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Assessment of the Payment System

With respect to Inclusiveness towards

Small Remittances

Report

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Payment Systems and Remittances

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Table of Contents

List of tables

List of figures

List of Appendices

Abbreviations

ACH	Automated Clearing House
AML	Anti Money Laundering Act
ASP	Application Service Provider
ATM	Automated Teller Machine
AWM	Any Where Money
BC	Business Correspondent
BCO	Business Correspondent Outlet
BCSBI	The Banking Codes and Standards Board of India
BdB	Bankenverband (Association of Private German Banks)
BIS	Bank for International Settlement
BPSS	The Board for Regulation and Supervision of Payment and Settlement
BVR	Bundesverband der Deutschen Volksbanken und Raiffeisenbanken
CAS	Common Accounting System
CBS	Core Banking Solution
CCIL	Clearing Corporation of India Limited
CDD	Customer Due Diligence
CEO	Chief Executive Officer
CGM	Chief General Manager
CFT	Combating Financing Of Terrorism
CNP	Card Not Present
CTS	Cheque Truncation System
DCCB	District Central Cooperative Bank
DDG	Deputy Director General
DPSS	The Department of Payment and Settlement System
DSGV	Deutscher Sparkassen- und Giroverband (Germany's Savings Bank Association)
EBT	Electronic Benefits Transfer
ECB	European Central Bank
ECOFIN	Economic and Financial Affairs Council
ECS	Electronic Clearing Service

EFT	Electronic Funds Transfer
eMO	Electronic Money Order
EPC	European Payments Council
EU	European Union
FATF	Financial Action Task Force
FI	Financial Inclusion
FINO	Financial Information Network and Operations Private Ltd
GDP	Gross Domestic Product
GIZ	Deutsche Gesellschaft füer Internationale Zusammenarbeit (GIZ) GmbH
GM	General Manager
GoI	Government of India
GPRS	General Packet Radio Service
IBA	Indian Bank's Association
ICT	Information and Communication Technology
IDRBT	Institute for Development and Research in Banking Technology
IDD	Institutional Development Department
IMG	Inter-Ministerial Group
iMO	Instant Money Order
IMPS	Interbank Mobile Payment Service
INFINET	Indian Finance NETwork
ISO	International Organisation for Standardisation
IVR	Interactive Voice Response
J&K	Jammu & Kashmir
KYC	Know Your Customer
KYR	Know Your Resident
MD	Managing Director
MICR	Magnetic Ink Character Recognition
MIS	Management Information System
MFI	Microfinance Institution
MoU	Memorandum of Understanding
NABARD	National Bank For Agriculture And Rural Development
NAFCUB	National Federation of Urban Cooperative Banks

NAFSCOB	National Federation of Scheduled Cooperative Urban Banks Limited
NCC	National Clearing Cell
NECS	National Electronic Clearing Service
NEFT	National Electronic Fund Transfer
NDS	Negotiated Dealing System
NFS	National Financial Switch
NPCI	National Payments Corporation of India
NREGA	National Rural Employment Guarantee Act
NREGS	National Rural Employment Guarantee Scheme
OBC	Other Backward Class
PACS	Primary Agriculture Credit Society
PDO	Public Debt Offices
PIN	Personal Identification Number
PKI	Public Key Infrastructure
PNB	Punjab National Bank
PoS	Point of Sale
PoST	Point of Sale Terminal
POSB	Post Office Savings Bank
PSD	Payment Service Directive
PSP	Payment Service Providers
PSS	Payment and Settlement Systems Act
RBI	Reserve Bank of India
RFIP	Rural Financial Institutions Programme
RPS	Retail Payment Systems
RRB	Regional Rural Bank
RTGS	Real Time Gross Settlement
SC	Scheduled Caste
SCF	SEPA Cards Framework
SCT	SEPA Credit Transfer
SDD	SEPA Direct Debit
SEPA	Single Euro Payments Area
SFMS	Structural Financial Messaging System

SIM	Subscriber Identity Module
SMS	Short Messaging Service
ST	Scheduled Tribe
STP	Straight-Through-Processing
TRAI	Telecom Regulatory Authority of India
UCB	Urban Cooperative Bank
UIDAI	Unique Identification Authority of India
UK	United Kingdom
UN	United Nations
UP	Uttar Pradesh
USA	United States of America
VÖB	Bundesverband Öffentlicher Banken Deutschlands (German: Association of German Public Banks)

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Executive Summary

Financial inclusion has been an integral component of the objective of inclusive growth of Indian economy. The GoI and RBI have initiated a series of measures to ensure that financial inclusion becomes a reality. However the progress at an operational level has been slow and halting. The financial sector is faced with problems of limited reach compared with population to be served, technology issues, deficient human resources, low capacity to understand and pay for services on the part of potential customers and banker attitudes that favour high street banking. The difficulties faced by the low income groups, especially migrants, have been well documented in several studies. A major problem faced by the migrants is that of an unresponsive remittance system offered by banks that compels the migrants to use informal channels at high costs accompanied by high risks. This study has focused on the payments system architecture, instruments, processes and has come out with suggestions on how to improve the coverage, availability, efficiency, safety and lower costs in a bid to increase accessibility of the remittance services to the low income groups, irrespective of holding of bank accounts.

Remittances are a part of payments; the payments architecture should be fully in place before the remittance facilities could be rolled out across the country for people, big or small. The payments system should be so structured as to put through transfers and payments faultlessly and instantaneously without entailing high costs. The electronic systems in place within banks on CBS platforms and the national level platforms such as NFS, NEFT, NECS and RTGS systems which effect transfer and settlement across banks and geographies are the heart of efficient payments systems. In India while state of the art products and technologies are abundant in the payments system, the same is practically limited to urban areas and have virtually remained a preserve of the elite. The electronic payments systems when extended to small income groups and those in remote areas would immensely facilitate the inclusion agenda and reduce costs and risks of availing payment services.

The study, during the course of field visits, gained a first-hand appreciation of technological, infrastructural and attitudinal issues on the supply side of the payment system. On the demand side, the low capacity to pay, the low level of confidence in approaching formal institutions for payment services, financial illiteracy and lack of identification documents to comply with bank's norms were seen as major drawbacks in gaining access to available payment services. The other institutions such as Post offices and Primary Cooperative societies, though ubiquitous, are not technologically enabled

and have untrained staff in matters pertaining to payments. The task of improving the payments infrastructure and operations in banks and other institutions is therefore huge and complex. It needs well coordinated implementation effort like SEPA in Europe, to develop a unified seamless payment system infrastructure for the country.

The recommendations concentrate on the major players that have the responsibility for policy, funding, operations, marketing and use of services.

On the supply side the recommendations are that the network presence of financial institutions should be enhanced, technologically enabled with real-time online transaction capabilities, and the staff suitably trained not only with suitable skills but also appropriate attitudes towards low income customers. Reasonable pricing of services, hiring of BCs in needed locations with adequate technological supplementation, insisting on interoperable systems and software and installation of cash-in and cash-out terminals (ATMs, Micro-ATMs, POS terminals) are some of the other actions needed in the banking system. The technology costs of the post offices and cooperative societies may have to be met by the Government, RBI and NABARD as a one-time investment in a much needed public infrastructure.

On the demand side, the customers' literacy has to be enhanced and they should be equipped with the documentation necessary to open bank accounts and offer authentication of transactions, especially cash-outs. The cost of improving awareness and building confidence of potential customers should be borne by the GoI and RBI and the banks pitching with their costs for marketing that would bring business to BCs. The customers would stand to benefit by a basic remittance service (on the lines of Western Union) that demands no KYC but a remitter's code and identification of the payee of the remittance.

The study also finds that mobile banking based payments have considerable scope for expansion. The ease and comfort with which mobiles have been embraced by low income groups points to the potential for offering financial services with mobile SIM cards linked unique identifiers. The partnerships announced recently between major Telecom companies and major banks are an indication of this potential. The UID project would be a valuable source for KYC documentation.

The international experience shows that eventually the paper and cash based payments and settlements would decline drastically. The sooner cash is trapped by banks and made to flow through the payments system the better it is for the customers. The commitment of the governments for e-payments when making their benefit payments, the corporate sector when it

makes payments for procurement of goods from rural producers, and the people when making their utility payments are equally important in improving the transaction throughput in the payments system and thereby improve its viability. Viability related issues dampen the enthusiasm of banks (like UCBs and DCCBs) in making an all out effort to make the required investments. The different funds on inclusion set up with NABARD could be used to support banks to meet viability gaps that might be noticed in the initial two years so as to incentivize the banks to convert the potential of rural customers into a viable business proposition.

Important recommendations

Recommendation	**Action by**	**Problem addressed**	**Outcomes**
The Government and the RBI should provide assistance for developing infrastructure, under proper review mechanism, for e-payments to make the system less dependent on Cash	GoI and RBI	Current infrastructure is at a low level of technology and investments are perceived to be high by banks.	Cash-in and Cash-out will generate less physical cash, make movements of cash easy and quick. Govts will spend less on making EBTs and with greater delivery efficiency without leakages.
Those PACS who are doing well should be allowed to act as BCs for their corresponding DCCB. Such PACS should allow deposits from the non-members	RBI	Not only network should be enlarged, but customers should have the confidence to approach institutions to put through transactions. PACS are seen to be friendlier places than bank branches.	An increased number of people using formal remittance chanels, increased savings with Cooperative PACS.
MFIs (the good ones) can be considered for BC like service for payment system, with all due diligence, through banks	RBI	Limitations of banking network. Lack of self-confidence among customers to use	Increased use of services if offered through MFIs, which are having a relationship

		banks.	with customers already.
Government and RBI should organise focused financial education and awareness campaigns among the people, institutions and organizations.	GoI and RBI	Lack of literacy leading to low self-confidence to use public institutions.	Better aware customers, more transactions through formal remittance channels, improved viability for banks and others.
RBI and the banking system have to promote e-payments in a big way.	RBI and Banks	Low level of usage of e-payment products and systems.	Better capacity utilization of the payment network and increased cost recovery/return by banks.
All the bank branches (including cooperative banks) should have core banking solution. Post office network and the primary cooperative societies should be equipped with core banking like solutions. It is recommended to have a roadmap set for those bank branches and institutions still not under core banking network.	RBI and Banks	Lack connectivity for real-time transactions, especially in remote locations.	Improved transaction times, higher volumes of transactions, error free accounting.
Banks should follow the specific standards for the payment instruments to insure interoperability. With such systems in place banks, based on customer requirements, should necessarily issue one or more ATM cum debit cards for operating the bank account.	Banks	Services of banks cannot be easily availed due to proprietary technology systems used.	Interoperability will enable customers to avail cash-in and cash out services from any bank branch regardless of the bank with which accounts are kept. This will be a source of great comfort for all.
Standardized battery operated Micro-ATM terminals with	Banks/BCs	Services of banks cannot be easily	In remote locations,

online GPRS connectivity should be used by BCs in the same manner as it would be used in the bank branch counters. Such BCs should invariably be present in the village market place.		availed due to proprietary technology systems used.	interoperable systems will improve customer comfort and enable easy remittance flows.
Studies to be conducted on the following areas: • build an econometric model on impact of converting cash payments to e-payments; • product development for simplified small remittances; • study usability of telecom KYC for banking; • cost study on viability of small remittances from supply side – and pricing issues; • design a 'm-check' like pilot and run in a few locations to examine how mobiles can facilitate local institutions such as cooperative societies and RRBs.			

1 Introduction

1.1 Background

The small value remittances sent by domestic migrant workers living in cities for their family left behind in villages is a regular feature of Indian economy. These workers numbering around 100 million have a size exceeding total population of even the largest western European country. As most of these people come from poor background, they need to have a cost effective and dependable infrastructure for sending money home. This also has bearing on financial inclusion and inclusive growth. In this context a scoping study titled "Remittance Needs in India"[1] was undertaken as part of the Technical Cooperation Programme of the Republic of India and the Federal Republic of Germany through the NABARD – GTZ Rural Financial Institutions Programme (RFIP). The study shows that migrant workers find it difficult to remit money through formal channels for variety of reasons and hence are forced to depend on informal channels (e.g. Angadias in Gujarat having a network of agents across the country for transfer of money, which works on trust and its origin goes back to many generations), even if these are costly and undependable. While widespread use of informal channels has been reported and studied, there is no macro level information on the extent of its use and its significance to migrants. While a sophisticated payments system exists in the country, its responsiveness to small customers and the excluded has not been up to the desired level. It was felt necessary to undertake a study to assess the payment system for its suitability and responsiveness to the needs of the migrant workers for money transfer increasingly through formal channels. The objective of this study is to i) gain a clear understanding of the present state of the payment system prevalent in the country, the legal and institutional framework governing their operation, the infrastructure and instruments available for money transfer, and ii) gauge the state of inclusiveness of these services towards small remittances with a view to suggesting measures considered appropriate for collaborative action for improving the reach of the payment system for meeting the needs of the poor. As the development of payment system reach is not only an important plank of financial inclusiveness, but also considered crucial for inclusive growth, the study is expected to serve a useful purpose for policy having implications on both these aspects.

[1] By Dr. Y. S. P. Thorat and others – 2009.

1.2 The payment system

Payment refers to transfer of money from one party, called payer, to the other, called payee, for settlement arising out of any business transaction. The transfer can also be between two or more accounts of the same party or different parties to support any need, including remittance. If a bank sanctions loan to a customer, the amount can be made available to him either by cash payment or through transfer of money to his account. In case of money transfer the money is credited in the account of the customer using physical instruments like cheque, demand draft, pay order, or electronic means such as internet, mobile, cards, RTGS, NEFT, NECS, etc. The customer can draw the amount in full or in part in cash from the bank counter, or from ATM, pay to third party through any payment instrument such as a cheque, draft, pay order or an electronic remittance. In today's world, electronic mode of transfer is considered to be most efficient from cost and convenience aspects.

The payment system can be defined more comprehensively as institutional infrastructure comprising institutions, instruments, rules, procedures, standards, and technical means established to enable the transfer of money value between parties for discharging mutual obligations. The state of development of payment system of an economy fully reflects the state of its development. In other words, the depth and richness of payment system is a key determinant of socio-economic development of a country. Literature bears testimony to how from the barter system to the modern electronic payment system, payment system heralded a fascinating saga of development[2]. As the civilization moved from one stage of development to the next stage, innovations in payment system facilitated creation of new opportunities for trading of goods and services for betterment of life style. A well-developed payment system with wide spread network facilitating all forms of transactions and money transfer, both within and outside the country, also supports inclusive growth through financial inclusion.

As per a study undertaken by Visa International Global Insights, Inc. (2003), the mature payment system based on electronic platforms has contributed to an additional US$ 6.5 trillion to real consumer spending (adjusted for inflation) for US over the last two decades. The cumulative effect of this was an additional growth of 0.5% per year, creating huge job opportunities. It would be useful to develop an econometric model to estimate the parameters necessary for drawing similar inference in India with relevant empirical support. In absence of this, extending the results of US study to India, albeit with caveats on empirical relevance and validity, it can be inferred that the

[2] See source reference no. 7.

growth potential of wide spread use of e-payment can be mind boggling. This is because India still settles over 90% of retail transactions through use of cash[3] and reduction in use of cash will allow banks to undertake intermediation as cash saving will get converted to saving in bank accounts. In other words, use of currency as main mode of payment is a form of leakage from the banking system because the money is not available for intermediary services which could result in generation of productive capacity through investment. Capital infusions into the banking system through an economy's transition to cashless payments result in deposit expansion and potentially an increase in GDP and growth. In a simulation of the US economy, Global Insight found that a 10% shift of currency into lendable reserves increases GDP by just above 1% annually[4].

In case of India the multiplier effect can be even higher in social terms, particularly for the poor suffering from acute shortage of capital required for improving employment opportunity and productivity. As an example of inclusive growth, to quote the results from a small survey on benefits of mobile payment for a person below poverty line, it is estimated that a worker may save to the extent of ₹27 per month, or almost half a day's income, through use of mobiles as mode of payment[5].

The revenue generated in the process of delivery of payment services has now become a major source of income for the banks and infrastructure providers supporting the system. For example, in USA the payments are a substantial part of the overall revenue for financial institutions with the top bank holding companies' payment-related revenues being in the range of 35 to 45 percent of total revenues[6]. While this shows the importance of payment system to modern banking, the focus of the study is on retail payment, specifically with respect to inclusiveness towards small value transactions and remittances. Electronic payment saves cost and is a more efficient mode of payment than paper based payment, cash or cheque. In a study undertaken by Humphrey et al (2003) it was estimated that electronic payment had cost one-third to one-half as much as its paper based alternative in Sweden thus saving 1 per cent of GDP annually to the remitters. As compared to a developed country, a developing country like India with predominance of cash transactions for retail payment, the saving is expected to be much more. A study to estimate the extent of saving possible through replacing cash payment by e-money is warranted.

[3] Cited by Shri Narayanamoorthy, Mentor, Infosys from a study made by NCAER.
[4] See source reference no. 13.
[5] Based on a study carried out by Grameen Koota, an NGO, that implements a pilot on mobile based banking and payments with mCheck and Bank of India in Bangalore suburbs.
[6] See source reference nos. 11 and 12.

The Indian payment system offers almost all means of payment. The first decade of the present century particularly stands out for significant expansion of the availability of instruments for financial transactions. The introduction of real time gross settlement (RTGS) in March 2004, followed by national electronic funds transfer (NEFT), national electronic clearing service (NECS), cheque truncation system (CTS) was a big boost to the availability of instruments for payment transactions. In the last two years, policy initiatives were particularly directed at developing retail payment systems using the facilities of automated teller machine (ATM), point of sale (PoS), NEFT and now mobile based money transfer facility. Cash withdrawal at PoS was considered as an important initiative to reduce holding of cash for transactions and thereby make available more money for intermediation. Pre-paid instrument was also considered to reduce dependence on cash for transactions.

The expected widespread use of e-payment will bring about a major transformation in retail payment and small value money transfer. However, this has not happened till now for a variety of reasons. The purpose of this study is to explore these aspects, understand the present status of retail payment system in terms of its availability and functionality for small value payment and money transfer, the reasons for the gap thereon and suggest measures to improve the payment system with special emphasis on e-payments as an important means of money transfer, particularly for migrant population.

About 70% of Indian people still live in rural areas and over 50% of them depend on agriculture, either as farmers or agricultural labourers, as main source of their livelihood. Agriculture being mainly seasonal activity and relatively less remunerative, many of the workers migrate to urban centres for supplementing and also smoothening their income. Artisans, craftsmen, masons, carpenters, milkmen and the like migrate to cities for employment. These people constitute a large group of migrant workers.

