



# **Payment Systems Annual Report 2007**

**Reserve Bank of Malawi**

**April 2008**

## **1.0 FOREWORD**

Malawi's payment system is coming from a past where cash and cheques provided the only means of executing payments. The implementation of Structural Adjustment Programmes (SAPs) with the assistance from the International Monetary Fund (IMF) and the World Bank and increased trade between Malawi and her neighbours have led to increased financial activities both within the country and across its borders. This outcome demands an efficient, reliable and robust payment system that can support domestic as well as international requirements.

The Reserve Bank of Malawi (RBM) as the regulator of the financial system continues to play a leading role in payment systems modernisation initiatives in line with Malawi's National Payment System Vision and Strategy Framework. Over the years, Malawi has implemented electronic based payment and settlement facilities such as the Real Time Gross Settlement System (RTGS), Electronic Cheque Clearing House (ECCH) and Smartcard scheme.

The future task for Malawi is to ensure that various systems are integrated and attain straight through processing. This will enhance efficiencies in transaction processing.

## Table of Contents

<b>1.0</b>	<b>FOREWORD.....</b>	<b>2</b>
<b>2.0</b>	<b>INTRODUCTION.....</b>	<b>4</b>
<b>3.0</b>	<b>MALAWI'S PAYMENT SYSTEMS LANDSCAPE.....</b>	<b>5</b>
<b>3.1</b>	<b>Real Time Gross Settlement (RTGS).....</b>	<b>5</b>
	<b>3.1.1 Operations of RTGS System.....</b>	<b>6</b>
<b>3.2</b>	<b>Electronic Cheque Clearing House (ECCH).....</b>	<b>8</b>
	<b>3.2.1 Operations of the ECCH.....</b>	<b>9</b>
<b>3.3</b>	<b>Smartcard Scheme.....</b>	<b>9</b>
<b>3.4</b>	<b>Areas Requiring Improvement.....</b>	<b>10</b>
	<b>3.4.1 Legal and Regulatory Framework.....</b>	<b>10</b>
	<b>3.4.2 Lack of Interoperability of ATMs and Point of Sale (POS) Devices..</b>	<b>10</b>
<b>4.0</b>	<b>OVERSIGHT OF THE NPS.....</b>	<b>10</b>
<b>4.1</b>	<b>Role and Legal Mandate of RBM as Overseer of the NPS.....</b>	<b>10</b>
<b>4.2</b>	<b>Scope of RBM Oversight.....</b>	<b>11</b>
<b>4.3</b>	<b>Standards for Overseen Systems – The Core Principles.....</b>	<b>12</b>
<b>4.4</b>	<b>Summary of IMF's Assessment of RTGS and ECCH.....</b>	<b>12</b>
<b>5.0</b>	<b>REGIONAL AND INTERNATIONAL COOPERATION.....</b>	<b>14</b>
<b>5.1</b>	<b>Southern African Development Community.....</b>	<b>14</b>
<b>5.2</b>	<b>International Monetary Fund and the Bank of Norway.....</b>	<b>14</b>

---

## 2.0 INTRODUCTION

A payment system is defined as a set of instruments, banking procedures and, typically, interbank funds transfer systems that ensure the circulation of money (BIS 2001). By enabling transactions to be completed safely and on time, an efficient payment system is a prerequisite for a sound financial system which is in turn a key factor in increasing the economic growth potential of a country. Inefficient or poorly managed payment systems can therefore be a source and propagating factor of financial crises which may have devastating effect on the entire economy.

In order to ensure that the national payment system (NPS) is safe and efficient, the Reserve Bank of Malawi (RBM) in collaboration with the banking industry embarked on a modernisation programme which saw the introduction of a number of electronic based payment, clearing and settlement facilities. The NPS modernisation programme was to a great extent influenced by the structural reforms that were implemented in the financial sector in the early 1980s. The reforms were initiated by the Malawi Government as part of the overall Structural Adjustment Programmes (SAPs) with the assistance of the International Monetary Fund (IMF) and the World Bank.

