



India's Push for Security Council Reform: The G4 Model

For Prelims: [United Nations Security Council](#), [G4 nations](#), [UN General Assembly](#), India's participation in the Security Council.

For Mains: Need for UN Security Council Reforms, Procedure of UN Security Council Reforms.

[Source: TH](#)

Why in News?

Participating in the **Intergovernmental Negotiations on Security Council Reform**, India has presented a detailed model on behalf of the [G4 nations](#) for [United Nations Security Council Reform](#).

- The model includes new permanent members elected democratically by the [UN General Assembly](#) and shows flexibility on the veto issue.
- The G4 (Brazil, Germany, India and Japan) was created in 2004 and has been promoting Security Council reform.

What are the Key Features of the G4 Proposed Model?

- **Addressing Under-representation:** The model highlights the "**glaring under-representation and un-representation**" of key regions in the Council's current composition, which hampers its legitimacy and effectiveness.
- **Membership Expansion:** The G4 model advocates for increasing the Security Council's membership from the **current 15 to 25-26 members**.
 - This expansion includes adding 6 permanent and 4 or 5 non-permanent members.
 - Two new permanent members each are proposed from **African states and Asia Pacific states, one from Latin American and Caribbean states**, and one from Western European and Other states.
- **Flexibility on Veto:** In a departure from the existing framework where only the five permanent members hold veto powers, the G4 model offers flexibility on the [veto issue](#).
 - New permanent members would refrain from exercising the veto until a decision on the matter is taken during a review process, demonstrating a willingness to engage in constructive negotiations.
- **Democratic and Inclusive Election:** The proposal emphasizes that the decision on which member states will occupy the new permanent seats will be made through a **democratic and inclusive election by the UN General Assembly**.

What is the United Nations Security Council?

- The **United Nations Security Council**, established under the **UN Charter in 1945**, constitutes one of the UN's six principal organs.
- Comprising 15 members, it includes **5 permanent members (P5)** and **10 non-permanent members** elected for two-year terms.
 - The permanent members are the United States, Russian Federation, France, China, and the

United Kingdom.

- According to Oppenheim's International Law : United Nations, "Permanent membership in the Security Council was granted to five states based on their **importance in the aftermath of World War II.**"
- India's participation in the Security Council has been as a non-permanent member during the periods of 1950-51, 1967-68, 1972-73, 1977-78, 1984-85, 1991-92, 2011-12, and 2021-22.

UN Security Council (UNSC)

The UN Charter vests the primary responsibility for maintaining international peace and security to the UNSC

About

One of the **6 principal organs** of UN; established in **1945** by UN Charter

Headquarters

New York City

First Session

17 January 1946 at Church House, Westminster, London

Membership

- 15 members - 5 Permanent Members (P5), 10 Non-Permanent Members elected for two-year terms (5 elected each year)
- P5 - the US, the UK, Russia, France and China

Presidency

- Rotates every month among the 15 members
- India's Presidency for year 2022 - December

Voting Powers

- 1 member = 1 vote
- P5 have **veto power**
- Members of UN sans membership of UNSC participate without vote

UNSC Committees/Resolutions

Terrorism

- Resolution 1373 (Counter Terrorism Committee)
- Resolution 1267 (Da'esh and Al Qaeda Committee)

Non-Proliferation Committee

- Resolution 1540 (against nuclear, chemical and biological weapons)

India and UNSC

- Served **7 times** as non-permanent member; elected for the **8th time** for 2021-22; **advocates for a permanent seat**
- Arguments for a permanent seat:
 - **43 peacekeeping missions**
 - Active participation in **formulating Human Rights Declaration (UDHR)**
 - India's **population, territorial size, GDP, economic potential, cultural diversity, political system** etc.



G4

Group of 4 countries (Brazil, Germany, India and Japan) which advocate each other's bids for permanent seats in the UNSC

Uniting for Consensus (Ufc) Movement

- Informally known as the **Coffee Club**
- Countries **oppose the expansion Permanent Seats** of UNSC
- **Prime movers of the club** - Italy, Spain, Australia, Canada, South Korea, Argentina and Pakistan
- Italy and Spain are opposed to Germany's bid; Pakistan - India's bid; Argentina - Brazil's bid and Australia - Japan's bid

Major Challenges in UNSC

- Usual UN rules don't apply to UNSC deliberations; **no records of meetings kept**
- Powerplay in UNSC; **anachronistic veto powers** of P5
- **Deep polarisation** among P5; frequent divisions end up blocking key decisions
- **Inadequate representation** of many regions among of the world

Why does the UN Security Council Need to be Reformed?

- **Representation and Legitimacy:** The Security Council plays a crucial role in peacekeeping and conflict resolution, with binding decisions that impact all member states.
 - To ensure these decisions are respected and implemented universally, the Council must possess the necessary authority and legitimacy, which requires **representation reflecting the current global landscape.**
- **Outdated Composition:** The current composition of the Security Council, based on the geopolitical situation of **1945** and expanded marginally in **1963/65**, no longer accurately represents the world stage.
 - With 142 new countries joining the United Nations since its inception, regions like **Africa, Asia, Latin America, and the Caribbean** lack adequate representation, necessitating adjustments to the Council's composition.

- **Recognition of Contributions:** The UN Charter acknowledges that countries making substantial contributions to the organisation should have a role in the Security Council.
 - This recognition underscores the candidacy of nations like **India, Germany and Japan for new permanent seats**, reflecting their meaningful contributions to the UN's mission.
- **Risk of Alternative Decision-Making Forums:** Without reform, there's a risk that decision-making processes could shift to **alternative forums, potentially diluting the Security Council's effectiveness.**
 - Such competition for influence is counterproductive and not in the collective interest of member states.
- **Misuse of Veto Power:** The utilisation of veto power has consistently faced **criticism** from numerous experts and the majority of states, labelling it as a "**self-selected group of privileged nations**" that lacks democratic principles and hinders the Council's ability to take essential decisions if it conflicts with the interests of any of the P-5 members.
 - In today's global security landscape, relying on **exclusive decision-making frameworks is deemed unsuitable.**

What is the Procedure of UN Security Council Reforms?

