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Report of the Task Force on an Aadhaar-Enabled Unified Payment Infrastructure

(Pushpa Oraon, a resident in Tigra Panchayat, Ratu Block, Ranchi District, Jharkhand receiving her MG-NREGA wages through an Aadhaar-Enabled Micro-ATM)

February, 2012

Task Force on an Aadhaar-Enabled Unified Payment Infrastructure

Approval of Report

1. The Report of the Task Force on an Aadhaar-Enabled Unified Payment Infrastructure for the direct transfer of subsidies on Kerosene, LPG and Fertiliser is hereby approved.

2. This would be submitted to Hon'ble Finance Minister in February, 2012.

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Executive Summary

A nation needs to continually reinvent itself as it moves up the growth curve. Every doubling of GDP puts the nation at the cusp of transformation for the next doubling. A growth rate of 7% implies doubling of GDP every 10 years; essentially, the nation has to reinvent itself almost every decade. In the last twenty years, India has undergone a transformation of its economic and regulatory structures. Policy reforms in this period have led to the increasing maturity of our markets, as well as healthy regulation. The emphasis on de-licensing, entrepreneurship, the use of technology, and decentralisation of governance to the State and Local levels have in particular, shifted India from a restrictive, limited access society to a more empowered, open access economy.

Despite these efforts, access to finance has remained scarce for the poorest residents in the country. The Government operates a number of social safety net schemes, disbursing money to the poorest and vulnerable sections of society. However, last-mile payment issues are observed in a number of schemes – MGNREGS wages, NSAP pensions, JSY payments, IAY payments, scholarships, etc. The frontline development workers such as school teachers, Anganwadi workers, ASHA workers, etc. often do not receive their salaries on time. This drives the poor to borrow from money-lenders to tide over short term consumption needs. Even though mobile phones are ubiquitous, access to finance continues to remain elusive and an aspiration. A great amount of productivity and efficiency can be unlocked by ensuring that beneficiaries receive their Electronic Benefit Transfer (EBT) payments on time, in any account at a bank or post office of their choice, and at their own convenience. Government will also derive comfort with the assurance that funds are accessed by the intended beneficiaries, and not by rent seeking middle-men.

At the same time, the Government is working towards Direct Transfer of Subsidy (DTS) payments in the case of fertilizer, kerosene, and LPG in order to address incentive distortions that arise with subsidized pricing. The Task Force on DTS has recommended that when these products are purchased with cash, they will be sold at market price, with a reimbursement of the subsidy into accounts of consumers at banks and post offices. In case the products are purchased electronically (through microATMs, debit card, Kisan Credit Card, etc.), only the subsidized price may be paid, and the Government can reimburse the subsidy to the retailers electronically.

These EBT and DTS payments add up to Rs.3 lakh crore today, or roughly 3.5% of GDP. Remittances are estimated to be an additional Rs.1 lakh crore. A platform approach to payments is therefore necessary to address the delivery of last mile payments to every part of the country. The Government of India is issuing Aadhaar numbers to all residents of India (18 crore enrolments have been completed as of Jan 31, 2011). The Government has already notified Aadhaar as a valid KYC document for opening bank accounts and buying financial products. The Aadhaar number, due to its uniqueness property, serves as a natural financial address for sending payments to accounts of beneficiaries at banks and post offices through the Aadhaar Payments Bridge (APB). The Aadhaar authentication system allows the identity of a resident to be authenticated in real-time in a trusted manner during last-mile payments transactions using MicroATMs.

Today, the banking infrastructure in the country consists of 80,000 bank branches, 1,50,000 post offices, 88,000 ATMs, and 500,000 POS machines. Of these, the rural banking infrastructure only consists of about 30,000 bank branches and 1,20,000 post offices. In comparison, there are more than 10 lakh telecom retailers that operate throughout the country. The RBI has defined the Business Correspondent model of branch-less banking, which holds the key to smooth delivery of EBT and DTS payments, while simultaneously achieving financial inclusion. In order to cover 2.25 lakh Gram Panchayats containing 6 lakh villages, and to serve the urban poor, this Task Force envisions the creation of an interoperable network of 10 lakh Business Correspondent agents using the combined infrastructure of India Post and banks. In order to make Government payments viable at the last mile, and recognizing the fact that many of these accounts will offer little or no float, this Task Force suggests that the Government bear a last-mile transaction processing fee of 3.14% with a cap of Rs.20 per transaction. For interoperable transactions, 31% of the fee can be paid to the issuing bank, 64% to the acquiring bank, and 5% to the switch. This fee is benchmarked against other offerings with similar characteristics: India Post charges a 5% fee for money orders, while mobile operators started with a 16% agent commission for top-up ten years back, which has now stabilized at 3.5% on average.

The Indian economy predominantly operates on cash today. Cash is expensive for everyone, due to the costs of cash management, cash handling, storage, security, wear and tear, fake currency notes, etc. Electronic payments are the first step on the ladder of financial inclusion. Electronic payments are also essential for friction-less and efficient functioning of the economy, and essential in nurturing high growth sectors such as e-commerce and m-commerce. The RBI has been working persistently over the years to realize the dream of a cash-less economy, and its vision is outlined in *Payment Systems in India - Vision 2009-12*[1]. In line with the RBI vision, this Task Force proposes a solution that consists of a platform based approach to payments, incentive-compatible design for stakeholders, respects beneficiary choice, drives competition, is fully interoperable, and is implementable quickly.

[1] http://rbi.org.in/scripts/PublicationReportDetails.aspx?UrlPage=&ID=573

Abbreviations

AEA	Aadhaar-enabled Account
AEPS	Aadhaar-enabled Payments System
APB	Aadhaar Payments Bridge
BC	Business Correspondent
CSC	Citizen Service Centre
CSMS	Core Subsidy Management System
DFS	Department of Financial Services, Ministry of Finance
DIT	Department of Information Technology, Ministry of Communications and Information Technology
DOE	Department of Expenditure, Ministry of Finance
DOT	Department of Telecommunications
DTS	Direct Transfer of Subsidy
EBT	Electronic Benefits Transfer
IMPS	Interoperable Mobile Payments System
IRDA	Insurance Regulatory and Development Authority
IT	Information Technology
IIN	Issuer Identification Number
ISO	International Organization for Standardization
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
MOF	Ministry of Finance
NIC	National Informatics Centre
NPCI	National Payments Corporation of India
NSAP	National Social Assistance Programme
OMC	Oil Marketing Company
POA	Proof of Address
POI	Proof of Identity
POSB	Post Office Savings Bank
RBI	Reserve Bank of India
SEBI	Securities and Exchange Board of India
UIDAI	Unique Identification Authority of India
USO	Universal Service Obligation

1. Introduction

The Finance Minister, Shri Pranab Mukherjee, in the Budget Speech of 2011-12 referred to a Task Force constituted to work out the modalities for the proposed system of direct transfer of subsidy for Kerosene, LPG and fertilizers. He stated:

> **27.** *The Government provides subsidies, notably on fuel and food grains, to enable the common man to have access to these basic necessities at affordable prices. A significant proportion of subsidized fuel does not reach the targeted beneficiaries and there is large-scale diversion of subsidized kerosene oil. A recent tragic event has highlighted this practice. We have deliberated for long the modalities of implementing such subsidies. The debate now has to make way for decision. To ensure greater efficiency, cost effectiveness and better delivery for both kerosene and fertilizers, the Government will move towards direct transfer of cash subsidy to people living below poverty line in a phased manner.*
>
> **28.** *A task force headed by Shri Nandan Nilekani has been set-up to work out the modalities for the proposed system of direct transfer of subsidy for kerosene, LPG and fertilizers. The Interim report of the task force is expected by June 2011. The system will be in place by March 2012."*

Subsequently, the Terms of Reference of the Task Force were extended[2] to include the development of an Aadhaar-Enabled Unified Payment Architecture:

1. Recommend a detailed solution architecture for direct transfer of subsidy wherein Ministries and State Governments through a payments bridge can transfer funds into any Aadhaar-enabled bank account on the basis of the Aadhaar number;
2. Recommend an architecture for e-banking through interoperable Business Correspondents and examine alignment of current standards for devices that will be deployed by them;
3. Recommend an architecture to align the recommendations of the Inter-Ministerial Group on a Framework for the Delivery of Basic Financial Services using Mobile Phones with Aadhaar enabled payments infrastructure;
4. Recommend a solution that incorporates a robust, customer support and grievance redressal mechanism;
5. Recommend the feasibility of extending the solution architecture to include payment instruments apart from bank accounts and post office savings bank accounts to facilitate the fostering of e-commerce;
6. Oversee and evaluate the implementation of the solution proposed on a pilot basis through the concerned Implementing Ministries, as and when approved by E-GoM;

[2] The Terms of Reference for the Task Force on Direct Transfer of Subsidies were extended on September 20th, 2011 and the notification is placed in Annexure I.

7. Suggest a common framework to adopt the above solution to all Government welfare schemes involving disbursements to individual beneficiaries. The solutions devised by the Task Force should ensure that the entire country can leverage the same payments platforms;

8. Recommend an approach to harmonize various exercises related to opening bank accounts for financial inclusion and electronic benefit transfers; and

9. Identify and recommend amendments, if any, required to existing Government payment and accounting procedures to enable direct subsidy transfers.

The Task Force has been tasked with coming up with a solution that is incentive-compatible across all stakeholders in payments processing, will respect beneficiary choice, drive competition, is fully interoperable and implementable in a robust scalable manner.

1.1 A platform approach to payments

The Task Force presents a platform approach to payments, which consists of the following:

1. **Government e-Payments Gateway (GePG):** Business process re-engineering of Government accounting procedures for computerization, enabling straight-through-processing and release of funds from the Ministry of Finance to the Line Ministries for Direct Transfer of Subsidies (DTS) and Electronic Benefit Transfers (EBTs).This will be implemented by CGA. Other similar systems may need implementation across multiple levels of Government.

2. **Electronic Opening of Accounts:** In order to facilitate DTS and EBT payments in a timely and orderly manner, this Task Force has made recommendations on bulk electronic opening of accounts based on data provided by Government.

3. **Aadhaar Payments Bridge (APB):** Ministries, State Governments, and other Government Institutions will route DTS and EBT payments to individuals on the basis of their Aadhaar numbers to Aadhaar-enabled accounts (AEA) at banks and post offices. This will be achieved by the Aadhaar Payments Bridge.

4. **Branch-less Banking with MicroATMs:** Customers of Banks will access funds in their accounts through existing banking channels that are already in place. In addition, banks will set up the Business Correspondent (BC) banking channel at the last mile. BC sub-agents will be equipped with microATMs that can conduct transactions on the basis of Aadhaar number and biometric authentication, as well as using other authentication methods that are already in use by banks. Just like ATMs, BCs will be able to serve customers of any bank by routing transactions through the NPCI Switch or any other organization's Switch permitted under the Payment and Settlement Systems Act, 2007, connected to the bank that has appointed them. One such system, the Aadhaar-enabled Payments System (AEPS), has been put in place by NPCI. More such Aadhaar-enabled retail payment networks are expected to be rolled out over time.

5. **Electronic Payments:** This Task Force has reviewed electronic payments in the case of e-commerce and m-commerce and has made recommendations to re-align the incentives in the processing of electronic payments, and to implement learnings from international experiences.

6. **Remittances:** This Task Force has reviewed the issues with remittance networks, and notes that Aadhaar and electronic KYC makes it possible to enable a much larger volume of remittance payments to happen through the formal financial system.

7. **Mobile Banking:** Based on the success of the mobile phone, this Task Force makes recommendations for quicker adoption of mobile banking.

8. **Role of India Post:** India Post operates the Post Office Savings Bank, which is the largest bank in the country by number of customers, and number of branches. The India Post network will play a crucial role in the delivery of EBT and DTS payments to beneficiaries, once it executes its ICT plans. For the purposes of this report, the word bank refers to Scheduled Banks or the Post Office Savings Bank.

2. The importance of Electronic Payments

Electronic payments are the first step on the ladder of financial inclusion. Spending on subsidies and social benefits programs have greatly increased in the last few years. There is also a growing volume of remittances due to increased mobility. With rising GDP per capita, more people will start accessing formal financial services such as micro-credit, micro-insurance, micro-pensions, and micro-mutual funds. Ubiquitous electronic payments make it possible to provide such products in small ticket sizes at low cost.

Electronic payments are essential for friction-less and efficient functioning of the economy. The success of new high growth sectors such as e-commerce and m-commerce also depends upon electronic payments.