The migrant worker population: The census of India collects information on migrant workers on a sample basis through survey. The latest census relates to 2001. The estimate available from this census indicates that about 30 per cent of population was migrant. The 64th Round of the National Sample Survey estimated that about 13.6 million people migrated during the preceding one year. Of them, the five states (UP, Gujarat, Bihar, Maharashtra and Andhra Pradesh) contributed over half (53.8%) the migrants. Only a small part of this migration was due to marriage related relocation. Most of the others migrated from one place to other - from rural

to urban areas - in search of work. It is this group of migrant workers who need to send money through frequent remittances.

As for occupation status of households receiving remittances, 79.5% belonged to agriculture and allied activities in UP. There were a large proportion of SCs, STs and OBCs among these migrant people. These migrants mostly worked in informal and unorganized sectors in their place of migration. As per an estimate[7], there were at least 100 million circular migrants, i.e. those who did not move permanently from their villages. About 58% of the migrants remitted on an average ₹13,000 annually.

These remittances are a major form of money transfer from cities to villages, at far flung areas[8]. Often these transfers are small value, high volume transactions. These transactions yield low revenue for the commercial banks while crowding the available infrastructure. These are, as such, not considered as good business proposition. The migrant remitters have to queue up before the bank branch for long to remit small amounts, in the process losing work opportunity and hence implicitly incurring high cost. Consequently, the migrant workers are often forced to take recourse to informal channels in a bid to reduce the indirect costs of remittances. Informal channels, though trusted by the remitters, are expensive and risky. The channeling of remittance through informal modes leads the migrants away from other financial services like saving and credit much needed by this low income group.

The infirmities of the present formal financial system in handling small value remittances to remote places in spite of availability of variety of money transfer instruments have been a major bottleneck for the country. Remittance has important economic implications in the lives of the poor. For example, by providing poor and remotely located households with access to the national payment systems through *L@Red de la Gente* in Mexico, it was possible to provide secure and cost effective means of receiving remittance payments, social safety net payments and empowering them to avail financial services to come out of poverty[9].

[7] Deshingkar and Akter (2009)
[8] From a presentation made by Priya Deshingkar and Anushree Sinha (2010)
[9] Lisa Taber (2004)

1.3 The study and its organization[10]

As mentioned earlier, the present study is the follow up of the scoping study undertaken by Thorat et al (2009). The study focuses on the following issues:

- role of the Reserve Bank of India (RBI) in the development of payments and settlement system;
- Payment and Settlement Systems Act, 2007 and the regulatory role and process for development of safe, secure, efficient payment and settlement system in the country;
- institutional set-up and the network available for the payment and settlement systems – the role of banks, other financial institutions, co-operatives including DCCBs, PACS and institutions like India Post in providing payment services seamlessly;
- instruments available for payment system and their adequacy or otherwise for retail payment;
- state of inclusiveness of payment services, reasons for exclusiveness particularly in respect of retail payments;
- suggestion for broad based inclusive retail payment covering the poor living in remote areas to support seamless remittance, financial inclusion and inclusive growth.

The study is organized in the following sections:

Section I: Introduction

Section II: Payment system - framework and instruments

Section III: Payment system players and infrastructure

Section IV: International experiences

Section V: Major reasons for exclusion of retail customers from payments system

Section VI: Opportunity for money transfer through e-payment: conclusions and recommendations

[10] The members of the study team constituted by GTZ are the following: Dr. R. B. Barman, Former Executive Director, Reserve Bank of India, Mumbai, India (Team Leader); Dr. Ashish Das, Professor, Department of Mathematics, Indian Institute of Technology Bombay, Mumbai, India (Member); Mr. Markus Tacke, Consultant, Cards and Payment Expert, Deutscher Sparkassen- und Giroverband (German Savings Banks Association), Berlin, Germany (Member); Mr. N. Srinivasan, Consultant and Former Chief General Manager, NABARD, Mumbai, India (Member)

2 Payment System – Framework and Instruments

2.1 Legal & regulatory framework

The RBI, as the central bank of India, is the focal point driving force in the development of national payment systems. Its responsibility includes policy induced development of payment system infrastructure, instruments, institutions and rules and regulations for orderly development of the domestic payment system covering length and breadth of the country and cross-border payments consistent with international standards. The RBI has taken several initiatives, as part of its mission, for safe, secure, sound, efficient, accessible and authorized payment systems in the country.

In India, the payment and settlement systems are regulated by the Payment and Settlement Systems Act, 2007 (PSS Act) which was legislated in December 2007 and regulatory notifications issued from time to time. In terms of Section 4 of the PSS Act, no person other than the RBI can commence or operate a payment system in India unless authorised by RBI. The Board for Regulation and Supervision of Payment and Settlement Systems (BPSS), a sub-committee of the Central Board of RBI, is the highest policy making body on payment systems in the country. The BPSS is empowered for authorizing, prescribing policies and setting standards for regulating and supervising all the payment and settlement systems in the country. The Department of Payment and Settlement Systems (DPSS) of the RBI serves as the Secretariat to the Board and executes its directions.

The functions and powers of the Board include the following:

- the laying down of the policies relating to the regulation and supervision of the payment systems including, electronic, non-electronic, domestic and cross-border payment systems;
- decide on the standards for both existing and future payment systems;
- the authorisation of the payment systems;
- the determination of the criteria for membership of the payment systems including continuation, termination and rejection of membership;
- overseeing the administration of regulations and guidelines framed under the Act for the purpose of the above matters and the directions issued by the Bank from time to time to the operators of the payment systems and their members and taking such action as may be necessary for ensuring the compliance;

- creating necessary administrative structure within the existing rules and regulations for ensuring effective regulation and supervision of the payment systems;
- such other matters as are deemed necessary for the effective regulation and supervision of payment systems.

The RBI notification dated 12 August 2008 had set out criteria for authorisation of payment systems including terms and conditions. The specific rules and regulations governing the payment systems are the following:

- Uniform Regulations and Rules for Bankers' Clearing Houses
- Procedural Guidelines on Electronic Clearing Service (Credit Clearing)
- Procedural Guidelines on Electronic Clearing Service (Debit Clearing)
- Procedural Guidelines on National Electronic Funds Transfer System
- Operational Manual on National Electronic Funds Transfer System
- RTGS (Membership) Regulations, 2004
- Procedural Guidelines on Cheque Truncation System

Subsequently the RBI notified guidelines for mobile payments.

With a view to improving efficiency of payment system, the policy has been to encourage electronic mode of payment in place of paper based and cash dependent transactions and make their use widespread. At the same time it has also to be ensured that the system is safe and secure for the customers to have very high confidence in the system. In line with this policy, BPSS sees to it that the entities authorized to provide payment services have (i) sound financial position, (ii) adequate expertise (iii) good corporate governance and (iv) sound technology support. The authorized entities are subject to regulatory discipline and supervision. There is also off-site and on-site surveillance of payment system, consistent with international standard (CPSS, BIS), to ensure orderly development.

With a view to enhancing the integrity of images processed under CTS, a New Cheque Standard System, CTS – 2010, was mandated having security features on quality of paper, watermark, bank's logo in invisible ink and void pantograph on cheque forms.

In case of any dispute arising out of PSS Act, the power of final arbitration rests with the Central Government.

RBI has since authorised payment system operators of pre-paid payment instruments, card schemes, cross-border in-bound money transfers,

Automated Teller Machine (ATM) networks and centralised clearing arrangements.

INFINET is the back bone for communication between banks and RBI for supporting payments system. This infrastructure was developed by the Institute for Development and Research in Banking Technology (IDBRT), Hyderabad an institute set up by RBI. In connection with payment system, IDBRT also developed a line of service for providing public key infrastructure (PKI) for securing payment instruction end to end and Structural Financial Messaging System (SFMS) - a standard messaging system for payments.

2.2 Standard modes of payments

Major paper-based payments: Cash, cheques, demand drafts and money orders form the major forms of paper based payments.

Cash: About 90% of retail payments are cash based. Also, cash or banknotes are the most common mode of payment in the retail market. The distribution of fresh notes as well as withdrawal and destruction of soiled notes constitute the core of the currency management operations of the RBI. In India, as of March 2010, 56,549 million pieces of banknotes worth ₹ 7.88 lakh crore were under circulation. Both in value as well as volume terms, the banknotes in circulation increased at an annual rate of 16% during 2009-10 (see, reference [2]).

ATM: It is a self-service cash withdrawal facility for the card holder available 24 hours, every day, providing customer any time anywhere to draw cash in a secure manner using PIN. Thus, other than bank counters, a significant means of dispensing cash in the system is the ATM. There are over 70,000 ATMs installed in the country.

Cheque and demand draft: Use of paper-based instruments (like cheques, drafts, and their variants) accounts for nearly 60% of the volume of total non-cash transactions in the country. In value terms, the share is presently around 11%. This share has been steadily decreasing over a period of time and electronic mode gaining popularity in preference to cash and cheques. Since paper based payments occupy an important place in the country, the RBI had introduced magnetic ink character recognition (MICR) technology for speeding up and bringing in efficiency in processing of cheques. Recent developments in paper-based instruments include launch of speed clearing (for local clearance of outstation cheques drawn on core-banking enabled branches of banks), introduction of cheque truncation system (to restrict physical movement of cheques across different centres and enable use of images for payment processing), framing CTS-2010 Standards (for

enhancing the security features on cheque forms) and the like. In 2009-10, over 13,802 lakh cheques were cleared amounting to over ₹104 lakh crore.

Money order service: India post provided money order is a major mode of money transfer for migrant workers. Comparative statistics of money order traffic and the value of money orders transmitted during 2008-2009 compared with the previous year are given in Table 1.

Table 1: Money order traffic and value

	2007-08	**2008-09**	**Increase/Decrease**
Money order traffic (lakh)	910.5	866.9	(-) 8.80 %
Value of MOs transmitted (crore)	8,363.06	7,954.77	(-) 4.88%

The decrease in use of money orders is apparently due to increased availability of electronic money transfer services from banks. More and more migrants are getting hooked into banking system to benefit from the use of bank accounts and remit money to their place of origin. Some field studies reckon the long queues in front of public sector branches in some migrant locations as indicative of the trend of increasing use of banks for remittances**.**

Major electronic payments: The initiatives taken by RBI in the mid-eighties and early-nineties focused on technology-based solutions for the improvement of the payment and settlement system infrastructure, coupled with the introduction of new payment products by taking advantage of the technological advancements in banks. The continued increase in the volume of cheques added pressure on the existing set-up, thus necessitating a cost-effective alternative system.

Electronic clearing service (ECS) - credit: RBI introduced the ECS (Credit) scheme during the 1990s to handle bulk and repetitive payment requirements (like salary, pension, interest, dividend payments) of corporates and other institutions. ECS (Credit) facilitates customer accounts to be credited on the specified value date and is presently available at all major cities in the country. During September 2008, RBI launched a new service known as National Electronic Clearing Service (NECS), at National Clearing Cell (NCC), Mumbai. NECS (Credit) facilitates multiple credits to beneficiary accounts with destination branches across the country against a single debit of the account of the sponsor bank. The system has a pan-India characteristic and leverages on Core Banking Solutions (CBS) of member banks, facilitating all CBS bank branches to participate in the system, irrespective of their location across the country.

Electronic clearing service (ECS) - debit: The ECS (Debit) Scheme was introduced by RBI to provide a faster method of effecting periodic and repetitive collections of bills of utility companies. ECS (Debit) facilitates consumers/subscribers of utility companies to make routine and repetitive payments by 'mandating' bank branches to debit their accounts and pass on the money to the companies. This tremendously minimises use of paper instruments apart from improving process efficiency and customer comfort. There is no limit as to the minimum or maximum amount of payment. This is also available across major cities in the country.

National electronic funds transfer (NEFT) system: In November 2005, a more secure system was introduced for facilitating one-to-one funds transfer requirements of individuals/corporates. Available across a longer time window, the NEFT system provides for batch settlements at hourly intervals, thus enabling near real-time transfer of funds. Certain other unique features viz. accepting cash for originating transactions, initiating transfer requests without any minimum or maximum amount limitations, facilitating one-way transfers to Nepal, receiving confirmation of the date/time of credit to the account of the beneficiaries, etc., are available in the system.

Real time gross settlement (RTGS) system: RTGS is a funds transfer systems where transfer of money takes place from one bank to another on a "real time" and on "gross" basis. Settlement in "real time" means payment transaction is not subjected to any waiting period. "Gross settlement" means the transaction is settled on one to one basis without bunching or netting with any other transaction. Once processed, payments are final and irrevocable. This settles all inter-bank payments and customer transactions above ₹ 2 lakh.

Instant money order (iMO): Instant money order (iMO) is an online domestic money transmission service intended for a market clientele requiring instant money remittance. This service enables the customer to receive money in minutes from any of the post offices providing iMO service. The service was introduced on 20th January 2006. Under this service, a person can send an amount from ₹1,000/-up to ₹50,000/-in one transaction. Money will be disbursed to the payee at any of the iMO Post Offices in India other than the office of booking on presentation of 16 digit iMO number and photo identity proof. At present iMO service is available from more than 2,100 locations across the country.

International money transfer service: Department of Posts has been operating this service in association with a multinational company - Western Union Financial Services Inc. since April, 2001. This service provides the

customers the facility of receiving remittances from 205 countries and territories in real time. The service is currently available from 8,511 post offices and has delivered remittances of ₹76,497.5 million in 2008-09. For the period from April, 09 to December, 09, a total of 3.11 million transactions were done by the Department.

Electronic money order (eMO): The Department of Posts has launched eMO on 10.10.2008. Electronic Money Order is a system that facilitates electronic remittance of MOs. More than 8800 Post Offices provide this service. In the year 2008-09, 1.65 million eMOs amounting to ₹1,917.3 million were booked. In the year 2009-10 (April 09 to December 09), 9.63 million eMOs amounting to ₹11,480.4 million had been booked.

Other electronic payments: The most significant gain of the increasing integration of ICT in banking activities, has been the networking of the bank branches in India. Almost all banks have already moved their branches into a network environment through setting up of the core banking solution (CBS). Once CBS is in place it would facilitate use of other retail electronic payments.

CBS: Baring few, all banks in India are under CBS. This facilitates deposit of funds in ones' account from a non-home branch location. As a result remittances through deposits made by third parties have gained popularity. Also, 4,000 post offices are expected to be brought under core banking solutions in the coming years. A Pilot project is on to implement CBS in 100 post offices.

Debit and credit cards at ATM: An electronic means of withdrawing cash is through use of debit cards at ATMs. Presently, there are over 70,000 ATMs in India. Savings bank customers can withdraw cash from any third party ATM up to 5 times in a month without being charged for the same. To address the customer service issues arising out of failed ATM transactions where the customer's account gets debited without actual disbursal of cash, the RBI has mandated re-crediting of such failed transactions within 12 working day and mandated compensation for delays beyond the stipulated period. Furthermore, a standardised template has been prescribed for displaying at all ATM locations to facilitate lodging of complaints by customers. The customer response to policy on ATMs has been overwhelming. This kind of proliferation can be replicated very successfully in small towns and villages through introduction of micro-ATMs.

Debit and credit cards at PoS: There are about five lakh PoS terminals in the country, which enable customers to make payments for purchases of goods and services by means of credit/debit cards. To facilitate customer

convenience RBI has also permitted cash withdrawal using debit cards issued by banks at PoS terminals. The PoS for accepting card payments also include online payment gateways. This facility is used for enabling online payments for goods and services. The online payments are enabled through own payment gateways or third party service providers called intermediaries. In payment transactions involving intermediaries, these intermediaries act as the initial recipient of payments and distribute the payment to merchants. In such transactions, the customers are exposed to the uncertainty of payment as most merchants treat the payments as final on receipt from the intermediaries. In order to safeguard the interests of customers and to ensure that the payments made by them using electronic/online payment modes are duly accounted for by intermediaries receiving such payments, directions were issued by RBI in November 2009. Directions require that the funds received from customers for such transactions need to be maintained in an internal account of a bank and the intermediary should not have access to the same. Further, to reduce the risks arising out of the use of credit/debit cards over internet/IVR (technically referred to as card not present (CNP) transactions), RBI mandated that all CNP transactions should be additionally authenticated based on information not available on the card and an online alert should be sent to the cardholders for such transactions.

Pre-paid payment systems: Pre-paid instruments are payment instruments that facilitate purchase of goods and services against the value stored on these instruments. The value stored on such instruments represents the value paid for by the holders by cash, by debit to a bank account, or by credit card. The pre-paid payment instruments can be issued in the form of smart cards, magnetic stripe cards, internet accounts, internet wallets, mobile accounts, mobile wallets, paper vouchers, etc. (examples are telephone cards, airtime recharge vouchers, sodexo pass vouchers, ticket restaurant, etc.)

Mobile banking: Mobile phones as a medium for providing banking services have been attaining increased currency. RBI brought out a set of operating guidelines on mobile banking for banks in October 2008, according to which only banks which are licensed and supervised in India and have a physical presence in India are permitted to offer mobile banking after obtaining necessary permission from RBI. The guidelines focus on systems for security and inter-bank transfer arrangements through RBI's authorized systems. On the technology front the objective is to enable the development of inter-operable standards so as to facilitate funds transfer from one account to any other account in the same or any other bank on a real time basis irrespective of the mobile network a customer has subscribed to.

Interbank mobile payment service (IMPS): IMPS is an *instant* interbank electronic fund transfer service through mobile phones. IMPS facilitate customers to use mobile instruments as a channel for accessing their bank accounts and remitting funds therefrom. Unlike IMPS, which is currently restricted to seven banks, various banks are providing remittance facility through their mobile banking platforms where the interbank remittance request initiated from a mobile is processed by the beneficiary bank as a NEFT transaction. In contrast, IMPS transactions can be sent and received at any time and any day. There are no timing or holiday restrictions on IMPS remittances. The funds are credited into the beneficiary account in about 15-30 seconds. For IMPS, the remitter as well as the beneficiary needs to have bank accounts with the bank which has enabled this facility. The customer can transact on IMPS subject to a daily cap of ₹50,000/-per customer overall for transactions through mobile for the funds transfer. Transactions up to ₹1,000/- can be facilitated by banks without end-to-end encryption.

