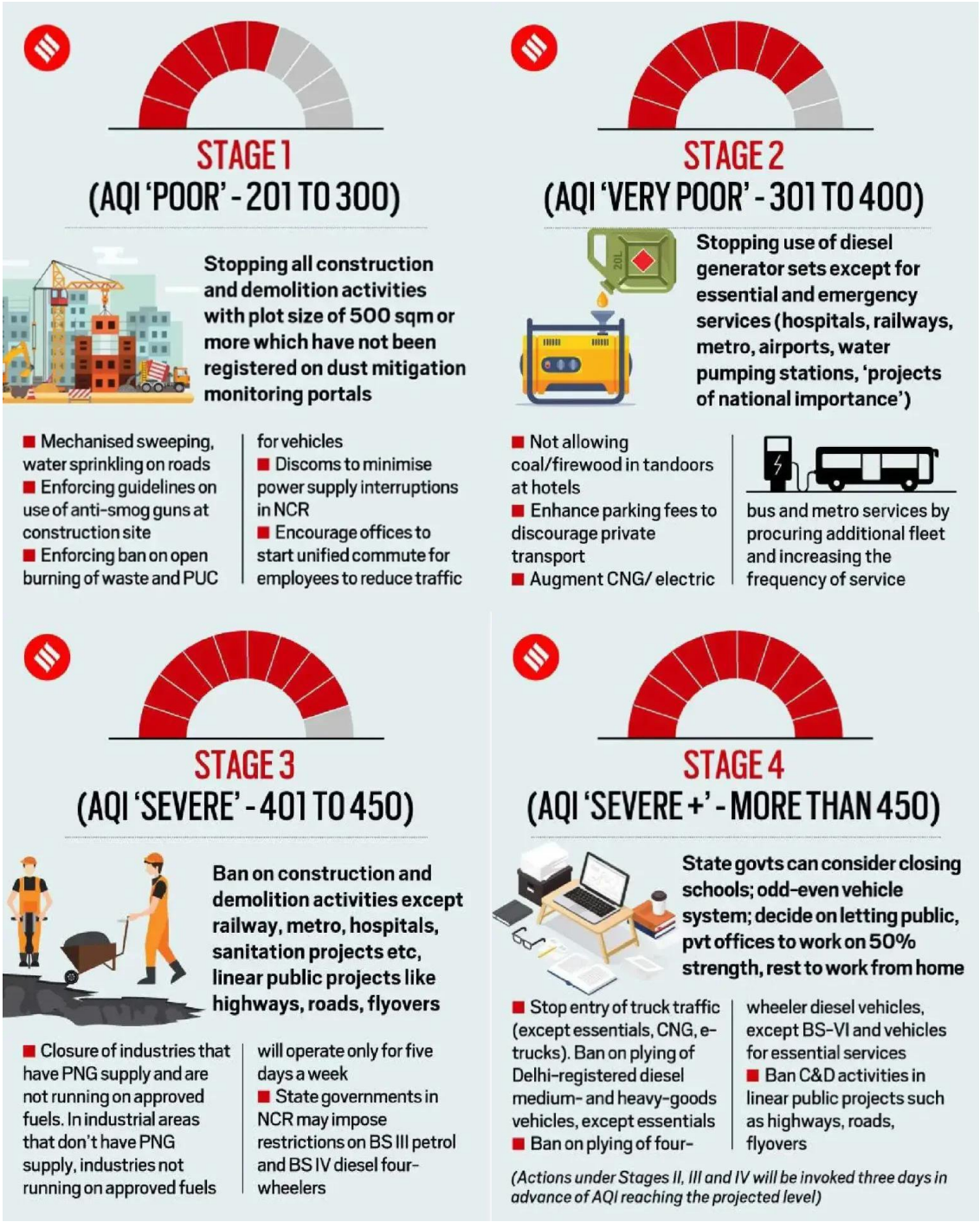
GS 3 Environment · Pollution · Delhi-NCR Air Quality