UN Security Council reform requires an amendment to the Charter of the United Nations. The relevant procedure as set out in **Article 108** involves a two-stage process:

- **First Stage:** The General Assembly, where each of the 193 member states holds one vote, must endorse the **reform with a two-thirds majority**, equivalent to at least 128 states.
 - This stage **does not grant the right of veto**, as per Article 27 of the Charter.
- **Second Stage:** Upon approval in the first stage, the United Nations Charter, considered an international treaty, undergoes amendment.
 - This amended Charter requires ratification by at **least two-thirds of the member states, including all five permanent Security Council members**, adhering to their respective national procedures.
 - In this stage, the ratification process can be influenced by the parliaments of the permanent members, potentially affecting the entry into force of the amended Charter.

Note

A negative vote from permanent members in the General Assembly does not prevent them from later ratifying the amended Charter.

- For instance, during the 1963 vote to enlarge the Security Council, **only one permanent member voted in favour.**
- However, within 18 months by 1965, all five permanent members had ratified the amended Charter.

Way Forward

- **Engagement and Consensus Building:** Fostering inclusive dialogues and consultations among member states, particularly focusing on the perspectives of underrepresented regions like Africa, Asia, Latin America, and the Caribbean.
 - Seek common ground and build consensus on the principles and objectives of Security Council reform, **emphasising the importance of representation, legitimacy, and effectiveness.**
- **Amending the UN Charter:** Encourage cooperation and coordination among all stakeholders, including the five permanent members, to **facilitate the ratification process** and ensure the amended Charter reflects contemporary global realities.
- **Addressing Veto Power:** Exploring avenues for reforming the use of veto power within the Security Council, considering proposals that **balance the need for decisive action with concerns about fairness and inclusivity.**

- Encouraging transparency and accountability in the exercise of veto power, ensuring that it aligns with the Council's mandate to maintain international peace and security.
- **Strengthening Council Effectiveness:** Enhancing the Council's capacity to respond swiftly and effectively to emerging global challenges, including conflicts, humanitarian crises, and threats to international security.
 - Promoting cooperation and coordination with other UN bodies, regional organisations, and relevant stakeholders to leverage expertise and resources for peacekeeping and conflict resolution efforts.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Prelims

Q. The Security Council of UN consists of 5 permanent members, and the remaining 10 members are elected by the General Assembly for a term of (2009)

- (a) 1 year
- (b) 2 years
- (c) 3 years
- (d) 5 years

Ans: (b)

Mains

Q. Discuss the impediments India is facing in its pursuit of a permanent seat in the UN Security Council (2015)

Global Methane Tracker 2024

For Prelims: [International Energy Agency](#), [Global Methane Tracker 2024](#), [Bioenergy](#), [Global warming](#), [Greenhouse gas Emission](#), [Wetlands](#), [Harit Dhara](#), [BS VI Emission Norms](#), [National Action Plan on Climate Change](#), [Global Methane Pledge](#).

For Mains: Major Highlights of Global Methane Tracker 2024, Major Sources of Methane Emission

Source: [DTE](#)

Why in News?

The [International Energy Agency's Global Methane Tracker 2024](#) indicates that **methane** emissions from fuel usage in 2023 were nearly at their **highest level** on record, representing a slight increase compared to 2022.

What are the Major Highlights of Global Methane Tracker 2024?

- **Methane Emissions Overview:** In 2023, methane emissions from fossil fuels totaled close to **120 million tonnes (Mt)**.
 - **Bioenergy** (largely from biomass use) contributed a further 10 Mt methane emissions. This

level has stayed constant since 2019.

- **Rise of Major Methane Emissions Events:** Major methane emissions events increased by over 50% in 2023 compared to 2022.
 - These events included more than 5 million metric tons of methane emissions from significant fossil fuel leaks globally.
 - One prominent incident was a major **well blowout in Kazakhstan** that lasted **over 200 days**.
- **Top Emitting Countries:** Nearly **70% of methane emissions from fossil fuels come from the top 10 emitting countries**.
 - The **United States** is the largest emitter of methane from oil and gas operations, closely followed by **Russia**.
 - China is the highest emitter of methane in the coal sector.
- **Importance of Cutting Methane Emissions:** Cutting methane emissions from fossil fuels by **75% by 2030 is crucial for limiting [global warming](#) to 1.5 °C**.
 - The IEA estimated that this goal would require about **USD 170 billion in spending**. This is less than 5% of the income generated by the fossil fuel industry in 2023.
 - Around 40% of emissions from fossil fuels in 2023 could have been avoided at no net cost.

What is Methane?

- **About:** Methane is the simplest hydrocarbon, consisting of one carbon atom and four hydrogen atoms (CH₄).
 - It is the primary component of natural gas, possessing key characteristics:
 - **Odourless, colourless, and tasteless gas.**
 - Lighter than air.
 - Burns with a **blue flame in complete combustion**, yielding carbon dioxide (CO₂) and water (H₂O) in the presence of oxygen.
- **Contribution to Global Warming:** Methane ranks as the **second** most important **[greenhouse gas \(GHG\)](#)** after carbon dioxide (CO₂).
 - Its 20-year global warming potential (GWP) is **84**, indicating that it traps 84 times more heat per mass unit than CO₂ over a 20-year period, making it a potent GHG.
 - Despite its potency, methane has a shorter atmospheric lifetime compared to CO₂, **classifying it as a short-lived GHG**.
 - It is a significant contributor to global warming, accounting for about **30% of the rise in global temperatures since the preindustrial era**.
 - Methane also contributes to the formation of ground-level ozone.
- **Major Sources of Methane Emission:**
 - **Natural Sources:**
 - **[Wetlands](#)**, both natural and human-made, are significant sources of methane emissions due to anaerobic decomposition of organic matter.
 - **Agricultural Activities:**
 - Growing **paddy fields** release methane due to **anaerobic conditions in flooded rice paddies**.
 - **Excreta from cattle** and other livestock undergo enteric fermentation, producing methane as a byproduct.
 - **Combustion and Industrial Processes:**
 - Burning of **fossil fuels**, including oil and natural gas, releases methane emissions.
 - **Biomass burning**, such as wood and agricultural residues, also contributes to methane levels.
 - Industrial activities like **landfills and wastewater treatment plants** generate methane during organic waste decomposition in anaerobic environments.
 - **Fertiliser factories** and other industrial processes can also release methane during production and transportation.
- **Initiatives to Tackle Methane Emissions:**
 - **India:**
 - [Harit Dhara \(HD\)](#)
 - [BS VI Emission Norms](#).
 - [National Action Plan on Climate Change \(NAPCC\)](#)
 - **Global:**

- [Methane Alert and Response System \(MARS\)](#).
- [Global Methane Pledge](#)
- [Global Methane Initiative \(GMI\)](#)
- [MethaneSAT](#)

What is the Global Methane Pledge?