There are also other factors that influenced NPS reforms in Malawi. These include the need to attract foreign investors into the country and the introduction of the Southern African Development Community (SADC) Payment Systems Modernisation Project by the SADC Committee of Central Bank Governors. The introduction of the SADC Payment Systems Modernisation Project added impetus to the reform process that was initiated under SAPs.

The modernisation process however gained momentum in 1993 when the National Payments Council (NPC)<sup>1</sup> was established. The principal objective of the NPC is to coordinate NPS reform projects. Through the NPC, Malawi has managed to establish a national network and transaction switch, the real time gross settlement (RTGS) system, the chip-based smart card scheme and the electronic cheque clearing house (ECCH) among others.

---

<sup>1</sup> The NPC, which is chaired by the Reserve Bank of Malawi, is a grouping of financial institutions, Malawi Government (through Accountant General's Office) and some payment systems related service providers.

### 3.0 MALAWI'S PAYMENT SYSTEMS LANDSCAPE

Malawi, just like any other developing country, has a dual payment stream in which electronic based payment facilities coexist with cash and paper based payment channels. The efforts of the RBM have however been geared towards promoting the use of electronic payment instruments. A graphical representation of automated systems in Malawi is contained in *Figure 1* below.

**Figure 1: Inter-bank Systems in Malawi**

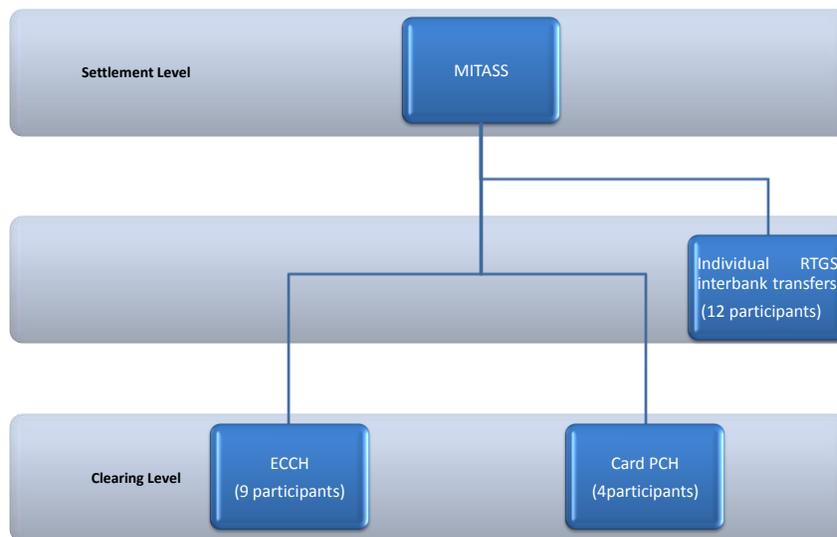


Figure 1 above shows that commercial banks in Malawi are linked together by interbank systems that make it possible for them to settle their claims. At the highest level of this structure is the real time gross settlement (RTGS) system which is owned and operated by the RBM. The RTGS settles single funds settlement instructions (FSIs) posted by individual banks and also concurrently batched transactions from the Electronic Cheque Clearing House (ECCH) and the Smartcard Payments Clearing House.

Subsequent sections provide a detailed description of the automated systems contained in Figure 1 above.

#### 3.1 Real Time Gross Settlement (RTGS)

An RTGS system is a set of procedures and computer applications that enable participants to route and settle payment instructions amongst themselves in real time and

in a secure manner. Participants pass these high value transactions in the RTGS system to each other and their accounts are accordingly credited or debited at the RBM.

Malawi's RTGS system was launched on 19<sup>th</sup> March 2002 with the aim of improving safety and efficiency of the inter-bank settlement processes. Malawi became the third country in SADC to implement an RTGS system after the Republic of South Africa and Mauritius. Malawi is using an RTGS software that was developed and installed by Perago Financial System Enablers, a South African based company. The RBM owns the RTGS but technical management was outsourced to the Malawi Switch Centre (MALSWITCH).