Graded Response Action Plan (GRAP) Stage I Invoked

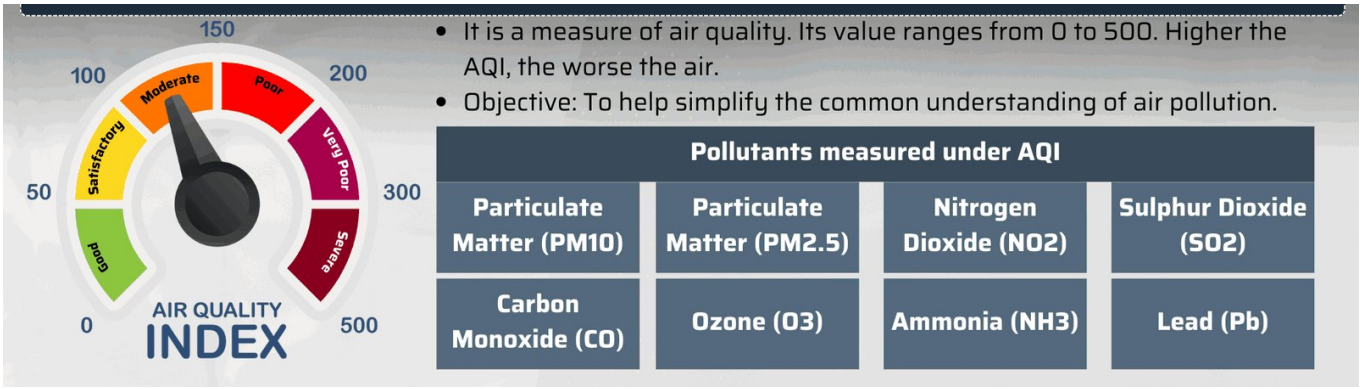
WHY IN NEWS The **Commission for Air Quality Management (CAQM)** invoked **Stage I of GRAP** across Delhi-NCR after the Air Quality Index deteriorated sharply into the **"Poor"** category.

ANALYSIS

- **Origin:** GRAP evolved from the Supreme Court's directions in **M.C. Mehta v. Union of India** (December 2016).
- **Notification:** It was notified on **January 12, 2017**, by the MoEFCC and initially assigned for enforcement to the Environment Pollution (Prevention and Control) Authority (EPCA).
- **Graded design:** It provides progressively stricter measures as AQI rises — Stage I "Poor" (201–300), Stage II "Very Poor" (301–400), Stage III "Severe" (401–450), Stage IV "Severe+" (above 450).
- **Implementation:** CAQM implements it through pollution control boards, municipal bodies, transport departments and traffic police. Stage II, III and IV actions are invoked about three days in advance of the AQI reaching the projected level.



Stage-wise GRAP measures (Source: Indian Express infographic)



Air Quality Index — categories and the 8 pollutants measured

Commission for Air Quality Management (CAQM) — Key Facts

Legal basis: Statutory body under the CAQM in NCR and Adjoining Areas Act, 2021, which also dissolved EPCA (set up in 1998).

Chairperson: An official of the rank of Secretary to the Government of India or Chief Secretary of a State.

Jurisdiction: Exclusive jurisdiction over air pollution in NCR, including areas of Haryana, Punjab, Uttar Pradesh and Rajasthan; it supersedes the CPCB and SPCBs in these matters.

Powers: Issues directions to State governments; contravention attracts fines of up to ₹1 crore and imprisonment of up to 5 years.

AQI basics: Launched in 2014; six categories from Good (0–50) to Severe (401–500); 8 pollutants — PM10, PM2.5, NO_2, SO_2, CO, O_3, NH_3 and Pb.

◆ VALUE ADDITION

- **Stage I (Poor):** Stop construction and demolition on plots of 500 sq m or more not registered on dust-mitigation portals; mechanised sweeping and water sprinkling; anti-smog guns at sites; ban on open burning of waste; enforce PUC norms.
- **Stage II (Very Poor):** Stop diesel generator sets except for essential services; no coal or firewood in hotel tandoors; higher parking fees; more CNG and electric bus and metro services.
- **Stage III (Severe):** Ban on construction and demolition except essential and linear public projects; closure of industries not running on approved fuels; states may restrict BS-III petrol and BS-IV diesel four-wheelers.
- **Stage IV (Severe+):** Stop truck entry except essentials, CNG and electric trucks; states may close schools, run odd-even schemes and allow 50% work-from-home.
- **Why October–November:** Stubble burning in Punjab and Haryana, temperature inversion, low wind speed, firecrackers and vehicle and dust emissions combine to trap pollutants over the Indo-Gangetic plain.

