



24 January, 2024

Crop Residue Management (CRM) Operational Guidelines 2023-24

Context: India released Crop Residue Management (CRM) guidelines for 2023-24 in July, covering Uttar Pradesh, Haryana, Punjab, Madhya Pradesh, and Delhi.

Objectives of CRM Guidelines:

- The main objectives of the Crop Residue Management (CRM) guidelines are to reduce pollution caused by stubble burning and to promote industry-farmer participation in the agri-residue supply chain, specifically for bioenergy support.
- The guidelines emphasize the environmental impact of burning paddy straw, citing the release of 3 kg particulate matter, 60 kg CO, 1,460 kg CO₂, 199 kg ash, and 2 kg SO₂ per tonne of paddy straw.

Implementation Mechanism:

- The guidelines propose the establishment of an agri-residue biomass supply chain connecting farmers to the bioenergy industry.
- Machinery required for biomass aggregation, including tractors, balers, and rakers, would receive 65% government investment, 25% industry contribution, and 10% from farmers or farmer-producer organizations (FPOs).
- The indicative expenditure for setting up the paddy straw supply chain machinery is provided in the guidelines.

- Regulatory Bodies:** The Department of Agriculture & Farmers Welfare (DA&FW) and State Agricultural Departments are designated as the central regulatory bodies overseeing the CRM initiative.

- Targets and Financial Assistance:** The scheme aims to collect 1.5 million tonnes of paddy straw over the next three years, establishing 333 collection centres with a total financial assistance of Rs 600 crore.

Benefits to Farmers and Industry:

- Farmers gain an additional source of income, while the industry secures a reliable supply of feedstock.
- Collaboration between farmers and the industry is encouraged, leading to mutual financial benefits.
- The initiative contributes to the production of green energy, creating a win-win situation.

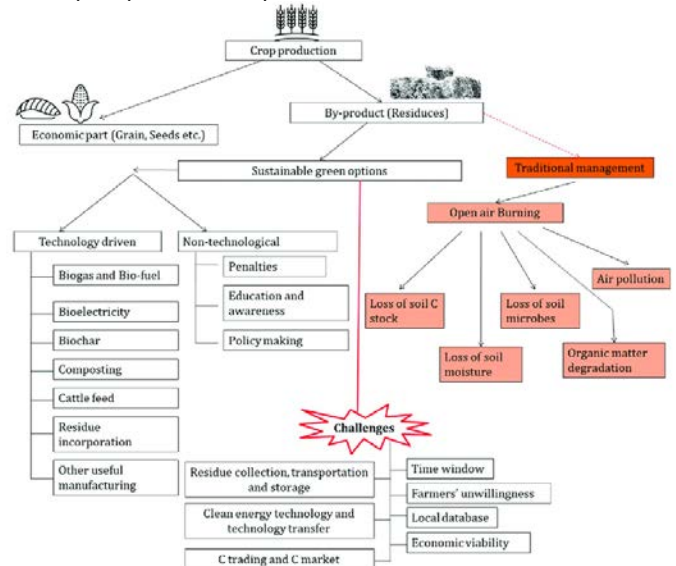
Challenges and Clarifications Needed:

- The lack of a specified timeline for implementation poses a challenge.
- Unclear details regarding the fund transfer process to equipment suppliers create ambiguity.
- Farmers are tasked with independently identifying and bargaining with the industry.
- The guidelines do not clearly define the utilization and revenue-sharing model for machinery in use three months out of 12.

Comparison with CRM 2020-21:

- The inclusion of Madhya Pradesh in the 2023-24 guidelines expands the scope.
- Active industry participation with a 25% capital contribution is a notable change.

- Funding is divided on a 60:40 public-private partnership (PPP) basis, except for NCT of Delhi.



- Farmers are actively involved in capital arrangement and bargaining with the industry, in contrast to the fully funded model in 2020-21.

