

Smart Cities

**Processing of currency waste towards effective waste disposal and utilization in industries**

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Abstract

The enormous increase in the quantum and diversity of waste materials generated by human activity and their potentially harmful effects on the general environment and public health, have led to an increasing awareness about an urgent need to adopt scientific methods for safe disposal of wastes. While there is an obvious need to minimize the generation of wastes and to reuse and recycle them, the technologies for recovery of energy from waste can play a vital role in mitigating the problems. Besides recovery of substantial energy, these technologies can lead to a substantial reduction in the overall waste quantities requiring final disposal, which can be better managed for safe disposal in a controlled manner while meeting the pollution control standards.

**Table - 1: Denomination-wise Counterfeit Notes Detected in the Banking System**  
(April to March)

Denomination (Rs.)	2014-2015			2015-16		
	Number of Counterfeit Notes	Notes in Circulation	FICN as a proportion of NIC	Number of Counterfeit Notes	Notes in Circulation	FICN as a proportion of NIC
1	2	3	4	5	6	7
2 and 5	0	11,672,000,000	0	2	11,626,000,000	0
10	268	30,304,000,000	0.00000001	134	32,015,000,000	0
20	106	4,350,000,000	0.00000002	96	4,924,000,000	0
50	7,160	3,487,000,000	0.00000205	6,453	3,890,000,000	0.0000017
100	181,799	15,026,000,000	0.00001210	221,447	15,778,000,000	0.0000140
500	273,923	13,128,000,000	0.00002087	261,695	15,707,000,000	0.0000167
1000	131,190	5,612,000,000	0.00002338	143,099	6,326,000,000	0.0000226
<b>Total</b>	<b>594,446</b>	<b>83,579,000,000</b>	<b>0.00000711</b>	<b>632,926</b>	<b>90,266,000,000</b>	<b>0.0000070</b>

FICN: Fake Indian Currency Notes. NIC: Notes in Circulation

Remarks : Does not include counterfeit notes seized by the police and other enforcement agencies

Source: <https://rbidocs.rbi.org.in/rdocs/AnnualReport>

**Vast potential for handmade paper from waste currency**

With the growing demand of handmade paper both in the domestic and export markets, the Indian handmade paper industry has been confronting with the major issue of scarce availability and cost prohibitiveness of the cotton hosiery waste, the traditionally used principal raw material for making handmade paper. As a result of the exhaustive R&D work carried out at Kumarappa National Handmade Paper Institute, various ligno-cellulosic raw materials available as waste biomass in different parts of country and the recycled waste paper particularly the shredded currency waste of

Reserve Bank of India has been found to be very good and cost effective raw material for making good quality handmade paper. The recently developed process of recycling the shredded currency waste through bio-enzymatic pulping produces not only a quality handmade paper but also resulted in a large saving of the precious resources like water, energy and chemicals. Physical strength properties of the handmade paper developed from shredded currency waste were found to be better than that produced from mixed office waste (MOW). Besides, Shredded currency waste is available at a much cheaper rate than the waste paper. The strength of the paper produced from it could be improved further by blending it with the pulps prepared from mixed hosiery waste or other long fiber pulps. The paper thus produced can be utilized for making strong cany bags so as to substitute the polythene bags mat are going to be banned because of their recalcitrant nature. The process has been successfully up-scaled to the pilot-plant level and is also found to be economical. Thus the adoption of the shredded currency waste as a raw material and its processing through enzymatic route might help in improving the cost-competitiveness and environmental status of the Indian handmade paper industry.

### **Navsari Agriculture University (NAU) making long lasting currency notes**

The Navsari Agriculture University (NAU) in Gujarat has standardized a process of manufacturing high value paper from Banana fiber, which it claims has the property of making currency notes lasting for about a Century. The paper has been tested in the Central Institute for Research on Cotton Technology. During the research, it was found that paper made out of this fiber has shelf life of over 100 years as it is the strongest of the long fibers ever found amidst natural fibers. It can be folded for as many as 3,000 times. This fiber has the potential to find application in making of the paper required for the printing of currency notes and other valuable documents. At present Japan uses Banana fiber to manufacture the paper required to print its currency Yen.

### **Conclusions**

The shredded currency is recycled into various products, including files, calendars and even paper weights. More people are now must coming forward to make eco friendly products using shredded currency. The soiled notes are examined, sorted and the unfit among them disposed of under the currency verification and processing system (CVPS). Of the segregated notes, those considered to be worth reissuing would be given for circulation. The recent introduction of a system to provide incentives to banks for collection of mutilated currency has also contributed to the substantial increase in the number of notes received by the RBI. Thus, utilization of biotechnology in processing of shredded currency waste would help in improve in the environmental status of the Indian handmade paper industry besides addressing the problem of global warming and solid waste disposal. This paper explores the potential of currency waste utilization towards environmental protection in India.

**Keywords:** Banknote Destruction, Disposal, and Recycling, Banana fiber, biotechnology in processing of shredded currency waste