PRELIMS POINTERS

◆ GRAP notified: 12 January 2017
◆ Stage IV = AQI above 450
◆ Stage I = AQI 201–300 (Poor)
◆ Originally enforced by EPCA (1998)

◆ Now implemented by CAQM (Act of 2021)

◆ NCAP (2019) targets cities that miss air-quality standards

SYLLABUS LINK › GS 3 — Conservation, environmental pollution and degradation; GS 2 — Statutory, regulatory and various quasi-judicial bodies.

◆ ◆ ◆

GS 2 International Relations · Security · Doha, Qatar

Badr Defence Cooperation MoU: Qatar–Türkiye–Pakistan–Indonesia

WHY IN NEWS **Qatar, Türkiye, Pakistan and Indonesia** signed the **Badr Memorandum of Understanding** in Doha amid growing regional security concerns. Other friendly countries may join, subject to criteria agreed by the four signatories.

ANALYSIS

- **What it is:** A four-nation defence cooperation initiative to strengthen technological self-reliance and integrate complementary industrial capabilities. **"Badr"** means "full moon" in Arabic, symbolising the complementary strengths of the members.
- **Objectives:** Joint defence production, technology transfer, R&D and technical military training; stronger domestic defence manufacturing; meeting the defence needs of members and friendly nations.
- **Division of strengths: Türkiye** — advanced defence technology, systems integration and manufacturing; **Pakistan and Indonesia** — manufacturing base, skilled workforce and domestic defence markets; **Qatar** — investment capacity and finance.
- **Not a mutual defence pact:** Unlike the **Makkah Joint Defence Agreement** (August 2026) involving Pakistan, Saudi Arabia and Türkiye, which provides for mutual defence commitments, the Badr MoU creates **no collective defence obligation**.
- **Significance:** Amid West Asian tensions, it could create integrated defence supply chains, reduce dependence on external suppliers and diversify security partnerships across the Gulf, South Asia and Southeast Asia.

◆ VALUE ADDITION

- **Implications for India:** The MoU could give Pakistan access to Turkish technology and Gulf capital for its defence industry, and it points to Pakistan's deepening defence ties with the wider Islamic world after the Makkah agreement.
- **India's stakes with the other members:** Qatar is among India's largest LNG suppliers and hosts a large Indian diaspora (eight Indian Navy veterans were released in 2024). Indonesia is a Comprehensive Strategic Partner — President Prabowo Subianto was Republic Day chief guest in 2025. India and Türkiye have strained ties over Kashmir and Pakistan.

- **Response options:** Deepen engagement with Qatar and Indonesia so they do not become one-sided defence-industrial partners of Pakistan; expand India's own defence exports (BrahMos, Akash); and build trust with Gulf partners through IMEC and I2U2 frameworks.

Signatories at the Badr MoU signing ceremony in Doha

PRELIMS POINTERS

- ◆ Badr = "full moon" (Arabic)
- ◆ Signatories: Qatar, Türkiye, Pakistan, Indonesia
- ◆ Makkah Agreement: Pakistan, Saudi Arabia, Türkiye
- ◆ Signed in Doha, Qatar
- ◆ Open to "friendly countries" on agreed criteria
- ◆ D-8 members include Türkiye, Pakistan and Indonesia — not Qatar

SYLLABUS LINK › GS 2 — Effect of policies and politics of developed and developing countries on India's interests; GS 3 — Security challenges.

◆ ◆ ◆

VEDANTA · DAILY PRACTICE

Practice Zone

MAINS ANSWER WRITING

MAINS Q1 · GS 3 **China's export controls on tunnel-boring machines expose a blind spot in India's supply chain diversification. Discuss why India should combine domestic manufacturing with foreign partnerships to secure critical infrastructure equipment.** ***(15 marks, 250 words)***

सुरंग खोदने वाली मशीनों (टनल बोरिंग मशीन) पर चीन के निर्यात नियंत्रण भारत के आपूर्ति-श्रृंखला विविधीकरण में एक कमज़ोर कड़ी को उजागर करते हैं। महत्त्वपूर्ण अवसंरचना उपकरणों की सुरक्षा के लिए भारत को घरेलू विनिर्माण और विदेशी साझेदारियों को साथ-साथ क्यों आगे बढ़ाना चाहिए, चर्चा कीजिए। (15 अंक, 250 शब्द)