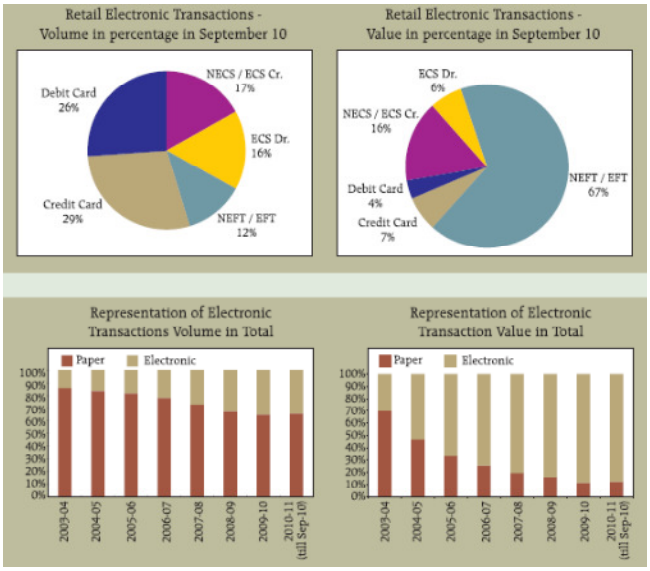

Figure 1: Volume and value if retail electronics transactions, September 2010

Source: RBI Bulletin, December 2010

2.3 Clearing and settlement systems

The clearing and settlement system equilibrates multilateral debits and credit of customers using all kinds of payment products and settles the amount, either gross or net, in the books of accounts of participating banks. The speed with which this function is discharged determines the efficiency of the system. The risk involved in the settlement process is mitigated through various means. As lender of last resort and banker to the banks, RBI is best placed to discharge this responsibility. Towards this end, as a

risk mitigation measure, the Payment and Settlement System Act, 2007 provides for finality of settlement irrevocably.

Large value payment system e.g. RTGS, PDO-NDS etc. is considered systemically important as its failure can create huge shock in the payment system putting the entire system out of gear. In view of this the RBI has actively promoted RTGS for large value payments and framed rules and regulations in such a way to mitigate risks to a great extent. The intra-day liquidity provided to members of the RTGS against guaranteed security smoothens payment obligations of members avoiding risks. The system has been working well ever since RTGS was launched in March, 2004.

As the focus in this study is on small value retail payment, the systems that need analysis are mainly (i) cheque clearing system including CTS (ii) NEFT, NECS (iii) ATM (iv) cards and (v) mobile payments. The paper based local cheque clearing system is one of the most efficient in terms of time taken for completion of the clearing cycle, in T+2 days at most. However, the same cannot be said for inter-city clearing, though the situation is gradually improving. The introduction of speed clearing for the CBS branches has improved the situation to a great extent. Hopefully, with all branches of banks brought under CBS, whatever inefficiency remains will vanish altogether.

The clearing and settlement of electronic mode of payment through various instruments is working well and is on par with global standards. However, the RBI is committed to a policy of making the retail payment system absorb technological advancement for turning it into the most efficient clearing and settlement service. The promotion of National Payments Corporation of India (NPCI) as a common clearing house system for the banks throughout the country is a major step in this direction. The NPCI is expected to launch 24x7 electronic funds transfer service to provide RTGS like facility to the retail customers. The Automatic Clearing House (ACH) system to be launched by them will be state-of-the-art for the bulk transactions, now known as ECS. The ATM clearing happening through National Financial Switch of NPCI has been growing exponentially, without any hiccups.

2.4 Safety and security of payment system

Safety and security is an important part of authentication process in payment system. Modern payment system has evolved through many experimentations leading to reasonably sound security measures built into electronic payment products.

In its effort to provide safety and security to the customers, RBI has been working in many fronts covering legal, regulatory, authorisation, infrastructure development and authentication aspects of payment system. As a result the existing payment system is reasonably safe for the customers. However, this does not allow lasting comfort as fraudsters try to find new ways of perpetuating frauds.

Identification method: The basic pillars of identification and authentication of a person using payment instrument for the purpose of non repudiation and payment safety are the following three factors:

- something customer knows – password or PIN;
- something customer has – a card or mobile;
- something customer is – biometric or physical characteristics.

At present the first two factors are widely in use for transaction security. The low end customers may however feel more comfortable with biometric authentication. At present Business Correspondent uses IVR or finger print as a factor for authentication. This is expected to get a boost when UIDAI's Aadhaar becomes a common feature of authentication in due course. Aadhaar can also meet the needs of Know Your Customer (KYC):

Know Your Customer (KYC): In August 2002, RBI introduced 'Know Your Customer' (KYC) guidelines for all banks. Later in November 2004, RBI directed that all banks shall ensure that they are fully compliant with the provisions of the KYC guidelines before December 31 2005. The purpose of KYC is to prevent money laundering, terrorist financing, theft and so on.

The KYC guidelines stipulate that banks follow certain customer identification procedure for opening of accounts and monitoring transactions of a suspicious nature for the purpose of reporting it to appropriate authority. These KYC guidelines have been revisited in the context of the Recommendations made by the Financial Action Task Force (FATF) on anti money laundering (AML) standards and on combating financing of terrorism (CFT). Basel Committee on Banking Supervision has also issued a document on customer due diligence (CDD) for banks. These standards have become the international benchmark for framing anti money laundering and combating financing of terrorism policies by the regulatory authorities. Compliance with these standards both by the banks/financial institutions in the country has become necessary for international financial relationships.

Banks should continue to ensure that any remittance of funds by way of demand draft, mail/telegraphic transfer or any other mode and issue of

travelers' cheques for value of Rupees fifty thousand and above is effected by debit to the customer's account or against cheques and not against cash payment.

A banker will lose the statutory protection available under section 131 of the Negotiable Instruments Act if it is proved that he was negligent while opening an account. This is also reinforced by the concept of relationship banking.

The RBI has been issuing guidelines for the banks on KYC regularly. Some of the more important instructions are listed in Appendix 4.

KYC procedure should be the key principle for identification of an individual/corporate opening an account. The customer identification should involve verification through an introductory reference from an existing account holder/a person known to the bank or on the basis of documents provided by the customer. The Board of Directors of the banks are to have in place sufficient policies that establish procedures to verify the authentic identification of the individual/corporate opening an account. Policies to set up processes and procedures to monitor transactions of a suspicious nature in accounts and systems of conducting due diligence and reporting of such transactions should be in place.

Aadhaar: The unique identification number (UID) or Aadhaar, which identifies individuals uniquely on the basis of their demographic information and biometrics, will give individuals the means to clearly establish their identity to public and private agencies across the country. The UID can help presently excluded potential customers to easily establish their identity to banks. As a result, banks will be able to scale up their branch-less banking deployments and reach out to a wider population at lower cost. The UID number and the accompanying authentication mechanism coupled with rudimentary technology application can provide the desired micropayment solution. This can bring low-cost access to financial services to everyone, a short distance from their homes. The key features of UID-enabled micropayments are provided in Appendix 3.

3 Payment System – Players and Infrastructure

3.1 Demand for services

The demand for payment services arise from government, commercial sector and individuals. The demand from the government is both for the benefits payments (such as NREGA wages, old age pensions) as well for other regular government payments including salaries and pensions. The commercial sector has payment requirements towards the staff as also suppliers. There are certain sensitive sectors for payment like commodities in case of agro processing units. The small payments to number of farmers for supply of sugar cane, milk, and other crops demand a quality payment solution. The demand from individuals consists of payment for various transactions, remittance of money home by migrants, payment of bills for utilities such as electricity, telephone services and other payments such as school fees. These payments are for small amounts, numerous, in some cases regular and periodic. As discussed earlier, the larger and more organized entities such as companies and commercial sector are able to find appropriate payment solutions in partnership with banks. The individuals, especially in a rural area or migrants in urban areas find it difficult to access services from the formal financial sector. A sizable part of their needs are met by unorganized channels, at considerable risk to the customer as also high costs.

Governmental support programmes: The Government is possibly the single largest user of payment system. In view of this the efficiency of payment system has the potential to drive the efficiency of government operations in many ways. The ability to efficiently handle collection of government revenue and spend money for various government activities depends, to a significant extent, on the efficiency of payment system. The on-line system developed by the government for receipt and payment of money for tax and non-tax purposes, shows how e-payment is an important component of government business. The payment of salary, pension, social welfare benefits etc. is a huge operation supported by the payment system.

In the area of retail payment, the scheme which attracted high attention in the recent years is the following unemployment benefit scheme.

Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS): National Rural Employment Guarantee Act (NREGA)[11] came into force on 7th September, 2005 and its implementation was notified in a phased manner. The objective of the Act is to provide for the enhancement of

[11] Since been renamed as Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA).

livelihood security in rural areas by providing at least one hundred days of guaranteed wage employment in every financial year to every household whose adult members volunteer to do unskilled manual work.

As per Para 31 of schedule II of NREG Act, 2005, payment of MGNREGS wages shall be made through the individual or joint saving accounts of the MGNREGS workers opened in banks or in post offices. A model Memorandum of Understanding has been developed by Ministry of Rural Development, New Delhi and Department of Posts, which has been circulated to all Postal Circles and State Governments to facilitate proper implementation of disbursement of wage through Post Offices.

Starting with Andhra Pradesh Postal Circle in 2005, the scheme of disbursement of MGNREGS wages through post office accounts is presently operational in 19 postal Circles of the country (except Delhi, J&K and Tamil Nadu Postal Circles). As on 31st January 2010, nearly 39.2 million MGNREGS accounts have been opened in post offices and wages amounting to nearly ₹ 60 billion have been disbursed to MGNREGS beneficiaries through 98,811 post offices across the country. The account opening, crediting of accounts and allowing withdrawals out of the accounts have been painstakingly manual. The cost and time savings possible through automation and use of state of the art electronic payments infrastructure is considerable.

3.2 Supply side - banking infrastructure

Banking is an intermediary service between the savers and users of money. In the process banks provide services for mobilization and maintenance of saving, delivery of credit and payment services for supporting financial transactions. As total transactions in the economy are a few times its GDP, the payment service is a huge part of the banking service. The intensity of payment service is an increasing function of e-money because the velocity of money increases with rise in e-payments.

Banks being the main suppliers of e-payment services, it is necessary that all potential customers are persuaded to hold accounts with banks for e-payment. It is in this context that the banking infrastructure in the country has to be assessed.

Distribution of banks: There are more than 90,000 bank branches in India. These are categorized into various types of banks (number of banks and branches as on end-March):

- Scheduled commercial banks (83 banks; 69,160 branches; March 2010);

- Non- scheduled commercial banks (4 banks; 2,750 branches; March 2009);
- Urban cooperative banks (1,674 banks; 6,884 branches; March 2009);
- Regional rural banks (82 Banks; 15127 Branches; March 2009);
- State cooperative bank (31 Banks; 992 branches; March 2009);
- District central cooperative banks (370 banks; 13,233 branches; March 2009).

The following table provides the geographical penetration and outreach to individuals of banks according to states. It is seen that on an average there are about 4,000 households (considering an average of 3 adult persons per household) per bank branch. Also, the average area per bank branch is about 36 sq. km. The following table provides clear picture of banking network presence and penetration for each state.

Table 2: Geographical penetration and outreach to individuals of banks according to states

Geographical penetration and outreach to individuals of banks according to states

S.No.	State / UT	Area (in sq. km)	Pop. (000) Sep09	Number of Centres	Total Banked Centres Sep05	Total Banked Centres Sep09	% of Banked Centres 2009	Avg. Area per Banked Centre (sq km) 2009 =(3)/(7)	Avg. Num of Persons per Banked Centre 2009	Total No. of offices of CBs, SCoBs and DCCoBs 2009	Pop. (000) per bank branch (this excludes UCB)	Area (sq km) per bank branch (this excludes UCB)	Pop. Per sq km per bank branch	Total % of households availing banking services 2001 Census
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
NORTHERN REGION														
1	Chandigarh	114	1103	24	13	15	62.5	7.6	73500	326	3	0.35	9671	64.9
2	Delhi	1,483	17875	221	69	70	31.7	21.2	255357	2351	8	0.63	12053	51.0
3	Haryana	44,212	24302	6858	778	834	12.2	53.0	29139	2822	9	15.67	550	45.2
4	Himachal Pradesh	55,673	6639	17553	699	722	4.1	77.1	9195	1324	5	42.05	119	59.5
5	Jammu & Kashmir	2,22,236	12997	6499	508	504	7.8	440.9	25787	1135	11	195.80	58	36.5
6	Punjab	50,362	27031	12454	1,328	1,338	10.7	37.6	20202	4196	6	12.00	537	48.5
7	Rajasthan	3,42,239	66236	39997	1,939	1,924	4.8	177.9	34426	4476	15	76.46	194	28.9
NORTH-EASTERN REGION														
8	Arunachal Pradesh	83,743	1222	3880	61	62	1.6	1350.7	19710	110	11	761.30	15	37.3
9	Assam	78,438	30607	25259	799	773	3.1	101.5	39595	1497	20	52.40	390	20.5
10	Manipur	22,327	2676	2349	52	49	2.1	455.7	54602	91	29	245.35	120	8.7
11	Meghalaya	22,429	2583	5799	131	132	2.3	169.9	19568	246	11	91.17	115	20.8
12	Mizoram	21,081	999	729	66	62	8.5	340.0	16105	106	9	198.88	47	31.8
13	Nagaland	16,579	2228	1287	44	46	3.6	360.4	48424	107	21	154.94	134	15.9
14	Tripura	10,486	3575	881	122	125	14.2	83.9	28596	260	14	40.33	341	26.5
EASTERN REGION														
15	Andaman & Nicobar Islands	8,249	425	504	32	33	6.5	250.0	12864	67	6	123.12	51	64.0
16	Bihar	94,163	95998	39154	2,640	2629	6.7	35.8	36515	4232	23	22.25	1019	21.3
17	Jharkhand	79,714	30611	29517	990	985	3.3	80.9	31077	1867	16	42.70	384	30.1
18	Orissa	1,55,707	40502	47677	1,625	1,631	3.4	95.5	24832	3107	13	50.11	260	24.2
19	Sikkim	7,096	605	459	33	33	7.2	215.0	18318	77	8	92.16	85	29.7
20	West Bengal	88,752	89390	38341	2,469	2,460	6.4	36.1	36337	5516	16	16.09	1007	36.8
CENTRAL REGION														
21	Chhattisgarh	1,35,191	24222	19853	686	667	3.4	202.7	36314	1457	17	92.79	179	24.1
22	Madhya Pradesh	3,08,245	71104	52553	1,898	1,861	3.5	165.6	38207	4715	15	65.38	231	27.9
23	Uttar Pradesh	2,40,928	196135	98678	5,066	5,092	5.2	47.3	38518	11221	17	21.47	814	44.1
24	Uttarakhand	53,483	9704	15878	541	543	3.4	98.5	17870	1317	7	40.61	181	59.8
WESTERN REGION														
25	Dadra & Nagar Haveli	491	276	72	6	6	8.3	81.8	45917	1150	0	0.43	561	30.6
26	Daman & Diu	112	195	25	7	7	28.0	16.0	27857	18	11	6.22	1741	47.6
27	Goa	3,702	1701	394	158	159	40.4	23.3	10698	490	3	7.56	459	72.8
28	Gujarat	1,96,024	57566	18349	1,994	1,956	10.7	100.2	29430	4481	13	43.75	294	37.8
29	Maharashtra	3,07,713	108933	41488	3,901	3,894	9.4	79.0	27974	10975	10	28.04	354	48.1
SOUTHERN REGION														
30	Andhra Pradesh	2,75,045	83443	26860	2,745	2773	10.3	99.2	30091	7276	11	37.80	303	31.0
31	Karnataka	1,91,791	58308	27775	2,381	2,361	8.5	81.2	24696	6628	9	28.94	304	40.0
32	Kerala	38,863	34715	1540	1,391	1,349	87.6	28.8	25734	4877	7	7.97	893	51.1
33	Lakshadweep	32	71	11	9	9	81.8	3.6	7889	11	6	2.91	2219	51.7
34	Puducherry	479	1101	99	27	33	33.3	14.5	33364	149	7	3.21	2299	31.7
35	Tamil Nadu	1,30,058	67200	16259	2,119	2,177	13.4	59.7	30868	6850	10	18.99	517	22.8
ALL INDIA		3287240	1172268	599276	**37327**	**37314**	6.2	88.1	31416	91237	13	36.03	357	35.5

Notes:

Total No. of offices of CBs, SCoBs and DCCoBs 2009 DOES NOT INCLUDE UCBs

Color stands for defects in count of Total No. of offices of CBs, SCoBs and DCCoBs 2009

No. of Centres Served by both SCBs & CoBs MAY NOT INCLUDE A CENTRE SERVED ONLY BY A Non-SCB

Source: Reserve Bank of India

Additionally, India has the largest postal network in the world with over 15,015 post offices (as on March 31, 2009) of which 139,144 (89.76%) are in the rural areas. On an average, a post office serves an area of 21.21 sq. km and a population of 7,175 people.

Post office savings bank (POSB): The POSB is the oldest and largest banking institution (in terms of network of branches) in the country. It operates more than 78 million savings accounts as on March 31, 2009. The

Post Office Savings Bank scheme is an agency function performed by the Department of Posts on behalf of the Ministry of Finance, Government of India. Through its network, the Post Office Savings Bank provides an avenue to people all over the country to deposit their savings in various Schemes. Its reach and service is unparalleled by any other banking agency in the country. The Ministry of Finance remunerates Department of Posts for the Savings Bank work at rates fixed from time to time.

Financial inclusion programme of banks: Banks have opened a total of 50.6 million no-frills accounts by end March 2010. The balances in these accounts were of the order of ₹ 53.86 billion. The banks had also issued 3.5 million general credit cards under which credit of ₹ 6.35 billion had been availed. 0.18 million overdraft accounts for a value of 0.28 billion rupees had also been provided to select customers along with their no-frills account. The sum and substance of last 5 years efforts is reflected in these numbers.

The financial inclusion programme has been implemented through different measures. An important measure is that of increasing the network of branches (or the points of presence) in the rural areas where the level of exclusion is high. The second is that of automation and adoption of ICT applications that cut down staff requirements, saves time and costs and makes resources available for undertaking inclusion efforts. The third is to take banking to the customers' locations through branchless banking technologies–by appointing Business correspondents and placing POS terminals in remote locations. RBIs initiatives progressively have been driving banks to go down market depth and breadth through a combination of facilitative policies/instruments and moral suasion. The freeing of rural branch opening from prior licensing, including a variety of players in the business correspondent sphere, relaxation of KYC norms and introduction of no-frills accounts are some of the policy initiatives to facilitate inclusion. By directing the banks to provide a point of presence in each large village with a population of 2,000 or more, RBI has signaled the banks that they need to actively pursue network expansion policies to promote inclusion.

