

*The focus of currency management during the year continued towards making available adequate quantity of clean banknotes in circulation. The Reserve Bank introduced the e₹ (digital Rupee) on a live-pilot basis, undertook a study for optimising currency management operations and conceptualised a pilot project on Quick Response (QR) code-based coin vending machine using the Unified Payments Interface (UPI).*

VIII.1 During the year, the Reserve Bank ensured adequate supply of clean banknotes in the economy, while simultaneously sustaining the momentum of disposal of soiled banknotes. The Reserve Bank also launched the retail and wholesale versions of the e₹ (digital Rupee)<sup>1</sup> on a live-pilot basis, undertook a study to optimise currency management operations across the country besides conceptualising a pilot project on Quick Response (QR) code-based coin vending machine using the UPI to improve public accessibility of coins.

VIII.2 Against this backdrop, the rest of the chapter is organised into five sections. The next section covers the important developments in currency in circulation during the year. Section 3 covers the implementation status of the agenda for 2022-23 along with other major activities undertaken during the year, and section 4 presents the developments with regard to Bharatiya Reserve Bank Note Mudran Private Ltd. (BRBNMPL), a wholly-owned subsidiary of the Reserve Bank. Section 5 sets out the agenda for 2023-24, while concluding observations are presented in the last section.

## 2. Developments in Currency in Circulation

VIII.3 Currency in circulation (CiC) includes banknotes, coins and e₹. The e₹ was launched

during the year on a live-pilot basis. Presently, the banknotes in circulation comprise denominations of ₹2, ₹5, ₹10, ₹20, ₹50, ₹100, ₹200, ₹500 and ₹2000. Coins in circulation comprise 50 paise and ₹1, ₹2, ₹5, ₹10 and ₹20 denominations.

VIII.4 In terms of Section 22A of the RBI Act, 1934, denominations as set out in Section 24 of the Act shall not apply to banknotes in digital form. Accordingly, the live-pilot of e₹-Retail has been launched in denominations of 50 paise, ₹1, ₹2, ₹5, ₹10, ₹20, ₹50, ₹100, ₹200, ₹500 and ₹2000, while e₹-Wholesale does not envisage any denomination.

### Banknotes

VIII.5 The value and volume of banknotes in circulation increased by 7.8 per cent and 4.4 per cent, respectively, during 2022-23 as compared with 9.9 per cent and 5.0 per cent, respectively, during 2021-22 (Table VIII.1). In value terms, the share of ₹500 and ₹2000 banknotes together accounted for 87.9 per cent of the total value of banknotes in circulation as on March 31, 2023, as compared to 87.1 per cent as on March 31, 2022. In volume terms, ₹500 denomination constituted the highest share at 37.9 per cent, followed by ₹10 denomination banknotes which constituted 19.2 per cent of the total banknotes in circulation as on March 31, 2023.

<sup>1</sup> Central Bank Digital Currency (CBDC).

**Table VIII.1: Banknotes in Circulation (end-March)**

Denomination (₹)	Volume (pieces in lakh)			Value (₹ crore)		
	2021	2022	2023	2021	2022	2023
1	2	3	4	5	6	7
2 and 5	1,11,728 (9.0)	1,11,261 (8.5)	1,10,843 (8.1)	4,307 (0.2)	4,284 (0.1)	4,263 (0.1)
10	2,93,681 (23.6)	2,78,046 (21.3)	2,62,123 (19.2)	29,368 (1.0)	27,805 (0.9)	26,212 (0.8)
20	90,579 (7.3)	1,10,129 (8.4)	1,25,802 (9.2)	18,116 (0.6)	22,026 (0.7)	25,160 (0.8)
50	87,524 (7.0)	87,141 (6.7)	85,716 (6.3)	43,762 (1.5)	43,571 (1.4)	42,858 (1.3)
100	1,90,555 (15.3)	1,81,420 (13.9)	1,80,584 (13.3)	1,90,555 (6.7)	1,81,421 (5.8)	1,80,584 (5.4)
200	58,304 (4.7)	60,441 (4.6)	62,620 (4.6)	1,16,608 (4.1)	1,20,881 (3.9)	1,25,241 (3.7)
500	3,86,790 (31.1)	4,55,468 (34.9)	5,16,338 (37.9)	19,33,951 (68.4)	22,77,340 (73.3)	25,81,690 (77.1)
2000	24,510 (2.0)	21,420 (1.6)	18,111 (1.3)	4,90,195 (17.3)	4,28,394 (13.8)	3,62,220 (10.8)
<b>Total</b>	<b>12,43,671</b>	<b>13,05,326</b>	<b>13,62,137</b>	<b>28,26,863</b>	<b>31,05,721</b>	<b>33,48,228</b>

Note: 1. Figures in parentheses represent the percentage share in total volume/value.