◆ APPROACH

- **Intro:** China's curbs from November 18 on TBMs, walking excavators and shotcrete machines; China has about 70% of the global TBM market; delays already seen on MAHSR.
- **Blind spot:** Dual-use nature of TBMs; India is a top importer; single-source dependence; part of a wider pattern of export controls (rare earths, graphite, gallium).
- **Why not pure self-reliance:** Minimum-order economics, site-specific design, high capital costs — insisting on purely domestic production would inflate project costs.
- **Why partnerships alone fail:** The BEML experience — insecure licensing and uneven demand; need for technology absorption.
- **Way forward:** Co-production with German and Japanese firms (Herrenknecht Chennai model); shared testing and precision-manufacturing infrastructure; demand aggregation across metro, rail and hydro projects; capital-goods incentives; trusted-supplier frameworks with partners like the EU, Japan and Poland.
- **Conclusion:** Resilience means diversified, trusted supply chains — not autarky — anchored in Atmanirbhar Bharat.

MAINS Q2 · GS 3 **The Emissions Gap Report 2026 declares that the 1.5°C guardrail without overshoot is no longer possible. In light of its findings, critically examine India's position in the global climate effort. *(15 marks, 250 words)***

उत्सर्जन अंतराल रिपोर्ट 2026 घोषित करती है कि बिना अतिक्रमण (ओवरशूट) के 1.5°C की सीमा अब संभव नहीं है। रिपोर्ट के निष्कर्षों के आलोक में वैश्विक जलवायु प्रयासों में भारत की स्थिति का आलोचनात्मक परीक्षण कीजिए। (15 अंक, 250 शब्द)

◆ APPROACH

- **Intro:** UNEP's 17th Emissions Gap Report, "The Point of Return" — a 16 $GtCO_2e$ gap, 2.8°C warming under current policies and about 2.1°C if pledges are met.
- **Positives for India:** On track for its 2030 and 2035 NDCs under current policies; 2035 per capita of 3.6 tCO_2e vs China (9.3) and Saudi Arabia (15.2); emissions fell in 2025; rapid solar growth; the 50% non-fossil capacity goal.
- **Critical view:** Intensity-based targets allow absolute emissions to rise; India is the 3rd largest absolute emitter; coal dependence; reliance on carbon removal is uncertain.
- **Equity argument:** CBDR-RC, historical responsibility, carbon space for development, and the gap in climate finance from developed nations.
- **Way forward:** Peak-and-decline pathway, Green Hydrogen Mission, storage, the Carbon Credit Trading Scheme, LiFE, and adaptation finance.
- **Conclusion:** India can be a bridge between ambition and equity in the global climate regime.

◆ PRELIMS BYTES

Kaliningrad: A Russian exclave on the Baltic Sea, wedged between Poland and Lithuania.

Shotcrete: Concrete sprayed at high velocity to line and stabilise tunnel walls; it is a core element of NATM.

Temperature inversion: A layer of warm air above cooler surface air acts as a lid, trapping pollutants near the ground in North Indian winters.

PM2.5: Particles with a diameter of 2.5 micrometres or less; they can enter the bloodstream through the lungs.

Global Stocktake: Held every five years under Article 14 of the Paris Agreement; the first concluded at COP28 (2023), and the next is due in 2028.

PRELIMS MCQS

Q1. Consider the following statements regarding the Graded Response Action Plan (GRAP):

1. It was formulated pursuant to Supreme Court directions in the M.C. Mehta v. Union of India case.
2. Stage I of GRAP is invoked when the AQI enters the 'Very Poor' category.
3. It is currently implemented by the Commission for Air Quality Management.

Which of the statements given above are correct?

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

Q2. With reference to the Commission for Air Quality Management (CAQM), consider the following statements:

1. It is a statutory body constituted under an Act passed in 2021.
2. Its jurisdiction in matters of air pollution extends to parts of Haryana, Punjab, Uttar Pradesh and Rajasthan.
3. It functions under the supervision of the Central Pollution Control Board.

Which of the statements given above are correct?

(a) 1 only
(b) 1 and 2 only
(c) 2 and 3 only
(d) 1, 2 and 3

Q3. Which one of the following is NOT among the pollutants used to compute India's National Air Quality Index?