### **3.1.1 Operations of RTGS System**

#### **(a) Participating Institutions**

Participation in the RTGS system is limited to financial institutions that maintain a settlement account with the RBM. In addition RTGS participants must have a banking licence issued by the RBM and also fulfil all the necessary technology and security requirements stipulated under the RTGS settlement agreement. The number of participants grew from nine in 2002 to twelve in 2007. The participants include the RBM, nine commercial banks and two discount houses.

#### **(b) Operating Hours**

The RTGS system operates from 08:00 hours to 17:00 hours from Monday through Friday by use of a prescheduled Settlement Day that is divided into four major windows. Window 1 runs from 08:00 hours to 13:00 hours, Window 2 operates from 13:00 hours to 15:30 hours, Window 3, which is used for settling cheque clearing batches runs from 15:30 hours to 16:20 hours. Finally, Position Window runs from 16:20 hours to 17:00 hours and is mainly used for inter-bank borrowing and lending.

Malawi's RTGS system offers the following settlement facilities:

- i. **Real Time Mechanism (RTM)** – which processes high value – low volume transactions that are initiated into the system through single or concurrently batched funds settlement instructions.
- ii. **Diarised Settlement List (DSL)** – allows banks to diarise payments for settlement at a specified date and time
- iii. **Liquidity Optimising Mechanism (LOM)** - enables both continuous and concurrent batch processing lines where participants can settle only those transactions that they could and only when they can.

(c) **Pricing in the RTGS System**

The RBM, in its developmental role, adopted a partial cost recovery policy with the aim of encouraging system usage by all participants and eventually generate transaction volumes sufficient to achieve lower unit costs through economies of scale.

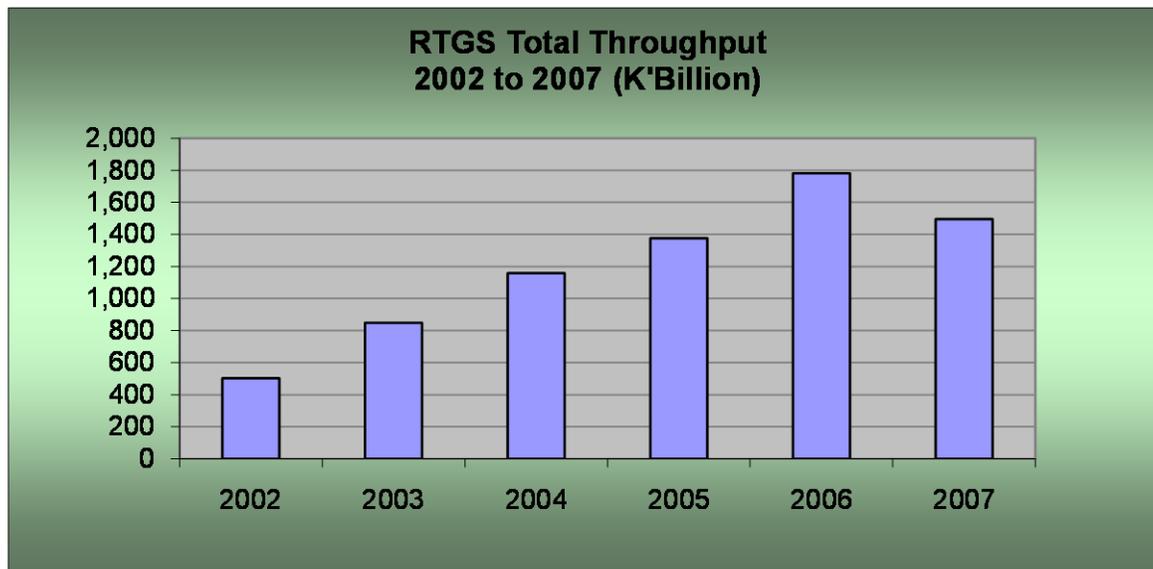
System participants are required to pay annual subscription fees payable in equal quarterly instalments. The annual fees contribute towards recovery of RTGS capital cost. System participants are also charged a transaction fee which is item based. The standard per item charge is MWK100.00. However, there is a discount or a surcharge of 50% on transaction charges depending on the processing window in which a participant sends a payment instruction. Individual participants also charge their customers for processing RTGS funds settlement instructions on their behalf.