A unified, robust, and viable electronic payments architecture is thus essential for Direct Transfer of Subsidies (DTS), Electronic Benefits Transfers (EBTs), enabling a new set of low-cost financial products, e-commerce and m-commerce, and enabling friction-less payments in the economy at large. Success in moving towards a cash-less society will depend upon activation of payment products that are already issued to customers (20 crore debit cards, for example), and ensuring that every resident of India has access to a payment instrument.

Three addresses can be leverage to build such a unified payment architecture:

1. The identity address – Aadhaar;
2. The financial address – bank account, prepaid card, e-wallet, or any other RBI approved payment instrument of the resident's choice; and
3. The communication address – mobile

2.1 History of electronic payments in India

The following is an excerpt by a special address on electronic payments by Shri H. R. Khan, Deputy Governor, RBI[3].

> ***Electronic Payment Systems:*** Electronic Payment Systems accounts for 41% of the total volume of transactions while it represents 90% of the total value of transactions. Introduction of electronic payment products such as Electronic clearing service and electronic funds transfer, which over the years have metamorphosed into National ECS and National EFT and RTGS have ushered in new ways of payment processing.
>
> ***National Electronic Fund Transfer (NEFT):*** NEFT was introduced in November 2005 now covers 77,821 branches and offers eleven hourly near real-time settlements on week days and five settlements on Saturdays. One of the unique features of the system is a mandatory 'Positive Confirmation' to the originator confirming successful credit to the beneficiary's account. Since its inception, the system

[3] Special address by Shri H. R. Khan, Deputy Governor, Reserve Bank of India at the FICCI-IBA conference on Global Banking: Paradigm Shift on 25 August, 2011 at Mumbai):
http://www.rbi.org.in/scripts/BS_SpeechesView.aspx?id=594

has witnessed a surge in the volume and value of transactions with 1.4 million transactions settling on a single day which is the highest volume processed till date.

Electronic Clearing Service (ECS)suite including NECS: The ECS suite of products enables bulk payments. The ECS suite consists of local ECS (jurisdiction limited to local clearing house branches), Regional ECS (state-wide jurisdiction in 9 centres) and National ECS (pan-India coverage). Both RECS and NECS facilitate STP-based processing of bulk payments in a centralised manner in all core-banking enabled bank branches within their jurisdiction. Average monthly volumes are 8.05 million transactions (ECS Credit -NECS, Regional and local) and 13.40 million transactions (ECS Debit– Regional and local), while monthly values are averaging about Rs.126.43 billion and Rs.60.60 billion for ECS Credit and ECS Debit respectively.

Real Time Gross Settlement (RTGS): The RTGS system was introduced in March 2004 and now extends to 77,093 branches as at the end of June 2011. RTGS settles gross inter-bank and customer (Rs.2 lakh and above) transactions. On an average RTGS settles 1.8 lakh transactions with a value of Rs. 4 trillion on a daily basis. Considering the importance of RTGS for settling large value payment systems, action has been initiated for putting in place a Next-Gen RTGS.

Other retail Payment Channels:

Credit/Debit Cards: One of the fastest growing segments is the card segment with 18 million outstanding credit cards and 228 million debit cards. During the year 2010-11 (April-March) 265 million transactions for a value of Rs.755 billion was transacted using credit cards. 237 million transactions for a value of Rs.357 billion were transacted using debit cards at PoS terminals. Maximum usage of debit cards happens at ATMs with 4235 million transactions for a value of Rs.11,144 billion.

Pre-paid instruments: The pre-paid instrument issuers' universe is populated by both banks and non-banks. In fact after the enactment of PSS Act, most of the non-bank entities who have received authorisation to operate a payment system are in this business segment. Policy Guidelines for issuance and operation of pre-paid payment instruments in India have been issued to provide for a framework for the orderly growth of this nascent market. Further measures have been recently announced by the Reserve Bank of India permitting banks to issue prepaid payment instruments to corporates for onward issuance to their employees after adhering to the norms prescribed.

Mobile Banking: The operating guidelines for mobile banking issued in October 2008 which were later relaxed in December, 2009, facilitating mobile banking transactions up to Rs. 50,000, both for e-commerce and money transfer purposes[4]. Banks have also been permitted to provide money transfer facility up to Rs. 5,000 from a bank account to beneficiaries not having bank accounts with cash payout facility at an ATM or Banking Correspondent. 50 banks have been permitted to offer Mobile Banking transactions, of which 38 have started operations. The NEFT platform is used for settlement of all interbank mobile banking transactions.

[4] The RBI has since removed the transaction cap of Rs. 50,000 for application based encrypted transactions.

Inter-bank mobile payment system: The IMPS on the other hand is a service operated by NPCI which provides an instant, 24X7, interbank electronic fund transfer service through mobile phones. Publicly launched on November 22, 2010 this system facilitates customers registered with their banks for this service to use mobile instruments as a channel for interbank fund transfers in a secured manner with immediate confirmation features. This service is in consonance with the Mobile Payment Guidelines 2008 issued by RBI which stress on interoperability both across banks and mobile operators in a safe and secured manner. Currently 27 member banks participate in this scheme.

National Financial Switch (NFS): The National Financial Switch as its name indicates is a national infrastructure with pan-Indian presence provides a switching service for connectivity across ATMs of banks. The NFS enables customers to perform their transactions (both financial and non-financial) using ATMs under the NFS network without reference to the card issuing banks. NFS which is the largest ATM switching network connects 80,000+ ATMs with an average daily volume of transactions standing at 4.7 million[5] (both financial and non-financial) and a value of Rs. 2.5 billion. NFS is a service offered by NPCI.

The payments industry is innovating in the space of BC banking, mobile banking, and electronic payments. Some examples of recent developments are MicroATMs and the interest in design and manufacturing, the Aadhaar-enabled Payments System (AEPS), the Inter-bank Mobile Payment System (IMPS), launch of various open-loop and closed-loop prepaid instruments, and the higher activation of debit cards over and above the use in ATMs.

2.1.1 Innovations in payments

A number of interesting innovations are happening in electronic payments:

1. **Near Field Communication (NFC):** NFC is being implemented in mobile phones and POS terminals at a rapid pace. Once a critical mass of mobile phones and POS terminals are enabled with NFC, the experience of face-to-face electronic will simplify significantly.

2. **Consumerization of acceptance devices:** Devices such as smartphones and tablets are being rapidly adopted by consumers. Firms are designing innovative accessories for these devices to accept card payments and other forms of electronic payments. The consumerization of the payment acceptance device makes it possible to service the device at a fraction of the cost of special-purpose POS terminals.

3. **E-cheques and E-cash:** Advancements in IT and connectivity have made it possible to design electronic equivalents of payment instruments such as cheques and cash. In the case of cheques, the payer and the payee know their own banks, but not the other person's bank. The combination of Aadhaar number to address a recipient and authentication, along with a transaction ID that represents a cheque number can be used to create e-cheque and e-cash like payment instruments.

[5] Today, the ATM network consists of 88,000+ ATMs with an average daily volume of transactions standing at 5.5 million.

Technology can improve the experience of a payment transaction, and bring down costs with economies of scale. In order to be widely adopted, the payment solution still needs to be incentive-compatible for all intermediaries that process a transaction. The Government and RBI should support such initiatives by providing the necessary policy support that balances risk-taking and innovation.

2.2 The need for a unified payment architecture

Various social divides exist in India today, which have led to a variety of different payment systems. Urban areas have high densities of population, and a wealthier demographic. This leads to better electronic infrastructure, and a variety of electronic payment solutions become viable. The high densities make solutions such as ATMs, POS machines, and bank branches, and agent outlets viable, even though the costs of operation in urban areas tend to be higher. Literacy plays an important role in electronic payments, as it requires operating machines, and remembering and entering PINs. Lack of proper identification as per KYC requirements is often a major impediment in getting access to formal financial products.

As a result, one class of customers (largely urban, high income, educated) has access to bank accounts and debit cards that work at branches, ATMs, POS machines and can be used over the internet and mobile. Another class of customers (largely rural, low income, uneducated) have been issued smartcards that are operated through Business Correspondents. This innovation through the use of technology made it possible to bring banking services to un-served areas and an un-served population for the very first time. However, this innovation has also created proprietary technology islands, where consumers cannot access their bank accounts through other channels. The inconvenience of the channel often leads customers to withdraw all the money in their accounts.

A unified payment architecture cuts across these social divides, and offers convenient channels of access to all residents of India. It is important that advances in technology and innovation are combined with standards based interoperable networks. It is only by having the entire country on one platform that economies of scale can be leveraged.

2.3 Cost of cash

The Indian economy predominantly operates on cash today. Cash is expensive for all stakeholders in the ecosystem. More so, there is no traceability and accountability for cash transactions, which leads to problems of bribery, corruption, and black money.

Indians are amongst the biggest users of cash worldwide. International data (BIS) on banknotes and coin in circulation as a percentage of GDP shows India in 4th place, as shown in Table 1. Government of India and RBI should formulate a plan to reduce the usage of cash in the economy.

Table 1: Banknotes and coin in circulation (BIS)

	Value as a percentage of GDP				
	2006	**2007**	**2008**	**2009**	**2010**
Australia	4.27	4.19	4.40	4.39	4.19
Brazil	3.62	3.87	3.81	4.14	4.11
Canada	3.69	3.62	3.67	3.97	3.89
China	13.69	12.76	11.78	12.35	nav
France	nap	nap	nap	nap	nap
Germany	nap	nap	nap	nap	nap
Hong Kong SAR	11.15	10.60	11.08	12.88	13.53
India	11.74	11.85	12.38	12.21	12.04
Japan	16.63	16.65	17.06	18.16	18.13
Korea	3.05	3.00	2.99	3.50	3.68
Mexico	4.33	4.37	4.74	5.65	5.30
Russia	11.39	12.40	10.61	11.94	12.89
Saudi Arabia	6.11	5.70	5.26	7.03	6.61
Singapore	7.34	6.90	7.74	8.34	8.07
South Africa	7.56	7.80	6.33	6.19	5.86
Sweden	3.82	3.66	3.50	3.53	3.00
Switzerland	9.32	8.99	9.51	9.83	9.86
Turkey	3.63	3.34	3.42	4.12	4.52
United Kingdom	3.36	3.37	3.40	3.80	3.75
United States	6.13	5.91	6.23	6.66	6.76
Euro area	7.57	7.74	8.50	9.30	9.43

Studies have estimated that the cost of cash to the economy is 5-7% of GDP, and this can be reduced by a third through the use of retail electronic payments. Initially, a less-cash approach needs to be followed rather than going for a cash-less approach. In order to transition to electronic payments, it is important that all residents of India have a convenient method to convert electronic funds into cash and vice versa. The top-up model of the telecom companies has made the masses comfortable with the idea of converting physical cash into an electronic good at an agent outlet, and expecting an instant message of the transaction's success. This behaviour can be leveraged in the transition to electronic payments.

2.3.1 Cost of cash for the Reserve Bank of India

The RBI bears costs include printing currency, currency chest management, and wear and tear. RBI's annual report (2010-11) shows that it spent Rs. 2,376 crore on security printing, and Rs. 45.5 crore on currency chest operations[6].

2.3.2 Cost of cash for banks

Banks bear the cost of cash logistics, cash management, security, storage, and the opportunity cost of idle cash in branches and ATMs. Although ATM networks are expensive, banks still prefer them as they are cheaper to operate than branches for the purpose of cash withdrawals. The reverse interchange fee (Rs. 18 today), paid by the issuing bank to the acquiring bank illustrates the cost of ATM transactions. These costs are eventually borne by consumers.

2.3.3 Cost of cash for individuals

For individuals, the cost of cash manifests in various ways: transportation cost to an ATM or a branch outlet, storage and security, risk of theft, and interest foregone in case the funds were parked in the bank till the time of use.

2.4 Challenges of electronic payments

Consumer acceptance of retail electronic payments is challenging. Cash transactions have the following properties:

1. **No perceived transaction cost:** Once a consumer has cash in their pocket, it does not cost them anything extra to pay, and the merchant or receiver incurs no cost to receive the payment. There may have been a cost to the consumer associated with getting the cash in the first place, such as the time and cost to travel to an ATM or bank branch). Similarly, the merchant may face costs of storing cash, security, labour for collecting, counting, and depositing cash, soiled notes, etc. However, these are implicit costs and the behaviour of individuals and merchants do not account for such costs.
2. **Non-repudiation:** In case of cash transactions, the settlement is instantaneous and is also non-repudiable, although there is no record of the transaction that can be used to prove a claim.
3. **Fungibility:** Cash is fully fungible. Once received, it can be used to make any other payment.