2. Figures may not add up due to rounding-off of the numbers.

Source: RBI.

### Coins

VIII.6 The total value of coins in circulation increased by 8.1 per cent in 2022-23, while the total volume increased by 2.6 per cent. As on

March 31, 2023, coins of ₹1, ₹2 and ₹5 together constituted 83.1 per cent of the total volume of coins in circulation, while in value terms, these denominations accounted for 72.3 per cent (Table VIII.2).

**Table VIII.2: Coins in Circulation (end-March)**

Denomination (₹)	Volume (pieces in lakh)			Value (₹ crore)		
	2021	2022	2023	2021	2022	2023
1	2	3	4	5	6	7
Small coins	1,47,880 (12.0)	1,47,880 (11.9)	1,47,880 (11.6)	700 (2.6)	700 (2.5)	700 (2.3)
1	5,12,597 (41.7)	5,15,879 (41.4)	5,21,618 (40.8)	5,126 (19.1)	5,159 (18.4)	5,216 (17.2)
2	3,37,863 (27.5)	3,40,792 (27.3)	3,47,277 (27.1)	6,757 (25.1)	6,816 (24.4)	6,946 (23.0)
5	1,79,360 (14.6)	1,84,331 (14.8)	1,94,155 (15.2)	8,968 (33.4)	9,217 (33.0)	9,708 (32.1)
10	51,391 (4.2)	54,044 (4.3)	59,764 (4.7)	5,139 (19.1)	5,404 (19.3)	5,976 (19.8)
20	896 (0.1)	3,372 (0.3)	8,483 (0.7)	179 (0.7)	674 (2.4)	1,697 (5.6)
<b>Total</b>	<b>12,29,988</b>	<b>12,46,298</b>	<b>12,79,178</b>	<b>26,870</b>	<b>27,970</b>	<b>30,242</b>

Note: 1. Figures in parentheses represent the percentage share in total volume/value.

2. Figures may not add up due to rounding-off of the numbers.

Source: RBI.

### e₹ (digital Rupee) in Circulation

VIII.7 The value of e₹-Wholesale (e₹-W) and e₹-Retail (e₹-R) in circulation stood at ₹10.69 crore and ₹5.70 crore, respectively, as on March 31, 2023 (Table VIII.3).

### Currency Management Infrastructure

VIII.8 The functions relating to the issuance of currency (both banknotes and coins) and their management are performed by the Reserve Bank through its 19 issue offices, 2,838 currency chests and 2,293 small coin depots spread across the country. As on March 31, 2023, the State Bank of

**Table VIII.3: e₹ in Circulation (end-March)**

e₹	Denomination (₹)	Volume (pieces in lakh)	Value (₹ crore)
		2023	2023
1	2	3	4
e₹-Retail	0.5	2.7 (16.1)	0.01 (0.2)
	1	3.8 (22.2)	0.04 (0.7)
	2	2.8 (16.2)	0.06 (1.0)
	5	2.4 (13.9)	0.12 (2.1)
	10	1.5 (8.8)	0.15 (2.6)
	20	1.2 (6.8)	0.23 (4.1)
	50	0.8 (4.6)	0.39 (6.9)
	100	0.8 (4.8)	0.83 (14.5)
	200	0.6 (3.4)	1.16 (20.4)
	500	0.5 (3.2)	2.71 (47.5)
2000	-	-	-
Total e₹-Retail		17.1	5.70
Total e₹-Wholesale		...	10.69
Total e₹		...	16.39

- : Nil. ... : Not Applicable.

**Note:** 1. Figures in parentheses represent the percentage share in total volume/value.

2. Figures may not add up due to rounding-off of the numbers.

**Source:** RBI.

**Table VIII.4: Currency Chests and Small Coin Depots**

Category	Number of Currency Chests	Number of Small Coin Depots
1	2	3
State Bank of India	1,508	1,273
Nationalised Banks	1,095	827
Private Sector Banks	220	179
Cooperative Banks	5	5
Foreign Banks	4	3
Regional Rural Banks	5	5
Reserve Bank of India	1	1
<b>Total</b>	<b>2,838</b>	<b>2,293</b>

**Source:** RBI.

India accounted for the highest share (53.14 per cent) of currency chests (Table VIII.4).