(d) **RTGS Trends**

RTGS Throughput is the total value of transactions processed through the RTGS system which include single transactions in the form of funds settlement instructions (FSIs), cheque and smartcard transactions that are processed in batches. The RTGS Throughput also includes charges and penalties pertaining to usage of the system.

From March 2002 to December 2006 RTGS Throughput reflected an increasing trend, registering an average annual growth rate of 26.5 percent. In 2007 however, Throughput dropped by 19.1 percent to MWK1,494 billion from MWK1,780 billion recorded in 2006. The decline was significant during the months of June and July 2007. The 2007 throughput decline is attributed to a general traffic slow down in the system as a result of reduced treasury bills and RBM bills transactions. A graphical representation of RTGS Throughput is illustrated in Figure 4 below.

**Figure 4: RTGS Throughput**



Year on year analysis of values shows that the share of FSIs in the Throughput from 2002 to 2007 ranged from 76 to 79 percent. This means that the share value of cheques and smartcards ranged between 21 to 24 percent during the same period.

### **Volumes**

The total volume of transactions processed through the RTGS System from 2002 to 2006 also reflected an increasing trend. The number of payment messages recorded in 2007 however dropped from 109,558 to 83,815, representing a 23 percent decline. The drop is attributed to a reduction in treasury bills and RBM bills activity.

### **3.2 Electronic Cheque Clearing House ECCH**

The ECCH was launched on 1<sup>st</sup> August 2005 under the auspices of the NPC. Cheque processing under the ECCH is based on code line clearing, cheque imaging and truncation. The introduction of the ECCH has reduced the clearing period from over 7 days to an average of 3 business days. Bankers Association of Malawi (BAM) owns the ECCH but technical management was outsourced to MALSWITCH.

Participating banks electronically capture and transmit cheque data and images to the central system for determination of net clearing positions. Once clearing obligations have been determined, the ECCH electronically sends the batch to the RTGS for settlement. The ECCH batch is successfully settled if and only if all participants with net debit positions in the ECCH batch have sufficient funds in their RTGS accounts. If one of the participating banks with a net debit position has insufficient funds in its RTGS account,

the settlement process can not be successfully concluded and the entire ECCH batch is discarded. In such circumstances, the defaulting bank has to make good of its account before the discarded batch is retransmitted to the RTGS for settlement.

### **3.2.1 Operations of the ECCH**

#### **(a) Participating Institutions**

Participation in the ECCH is limited to clearing banks. Options are also available for banks to become direct or indirect participants. For a bank to become a direct participant, it must have a fully functional in-house cheque processing system with image scanners and must be connected to the core servers of the ECCH. Indirect participants, on the other hand, do not have to install in-house cheque processing equipment but clear their cheques through a sponsorship arrangement with a direct participant.

#### **(b) Operating Hours**

The ECCH operates from 08:00 to 17:00 hours from Monday through Friday. All commercial banks' designated cheque imaging centres send their batch files of cheque images and data to their head offices. In turn, head offices are expected to send their consolidated batch files received from various centres to the ECCH by 14:00 hrs. The ECCH system consolidates files received throughout the day from commercial banks' head offices into a batch and automatically transmits it to the RTGS at 15.30 hours. Settlement of the batch, which becomes final and irrevocable, is effected at 16:10 hours in Window 3.

#### **(c) Pricing**

The standard charge per item is MWK25.00 for all outward transactions from the commercial banks. The accumulated charges are collected at the end of the month based on a report derived from the ECCH.