The same properties are now evaluated in the case of electronic payments:

1. **Transaction cost:** Typically, either the consumer or the merchant bears the cost of an electronic payment which is explicitly charged to someone in the value chain.
2. **Non-repudiation:** Several retail electronic payment systems are already real-time, or have real-time

[6] RBI Annual Report (Currency Management): http://www.rbi.org.in/scripts/AnnualReportPublications.aspx?Id=1005#C1

capability. The record maintained in the case of electronic payments makes it possible to verify claims and settle disputes.

3. **Fungibility:** Fungibility of electronic payments will continue increasing as the acceptance network grows.

It is not yet practical or economical to imagine a cash-less society, but a less-cash society is certainly possible and offers a number tangible benefits to consumers, merchants, and Government. Such a less-cash society will have a wide acceptance network for electronic payments, and also a large network of cash withdrawal outlets such as ATMs or agent-operated microATMs.

2.5 Features of a unified payment architecture

A unified payment architecture should include the following features:

1. Respect resident choice of bank, service channels, service providers, and payment instrument
    a) The resident may choose any account or payment instrument at a Bank or a Post Office (savings account, debit card, prepaid card, mobile wallet, etc.);
    b) The resident may choose any electronic payment instrument to receive incoming payments;
    c) In case of open-loop payment products, the resident may access the payment services through any self-service or assisted-service channel (not necessarily for free) – Branch, ATM, Business Correspondent, merchant POS, mobile, and internet; and
    d) The resident may access their open loop electronic payment instrument through any customer service point in an interoperable manner;
2. Drive competition in the market through choice;
3. Provide an incentive-compatible solution across all stakeholders in payments processing
4. Leverage existing infrastructure and processes in the banking and payments industry to the extent possible;
5. Provide strong non-repudiation, since Government funds will be transferred to beneficiaries directly through these channels;
6. Follow a fully electronic platform-based approach; and
7. Support full audit trail, transparency, and traceability of money.

3. The Role of Aadhaar in Payments

The Unique Identification Authority of India (UIDAI) has been constituted by the Government of India to issue Aadhaar numbers to all residents of India[7]. Aadhaar is a unique twelve digit number issued upon collection of basic demographic and biometric data. Aadhaar can help simplify some of the processes in electronic payments:

1. Aadhaar letter and Aadhaar authentication for Know Your Customer (KYC) requirements;
2. Aadhaar number as a financial address for receiving and sending funds; and
3. Aadhaar authentication for authorizing electronic transactions.

3.1 Achieving inclusion using Aadhaar for KYC

Aadhaar is issued on the basis of Know Your Resident guidelines laid down by a committee under the chairmanship of Shri Vittal[8]. The process of Aadhaar is fully inclusive, and is based on a multi-registrar, low cost, ecosystem based approach. Once an Aadhaar number is issued, the resident's demographic and biometric data can be electronically authenticated. For every authentication request received by UIDAI, the Authority will return an encrypted and digitally signed response (as per the provisions of the IT Act, 2000).

The following progress has been made in acceptance of Aadhaar as KYC for financial products:

1. The Ministry of Finance has amended Rule 2(1)(d) of the Prevention of Money Laundering Act, 2005, adding Aadhaar to the list of officially valid documents[9].
2. The Reserve Bank of India (RBI) has also issued a notification to banks along the same lines by including Aadhaar as a valid PoI and PoA document for opening bank accounts with full KYC[10].
3. The Insurance Regulatory and Development Authority (IRDA) has notified Aadhaar as a valid KYC document to insurance companies[11].
4. The Securities and Exchanges Board of India (SEBI) has notified Aadhaar as a valid KYC document[12].
5. The Department of Telecommunications has notified the Aadhaar document and electronic Aadhaar authentication for PoI and PoA in order to activate a telecom connection[13]. As telecom companies become Business Correspondents of banks, a common KYC platform for both – banking and telecom, will lead to operational simplification at the ground level.

[7] UIDAI Strategy Overview: http://uidai.gov.in/UID_PDF/Front_Page_Articles/Documents/Strategy_Overveiw-001.pdf

[8] Demographic Data Standards and Verification Procedure Committee Report: http://uidai.gov.in/UID_PDF/Committees/UID_DDSVP_Committee_Report_v1.0.pdf

[9] http://uidai.gov.in/images/FrontPageUpdates/notification_regarding_aadhaar.pdf

[10] http://www.rbi.org.in/scripts/NotificationUser.aspx?Id=6739&Mode=0

[11] http://uidai.gov.in/images/FrontPageUpdates/kyc_for_insurance_sector.pdf

[12] http://www.sebi.gov.in/cms/sebi_data/attachdocs/1317809779732.pdf

[13] http://www.dot.gov.in/as/2011/as_14.01.2011.pdf

This facility of online authentication[14] offered by UIDAI is important in the context of electronic delivery of services:

1. The Information Technology Act, 2008[15] provides for parity between physical and electronic documents;
2. The Report of the InterMinisterial Group on a Framework for Delivery of Banking Services via Mobiles[16] proposes a payments solution based on mobile and Aadhaar number linked accounts.
3. The Electronic Services Delivery Bill[17] paves the way for electronic provision of services;
4. The draft Mobile Governance Framework[18] put forward by DIT strives to set up a framework for rolling out mobile based delivery of public services; and
5. A draft of a triad of policies to drive a national agenda for ICTE (Information and Communications Technology and Electronics)[19] defined by DIT.

This Task Force recommends that both – the Aadhaar letter and electronic Aadhaar authentication be treated as sufficient PoI and PoA for all financial products to pave the way for electronic, low-cost customer acquisition for the financial sector. In order to implement this, the Task Force recommends that Ministry of Finance amend the PMLA Rules to include the encrypted and digitally signed response of Aadhaar authentication as an officially valid document. All financial regulators (RBI, IRDA, SEBI, and PFRDA) should issue notifications along the same lines for all financial products.

3.2 Aadhaar as a financial address

The advent of e-mail has ensured that the concept of a physical address and the physical location of individuals and institutions has gradually become redundant for communication. Similarly, the ability of Aadhaar to uniquely identify an individual electronically makes it a valuable tool in the administration of Government schemes, and a natural financial address on the basis of which funds can be transferred into a linked account. The beneficiary may link their Aadhaar number to their account at any bank, and change this at any point in time, based on the quality of service they receive. Aadhaar as a financial address makes the bank account portable for the purpose of receiving Aadhaar-addressed payments.

[14] http://uidai.gov.in/index.php/authentication-overview.html

[15] http://www.mit.gov.in/content/information-technology-act

[16] http://www.mit.gov.in/content/government-approves-framework-provision-basic-financial-services-through-mobile-phones

[17] http://www.mit.gov.in/sites/upload_files/dit/files/DraftEDSBill_11042011.pdf

[18] http://www.mit.gov.in/sites/upload_files/dit/files/Draft_Consultation_Paper_on_Mobile_Governance_28311.pdf

[19] http://www.mit.gov.in/sites/upload_files/dit/files/DraftTriadofPoliciestodriveaNationalAgendaforICTE_4102011(1).pdf

3.2.1 Benefits for Government

The Government benefits in the following ways by using Aadhaar as a financial address:

1. Seeding the Aadhaar number in a scheme's database helps remove ghost, duplicate, and fake identities, making it possible for scarce development funds to be used in an effective manner;
2. Aadhaar can provide the various Government Departments a platform approach for all EBTs and subsidy payments leading to standardized procedures and reporting platform.[20]; and
3. Government can make payments only on the basis of Aadhaar numbers, without focusing on collecting bank account details, and focusing on service delivery.

3.2.2 Benefits for customers

Customers benefit in the following ways by using Aadhaar as a financial address:

1. Customer's Aadhaar-enabled account can be used for receiving multiple welfare payments as opposed to one-scheme, one-bank approach followed by a number of State Governments;
2. The Aadhaar number serves as a robust and stable financial address for sending and receiving remittances; and
3. Aadhaar authentication can ensure that the funds are used by the intended beneficiary thereby reducing chances of rent-seeking by middlemen.

3.2.3 Benefits for Policy Makers

Policy makers benefit in the following ways by using Aadhaar as a financial address:

i. Sending Government payments to Aadhaar-linked accounts will lead to those accounts becoming active and achieve greater financial inclusion; and

ii. Aadhaar linked fund flows from the Government to the customer gives full traceability, audit, and non-repudiation.

3.3 Aadhaar authentication for transactions

Aadhaar authentication[21] is the process wherein Aadhaar number, along with other attributes (including biometrics) is submitted to UIDAI's Central Identities Data Repository (CIDR) for verification; the CIDR verifies whether the data submitted matches the data available in CIDR and responds with a yes or a no. No personal identity information is returned as part of the response.

[20] Aadhaar-enabled Account (AEA) refers to any account or payment instrument at a Bank or Post Office that can receive incoming funds on the basis of Aadhaar.

[21] http://uidai.gov.in/authentication-overview.html

The purpose of Authentication is to enable residents to prove their identity and for service providers to confirm that the residents are who they say they are in order to supply services and give access to benefits. Aadhaar authentication will provide several ways in which residents can authenticate themselves online using demographic and/or biometric data. Aadhaar authentication can be used to verify the identity of residents in the case of financial transactions using microATMs. The RBI Working Group on Card Present Transactions has also recommended the use of Aadhaar authentication as an additional factor[22].

Biometric authentication has become socially acceptable, proven to work at scale, and addresses the literacy challenges of remembering PINs, passwords and operating equipment such as mobile phones, ATMs, etc. In general, payment system operators may use any secure and approved method for authentication of customer's identity. However, for certain vulnerable sections of society, where Government payments are being disbursed, the Government may mandate Aadhaar-based biometric authentication. In some cases, the Government may also want to ensure that the payments are made to the woman of the household, in order to ensure that the money is used in an appropriate manner.

Since Aadhaar will be used as KYC for a number of services, it is essential that the Aadhaar-linked data is current and correct. In order to achieve this, UIDAI will be setting up updation centres throughout the country[23]. This network of Aadhaar updation centres, combined with other locations such as Post Offices, Citizen Service Centres, etc. provide an infrastructure that can be leveraged by financial institutions for lifecycle management of customer data and PIN/password setting/resetting. For example, in cases when someone forgets or loses their PIN/password, or wishes to update their mobile number, they can do so at such a centre in person, using biometric authentication.

3.4 Recommendations

This Task Force makes the following recommendations that can be carried out simultaneously:

1. The Department of Revenue, Ministry of Finance should notify the acceptance of electronic Aadhaar authentication as Proof of Identity and Proof of Address, on par with document based verification in the Rules of the Prevention of Money Laundering Act, 2002;

2. The Government and all financial regulators recognize electronic Aadhaar biometric authentication as equivalent to a physical signature;

3. Based on the parity between physical and electronic documents recognized by the IT Act, 2000, all financial regulators should recognize electronic Aadhaar demographic authentication as Proof of Identity and Proof of Address; and

4. The Government and all financial regulators should recognize the Aadhaar number as a financial address for receiving and sending funds.

[22] http://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/SCP020611FS.pdf

[23] http://uidai.gov.in/images/FrontPageUpdates/uid_data_updation_ver_1.0_29_june.pdf

4. Government Accounting and Payment Procedures

4.1 Current Government accounting and payment procedures

The Controller General of Accounts (CGA) is the principal Accounts Adviser to the Government of India and is responsible for establishing and maintaining a technically sound management accounting system. The accounting and payment procedures are described in:

1. Civil Accounts Manual[24];
2. Government Financial Rules (GFR), 2005[25]
3. Government Accounting Rules (GAR)[26]; and
4. Central Government Account (Receipts and Payments) Rules, 1983[27].

4.2 Technology initiatives of the CGA

It has been an endeavour of Controller General of Accounts to develop Information Technology based solutions[28] using modern technology to leverage the organization's core strength of data collection, processing, analysis and presentation of value enhanced services to multifarious users. In line with this, various initiatives have been taken in respect of the under mentioned software in use in the CGA's organization.

1. **COMPACT:** COMPACT has been developed for use in the Pay and Accounts offices of all the Civil Ministries of Union Government. COMPACT provides for monitoring of expenditure with respect to the budgetary provisions and receipts, maintenance of GPF accounts, authorisation of pension/gratuity, reconciliation with banks and incorporation of accounts from the Cheque drawing and disbursing officers under a Pay and Accounts office. It is already implemented in nearly all the Pay and Accounts offices of Civil Ministries.
2. **CONTACT/ e-Lekha:** Pay and Accounts offices of all Ministries submit their accounts to the Principal Accounts office of the respective Ministries, where the accounts are compiled using CONTACT/ e-Lekha (98%). These applications are used by all the Principal Accounts offices for compiling the accounts for a Ministry.
3. **GAINS:** For consolidation of the monthly accounts and the Annual Finance and Appropriation accounts of the Union Government, office of Controller General of Accounts uses the GAINS package. Compiled accounts received from different accounting circles are an input to the application.