(a) Ammonia (NH_3)
(b) Lead (Pb)
(c) Carbon dioxide (CO_2)
(d) Ozone (O_3)

Q4. With reference to the Emissions Gap Report 2026, consider the following statements:

1. It is published by the UNFCCC Secretariat.
2. It states that global emissions must fall by about 45% by 2035, relative to 2025, to limit warming.
3. It projects that India will achieve its 2030 and 2035 NDC targets under existing policies.

Which of the statements given above are correct?

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

Q5. Consider the following pairs (Paris Agreement Article : Subject):

1. Article 2 : Long-term temperature goal
2. Article 4 : Nationally Determined Contributions
3. Article 6 : Cooperative approaches and carbon markets
4. Article 14 : Global Stocktake

How many of the above pairs are correctly matched?

(a) Only one
(b) Only two
(c) Only three
(d) All four

Q6. Which of the following countries share a land border with Poland?

1. Lithuania
2. Belarus
3. Hungary
4. Russia
5. Slovakia

Select the correct answer using the code given below:

(a) 1, 2 and 3 only
(b) 1, 2, 4 and 5 only
(c) 2, 3, 4 and 5 only
(d) 1, 2, 3, 4 and 5

Q7. With reference to Poland, consider the following statements:

1. It is a member of both NATO and the European Union.
2. It has adopted the euro as its official currency.
3. It is a member of the Visegrad Group.

Which of the statements given above are correct?

(a) 1 and 2 only
(b) 1 and 3 only
(c) 2 and 3 only
(d) 1, 2 and 3

Q8. Consider the following statements about tunnel-boring machines (TBMs):

1. China accounts for around 70% of the global TBM market.
2. TBMs are dual-use equipment that can serve civilian as well as military purposes.
3. Earth Pressure Balance TBMs are generally suited to soft, urban soils.

Which of the statements given above are correct?

(a) 1 only
(b) 1 and 2 only
(c) 2 and 3 only
(d) 1, 2 and 3

Q9. With reference to the Mumbai–Ahmedabad High-Speed Rail Corridor, consider the following statements:

1. It is about 508 km long.
2. It includes an undersea rail tunnel of about 7 km.
3. It is based on French TGV technology.

Which of the statements given above are correct?

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

Q10. With reference to the Badr Memorandum of Understanding, consider the following statements:

1. It was signed by Qatar, Türkiye, Pakistan and Indonesia in Doha.
2. It creates a collective defence obligation among its signatories.
3. Other friendly countries may join it, subject to criteria agreed upon by the signatories.

Which of the statements given above are correct?

(a) 1 and 2 only
(b) 1 and 3 only
(c) 2 and 3 only
(d) 1, 2 and 3

ANSWER KEY & RATIONALE

1. **(c)** — Stage I is invoked at 'Poor' (AQI 201–300); 'Very Poor' triggers Stage II. GRAP arose from the M.C. Mehta case and is now run by CAQM.
2. **(b)** — CAQM is statutory (2021 Act) with jurisdiction over NCR and adjoining areas. It supersedes the CPCB and SPCBs on NCR air pollution — it is not under the CPCB.

3. **(c)** — The AQI covers 8 pollutants: PM10, PM2.5, NO_2, SO_2, CO, O_3, NH_3 and Pb. CO_2 is a greenhouse gas, not an AQI pollutant.
4. **(b)** — The report is published by UNEP, not the UNFCCC. The 45% cut by 2035 and India being on track for its NDCs are both stated in the report.
5. **(d)** — All four are correct: Article 2 (temperature goal), Article 4 (NDCs), Article 6 (cooperative approaches and markets), Article 14 (Global Stocktake).
6. **(b)** — Poland borders Germany, Czechia, Slovakia, Ukraine, Belarus, Lithuania and Russia (Kaliningrad). Hungary does not border Poland.
7. **(b)** — Poland joined NATO in 1999 and the EU in 2004 and is a V4 member, but it uses the złoty, not the euro.
8. **(d)** — China holds about 70% of the market; TBMs are dual-use (editorial); EPB machines suit soft urban ground.
9. **(a)** — The 508-km MAHSR includes about 7 km of undersea tunnel and uses Japanese Shinkansen technology with JICA support — not TGV.
10. **(b)** — Badr is a cooperation MoU with no collective defence obligation, unlike the Makkah Joint Defence Agreement. It is open to friendly countries.

