Plastic Currency

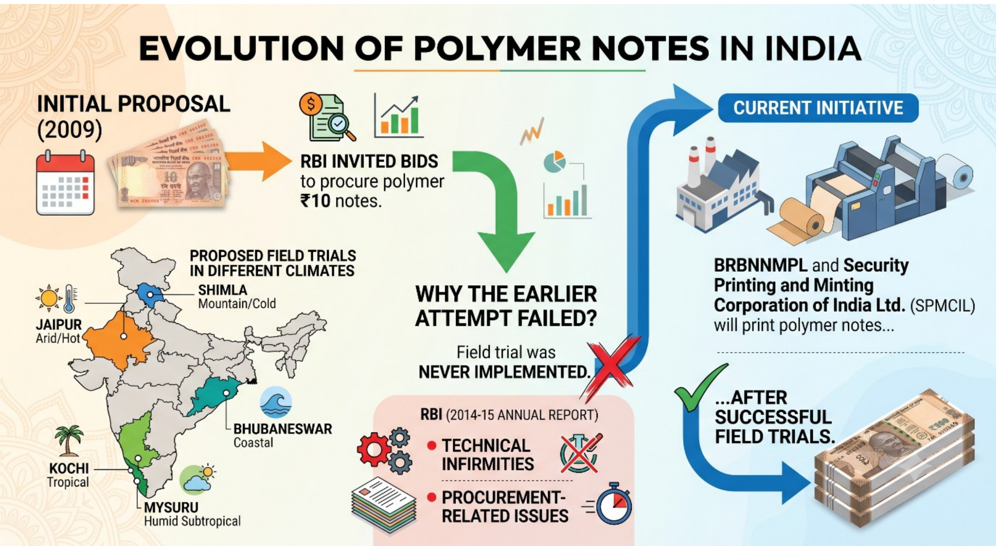
Mains: *GS – III – Indian Economy and Issues relating to Planning, Mobilisation of Resources, & Economic Security.*

Why in News?

Recently, the Reserve Bank of India has initiated a field trial of plastic currency notes after nearly 15 years of unsuccessful attempts.

What is Polymer (Plastic) Notes?

- **Polymer banknotes** – They are produced using a synthetic polymer substrate composed of biaxially oriented polypropylene (BOPP), rather than traditional cotton-based paper.

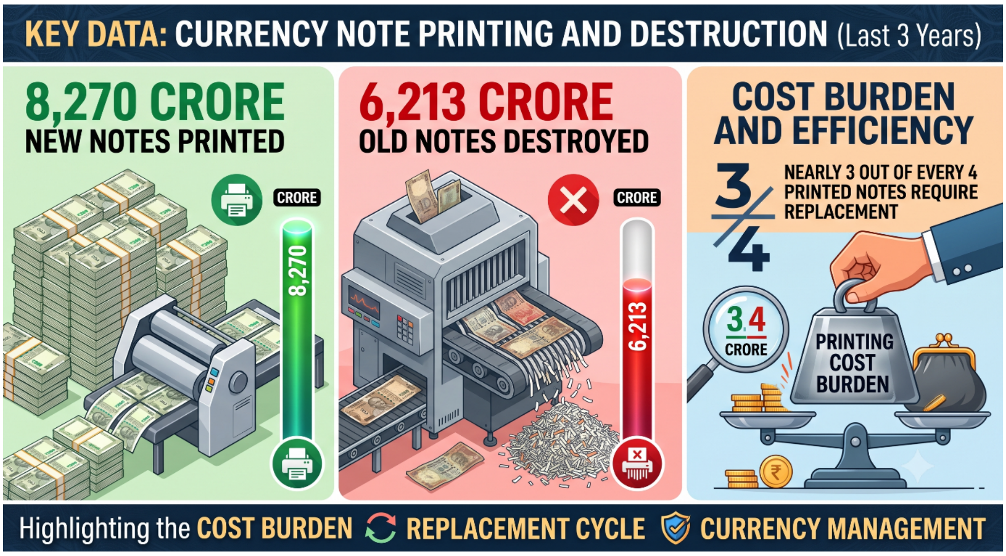


*Polymer banknotes, first introduced by **Australia in 1988**, are currently utilised in over 50 countries.*