[24] http://www.cga.nic.in/html/book1/cam.pdf
[25] http://finmin.nic.in/the_ministry/dept_expenditure/GFRS/GFR2005.pdf
[26] http://www.cga.nic.in/html/book3/index.htm
[27] http://www.cga.nic.in/html/book4/index.htm
[28] http://www.cga.nic.in/html/IT_Development.htm

4. **e-Lekha:** e-Lekha[29] is an application to facilitate the daily and monthly uploading of the accounts from Pay and Accounts offices/Pr.CCAs/CCAs offices to a central database. The application facilitates faster compilation of accounts, consistency of the database and availability of accounting information inmore user friendly manner. The reports of CONTACT/e-lekha and GAINS are now being integrated into e-Lekha to facilitate automatic generation of Monthly, Finance and Appropriation Accounts as envisaged in the IT strategy of the CGA.

5. **GePG:** The Government e-Payment Gateway (GePG)[30] provides a payment gateway for the Civil Ministries and departments with the specific objective of leveraging the existing IT capabilities of the Core Banking Systems and application software functionalities of the CGA's organisation towards the development of an integrated payment and accounting system for all levels of usage. It provides for digitally signed e-payment authorisation along with itemised tracking of each e-payment authorisation and automated reconciliation. The operating procedures[31] of GePG have already been notified.

4.3 Enabling a fully electronic process of subsidy and entitlement delivery

EBT and DTS payments will lead to millions of small value payments to be made to beneficiaries. These payments have to be processed by Ministries of the Central Government, State Government Departments, and other Government institutions. While EBTs are largely push transactions, DTS payments are pull transactions. DTS payments are triggered when a beneficiary purchases a subsidized good such as LPG, fertilizer, kerosene, etc. at market price. The Consolidated Fund of India cannot be debited directly for reimbursement of the subsidy amount. A bill must be raised by the Government Department administering the subsidy, and all pull transactions should necessarily be converted into push transactions. It is essential that fully electronic straight-through processing is implemented for efficient processing along with business process re-engineering that may be necessary for the implementation.

Departments will get into agreement with the accredited banks or make necessary funding arrangement for earliest disbursement of payments on receipt of payment advice from ePAO through GePG. Banks can pay from their own accounts for next day settlement with RBI or from Department accounts as per availability of funds.

The following process flow is envisioned:

1. All Government Departments should have robust in-built internal controls, Audit trails, risk assessment and mitigation plans with assurance to ensure correctness of data. Each subsidy transaction should have one Unique Subsidy Reference Number (USRN) linked with the Aadhaar number of the beneficiary;

[29] http://elekha.nic.in/Elekha/elekhaHome.asp

[30] http://gepg.nic.in/

[31] http://www.cga.nic.in/pdf/Revised_Operating_Procedure_of_e_Payment.pdf

2. The Government Department will prepare a digitally signed e-bill according to prescribed format comprising of individual beneficiaries' details such as Aadhaar number, Unique Subsidy Reference Number (USRN), payment amount etc., which is submitted to the e-PAO under the Ministry for payment processing;

3. The e-PAO of the Department will process digitally signed e-bills at predefined frequency in his COMPACT software. The e-PAO will issue digitally signed e-advice for all subsidy payments referred under processed e-bill and upload the e-advice on GePG, which will transfer the funds along with the list of Aadhaar numbers and payments to the accredited banks for the Government Department.

4. The accredited Banks of the Government Department will direct the payments to beneficiaries on the basis of the Aadhaar number and payment amount using the Aadhaar Payments Bridge (Chapter 6).

4.4 Computerization of Government Schemes

All concerned Central Government Departments, State Governments, and other Government institutions will need to transform the existing payment sanction process to an electronic sanctioning system. They should prepare and implement business process re-engineering frameworks that will enable them to adopt an electronic payment approval and disbursement process, and also build appropriate technology and process safeguards in the IT systems. This is the pre-requisite to enable EBT and DTS payments.

4.5 Recommendations

This Task Force makes the following recommendations for GePG:

1. The e-bill, e-sanction, e-advice, and e-payment processing should be straight-through and fully electronic;

2. Government Departments processing welfare and subsidy payments should computerize so that the information for payments originates electronically;

3. The GePG system of the CGA will process the e-bills, and advice the accredited Banks of the Government Department to credit the subsidy to the beneficiaries, along with a list of Aadhaar numbers and payment amounts; and

4. The accredited banks of the Government Departments directing payments to the beneficiaries through the Aadhaar Payments Bridge, will settle funds through any RBI accredited payment infrastructure in consultation with RBI.

5. Electronic Opening and Linking of Aadhaar-Enabled Accounts

In order to facilitate EBT and DTS payments, a large number of beneficiary accounts may have to be opened. Some beneficiaries may have existing bank accounts that they may choose to use, whereas new accounts may have to be opened for the rest. Typically, the Government Department that is administering the scheme verifies eligibility and enrolls the beneficiaries into the scheme. Banks then enroll these beneficiaries for bank accounts either simultaneously, or in a separate drive. This process is expensive, inefficient, and often leads to delays in opening accounts and initiating the disbursements.

5.1 Funneling various Government payments to one account

Various Government Schemes insist that their appointed banks open new accounts for the customer, and maintain a separate account for the purpose of disbursement. This leads to considerable duplication of work, the cost of which is eventually borne by the Government. Beneficiaries also find it confusing to use different accounts for different Schemes, each of which has its own method of access. Many Government Schemes also do not recognize the transfer of money into the beneficiary's account as disbursal, and insist that beneficiaries be paid in cash.

The payments system has two possible equilibriums. A good equilibrium is one where funds from various schemes are transferred into one account designated by the beneficiary, the beneficiary uses electronic payments where possible, withdraws cash as and when it is needed, and saves the rest of the money in the account[32]. The combination of insistence of cash disbursal by Governments and a no-frills bank account that does not allow the customer to use other channels leads the system into a bad equilibrium, where all funds are withdrawn. Exceptions may be made in the case of social safety-net programs such as MGNREGS and NSAP pensions, until banks deploy a sufficient BC network and provide adequate service levels.

The RBI, recognizing the importance of timelines to implement EBT and DTS payments, has notified the opening of Aadhaar-enabled accounts (AEAs) to banks[33]. Beneficiaries may also link their existing account with Aadhaar to convert it into an AEA to receive payments. A BC sub-agent visits the locality during disbursal time, and beneficiaries draw down the entire amount.

5.2 Current account opening process

In order to open accounts, financial institutions have to follow the account opening procedures as defined by their regulators. In the case of banks and payment system operators, the entire account opening process can be performed electronically except for the following regulatory requirements:

1. Accounts opening formalities need to be completed in the presence of a bank official; and
2. KYC documents have to be physically verified by a bank official before the account is opened.

[32] "Portfolios of the Poor" provides evidence that even the poor use a variety of financial products to smooth consumption. http://www.portfoliosofthepoor.com/

[33] http://www.rbi.org.in/scripts/NotificationUser.aspx?Id=6851&Mode=0

This process is expensive and slow, and often leads to bottlenecks in opening accounts.

5.3 Fully electronic process for opening accounts

A fully electronic process of opening bank accounts is possible today for the following reasons:

1. KYC data can be electronic transmitted to a bank by any institution wishing to open accounts. In cases where the issuer of the PoI and PoA provides an electronic verification service, there may not be a need for physical verification by officials. For example, in cases where banks receive data from MGNREGS authorities, or in case of UIDAI[34], where data is provided by UIDAI as per provisions of the IT Act, 2000, the electronic data can be treated as the KYC document. Further manual verification of the document that is generated from the same digitally signed and encrypted data should not be necessary. An example of this is the approach being taken by SEBI[35] through the appointment of a centralized KYC Registration Agency (KRA), where a one-time KYC check performed by one institution may be reused by another.

   The Damodaran Committee on Customer Service in Banks[36] has also made the following recommendations along similar lines to RBI:

   > **"2.1.8No Frills Accounts -** The present guidelines for opening of No Frills accounts need to be further simplified to enable rapid financial inclusion. The poorer sections of people, migrants etc., with whom the Committee interacted in different places in the country desired a simple account which can be opened with a self attested photograph and address proof. This account may be upgraded to a basic account if the customer fulfills KYC requirements. Wherever UID is introduced, it should be possible to open a No Frills account purely on the basis of UID with necessary validation from UID System."

2. In case of the use of biometric authentication (who you are) as a factor of authentication, the Physical verification of the account holder is anyways confirmed and that too with an electronic trail. In case of any other formalities (e.g. nomination form etc.), to be done, the same can be performed at the time of first transaction. Multi-factor authentication can also be deployed in case higher level of assurance is required.

Through appropriate use of technology, manual processes can be replaced with fully electronic processes, allowing for scalable account opening.

5.4 Opening accounts for minors

The Government, under various Schemes, sends EBTs to children – for example, scholarships. Different banks have different rules for opening and operating accounts for minors. The most prominent difference is

[34] http://uidai.gov.in/index.php?option=com_content&view=article&id=182&Itemid=173

[35] http://www.sebi.gov.in/cms/sebi_data/attachdocs/1322827615124.pdf

[36] http://www.rbi.org.in/scripts/PublicationReportDetails.aspx?ID=645

the age at which minor accounts are opened. A standardization of the process of opening minor accounts and their operation can simplify the process of sending EBTs to children.

5.5 Linking existing accounts with Aadhaar

In cases where beneficiaries have existing accounts and choose to use them to receive Government payments, they should be linked with Aadhaar. Banks and post offices may consider linking existing customer accounts to Aadhaar as follows:

1. Physical presentation of Aadhaar letter at a bank branch or post office;
2. Physical presentation of Aadhaar letter to a BC sub-agent operating a microATM;
3. Sending Aadhaar number collected from the customer along with the KYC data on file (name, address, date/year of birth, gender) as part of an electronic authentication request[37] to UIDAI, and linking if the authentication is successful. This can be enabled on all channels such as the branch, ATM, microATM, POS, internet, and mobile.

Given that many such payments are directed to households and to children, it is possible that one account may have multiple Aadhaar numbers linked to it in certain cases. Joint accounts may have Aadhaar numbers of all holders, whereas accounts of minors will have the child's Aadhaar number and the guardian's Aadhaar number linked to it.

5.6 Recommendations

This Task Force makes the following recommendations related to opening of accounts and linking them to Aadhaar:

1. RBI may consider defining a process for electronic opening of accounts, when the KYC information is either received electronically (as per provisions of the IT Act, 2000) or can be verified electronically;
2. Allow customers to use any Aadhaar-enabled account or payment instrument to receive Government payments as long as it is registered with a suitable repository;
3. Banks and post offices should put physical and electronic processes in place to link existing accounts to Aadhaar numbers;
4. Open regular full-KYC accounts for beneficiaries, with debit/ATM cards issued, allowing customers to access these through all channels (even though a fee may have to be imposed on certain channels to ensure viability);
5. All Government schemes should transfer money into any one Aadhaar-enabled account of the customer's choice using the Aadhaar Payments Bridge (APB);

[37] http://uidai.gov.in/images/FrontPageUpdates/aadhaar_authentication_api_1_5_rev2.pdf

6. Government schemes should not mandate disbursal of cash and instead allow the beneficiary to keep the funds in their account, should they choose to;

7. Exceptions may be made in the case of social safety-net programs such as MGNREGS and NSAP pensions, until banks deploy a sufficient BC network and provide adequate service levels. Even in such cases, Government agencies should not insist on the opening of a separate account for the Scheme and transfer funds into the beneficiary's Aadhaar-enabled account; and

8. For facilitating EBTs to minors, RBI may consider standardising the rules and processes for opening and operating accounts of minors with banks through the BC channel.