Positive Developments:

- The 2023-24 guidelines shift the focus to the bioenergy industry.
- Decentralization facilitates decision-making at the state and nodal agency levels.
- Active farmer involvement as shareholders in the bioenergy ecosystem is encouraged.
- Despite implementation challenges, the initiative is seen as a positive step towards bioenergy adoption in India.

End-to-end Encryption

Context: In the previous month, Meta initiated the gradual implementation of default end-to-end encryption for Messenger, its messaging platform with over one billion members, which was separated from Facebook.

Encryption:

- Information is considered valuable, and encryption is a crucial method to safeguard it.
- End-to-end (E2E) encryption, in particular, has transformed the perspectives of human rights organizations, law enforcement, and technology companies regarding access and use of individuals' information for protection, prosecution, or profit.
- Encryption serves as a fundamental tool in protecting digital assets and ensuring privacy in the digital age.

Fundamentals of Encryption:

- Encryption involves transforming consumable information into an unconsumable form based on specific rules.
- Various encryption rules exist, with Data Encryption Standard (DES) as an example.

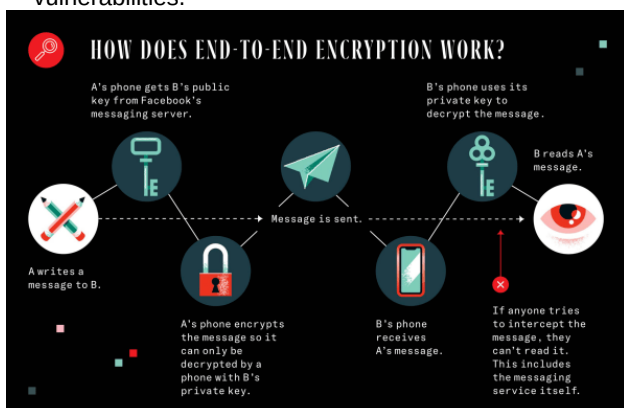
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- The process of encryption is a key aspect of securing sensitive data, preventing unauthorized access.
- **Understanding Encryption:**
 - Encryption uses keys to lock (encrypt) and unlock (decrypt) information.
 - Symmetric encryption involves using the same key for encryption and decryption, while asymmetric encryption uses different keys.
 - The choice between symmetric and asymmetric encryption depends on the security requirements and use case of the data.
- **Types of Encryption:**
 - Symmetric encryption examples include DES and Advanced Encryption Standard (AES).
 - Asymmetric encryption involves public and private key pairs, ensuring secure communication between different entities.
 - The implementation of encryption algorithms varies based on factors such as security level and the type of data being protected.
- **Hash Functions in Encryption:**
 - Hash functions encrypt messages and possess specific properties, including producing unique digests for unique messages.
 - The Data Encryption Standard (DES) algorithm uses a hash function called the Feistel function.
 - Hash functions play a critical role in ensuring the integrity and security of encrypted messages.
- **E2E Encryption and Its Mechanism:**
 - E2E encryption occurs between specific locations through which information moves.
 - Messages are encrypted both in transit and at rest, ensuring decryption only happens when the recipient receives the message.
 - E2E encryption is a key element in securing digital communications and preventing unauthorized interception.
- **Security and Potential Threats:**
 - Man-in-the-middle (MITM) attacks pose a threat to E2E encryption, where an attacker intercepts messages by obtaining encryption and decryption keys.
 - Fingerprint verification can prevent MITM attacks by ensuring secure key exchange.
 - Regular security measures, such as updating encryption protocols, are essential to address emerging threats and vulnerabilities.