### **3.3 Smartcard Scheme**

MALSWITCH introduced electronic payment cards (electronic purse) branded Smartcard in 2002. The smart card uses chip technology and the registration is biometrics based. The Smartcard is a plastic payment card embedded with an electronic chip, and it comes pre-loaded. A Smartcard can keep personal information such as holders' bio data, templates of finger prints and any other details depending on the application, or level of financial transactions. As of end December 2007, there were 215,000 Smartcards issued.

### **3.4 Areas Requiring Improvement**

While Malawi has made progress in modernising the NPS, there are areas that require improvement. Some of the issues are:

#### **3.4.1 Legal and Regulatory Framework**

The modernisation programme has resulted into the introduction of electronic based payment, clearing and settlement facilities without changes to the legal framework. Malawi does not have a specific legislation governing the operations of the NPS. In order to mitigate legal risk, participants resorted to contractual law. Nevertheless, legal risks may still exist since the legal agreements have never been tested in a court of law to ascertain their legal validity. The absence of the NPS Act coupled with untested legal agreements may result into failure of some systems to fully comply with the CPSS/BIS Core Principle No. 1 which states that *the system must have a well-founded legal basis under all relevant jurisdictions*. There is therefore need to have an NPS Act in place.

#### **3.4.2 Lack of Interoperability of ATMs and Point of Sale (POS) Devices**

Most ATMs and POS operate on a stand-alone basis. This therefore tends to force customers or merchants to have more than one brand of cards or POS devices to transact. This is not only costly to account holders and merchants but also to the banking industry since resource requirements are duplicated each time a commercial bank sets up or maintains an ATM or POS infrastructure. The NPC should therefore speed up the project to inter-link ATMs and POS. This will enable clients to have only one brand of card and transact on any ATM or POS.

### **4.0 OVERSIGHT OF THE NPS**

The BIS defines payment systems oversight as a central bank task, principally intended to promote the smooth functioning of payment systems and to protect the financial system from possible ‘domino effects’ which may occur when one or more participants in the payment system incur credit or liquidity problems (BIS 2001). Oversight involves monitoring, assessing and, where necessary, inducing change in the country’s national payment and settlement systems infrastructure.

#### **4.1 Role and legal mandate of RBM as overseer of the NPS**

RBM’s oversight of the NPS is an integral part of its wider responsibilities for monetary and financial stability. More specifically, the RBM draws its powers to oversee the NPS

from the Reserve Bank of Malawi Act (1989) Chapter 44:2 which stipulates that the principal objectives of the RBM shall be, *inter alia*; to *promote a sound financial structure in Malawi, including payment systems, clearing systems and adequate financial services*. In addition, the Banking Act (1989) further empowers RBM to supervise banks and financial institutions with the aim of protecting the interest of depositors and creditors with regard to solvency, liquidity and profitability of financial institutions. Again, it is hoped that the eventual enactment of the NPS Bill will strengthen RBM's oversight role.

In line with the statutory powers vested in it and again in view of the recent efforts undertaken to modernise the country's NPS, the RBM has, with technical assistance from the IMF through the Bank of Norway, developed an Oversight Policy for Payment and Settlement Systems. Among others, the policy highlights RBM's objectives and scope of oversight activities. In line with this, RBM feels obligated to publicly give an account of the way in which it has carried out its role each year through the Payment Systems Annual Report.

#### **4.2 Scope of RBM Oversight**

Based on volume, value and risk assessment, RBM oversight function focuses on systems identified as SIPS and/or SWIPS<sup>2</sup>. In general, payment systems are categorised into two; interbank systems and systems for payment services. The interbank systems are systems for clearing and settling the cash flows between the banks and the RBM. On the other hand, systems for payment services (retail payments) include solutions for bank cards and electronic and paper-based systems for paying bills. In this regard, the RBM has designated the following inter-bank payment systems as SIPS and hence are subject to RBM's oversight:

- i. The RTGS system owned by the RBM
- ii. The ECCH owned by the Bankers Association of Malawi.