### Indent and Supply of Currency

VIII.9 Both indent and supply of banknotes for 2022-23 were marginally higher by 1.6 per cent than that of a year ago (Table VIII.5).

**Table VIII.5: Indent and Supply of Banknotes by BRBNMPL and SPMCIL (April to March)**

(Pieces in lakh)

Denomination (₹)	2020-21		2021-22		2022-23	
	Indent	Supply	Indent	Supply	Indent	Supply
1	2	3	4	5	6	7
5	-	-	-	-	-	-
10	2,840	2,846	7,500	7,510	6,000	6,000
20	48,750	38,520	20,000	20,000	20,000	19,999
50	14,000	13,887	15,000	15,000	20,000	20,000
100	40,000	37,270	40,000	40,002	60,000	60,000
200	15,000	15,106	12,000	11,991	20,000	20,000
500	1,06,000	1,15,672	1,28,000	1,28,003	1,00,000	1,00,004
2000	-	-	-	-	-	-
<b>Total</b>	<b>2,26,590</b>	<b>2,23,301</b>	<b>2,22,500</b>	<b>2,22,505</b>	<b>2,26,000</b>	<b>2,26,002</b>

- : Nil.

BRBNMPL: Bharatiya Reserve Bank Note Mudran Private Limited.  
SPMCIL: Security Printing and Minting Corporation of India Limited.

**Note:** Figures may not add up due to rounding-off of the numbers.

**Source:** RBI.

**Table VIII.6: Indent and Supply of Coins by Mints (April to March)**

(Pieces in lakh)

Denomination (₹)	2020-21		2021-22		2022-23	
	Indent	Supply	Indent	Supply	Indent	Supply
1	2	3	4	5	6	7
1	1,000	1,000	-	-	1,000	1,000
2	9,500	6,718	2,000	2,000	3,000	3,000
5	11,000	10,995	2,000	2,000	3,000	3,000
10	5,500	5,852	2,000	2,000	1,000	1,002
20	3,000	5,061	2,000	2,000	2,000	2,000
<b>Total</b>	<b>30,000</b>	<b>29,626</b>	<b>8,000</b>	<b>8,000</b>	<b>10,000</b>	<b>10,002</b>

-: Nil.  
Source: RBI.

VIII.10 During 2022-23, the indent and supply for coins was higher by 25 per cent as compared with the previous year (Table VIII.6).

#### Disposal of Soiled Banknotes

VIII.11 The disposal of soiled banknotes increased by 22.1 per cent to 2,292.64 crore pieces during 2022-23 from 1,878.01 crore pieces in the previous year (Table VIII.7).

**Table VIII.7: Disposal of Soiled Banknotes (April to March)**

(Pieces in lakh)

Denomination (₹)	2020-21	2021-22	2022-23
1	2	3	4
2000	4,548	3,847	4,824
1000	-	-	-
500	5,909	22,082	51,092
200	1,186	6,167	13,062
100	42,433	59,203	58,282
50	12,738	27,696	34,219
20	10,325	20,771	21,393
10	21,999	46,778	45,077
Up to 5	564	1,257	1,315
<b>Total</b>	<b>99,702</b>	<b>1,87,801</b>	<b>2,29,264</b>

- : Not Applicable.  
Note: Figures may not add up due to rounding-off of the numbers.  
Source: RBI.

#### Counterfeit Notes

VIII.12 During 2022-23, out of the total Fake Indian Currency Notes (FICNs) detected in the banking sector, 4.6 per cent were detected at the Reserve Bank and 95.4 per cent at other banks (Table VIII.8).

VIII.13 Compared to the previous year, there was an increase of 8.4 per cent and 14.4 per cent in the counterfeit notes detected in the denominations of ₹20 and ₹500 (new design), respectively. The counterfeit notes detected in the denominations of ₹10, ₹100 and ₹2000 declined by 11.6 per cent,

**Table VIII.8: Number of Counterfeit Notes Detected (April to March)**

(Number of pieces)

Year	Detection at the Reserve Bank	Detection at Other Banks	Total
1	2	3	4
2020-21	8,107 (3.9)	2,00,518 (96.1)	2,08,625 (100.0)
2021-22	15,878 (6.9)	2,15,093 (93.1)	2,30,971 (100.0)
2022-23	10,465 (4.6)	2,15,304 (95.4)	2,25,769 (100.0)

Note: 1. Figures in parentheses represent the percentage share in total.  
2. Does not include counterfeit notes seized by the police and other enforcement agencies.  
Source: RBI.

