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Current Affairs - 09 October 2025

PM-KUSUM SCHEME



- It was **launched in 2019** with the objective to provide **energy and water security** to farmers, enhance their income, de-dieselize the farm sector, and reduce environmental pollution.
- **Target:** To add Solar capacity of about **34,800 MW** by **March 2026**.
- **Nodal Ministry:** Ministry of New and Renewable Energy (MNRE).
- **The eligible categories for KUSUM Scheme are:**
 - An individual farmer.
 - A group of farmers.
 - FPO
 - Co-operatives.
 - Water User Associations.
- **Components of PM-KUSUM Scheme:**
 - **Component A:** Setting up of **10,000 MW** of Decentralized Grid Connected Renewable Energy Power Plants on barren land.
 - Under this component, renewable energy based power plants (REPP) of **capacity 500 kW to 2 MW** will be setup by individual farmers/ group of farmers/ cooperatives/ panchayats/ Farmer Producer Organisations (FPO)/ on barren/fallow land.
 - The power generated will be **purchased by the local DISCOM** at a **pre-fixed tariff** determined by the respective State Electricity Regulatory Commission (SERC).
 - The renewable energy power project will be installed **within a five km radius of the sub-stations**.
 - **Component B:** Installation of **20 lakhs** of standalone **Solar Powered Agriculture Pumps**.



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- Individual farmers will be supported to install standalone solar Agriculture pumps of capacity **up to 7.5 HP** for the replacement of existing diesel Agriculture pumps / irrigation systems in off-grid areas, where grid supply is not available.
- **Component C:** For Solarisation of 15 Lakh Grid Connected Agriculture Pumps.
 - Under this Component, individual farmers having grid connected agriculture pumps will be supported to **solarise pumps**.

PLUTONIUM MANAGEMENT AND DISPOSITION AGREEMENT (PMDA)



- It is an **agreement between the United States and Russia signed in 2000**.
- It came into force in 2011.
- It aimed at **reducing vast stockpiles of weapons-grade plutonium left over from thousands of Cold War nuclear warheads**.
 - After dismantling thousands of warheads after the Cold War, both Moscow and Washington were left with huge stockpiles of weapons-grade plutonium which was costly to store and posed a potential proliferation risk.
- The aim of the PMDA was to **dispose of the weapons-grade plutonium, by converting it into safer forms** - such as mixed oxide (MOX) fuel or by irradiating plutonium in fast-neutron reactors for electricity production.
- It committed both the United States and Russia to **dispose of at least 34 tonnes of weapons-grade plutonium each**.
- **Russia in 2016 suspended implementation of the agreement**, citing U.S. sanctions and what it cast as unfriendly actions against Russia, NATO enlargement, and changes to the way the United States was disposing of its plutonium.
 - Russia said at the time that the United States had not abided by the agreement after Washington moved, without Russian approval, to simply dilute the plutonium and dispose of it.



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INCOME TAX APPELLATE TRIBUNAL



- It is a **quasi-judicial institution** set up in **January, 1941** and specializes in dealing with appeals under the **Direct Taxes Acts**.
- It was started in 1941 with six Members constituting three Benches – one each at **Delhi, Kolkata (Calcutta), and Mumbai (Bombay)**.
- Presently ITAT has 63 Benches at 27 different cities, covering almost all the cities having a seat of the High Court.
- **Nodal Ministry:** It functions under the **Ministry of Law and Justice**.
- **Composition of Income Tax Appellate Tribunal**
 - The **President of the ITAT** constitutes a **bench** from among the members of the ITAT.
 - Each bench has an **accountant member** and a **judicial member**.
 - In some cases, a special bench with three or more members may be constituted to dispose of income tax appeals.
- **Functions of Income Tax Appellate Tribunal:**
 - It hears appeals concerning orders passed by the **income-tax authorities**.
 - It adjudicates appeals made **under the Income Tax Act of 1961**.
 - ITAT serves as the **final fact-finding** body in tax disputes, offering both taxpayers and the income tax authorities a convenient platform to resolve disputes.
 - It is the second forum to hear income-tax appeals after the Commissioner of Income-tax (Appeals)
 - ITAT functions under the **regional High Court's jurisdiction** and must adhere to the rules of the same.
 - ITAT is subordinate to both the region's High Court and the Indian Supreme Court.