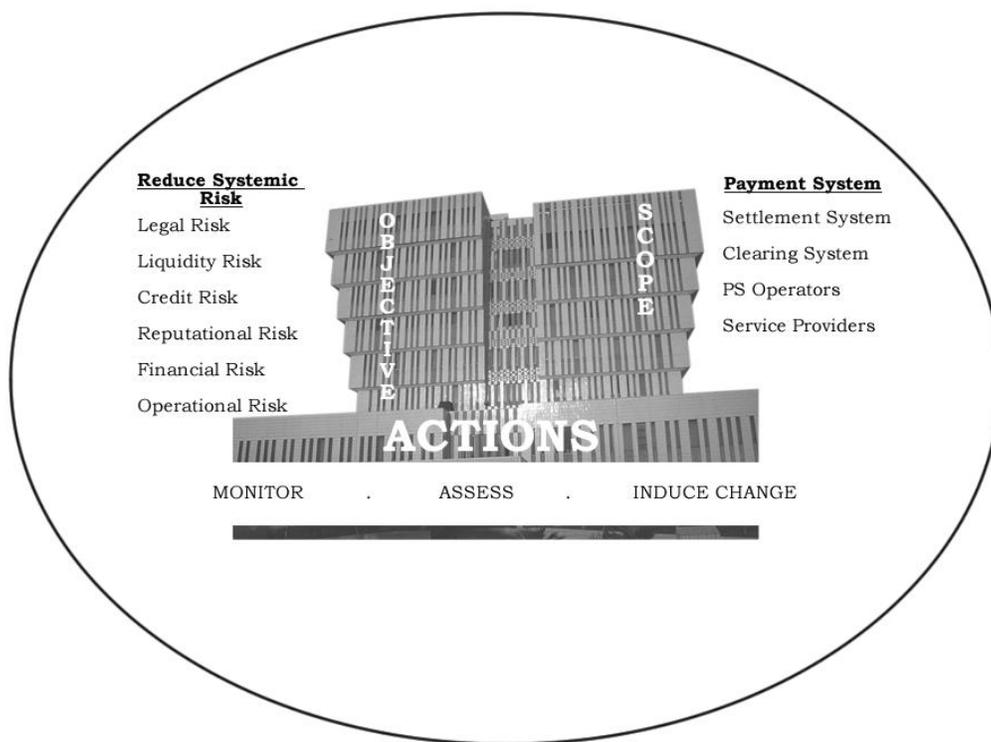
In terms of SWIPS, RBM oversees the MALSWITCH Smart Card System (e-purse) being operated by MALSWITCH.

---

<sup>2</sup> See RBM's '*Oversight Policy for Payment, Clearing and Settlement Systems*' (November 2007) and, also, BIS's '*Central Bank Oversight of Payment and Settlement Systems* (May 2005).

Figure 6 below summarises oversight activities of RBM in Malawi.

**Figure 6: NPS oversight activities in Malawi**



#### **4.3 Standards for Overseen Systems – the Core Principles**

The foundation of RBM’s oversight activities lies in the analysis of credit, liquidity, operational and legal risks in the specified payment and settlement systems in Malawi. RBM assesses these risks against the internationally recognised benchmarks - *the Core Principles for Systemically Important Payment Systems*<sup>3</sup>. These core principles provide a set of minimum standards for payment systems, covering legal risks (Core Principle I), credit and liquidity risks (Core Principles II to VI) and operational risks/business continuity (Core Principle VII), as well as efficiency (Core Principle VIII), access criteria (Core Principle IX) and governance issues (Core Principle X).