One of the problems that limit inclusion has been the policy view of both government and RBI that banks alone could validly provide access to financial services. A comparison with what has been achieved by some of the alternative institutions shows that the banks performance gets dwarfed. The post office has been able to open 78.04 million accounts. In addition, post office had also opened 16.24 million accounts for workers receiving payments under the MGNREGS scheme. The primary agricultural credit societies had a membership of 132.3 million in the rural hinterland. Of

these, the small and vulnerable borrowers and the disadvantaged people were of the order of 85.6 million. The post office savings deposits amounted to ₹22,689 billion and the deposits mobilized by PACS from its members amounted to ₹262.43 billion. Further, the credit extended by the primary cooperative societies to its members and outstanding as of March 2009 was ₹639.71 billion. The strength and the ability to provide a financial linkage in the hinterland for post offices and the primary agricultural credit societies is indeed vast. Further, more than 6.2 million SHGs enabled almost 80 million rural people to save and the savings have been applied for financial intermediation among the groups or for placement as deposits with a bank branch. Micro finance Institutions in turn had a clientele of 29.1 million as at the end of March 2010[12]. The efforts of institutions which are outside the financial inclusion arithmetic together have the potential of covering all the remaining population that remains uncovered. In excluding these institutions (which are much closer to the client population and which are in a position to provide deep financial services) public policy objectives of inclusive banking are not well served. However, the point that the RBI makes is whether such institutions would be able to provide a comprehensive range of services in a protected manner to the clients. The ability to provide loans, remittance and insurance products does not exist in some of these players. Post office is able to provide apart from saving services, insurance products on its own account. Micro finance institutions are able to provide credit while not being able to provide savings and remittance services. The primary agricultural credit societies can deal only with their members but provide them a range of services such as savings, credit, insurance and also remittance if there is a tie up with a higher tier cooperative bank. The RBI could try and push some of non banking institutions to innovate and provide services that are protected by some form of regulation or the other and ensure the included customers are able to avail quality affordable services. The narrow focus on engaging only banks to achieve financial inclusion is fraught with risks of delay, deferment and discontinuation. As the excluded population cannot wait till banks ramp up their network, staff and other resources, all available institutions that have the capability to provide financial services should be fully utilized. All institutions (such as post offices, cooperative societies, MFIs, etc) that have a presence should be a part of the payment system so that most financial flows take place through formal and safe channels.

Role of telecom in payment service: By virtue of sheer reach and access to customers, the telecom companies and their outlets are well suited to be a part of money transfer infrastructure. As of now, these outlets generally

[12] N. Srinivasan, State of the Sector Report Microfinance India 2010.

transact in cash for selling talk time. They have been able to convert very small amounts (₹10) in to e-value in the form of airtime/talk time from millions of customers. This kind of ability to convert small amounts of cash into e-value and transfer the same across geographies is needed to be able to effect small remittances. The presence of retailers that deal in airtime sales and the network technology that carries the transactions within seconds make mobile payment solution a significant prospect for small remittances. Such a facility would be feasible if the existing guidelines for pre-paid cards allow for 'cash out'. The limit on 'cash out' should be kept at low level (say ₹1,000 as in the case of cash-out against debit cards in merchant establishments). The risk component for such cash out can possibly be mitigated through escrow account provided under the present policy on pre-paid instruments, if detailed trails of customer transactions and balances are available irrefutably. There is also an alternative possibility for cash out at telecom retail outlet. If the telecom retail outlets have the PoS terminals installed, not only transactions on talk time can be undertaken through debit cards but cash out can as well occur. In such a case the network of telecom outlets selling talk time can be considered as providers of cash in and cash out services, even under the existing provisions of PSS Act, 2007. This will be a source of additional revenue for these outlets and will also be cost effective. These outlets can be considered for 'cash in' by banks for deposit accounts, subject to adequate precautions and due diligence as in the case of BCs.

3.3 Payment system infrastructure

National Payments Corporation of India (NPCI): Based on an initiative of RBI, NPCI has been setup as an umbrella organisation for operating various Retail Payment Systems (RPS) in India. NPCI became functional in early 2009. It has been incorporated as a non-profit company under section 25 of Companies Act. Its objective is to operate various retail payments systems for the benefit of all the member banks/institutions and their customers. NPCI will seek to consolidate and integrate the multiple systems with varying service levels into a nation-wide uniform and standard business process for all retail payment systems. The other objective is to facilitate an affordable payment mechanism across the country to benefit the common man and help financial inclusion. NPCI has taken over National Financial Switch (NFS) from Institute for Development and Research in Banking Technology (IDRBT). NPCI is expected to bring greater efficiency by way of uniformity and standardization in retail payments and expanding and extending the reach of both existing and innovative payment products for greater customer convenience. The expected economies of scale of NPCI

operation should lead to lowering of transaction costs for the retail payment system.

Reserve Bank of India (RBI): To quote the RBI on payment system, as reported in the Annual Report, 2010 "Recognising the significance of advances in payment and settlement systems matching the needs of the economy and the financial system, the RBI works with a clear mission to ensure that all payment and settlement systems operating in the country are "safe, secure, sound, efficient, accessible and authorised". Consistent with the mission, the RBI took several measures during the year for improving the efficiency of existing systems as well as promoting the use of new modes/systems while also striving to put in place a framework for off-site and on-site surveillance of payment systems."

Like any other central bank, the RBI has led from front in the development of payment system to facilitate inter-bank money transfer. Though the country has about 1,150 clearing houses for clearing and settlement of cheques, 18 clearing houses, run directly by the RBI, account for more than 50% of cheque clearing in the country. With a view to bringing in higher efficiency in cheque clearing, the RBI introduced Cheque Truncation System in NCR, Delhi from 2008 on a pilot basis as a follow up of Barman committee recommendation. With the success of this pilot initiative, the next roll out on CTS is planned for Chennai in early 2011. Speed clearing of cheques was started in 2008 for braches of banks covered under CBS. As a result, speed clearing of high value cheques earlier available in major cities, has been abandoned. As mentioned elsewhere, Indian cheque clearing system is one of the most efficient.

The RBI introduced EFT and ECS in mid 1980s, which have been continually upgraded. At present under NEFT and NECS, all CBS enabled bank branches have the capability to offer electronic money transfer to the retail customer.

The introduction of real time gross settlement (RTGS) in March, 2004 was a major development in payment system infrastructure which helped India joining select group of countries providing state-of-the-art facility for large value payments. This facility has contributed to higher efficiency and risk reduction in large value payments. RTGS opened opportunities for increased business in government securities market, interbank money market, inter-corporate money transfer, capital market etc.

ATM is increasingly becoming an important delivery mechanism for dispensation of cash. Customer comfort increased manifold through the availability of 24x7 ATM services, reducing the crowding of banking halls in

bank branches. The intervention of the RBI mandating ATM use without any additional cost to the customer (subject to limits), through policy directive in 2009, has resulted in exponential growth of this facility, reducing the need for cash inventory by customers to that extent.

Mobile banking: The operative guidelines for money transfer using mobile phone were introduced in October 2008. The scheme was liberalized with effect from December 2009 allowing transactions up to ₹50,000 for e-commerce and money transfer. The limit for transaction from a bank account to beneficiaries not having bank account has been fixed at ₹5,000.

The fixation of price for other products e.g. RTGS, NEFT, NECS at reasonable levels by the RBI to encourage use of e-payment has helped in increasing use of electronic money in a big way. This has also brought about uniformity in transaction charges across banks.

Paper based transactions still dominate transaction volume processed through clearing houses accounting for 60 per cent of total. However, in terms of value, its share is only 11 per cent. This is mainly because large value transactions processed through RTGS accounts for bulk of transaction in value terms. The following table shows how the business has grown in the past few years:

Table 3: Payment system indicators- annual turnover

Item	Volume (000s)			Value (Rupees crore)		
	2007-08	2008-09	2009-10	2007-08	2008-09	2009-10
1	2	3	4	5	6	7
Systemically Important Payment Systems (SIPS)						
1. High Value Clearing	21,919	21,848	5,525	55,00,018	45,50,667	18,61,560
2. RTGS	5,840	13,366	33,241	2,73,18,330	3,22,79,881	3,94,53,359
Total SIPS (1+2)	**27,759**	**35,214**	**38,766**	**3,28,18,348**	**3,68,30,548**	**4,13,14,919**
				(6.6)	**(6.6)**	**(6.6)**
Financial Markets Clearing						
3. CBLO	113	119	142	81,10,829	88,24,784	1,55,41,378
4. Government Securities Clearing	216	270	346	56,02,602	62,54,519	89,86,718
5. Forex Clearing.	757	838	884	1,27,26,832	1,69,37,489	1,42,11,486
Total Financial Markets Clearing (3 to 5)	**1,086**	**1,227**	**1,372**	**2,64,40,263**	**3,20,16,792**	**3,87,39,582**
				(5.3)	**(5.7)**	**(6.2)**
Others						
6. MICR Clearing	12,01,045	11,40,492	11,43,164	60,28,672	58,49,642	66,64,003
7. Non-MICR Clearing	2,37,600	2,33,566	2,30,567	18,67,376	20,60,893	18,78,425
Retail Electronic Clearing						
8. ECS DR	1,27,120	1,60,055	1,50,214	48,937	66,976	69,819
9. ECS CR	78,365	88,394	98,550	7,82,222	97,487	1,17,833
10. EFT/NEFT	13,315	32,161	66,357	1,40,326	2,51,956	4,11,088
Total Retail Electronic Clearing Cards	**2,18,800**	**2,80,610**	**3,15,121**	**9,71,485**	**4,16,419**	**5,98,740**
11. Credit Cards	2,28,208	2,59,561	2,34,209	57,985	65,356	62,950
12. Debit Cards	88,306	1,27,654	1,70,170	12,521	18,547	26,566
Total Others (6 to 12)	**19,73,954**	**20,41,883**	**20,93,231**	**89,38,039**	**84,10,857**	**92,30,684**
				(1.8)	**(1.5)**	**(1.5)**
Grand Total (1 to 12)	**20,02,799**	**20,78,324**	**21,33,369**	**6,81,96,650**	**7,72,58,197**	**8,92,85,185**
				(13.8)	**(13.9)**	**(14.3)**

Notes:
1. High value clearing refers to cheques of ₹1 lakh/10 lakh. The clearing has been discontinued with effect from April 1, 2010.
2. Settlement of government securities clearing, CBLO and forex transactions is through Clearing Corporation of India Ltd.
3. At the end of April 2010, the MICR clearing was available at 66 centres (65 centres during previous year).
4. The figures relates to Cards are for transactions at POS Terminals only.
5. Figures in parentheses are ratios to GDP at current market prices.
6. Retail Electronic Clearing for 2007-08 (Volume and Value) includes refund of the oversubscription amount of IPOs floated by companies using electronic mode by the stock exchanges as mandated.

Source: Annual Report, RBI, August, 2010.

Clearing Corporation of India Limited (CCIL): CCIL was set up in April 2001 by banks, financial institutions and primary dealers, to function as an industry service organisation for clearing and settlement of trades in money market, government securities and foreign exchange markets. In the area of retail payment, CCIL provides non-guaranteed settlement services for National Financial Switch (Inter bank ATM transactions).

Banks: Mobilization of savings, extending loan and payment services are the main activities of a bank. The savers accept a lower interest rate with a view to maintain their savings liquid in current or savings accounts to meet transaction demand. In view of this the payment services like withdrawal of cash at the counter, or issue of cheques for payment by the customer cannot be considered as free service, as there is an implicit cost to the customer. On the other hand, banks try to minimize the costs of traditional payment services through issue of different instruments to improve margin. In fact, banks have been in the fore front in the absorption of IT for improving delivery of payment services. Though Indian banks were somewhat late in embracing IT partly due to internal resistance from the staff, things started changing from 1980s. The next two decades witnessed major developments in IT absorption in banks. But it was not easy to move

away from age old manual system of maintenance of ledgers. Banks gradually moved from branch automation to core banking solution, taking advantage of indigenous developments of IT based solutions.

CBS and networking: For anywhere, anytime banking, core banking solution and networking of bank branches is a pre-requisite. The IT and telecom service providers, through joint effort, started converting stand-alone IT infrastructure for payment systems developed in 1980s and 1990s into on line, real time infrastructure. The licensing of private sector banks in the first phase of liberalization of banking system in 90s injected competition in the market, when these banks started emulating foreign banks for creating IT infrastructure to attain a competitive edge over others. Public sector banks, with newly acquired greater autonomy in management and dilution of ownership, followed their private sector peers in computerization of entire business. Today, networking and core banking is more or less complete in all public sector banks. These banks are now offering 24x7 payment services to their customers covering over 80,000 branches. The impact of on-line real-time networking is felt in the payment system and almost all products on offer for the customers of these banks.

Regional rural banks (RRBs): Regional rural banks with 15,127 branches as on March, 2009 (Branch Banking Statistics, March 2009), spread over most districts of the country, are also an integral part of the banking system. The regional rural banks have been promoted as low cost banks for servicing the rural areas. These banks had the good features of cooperative banks and commercial banks suiting the needs of rural areas for extending credit to agriculture and other priority segments. These banks, numbering 196 at one stage, had focused areas of business mainly confined to agriculture, artisans and certain other priority sectors. As the business model was not as attractive as commercial banks, they were mainly involved in specific activities. Technology absorption was quite low, which did not serve them well. The situation has started changing rapidly after consolidation of RRBs. The 196 banks have now been merged into 82[13] (Trend and Progress of Banking, 2009-10) making them strong through absorbing modern technology and better management.

Their presence in the rural areas effectively extends the payment network to the rural hinterland. Their linkage with the sponsor commercial bank provides them with capability to send/receive payments nationally. The staff of RRB is well trained in banking and payment functions. RBI has required the RRBs to complete implementation of Core Banking Solution software to support their banking transaction operations. The implementation process

[13] Trend and Progress of Banking, 2009, RBI

is underway in most of the RRBs. This is expected to facilitate the RRBs in several aspects of their working, the most important being transfer of funds – either of their own or of the customers. With regular offices and sound operating procedures, RRBs are in a position to offer quality payment services.

Cauvery Kalpataru Grameena Bank, Mysore, Karnataka: The study team visited Cauvery Kalpataru Grameena Bank, Mysore, Karnataka and a branch of this bank, to understand how computerization effort is progressing as a preparatory exercise to providing electronic payment services to its customers. This bank has a deposit base of almost ₹ 2,000 crore, spread over 213 branches. Of them, 33 branches have already been brought under CBS and the remaining have already received hardware and the staff trained for the same. This bank is already offering RTGS and NEFT services. It has also installed a few ATMs. Considering the progress of this bank as a typical case for RRBs, we feel that all the RRBs are well on course for offering electronic payment services.

There is a feeling that RRBs have not been fully utilized in the inclusion. With a large number of branches in rural areas, these institutions are best equipped to include people through a wide variety of means. RRBs should be able to use the BC arrangements where there do not have adequate branches. RRBs will also benefit from higher levels of technology adoption (with CBS enablement taking place by March 2012) such as mobile banking and POS linkage through BCs. The restructured RRBs are larger entities with greater financial strength and should be mandated with significant levels of inclusion in their areas of operation.

Urban cooperative banks: Urban cooperative banks, serving a niche group of customers, is a mixed bag. Of the 6,884 branches of 1,674 UCBs, about 2,000 branches, mainly belonging to large scheduled banks, are already under CBS. These banks offer all types of payment products, including cards and RTGS. Many of the branches of these banks are located at strategic places and hence location of ATMs at branch premises offers attraction for many customers, including those of commercial banks.

The 5,000 remaining branches of UCBs are considered for CBS under Application Service Provider (ASP) model through their apex federation, known as National Federation of Urban Co-operative Banks (NAFCUB). NAFCUB has already selected vendors for the purpose and some of the UCBs have started rolling out CBS. The initial target is to cover multi

branch banks under CBS in the next three years. There are some banks with a handful of branches, and small asset base, which are now sitting on the fence. But these banks have to eventually join the others for implementation of CBS.

The next issue is whether CBS itself will be enough for them to offer electronic payment services. The main problem here is the weak financial status of some of these banks, and consequent settlement risk. It will perhaps be prudent for these banks to join hands under a guaranteed settlement system and counter party risk management through sub-agency of either NPCI or a major bank.

Cooperative banking structure: The cooperative banks in India have a history of more than a century. The cooperative banking system was brought into the Central Bank's regulatory ambit in 1966, through an amendment to the Banking Regulation Act. The duality of control over the cooperative banks has continued ever since, though there had been ongoing efforts to minimize the same. Over the last four years a significant reform effort based on the recommendations of an Expert Group[14] has been underway. The reform effort emphasizes reduction of state control, autonomy to cooperative institutions at all levels, restoration of financial health and capacity building to make the cooperative system function on professional lines in a competitive banking environment. A significant aspect of the reform effort is that State Governments sign a Memorandum of Understanding (MoU) with Centre to amend the Cooperative Societies Act to bring a conducive legal and policy environment that would secure the objectives of reform. 25 states have signed the MoU and are in various stages of implementing the reform package.