- **Challenges and Limitations of E2E Encryption:**
 - E2E encryption may lead to user complacency regarding the security of transmitted content.
 - Malware can infiltrate devices and access messages before encryption.
 - Backdoors or exceptions installed by companies can compromise E2E encryption, as seen in the Edward Snowden revelations.
 - Balancing user convenience and security is an ongoing challenge in the implementation of E2E encryption.
- **Legislation and Illegal Use:**
 - Companies may be required by law to install backdoors for surveillance purposes.
 - Instances of illegal use, such as Skype's backdoor installation revealed by Edward Snowden, highlight the potential for misuse.
 - The tension between privacy rights and the need for surveillance capabilities remains a complex legal and ethical challenge.
- **Metadata and Surveillance:**
 - Access to message metadata, even with E2E encryption, can be exploited for surveillance purposes.
 - Surveillance goals may focus on gathering information about message timing, frequency, users involved, and locations.
 - Addressing privacy concerns requires a comprehensive approach, considering both message content and associated metadata.

Remission of Duties and Taxes on Exported Products (RoDTEP) scheme

Context: The Indian government will not reconsider its RoDTEP scheme despite countervailing duties imposed by the US and EU last year for alleged WTO norm breaches.

- **US and EU Countervailing Duties:**
 - Countervailing duties (CVDs) were imposed by the US and EU on specific Indian products, including paper file folders, common alloy aluminum sheet, and forged steel fluid.
 - CVDs are tariffs implemented to offset subsidies provided by the exporting country's government, aimed at safeguarding domestic industries.
- **Documentation Challenges and Compliance:**
 - Exporters facing CVD investigations need to demonstrate that the benefits received are a remission, not an incentive, during US investigators' visits to manufacturing plants.
 - Exporters must show payment of electricity bills and value-added tax (VAT), but challenges exist in maintaining necessary documents.
- **Government's Response and WTO Compliance:**
 - The government official stated there is no intention to reconsider the RoDTEP scheme, asserting its compliance with World Trade Organization (WTO) norms.
 - Some exporters struggled to showcase required documents, prompting efforts to familiarize them with the documentation process.

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- The RoDTEP scheme, introduced in January 2021, replaces the WTO-incompatible Merchandise Exports from India Scheme (MEIS) and aims to refund embedded duties and taxes.
- **RoDTEP Operational Framework:**
 - The RoDTEP scheme operates within a budgetary framework, with Rs 15,070 crore allocated for FY 23-24 to boost exports of various items, including pharmaceuticals and articles of iron and steel.
 - The scheme targets the refund of embedded duties such as VAT on fuel, mandi tax, and duty on electricity.
- **Challenges and Market Access:**
 - The need for market access requires resolving issues with partner countries that may struggle to interpret Indian policies.
 - Transparency and predictability are crucial in WTO compliance, emphasizing the government's responsibility to ensure effective implementation.
- **Significance of Implementation and Oversight:**
 - Implementation of the RoDTEP scheme gains significance as scrutiny from other countries is likely after the imposition of countervailing duties by the US and EU.
 - The scheme's WTO compatibility should be coupled with effective oversight and constant reviews to address industry concerns and maintain compliance.
 - Oversight is crucial to avoid jeopardizing the entire scheme due to the actions of a few non-compliant entities.

➤ Industry Concerns and Government's Careful Approach:

- Industry concerns include low rates within the scheme, emphasizing the need for constant reviews and monitoring.
- The government must ensure careful implementation to safeguard against potential losses, especially when facing declining exports.