**Table VIII.9: Denomination-wise Counterfeit Notes Detected in the Banking System (April to March)**

Denomination (₹)	(Number of pieces)		
	2020-21	2021-22	2022-23
1	2	3	4
2 and 5	9	1	3
10	304	354	313
20	267	311	337
50	24,802	17,696	17,755
100	1,10,736	92,237	78,699
200	24,245	27,074	27,258
500 (Specified Banknotes)	9	14	6
500	39,453	79,669	91,110
1000 (Specified Banknotes)	2	11	482
2000	8,798	13,604	9,806
<b>Total</b>	<b>2,08,625</b>	<b>2,30,971</b>	<b>2,25,769</b>

Source: RBI.

14.7 per cent and 27.9 per cent, respectively (Table VIII.9).

#### *Expenditure on Security Printing*

VIII.14 The total expenditure incurred on security printing during 2022-23 was ₹4,682.80 crore as against ₹4,984.80 crore in the previous year.

### **3. Agenda for 2022-23**

VIII.15 The Department had set the following goals for 2022-23:

- Procurement of new Shredding and Briquetting Systems (SBS) [*Utkarsh*] (Paragraph VIII.16);
- Establishment of a state-of-the-art facility for conducting cutting edge research to test the robustness of security features of banknotes and introduction of new security features (*Utkarsh*) [Paragraph VIII.17];

- Study on automation and logistics in currency management (Paragraph VIII.18);
- Mobile Aided Note Identifier (MANI) App for the visually impaired persons – introduction of 11 regional languages in the App in addition to Hindi and English already available (Paragraph VIII.19); and
- Survey on the usage of cash, coins and digital mode for payments (Paragraph VIII.20).

#### **Implementation Status**

##### *Procurement of New Shredding and Briquetting Systems (SBS)*

VIII.16 A global expression of interest (EOI) was issued for procuring state-of-the-art shredding and briquetting machines for disposal of notes found unfit for circulation. The process of procurement is being taken forward with the issuance of request for proposal (RFP) to the eligible EOI applicants.

##### *Establishment of a State-of-the-art Facility for Conducting Cutting Edge Research to Test the Robustness of Security Features of Banknotes and Introduction of New Security Features*

VIII.17 Under the first phase of the currency research centre, progress has been made towards operationalisation of an adversarial analysis<sup>2</sup> laboratory at the Mysuru campus of Bharatiya Reserve Bank Note Mudran Private Ltd. (BRBNMPL).

##### *Study on Automation and Logistics in Currency Management*

VIII.18 The Department commissioned a study on automation and logistics in currency management through IIT Bombay. The scope of the study was

<sup>2</sup> Adversarial analysis is conducted to assess counterfeiting risks through in-house simulation of banknote features by trained experts/ technicians using commercially available materials and equipment.

to understand and devise the currency network design, examine the possibility of mechanisation and automation of the processes, and improve scheduling and inventory management. The report has been received and is under examination.

*Mobile Aided Note Identifier (MANI) – Introduction of Multi-lingual Audio Notification and Option to Use MANI App by ‘Partially-Sighted’ Persons*

VIII.19 Two new features were introduced in MANI App during the year. It can now identify banknote denominations through audio notification in 11 new languages (Assamese, Bengali, Gujarati, Kannada, Malayalam, Marathi, Odia, Punjabi, Tamil, Telugu and Urdu), in addition to Hindi and English that were available earlier. The App has also been enabled for use by ‘partially-sighted’ persons.

*Survey on the Usage of Coins, Banknotes and Digital Mode for Payments*

VIII.20 A country-wide survey was taken up in collaboration with Department of Payment and Settlement Systems (DPSS) to assess the demand for coins and banknotes, factors influencing the demand, reasons for lack of demand (if so) for coins and banknotes, extent and preference for usage of banknotes, coins and digital modes of payments, shortage/surfeit of banknotes and coins (seasonal/denominational).

**Major Activities**

*Pilot Project on Mobile Coin Vans (MCVs) for Distribution of Coins*

VIII.21 In continuation of the Reserve Bank’s efforts to ensure that coins are available in the remotest part of the country, MCVs are being operated from October 1, 2022 by some banks in select states on a pilot basis. Based on the

experience gained, the initiative is being extended to more states.

*Microsite for Currency Related Matters*

VIII.22 The new microsite on Indian currency will showcase information on design and security features through an interactive 360-degree view of the banknotes and various multimedia options.

*Awareness Campaign on Exchange of Banknotes and Acceptance of Coins*

VIII.23 To create awareness and disseminate information on customer services, a campaign was undertaken on ‘Exchange of Banknotes’ through SMS, FM radio and digital media (website).