6. Directing Government Payments to Individuals

Aadhaar numbers are being issued at a rapid pace in a robust and scalable manner. It is expected that the following will be achieved soon:

1. A large portion of the population will have Aadhaar;
2. Central, State, and other Government institutions will computerize their operations;
3. Central, State, and other Government institutions will link beneficiaries in their databases with Aadhaar numbers;
4. Government will start sending EBT and DTS payments on the basis of Aadhaar numbers;
5. Customers will link their accounts with Aadhaar numbers in order to receive these payments;
6. Government payments will come into Aadhaar-enabled accounts;
7. Customers will be notified by SMS or IVRS by their banks when funds are credited into their account;
8. Aadhaar-linked accounts are portable, since customers can receive funds on the basis of Aadhaar into any Aadhaar enabled account, which may be changed depending on the level of service provided. Processes can be defined whereby changes in Aadhaar-linked accounts and other MIS reports are sent to the user Departments through the Accredited Bank.

6.1 Aadhaar Payments Bridge

The Aadhaar Payments Bridge enables the transfer of payments from Government and Government institutions to Aadhaar-enabled accounts of beneficiaries at banks and post offices. Every Government Department or institution that sends EBT and DTS payments to individuals simply needs to prepare a file containing the Aadhaar number and amount and submit it to their accredited bank. The accredited bank then processes the file through an interoperable Aadhaar Payments bridge and funds are credited into the accounts of beneficiaries. Upon receiving incoming funds, the beneficiary's bank will notify him or her through an SMS or any other communication channel that is established between the bank and the customer.

6.1.1 Benefits for Government

1. Single window platform with adequate security, access controls, and a standard platform for Government payments resulting in the saving of substantial effort, time, and cost involved in a decentralized environment;
2. A standard file based, centralized and bulk upload based method will help to improve spread and reach of Government payments. All intermediary layers are removed from the system making it simple, fast and cost effective;

3. Reduce the time of credit of entitlement from Government to accredited bank to the beneficiary's account to one day;

4. The concerned Government Department will get status report for the payments initiated by them at the end of day, including returns, if any. The returned transactions will get captured through appropriate error codes; and

5. The concerned Government Department can obtain comprehensive MIS reports and percentage of declines with reasons thereof from their accredited banks.

6.1.2 Benefits for beneficiaries

1. Beneficiaries receive the funds when due;

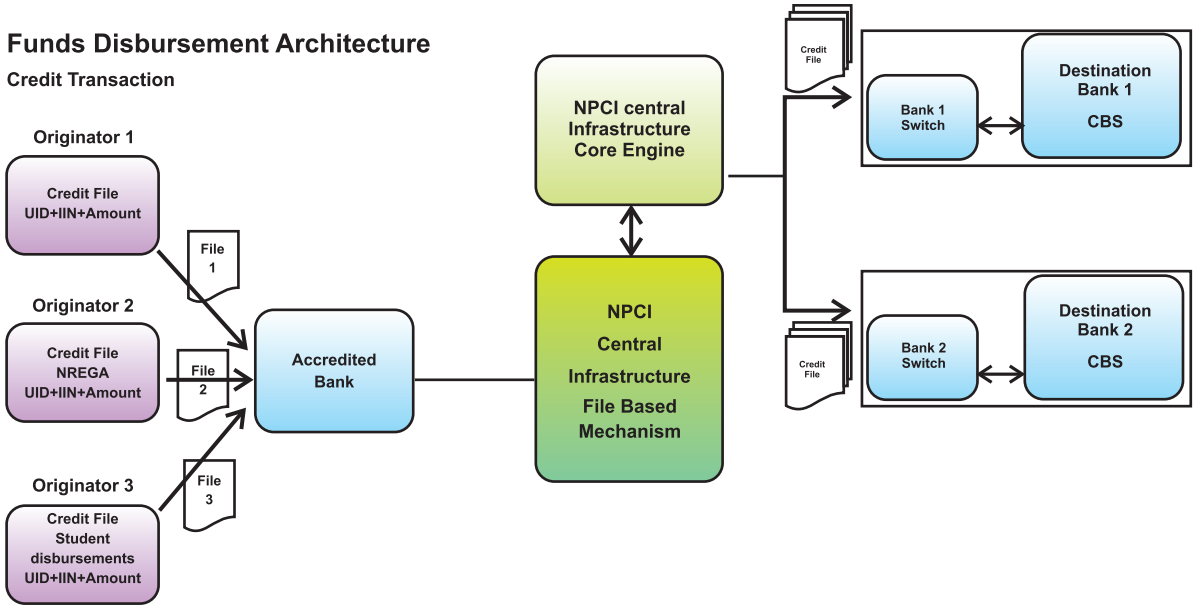
2. Beneficiaries receive the full benefits to their account without any intermediation;

3. Beneficiaries will receive intimation from their bank when funds arrive; and

4. Beneficiaries can access their funds through any regular banking channel, or utilize the funds electronically.

6.2 Implementation plan for APB

6.2.1 Phase I

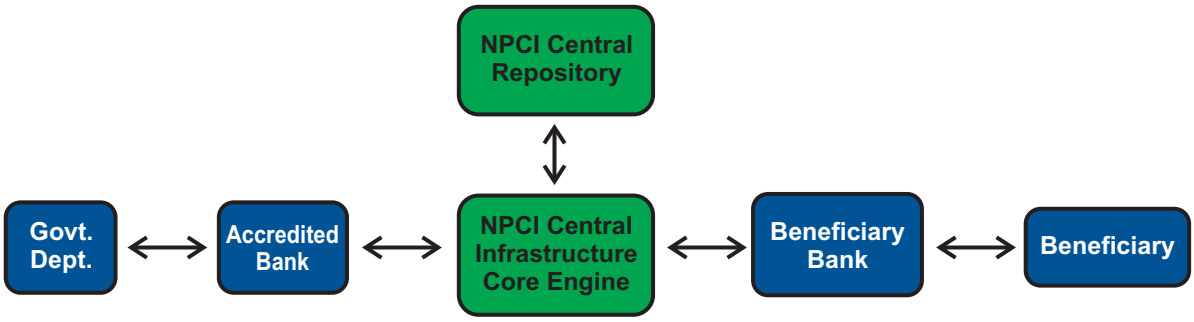


The Aadhaar Payments Bridge will process the inward payment file provided by the Government Department to NPCI through the accredited bank. This file will contain the Account number or Aadhaar number, ISO IIN as issued by NPCI to banks, and the amount to be credited to the beneficiary's account[38]. The beneficiary's bank maintains the mapping of the Aadhaar number to the

[38] http://www.npci.org.in/documents/APB%20operating%20procedures%20Final%2008-08.pdf

beneficiary's bank account number, so that the account can be credited on the basis of the Aadhaar number. The process for onboarding of banks has been defined by NPCI[39].

6.2.2Phase II



In Phase II, the process will be further simplified for the Government, as the payment file will only need to contain the Aadhaar number and amount to be credited into the Aadhaar linked account of the beneficiary. NPCI will be maintaining a central repository of all banks participating in the Aadhaar Payments Bridge with the Aadhaar number mapped to the respective ISO IIN. This repository will also provide the possibility of central updation of the Aadhaar linked accounts at banks and post offices for adding, deleting or changing the beneficiary bank. This central repository also enables portability of accounts for receiving funds[40]. The response files of APB contains the Beneficiary Bank IIN along with other data, which the user Departments can use to maintain a copy of the mapping and to generate additional MIS reports, if desired.

6.3 Consumer experience and acceptance

When funds are sent through the APB, there are two possibilities:

1. The Aadhaar number is present in the APB, and the APB can forward the payment to the correct destination; or
2. The APB is seeing an Aadhaar number for the very first time. The following course of actions may be considered in this case:
   a. The payment is rejected;
   b. The payment is held until the Aadhaar number is linked to a payment instrument, where the funds are forwarded;

In order to achieve a network effect and quick linkages, the Task Force recommends that payments not be rejected if Aadhaar-linkage is not found and instead an appropriate mechanism be designed to facilitate the payment.

[39] http://www.npci.org.in/documents/APB%20onboarding.pdf

[40] NSDL operates a similar repository for payment of dividends. When customers change their linked account, all dividend payments are directed to the new account.

6.4 Recommendations

This Task Force recommends the following:

1. All Government Departments gear up for the process of linking Aadhaar numbers in their databases in a time bound manner;
2. As per the RBI guidelines on EBTs[41], all banks should put a process in place and start linking bank accounts to Aadhaar numbers;
3. NPCI should implement Phase II of the Aadhaar Payments Bridge immediately and onboard all banks;
4. NPCI Should implement a transparency portal with detailed information on the processing of Government payments through the Aadhaar Payments Bridge that is consistent with the Right To Information Act, 2005; and
5. Central and State Government Departments should initiate the process of sending EBTs using the Aadhaar Payments Bridge in geographies where sufficient Aadhaar penetration has been achieved, after successful completion of pilot projects.

[41] http://www.rbi.org.in/scripts/NotificationUser.aspx?Id=6851&Mode=0

7. Business Correspondent Network and MicroATMs

India has roughly 6,50,000 habitations in rural areas. Of these, roughly 120,000 have Post Offices, 30,000 have bank branches, and fewer have ATMs. The combined network of India Post and banks deploying microATMs through post offices and BC sub-agents are the only realistic way to ensure that adequate banking services and financial access are provided in these habitations.

7.1 The case for Business Correspondent banking

Three major reasons for banks to promote Business Correspondent (BC) banking:

1. As an additional channel;
2. For growth into new geographies and segments; and
3. For a payments-led banking business that is cheaper as compared to brick and mortar banking.

BCs typically appoint sub-agents for carrying out transactions. Transaction costs at agents are lower than the cost of branches and ATMs and most agents are profitable at significantly lower transaction volumes. As an additional channel, evidence shows that agents can have a positive impact on the bottom line of banks by providing additional value and convenience to existing customers. As a growth channel, banks can expect favorable unit economics to enter new geographies and reach unbanked customers as agents can facilitate rapid deployment of a high-volume, low-margin payments-led banking business.

The two types of businesses that BCs are likely to engage in are:

1. Banking transactions for customers of the bank under the Financial Inclusion Plan; and
2. Disbursement of Government payments (EBT, DTS, and other payments).

It is essential that the Financial Inclusion Plan of the Government of India and the transactions involving various Government payments be processed through a common platform consisting of scalable backend systems for movement of funds, an interoperable BC network, and deployment of standards based microATM devices.

7.2 Funding the last-mile transaction fee

Typically, banks fund the cost of operations through float income and various transaction fees. In the case of beneficiaries of Government schemes, the accounts are largely zero balance, and banks are typically not in favour of charging fees to the poor for transactions, which severely impacts the business case for banks.

Payments are the first step on the ladder of financial inclusion. A ubiquitous network of agents, where customers can withdraw cash from their bank accounts is essential to build trust in the payment system, and for the Government to meet its immediate needs to disburse cash.

This Task Force recommends that the Government bear the cost for EBT and DTS payments, in order to enable a ubiquitous network of Business Correspondents (with at least one BC sub-agent in every Gram Panchayat) and electronic payments at the last mile. There are two models by which the Government can cover the cost of these transactions:

1. Pay a per-account per-year fee to all participating public and private sector banks; or
2. Pay a per-transaction fee to all participating public and private sector banks.

It is important that Government funds the outcomes it desires as directly as possible, with the fewest incentive distortions. In the case Government pays a per-account per-year fee, banks will be incentivized to open accounts. Different banks will set up disjoint BC networks at their own pace, and many accounts may not become operational. Customers may also want to change the bank account in which their EBT and DTS payments are received based on customer service, and Government should only pay transaction fees to the bank maintaining the active account. The desired outcome is to enable transactions at the last mile, and thus in order to align incentives, banks should be paid a last-mile per-transaction fee.

The combined volume of EBT, DTS, and other last-mile Government payments in 2011-12 is approximately Rs. 3,00,000 crore[42]. This Task Force recommends a last-mile transaction cost of 3.14% with a cap of Rs.20 per transaction[43], which may apply as follows:

1. The last-mile transaction processing fee should be borne by Government for microATM and ATM transactions by beneficiaries of EBTs. Examples include MGNREGS, SSP, JSY, scholarships, and salaries of para-workers (Anganwadi workers, ASHA workers, school teachers, forest guards, etc.).
2. When subsidised goods are purchased with cash at market price, the DTS payment is reimbursed by Government into accounts at Banks and Post Office. In such cases, Government should bear the cost of last-mile microATM and ATM transactions. Examples include LPG, kerosene, fertilizer where payouts are often low value; and
3. When subsidised goods are purchased with an electronic payment (through a microATM, debit card, Kisan Credit Card, etc.), the subsidised price should be charged, and the subsidy will be reconciled electronically by the next working day – the retailer always gets paid the market price. An example in this case is fertilizer purchase in large quantities. In such cases, there is no reimbursement of subsidy, and hence the last-mile transaction fee will not apply.