The size and potential outreach of the cooperative banking network is substantial as seen in the following table:

[14] Headed by Prof Vaidyanathan of Madras Institute of Development Studies

Table 4: Cooperative banking system[15]

PRIMARY SOCIETIES (PACS, FSS & LAMPS) (31-03-2009)	DISTRICT CENTRAL COOPERATIVE BANKS (31-03-2009)	STATE COOPERATIVE BANKS (31-03-2009)
1.NO.OF STY. 95633	1.NO.OF DCCBs 373	1.NO.OF SCBs 31
2.NO.OF BRANCHES Including H.O. NIL	2.NO.OF BRANCHES Including H.O. 13233	2.NO.OF BRANCHES Including H.O. 992
3.MEMBERSHIP : 132350	3.MEMBERSHIP:	3.MEMBERSHIP:
4.OWNED FUNDS 1180582	a.TOTAL 3529	a.TOTAL 201
5.DEPOSITS 2624538	b.COOPERATIVE 697	b.COOPERATIVE 19
6.BORROWINGS 4893844	c.INDVL./GOI 2832	c.INDVL./GOI 182
7.LOANS ADV. 5878674	4.OWNED FUNDS 2387942	4.OWNED FUNDS 1015443
8.LOANS OUTS 6404424	5.DEPOSITS 12372182	5.DEPOSITS 7131507
9.PERG.OF OVR.TO DEMAND (%) 44.82	6.BORROWINGS 2847764	6.BORROWINGS 2158221
10.NO.OF EMPLOYEES: 222173	7.LOANS ADV. 8802869	7.LOANS ADV. 5186621
11.NO.OF BORROWERS: 46219	8.LOANS OUTS. 9720682	8.LOANS OUTS. 4620084
	9.PERG.OF OVR.TO DEMAND (%) 32.69	9.PERG.OF OVR.TO DEMAND (%) 8.68
	10.NO.OF EMPLOYEES: 89259	10.NO.OF EMPLOYEES: 14635

Source: NAFSCOB, March 2010

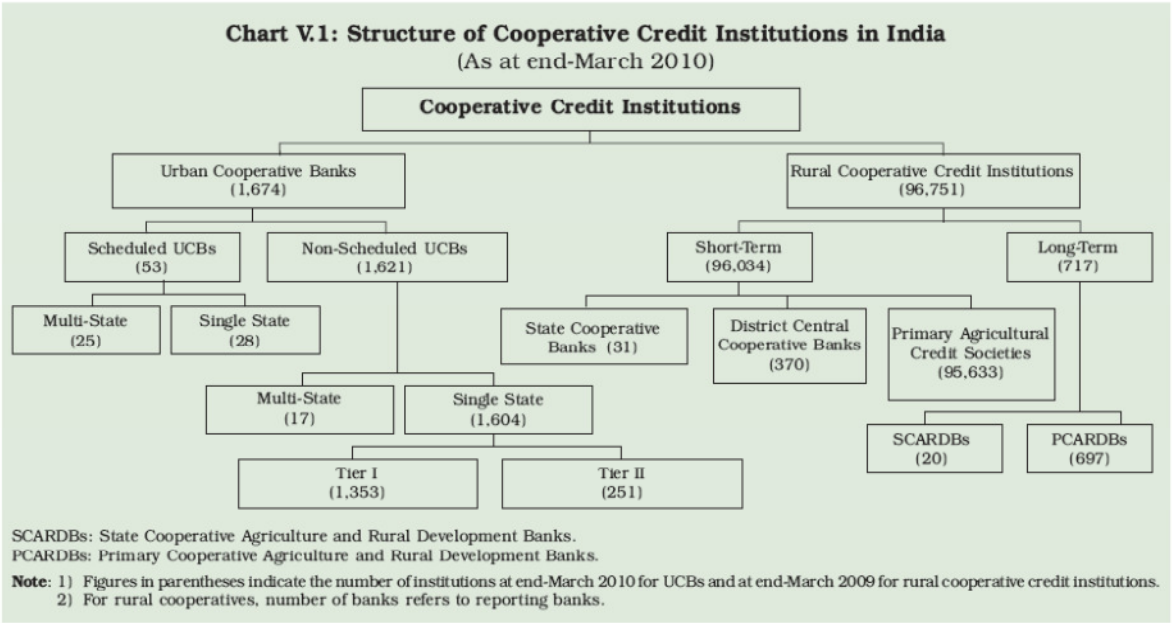

Figure 2: Structure of cooperative credit institutions in India

Source: NAFSCOB, March 2010

With more than 130 million members and 46 million borrowers serviced by over 95,000 primary outlets, cooperatives are one of the largest inclusive banking channels in the country. More than 14,000 branches of cooperative banks provide the banking backbone required to the 95,000 + primary

[15] Source: National Federation of State Cooperative Banks, Mumbai

societies. Typically, members of primary cooperatives are farmers, with a mix of small and large landholders. Borrowers are typically small and marginal farmers as their financial needs are prioritized in product design and lending processes.

Post-reform, the CCS is exploring opportunities for expansion and diversification of products and services relevant for its customers. Apart from savings and loans, cooperative banks would also focus on non-fund based revenue lines of business such as insurance and remittance/payment services.

However weaknesses exist in large parts of the network, rendering provision of quality services to customers across the country from the PACS very difficult. Even many District Central Cooperative Banks find it difficult to satisfy customers with a comprehensive range of banking services. Currently the payment services offered by cooperative banks relate to

- remittances within the area of operation of the banks;
- remittances to other areas in collaboration with other cooperative banks;
- handling government payments such as wage disbursements under MGNREGS, old age pension;
- handling payment of salaries of staff of government (such as teachers) and private sector based on localized agreements with employers;
- periodic and regular payment to farmers on behalf of commodity procurers(such as for milk, oilseeds, sugarcane);
- collection of bills –such as for electricity, telephone, etc.;
- collection of periodic payments such as insurance premia.

No estimate of the quantum of payment and transfer transactions is available. The services are mostly carried on the branch network of the banks and are not offered through the PACS, except in a few cases where pensions and NREGS payments are routed through the PACS network. There are primary milk producers' cooperative societies as also some commodity cooperatives (such as cotton) that make payments to their producer members in respect of produce supplied to a procurer.

The government prefers that its payments are handled electronically (Electronic Benefits Transfer -EBT) for which good software and hardware platforms are needed. Banks with a Core Banking Solution are able to handle large numbers efficiently at low costs, almost totally avoiding errors. Often EBT requires that accounts of beneficiaries are opened; the opening of

no-frills –accounts in such cases also serves the objective of financial inclusion. Cooperative banks would be in a position to take up opening of accounts in large numbers and subsequently handling payments to these accounts electronically only after the investments in hardware and software for CBS are completed. There are a few states where the systems are in place or expected to be in place shortly such as Andhra Pradesh and Tamil Nadu. NABARD has reportedly taken up the issue of computerization of cooperative banks and a cloud computing solution that cooperative banks can access on payment of a user fee. Once this arrangement comes into being cooperative banks will have a competitive advantage over other financial institutions in providing payments solutions on account of their deeper penetration in to villages through the Primary Societies and low operating costs.

The primary societies are of varying quality and efficiency. It is difficult to envisage the primary societies offering own-account services in payments. They can offer services on behalf of the cooperative banks to which they are affiliated. They can also function as the business correspondents of commercial banks. However, functioning as part of the cooperative network will provide them the ability to put through two-way transactions across the cooperative network. The ongoing initiative for computerizing the PACS on the accounting backbone created through the Common Accounting System[16] (CAS) and MIS would vastly improve the ability of PACS to handle payments and track the same. The computerization will also improve their ability to handle EBT through mass opening of accounts of beneficiaries and electronic crediting of their accounts with government payouts from time to time.

Some of the issues that would require attention in utilizing the PACS network for payments and EBT are:

- low skill levels in staff – both on the technical side of payments as also the familiarity with computerized environment;
- lack of full time staff in smaller societies;
- limited working hours of smaller PACS;
- cash transit and safe keeping arrangements;

[16] The CAS was designed for adoption across all the PACS in the country on a uniform basis as a key reform initiative to ensure that accounting norm, standards and formats are uniform. MIS based on the CAS has also been developed. The CAS and MIS have been introduced in several states at the PACS level and a number of PACS have already prepared their accounts (including final accounts for the year) as per the CAS formats last year. Currently software to enable electronic accounting on the basis of CAS is being finalised and will be shortly be introduced along with necessary hardware in the different states.

- large number of staff to be trained.

The problems are remediable through appropriate training and need based staffing which are already planned under the cooperative reform programme. As for handling of cash, the PACS have to make more stable arrangements as the requirements will be different depending on the location and nature of receipts and payments. The central cooperative banks should be in a position to continue to support the PACS in handling of cash. The PACS could be permitted to function as agent of multiple banks especially for receiving inward remittances of members and passing on to them. The last mile linkage of the remittance with the customer would reduce transaction costs and time in receiving remittances.

India Post: Postal operations at the post office encompass a few financial services which, inter alia, include:

- remittance of money through money orders and postal orders;
- savings bank operation.

India post is under universal service obligation to provide basic postal facilities throughout the country at an affordable price. A network of more than 1.55 lakh post offices in the country, the largest in the world, of which more than 1.39 lakh are in the rural areas, is indicative of this reach and commitment. Rapid introduction of information technology has not only changed the way post offices do business the world over, but also the business that post offices do. In this era of fast developing information and communication technology, large scale induction and assimilation of modern means of communication has become vital for sustenance and growth of India post. Having created a base of more than 12,000 computerized post offices in the country and a pool of trained human resource, India Post is in the process of implementing approved Eleventh plan projects for computerization and networking of all departmental post offices and branch post office on a single integrated and modular platform connected to a National Data Center. This national infrastructure, so created will enable India Post to provide state of the art ICT services including Mobile remittance and Banking on a core banking platform and provide inclusive banking to rural, remote and hitherto unbanked areas.

Access to payment system and inclusion – the eco-system: The payment system infrastructure available in India, in so far as the instruments and clearing and settlement system are concerned, stands out as more or less at par with the advanced systems. However, considering that over 90% of retail

transactions still happen though cash[17], we have a long way to go to match advanced countries. We have example of Scandinavian countries where physical cheque as payment instrument is now extinct. This is because financial inclusion is complete and almost all payments can be through electronic transfer of money from one account to the other without any problem. This is not the case for India. In India, the biggest challenge is the access of customers to payment system and financial inclusion.

The use of any electronic payment instrument for transaction purposes is not easy in practice for the small remitters without a bank account. As almost half the adult population in India do not have a bank account, (not even no frill account), they cannot take advantage of modern payment system. Financial inclusion has become a major policy focus of banking in the last seven years. However achieving inclusion is a difficult task and will take many more years before including most of the currently excluded people with bank accounts. First of all, banking set-up with almost 100,000 bank branches[18] does not have the reach for servicing people living in far flung remote areas. Second, with over 35 per cent people living below poverty line, most of them do not save enough to feel the need for having an account. Third, banks do not find a business case for opening no frills account as the operational cost of maintaining such accounts is considerably higher that the earning from such accounts. Fourth, government incentive for opening no frills account is meager to non-existent. In spite of these problems, a number of measures are being tried to bring the unbanked to the banking and payment system's fold.

Business correspondent (BC): The difficulties in covering the last mile between the bank branch and the customer triggered the idea of BC model. The BC is intended to bridge the last mile in reaching out to customers having difficulty in reaching a bank branch for opening accounts and transacting on the same. Also, this is considered to be a cost effective way of dealing with customers requiring no more than basic financial services.

RBI has issued detailed guidelines on contracting BCs under which banks have engaged NGOs, technology firms and others as BCs. Recently RBI has also allowed enrolment of for-profit companies as BCs[19]. Technology service providers have set up not-for profit entities to function as BCs. The BCs use

[17] Cited from a speech given by Mr Narayanamoorthy, Mentor, Infosys, who had referred to a study of NCAER.
[18] Includes branches of Commercial banks, RRBs, State Coop Banks, District Central Cooperative Banks and Urban Cooperative Banks.

a variety of technology hardware and applications such as handheld terminals, mobile phones, smart cards, biometric cards, PoS terminals and the like. The networking technology varies from physical docking, near field radio communications as also internet based online networks. Some examples of such BC agents (Basix Sub-K, Sarvatra AWM, FINO) have been given in Appendix 5 and Appendix 6.

While the BC model represents progress towards inclusion of small clients and those in remote areas the viability of the model is yet to be established. The major reason is the reluctance of banks to test out scalable models that can provide a solution in different parts of the country. Serious efforts at designing of products and processes suitable for the hitherto excluded customers have not been in evidence. The rollout of BCs so far has targeted customer acquisition with No-Frills Accounts, often without strategizing the marketing of other services that could improve viability of operations. The incentive structures, technology, type of entities that are suitable for contracting as BCs and the control systems are yet to be fully understood, despite the BC arrangements being in vogue for more than four years[20].

Mobiles can solve payments problems!

Gramin Koota, a Bangalore based NGO had carried out a mobile based pilot in collaboration with m-check, payment solutions provider in Karnataka. With Bank of India as the partner and payments backbone, the customers of Grameen Financial Services Limited (a MFI belonging to the Grameen Koota group) enjoy transacting on bank accounts with Bank of India through their mobile phones. The mobile platform is currently used for repayment of loans, payment of utility bills and also purchase of goods from participating retail shops. The settlement of transaction takes place through bank accounts with Bank of India. The service allows banking at the handsets of the customers (or that of the BC agent if the customer does not own a mobile handset). The direct costs of transport to bank branch and indirect costs of travel time (and consequent loss of wage days) are significant. The mobiles have offered a quality payments solution for even small amounts, apart from enabling people save their surpluses with a bank. The pilot which was small scale has to be mainstreamed and will have significant lessons for the other service providers – both mobile and financial.

[20] Y.S.P.Thorat and others – Agency Network Management Study - 2010.

4 International Experiences

4.1 Introduction

The metamorphic transformation in the payment system in developed countries was heralded by e-payment infrastructure put in place by the banking system in these countries. As a result cash has become less preferred as a mode of payment. The payment system available in Germany, USA and Kenya are cited here as an example of a modern payment system.

4.2 The German payment system

The Germen payment system is acknowledged as a highly efficient and cost effective system. The most common payment schemes are credit transfers and direct debit while card based payments are still not as strong as in other countries like France and the UK. In general the entire system is account based (current account/giro account), given the fact that almost every household in Germany has at least one current account.

Nevertheless the German payment system provides e-payment facility even when payer or payee does not have a bank account, based on identification and authentication by national identity card. Even if this facility is not so relevant for the German payment market, it might be relevant for Indian migrant workers as many of them find it difficult to open bank accounts. The availability of UID (Aadhaar) may serve as identity of a migrant worker for authentication of e-payment.

Credit transfer (Überweisung)

Credit transfers can be processed on various clearing and settlement mechanism. Three major methods in operation among the banks are:

- ***inter-account-transfer***: Used if the same payment institute maintains the payers and the beneficiaries account. This is the fastest and cheapest method, processed within the individual banks core banking system;
- ***direct correspondent bank transfer:*** Used if the payer's bank and the payee's bank are in a correspondent banking relationship. Both banks have interlinked their core banking systems. Clearing and settlement is processed directly, without any clearing houses. This mechanism is the most common method in Germany. The two major retail banking groups, Savings Banks (market share of appr. 50 %) and corporate banks (market share of appr. 25 %), are interlinked through their vast core banking service providers/computer centres. Transfers are executed in batch processes;

- ***indirect credit transfers:*** Payers' and Payees' banks do not maintain a direct correspondent bank relationship. Credit transfers are processed through mediated correspondent banks/clearing houses. This method is also common, as the majority of banks have reduced their correspondent bank network due to economic reasons.

In addition to the methods mentioned, there is also the possibility to use the EFT system of the "Deutsche Bundesbank[21]". Deutsche Bundesbank Services are accessible for all banks that are licensed and maintain an account with the central bank. The service is used for high value payment, using the RTGS system, or if no direct or indirect relationship between banks is available.

The credit transfer (Überweisung) can be initiated electronically as well as on a paper base by the customer. For the paper-based initiation, a standard form has to be used.

Reciprocal settlement between two banks is mainly netted, but this is based on the bilateral clearing and settlement agreement.

Direct Debit (Lastschrift)

Direct debit payments are initiated by the payee, based on a mandate of the payer. The due amount is debited directly from the payers account, through the same clearing and settlement systems of the credit transfer. The payees' bank has no obligation to check on the existence of the mandate, but the payer has the right of a reversal without any conditions.

Account to cash

In an emergency even if the customer has no access to his/her account, there is the possibility to send money to a dedicated bank branch for cash withdrawal. The money will be sent through the established clearing and settlement systems to the benefit of the receiving bank's branch suspense account. Additionally, beneficiary's details will be forwarded through the system. The beneficiary should produce his/her national ID to authenticate the transaction and receive the payment.

The German payment schemes are based on nationwide rules, regulation and standards, set by the German banking industry, represented by the four banking associations,

- BdB, for private banks;
- DSGV, for savings banks;

[21] The German central bank.

- BVR, for corporative banks;
- VöB, for public banks.

These standards guarantee the fully interoperability between all German payment institutions.

Even though the German payment system is highly efficient, cost effective and well regarded by its customers, there is the need to improve the interoperability within the European Union. Therefore, the German banking industry played a major role in the development of the Single Euro Payments Area (SEPA). On a midterm basis all national payment schemes and instruments will be migrated to the newly developed SEPA schemes. Currently the German national payment schemes are in a transition phase towards the new SEPA (Single Euro Payments Area) schemes. A more detailed description of the SEPA schemes and instruments is provided in Appendix 7.

4.3 Payment system in the US

Payment services in the United States are provided by more than 20,000 deposit-taking institutions, in the US more commonly known as depository institution. These institutions can be classified as commercial banks or as thrift institutions, such as savings and loan associations and credit unions. Despite the large number of financial service providers, the banking system is somewhat concentrated at the national level.

The US payment system is dominated by the following payment instruments:

- cheques;
- ACH;
- credit cards;
- debit cards;
- prepaid cards.

Distribution of the number of non-cash payments:

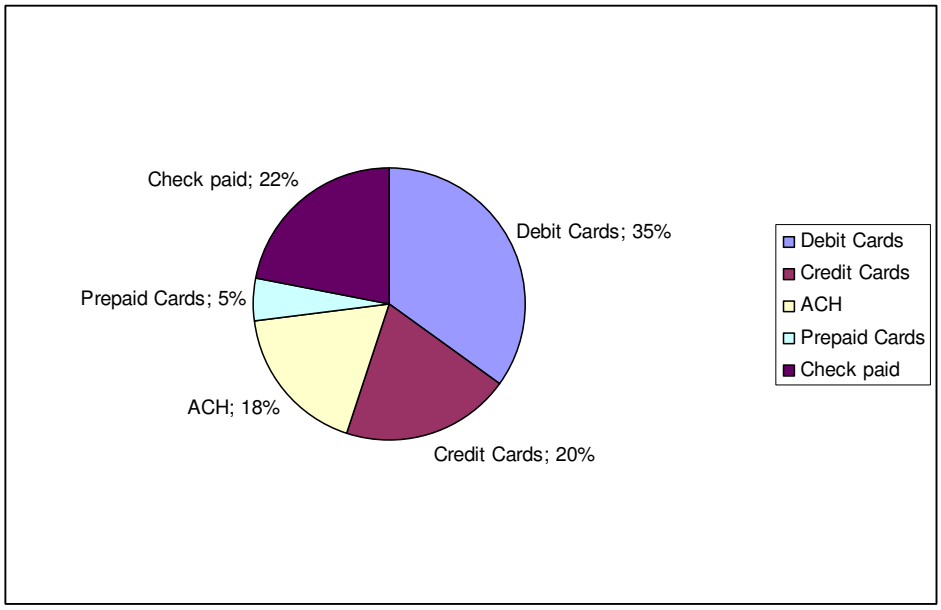

Figure 3: Distribution of the number of non-cash payments

Source: 2010 Federal Reserve Payments Study

Cheques: Paper based cheques had been the most frequently used non-cash payment instrument in the United States. But over the last 10 years the cheque has lost its predominant role within the non-cash payments. The number of cheque payments has declined from 42.5 billion in 2000 to 24.4 billion in 2009. In addition , the percentage of cheques cleared electronically has more than doubled.