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- **Who can file an appeal in ITAT?**
 - A tax appeal can be filed by a taxpayer who does not agree with the assessment order or any other order, passed by an income-tax authority.
 - An appeal before the ITAT is generally filed by the taxpayer to contest any order passed by the **Commissioner of Income-tax (Appeals)**.
 - Similarly, an **income-tax department can also file** an appeal against any order passed by the Commissioner of Income-tax (Appeals) before the ITAT.
 - The orders passed by the ITAT are final. An appeal lies to the High Court only if a substantial question of law arises for determination.

FOREIGN CURRENCY SETTLEMENT SYSTEM



- It is established under a comprehensive legal and regulatory framework of the **Payment and Settlement Systems Act, 2007**.
- It is authorised by **International Financial Services Centres Authority (IFSCA)**.

Key Features

- It enables **foreign currency transactions** between **IFSC Banking Units (IBUs)** to be settled locally instead of routing through the traditional correspondent banking route.
- It provides a **structured framework** for the settlement of **foreign currency transactions**, enabling market participants to process cross-border payments with greater speed, reliability, and legal certainty.
- Initially, the system will **support US dollar transactions**, with scope to add other foreign currencies over time.
- It is operated by the **CCIL IFSC Limited (CCIL IFSC)**, a subsidiary of **Clearing Corporation of India Limited**.
 - That chain of relay can lead to settlement lags of **36 to 48 hours**.



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What is the International Financial Services Centres Authority?

- It is a **statutory authority** established under the **International Financial Services Centres Authority Act, 2019**.
 - The IFSCA is a unified authority for the **development and regulation of financial products**, financial services, and financial institutions in the International Financial Services Centre (IFSC) in India.
 - The IFSCA aims to develop a **strong global connection** and focus on the needs of the Indian economy as well as to serve as an international financial platform for the entire region.
 - **Headquarter:** GIFT City, Gandhinagar, in Gujarat.
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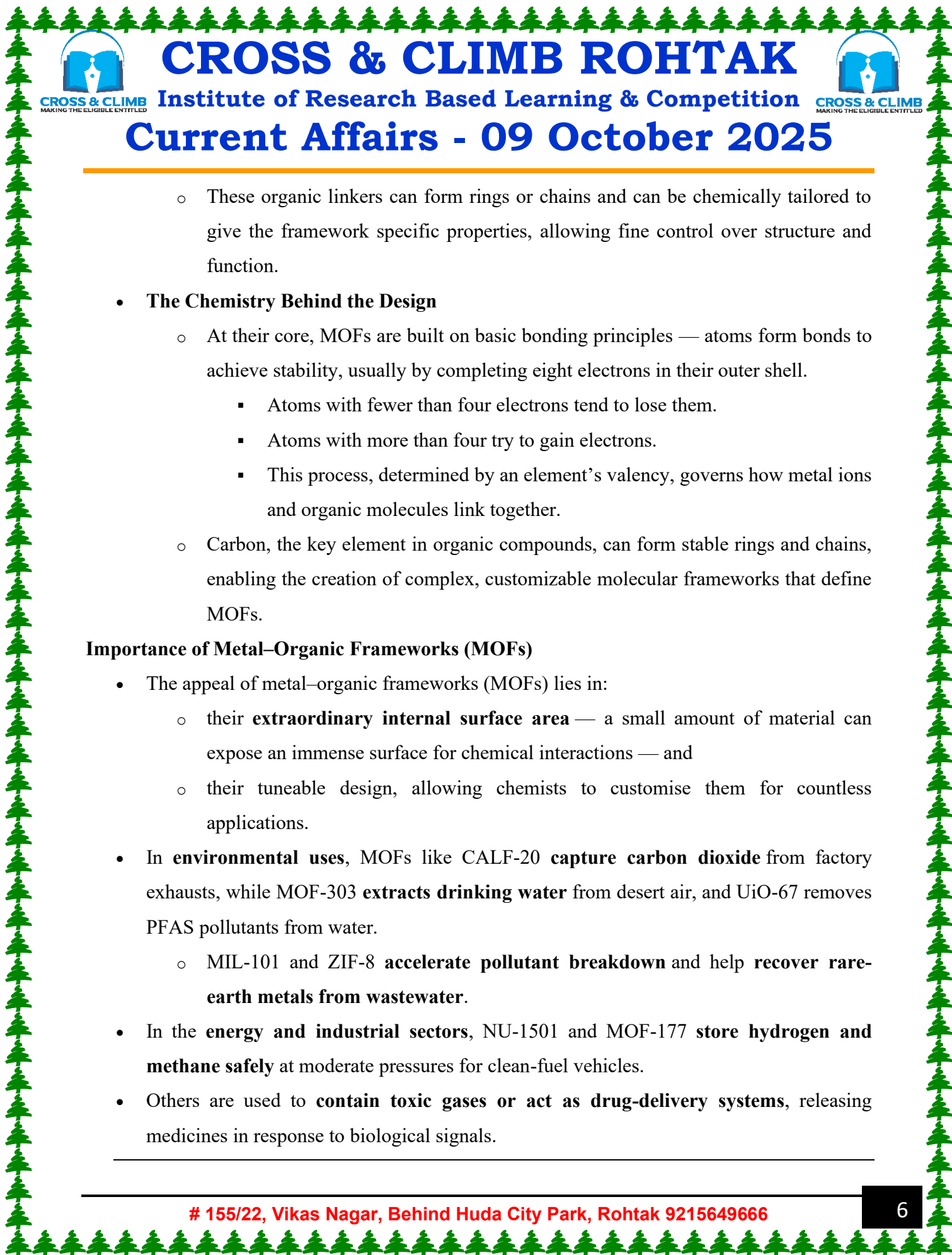
THE 2025 CHEMISTRY NOBEL HONOURS METAL–ORGANIC FRAMEWORKS