#### **4.4 Summary of IMF’s Assessment of RTGS and ECCH**

The underlying objective in assessing whether or not the designated systems comply with the BIS Core Principles is to provide a basis for actions and initiatives for further

<sup>3</sup> The full text of the Core Principles and guidance on their implementation are available on the BIS website (CPSS (2001), Core Principles for Systemically Important Payment Systems, available at [www.bis.org/publ/cpss43.htm](http://www.bis.org/publ/cpss43.htm)).

improvements in the national payment and settlement systems infrastructure, and hence, the entire financial system in Malawi. In March 2005 RBM undertook a preliminary self-assessment of the two systemically important payment systems (RTGS and ECCH) under the auspices of the Southern African Development Community (SADC) regional payment systems project. A more updated and thorough payment systems assessment was done with the aid of technical assistance (TA) from the IMF and the Bank of Norway. However, it should be emphasized that there is a certain element of subjectivity when assessing the compliance of a payment system with the core principles. The assessments are based on what is assumed to be best practice, taking into consideration the overall environment for the relevant payment system. Table 1 below summarizes the assessment done on the RTGS and ECCH. However, Malswitch Smartcard system is yet to be assessed.

***Summarized compliance of Perago: rtgs and ECCH to the Core Principles***

<b>Core Principle/System</b>	<b>Perago: rtgs</b>	<b>ECCH</b>	<b>Smartcard</b>
<b>CP I: Legal basis</b>	Partly observed	Partly observed	assessment not yet done
<b>CP II: Understanding financial risks</b>	Broadly observed	Broadly observed	assessment not yet done
<b>CP III: Mgt of financial risks</b>	Broadly observed	Broadly observed	assessment not yet done
<b>CP IV: Prompt final settlement</b>	Observed	Observed	assessment not yet done
<b>CP V: multilateral netting systems</b>	Not applicable	Not applicable	assessment not yet done
<b>CP VI: settlement asset</b>	Observed	Observed	assessment not yet done
<b>CP VII: business continuity</b>	Partly observed	Partly observed	assessment not yet done
<b>CP VIII: Efficiency</b>	Broadly observed	Broadly observed	assessment not yet done
<b>CP IX: Access criteria</b>	Broadly observed	Broadly observed	assessment not yet done
<b>CP X: Governance</b>	Broadly observed	Broadly observed	assessment not yet done

**Key**

	Partly observed		Observed
	Broadly observed		Not applicable
	assessment not yet done		

## **5.0 REGIONAL AND INTERNATIONAL COOPERATION**

In line with the *BIS Central Bank Responsibility D*, the RBM cooperated with both local and foreign bodies involved in payment systems. **Responsibility D** states that *the central bank, in promoting payment system safety and efficiency through the core principles, should cooperate with other central banks and with any other relevant domestic or foreign authorities*. Locally, the RBM cooperated with the NPC and BAM in a number of payment systems areas that are aimed at making the NPS safe and efficient. The following sub-sections provide names of foreign institutions which the RBM cooperated with.

### **5.1 Southern African Development Community**

The Southern African Development Community (SADC) Payment Systems Project was established with the aim of assisting individual SADC member countries to define domestic payment strategy and a development plan. The SADC Payment System Project also aims at defining a coordinated regional approach to cross border payment system.

In 2005 Malawi participated in a self assessment exercise of the NPS that was organised by the SADC Payment Systems Project. The exercise not only afforded an opportunity for Malawian payment systems experts to interact with a panel of assessors from SADC member countries but also provided an independent opinion on the compliance of Malawi's RTGS with the core principles.

### **5.2 International Monetary Fund and the Bank of Norway**

In the year under review the RBM cooperated with the IMF and Bank of Norway in various payment systems activities. Technical cooperation (TC) with Norges Bank resulted in the production of several outputs by the RBM. Through the TC, the following have been achieved among others, the production and subsequent disclosure of RBM's payment systems oversight policy, the revision of NPC organisational structure and terms of reference, reassessment of the RTGS and the revision of Malawi's NPS Vision and Strategy Framework. The TC programme was also coordinated with the financial sector assessment programme (FSAP) which also involved the evaluation of Malawi's NPS. The FSAP was done by a team of experts from the IMF and World Bank.