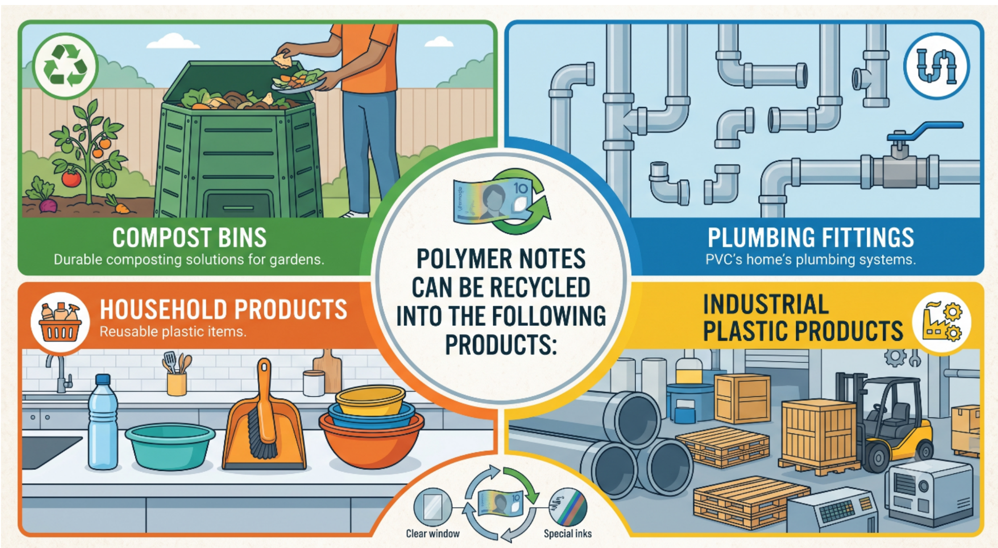
What are the advantages of Polymer Notes?

- **Extended Lifespan –** Polymer banknotes have a lifespan that is two to six times greater than that of cotton paper notes.
- This increased durability is particularly advantageous for lower denominations that are subject to frequent handling.
- **Key Advantages**

    - Decreased frequency of note replacement
    - Reduced demand for banknote printing
    - Improved overall quality of notes in circulation
- **Economic Advantages –** Increased durability leads to the following outcomes:
    - Decreased printing expenditures
    - Reduced transportation expenses
    - Lower storage expenses
    - Reduced costs associated with destruction and replacement