The **2025 Nobel Prize in Chemistry** was awarded to **Susumu Kitagawa, Richard Robson, and Omar Yaghi** for developing **metal–organic frameworks (MOFs)** — intricate molecular structures with vast internal spaces that can host, store, or react with other molecules.

Their breakthrough transformed chemistry from merely creating individual molecules to designing **three-dimensional frameworks**, opening new possibilities in **catalysis, gas storage, and material science**.

About Metal–Organic Frameworks (MOFs)

- **Metal–Organic Frameworks (MOFs)** are **three-dimensional networks** made of **metal ions** linked by **organic molecules**.
- These structures contain **large, porous cavities** through which gases and liquids can flow, making them extremely adaptable for diverse applications such as gas storage, filtration, and catalysis.
- **How MOFs Are Built?**
 - In a MOF, metal ions act as anchors or joints in a scaffold, while organic molecules serve as flexible linkers connecting them.



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- These organic linkers can form rings or chains and can be chemically tailored to give the framework specific properties, allowing fine control over structure and function.
- **The Chemistry Behind the Design**
 - At their core, MOFs are built on basic bonding principles — atoms form bonds to achieve stability, usually by completing eight electrons in their outer shell.
 - Atoms with fewer than four electrons tend to lose them.
 - Atoms with more than four try to gain electrons.
 - This process, determined by an element's valency, governs how metal ions and organic molecules link together.
 - Carbon, the key element in organic compounds, can form stable rings and chains, enabling the creation of complex, customizable molecular frameworks that define MOFs.

Importance of Metal–Organic Frameworks (MOFs)

- The appeal of metal–organic frameworks (MOFs) lies in:
 - their **extraordinary internal surface area** — a small amount of material can expose an immense surface for chemical interactions — and
 - their tuneable design, allowing chemists to customise them for countless applications.
 - In **environmental uses**, MOFs like CALF-20 **capture carbon dioxide** from factory exhausts, while MOF-303 **extracts drinking water** from desert air, and UiO-67 removes PFAS pollutants from water.
 - MIL-101 and ZIF-8 **accelerate pollutant breakdown** and help **recover rare-earth metals from wastewater**.
 - In the **energy and industrial sectors**, NU-1501 and MOF-177 **store hydrogen and methane safely** at moderate pressures for clean-fuel vehicles.
 - Others are used to **contain toxic gases or act as drug-delivery systems**, releasing medicines in response to biological signals.
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COMBATING COUNTERFEIT MEDICINES - INTEGRATING LAW, FORENSICS AND ENFORCEMENT

- India, known as the “**pharmacy of the world,**” faces a **grave crisis** from the proliferation of **counterfeit and substandard medicines**, threatening both public health and national credibility.
- Recent **deaths caused by adulterated cough syrups** expose deep **systemic failures** in India’s drug regulation and law enforcement systems.