RoSTCL	MEIS	RoDTEP
The term RoSTCL stands for Rebate of State and Central Levies and Taxes Scheme.	MEIS is an acronym for Merchandise Exports from India Scheme.	RoDTEP stands for Remission of Duties and Taxes on Exported Products.
RoSTCL is a scheme that provides incentives in the form of credit scrips to the exporters based on the Freight on Board (FOB) value.	Under the MEIS scheme, the government provided incentives for the export of goods.	Under the RoDTEP, the government provides a rebate on the taxes levied during the manufacturing process of export goods.
RoSTCL is compliant with the trade norms of the WTO and was introduced when countries like the USA objected to India's incentives to exporters under MEIS.	MEIS was not compliant with the trade norms set up by the WTO and hence was replaced by RoDTEP.	RoDTEP is compliant with the trade norms set up by the WTO.
The incentives provided are based on the FOB value, with the government providing additional incentives up to 1% of FOB to sectors that can no longer claim incentives under MEIS.	The incentives provided were about 2%- 5% of the total FOB value.	The rebate is a percentage of the total value which will be notified at a later date.
Rebates under the scheme are issued by the Directorate General of Foreign Trade (DGFT) in the form of electronic duty credit scrips similar to those issued under the MEIS.	Incentives were issued in the form of transferable scrips which were available in hard copies and also for download.	Rebates will be issued in the form of digital credit scrips which are stored on an electronic ledger.

NEWS IN BETWEEN THE LINES

Kangla Fort



Recently, the Radical Meitei group Arambai Tenggol summoned Meitei MLAs in Manipur for a meeting at Imphal's Kangla Fort.

About the Kangla Fort:

- The Kangla Fort is a **symbol of Manipur's greatness** and was the historic capital of the state, located on the dried-up western bank of the Imphal river.
- The word "**Kangla**" means "**dry ground**" in Manipuri.
- It served as the traditional seat of the **Meitei dynasty** rulers of Manipur until **1891**.
- The **Govindajee Temple**, the **largest Hindu Vaishnav** temple in Imphal, is situated next to Kangla Fort.
- The fort is a **sacred place to the Meiteis** and is regarded as the holiest place for the Manipuris.
- The fort's **outer and inner moat** and other relics reflect the rich art and architectural heritage of Manipur.
- The fort was destroyed and abandoned multiple times during **Burmese invasions**, especially during the **Chahi Taret Khuntakpa (1819-1826)**.

Mimosa Species



The current situation in Assam reveals a significant threat to biodiversity due to the rapid proliferation of invasive plants such as mimosa species.

Mimosa Species:

- Mimosa, a **sensitive and highly invasive climbing plant** species in **Assam**, originated from the **Americas**.
- Mimosa is called **Nilaji Bon** or **Lajuki Lata** in **Assamese** because of its sensitive compound leaves that fold **inward and droop on being touched or shaken**.
- It has been identified in two varieties, **first one is Mimosa invisa** and second one is **Mimosa invisa inermis**, with one being thorny (Mimosa invisa).
- Researchers suggest that the **tea industry may have introduced Mimosa** to the region for **nitrogen fixation and soil enrichment**.
- A **2002 study** by the **Wildlife Trust of India (WTI)** identified the spread of Mimosa near rivers surrounding **Kaziranga National Park**.
- Mimosa's invasion peaked with **56% coverage** of the Bagori range in Kaziranga National Park.

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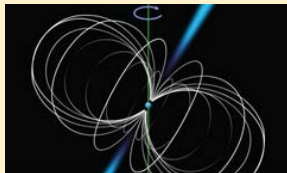
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PSR B1919+21



About PSR B1919+21:

- PSR B1919+21, also known as **LGM-1**, is a **pulsar type neutron star** that was **discovered on November 28, 1967** by Jocelyn Bell Burnell and Antony Hewish.
- It was the **first radio pulsar** ever discovered and is often referred to as a **classic radio pulsa**.
- It has a period of **1.3373 seconds** and a pulse width of 0.04 seconds.
- It is located in the **constellation Vulpecula** and is 1,950–1,650 light-years from Earth.
- When Bell Burnell discovered the repeating pulses, she called them LGM, which stands for "**little green men**".

Personality in News

Homi Jehangir Bhabha

Homi Jehangir Bhabha (30th October 1909-24th January 1966):

Homi Jehangir Bhabha, an Indian nuclear physicist is known as the "Father of the Indian Nuclear Programme".