◆ QUICK REVISION RECAP

India–Poland: Tusk's first visit as PM since 2010; target to double trade from $6 billion by 2030; cooperation in space, transport, renewables and technology; the India–EU FTA (December) is expected to lift trade; Poland has joined the trillion-dollar GDP club.

TBM curbs: China lists TBMs, walking excavators and high-altitude shotcrete machines for export control from November 18; it has about 70% of the market; MAHSR is affected; India should pair domestic manufacturing with foreign partnerships and shared industrial infrastructure.

Emissions Gap Report 2026: "The Point of Return" — 1.5°C without overshoot is lost; cuts needed of 18%, 45% and 69% by 2030, 2035 and 2040; 16 $GtCO_2e$ gap; 2.8°C vs about 2.1°C; about 320 $GtCO_2$ of removal needed; India is on track, with 3.6 tCO_2e per capita in 2035.

GRAP: Stage I invoked in Delhi-NCR (AQI 201–300); stages run from Poor to Severe+; notified in 2017 after the M.C. Mehta case; implemented by CAQM under its 2021 Act.

Badr MoU: Qatar, Türkiye, Pakistan and Indonesia in Doha; joint production, technology transfer and R&D; no collective defence clause, unlike the Makkah agreement.

⚠ PRELIMS TRAP-SETTERS

AQI vs NAAQS: The AQI uses 8 pollutants and the NAAQS (2009) lists 12; CO_2 is in neither. GRAP Stage I is "Poor", not "Very Poor".

Who publishes what: The Emissions Gap Report is published by UNEP; the Assessment Reports by the IPCC; the Global Stocktake falls under the UNFCCC.

Intensity, not absolute: India's NDC targets cut the emissions intensity of GDP (45% by 2030 from 2005 levels), so absolute emissions may rise.

Poland: It is in the EU and Schengen but not the Eurozone; it borders Russia only through the Kaliningrad exclave.

Badr vs Makkah: Badr is a defence-industrial cooperation MoU; the Makkah agreement (Pakistan, Saudi Arabia, Türkiye) carries mutual defence commitments.

TBM facts: Herrenknecht is German (Chennai unit, 2007–08); MAHSR uses Japanese Shinkansen technology, not TGV; the Atal Tunnel used drill-and-blast NATM, not a TBM.

STATIC LINKAGE	Connect today's news to the static syllabus
India–Poland	Central and Eastern Europe in India's foreign policy; Visegrad Group and Weimar Triangle; Operation Ganga (2022) evacuation routes.
TBM curbs	Export-control regimes: India is a member of the MTCR (2016), the Wassenaar Arrangement (2017) and the Australia Group (2018), but not the NSG. China is in the NSG only.
Emissions Gap	UNFCCC (Rio, 1992) → Kyoto Protocol (1997) → Paris Agreement (2015); greenhouse effect; carbon sinks.
GRAP / CAQM	Article 21 (right to a pollution-free environment, Subhash Kumar case, 1991); Articles 48A and 51A(g); Air Act, 1981; Environment (Protection) Act, 1986.
Badr MoU	West Asian groupings: GCC, OIC, D-8; Saudi Arabia–Pakistan defence ties; India's Link West policy.

PLACES & PERSONS IN NEWS	Why in news / Key fact
Warsaw	Capital of Poland, on the Vistula; home of the Good Maharaja Square honouring Jam Saheb of Nawanagar.
Doha, Qatar	Venue of the Badr MoU signing; Qatar is a peninsula in the Persian Gulf whose only land border is with Saudi Arabia.
Thane Creek	Site of the about 7-km undersea section of the MAHSR tunnel.
Delhi-NCR	GRAP Stage I invoked as AQI turned "Poor"; covers parts of Haryana, UP and Rajasthan.
Nairobi, Kenya	Headquarters of UNEP, publisher of the Emissions Gap Report.
Donald Tusk	Prime Minister of Poland; former President of the European Council (2014–19).

"Resilience is not self-sufficiency in everything — it is never being hostage to anyone."

◆ THOUGHT FOR THE DAY ◆