Subsequently, the beneficiary may be served by his own bank, or by an acquiring bank through an interoperable network. In either case, the beneficiary may access his/her funds in a channel-agnostic way using authentication methods that are consistent with prevalent RBI guidelines – ATM, microATM, POS, branch, mobile, internet, etc. It is worth noting, that irrespective of the channel, the accounts into which EBT and DTS payments come in will typically not offer any significant float to the banks. Although most of these accounts will be serviced in rural areas through BCs, the cost of maintaining the account and servicing

[42] The estimation of the volume of Government payments is provided in Annexure III.

[43] The details of the transaction cost calculation are provided in Annexure IV.

the customer still remains considerable, and will be funded through the last-mile transaction cost borne by Government. Given that banks already have existing commercial models when funds are accessed for merchant payments, bill payments, etc., the Government will only fund last-mile transactions that occur through microATMs and ATMs.

The Planning Commission in its Technical report on the Performance Evaluation of Targeted Public Distribution System noted that diversion of subsidized grains to non-existent beneficiaries was about 16.67%[44]. This Task Force notes that directing ETF and DTS payments to Aadhaar-enabled accounts can result in considerable savings, which are in excess of the last-mile transaction cost of 3.14% with a cap of Rs.20. A positive network externality of this is that it simultaneously also achieves the Government's goal of achieving financial inclusion.

7.3 Administration of the last-mile transaction fee

The Reserve Bank of India is the banker to the Government of India and all State Governments except Government of Sikkim[45]. It maintains the Principal Accounts of Central as well as State Governments at its Central Accounts Section, Nagpur. It has put in place a well structured arrangement for revenue collection as well as payments on behalf of Government across the country through Public Accounts Departments of the RBI and the appointed Agency Banks. The accredited banks are paid an agency commission by RBI for conduct of State/Central Government transactions. The rates of agency commission applicable at present as per the Master Circular on Conduct of Government Business by Agency Banks - Payment of Agency Commission[46] are as follows:

1. Receipts: Rs. 45 per transaction
2. Pension payments: Rs. 60 per transaction
3. Payments other than pension: 9 paise per Rs. 100 turnover

This Task Force feels that the last-mile transaction fee may be administered by the Government in co-ordination with the CGA, RBI, and the Accredited bank supporting the Scheme at the Central or State level.

7.4 Interoperability: a necessity, not a luxury

The need for interoperability arises out of ensuring good customer service through choice and convenience. In the payments world, experience has proved any new delivery channel or a new product can be successful only if the network effect exists. The present system of BC agents is proprietary in nature with limited scope for interoperability. It thus offers customers limited or no choice of the channel that can be used for accessing their No-Frills account and also offers no mobility of access to financial services. Hence, a financially included customer becomes financially excluded as soon as she moves out of her village/ service area. It is essential that residents have the choice of channel to access their funds, and the choice of location at which they choose to transact. The need for BC interoperability has been recognized in the Report of the Inter-Ministerial Group on a Framework of Delivering Basic Financial Services through Mobile Phones, and by the Prime Minister's Council on Trade and Industry (Sub-Committee on Promoting Financial Inclusion) in a report submitted in 2010.

[44] http://planningcommission.nic.in/reports/peoreport/peo/peo_tpds.pdf

[45] http://www.rbi.org.in/scripts/FAQView.aspx?Id=61

[46] http://www.rbi.org.in/scripts/BS_ViewMasCirculardetails.aspx?id=6581

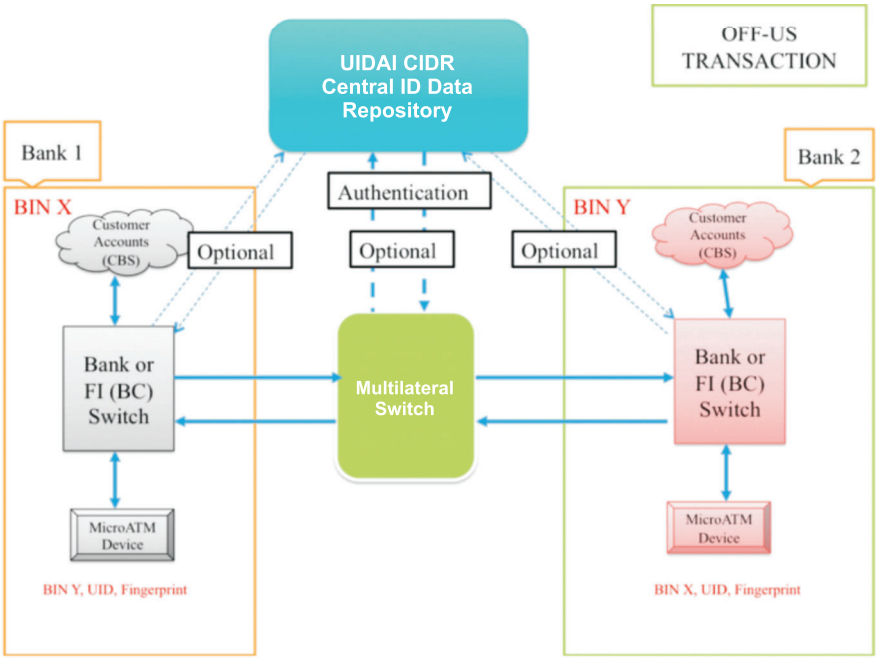
Current RBI regulations[47] do not permit the Business Correspondent channel to be interoperable. This Task Force recommends that in the case of real-time online transactions, interoperability should be permitted for the Business Correspondent banking channel. This Task Force is not recommending that a BC sub-agent be an agent of multiple banks. Instead, this Task Force recommends that a BC sub-agent only be an agent of one bank, which then performs interoperable transactions through the NPCI Switch or any other organization's Switch permitted under the Payment and Settlement Systems Act 2007, exactly like in the case of the ATM network.

7.5 MicroATMs

The microATM standards[48] have been devised by an RBI appointed committee consisting of IBA, UIDAI, NPCI, IDRBT, and Banks. The standards have been finalized, and laboratory as well as field-based proof-of-concept studies have been completed. The microATMs are being tested in the field in Jharkhand for MGNREGS payments in partnership with three banks viz. Bank of India, ICICI Bank and Union Bank of India. The microATM standards define basic device specifications for interoperable transactions involving biometrics. Banks may continue using their existing methods of authentication and authorization in the case of ON-US transactions with their own customers, which may be online or offline. However, interoperable transactions must necessarily be online and real-time.

MicroATMs will allow customers to perform basic financial transactions using only their Aadhaar number and their fingerprint as identity proof (along with a Bank Identification Number for inter-bank transactions), with business continuity plans defined by banks to handle exception cases. Unlike an ATM, the cash-in / cash-out functions of the microATM will be performed by an operator, thus bringing down the cost of the device and the cost of servicing the customer.

Figure: Interoperable architecture for microATM transactions



[47] Original BC guidelines circular issued by RBI: http://www.rbi.org.in/Scripts/BS_CircularIndexDisplay.aspx?Id=2718

[48] http://uidai.gov.in/images/FrontPageUpdates/microatm_standards_v1.4.pdf

The microATM supports the following financial transactions:

1. Deposit;
2. Withdrawal;
3. Funds transfer; and
4. Balance enquiry.

The interoperable Aadhaar-enabled payments architecture is an overlay on the existing payment architecture, where authentication information is routed to UIDAI. NPCI has set up the Aadhaar-enabled Payments System (AEPS)[49] that can route microATM transactions, and defined a procedure for the onboarding of banks[50]. Existing debit-card processing networks may also be used to process interoperable OFF-US transactions. In case where the acquiring and issuing bank are the same, the transaction may be completed in an ON-US manner, without routing it through a multi-lateral switch. This is consistent with the architecture described in the RBI guidelines on Securing Card Present Transactions that are being implemented by all card networks[51].

7.6 Data connectivity

Even though mobile telephony is available across the country, there are still areas with poor or no data connectivity. In some cases, this is due to lack of infrastructure, while in other cases, even though connectivity is available, it is often allocated to voice traffic. As the demand for data increases, mobile operators will start allocating more capacity for data usage.

The Government is investing Rs.20,000 crore in setting up the National Optical Fibre Network (NOFN) that will bring high bandwidth connectivity to every Gram Panchayat. The Universal Service Obligation (USO) fund has a continuous process of identifying areas with poor or no connectivity, and improving coverage. Connectivity challenges can be addressed by co-ordination with the Department of Telecommunications (DOT), as the microATM network is being rolled out.

7.7 Consumer protection

The success of any retail electronic payment system strongly depends upon the trust in the system. This trust may be built and monitored in the following ways:

1. A logo can be created that is affixed to every microATM and in the premises where transactions are being conducted;
2. An Information, Education and Communication campaign should be launched by Ministry of Finance to familiarize consumers with the logo, and with the process expected at outlets that display such a logo;

[49] http://www.npci.org.in/documents/AEPS%20operating%20procedures..pdf

[50] http://www.npci.org.in/documents/AEPS%20onboarding.pdf

[51] http://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/SCP020611FS.pdf

3. Banks should provide contact centres in addition to the grievance redressal mechanisms already provided by the Government and RBI for customers to report field issues related to BC operations;

4. Government Departments, State Governments, and other Government institutions that send EBT or DTS payments to beneficiaries should set up a contact centre for the purposes of grievance redressal; and

5. Audits may be performed at randomly chosen locations on an ongoing basis to derive a statistically high level of confidence in the performance of the system.

7.8 International experiences

International experiences[52] suggest that successful EBT implementations consider a long term evolutionary path in alignment with the broader financial system, not apart from it. Closed loop limited purpose solutions that cannot evolve risk becoming expensive dead-ends, both for social agencies and for the financial inclusion of recipients. Payment systems that harness, or even expand mainstream financial infrastructure can function as sustainable stepping stones to greater inclusion. Data from four countries (Brazil, Colombia, Mexico, and South Africa) is presented in Table 2.

While financial inclusion is a general policy goal in all four countries, not all the social agencies have this as an explicit objective for recipients, although all see benefits at least in greater use of electronic payments. There is clear evidence that the move to electronic payments can reduce costs to government, provided mainstream payment infrastructure is used—where it is not, delivery costs may even increase from cash payments. The presence of a pre-existing agent network linked to the mainstream financial sector may play a big part in the ability to reduce costs when switching to mainstream financial accounts.

Consistent with their mandate, the social assistance agencies in these four countries prioritize their objectives with respect to the payment of benefits in a remarkably similar way: almost all weigh most highly the goals of promoting the dignity of the recipients and maximizing additional developmental benefits for recipients. Objectives such as reducing leakage and delivery costs are generally secondary. There is often a trade-off between the secondary objectives with the higher order ones.

Table 2: International experience with EBTs

	Brazil	Colombia	Mexico	South Africa
Population	193m	46m	109m	50m
% banked	43%	62%	25%	63%
% receiving EBTs	30%	11%	20%	30%
Avg. grant per recipient	$71	$55.10	$118.20	$144.70
Weighted avg. fee per payment	$0.84	$6.24	$2.52	$3.50
Transaction fee as % of average payment	1.20%	11.30%	2.10%	2.40%

[52] Bold, Chris, David Porteous, and Sarah Rotman. 2012. "Social Cash Transfers and Financial Inclusion: Evidence from Four Countries." Focus Note 77. Washington, D.C.: CGAP, February.

For example, South Africa and Mexico set norms for the distance which most recipients should have to travel to collect payments, and as a result, end up paying relatively high costs across thinly populated rural areas. But at the same time in these countries, other parts of government have recently placed greater pressure on social programs to reduce delivery costs. In 2010, the Mexican President directed all government agencies to work with the Ministry of Finance to transition all G2P disbursements to electronic means by December 2012. While the initial impetus for the directive was to reduce costs and waste, other objectives such as financial inclusion and the promotion of socio-economic welfare have also become key focuses of the Mexican government as a whole.

7.9 Recommendations

This Task Force makes the following recommendations:

1. A last-mile transaction cost of 3.14% with a cap of Rs.20 per transaction be budgeted for various EBT, DTS, and last-mile payments through microATMs and ATMs;

2. The last-mile transaction fee may be administered by Government in co-ordination with CGA, RBI, and the accredited bank for the Scheme at the Central / State level;

3. If the beneficiary is not making a cash purchase, only the subsidized price may be charged to beneficiaries for subsidized goods such as LPG, fertilizers, and kerosene, since the subsidy can be reconciled electronically (for example, by using a microATM, debit card, Kisan Credit Card, etc.). Beneficiaries paying in cash should pay the market price and get the subsidy reimbursed into their accounts at banks and post offices;

4. The RBI should consider notification of interoperable BC guidelines for a microATM network, that are consistent with the NPCI's National Financial Switch(NFS) or any other organization's Switch, which meets the requirements under the Payment and Settlement Systems Act, 2007.