Contributions:

- He presided over the National Institute of Sciences of India in **1963**.
- He famously claimed in an **All India Radio broadcast** that if given permission, India could make a **nuclear bomb in 18 months**.
- He developed the **theory of the production of electron and positron showers** in cosmic rays, known as the "**Bhabha-Heitler theory**".
- He **supported Dr. Sarabhai** in establishing **India's first rocket** launching station at Thumba near Thiruvananthapuram.
- He pioneered the use of thorium to extract uranium.



Awards and Honours:

- Homi Jehangir Bhabha was the first Indian to **receive the Adams prize** by the University of Cambridge in **1942** for his doctoral thesis.
- He was awarded by **Padma Bhushan** in **1954**.
- He was also awarded by **Hopkins Prize by the Cambridge Philosophical Society** in **1948**.

Ethica Values: Scientific Integrity, honesty dedication, etc.

Personality in News

Karpoori Thakur

Today, the Prime Minister of India paid tributes to Jan Nayak Karpoori Thakur on his birth centenary.

Karpoori Thakur (24th January 1924-17th February 1988)

- Karpoori Thakur, an Indian politician, social activist and known as "**Jannayak**" or **People's Leader** was born at **Pitaunjhia** (now Karpuri Gram) village in Samastipur District of **Bihar**.
- He was **influenced by Mahatma Gandhi** and **Satyanarayan Sinha**.

Contributions:

- Karpoori Thakur **served as Chief Minister of Bihar twice**: December 1970 - June 1971 and December 1977 - April 1979.
- His Chief Ministership in **1977** led to the **Mungeri Lal Commission's report** recommending reclassification of backward classes.
- He also joined the **All India Students Federation**.
- As a student activist, he left his graduate college to join the Quit India Movement.
- He became a member of the **Bihar Vidhan Sabha** in **1952**.
- He served as the President of **Samyukta Socialist Party**.



Awards and Honours:

- Recently, he is posthumously announced to receive the **Bharat Ratna** on **26th January 2024**.

Ethical Values: Patriotism, leadership, honesty, courage, etc.

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Place in News

Gerlache Strait

Recently, researchers have observed the tail of a Humpback whale in Antarctica's Gerlache Strait on January 19.

About Gerlache Strait:

- Gerlache Strait, also known as de **Gerlache Strait** or **Detroit de la Belgica**, is a channel/strait that **separates the Palmer Archipelago from the Antarctic Peninsula**.
- Initially named after the expedition ship **Belgica**, later changed to honor Lt. Adrien de Gerlache, the expedition commander.
- The Gerlache Strait area features four **identifiable tectonic blocks**, delineated by two systems of Tertiary strike-slip faults.
- The strait's deep channels allow **Upper Circumpolar Deep Water** to flow onto the shelf regions, **providing heat to the ecosystem**.



Humpback whale:

- The Humpback whale (**Megaptera novaeangliae**) is a large, **toothless baleen whale** that uses baleen plates to filter prey from seawater.
- It is **known for its acrobatic behavior** and **complex songs**.
- It has streamlined bodies that can range from **6 to 33 meters long**, and **weigh up to 30,000 kilograms**.
- It has long flippers that are about one-third of their body length.
- It has a **small dorsal fin** that can be triangular or shaped like a small hump.
- It is **extremely active and often slap** their flippers and flukes on the surface of the sea.
- They undertake extensive migrations for breeding and feeding.
- It is protected under the **Endangered Species Act** and the Marine Mammal Protection Act.

POINTS TO PONDER

- Where was the 19th Non-Aligned Movement (NAM) Summit held? - **Kampala**
- Bureau of Police Research and Development (BPRD), that was recently in news, comes under which ministry? - **Ministry of Home Affairs**
- Which one of the following is the highest point of the Aravalli Range? - **Guru Shikhar**
- Who is the former CM of Bihar who is announced to receive the Bharat Ratna Award? - **Karpoori Thakur**
- In which state is the Dholpur-Karauli Tiger Reserve located? - **Rajasthan**

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