The Counterfeit Drug Crisis in India:

- The **counterfeit medicines or fake drugs** are increasingly infiltrating the pharmaceutical supply chain.
- **The conviction rate** for counterfeit drug cases in India is a **mere 5.9%**, and after procedural adjustments, the effective conviction rate rarely exceeds 3%.
- **Weak enforcement** under the **Drugs and Cosmetics Act (D&C Act), 1940**, which lacks provisions suited to handle modern transnational pharmaceutical crimes.
- **Absence of data analytics**, forensic mapping, and inter-agency coordination enables counterfeiters to operate with impunity.

Leveraging the Bharatiya Nyaya Sanhita (BNS), 2023:

- The **BNS provides avenues for police investigation** under general criminal laws -
 - Section 318 – Cheating
 - Sections 336–338 – Forgery and falsification of records
- **These can be invoked in counterfeit drug cases** involving consumer deception and fake documentation.
- **Successful examples** include Meerut, Agra, Delhi, and Dehradun, where police-IPA collaboration led to dual investigations.
- **The Delhi High Court upheld this dual approach**, recognising concurrent application of regulatory and criminal laws.



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Expanding the Enforcement Framework:

- **Economic and organised crime dimensions:** Counterfeit medicine rackets involve money laundering, tax evasion, and organised syndicates.
- **Enforcement framework:**
 - **Agencies** like the Enforcement Directorate (ED), Income Tax Department, and GST authorities must target the financial networks sustaining counterfeit operations.
 - **The PMLA** can be invoked to track and freeze assets derived from counterfeit drug trade.

Forensic Science as a Pillar of Prosecution:

- **Transition from mere seizures** to scientific evidence collection is essential.
- **Use of chemical analysis**, toxicology, packaging forensics, ink and digital footprint analysis, and Call Detail Records (CDR) enhances the evidence chain.
- **Strengthening Forensic Science Laboratories (FSLs)** and the National Forensic Sciences University (NFSU) will boost capacity, certification, and expert testimony.

Institutional Mechanisms and Legal Provisions:

- **Section 111 of BNS:** It allows declaring large-scale counterfeit drug operations as organised criminal enterprises.
- **Formation of Special Investigation Teams (SITs):** It involves police, Drug Control Department, ED, and forensic experts who can ensure a coordinated response.

Way Forward:

- **Amend the D&C Act (1940):** To allow joint jurisdiction of Drug Control Officers and police.
- **Establish national and state-level SITs:** For counterfeit drug investigations.
- **Mandate forensic analysis:** In all major counterfeit drug cases.
- **Empower financial probes:** Through ED, Income Tax, and GST departments.
- **Institutionalise inter-agency training:** And build forensic awareness among investigators.



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KEY FACTS ABOUT DAMODAR RIVER



- The Damodar River flows through the states of **Jharkhand and West Bengal**.
- Located in the eastern part of the Indian subcontinent, it is an important **part of the Ganges River System**.
- The river is also known as the "**Sorrow of Bengal**" because of its **devastating floods in the plains of West Bengal**.
- **Course:**
 - It **originates** from the **Palamau hills of Chota Nagpur in Jharkhand**.
 - From its source, the river flows in a southeastern direction, passing through the **Chota Nagpur Plateau**, a region known for its **rich mineral deposits**.
 - In its **lower course**, it **flows through West Bengal's plains** and is joined by several tributaries.
 - Finally, the Damodar River **meets the Hooghly River** at Shayampur, which is 48 km from Kolkata.
- **Total Length: 592 km**
- The basin has a total catchment area of 25,820 sq.km.
- The Damodar River has **several tributaries**, including:
 - Barakar River, Konar River, Jamunia River, Bokaro River, Sali River, Ghari River, Guaia River, Khadia River, Bhera River
- Damodar Valley Project:
 - It is a significant river valley project in Eastern India, implemented to supply **hydroelectric power to West Bengal and Bihar**, as well as to **prevent floods**
 - The project is **operated by the Damodar Valley Corporation (DVC)**, an **undertaking of the Indian Government** established in July 1948.
 - It is situated **on the Konar River** in the district of Hazaribagh in **Jharkhand**.