- **About:** The Global Methane Pledge was launched at **UNFCCC COP26 in November 2021** to catalyse action to reduce methane emissions. Led by the US and the EU, the Pledge now has 111 country participants who together are responsible for **45% of global human-caused methane emissions**.
 - It aims for a 30% reduction in global methane emissions from 2020 levels by 2030.
 - India has **opted not to sign** the Global Methane Pledge.
- **Key Reasons for this Decision Include:**
 - India contends that the primary contributor to climate change remains CO₂, with a long lifespan of **100-1000 years**.
 - The Pledge shifts focus to methane reduction, which has a shorter lifespan of just **12 years**, thus altering the burden of CO₂ reduction.
 - Methane emissions in India primarily stem from **agricultural activities like enteric fermentation and paddy cultivation**, affecting small, marginal, and medium farmers whose livelihoods would be jeopardised by the Pledge.
 - This contrasts with industrial agriculture prevalent in developed countries.
 - Also, given India's significant role as a rice producer and exporter, signing the Pledge could affect trade and economic prospects.
 - India hosts the **world's largest cattle population**, supporting the livelihoods of many.
 - However, Indian livestock's contribution to global enteric methane is minimal due to their diet rich in agricultural by-products and unconventional feed materials.

What is the International Energy Agency?

- IEA is an independent intergovernmental organisation founded in **1974** in **Paris, France**.
- Its primary emphasis publications are the [World Energy Outlook Report](#), [World Energy Investment Report](#), and [India Energy Outlook Report](#).
 - India became a member of the IEA in 2017.

Way Forward

- **Improved Agricultural Practices:** Encouraging and adopting sustainable agricultural practices such as **precision farming, conservation tillage, and integrated crop-livestock systems** can help reduce methane emissions from agricultural activities.
- **Methane-Capturing Technologies:** Implementing methane capture technologies in livestock operations and landfills can capture methane before it is released into the atmosphere, converting it into **usable energy or other products**.
- **Rice Cultivation Techniques:** Promoting practices like **System of Rice Intensification (SRI)** and [Direct Seeded Rice \(DSR\)](#) mentioned earlier can significantly reduce methane emissions from rice paddies.
- **Biogas Production:** Encouraging the production and use of biogas from organic waste can provide a renewable energy source while mitigating methane emissions from waste decomposition.

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Prelims:

Q1. Which of the following statements is/are correct about the deposits of 'methane hydrate'? (2019)

1. Global warming might trigger the release of methane gas from these deposits.
2. Large deposits of 'methane hydrate' are found in Arctic Tundra and under the sea floor.
3. Methane in the atmosphere oxidises to carbon dioxide after a decade or two.

Select the correct answer using the code given below.

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

Ans: (d)

Mains:

Q. "Access to affordable, reliable, sustainable and modern energy is the sine qua non to achieve Sustainable Development Goals (SDGs)". Comment on the progress made in India in this regard. **(2018)**

Bond Yield

For Prelims: Bond Yield, [State Development Loan \(SDL\)](#), [Reserve Bank of India \(RBI\)](#), [Government Securities \(G-Sec\)](#).

For Mains: Bond Yield, Indian Economy and issues relating to planning.

Source: [TH](#)

Why in News?

Recently, the State governments have **mobilised a record Rs 50,206 crore** through the auction of [State Development Loan \(SDL\) Bonds](#), marking the largest such weekly borrowing ever.

- The funds raised far exceeded the indicative borrowing target of Rs 27,810 crore set for the period, as per [Reserve Bank of India \(RBI\)](#) data. This indicates robust demand for state government securities in the financial markets.
- SDLs are the part of [Government Securities \(G-Sec\)](#), where State Governments raise loans from the **market**. SDLs are dated **securities issued through normal auctions similar to the auctions conducted for dated securities** issued by the Central Government.

What are Bonds?

▪ About:

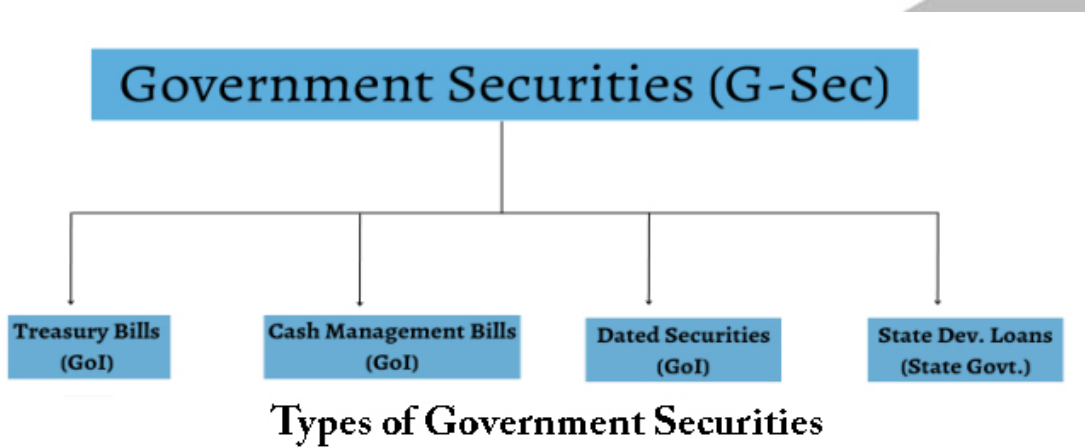
- A bond is an **instrument to borrow money**. It is like an IOU (I owe you).
 - An IOU is a written acknowledgement of debt that one party owes another. IOUs are less formal and legally binding than promissory notes.
- A bond could be **floated/issued by a country's government** or by a company to raise

funds.