ACH: ACH transactions are a common form of electronic funds transfer used to make both recurring and non-recurring payments. ACH payments may be either credit or debit transactions. In an ACH credit transaction, funds flow from the originator to the receiver, and in a debit transaction, funds flow from the receiver to the originator. ACH credit payments include direct deposit of payrolls, government benefit payments and corporate payments to contractors and vendors. Debit payments include mortgage and loan payments, insurance premium payments, consumer bill payments and corporate cash concentration transactions. Businesses and individuals may use the ACH to make payments to, or receive reimbursement from, the federal government related to federal tax obligations. In addition, paper based checks, converted into images are electronically cleared in ACH (17.8 %).

Debit cards: Debit cards are the most frequently used electronic payment instruments in the US. They are growing with a double-digit rate since 2006 and have replaced credit cards as mostly used card product. PIN debit

payments are increasing more rapidly than signature debit payments. As of today 38 % are PIN and 62 % are signature based.

Credit cards: Credit cards are generally issued by a bank under a licence from an international credit card organisation like Visa or MasterCard, and typically involve a revolving credit agreement. Credit cards were the only electronic payment instrument to exhibit a decline in use from 2006 to 2009 (-0.2 percent per year). The decline in credit card usage may reflect the economic recession in the US and may not represent permanent changes in the financial behaviour of consumers and business.

Prepaid cards: Although they still represent a relatively small volume among the categories of noncash payments discussed, the use of prepaid card is the fastest growing in the US. The number of prepaid card transactions increased 21.5 percent per year from 2006 to 2009, and the value of prepaid transactions increased at 22.4 percent per year. Private label was the most used type of prepaid card, with 2.7 billion transactions in 2009. Two billion transactions were made using Electronic Benefits Transfer (EBT) cards, and 1.3 billion were made using general purpose prepaid cards. The fast growing prepaid cards with its embedded "Electronic Benefit Transfer" might be an interesting option for low income customer groups in India in combination with an appropriate Business Correspondent Model.

4.4 Payment system in Kenya

Kenya has a relatively well-developed financial services sector in comparison to other African states. The sector includes banks, micro-finance institutions, savings and credit cooperatives, insurers (short- and long-term), foreign exchange bureaus, non-bank financial institutions, mortgage finance houses, building societies, and a postal service offering savings products. Of these financial service providers, four groups are involved in providing some form of transactional banking services appropriate for social protection payments:

- commercial banks and building societies (banks);
- Kenya Post Office Savings Bank (KPOSB) and the Postal Corporation of Kenya (PCK);
- micro-finance institutions (MFIs);
- savings and credit cooperatives (SACCOs).

In addition to the services of the four groups, Kenya is internationally acknowledged for the mobile money transfers system M-Pesa, operated by Safaricom. M-Pesa in Kenya was initially sponsored by DFID in 2003 - 2007

and can be seen as the cornerstone for other similar developments worldwide.

Commercial and mutual banks: Commercial and mutual banks have access to the national payment system and provide retail transaction through branches, smaller agencies, automated teller machines (ATMs), electronic point of sale (POS) machines, telephone call centres, and websites. Most physical infrastructure is found in urban areas. A small number of banks dominate the sector. Low-income customers in remote areas seldom benefit from this infrastructure because of high transaction fees, limited presence, and lack of interoperability.

Kenya Post Office Savings Bank (KPOSB): The bank uses its own branch network as well as the Postal Corporation of Kenya's large agency network to provide basic savings and transfer services to its customers. Its current customer base of about one million makes it the largest provider of retail financial services in Kenya. The bank is hampered by a lack of automated payments infrastructure.

Micro-finance institutions (MFIs):MFIs are based mostly in major urban, semi-urban and large trading centres. MFIs provide limited transactional banking facilities, although with the 2008 Micro Finance Act the sector has the legal capacity for a wider product range. They typically use commercial bank infrastructure and payment capabilities to process payments. Their focus is on providing credit. No direct access to the national payments system, and their small size in comparison to larger banks has precluded them as significant players in the payment services market.

Savings and Credit Cooperatives (SACCOs): Savings and Credit Cooperatives (SACCOs) are both numerous (an estimated 3,500 operate in Kenya) and significant providers of financial services to semi-urban and rural Kenya (three to four million customers). They provide basic savings and credit facilities to their members. A small number of the larger SACCOs have access to payments via PesaPoint, a third-party card acquiring network. However, none has its own electronic transaction acquiring infrastructure, apart from small branches or Front Office Service Activity (FOSA) points. The large number of small proprietary network SACCOs also limits their ability to process payments outside their service areas.

M-Pesa: Initially created as service for MFI lenders to receive and repay loans, customer adopted very fast the service for a variety of different services. This led to M-Pesa re-focus and re-launch with a new value proposition: remittances and payments across the country.

M-Pesa with its branchless banking concept enables customer to use the service without visiting a branch. Due to the wide spread use of mobile phones and affordable payment services, M-Pesa is highly popular, even with limited involvement of banks. Since its market launch 2007 M-Pesa managed to get more than 13 million subscribers and 22,000 agents.

M-Pesa is a mobile transfer system, not gaining, nor passing on to customers, any interest earned on the money held in the accounts. It only facilitates money movement. M-Pesa is not a deposit-taking facility. It facilitates money movement between banks & MFIs and their customers in a convenient, cost effective manner. As of now, M-Pesa accounts are limited to a maximum of 50,000 Kenyan shillings (appr. 600 USD).

Over the last years the M-Pesa service variety has continuously grown. Today M-Pesa includes the following services:

- ***deposit cash to M-Pesa account:*** To transact, customer need to deposit money in their M-PESA account at an agent outlet. The agent will do this transaction using their handset;
- ***money transfer*** : Customer can send or transfer money to any other mobile phone user, even if they are not a Safaricom subscriber.
- withdrawal from any M-PESA agent outlet or participating ATM network;
- ***buy Safaricom airtime***: M-PESA customer are able to purchase airtime of Ksh20 – 10,000 for their phone or another Safaricom subscriber. M-PESA value is separate from airtime account;
- ***bill payment***: M-PESA registered customers can pay their Safaricom PostPay bills as well as bills for services received from a selected number of M-PESA partners. Currently over 300 partners are on board and the numbers continue to grow daily. Existing M-PESA rules apply when paying bills: maximum transaction amount per day is Ksh 70,000 and the maximum amount transferable per transaction is Ksh 35,000.
- ***MKESHO - link to bank account***: This is a bank account introduced jointly by Equity and Safaricom where customers can earn interest from as little as Ksh1. Customers can withdraw cash from their Equity Bank Account to their M-PESA accounts and customers can also deposit through their M-PESA accounts to their M-KESHO Bank account.

  Other features of the account include micro credit facilities (emergency credit availed through M-PESA), Micro insurance facilities

as well as a personal accident cover that translates into a full cover after 1 year. The person must be an M-PESA subscriber to open this account;

- ***bulk payments****:* This service enables organizations to send money by M-PESA to many people who may be widely dispersed. The service targets organizations that would like to do promotional payments, field staff disbursements, salary disbursements, dividend payments among others. Bulk payment service is easy to use and is being improved further to cater for ever-growing market requirements. The bulk payment facility has already been beneficial, providing a quick way of sending funds to their beneficiaries. The service is also secure and does not require the organization to travel with cash to the areas of disbursement. The service is cost effective when compared to other cash management services.

The international experience points to the advantages of technology adoption in improving access to finance. For technology to be effective across institutions and platforms, issues relating to interoperability should be dealt with. Establishment of standards and communication protocols between different hardware and software technologies is also an essential requirement. Creative solutions from the supply side are possible to meet small and infrequent demands for money transfer, with appropriate technology. KYC need not be a deterrent for making small remittances over banking backbones as seen from the German experience. Simple mobile based remittance systems can be set up and operated as shown by Safaricom in Kenya, providing comfort to millions of customers.

5 Major Reasons for Exclusion of Retail Customers from Payments System

5.1 Customer reach out and marketing

The strength of a payments system depends not only on the state of infrastructure and the variety of products; clearing and settlement system; safety, soundness and security; but also on how well spread is the access, how much of transactions takes place through electronic mode, and importantly how knowledgeable and confident are the customers in the use of these products. As stated earlier, in terms of infrastructure and state of technology, Indian payment system compares favourably with well-developed payment systems. While there may be some issues of sub-optimal technology in use (magnetic strip card instead of PIN card, very rudimentary state of contact less cards) most of the products needed for payment transactions are available. What is, however, not so state of the art is the customers' ability to use electronic payments for all types of transactions. It is very unlikely that a petty shop will accept debit card or mobile payment for transactions. The milkman, the newspaper supplier or the house maid will not accept payment sent to his or her account. Utility bills like electricity bill, telephone bills etc. are still paid in cash or through paper cheque by literate and financially savvy professionals. The lack of familiarity and awareness of the e-payment systems has led to inefficient and time consuming payment modes.

The inefficient public choice mentioned above is mainly because cash as alternative available for payment is deep rooted in the psyche of the people. At this stage, it is highly difficult to hazard a guess as to when cash will become a very nominal part of payment. However, this is highly desirable from the socio-economic stand point. Reduced use of cash will also help in higher GDP growth through increase in investment resources and productivity gains.

The current state of the banking and payment systems pose a challenge to migrant workers with a need to make remittances. Despite the advances made in the payment system architecture and instruments, the poorer sections of people are unable to make use of the same. Hence, often, these people resort to informal channels at much higher cost and risk for sending money back home. What are the reasons for this? Field information reveals the following as the predominant causes for such a state of remittance service for the poor migrants:

- lack of knowledge about the availability of payment products;

- not having a bank account, not being able to fulfill KYC norms;
- banks' apathy towards servicing these customers, resulting in long queues in front of bank branches;
- no bank branch near the native place of the remitter;
- non standard payment product e.g. BC issued card.

The study has not specifically investigated these aspects as these were covered in a separate study under NABARD – GIZ collaboration. However, a few bank branches were visited and some top officials of both public and private sector banks were met to have some understanding of supply side issues.

The business benefit for NEFT transaction does not appear to be attractive as the prescribed fee of ₹5, 15 and 25 may be low. Banks not being in a position to overtly violate RBI instructions use KYC norms as an alibi.

> **Case A:** We walked into a well maintained private sector bank branch to find out if a customer not having an account with this bank could do an NEFT by paying cash subject to prescribed limit of ₹50,000. The reply was not easily forthcoming. We were referred to the branch manager who after enquiring, from another officer, informed us that this could be done subject to fulfillment of KYC norms. We wanted to know why a KYC is required when the payee is an account holder, and the amount is within permissible limit. We did have a convincing reason.

Though some banks are more at ease than the others in providing NEFT services to the customers, customer awareness for the product appears to be poor. With low fee, the banks may not be educating or marketing this product.

> **Case B:** We went to a branch of a public sector bank located at the premises of the head office to find out if a customer without an account in the bank could use NEFT to send remittance. The branch had a counter indicating RTGS and NEFT window. The official manning the counter told that the customer could send remittance using NEFT and there was no need for KYC upto ₹50,000. This was a positive response. However, when we asked how many such transactions are done on an average in a day, the reply was not many. In his view, the branches located near migrant habitat provide NEFT facilities for money transfer for them.

RBI intends to promote payment service as basic service to customers and feels the need for popularization of electronic payment, for the resultant

benefit banks and economy derives. However, the public good character of a basic remittance service is not perceived as such by profit conscious banks.

> A meeting with top officials of a public sector bank was held to discuss small value services to poor people. The candid response from the officials was that the migrant workers crowd bank branches that are already under severe pressure due to staff and resource constraints. Attending to small value customer transactions hampers quality business. Also the infrastructure at branches cannot support such kind of customers. The result is that customers, particularly migrant workers, are compelled to depend on informal channel for remittances.

Thus from the supply side it is clear that a combination of low business significance, possible crowding out of high net worth customers, profitability considerations, attitudinal issues regarding low value customers and network/staff limitations restrict the scope of service that banks are willing to offer to low income groups such as migrant workers. Even mechanisms that have been brought in by RBI are not being utilized for providing low-cost and high impact services to the migrants under different pretexts.

5.2 Options and alternatives

What are the options available to help out the migrants and other low-income group customers? The options have to be generated within the existing financial system and within the existing guidelines on payments. There are a few alternatives as below:

- mobile payment to transfer money from one account to another account will avoid crowding at bank branch;
- Western Union like facility for money transfer within the country could do away with the need for opening bank accounts and the attendant KYC related excuses for denial of service;
- widespread availability of PoS for cash in and cash out will facilitate expansion of low value payment services.

However, this will not solve the problem altogether. First of all KYC requirement is somewhat difficult proposition. Even with the relaxed norms in place, the attitudes of bank staff make it difficult for potential customers to comply with KYC norms. A question that arises is that why the KYC for getting mobile phone, cannot be considered sufficient for opening bank account[22]. There have been interesting projects[23] that have provided the

[22] In a discussion with Bharti Airtel, it was indicated by the telecom operator, that they could provide the KYC verification to banks in a manner that banks find suitable.

migrants with an identity card (authorized by the State government) at the source, for use at the destination. It appears that Aadhaar as KYC will be able to solve this problem satisfactorily provided banks have the willingness to achieve financial inclusion.

The next issue is that of account opening under financial inclusion programme for the migrant workers and a family member back home. Currently it is a major task, considering the different bank branches that might operate at the source and destination of the migrant.

The third issue is the management of 'cash out' at remote places, where bank branches do not have a reach. The branch spread of banks is still not adequate to provide quality services in the remote rural areas. The recent RBI move to have either a branch or a BC present in every village with a population of 2,000 is likely to increase points of presence of banking network. But the technological platform on which the BCs will operate will determine whether effective remittance and payments services will be operated on the extended network.

Total reliance on the banking network (including its BCs) is not likely to be a complete solution. The primary agricultural credit society and post office should be made important players in the rural remittances and payments systems. The transaction and accounting systems in PACS and post office should be upgraded to CBS with real time connectivity to allow electronic money transfer. As we reported elsewhere, they have some way to go before they get ready for providing modern payment services to their customers. The PACS and post offices should be allowed to provide cash-out on remittances of multiple banks as deemed agents of payments system. This would provide effective and low cost last mile linkages to migrants and their families.

Another option available is the installation of PoS terminals for cash withdrawal. The RBI has permitted cash withdrawal at PoS, but this has not picked up. This is rather surprising because this is not only a win-win situation for all, but also there is no limit prescribed as fee per transaction. At present PoS instruments are owned by only a few banks dominated by private sector banks, though State Bank of India has also a big share. The software operating these systems and the clearing and settlement thereon happen through Visa and Master Cards. It is not clear if some of the interested parties are reluctant to open up this channel for cash out for fear of losing control over the business. It appears that NPCI has to step in to

[23] Rajasthan based Ajeevika Bureau has such an identity card project; the cards are well accepted in Gujarat, the destination of most migrants from the areas covered by the Ajeevika Bureau in Rajasthan.

provide clearing and settlement facility for such transactions. The suitability of existing PoS terminal instruments for this purpose has to be examined or a parallel system has to be developed. A parallel system will be sub optimal from national perspective, and hence, the RBI may have to examine the totality of the issues and take action under Payment and Settlement Systems Act, 2007 to avoid such a situation. However, the RBI has so far refrained from acting, even though one and a half year has gone since the policy has been announced. This facility is very crucial for expansion of services particularly at last mile stage, for cash out resulting from electronic money transfer, in whatever mode accessible to migrant worker.

6 Opportunity for Money Transfer Through e-payment: Conclusions and Recommendations

6.1 Conclusions

It is difficult to separate remittances from payments system. After the enactment of Payments and Settlements Systems Act, RBI has effectively unbundled payments from banking. However institutionally, the services are in the same hands. The new products introduced under payments are still not solving the problems of cash out in case of remittances and are yet to address the needs of migrants. The need for creatively using the provisions of PSS Act to design processes and instruments through which migrants are able to remit funds without requiring KYC or opening of accounts is crystal clear.

As the international experience in respect of developed countries shows, modern payment system offers huge opportunity for digitization of payments and transforming them for business transactions and remittances. E-payment is one of the significant innovations of the present era. The institutions and individuals that would embrace it quickly will reap good dividend out of it. In the present state of development of Indian economy focusing on transparency for good governance and inclusiveness in economic growth to expand the cake, e-payment offers an unprecedented opportunity.

Banking sector has the necessary product variety for supporting retail payment transactions through e-payments, i.e., ATM, NEFT, ECS, micro-ATM, PoS, Cheques, demand draft, mobile, net banking, payment cards. It has a reliable (but not adequate) network of more than 90,000 branches in about 37,314 centers to potentially deliver the service through any one of them.

Banks appoint BCs to handle small value transactions as part of basic financial services, including payments. The BC arrangements however are still experimental, being carried out for the last few years; yet to be mainstreamed into a reliable extension of banking network that can offer services in remote locations. The guidelines issued by RBI to banks to establish a branch or a BC presence in all villages that have a population of 2,000 or more has added momentum to the hiring of BCs. Several alternatives that are technology based or network based are being considered.

With the given network presence and products, banks find it difficult to service the requirements of customers with small requirements such as

migrants. The KYC requirements for opening an account make it difficult for many migrant workers to use these well-established banking channels for remittances. The attitude of staff towards the low-end customers is also a factor that inhibits poorer sections of people from taking the initial steps to approach a bank. As a result, informal channel is a common mode of money transfer for a sizeable section of migrant workers.

Technology used by the BCs, is widely varying, on account of individual creativity of each BC, and hence without minimum standards. As a result the systems are not inter-operable. Even where the same BC serves more than one bank, each bank is offered a solution that would not easily operate with systems offered elsewhere. Over the long run, a way has to be found to impose a standard for interoperability so that customers are in a position to use any access point without having to open multiple accounts. The issues in interoperability in use by BCs are twofold. The first is that a customer should be able to access all of the banking system's channels for putting through transactions without being confined to its BCs alone. The second is that, as in the case of ATMs, the customer should be able to transact on his account using the services of any BC of any bank. The first one is an immediate and achievable objective. The second is a more difficult, but necessary one even if it takes time.

Financial inclusion is now almost a right for the poor. As we know from the success stories of micro finance, productive potential of almost half the population lies untapped or under- tapped for want of capital, market infrastructure and right knowledge. While this is a much larger issue, there is no denying of the fact that remittance can be an important source of empowerment of the poor through inclusive growth. Feedback from the field shows that customers are ready to pay the right price for payment services. From the experience generated out of few service providers with hand held micro-ATM, a customer seems to be not averse to paying ₹10 to ₹20 for payment transaction. This willingness of customers to pay for payment services makes a strong case for developing facilities for access to e-payment in the unbanked regions.