VIII.24 With the objective of encouraging wider acceptance of coins by the public, the Reserve Bank undertook during the year, a campaign for dispelling misconceptions and allaying fears on coins of different designs of the same denomination in circulation.

*Pilot Project on QR Code-based Coin Vending Machine*

VIII.25 To enhance the accessibility of coins to the public, the Reserve Bank has conceptualised a pilot project on a dynamic Quick Response (QR) code-based coin vending machine (QCVM), which is a cashless coin dispensation system using the UPI. The pilot project is being rolled out at 19 locations in 12 cities across the country (Box VIII.1).

*Procurement of New Security Features for Indian Banknotes*

VIII.26 The Reserve Bank is actively taking forward the process of introduction of new/upgraded security features for banknotes.

**Box VIII.1****Pilot Project on QR Code-based Coin Vending Machine (QCVM)**

As per the Coinage Act, 2011, the Government of India has the sole right to produce/mint coins including the ₹1 note. These coins are issued for circulation only through the Reserve Bank in terms of Section 38 of the RBI Act, 1934.

Presently, coins are largely distributed through the counters at all bank branches. Several measures have been undertaken recently such as enhanced incentives to banks for distribution of coins, use of mobile coin vans for coin distribution with a special focus on sub-urban, rural and remote areas along with holding of coin *melas* by currency chest branches.

To further improve distribution of coins by harnessing technology, the Reserve Bank has launched a pilot project on QCVM in collaboration with five banks (*viz.*, Axis Bank, Bank of Baroda, ICICI Bank, State Bank of India and Federal Bank).

The QCVM is a cashless coin dispensation system which allows payment transactions through UPI on scanning a dynamic QR code generated by the machine on the mobile phone of the customer.

Unlike cash-based traditional coin vending machines, the QCVM eliminates the need for physical tendering of banknotes and their subsequent authentication. Further, in QCVMs, the customers will have the option to withdraw coins in required quantity and denominations.

The pilot project is being initially rolled out at 19 locations in 12 cities across the country (*viz.*, Ahmedabad, Baroda, Bengaluru, Chennai, Hyderabad, Kanpur, Kolkata, Mumbai, New Delhi, Patna, Prayagraj and Kozhikode).

**Source:** RBI.

### *Review of Extant Mechanism of Cash Dispensation and Related Issues in the ATM Ecosystem*

VIII.27 To ensure the availability of clean notes in optimal denomination mix to the public and enhance customer experience with regard to ATMs, a Committee was constituted to review the extant mechanism of cash dispensation and related issues in the ATM ecosystem. Among others, the Committee examined the issues pertaining to leveraging the infrastructure of banks and white-label ATMs for ensuring higher ATM uptime and improved currency delivery especially in remote and underserved locations such as in the north east/hilly areas. The Committee also conducted a holistic review of extant instructions on ATM downtime, cassette swap, security of ATMs/cash recyclers and need for incentives and disincentives in the ATM ecosystem.

#### **4. Bharatiya Reserve Bank Note Mudran Private Ltd. (BRBNMPL)**

VIII.28 The BRBNMPL, a wholly-owned subsidiary of the Reserve Bank, has been playing

a crucial role in the designing, printing and supply of banknotes. BRBNMPL presses have increased direct remittances of banknotes to currency chests, resulting in enhanced logistical efficiency and cost effectiveness.

#### **5. Agenda for 2023-24**

VIII.29 During the year, the Department will focus on the following:

- Preparation of an implementation programme based on the recommendations of the report on currency network design, mechanisation and automation, and scheduling and inventory management, for achieving higher efficiency in currency management;
- Establishment of a state-of-the-art facility for conducting cutting edge research on banknotes (*Utkarsh 2.0*);
- Conducting survey on quality of notes in circulation (*Utkarsh 2.0*);
- Developing cash usage indicators (*Utkarsh 2.0*);

- Implementation of recommendations of the Committee for review of extant mechanism of cash dispensation and related issues in ATM ecosystem; and
- Institutionalisation of the process of certification of note sorting machines in alignment with the prescribed sorting standards.

## 6. Conclusion

VIII.30 During 2022-23, the Reserve Bank focused on enhancing the efficiency of

currency management ecosystem, increasing public awareness about banknotes and coins with a focus on exchange facility, in addition to making available adequate quantity of clean banknotes to the public. Going ahead, the Reserve Bank's endeavour would be to promote analytical research for strengthening further, the integrity of banknotes; enhancing banknote distribution efficiency and efficacy and also understanding better, the trends in public preference for cash *vis-à-vis* other modes of payment.