

## **Press Release**

### **Hong Kong ten-dollar polymer note**

The Hong Kong Monetary Authority (HKMA) today (12 March) announced that with the approval of the Chief Executive in Council, the Financial Secretary decided to issue for trial a ten-dollar polymer note under section 3(1) of the Legal Tender Notes Issue Ordinance. The new note will be issued by the Government of the Hong Kong Special Administrative Region around the middle of this year. The new note will circulate alongside the existing ten-dollar paper notes and coins, both of which will remain legal tender.

The Financial Secretary, Mr Henry Tang, said that the decision to issue the ten-dollar polymer note was taken to find out whether polymer notes are suitable for issue in Hong Kong and whether the community will accept them. “Experience in countries that have introduced polymer notes suggests that they are cleaner, more durable and secure. They are also more environmentally friendly, since they last longer and can be recycled for other use. As an international and vibrant city, there is a need for Hong Kong to explore this alternative technology for currency notes,” Mr Tang added.

Commenting on the design of the new note, the Chief Executive of the Hong Kong Monetary Authority, Mr Joseph Yam, said that it will resemble the existing ten-dollar paper note issued by the Government, except for changes to cater for new security features specific to polymer substrate. “This is the approach often adopted in other countries when introducing polymer notes and avoids adding one more design to the existing legal tender notes,” Mr Yam added.

While retaining some of the security features of the existing purple ten-dollar paper note, the new note incorporates four new visible security features specific to polymer notes:

- a clear window with a numeral 10;
- a watermark-like image of the bauhinia flower, integrated into the clear window;
- a watermark-like image of the numeral 10, which is visible when viewed with background light; and
- the image of a ribbon on the clear window, whose colour changes between pink and purple when the note is tilted.

“Experience in some countries which have introduced polymer banknotes indicates that the annual production cost for banknotes could be reduced by about 40% due to the longer lifetime of polymer notes despite a higher unit cost of production,” said Mr Yam. However, he stressed that the Government will fully evaluate the performance of the new polymer note and its acceptance by the public, before deciding whether to convert any of the other denominations of paper notes to polymer.

The note is currently at the production stage. It is expected to be available for circulation around mid-2007 and will be released gradually to ensure the smooth co-circulation of polymer and paper notes. A further public announcement will be made nearer the time when the first notes will be issued.

Illustrations and explanations of the security features and handling characteristics of the new polymer note are available in a press pack issued by the HKMA. They can also be viewed in the same press release on the HKMA website at [www.hkma.gov.hk](http://www.hkma.gov.hk).

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Hong Kong Monetary Authority

12 March 2007

# LEGISLATIVE COUNCIL BRIEF

## LEGAL TENDER NOTES ISSUE ORDINANCE (CAP 65)

### TRIAL ISSUE OF TEN-DOLLAR POLYMER NOTES IN HONG KONG

#### INTRODUCTION

With the approval of the Chief Executive in Council, the Financial Secretary decided to issue for trial a new ten-dollar currency note on a polymer-based substrate under section 3(1) of the Legal Tender Notes Issue Ordinance<sup>1</sup>, with a view to ascertaining whether polymer legal tender notes are viable and acceptable in Hong Kong. The design of the new note would follow that of the existing ten-dollar paper note, except for changes to cater for new security features specific to polymer substrate.

#### BACKGROUND AND JUSTIFICATIONS

2. An increasing number of countries in the region have decided to switch from paper banknotes to polymer<sup>2</sup> banknotes, including Singapore, New Zealand and Australia. As an international and vibrant city, there is a need for Hong Kong to explore this alternative technology for legal tender notes.

3. Experience in other countries that have introduced polymer notes<sup>3</sup> suggests that there are three major benefits –

- (a) **durability and cost savings:** the lifetime of polymer notes is more than three times the life of equivalent paper notes. This would more than compensate for the higher unit cost of production of polymer notes and achieve substantial annual

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<sup>1</sup> Section 3(1) of the Legal Tender Notes Issue Ordinance provides that the Financial Secretary may, with the approval of the Chief Executive in Council, issue currency notes.

<sup>2</sup> Polymer is made from biaxially-oriented polypropylene and can be recycled with other polypropylene-based materials.