- Since [Government Bonds](#) (referred to as **G-secs in India**, Treasury in the US, and Gilts in the UK) come with the **sovereign's guarantee**, they are considered one of the safest investments.

▪ Types of G-Secs:

- **Treasury Bills (T-bills):** Treasury bills are zero coupon securities and pay no interest. Instead, they are issued at a discount and redeemed at the face value at maturity.
- **Cash Management Bills (CMBs):** In 2010, the Government of India, in consultation with RBI introduced a new short-term instrument, known as CMBs, to meet the temporary mismatches in the cash flow of the Government of India.
 - The CMBs have the generic character of T-bills but are issued for maturities of less than 91 days.
- **Dated G-Secs:** Dated G-Secs are securities that carry a fixed or floating coupon rate (interest rate) which is paid on the face value, on a half-yearly basis. Generally, the tenor of dated securities ranges from 5 years to 40 years.
- **State Development Loans (SDLs):** State Governments also raise loans from the market which are called SDLs. SDLs are dated securities issued through normal auctions similar to the auctions conducted for dated securities issued by the Central Government.



▪ Bond Yields:

- The yield of a bond is the **effective rate of return that it earns**. But the rate of return is not fixed — it **changes with the price** of the bond.
- But to understand that, one **must first understand how bonds are structured**.
- Every bond has a **face value and a coupon payment**. There is also the price of the bond, which may or may not **be equal to the face value of the bond**.
- In addition to the face value and coupon payment, bonds also have a **coupon rate**.
 - The coupon rate is the **fixed annual interest rate expressed as a percentage** of the bond's face value.
 - **For Instance**, the face value of a **10-year G-sec is Rs 100**, and its coupon payment is **Rs 5**, and **coupon rate is 5%**.
- Buyers of this bond will give the government Rs 100 (the face value); in return, the government will pay **them Rs 5** (the coupon payment) every year for the **next 10 years**, and will pay back their **Rs 100 at the end of the tenure**.
 - In this case, the bond's yield, or **effective rate of interest**, is 5%. The yield is the **investor's reward for parting with Rs 100 today**, but for staying without it for 10 years.

▪ Yield Curve:

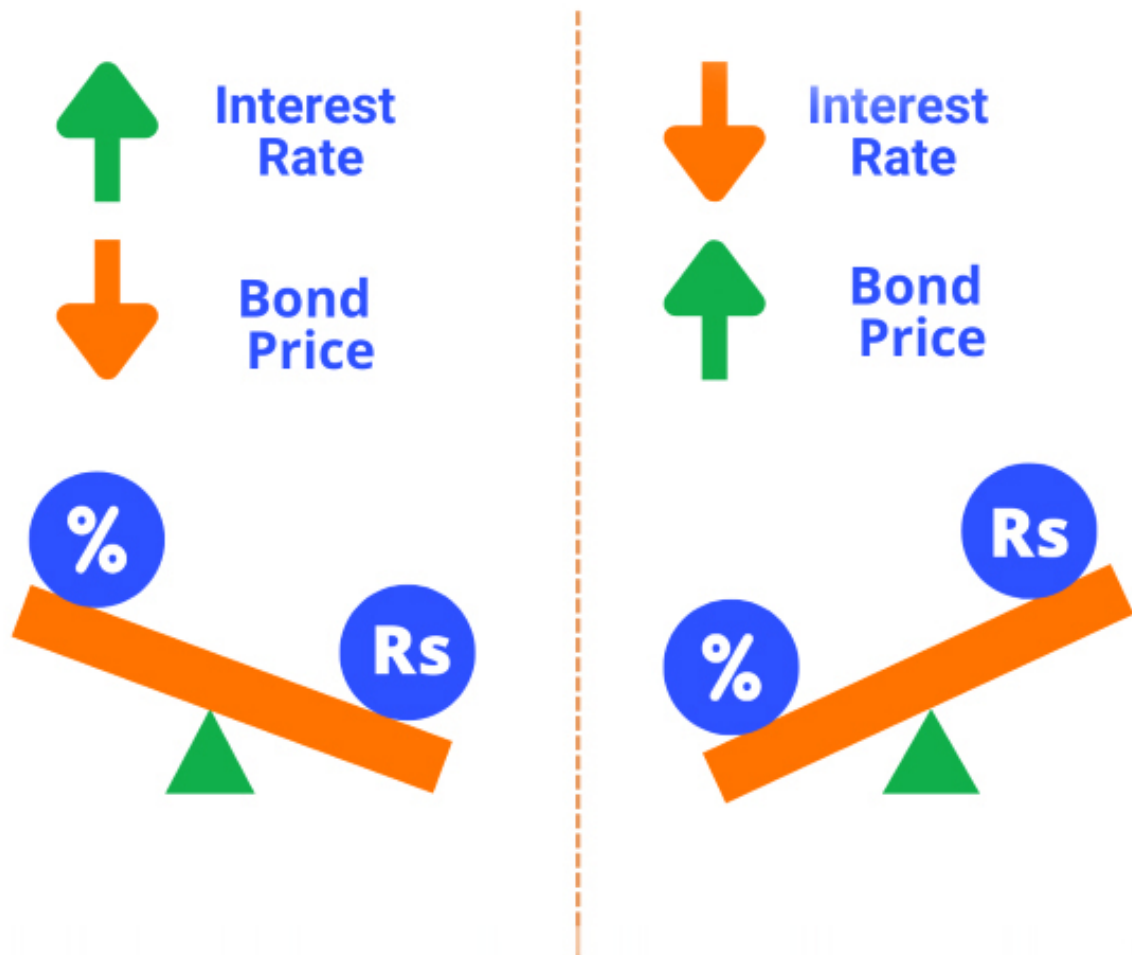
- The Yield Curve is a graphical representation of the **interest rates on debt for a range of maturities**.
- It shows the yield an **investor is expecting to earn if he lends his money for a given period** of time.
- A fixed income Analyst may use the yield curve as a leading economic indicator, especially when it **shifts to an inverted shape**, which signals an economic downturn, as long-term returns **are lower than short-term returns**.