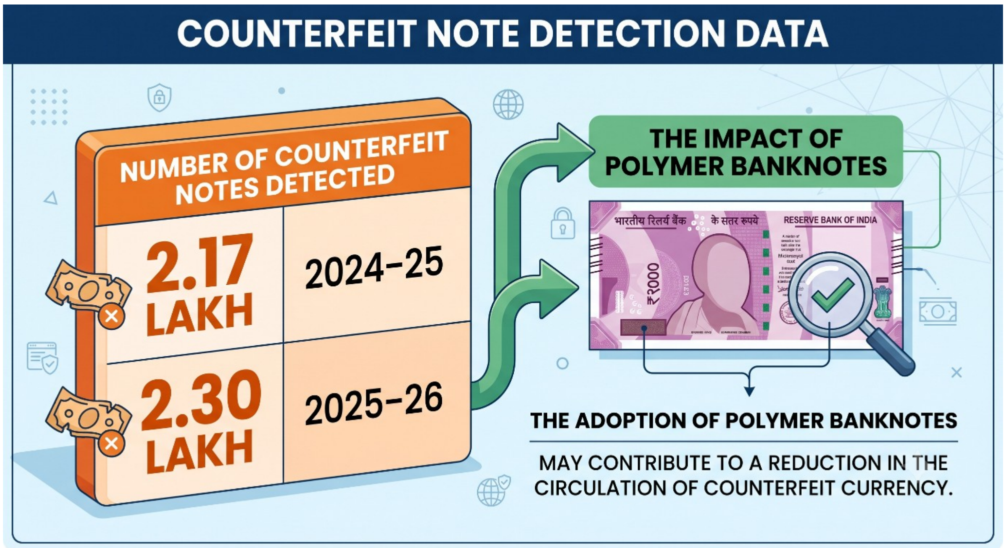


- **Environmental Benefits –** The Reserve Bank of India (RBI) commissioned *The Energy and Resources Institute (TERI)* to conduct a comparative analysis of cotton and polymer banknotes.
- **TERI Life Cycle Assessment's Findings**
    - They exhibit lower lifetime carbon emissions.
    - They require fewer replacements over their lifespan.
    - They generate less waste compared to cotton notes.
    - Polymer notes can be recycled into the following products:



- Therefore, although polymer notes are produced from non-renewable materials, they can undergo multiple life cycles through recycling processes.

- **Enhanced Security Features**
- Transparent security windows are integrated to enhance verification.
- Advanced holographic elements provide additional layers of authentication.
- Enhanced printing technologies increase the complexity of replication.
- Polymer substrates offer increased resistance to tampering and physical alteration.
- **Impact on Counterfeiting**
- Counterfeiters most commonly use paper substrates in the production of fraudulent notes.
- Polymer banknotes present significant technical challenges to unauthorised duplication.



- **Improved Public Convenience –** They are waterproof, resistant to dirt, tear-resistant, remain cleaner throughout circulation, and are more suitable for India's varied climatic conditions.

What are the Key Challenges Associated with the Introduction of Polymer Banknotes?

- **Dependence on Imports –** India will likely depend on imported polymer substrates during the initial stages of implementation.
- **Strategic and Security Concerns –** Potential vulnerabilities may arise within the supply chain.
- There are also significant national security concerns.
- Reliance on foreign manufacturers could further exacerbate these risks.
- The Reserve Bank of India (RBI) tender includes safeguards that limit procurement and operational relationships with foreign entities considered sensitive.
- **Substantial Initial Capital Investment –** The transition requires several key investments:
    - Acquisition of advanced printing technology
    - Modernisation of existing machinery
    - Implementation of comprehensive employee training programs
    - Procurement of polymer substrates
    - Existing investments in paper-based note infrastructure should also be taken into account.

- **Domestic Manufacturing Capacity –** India demonstrates the following established manufacturing capabilities:
    - Domestic production of banknote paper
    - Indigenous manufacturing of security ink
- A rapid transition could result in the underutilization of these existing manufacturing facilities.

Why does cash remain dominant despite digital payments?

- Reserve Bank of India (RBI) surveys indicate a sustained preference for cash transactions among households and small retailers.
- As of March 2026, the total currency in circulation was:
    - Rs.41.7 lakh crore.
    - This represents a 12 % annual growth rate.
- These figures demonstrate that cash remains a vital component of India's payment ecosystem.

What lies ahead?

- **Field Validation & Adaptability –** Implement comprehensive field trials in diverse climatic zones to ensure effectiveness.
- **Domestic Capability & Self-Reliance –** Establish domestic polymer substrate manufacturing capabilities in alignment with the Atmanirbhar Bharat initiative.
- **Phased Introduction & Circulation Priority –** Introduce polymer banknotes in a phased manner, prioritising denominations with the highest circulation.
- **Balanced Payment Ecosystem –** Balance the expansion of digital payment systems with robust cash management strategies.

Reference

The Indian Express | RBI to Trial Polymer Currency Notes