<sup>3</sup> Polymer notes have now been issued in 21 countries in the world, of which 6 countries have used polymer notes for all denominations and 15 countries have issued one or more denominations into circulation.

cost savings. Experience in some countries which have introduced polymer banknotes indicates that the annual production cost for banknotes could be reduced by about 40% due to the longer lifetime of polymer notes despite a higher unit cost of production;

- (b) **high security level:** with the clear window and other innovative and optically variable security features specific to the polymer substrate, experience has shown that polymer notes are difficult, time-consuming and costly to counterfeit. Data from countries which have significant volumes of polymer notes in circulation suggest that the rate of counterfeiting is as low as one note in two million (as in the case of New Zealand). The counterfeit rate in these countries has also been reduced since full conversion to polymer (by 63% in the case of Australia and 96% in the case of New Zealand). The high security level of polymer notes has an added advantage of reducing the need for frequent changes to legal tender note design for upgrading security features, which has been a concern in Hong Kong; and
- (c) **more environmentally friendly:** polymer notes are more environmentally friendly than paper notes in terms of production, distribution and disposal. The unfit polymer notes withdrawn from circulation can be recycled into other polymer-based products. This will achieve cost savings in landfills, which are currently incurred for the disposal of paper notes. The longer note life would also reduce significantly the amount of notes manufactured, which would in turn reduce the resources and waste associated with the manufacturing of notes, such as energy, water pollutants and solid wastes.

4. The above factors suggest that there is a strong case for exploring the viability of introducing polymer notes in Hong Kong. Overseas experience suggests the best way to proceed is through a trial issue of polymer notes often starting with a low-denomination note<sup>4</sup>. This is because there are usually more low-denomination notes in circulation, which enables the public to gain familiarity with the new notes relatively quickly. In our case, we therefore start with the ten-dollar note which is a convenient and appropriate choice as the note is issued by the Government.

5. Subject to the outcome of the trial issue, the Hong Kong Monetary Authority (HKMA) will consider whether or not to extend the

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<sup>4</sup> For example, Australia began to issue their first polymer denomination (A\$5) in 1992 and then changed the other four larger denominations progressively on a roughly annual basis until 1996.

use of polymer notes to other denominations of banknotes. The HKMA has an open mind on future options. Recommendations on the way forward will be made only after an objective evaluation has been made of the quality, security and durability of the new note as well as the level of acceptance by note users.

### **Design of the New Note**

6. Since the primary objective is to gather information on the performance and acceptability of polymer notes in Hong Kong, the existing design of the ten-dollar note will be retained except for changes to cater for some new security features specific to polymer substrate. This is the approach often adopted in other countries when introducing polymer notes and avoids adding another design to the existing legal tender notes.

### **Issuance Plan**

7. It is expected that the issue of the new note will begin around mid-2007 subject to satisfactory completion of calibration and testing of a range of note processing machines in the next three months. A further public announcement will be made nearer the time of the note issuance. The new notes will be issued gradually to ensure the smooth co-circulation of polymer and paper notes.

## **IMPLICATIONS OF THE PROPOSAL**

### **Financial Implications**

8. In line with the current practice with the issue of legal tender notes, the expenses (including the design, production and distribution costs) relating to the proposed issue of polymer ten-dollar notes will be charged to the Exchange Fund. As mentioned earlier, we expect there to be cost savings in production given the longer lifetime of polymer notes.

### **Environmental Implications**

9. The environmental implications of the proposal will be limited, since the scale of the operation involved in the trial issue is relatively small. Nevertheless, if the use of polymer substrate proves to be superior to the currently used paper substrate and is extended to banknotes of other denominations, there could be environmental benefits in the production, distribution and disposal of banknotes. The recyclability of the polymer banknotes will reduce the need to dispose of unfit banknotes at landfills. Furthermore, due to the greater longevity of polymer notes,

the resources and energy used in the production of banknotes to replace the unfit ones could be reduced. Also with a major reduction in the volume of poor quality notes being removed from circulation, there is potential for resources and energy savings in "downstream" currency operations such as note transportation and distribution as well as machine processing of banknotes for quality sorting.

### **Other Implications**

10. The proposal is in conformity with the Basic Law, including the provisions concerning human rights. In particular, the proposal is in line with Article 111 of the Basic Law whereby the Government of the Hong Kong Special Administrative Region is authorised to issue Hong Kong currency backed by a 100% reserve fund. If the proposal is proved viable and acceptable in Hong Kong, it will bring about economic benefits in terms of the savings in production cost and high security level of polymer notes. The proposal has no productivity or sustainability implications.