How Does RBI Manage Bond Yield?

- The Reserve Bank of India (RBI) employs [Open Market Operations \(OMOs\)](#) as a pivotal tool to manage bond yields and regulate **monetary conditions within the economy**. Through OMOs, the RBI strategically sells or purchases Government Securities (G-secs) in the open market.
- When the RBI aims to curb excess liquidity and temper inflationary pressures, it sells G-secs, effectively **absorbing liquidity from the market**. Conversely, to stimulate economic activity and bolster liquidity, the RBI buys back G-secs, injecting funds into the system.
 - When the RBI sells G-secs, it puts upward pressure on bond yields, making borrowing costlier and thereby curbing excessive borrowing and spending. Conversely, purchasing G-secs tends to drive bond prices higher, pushing yields lower, which can encourage borrowing and investment.
- In conjunction with OMOs, the RBI employs a suite of **monetary policy tools including the [repo rate](#), [cash reserve ratio](#), and [statutory liquidity ratio](#)**.
 - By strategically deploying these tools, the RBI orchestrates a comprehensive approach to managing bond yields and fostering stable economic conditions conducive to growth and stability.

What are the Factors Influencing the Yield Curve?

- **Market Demand and Bond Prices:**
 - Imagine there's only one bond available, and two buyers want to buy it. They might bid **against each other, driving the bond's price up**.
 - Even though the bond's face value remains the same, say Rs 100, if it's sold for Rs 110, the yield decreases because the **coupon payment remains constant at, say, Rs 5**. So, the yield is effectively calculated based on the price paid for the bond.
- **Alignment with Economy's Interest Rate:**
 - If the interest rate in the economy is different from the bond's **initial coupon payment**, market forces adjust the bond's yield to align with the prevailing interest rate.
 - For example, if the economy's interest rate is **4% and a bond offers a 5% yield**, many investors will rush to buy it for a higher return.
 - This demand drives up the bond's price until its **yield matches the economy's interest rate**.
 - Conversely, if the economy's interest rate is higher than the bond's yield, the bond's **price decreases until its yield matches the prevailing rate**.
 - **Analogy:** If the economy's interest rate is higher than the bond's yield, it's like having a heavier weight on the side of the economy's interest rate. This causes the seesaw to tilt towards the economy's interest rate side, indicating that the bond's yield is lower relative to the interest rate.
 - Conversely, if the **bond's yield is higher than the economy's interest rate**, it's like having a heavier weight on the side of the bond's yield. This tilts the seesaw towards the bond's yield side, indicating that the bond's yield is higher relative to the interest rate.



Relationship between Bond Price and Interest Rates

What will be the Impact of the Hardening of Bond Yield?

- **Losses to Banks and Mutual Funds:**
 - Both banks and mutual funds holding government securities (g-secs) will suffer losses due to the inverse relationship between bond prices and yields. As bond yields rise, bond prices fall, leading to mark-to-market losses for these institutions.
- **Increased Cost of Borrowings:**
 - Higher yields on government securities imply that the government will have to offer higher interest rates on fresh borrowings. This increase in government borrowing costs can have a ripple effect on the entire economy, leading to higher interest rates for corporates and potentially higher lending rates for banks, affecting the cost of borrowing for businesses and individuals.
- **Impact on Corporate Bonds:**
 - Corporates may need to increase interest rates on their bonds to attract investors amid rising bond yields in the market. This could lead to higher borrowing costs for companies, potentially impacting their profitability and investment decisions.
- **Impact on Equity Markets:**
 - As bond yields rise, the opportunity cost of investing in equities increases since fixed-income securities become relatively more attractive compared to stocks. Investors may shift their allocations away from equities towards bonds, leading to a decrease in demand for stocks and potentially resulting in a decline in equity prices.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Q.1 In the context of the Indian economy, non-financial debt includes which of the following? (2020)

1. Housing loans owed by households
2. Amounts outstanding on credit cards
3. Treasury bills

Select the correct answer using the code given below:

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

Ans: (d)

Q.2 Consider the following statements: (2018)

1. The Reserve Bank of India manages and services Government of India Securities but not any State Government Securities.
2. Treasury bills are issued by the Government of India and there are no treasury bills issued by the State Governments.
3. Treasury bills offer are issued at a discount from the par value.

Which of the statements given above is/are correct?

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

Ans: (c)

Q.3 In the context of Indian economy, 'Open Market Operations' refers to (2013)

- (a) borrowing by scheduled banks from the RBI
(b) lending by commercial banks to industry and trade
(c) purchase and sale of government securities by the RBI
(d) None of the above

Ans: (c)

Global E-waste Monitor 2024

For Prelims: The Global E-waste Monitor 2024, [e-waste recycling](#), United Nations Institute for Training and Research (UNITAR), [E-waste \(Management\) Rules, 2016](#), [Extended producer's responsibility \(EPR\)](#).

For Mains: The Global E-waste Monitor 2024, Environmental pollution and degradation, Environmental impact assessment.

Why in News?

Recently, the **United Nations Institute for Training and Research (UNITAR)** has released the **Global E-waste Monitor 2024**, which states that the world's generation of electronic waste is rising five times faster than documented [e-waste recycling](#).

Note

- The UNITAR is a **training arm of the United Nations** that helps governments, organisations, and individuals overcome global challenges.
- UNITAR offers **learning events and solutions**, including workshops, seminars, conferences, public lectures, and online courses. It also provides organisational advisory services, conference and retreat facilitation, and online learning solutions.

What are the Key Highlights of the Global E-waste Monitor 2024 Report?

