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# Why are 1000-Piso Polymer Banknotes Smarter, Cleaner, and Stronger?

#PisowithBenefits #SmarterCleanerStronger

## SMARTER, CLEANER, and STRONGER: THE 1000-PISO POLYMER BANKNOTE

The piso of the future is here! In April 2022, the Bangko Sentral ng Pilipinas (BSP) began the circulation of the new and improved 1000-Piso Polymer Banknotes, which will be used alongside the 1000-Piso Paper Banknotes. This will allow the BSP to validate what other countries—such as the United Kingdom, Australia, and Canada, among others—have reported regarding the public benefits of polymer banknotes: SMARTER (more secure and sustainable), CLEANER (more hygienic and sanitary), and STRONGER (more durable and cost-effective) than paper banknotes. The new polymer banknote is also easily distinguishable from the paper banknote given its distinct design and texture.

Central banks around the world improve the designs of their banknotes every 10 years on average. The current series of Philippine banknotes first went into circulation more than 10 years ago.

Public concerns are making the BSP's efforts in this regard more urgent:



First, since the start of the COVID-19 pandemic, sanitizing frequently touched objects, including banknotes and coins, has become a widespread need among the public.



Second, while the Philippines does not have a major counterfeiting problem, crime syndicates keep improving their techniques in counterfeiting the New Generation Currency (NGC) banknotes that are currently in circulation.



Third, given the increasing scarcity of water, energy, and other inputs, our banknotes should be made to last longer, considering both environmental sustainability and cost-effectiveness.

## WHY ARE POLYMER BANKNOTES SMARTER?

First, they are **MORE SECURE**.

Polymer banknotes are more difficult to counterfeit due to the complexity of their printed images and sophisticated security features.

Polymer substrates are made using a unique and advanced technology, which is difficult to replicate. This is evident in the drop in counterfeit notes in circulation from as high as 30 percent to virtually none in countries that have shifted to polymer (CCL Secure Ltd., n.d.).

Canada, Australia, New Zealand, Malaysia, Mexico, Fiji, and Vietnam have experienced a great reduction in counterfeiting cases after shifting to polymer banknotes.

In Canada, after eight years of using polymer notes, detected counterfeits were reduced from a high of 470 down to 15 counterfeits for every million banknotes in circulation. In Vietnam, counterfeiting dropped by 80 percent.

And second, they are **MORE SUSTAINABLE and ENVIRONMENTALLY FRIENDLY**.

Polymer banknotes have a smaller carbon footprint, require lower water and energy usage for production, and cause less environmental toxicity. Moreover, polymer banknotes last at least 2.5 times longer than paper banknotes, reducing the environmental impact associated with regular production to replace banknotes that become unfit from wear and tear (BOE & PE International, n.d.).

A Bank of England (BOE) study estimated a reduction of up to 53 percent in greenhouse gas emissions upon their shift to polymer banknotes from paper banknotes (Shonfield, 2017).

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In a study commissioned by the Bank of Canada (BOC), PE Americas & Tryskele (2011) found that polymer substrate shows benefits over cotton in all main phases of the life cycle: (1) in the manufacturing phase, since it has to be produced 2.5 times less than the cotton paper bank note; (2) in the distribution, since it has to be distributed 2.5 less times and its weight is lighter; and (3) in end-of-life, since the contained carbon in cotton paper bank notes is released as greenhouse gas in the landfill.

When polymer banknotes are retired, they can be recycled to produce various products, such as building components and garden furniture (BOE & PE International, n.d.).

## WHY ARE POLYMER BANKNOTES CLEANER?

They are **MORE RESISTANT TO DIRT, VIRUS, AND BACTERIA.**

Polymer banknotes are significantly cleaner and less susceptible to viral and bacterial transmission due to their smooth and non-absorptive surfaces. They can also be sanitized with less risk of damage unlike paper banknotes.

In Mexico, the average number of bacteria encountered on polymer banknotes was approximately only 25 percent of that found on cotton-based paper banknotes (Vriesekoop et al., 2010).

Consistent with these findings, the Reserve Bank of Australia suggests that a polymer banknote is cleaner and more hygienic than a paper banknote, owing to its protective overcoating ink. This ink also contributes to the polymer banknote's extended durability and cleanliness.

In its 2019 report, the BOE noted that banknotes made from polymer are cleaner because their smooth surface is resistant to dirt and moisture. Additionally, a study by Vriesekoop et al. (2016) demonstrated that washing polymer banknotes resulted in a faster decline in bacterial content compared to washing washi-style<sup>1</sup> cotton and cotton-linen banknotes.

The survival time of the COVID-19 virus was seven days at 30 degrees Celsius on polymer banknotes and three times longer (21 days) on paper banknotes (Riddell et al., 2020).

<sup>1</sup>Washi-style paper banknotes, such as Japanese banknotes, are made of materials such as abaca pulp, mitsumata (*Edgeworthia papyrifera*), and other fibers (National Printing Bureau of Japan, n.d.).

In a special series on COVID-19, the International Monetary Fund (IMF) advised governments to introduce polymer banknotes, which are less likely to transmit the COVID-19 virus (IMF, 2020). After reviewing the scientific evidence, the Philippine Department of Health also suggested the shift to polymer banknotes to reduce the survival time of bacteria and viruses in banknotes.

## WHY ARE POLYMER BANKNOTES STRONGER?





They are **MORE DURABLE and COST-EFFECTIVE.**

Polymer banknotes can last much longer given their resistance to water, oil, dirt, and general wear and tear.

A study commissioned by the BOC found that the lifetime of a cotton paper substrate banknote is only three years compared to a polymer substrate banknote's 7.5 years (PE Americas & Tryskele, 2011).

With an extended life span of two to five times more than paper banknotes, polymer banknotes are more cost-effective in the long run.

### Reported lifetime ratios of various polymer banknotes (increased life factor vs. paper banknotes)

COUNTRIES	 CANADA	 AUSTRALIA	 NEW ZEALAND	 MEXICO	 PAPUA NEW GUINEA
DENOMINATION	20 CAD	10 AUD	20 NZD	20 MXN	2 PGK
LIFETIME RATIO	2.5	3.8	4.8	3.5	4.8

Central banks that use polymer banknotes have reported lower production costs. The BOE, for instance, estimated that the printing of the £5 and £10 notes on polymer than on paper could reduce their production costs by around £100 million over a decade (Bruce & Milliken, 2014).

Moreover, Australia's switch to polymer banknotes resulted in close to \$1 billion in net savings over the past 25 years in inflation-adjusted terms, which does not yet include the substantial savings from reduced counterfeiting cases (Wakefield et al., 2019).