### **PUBLIC CONSULTATION**

11. The trial issue is by itself a useful means to gauge public views on the introduction of polymer notes in Hong Kong. Actual use of polymer notes will enable all relevant parties (retailers, cash-handlers, banks and members of the public) to provide feedback and opinions on the change. Before making any recommendation to extend polymer notes to any of the other denominations of banknotes, the HKMA will conduct a careful evaluation of the performance and public acceptance of the new note within two years after introduction.

### **PUBLICITY**

12. The HKMA will launch a publicity and educational campaign about the new notes to enhance public understanding of the security features and characteristics of the new note. A series of educational seminars will be held for bank staff and cash handlers explaining the different handling characteristics of polymer notes. We will also reach out to retailers and other members of the public, by organising exhibitions and distributing leaflets and posters, to explain the security features and other characteristics of the new note.

**12 March 2007**

## General Information on the Hong Kong Ten Dollar Polymer Note

### 1) How are polymer notes produced?

Polymer notes are printed on a unique plastic substrate which is manufactured solely for the printing of banknotes and is not commercially available. It starts as a transparent film, and is then coated with layers of inks. During this coating process, areas are deliberately left transparent for the clear windows, and certain security features will be incorporated into the substrate at this stage.

The production of polymer notes comprises the following steps:

#### Step 1: Film Production

Specially formulated polymer granules are made into a clear, thin film through a unique bubble process.

Photo 1 – the polymer granules



Photo 2 – the bubble process



#### Step 2: Substrate Production

The polymer film is coated with various layers of ink incorporating the security features to become the polymer substrate, which is then cut into sheets for feeding into printing presses.

Photo 3 – a sheet of polymer substrate held against light



Photo 4 – cut sheets of polymer substrate





### Step 3: Printing

The following printing processes are then applied:

- a) Offset – prints the background colours and images
- b) Intaglio – prints a heavy ink layer of the main and secondary design features to give a tactile or raised-print feeling
- c) Letterpress – prints the serial numbers.

Photo 5 – printing in progress



### Step 4: Varnishing

The sheets are coated with a transparent and protective varnish for durability.

Photo 6 – varnishing machine



### Step 5: Cutting, Inspection and Packing

The sheets are cut into single notes and inspected on a machine. Individual notes are automatically removed and destroyed if they are not up to the standards. The single notes are then packed for delivery.

Photo 7 – cutting of the notes



Photo 8 – quality control by machine inspection



Photo 9 – bundling of single notes





## 2) What are the new security features?

On the \$10 polymer note, you can find the following security features which are unique to polymer notes:



### **Clear Window**

A see-through window with a numeral 10.



### **Shadow Image of the Bauhinia Flower in the Clear Window**

A watermark-like image of the bauhinia flower integrated into the clear window.



### **Numeral '10' Shadow image**

A watermark-like image of the numeral 10 is visible when viewed with background light.



### **Colour Shift**

The colour of the ribbon on the clear window changes between pink and purple when tilted or examined against light and dark backgrounds.

## 3) What are the other security features on the \$10 polymer note which can also be found on the purple \$10 paper note?

These include:



### **Enlarged Numeral**

The numeral 10 has been enlarged and has a strong tactile effect.



### **See-through Picture**

When the note is viewed with background light, the patterns on the front and back of the note align perfectly to show a complete picture of a horse.



### **Concealed Denomination**

The numeral 10 appears when the note is tilted.



### **Reflective Band**

A shimmering band showing images of the bauhinia flower and "HK10" when the note is tilted. This has been moved to the central part of the note.

## **4) What are the key properties of polymer notes?**

The key properties are:

- a) Non-porous: They do not absorb moisture (e.g. water, oil and sweat) and thus do not stain or get dirty easily.
- b) Sturdy: The structure of the notes does not easily break down and the notes are difficult to tear.
- c) Temperature: They perform well in a full range of climatic conditions. For temperatures above 120°C, they will begin to shrink slightly.

## **5) Do polymer notes require different ways of handling?**

Polymer notes can essentially be handled in the same ways as paper notes. As with paper notes, new notes sometimes stick together. This attraction will diminish when the notes are put into circulation. When opening a packet of new notes, we can separate the notes in the following ways:



**Fanning**



**Shuffling**



**Tapping**



**6) Can polymer notes be folded?**

Polymer notes can be folded. But we should avoid applying excessive pressure, which may damage the notes. To unfold the notes, lay them on a flat surface and apply slight pressure.

**7) Is it difficult to hand-count polymer notes?**

Not at all. As with paper notes, we may count polymer notes using the areas where strong tactility is found, such as the numeral 10 and the text “GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION” on the front.

Hong Kong Monetary Authority  
12 March 2007