- **E-waste Generation Trends:**
 - There is a **significant increase in global e-waste generation**, rising from 34 billion (bn) kg in **2010 to 62 bn kg in 2022**.
 - This trend is projected to continue, **reaching 82 bn kg by 2030**.
 - Of this 62 bn kg, only 13.8 bn kg is documented as **'formally collected and recycled in an environmentally sound manner'**.
 - 62 bn kg of e-waste includes 31 bn kg of metals, 17 bn kg of plastics and 14 bn kg of other materials (minerals, glass, composite materials, etc.)
- **Drivers of E-waste Generation:**
 - Factors driving the increase in e-waste generation include **technological progress**, higher consumption rates, limited repair options, short product life cycles, growing electronification, and inadequate e-waste management infrastructure.
- **Informal Recycling Sector:**
 - A significant portion of e-waste (both in high- and upper-middle-income countries as well as low- and lower-middle-income countries) is handled by the **informal sector due to inadequate formal e-waste management** infrastructure.
- **Environmental and Health Impacts:**
 - The improper management of e-waste, including informal recycling practices, leads to the release of hazardous substances such as mercury and plastics containing **brominated flame retardants into the environment**, posing direct and severe impacts on both the environment and public health.
 - A brominated flame retardant is a chemical compound containing bromine that is added to materials to inhibit or suppress the ignition and spread of fires.
 - They work by interfering with the combustion process, **reducing the flammability of materials** and slowing down the rate at which flames spread.
 - A whopping 58,000 kg of mercury and **45 million kg of plastics containing brominated flame** retardants are released into the environment every year.
- **Regional Disparities:**
 - Europe has the highest rate of documented formal collection and recycling of e-waste (42.8%), while Africa **struggles with low recycling rates (<1%)** despite generating lower amounts of e-waste.
 - Asia, including India, generates a **significant portion of global e-waste** but has made limited advances in e-waste management.
 - Countries in Asia generate **almost half of the world's e-waste (30 bn kg)** but relatively few of them have enacted legislation or established clear e-waste collection targets.
- **Per Capita E-waste Generation and Recycling Rates:**
 - Europe (17.6 kg), Oceania (16.1 kg) and the Americas (14.1 kg) generated the highest

amount of e-waste per capita in 2022.

- They also had the **highest documented per capita collection** and recycling rates (7.53 kg per capita in Europe, 6.66 kg per capita in Oceania and 4.2 kg per capita in the Americas).
- This was because their collection and **recycling infrastructure was the most advanced.**

▪ **Recycling Rates by Equipment Type:**

- Collection and recycling rates are highest for heavier and bulkier equipment like **temperature exchange equipment** and screens and monitors.
- Thus, while toys, microwave ovens, vacuum cleaners and e-cigarettes comprise a third (20 bn kg) of the world's e-waste, recycling **rates for them are very low 12% globally.**
 - Small IT and telecommunication equipment — laptops, mobile phones, GPS devices and routers — constitute 5 bn kg of e-waste.
 - But just 22% of this is **documented as formally collected and recycled.**

▪ **Policy Adoption:**

- 81 countries have adopted e-waste policy, legislation or regulation.
- Sixty-seven countries have legal provisions on **Extended Producer Responsibility (EPR) for e-waste.**
- Another 46 have provisions on e-waste collection rate targets. Finally, 36 countries have provisions on e-waste recycling rate targets.

What is an e-Waste?

- Electronic waste (e-waste), is a generic term used to describe **all types of old, end-of-life or discarded electrical and electronic equipment**, such as household appliances, office information and communications equipment etc.
 - E-waste contains numerous toxic chemicals including metals such as lead, cadmium, **mercury, and nickel.**
- India currently ranks **third among the largest generators of e-waste globally**, behind only China and the US.
 - The volume of e-waste in India has witnessed a significant surge to 1.6 million tonnes in 2021-22.
 - The 65 cities in India generate more than 60% of the total generated e-waste, whereas 10 states generate 70% of the total e-waste.

What are the Provisions regarding E-waste Management in India?

- In 2011, a significant notice pertaining to the E-waste (Management and Handling) Regulations of 2010, governed by the Environment (Protection) Act of 1986, was issued.
 - **Extended producer's responsibility (EPR)** was its main feature.
- **E-waste (Management) Rules, 2016** were introduced with over 21 products (Schedule-I) included under the purview of the rule.
 - It included Compact Fluorescent Lamp (CFL) and other mercury containing lamps, as well as other such equipment.
- Government of India notified **E-Waste (Management) Rules, 2022** with a major aim to digitise the e-waste management process and enhance visibility.
 - It also restricts the use of hazardous substances (such as lead, mercury, and cadmium) in manufacturing electrical and electronic equipment that have an adverse impact on human health and the environment.
- A **Deposit Refund Scheme** has also been introduced as an additional economic instrument wherein the producer charges an additional amount as a deposit at the time of sale of the electrical and electronic equipment and returns it to the consumer along with interest when the end-of-life electrical and electronic equipment is returned.

UPSC Civil Services Examination, Previous Year Questions

Prelims:

Q. Due to improper/indiscriminate disposal of old and used computers or their parts, which of the following are released into the environment as e-waste? (2013)

1. Beryllium
2. Cadmium
3. Chromium
4. Heptachlor
5. Mercury
6. Lead
7. Plutonium

Select the correct answer using the codes given below:

- (a) 1, 3, 4, 6 and 7 only
(b) 1, 2, 3, 5 and 6 only
(c) 2, 4, 5 and 7 only
(d) 1, 2, 3, 4, 5, 6 and 7

Ans: (b)

Mains:

Q. What are the impediments in disposing of the huge quantities of discarded solid waste which are continuously being generated? How do we safely remove the toxic wastes that have been accumulating in our habitable environment? (2018)

Refrigerants

[Source: IE](#)

Why in News?

A recent court case in San Diego, US, highlighted the **smuggling of banned refrigerants from Mexico into the US**, shedding light on the environmental repercussions of such illicit activities.

- The refrigerants in question are [hydrofluorocarbons](#) and a form of hydrochlorofluorocarbons, known as **HCFC 22**.

What are Refrigerants?

- **About:** A refrigerant is a chemical substance used in **refrigeration and air conditioning systems**.
 - They work by absorbing heat and transferring it in a cycle to achieve cooling of air or objects.
 - They typically have **low boiling points**, allowing them to evaporate and cool the surrounding environment at relatively low temperatures.
 - **Example:** chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), hydrofluorocarbons (HFCs).