Today, even if we have right products for e-payments, the banking and financial infrastructure does not have the availability and acceptability for e-payments. The issue now is to understand whether we could leave it to the market to create the necessary infrastructure. If not, what is the right approach? Without government support, low value payments system may not develop to the extent necessary.

6.2 Existing bottlenecks

The assessment of the banking system and payments reveals that the smaller clients with low value transaction requirements are not well served. While the instruments and transaction platforms for remittances and payments exist, the network presence and marketing effort that would take services to the target clients is weak. The policy environment, while encouraging, has yet to address issues of viability of extending services to remote areas and small customers.

From the demand side, financial illiteracy is a critical issue. The customers and potential customers who remain excluded are not aware of the advantages of transacting with a bank and the requirements therefor. The excluded customers experience resistance from the staff of banks when they try to access financial services, especially remittance facilities.

The small ticket size of transactions and the high transaction costs are the bottlenecks in turning the demand into an effective, bankable one. More so since the ability to pay for bank services in the hands of poor people is low.

From the supply side the points of presence are limited compared to number of people and villages to be covered. The staffing in the rural branches is not adequate to service all the excluded population that might desire to become part of the banking system.

6.3 Recommendations

A significant level of inclusion should precede any organized effort at broad basing remittance services. Holding of bank accounts by a large number of people, especially migrants will increase their chances of accessing banks' remittance channels. Customer education on technology options and safe money transfer arrangements are critical component of inclusion. These not only provide the knowledge to users to effectively use the service but also the confidence to enter bank branches and deal with staff of BCs. GoI and state governments should carry out literacy campaigns on EBT; and RBI and banks should carry out the banking and financial literacy campaign as part of financial inclusions. Supply side interventions such as increased coverage of the network, investment in ICT platforms, increasing number of staff alone may not achieve results. Preparing the demand side to ask for services from the bank, pay for the services and become aware of their rights and responsibilities is equally important.

The specific recommendations:

- e-payment should be the main mode of transactions for all purposes. All government payments and receipts, including payment to the poor under different benefit schemes, should be through e-payments. This can happen only when everyone down the line maintains bank account in banks which have CBS and networked branches and outlets across the country. As banks alone cannot serve all the potential customers, implementation of core banking like solution by India Post and agricultural cooperative societies, through their apex bodies, to prepare them to join national e-payment network and national clearing and settlement system is recommended. This should be completed within next two years. The central government and NABARD should take responsibility for implementation of this task. (Action GoI, RBI, NABARD);
- the cooperative banks should be made a part of the payments system, linked through the respective SCBs so that they have the capability to effect fund transfers across the country seamlessly. Further the PACS linked to the DCCBs should be technology enabled and connected to the CBS systems of CCBs to provide electronic remittance and payment services to their customers in the rural areas. The investments in hardware and software for the purpose already being made under the Rural Cooperative Banking Reform should take these requirements into account. (Action NABARD);
- RRBs should be linked to the national payments system through their sponsor bank's platforms or independently. With the planned completion of CBS installation in all RRBs this becomes feasible. The RRBs either directly or through their sponsor banks should participate in RTGS/NEFT/NECS to acquire electronic funds transfer, remittance and payments capability across the country. (Action RBI, NABARD);
- BCs should follow standards for interoperability of e-payment transactions seamlessly. At present, due to lack of standards, interoperability is very much limited. For example, a customer of BC of Bank A cannot initiate a transaction at BC of Bank B. The envisaged micro-ATM standards of UIDAI and IBA should allow for seamless interoperability like the ATM and the PoS system. This problem can be easily circumvented if the BCs can interact with CBS of commercial banks, promote the use of standard PoS terminals/ATM and issues standard cards to the customers. This will, of course, call for fundamental change in the existing business model of BCs and their relationship with banks. This issue needs to be debated from the point of business model to work out effective checks and balances in

the system to minimize risks. From the technology point of view, however, this is not a major issue. Today, UCBs are exploring the ASP model for core banking and e-payment products. BCs can be similarly included as part of an ASP model of the bank ensuring interoperability. (Action RBI, BCSBI, Banks);

- financial literacy on e-payment, how risks get mitigated, how e-payments helps in financial inclusion should be an important component of capacity building programme to be pursued by BCs and others. (Action Banks);
- there is a need to **develop sustainable business case on e-payment to further promote the BC network**. As a 10% reduction in cash transactions has the potential to raise GDP significantly, promotion of e-payment should be a major initiative of the government. This is also relevant from public policy point of view on good governance. (Action RBI);
- THERE is a need to put a system in place for effective supervision based on standard rules and regulations as well as minimum requirements for BC. The idea is to have uniformity in basic principles of operation of BCs, such as standard payment products and service charges and higher levels of customer protection. (Action Banks);
- mobile payment should be promoted on a wide scale. NPCI's new mobile based product, IMPS, with facilities for multilateral clearing and settlement, can emerge as a very important mode of payment. In view of the widespread use of mobile phones, mobile based payment system has the potential to reach out to a huge customer base in the course of time. This requires accounts at both ends which would be possible only when there is an underlying bank account attached to a mobile. Mobile connections are provided based on KYC norms and mobile connections have reached even remote villages in India. Thus, we already have KYC records of many existing unbanked people in villages. It is recommended to **bring in awareness through focused educational campaigns among the unbanked to open small deposit accounts (requiring liberalized KYC documents) based on the KYC data held with the mobile operators**. While Aadhaar would also serve similar purpose for opening a bank account the long waiting period for Aadhaar becoming fully operational is a dampener for rapid financial inclusion. The use of mobile telecom operators' KYC could be explored by banks (with necessary modifications) for new customer acquisition. (Action RBI, Banks);

- India post should have CBS like system to host all customer accounts with access for e-payment. India Post has a network of 157,000 post offices/outlets. Of this 127,000 are in villages. This delivery channel can play an important role for the access of the financial needs through a robust India Post payment system, particularly in the rural area. However, due to lack of centralized and computerized accounting system and network, India post does not have a state of the art remittance system. (Action India Post, GoI);
- with sufficient networking through CBS in banks and the like in Post offices, customers should be issued card for transaction through PoS/ATM/micro-ATM system having interoperability. (Action Banks, Post office);
- PACS are a three tier system. PACS report to DCCB and DCCB reports to Apex State cooperative bank. PACS are widespread in India with more than 90,000 outlets. **PACS should also have a networked centralized system (CBS) and interoperability**. (Action NABARD, Cooperative banks);
- small capacity ATMs are needed in villages having a sizeable population. Such ATMs can be installed under an outsourcing model. (Action Banks);
- PoS should be used extensively for cash withdrawal and money/credit transfer. PoS is a cost effective means of providing cash-in/cash-out services, supporting e-payment. Apart from BCs, small shops and telecom retailers should be encouraged to create facility of PoS terminals for e-payments (Action Banks, BCs);
- debit card and NEFT needs proper marketing. In China, debit card is the major mode of payment. This has been possible due to government's policy of crediting salary and other payment in customer's account and encouraging payments out of this account through debit card. NEFT either through internet or through branches should be popularized through media campaign and suitable counter management at the bank branches. (Action RBI, Banks);
- even if ATM has cash depositing facility, its use is very limited. Cash collection center with interoperability is a solution to overcome the difficulties. This would help even the migrant population restricting them to be served by only one bank branch. (Action Banks);
- wherever there is a concentration of migrant population, a BC mechanism should be in place for dealing with them cost effectively and in friendly manner. Banks tend to avoid migrant workers

crowding their branches, possibly for fear of causing inconvenience to other customers. Also, these customers have to wait in queue for long time to send remittances. It will thus become a win-win proposition for both bank and customer if small remittances are handled by BCs, over and above bank branches. This will help in not only developing a cost effective solution for remittances but also easing pressure on bank branches. (Action Banks);

- pricing of payments products should be such that it promotes electronic mode of payment. In this connection, the RBI has fixed per transaction charge for ATM, NEFT and RTGS. RBI has to take action to reduce high charges for credit and debit card transactions paid by the customers indirectly. Given that even USA has decided to rein in debit card transaction charges by reducing the rate, the RBI should take similar step so that debit card becomes a very popular instrument for customer payment. (Action RBI, Banks);
- all government and corporate payment exceeding say ₹20,000, should be mandatorily effected through electronic payment. In fact this is quite consistent with present mandatory provision under IT Act for account based payment for transaction of ₹50,000 and above. In case of small value customer payment, tax concession may be an incentive for payments below mandated provision of ₹50,000. (Action GoI);
- PACS should also be allowed to deal with non-members for payments and money transfers so that remittance coverage can be expanded without new institutions having to be set up. MFIs could be used as payments BCs. (Action RBI, Coop banks);
- a new remittance product on the lines of Western Union to cover domestic remittance is to be designed. While banks issue such pre-paid payment instruments, the customer should be in a position to cash-out such instruments at authorized outlet that could be a BC agent, post office, bank branch, PoS terminal-holding retailer or an ATM. The only requirement should be a valid ID card and the PIN number of the prepaid card. (Action RBI).

6.4 Further steps

This report on account of its wide scope has not been able to investigate certain aspect in depth. Hence it has some suggestions for further steps to explore certain areas in a bid to improve the payment systems' responsiveness to small remitters.

- preparation of a comprehensive report that links the demand side studies and perspectives with supply side factors so as to look for integrated solutions to the problems of small remitters;
- a study to project the economic benefits of an improved and more inclusive payments system (through an econometric model for projecting the economic benefits including positive impacts on GDP);
- development of a simplified remittance product that would require minimal KYC at both remitters and receivers ends on the lines of Western Union; using the prepaid payment instruments format;
- study of KYC carried out by telecom service providers and customizing the same for ready use by bankers;
- design and run 'mchek' like pilots in RRBs, PACS to test mobile based solutions in rural areas in small institutions;
- cost study on viability of small remittances from the supply side to deal with pricing issues;
- study of costs and returns on BC arrangements for BCs and banks – to identify norms and criteria for fixing remuneration for BCs under different models as also the basis for pricing of services by banks.

6.5 Recommendation matrix

Recommendation	**Action by**	**Problem addressed**	**Outcomes**
The Government and the RBI should provide assistance for developing infrastructure, under proper review mechanism, for e-payments to make the system less dependent on Cash	GoI and RBI	Current infrastructure is at a low level of technology and investments are perceived to be high by banks.	Cash-in and Cash-out will generate less physical cash, make movements of cash easy and quick. Govts will spend less on making EBTs and with greater delivery efficiency without leakages.
PACS, considered financially strong and well run, should be allowed to act as BCs for	RBI	Not only network should be enlarged, but	An increased number of people using

their corresponding DCCB. Functional PACS should be deemed as agents for multiple banks for payment of remittances and money transfers to their member customers.		customers should have the confidence to approach institutions to put through transactions. PACS are seen to be friendlier places than bank branches.	formal remittance chanels, increased savings with Cooperative PACS. Customers in rural areas can approach their village PACS for receiving payments without travelling to different banks through wihich remittances may have been effected.
MFIs (selected on the basis of objective criteria) can be considered for BC like service for payment system, with all due diligence, through banks	RBI	Limitations of banking network. Lack of self-confidence among customers to use banks.	Increased use of services if offered through MFIs, which are having a relationship with customers already.
Government and RBI should organise focused financial education and awareness campaigns among the people, institutions and organizations. The literacy campaign should focus on shifting transactions from cash to payments system and make customers aware of advantages of e-payments solutions.	GoI and RBI	Lack of literacy leading to low self-confidence to use public institutions.	Better aware customers, more transactions through formal remittance channels, improved viability for banks and others.
RBI and the banking system have to promote e-payments	RBI and Banks	Low level of usage of e-payment products and	Better capacity utilization of the payment

in a big way.		systems.	network and increased cost recovery/return by banks.
All the bank branches (including cooperative banks) should have core banking solution. Post office network and the primary cooperative societies should be equipped with core banking like solutions. It is recommended to have a roadmap set for those bank branches and institutions still not under core banking network, within a period of two years.	RBI and Banks	Lack connectivity for real-time transactions, especially in remote locations.	Improved transaction times, higher volumes of transactions, error free accounting.
Banks should follow the specific standards for the payment instruments to insure interoperability. With such systems in place banks, based on customer requirements, issuance of cards for operating the bank account at either end of a remittance channel could solve problems or remitters and recipients.	Banks	Services of banks cannot be easily availed due to proprietary technology systems used.	Interoperability will enable customers to avail cash-in and cash out services from any bank branch regardless of the bank with which accounts are kept. This will be a source of great comfort for migrants.
Standardized micro-ATM terminals with online GPRS connectivity should be used by BCs in the same manner as it would be used in the bank branch counters. Such BCs should invariably be present in the village market place.	Banks/BCs	Services of banks cannot be easily availed due to proprietary technology systems used.	In remote locations, interoperable systems will improve customer comfort and enable easy remittance flows.
Studies to be conducted on			

the following areas: • study of economic benefits of an inclusive payments systems (through an econometric model on impact of converting cash payments to e payments); • product development for simplified small remittances; • study usability of telecom KYC for banking; • cost study on viability of small remittances from supply side – and pricing issues; • design a 'Mcheck' like pilot and run in a few locations to examine how mobiles can facilitate local institutions such as cooperative societies and RRBs; • study of costs and benefits of different models of BCs to arrive at the factors and norms for determination of remuneration of BCs and pricing of services by banks.			

Appendix 1 Data Aspects of Payment System

(Number in Lakh and Amount in ₹ crore)

	March 2010	**March 2009**	**March 2008**
Number of ATMs	60,153	43,651	34,789
Number of debit cards	1,819.72	1,374.31	1,024.37
Number of credit cards	183.31	246.99	275.47

	2009-10	**2008-09**	**2007-08**
Number of transactions			
Cheques	13,802.7	13,973.9	14,605.6
Payments by debit card	1,701.68	1,276.54	883.06
Payments by credit card	2,342.42	2,595.61	2,282.03
Value of transactions			
Cheques	1,04,09,941.5	1,24,69,134.9	1,33,96,065.9
Payments by debit card	26,418.11	18547.14	12,521.22
Payments by credit card	61824.15	65355.8	57,984.73

	2009-10	**2008-09**	**2007-08**
Number of transactions			
No of RTGS enabled branches	66,178	55,006	47,608
No of NEFT enabled branches	69,000	55,225	
Volume of RTGS (customer remittance)	304.40	112.34	41.46
Volume of NEFT transactions	663.38	321.61	133.15
Volume of ECS credit transactions	981.33	883.94	783.65
Volume of ECS debit transactions	1492.81	1600.55	1271.20
Value of transactions			
Value of RTGS (customer remittance)	29,516,777.47	20,004,107.80	16,100,172.88
Value of NEFT transactions	409,507.47	251,956.38	140,326.48
Value of ECS credit transactions	117,612.60	97,486.58	782,222.30
Value of ECS debit transactions	69,523.87	66,975.89	48,937.20

Appendix 2 Framework for Delivery of Banking Services Via Mobile Phone/Micro-ATM

The framework aims at bringing basic financial services to millions of Indian with no access to banks. It envisages creation of "Mobile linked No-Frills Accounts" by the banks, which can be operated using mobile phones. It will also facilitate transfer of funds of various government schemes to these accounts.

The government has approved the framework for delivery of basic financial services through mobile phones suggested by an Inter-Ministerial Group (IMG) set up in 2009. The framework envisages creation of "Mobile linked No-Frills Accounts" by the banks, which can be operated using mobile phones.

The basic transactions permissible over these accounts will include cash deposit, cash withdrawal, balance enquiry, transfer of money from one mobile-linked account to another and transfer of money to a mobile-linked account from a regular bank account. It will also facilitate transfer of funds of various government schemes like NREGS, etc., to a "Mobile linked No-Frills Account".

In order to enable immediate operationalization of the framework while ensuring interoperability and interfacing with the Unique ID numbers system in the country as and when it becomes operational, the following two ways of service access have been proposed:

- through a mobile based PIN system using "Mobile Banking PoS";
- through a biometric (fingerprint) based system using UID numbers issued by UIDAI.

The framework accommodates other means of access as and when technology evolves or when needed.

The model enables persons with mobile phones to deposit and draw cash instantly into or from their "mobile-linked no-frills" bank accounts through a Business Correspondent (BC) having a mobile phone in the village. Also, the model enables any two mobile users, to transfer money to each others' "no-frills" accounts specifying only their mobile numbers without the necessity of any intermediary including BCs. When fully implemented, the model would enable the same BC in the village to be shared by all the banks for supporting basic deposit and withdrawal transactions.

To ensure interoperability among service providers including both Banks and MSPs and to reduce costs, the framework stipulates a simplified common template for the KYC requirements. The framework also proposes interoperable repositories at the national level for hosting and managing mobile linked no-frills accounts thereby substantially reducing transaction costs. These are the essential features that make the framework viable for large volume micro transactions.

A significant feature of the proposed framework is that funds remain within the banking system throughout and the intermediary does not have custody of the funds even momentarily. Keeping this in view as also the imperative of rapid scaling at a national level to reach out financial services, the IMG has recommended that RBI permit "for profit" corporate entities to function as BCs. The IMG also recommends that RBI relax its stipulation that the BC or his sub-agent should be within 30 km distance of a branch of the sponsoring Bank in cases where there is no branch of any Bank within a 30 km distance.

The report provides indicative monetary compensation levels for each player involved in the implementation, which would serve as the basis for getting the system started and be later fine-tuned in the light of actual experience. The IMG report has recommended setting up of various committees by RBI and TRAI for setting of standards, supervising operations and ensuring transparency and fair play in the operations under this framework.

With the acceptance of the report by the government, banks are being advised to implement the IMG framework on priority to extend basic financial services to the "unbanked" population of the country. Individual banks may start implementation by July 2010 and banks may complete the rollout by December 2011.

The IMG framework based on mobile phones and biometric-based authentication will form the core micro-payment platform for transfer of benefits under various government schemes, micro-payment services and financial inclusion for the target groups of social sector programmes. Besides delivery of basic financial services to the poor and disadvantaged, both urban and rural, the mobile-based delivery model will cut delay and reduce the costs and hardships incurred by the beneficiaries in availing the cash benefits under various welfare and poverty alleviation schemes.

Appendix 3 UID-Enabled Micro-Payment Architecture

While the demand for financial inclusion has gained urgency over the last few years, initiatives in India to expand financial infrastructure date back several decades, since the building of rural cooperative credit banks in the 1950s, and the spread of bank networks in the 1970s and 1980s. These initiatives have paid off over the years — India's bank branches are well-networked, particularly across urban India.

But despite these efforts, access to finance has remained scarce in rural India, and for the poorest residents in the country. Today, the proportion of rural residents who lack access to bank accounts remains at 40%, and this rises to over three-fifths of the population in the east and north-east of India.