5. Every bank branch, post office, and citizen service centre should have at least one microATM in their premises, and every Gram Panchayat should have at least one microATM placed in the premises of an appropriate agency;

6. In case of interoperable cash withdrawal transactions, at least 2/3 of the transaction cost revenue received by the issuing bank from the Government should be passed to the acquiring bank deploying the microATM;

7. The framework for administering last-mile transaction fees to banks should be uniformly defined by Ministry of Finance for all Schemes;

8. Government Departments may mandate the use of biometric authentication for certain Schemes in order to ensure that the vulnerable sections of society are protected;

9. Government Departments, State Governments, and other Government institutions that send EBT or DTS payments to beneficiaries should set up a contact centre for the purposes of grievance redressal.

Banks should also provide contact centres in addition to the grievance redressal mechanisms already provided by the Government and RBI for customers to report field issues related to BC operations;

10. In order to protect the consumer, a logo may be designed for use on microATMs and outlets, along with an Information, Education, and Communication campaign to inform consumers, along with audits that may be performed at randomly chosen locations on an ongoing basis to derive a statistically high level of confidence in the performance of the system; and

11. Connectivity challenges can be addressed by co-ordination with the Department of Telecommunications (DOT), as the microATM network is being rolled out.

8. Remittances

It is estimated that domestic migrants contribute 10% of India's GDP[53]. Many among them – 100 million people by some estimates – regularly confront a significant problem: how to move money from where it's earned in one part of the country to another part of the country where it's needed. The size of the domestic remittance market is estimated at Rs.1.3 lakh crore[54]. A large portion of these remittances happens over informal channels.

8.1 Types of remittances

The banking network already provides remittance facilities. Customers use branches and ATMs to withdraw money where the banking network is available. The microATM extends the bank-to-bank remittance to the Business Correspondent channel. While bank-to-bank remittances through BCs will happen over the long run, cash-to-cash and bank-to-cash remittances are going to be relevant in the short term.

8.2 The challenge of KYC

A major challenge in remittances is KYC of customers at both ends. It is a non-issue if funds originate from a bank account as KYC is already done in such cases. In the cases where funds originate as cash, or the recipient receives cash, KYC is a challenge as large sections of populace lack KYC documentation. This Task Force recommends that the Aadhaar letter and electronic Aadhaar authentication are both accepted as KYC for remittances thus reducing customer acquisition costs for the remittance providers and enable cost-efficient means of remittances[55].

8.3 Regulation of remittance operators

A number of informal remittance operators already aggregate funds and transfer funds either through the banking network, or through other informal channels. They typically charge a last mile fee of delivering cash to the doorstep. The RBI has recently granted several relaxations for domestic money transfer[56], which fall under the following three categories:

1. Liberalising the cash pay-out arrangements for amounts being transferred out of bank accounts to beneficiaries not having a bank account and enhancing the transaction cap from the existing limit of Rs. 5,000 to Rs. 10,000 subject to an overall monthly cap of Rs. 25,000 per beneficiary.

[53] Deshingkar, Priya and Shaheen Akter."Migration and Human Development in India." (UNDP Human Development Reports, 2009).

[54] Putting Money in Motion: How Much Do Migrants Pay for Domestic Transfers? (IFMR and College of Agricultural Banking, Nov 2010) http://www.ifmr.ac.in/cmf/publications/wp/2010/42_Putting_Money_in_Motion.pdf

[55] http://www.rbi.org.in/scripts/BS_ViewMasCirculardetails.aspx?id=5774

[56] http://www.rbi.org.in/scripts/NotificationUser.aspx?Id=6750&Mode=0

2. Enabling walk in customers not having bank account (for instance migrant workers) to transfer funds to bank accounts (of say family members or others) subject to a transaction limit of Rs. 5,000 and a monthly cap of Rs. 25,000 per remitter.

3. Enabling transfer of funds among domestic debit/credit/pre-paid cards subject to the same transaction/monthly cap as above.

Aadhaar biometric authentication confirms that the person sending/receiving money is in fact present physically, whereas the Aadhaar demographic authentication serves as the PoI and PoA, as discussed in Chapter 3 of this report. The fully electronic nature of Aadhaar authentication will enable an electronic audit trail of all money transfer transactions.

8.4 Recommendations

This Task Force recommends:

1. RBI may consider recognising the Aadhaar letter as a PoI and PoA for money transfer; and

2. RBI may consider recognising electronic Aadhaar authentication as PoI and PoA for money transfer.

9. Debit Cards, Electronic Payments and E-commerce

Today, over 25 crore debit cards have been issued in India by over 45 banks. While a large number of debit cards are active on ATMs, the activation of these cards over the Point of Sale (PoS) and internet channels is low. By international comparisons, the usage of debit cards and electronic payments is quite low.

Transactions at terminals: value of payment transactions

(USD billions, total for the year)

Source: BIS

POS transactions at terminals located in the country					
	with cards issued in the country				
	2006	2007	2008	2009	2010
Australia	nav	nav	nav	nav	nav
Belgium	50.60	59.49	68.06	67.76	68.78
Brazil	97.69	135.86	175.85	188.43	276.53
China	241.57	406.35	576.90	1,004.89	1,540.59
France	339.92	406.02	463.00	450.31	456.52
Germany	204.80	175.52	197.86	193.74	199.76
India	8.97	14.54	16.80	15.71	16.63
Italy	89.46	104.78	118.45	158.81	159.50
Mexico	34.67	41.90	46.54	40.21	49.75
Netherlands	87.04	102.71	118.58	111.04	112.29
Russia	6.84	11.99	20.71	18.38	28.32
Saudi Arabia	8.26	10.51	13.71	15.00	19.16
Sweden	44.18	59.04	66.64	nav	nav
Switzerland	47.06	52.70	62.37	63.50	68.45
Turkey	68.79	98.47	128.89	119.78	145.34
United Kingdom	590.13	708.50	697.49	618.32	660.58
CPSS	1,919.98	2,388.38	2,771.84	3,103.81	3,855.26

The BIS data on POS transactions shows how India compares with some of the other countries on usage of retail electronic payments. Although volumes are picking up in India, usage of cash is still dominant, and India has a long way to go.

9.1 Electronic payments acceptance in Government institutions

The Government and RBI are keen to move to electronic payments and reduce the usage of cash in the economy. Over the years, steady progress has been made towards electronic payments for utility payments, railway ticketing, e-commerce, m-commerce, etc. but other retail payments are still predominantly cash based.

Today, the acceptance of electronic payments within Government and Government institutions is mixed. Some utilities such as Mahanagar Gas, MTNL etc. incentivize the use of electronic payments by offering a discount to customers. However, it has been observed that in most of the cases where the recipient of the payment is a Public entity, the customer pays an extra cost by paying electronically although the same may not be charged by the public entity directly to the customer but by the banks. Some examples are as follows:

1. Issuing banks apply a 2.5% to most debit and credit card transactions when purchasing petrol/diesel. A majority of this amount goes back either to the dealer or to the OMC, and is a disincentive for the use of debit cards;

2. In the case of Railway ticketing, the customer is typically charged an extra fee for electronic payments, and also a convenience fee; and

3. In the case of insurance premiums, LIC charges customers a surcharge for debit card transactions.

In many cases, the option to pay electronically itself is not available with the customers while wanting to make payment to Government agencies and for public utilities. In order to encourage the use of electronic payments, all Government agencies should accept electronic payments, without making the consumers pay a surcharge. The savings due to reduced cash management will balance out the cost of processing electronic transactions. A standard rate schedule may be published by Government to pay Banks for processing electronic payments. All payments made by Government and Government institutions above Rs.1,000 should also be made electronically.

In the case of DTS payments (Fertilizer, LPG, and Kerosene), this Task Force has recommended selling goods at market prices, and reimbursing the subsidy into the bank accounts of beneficiaries. However, if the beneficiary pays electronically (for example, by using a microATM, debit card, Kisan Credit Card, etc.), only the subsidized price may be charged, and the subsidy can be reconciled electronically by the next working day – the subsidy will be credited into the retailer's account. For such electronic transactions, there is no subsidy reimbursement by Government, and hence no need to withdraw funds through a microATM.

9.2 Debit card interchange pricing

Debit card transactions in India today have overtaken credit card transactions. RBI regulation on using two-factor authentication has made debit cards safe to use. Debit card transactions have no credit risk for the issuers as they are pre-funded. Debit card interchange is an important factor that drives the adoption of electronic payments, specifically for retail Government payments. A review of debit card interchange pricing in India is provided in a recent report *Cashless Payment System in India – A roadmap*[57]. Interchange reduction in some low margin segments (insurance, mutual funds, Government business, education, supermarkets, utilities, etc.) to grow usage of debit cards has been very successful and such initiatives may be accelerated by the industry as a whole. Today, the high interchange on debit is used to support consumer awareness programs to increase card usage and also special benefits such as accident insurance, reward points, etc.

[57] http://www.math.iitb.ac.in/~ashish/workshop/PaymentCardAugust31.pdf

In a typical POS or e-commerce transaction, the merchant bears the cost of the transaction. The merchant pays a fee called the Merchant Discount Rate (MDR) to the acquiring bank. The acquiring bank pays interchange to the issuer. The acquirer, who integrates with merchants, gets to decide the fee per transaction based on the level of risk and the types of service offered. In India, in order to attract more CASA deposits, acquirers have been traditionally undercutting these fees and have built float-based business models derived from the merchant's checking account and business relationship with the bank. This model is not scalable to smaller merchants and is severely impacting the growth of debit card acceptance in the country. To address the small merchant segment and make the business case viable for acquirers, there is a need to explore innovative technology and business solutions.

The development of acceptance network is primarily led by private sector and foreign banks, who have a branch penetration concentrated in the top 25 cities. The Public Sector Banks with their nation-wide branch penetration have currently limited their focus to ATM networks. The active participation and investment of Public Sector Banks in deepening the existing acceptance network to tier II and tier III cities immediately, and eventually to every corner of the country, will drive the migration towards a cash-less economy.

9.3 International experiences

Globally, regulators have stepped in and defined debit interchange pricing in economies with active usage of retail card payments. In USA, the Federal Reserve issued a rule establishing standards for debit card interchange fees and prohibiting network exclusivity arrangements and routing restrictions. This rule, Regulation II (Debit Card Interchange Fees and Routing), is required by the Dodd-Frank Wall Street Reform and Consumer Protection Act[58].

> "Debit card interchange fees are established by payment card networks and ultimately paid by merchants to debit card issuers for each electronic debit transaction. As required by the statute, the final rule establishes standards for assessing whether debit card interchange fees received by debit card issuers are reasonable and proportional to the costs incurred by issuers for electronic debit transactions. Under the final rule, the maximum permissible interchange fee that an issuer may receive for an electronic debit transaction will be the sum of 21 cents per transaction and 5 basis points multiplied by the value of the transaction. This provision regarding debit card interchange fees is effective on October 1, 2011."

Similarly regulatory interventions have also happened in Australia, various countries in Europe, Mexico, Canada, etc., and in almost all cases, debit-card interchange pricing is lower than credit-card interchange pricing. . It is important to note that interchange is a critical catalyst for the growth of electronic payments, and some of the interventions have led to unintended consequences that hurt the customer.

The Indian debit-card processing infrastructure is still in its infancy, and taking into account the massive investment required in combination with low debit card usage, it may not be feasible for India to meet the low interchange prices implemented elsewhere. However, this situation should be closely studied, and a plan may be put in place to meet a benchmark of interchange pricing worldwide over the next few years.

[58] http://www.federalreserve.gov/newsevents/press/bcreg/20110629a.htm

9.4 Recommendations

This Task Force makes the following recommendations:

1. Government institutions should not differentiate between electronic payments and cash, and encourage the use of electronic payments. Instead of convenience charges, Government institutions should offer incentives to people to use electronic payments through all channels – POS, internet, and mobile;
2. The Government of India and RBI may formulate a plan and set targets for reducing the usage of cash in the Indian economy;
3. RBI should consider reviewing the incentive structure in the issuing and acquiring businesses, and benchmark interchange pricing in India to the best practices worldwide;
4. Debit-card transaction pricing should be priced favorably as compared to credit-card transactions, in light of safety due to authentication, and instant funding. RBI may examine this issue;
5. A standard rate schedule may be published by Government for acceptance of retail electronic payments when payments are made to a Government agency; and
6. All payments made by Government and Government institutions above Rs.1,000 should be made electronically.