- **HFCs and HCFCs:** In the 1990s, **hydrofluorocarbons (HFCs) and hydrochlorofluorocarbons (HCFCs)** gained popularity as substitutes for **chlorofluorocarbons (CFCs)** in refrigeration and air conditioning systems.
 - This shift came after research in 1985 confirmed that **CFCs were causing abnormally low ozone concentrations** above Antarctica, leading to the ozone hole phenomenon.
 - Refrigerants, including HFCs and HCFCs, are released into the atmosphere primarily when **appliances reach the end of their life** and are disposed of improperly, contributing significantly to environmental pollution.

What Measures have been Taken Globally to Reduce the Usage of Refrigerants?

- The [Vienna Convention for the Protection of the Ozone Layer \(Vienna Convention\)](#) was agreed in 1985. It established global monitoring and reporting on ozone depletion.
 - In 1987, nearly **200 countries** signed the [Montreal Protocol](#) aiming to halt the production and use of [ozone-depleting substances like CFCs](#).
 - India became a signatory to the Montreal Protocol in 1992.
 - The Protocol mandated the **phasing out of CFCs by 1996 and HCFCs by 2030**, with HCFCs acting as a temporary solution due to their lesser impact on the ozone layer.
 - Consequently, HFCs emerged as the primary refrigerant as they do not deplete the ozone layer.
 - However, they were later recognised as **potent greenhouse gasses**.
- The [Climate and Clean Air Coalition \(CCAC\) report](#) highlighted that HFCs contribute significantly to global warming, despite having zero ozone-depleting potential.
 - In 2016, over 150 countries agreed to the [Kigali Amendment under the Montreal Protocol](#) aiming to **reduce HFC consumption by 80-85% by the late 2040s**.
 - **India is also signatory to the Kigali Amendment.**
 - India will complete its phase down of production and consumption of HFCs for controlled uses in 4 steps from 2032 onwards with cumulative reduction of **10% in 2032, 20% in 2037, 30% in 2042 and 85% in 2047**.
 - Successful implementation of the Kigali Amendment could potentially prevent more than 0.4°C of global warming by the year 2100.

Note

- The Vienna Convention and its Montreal Protocol are the first and only global environmental treaties to achieve universal ratification, with **197 parties**.

Fluorochemical	Ozone Depleting Potential	Global Warming Potential
Chlorofluorocarbons (CFCs)	High	High
Hydrochlorofluorocarbons (HCFCs)	Low	High
Hydrofluorocarbons (HFCs)	Zero	High
HydrofluoroOlefin (HFOs)	Zero	Very Low

UPSC Civil Services Examination, Previous Year Question (PYQ)

Q1. Which one of the following is associated with the issue of control and phasing out of the use of ozone depleting substances? (2015)

- Bretton Woods Conference
- Montreal Protocol
- Kyoto Protocol
- Nagoya Protocol

Ans: (b)

Q2. Consider the following statements: (2012)

1. Chlorofluorocarbons, known as ozone-depleting substances, are used
2. in the production of plastic foams
3. in the production of tubeless tyres
4. in cleaning certain electronic components
5. as pressurising agents in aerosol cans

Which of the statements given above is/are correct?

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

Ans: (c)

Captive Elephant (Transfer or Transport) Rules, 2024

[Source: TH](#)

Why in News?

The Ministry of Environment, Forest, and Climate Change (MoEF&CC) has notified the **Captive Elephant (Transfer or Transport) Rules, 2024**, which liberalises the conditions for transferring [elephants](#) within or between states.


What are the Captive Elephant (Transfer or Transport) Rules, 2024?

- **Circumstances for Transfer of Captive Elephants:** Transfer may occur when:
 - The **owner is no longer capable** of adequately maintaining the elephant's welfare.
 - If it's determined that the **elephant will receive better care in the new circumstances** compared to its current situation.
 - The **Chief Wildlife Warden may deem it necessary** for the elephant's better upkeep based on the specific circumstances of the case.
- **Procedure Within the State:**
 - Before a transfer within a state, the **elephant's health must be confirmed** by a veterinarian.
 - The **suitability** of both the current and prospective habitats must be verified by the **Deputy Conservator of Forests**.
 - Approval or rejection of the transfer is at the discretion of the **Chief Wildlife Warden** based on these assessments.
- **Procedure Outside the State:**
 - Similar conditions apply for transferring elephants outside a state.
 - Additionally, the [elephant's genetic profile](#) **must be registered** with the MoEF&CC before the transfer.
- **Requirements for Elephant Transfer:**
 - The elephant must be accompanied by a **mahout and an elephant assistant**.
 - A health certificate from a veterinary practitioner confirming fitness for transport is mandatory.

- Transport should occur after the quarantine period, if required for contagious diseases, is completed.
- Proper feeding and watering arrangements must be made during transport.
- Tranquillisers/sedatives shall be used to control nervous or temperamental elephants upon prescription by the veterinary practitioner.

Note

- Until August 2022, the Wildlife Protection Act 1972 explicitly **prohibited the trade in wildlife including both wild and captive elephants**.
- The Captive Elephant (Transfer or Transport) Rules, 2024 stem from **amendments to the [Wildlife Protection Act in 2022](#)** exempting captive elephants from the prohibition on wildlife trade.
 - A Parliamentary Committee, recommended the deletion of this exemption clause for elephants and providing **only an exemption for elephants owned by temple trusts** and argued that a “careful balance” between traditions and conservation was needed.
 - Despite recommendations to delete this exemption, the final amended act retains it, **allowing transfers only for elephants with an existing certificate of ownership**.