This exclusion is unfortunate. Economic opportunity is after all, intertwined with financial access. Such financial access is especially valuable for the poor — it offers a cushion to a group whose incomes are often volatile and small. It gives them opportunities to build savings, insure themselves against income shocks and make investments. Such savings and insurance protect the poor against potentially ruinous events—illness, loss of employment, droughts, and crop failures. However due to the lack of access to financial services, many of the Indian poor face difficulties in accumulating savings.

To mitigate the lack of financial access in India, RBI has focused on improving the reach of financial services in new and innovative ways—through no-frills accounts, the liberalization of banking and ATM policies, and branchless banking with business correspondents (BC), which enables local intermediaries such as self-help groups, post offices and kirana stores to provide banking services. These efforts have also included the promotion of core-banking solutions in regional rural banks; and the incorporation of the National Payment Corporation of India (NPCI) as an apex switch, for payments and settlements.

In recent years, ATM and core banking, as well as greater mobile connectivity have also become two powerful engines of financial access. Mobile phones in particular present an enormous opportunity in spreading financial services across India. These technologies have reduced the need for banks to be physically close to their customers, and banks have been consequently able to experiment with providing services through online as well as mobile banking. These options, in addition to ATMs, have made banking accessible and affordable for many urban non-poor residents across the country.

UID's micropayment solution

UID KYR sufficient for KYC: Banks in India are required to follow customer identification procedures while opening new accounts, to reduce the risk of fraud and money laundering. The strong authentication that the UID will offer, combined with its 'know your resident' (KYR) standards, can remove the need for such individual KYC by banks for basic, no-frills accounts. It will thus vastly reduce the documentation the poor are required to produce for a bank account, and significantly bring down KYC costs for banks.

Ubiquitous BC network and BC choice: The UID's clear authentication and verification processes will allow banks to network with village-based BCs such as self-help groups and kirana stores. Customers will be able to withdraw money and make deposits at the local BC. Multiple BCs at the local level will also give customers a choice of BCs. This will make customers, particularly in villages, less vulnerable to local power structures, and lower the risk of being exploited by BCs.

A high-volume, low-cost revenue approach: The UID will mitigate the high customer acquisition costs, high transaction costs and fixed IT costs that we now face in bringing bank accounts to the poor.

Electronic transactions: The UID's authentication processes will allow banks to verify poor residents both in person and remotely. Rural residents will be able to transact electronically with each other as well as with individuals and firms outside the village. This will reduce their dependence on cash, and lower costs for transactions. Once a general purpose UID-enabled micropayments system is in place, a variety of other financial instruments such as micro-credit, micro-insurance, micro-pensions, and micro-mutual funds can be implemented on top of this payments system.

Appendix 4 RBI's Instructions on KYC Norms to Banks

- August 1976 - The applicants for demand drafts, traveler's cheques and money transfers should attach their Permanent Account Number (PAN) on the application for transactions of ₹10,000 and above;
- November 1987 - It was declared that cash should not be accepted for retirement of import bills. It was also mentioned that there must be a reasonable time between the time an introducer opens his account and introduces a potential account holder. Introduction of an account should facilitate the proper identification of the person opening the account so that the person can be traced if the account is misused;
- April 1991-Banks were instructed that demand drafts, travelers cheques, mail transfers and telegraphic transfers for ₹50,000 and above should be by debit to the customer's account or against cheques only and not against cash;
- August 1992-Banks were advised to adhere on to the prescribed norms and safeguards while opening accounts;
- December 1992-Banks were asked to make sure that when customers withdrew amounts from their cash credit/ overdraft accounts that funds were not diverted for the acquisition of fixed assets, acquisition of shares and other capital market investments and investments in associate companies;
- September 1993 - Banks were instructed to be alert and ensure proper end use of bank funds. They were to keep an eye over heavy cash withdrawals by account holders that may be disproportionate to their normal trade/ business requirements;
- November 1993 - On account of fraudulent encashment of dividend warrants/interest banks were instructed to not open accounts without proper introduction;
- December 1993 - Banks were asked to ask for customer identification while opening accounts including the obtaining of photographs of customers;
- April 1994 - RBI instructed that photographs should be obtained for both residents and non- residents and for those authorized to operate accounts;
- September 1994-On account of fraudulent operations in deposit accounts, banks were asked to inspect every request for opening joint accounts vigilantly. "Generally crossed cheques" and payable to

"order" were to be collected only on proper endorsement. Banks were also instructed to exercise care in the collection of cheques of large amounts and make sure that joint accounts are not used for "Benami" transactions;

- May 1995-Banks were instructed to introduce a system of close watch of new deposit accounts and observe cash withdrawals and deposits for ₹10 lakhs and above in deposit, cash credit and overdraft accounts;
- September 1995-Banks were instructed to report to the RBI all transactions of ₹10 lakhs and above;
- December 2001-Banks were asked to keep a vigilant eye on transactions that may be by terrorist organizations;
- April 2002-Banks were instructed to freeze the accounts of individuals and entities identified by the Security Council Sanctions Committee of the United Nations (UN);
- May 2002-Banks were instructed to make sure that no new accounts were opened by banned organizations;
- August 2002-RBI reinforced its instructions stating: The key principle of "Know Your Customer" procedure must be the identification of an individual/corporate opening an account. This must involve an introductory reference from an existing account holder/person known to the bank. The board of directors should have in place adequate procedures to verify the authentic identification of individuals. There must also be processes to monitor transactions of a suspicious nature. This instruction raised the requirement of submitting PAN to transactions of ₹50,000 or more (earlier it was ₹10,000).
- there should be good control systems plus audits and checks to ensure the bank stick on to its KYC policies;
- there must be a system at branch level to ensure that lists of terrorist entities are circulated so that accounts/transactions are not opened/consummated;
- transactions of a doubtful nature should be reported to the appropriate authorities;
- May 2004-It was stated that information collected from the customer for KYC purposes must not be used for cross selling;
- November 2004-RBI issued comprehensive guidelines. These repeated that the objective of "Know Your Customer" (KYC) guidelines is to stop

banks from being used, intentionally or unintentionally, by criminal elements for money laundering activities or for the financing of terrorism. KYC procedures also enable banks to understand their customers and their financial dealings better which in turn help them manage their risks carefully. The guidelines are applicable to foreign currency accounts/transactions and to all kind new accounts;

- banks have been asked to structure their KYC policies incorporating the following four key elements: (a) Customer Acceptance Policy; (b) Customer Identification Procedures; (c) Monitoring of Transactions; (d) Risk management.

Appendix 5 BC Model: Sub-K

BASIX Sub-K I Transactions Limited (Sub-K), a subsidiary company under BASIX, is an initiative incubated with a vision to provide a transactional platform for basic financial services. The financial services include savings, micro-pensions, micro-insurance, NREGA and other Government payments, remittance, micro-credit, utility payments and mobile top-ups through a business correspondent outlet (BCO) thus, enabling financial inclusion (FI) which is the vision for our developing country.

Increasing demand for basic financial services amongst all social classes, need to include the financially excluded, and rapid adoption of Mobile technology among masses, has acted as a catalyst to enable Sub-K. Sub-K which means less than 1,000 was envisaged with a context that people could access financial services within a distance of 1,000 meters (1 km), with a transaction value of less than ₹1000, and by incurring a transaction fee that is less than 1,000 paise (₹10), and an outlet serving about 1,000 customers in a locality.

Mobile technology has made the single most important impact on the citizens, both rural and urban, in the last decade but this digital platform has not been made use of to further rationalize the impact it can have on daily lives of individuals. Sub-K will use this highly scalable digital channel to provide access to the basic financial services to all social classes thus impacting their socio-economic lives in a big way.

Vision: All Indians will be able to undertake day to day transactions in an accessible, affordable, and secure manner.

Mission: To provide financial transaction services nationwide through a network of Business Correspondent Outlets (BCOs) that will function as a network of human ATMs spanning across pan India by providing the last mile connectivity.

How it works:

- First an account is opened at the BCO. This provides the account holder with a paper card giving the following information.
    - BCO name;
    - Cust name;
    - Cust ID;
    - Mobile No.;

- Sub-K offers the following services:
  - saving product- cash deposit; cash withdrawal; Balance enquiry; Account-to-account transfer;
  - remittance;
  - recurring deposit;
  - mobile top-up/recharge.
- Steps involved in a cash withdrawal transaction:
  - customer approaches BCO for transaction;
  - the BC chooses banking services from Sub-K application on the mobile phone;
  - the call is made to the IVR for authentication and confirmation;
  - the BC enters the PIN and withdrawal amount;
  - the BC enters the mobile number of the customer;
  - IVR contacts the customer's mobile for PIN and voice pass phrase authentication;
  - on confirmation, cash withdrawal will be successful;
  - transaction complete, a receipt is given to the customer.
- The business model
  - the BC puts in ₹10,000 + 10,000 = ₹20,000.
  - this amount is usually given as a loan by the bank to the BC;
  - ₹10,000 is used for the providing the mobile phone and the micro-printer;
  - ₹10,000 is kept in the BC account by the bank. The money in the BC account is used against cash deposit and cash withdrawal of customers. This serves as buffer money and when the net customer deposits touches ₹10,000, the BC account reaches zero and further deposit mobilization by the BC is not possible unless customer withdrawals are made or the BC goes to the bank and deposits cash in the BC account;
  - for every customer transaction, the BC gets a commission in the range of ₹5-10.

Appendix 6 Sarvatra Model

AWM (AnyWhere Money) is a revolutionary, low cost and patented way of implementing CBS without having to interconnect branches. This system can be implemented in a short period of 2 to 3 months. It has low cost PoS terminals as front-end and a full-fledged EFT switch on shared basis offering a very affordable way to provide modern banking facilities to bank customers.

Following facilities are available on this platform:

- ATM/debit cards;
- always available (24x7) online ATM access across all branches (need leased line);
- comes with world-class EFT (Electronic Financial Transactions) switch on a shared basis;
- inbuilt ATM/debit card management system;
- access to nationwide ATM network with ready connectivity with the National Financial Switch of NPCI;
- cash deposit/cash withdrawal/funds transfer from any branch;
- third party funds transfer like RTGS and NEFT – inward and outward, from all branches;
- SMS alerts and statement on email;
- merchant/business correspondent PoS system to enable cash withdrawal of ₹1,000 per day per customer from merchant/BC PoS.

Vision: To provide premier banking technology solutions for banks and financial institutions across rural India by leveraging on technological prowess and deep domain knowledge of rural banking and finance sector.

Mission: To remain committed to technological excellence and strive to promote inclusive banking in the under banked population of India by providing banking solutions that 'work for everyone, everywhere'.

How it works: A bank customer swipes his magnetic Sarvatra ATM/Debit card on an EDC (Electronic Data Capture) PoS terminal attached to a fixed line phone/mobile to perform banking transactions in a bank branch. The PoS terminal is preloaded with Sarvatra front-end software that contains menu for various types of banking transactions. As such, the terminal acts as a kind of menu-based Micro-ATM.

The PoS terminal connects to the centralized server for data and transaction capture, thereby offering Anywhere (Anytime) money for savings/current A/c customers. The PoS at branch communicates with the server via the available telecom infrastructure. The central Sarvatra EFT switch is based on ISO 8,583 messaging protocol, which ensures interoperability with other switching networks via NFS for card-based transactions (ATM, Merchant PoS).

Figure 4: Sarvatra model

Appendix 7 European Developments – The Single Euro Payments Area (SEPA)

The Single Euro Payments Area (SEPA) is an initiative of the European banking industry that will make all electronic payments across the euro area – e.g. by credit card, debit card, bank transfer or direct debit – as easy as domestic payments within one country. The SEPA vision was defined by EU governments in the Lisbon Agenda which envisages the EU internal market as the most competitive knowledge-based economy globally. The Lisbon Agenda describes the integration of euro payment markets as a prerequisite to realise this vision. Following the introduction of euro notes and coins in 2002, the political drivers of the SEPA process - the Economic and Financial Affairs Council (in short: ECOFIN, comprising the EU Economics and Finance Ministers), the European Commission, the European Parliament and the European Central Bank (ECB) - therefore called on the payments industry to bolster the common currency by developing a set of harmonised schemes and frameworks for electronic euro payments.

The European Payments Council (EPC) supports and promotes the creation of SEPA through industry self-regulation. It defines common positions for core payment services within a competitive market place, provides strategic guidance for standardisation, formulates best practices and supports and monitors implementation of decisions taken.

For SEPA, the EPC has designed new product schemes for credit transfers and direct debits, and a framework for payment cards. EPC members are from banks and banking associations in all EU Member States and represent all sizes and sectors of credit institutions within the European market. The Payment Services Directive provides the necessary legal framework for SEPA, as well as for better payments in all EU countries.

As SEPA is perceived as major retail payment initiative by European community, it is desirable that the standards prescribed by them are compatible for us as part of international standards.

What are the benefits?

SEPA offers significant benefits for bank customers. The implementation of innovative and competitive SEPA payment services based on global ISO (International Organisation for Standardisation) standards translates into efficiency gains for businesses and public administrations: common standards, fast settlement and simplified processing will improve cash flow, reduce costs and facilitate the access to new markets. Consumers can rely

on a single set of euro payment instruments covering 32 countries: one bank account, one bank card, one SEPA credit transfer, one SEPA direct debit.

Moreover, bank customers will take advantage of increased competition in the payments market. According to a study (Capgemini) conducted at the request of the European Commission, the replacement of existing national payment systems by SEPA holds a market potential of up to €123 billion in benefits, cumulative over six years and benefitting the users of payment services. The EPC makes available a series of publications pinpointing the impact of SEPA on different stakeholders including consumers, businesses, public administrations and the IT community.

The impact of SEPA, however, transcends monetary policy and payment services. The European Commission expects the legal and technical SEPA harmonisation exercise to facilitate the dematerialisation of business processes by replacing paper-based procedures with standardised electronic solutions such as e-invoicing, for example.

SEPA Credit Transfer (SCT):

The EPC launched the SCT Scheme in January 2008. For a definitive source of information regarding the rules and obligations of the scheme, refer to the attached SCT Scheme Rulebook (EPC 125-05) and the accompanying Implementation Guidelines (EPC 132-08) approved by the EPC.

The SEPA schemes define sets of rules and standards for the execution of SEPA payment transactions that have to be observed by payment service providers (PSPs). The Rulebooks can be regarded as instruction manuals which ensure a common understanding between PSPs on how to move funds from account A to account B within SEPA. The rules and standards which make up a payment scheme are defined by PSPs in the collaborative space - that is the EPC.

The particular SEPA payment products and services offered to the customer are developed by individual PSPs or groups thereof operating in a competitive environment. The SEPA schemes provide the flexibility and options, which enable PSPs to add features and services of their choice to the actual payment products.

The SCT scheme in a nutshell:

The SCT Scheme enables payment service providers to offer a core and basic credit transfer service throughout SEPA, whether for single or bulk payments. The scheme's standards facilitate payment initiation, processing

and reconciliation based on straight-through-processing (STP). The scope is limited to payments in euro within the 32 SEPA countries. The payment service providers executing the credit transfer must formally participate in the SCT Scheme. There is in principle no cap on the amount of funds that can be transferred under the scheme.

SEPA direct debit (SDD):

Launched in November 2009, the SEPA Core Direct Debit Scheme (SDD Core) and the SEPA Business to Business Direct Debit Scheme (SDD B2B) create for the first time a payment instrument that can be used for both domestic and cross-border collections throughout the 32 SEPA countries. As mandated by EU Regulation (EC) 924/2009, every bank in the euro area must be reachable for cross-border direct debits; and thus for the SDD Core Scheme, by 1 November 2010. It is optional for banks to offer services based on the SDD B2B Scheme.

For a definitive source of information regarding the rules and obligations of the scheme, refer to the SDD Core (EPC 016-06) and the SDD B2B (EPC 222-07) Scheme Rulebooks.

The Rulebooks can be regarded as instruction manuals which ensure a common understanding between PSPs on how to move funds from account A to account B within SEPA. The rules and standards which make up a payment scheme are defined by PSPs in the collaborative space - that is the EPC.

The particular SEPA payment products and services offered to the customer are developed by individual PSPs or groups thereof operating in a competitive environment. The SEPA schemes provide the flexibility and options, which enable PSPs to add features and services of their choice to the actual payment products.

The SDD core scheme in a nutshell:

The SDD Core Scheme - like any other direct debit scheme - is based on the same concept than the German direct debit scheme: "I request money from someone else, with their prior approval, and credit it to myself". The payer and the payee must each hold an account with a payment service provider (PSP) located in SEPA. The accounts may be in euro or in any other SEPA currency. The transfer of funds (money) between the payer's bank and the payee's bank always takes place in the euro currency.

The SDD Core Scheme allows a payee to collect funds from a payer's account provided that a signed mandate has been granted by the payer to

the payee. The payment service providers executing the direct debit transaction must formally participate in the SDD Scheme.

The SDD Scheme may be used for single (one-off) or recurrent direct debit collections, the amounts are not limited. Even exceeding the requirements of the Payment Services Directive (PSD), the SDD Core Scheme grants payers a "no-questions-asked" refund right during the eight weeks following the debiting of a payer's account; e.g. during this time any funds collected by SDD Core will be credited back to the payer's account upon request. In the event of unauthorised direct debit collections, the payer's right to a refund extends to 13 months as stipulated in the PSD.

Keeping in mind that the process of collecting a payment by direct debit is initiated by the payee, the payee (and, in consequence, the payee's bank) must respect the following timelines under the SDD Core Scheme: the payer's bank must receive the request for a first direct debit collection or for a one-off direct debit collection the latest five business days prior to the due date. For subsequent direct debit collections, the payer's bank must receive such a request the latest two business days prior to the due date.

SEPA for cards:

The aim of creating a SEPA for Cards is to enable European customers (card-holders and merchants) to use general purpose cards to make and receive payments and withdraw cash in euro throughout the SEPA area with the same ease and convenience as they do in their home country.

European consumers should benefit from a wider acceptance of their cards within SEPA and more choice of card products than before.

European merchants should benefit from a more competitive acquiring market, and be able to choose which card schemes to accept and from which acquirer (i.e. a bank that services card-accepting merchants).

SEPA cards framework:

The SEPA Cards Framework (SCF) developed by the EPC is a policy document which states how actors in the cards market such as card schemes, card-issuing banks, banks servicing card-accepting merchants and other service providers must adapt their current operations to comply with the SEPA vision for card payments in euro. While it is the choice of any actor in the cards market whether to become SCF-compliant or not, the EPC's members have pledged to conform to the conditions of the SCF in their capacities as issuers and acquirers.

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