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ELEPHANT

4 Main Species of Elephant

Species	Found in	IUCN Red List Status	Habitat
Indian	Asia	EN (CITES - Appendix I, WPA - Schedule I)	Subtropical broadleaf forest, tropical broadleaf moist forest, dry forest, grassland
Sumatran	Asia	CR	Broadleaf moist tropical forests
Savanna (Bush)	Africa	EN	All sub-Saharan Africa except for Central Africa's dense tropical forest
Forest	Africa	CR	Dense Tropical Forests

Indian Elephant (*Elephas maximus*)

Largest Land Mammal on Asian Continent
National Heritage Animal of India

- **Top 5 Indian States by Maximum Elephant Population:**
(As per elephant census 2017)
- Karnataka > Assam > Kerala > Tamil Nadu > Odisha
- **Social Structure:**
- Female elephants are more social than males; form herd (generally 5-7)
- Led by the oldest female, the 'matriarch'
- Males usually live alone

- **Threats:**
- Habitat Fragmentation
- Poaching for Ivory
- Human-Elephant Conflict
- Mistreatment in Captivity
- **Conservation Efforts:**
- Gaj Soochna App (2022)
- Gaj Yatra (2017)
- Hathi Mere Sathi campaign (2011)
- National Elephant Corridor project (2005)
- Monitoring the Illegal Killing of Elephants (MIKE) Programme (2003)
- Project Elephant (1992)

UPSC Civil Services Examination Previous Year Question (PYQ)

Q. With reference to Indian elephants, consider the following statements: (2020)

1. The leader of an elephant group is a female.
2. The maximum gestation period can be 22 months.
3. An elephant can normally go on calving till the age of 40 years only.
4. Among the States in India, the highest elephant population is in Kerala.

Which of the statements given above is/are correct?

(a) 1 and 2 only

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

Ans: (a)

Supreme Court Warns Patanjali Ayurved on Misleading Claims

Source: [IE](#)

The [Supreme Court in India](#) has warned Patanjali Ayurved, a popular Ayurvedic products company, against making false claims in their [advertisements](#) about curing diseases.

- The [Drugs and Magic Remedies \(Objectionable Advertisements\) Act, 1954](#), regulates drug advertisements and bans promotions of certain magic remedies.
- It prohibits ads that **falsely represent a drug's nature or effectiveness** and those promoting drugs for specific diseases listed in the Act.
- Additionally, it prohibits advertising magic remedies claiming to treat the same diseases.
 - The Act defines "magic remedy" to include **talismans, mantras, kavachas (amulets)**, and any other similar items that claim supernatural or magical properties for curing ailments.

Read more: [Guidelines to Curb Unfair Advertisements](#)

Paytm Gets Third-party Licence from NPCI

Source: [TOI](#)

The [National Payments Corporation of India](#) has recently granted approval to Paytm-owner One97 Communications Ltd to participate in [Unified Payments Interface \(UPI\)](#) as a **Third-Party Application Provider (TPAP)** under the multi-bank model.

- Axis Bank, HDFC Bank, State Bank of India, and YES Bank will act as Payment System Provider (PSP) banks to Paytm.
 - Previously, Paytm operated through its own [payments bank licence](#). However, due to regulatory non-compliance, **RBI imposed several restrictions on [Paytm Payments Bank](#)**.
- TPAPs are entities facilitating UPI payments by connecting customers and merchants through applications or platforms.
 - They serve as intermediaries, ensuring seamless transactions and play a vital role in the UPI ecosystem, handling millions of transactions daily.
- NPCI, formed as a collaboration between the **RBI and [Indian Banks' Association \(IBA\)](#)** under the [Payment and Settlement Systems Act, 2007](#) operates as a not-for-profit entity to enhance India's payment and settlement infrastructure.
 - It aims to provide both physical and electronic payment solutions to the banking sector, leveraging technology to drive operational efficiency and expand payment system accessibility.

World Young Rheumatic Disease Day

[Source: TH](#)

World Young Rheumatic Disease Day (WORD Day) (18th March) underscores the importance of early detection and awareness regarding [rheumatic diseases](#) among young individuals.

- Rheumatic disease is an umbrella term that refers to **arthritis** and several other conditions that affect the joints, tendons, muscles, ligaments, bones, and muscles
 - The most prevalent paediatric rheumatic disorder, **Juvenile Idiopathic Arthritis (JIA)** encompasses various inflammatory arthritis subtypes, posing a significant health challenge among children worldwide.
- JIA's global prevalence ranges from **0.07 to 4 per 1,000 children**, with varying distribution patterns across different regions.
 - Children with JIA commonly experience joint pain, swelling, and functional limitations, particularly noticeable in the morning or after periods of rest.
 - JIA can affect different joints, causing diverse functional limitations such as impaired mobility and difficulty with activities like writing and eating, depending on the subtype.
- Therapeutic options for JIA include steroids, **disease-modifying antirheumatic drugs (DMARDs)**, and newer biologic drugs, aimed at modulating the immune system and managing symptoms.
- Challenges include **limited awareness and delayed diagnosis**, highlighting the need for enhanced community awareness and streamlined referral mechanisms.
 - Early intervention is crucial in managing JIA, with studies emphasising the importance of timely referrals to paediatric rheumatologists for best outcomes.

Read More: [Penicillin Revival to Fight Rheumatic Fever](#)

Planetary Instability in Twin Star Systems

[Source: IE](#)

The stability and dynamics of planetary systems have long captivated astronomers, with a recent study shedding light on the **intriguing interactions within twin star systems**.

- This study, published in the *journal Nature*, was conducted by Monash University in Australia, investigates the potential for planetary instability and the process of **planetary ingestion (star engulfs a planet)** within these celestial configurations.
- The study focused on 91 pairs of stars referred to as "**twins**", which share identical chemical makeup and are of similar mass and age, originating from the same interstellar cloud also known as **co-natal stars**.
 - Despite their similarities, these **twin stars are not gravitationally bound binary systems**.
- When a **star engulfs a planet, its chemical composition changes**, allowing researchers to identify stars with elevated levels of specific elements as remnants of rocky planets.
 - Surprisingly, a significant number of these **twin star systems exhibited signs of having**

ingested planets, resulting in alterations to their chemical compositions.

- The study indicates that planetary instability may be more prevalent than previously assumed, with **approximately 8% of observed pairs** displaying signs of planet ingestion.
 - This research **challenges the conventional understanding of planetary system stability**, revealing that a notable fraction of studied stellar pairs included one star that had consumed a planet.

Read more: [Star Engulfing Jupiter-Sized Planet](#)

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