10. Mobile Banking

India's telecom sector, one of its flagship domestic industries has played a pivotal role in India's growth story. There has been a dramatic rise in mobile phone penetration over the last few years. TRAI reported an urban tele-density of 66.79% and rural tele-density at 33.21% with a total of 771 million wireless subscribers in India as of Jan 2011 . With such a large number of connections, the mobile phone has become the first connected computing device that is accessible to most residents in this country.

An emerging trend is the fast increase in number of smart phones that offer a wide variety of features at low prices. The connected nature of the mobile phone has converted the mobile phone into a powerful computing platform for direct delivery of services to the resident.

10.1 Recommendations from the Report of the Inter-Ministerial Group

The Report of the Inter-Ministerial Group on Delivery of Basic Financial Services through Mobile Phones has provided a comprehensive framework for mobile banking and mobile payments . The framework envisages creation of "Mobile and Aadhaar linked Accounts" by Banks. The basic financial transactions on these accounts (cash deposit, credit customer's mobile linked no- frills account, cash withdrawal, peer to peer transfer & balance inquiry) can be executed through a mobile based PIN system using "Mobile Banking POS" or through biometric based "microATMs" deployed by Business Correspondents. The IMG has identified the different stakeholders in the framework and has defined the roles of each of these stakeholders.

The framework envisages sharing of the following elements:

1. A simplified common template for the KYC requirements for the Mobile and Aadhaar linked Accounts which is acceptable to all service providers;
2. Cash-in / cash-out operations at the front end involving deposits and withdrawals into Mobile and Aadhaar linked Accounts. BCs (or the sub-agents of BCs) undertaking these operations will perform them on behalf of all Banks;
3. An Account Mapper that provides linkages between Aadhaar Number, mobile number, and the account number;
4. An interoperable central payments switch that will facilitate real-time transaction routing across Banks; and
5. Interoperable repositories at the national level for hosting and managing mobile and Aadhaar-linked accounts that may be created and managed by independent third party service providers / organisations on behalf of the participating Banks.

[59] http://www.trai.gov.in/WriteReadData/trai/upload/PressReleases/800/PressRelease04Jan2011.pdf

[60] http://www.mit.gov.in/content/government-approves-framework-provision-basic-financial-services-through-mobile-phones

10.2 Mobile number registration

This Task Force notes that mobile banking penetration in India lags both, the number of telecom connections and the number of bank accounts. The reason for this is that onboarding the customer for mobile banking by linking his mobile number to the bank account is often a tedious task involving filling up of forms and visiting the bank branch. Given the high amount of churn in mobile connections, customers may not want to go to the bank every time they buy a new connection.

The UIDAI collects mobile number during enrollment, and subsequently has a process for verifying whether the resident in fact possesses that mobile number. Upon successful verification of the possession of the mobile number, UIDAI provides a verification service, where a service provider can check with UIDAI whether a particular mobile number belongs to a particular Aadhaar number holder. The UIDAI updation[61] process also defines a method to update the mobile number for residents in case of change/ non-provision of mobile number at the initial stage.

This offers the opportunity to banks to enable mobile banking in a fully electronic way by using UIDAI's authentication service to query the possession of the mobile[62]. This is a lifecycle management activity, and not necessarily something that has to be done on a per transaction basis. In case the bank notices a mobile banking request coming from a new mobile, it can simply query the UIDAI to check whether the customer has changed his mobile, and registered the new number with UIDAI. A detailed process can be defined by the banks in consultation with RBI, IBA and UIDAI.

10.3 Uniform customer experience

The SMS and USSD channels are the most commonly available channels across all phones. Mobile application providers have built SMS and USSD based applications for banks. Different banks use different SMS syntax, short codes, USSD codes, USSD menus etc. There is a case for standardizing some of the user interface elements in order to provide a seamless customer experience.

10.4 Inter-bank Mobile Payment System (IMPS)

The Inter-bank Mobile Payment System (IMPS)[63] has been set up by NPCI with the following objectives in mind[64]:

1. To enable bank customers to use mobile instruments as a channel for accessing their banks accounts and remit funds
2. Making payment simpler just with the mobile number of the beneficiary
3. To sub-serve the goal of Reserve Bank of India (RBI) in electronification of retail payments

[61] http://uidai.gov.in/images/FrontPageUpdates/uid_data_updation_ver_1.0_29_june.pdf

[62] Aadhaar-enabled Applications in Telecom, UIDAI (Forthcoming)

[63] http://www.npci.org.in/documents/IMPSFlow.pdf

[64] http://www.npci.org.in/aboutimps.aspx

4. To facilitate mobile payment systems already introduced in India with the Reserve Bank of India Mobile Payment Guidelines 2008 to be inter-operable across banks and mobile operators in a safe and secured manner

5. To build the foundation for a full range of mobile based Banking services.

NPCI has onboarded[65] 30 banks onto the IMPS platform.

10.5 USSD access for financial transactions

Banks and mobile banking vendors have also expressed dissatisfaction at being unable to gain access to USSD connections from telecom companies for financial transactions.

NPCI is in the process of developing a common USSD gateway for basic mobile banking transactions. NPCI has received the approval from Department of Telecommunications for using *99# for its common USSD Platform. The proposed transaction flow is as follows:

1. Customer dials in a Common USSD number such as *99#

2. Customer gets a welcome screen which asks the customer to enter his/her MMID allotted by the issuer bank.

3. After entering the MMID the transaction is sent to NPCI which sends the request to the Issuer Bank from the MMID entered by the customer.

4. Bank provides the menu to the customer with the mobile banking options in the USSD session.

5. Customer completes the transaction in the USSD session; IMPS can be one of the transactions carried out in the session.

10.6 Recommendations

This Task Force feels that the following recommendations can help drive mobile banking:

1. The RBI may revise its mobile banking guidelines to allow customer's mobile banking registration on the basis of Aadhaar-mobile number authentication;

2. The Government should devise a procedure through which banks and other service providers can get access to the USSD channel, priority SMS, secure extraction of CLI, CLI over GPRS for building applications; and

3. A common forum should be set up to discuss the possibility of establishing uniform commercial terms between telecom companies, banks, and payment processors.

[65] http://www.npci.org.in/bankmember.aspx

11. Role of India Post

11.1 Postal Network

India Post offers communication services (Letters, Postcards and Registration), transportation services (parcel and logistics), financial services (Savings Bank, Money Order and Insurance) and other premium services like Speedpost. India has the largest postal network in the world with 1,54,979 Post Offices of which 1.39,182 (89.81) are in the rural areas. On an average, a Post Office serves an area of 21.21 sq.km and a population of 7176 people[66]. The extensive postal network is an imperative driven by the Universal Service Obligation (USO) of the Post Office to provide mail and other services. This network has been leveraged by the post office to make payments of social benefit schemes at the last mile. The payments are made through Post Office Savings Bank accounts or through the traditional remittance services. The extensive network of the post offices has also helped in coverage of a large number of rural population by Rural Postal Life Insurance.

The Post Offices are currently engaged in wage disbursal to MGNREGA workers. During last three years, the department has been able to open accounts of more than 5.04 crore workers and has been disbursing wages at regular intervals through Post Offices. As of now, nearly half of the total disbursement under MGNREGA is being routed through Post Offices. Similarly, Post Offices are distributing pensions under Indira Gandhi Old Age/Widow/Disabled pension schemes through a combination of its savings and remittance products. There are 82.9 lakh BPL accounts for transfer of benefits to beneficiaries.

11.2 Computerization and Networking of Post Offices

Government has approved Information Technology (IT) related modernization project of the Department of Posts for computerization of all the non-computerized Post Offices, mail offices, and for establishing the required IT infrastructure. The project is to be completed by 2012-13. The IT project of the Department of Posts plans to provide a Postal Banking solution comprising Core Banking implementation in major Post Offices and a Rural ICT device based implementation in rural Branch Post Offices. A comprehensive overhaul of the remittance and insurance service delivery is also planned taking into account the changing customer preferences and to improve service delivery.

The IT project is expected to improve operational efficiency and service delivery of postal services. This would translate into access to people through multiple channels, managing risk and reducing frauds and improving monitoring and compliance.

11.3 Post Office Savings Bank

The Post Office Savings Bank (POSB) is one of the oldest and largest banking institutions in the country. Small Savings schemes operated through Post Offices are the forerunner to the present initiative of

[66] As on 31.3.2010 – Annual Report – Department of Posts – 2010-11

Financial Inclusion. POSB operates around 23.75 crore savings accounts. The POSB scheme is an agency function performed by the Department of Posts on behalf of the Ministry of Finance. Presently seven schemes are operated through the Post Offices. Department of Posts is planning through its IT project to modernize its postal operations, including the POSB operations. The IT Project plans to provide a Postal Banking solution comprising of a Core Banking Solutions in departmental Post Offices and a rural ICT device based mobile banking implementation in branch Post Offices. Core Banking project will facilitate Any time – Anywhere banking for POSB customers. The alternate channels planned are ATMs, internet, phone, SMS and mobile banking.

A larger, direct role for POSB on financial inclusion is also envisaged by the Department of Posts in the form of a Post Bank of India. A report prepared by ASCI (Administrative College of India) has recommended setting up Post Bank of India in order to achieve the vision of the Department of Posts to foster financial inclusion[67].

11.4 Remittances through Money Orders

India Post has well established remittance services with a provision to deliver money at the doorstep of the customers in all parts of the country. India Post has launched Electronic Money Order (EMO) in 2008. In 2009-10, more than 8 crore money orders were sent through both, electronic and the traditional money order system. In Tamil Nadu, old age pension payments are made through EMO.

11.5 Postal Life Insurance and Rural Postal Life Insurance

Postal Life Insurance (PLI) is the oldest insurance scheme for the benefit of the Government employees. Rural Postal Life Insurance (RPLI) was introduced in 1995 for the benefit of rural populace to extend insurance cover to the people living in rural areas with special emphasis on weaker sections and women workers. As on 31.3.2010, PLI has 42.8 lakh active policies and RPLI 99.25 lakh active policies. India Post has also launched a micro-insurance drive recently.

11.6 Structural strengths of the Postal network

Strength of the Postal network lies in its structural attributes particularly in rural areas. The Postal personnel for rural Post Offices are largely drawn from the local communities and therefore enjoy trust of the people. This combined with the fact that in many small villages Post Office is the only government agency; it has traditionally enjoyed the trust and confidence of local people and is highly accessible to all the sections of the society. Rural Finance Access Survey shows that Post Offices in India have closest proximity (2 km on average) to rural clients compared to branches of commercial banks, regional rural banks, and cooperatives (5 km on average) (Basu and Srivastav 2005)[68]. India Post therefore is suitably located to deliver financial and physical delivery aspects of various social security schemes both in organized and unorganized sectors due

[67] "Road Map for setting up Post Bank of India", February , 2011. A report prepared by Administrative College of India, Hyderabad

[68] Basu, P. and Srivastava, P., 2005. Improving access to finance for *India's rural poor. In: P. Basu, ed. India's financial sector –recent reforms, future challenges.* Delhi: Macmillan India, 138-175.

to their proximity to the rural people, their personnel being known to the local people, and having people-friendly office environment.

Additionally, unlike other similar institutions, Post Offices are fairly evenly distributed throughout the country and are under a centralized command. Moreover, an assured audit trail exists in respect of all financial transactions carried out at Post Offices. Such environmental conditions allow Post Offices to be a trustworthy channel to deliver various aspects of social security programmes to the households even in the remotest corner of the country.

11.7 Post offices and identification of social security programme beneficiaries

Post Office personnel are in a much better position to identify and reach especially the poor households, as they generally belong to the local communities.

Availability of an extensive postal network having a vast experience of delivering financial and other services offers an opportunity to the Government for designing and delivering social protection programmes. Experience of delivering MGNREGA wages and social security pension schemes in various states suggests that Post Offices can provide effective and cheaper mechanisms to deliver social protection programmes according to the needs of the social protection recipients.

11.8 Disbursement of MGNREGS wages through Post Offices

India Post is leveraging its extensive network in rural areas, rich experience of its rural personnel in delivering financial services, cash management systems, and elaborate audit mechanisms to disburse MGNREGS wages. Such wages are disbursed by opening savings bank accounts in the names of MGNREGS beneficiaries at post offices. Starting with Andhra Pradesh Postal Circle in 2005, the payment of wages under MGNREGS is currently operational in 19 Postal Circles comprising of 26 States and 5 UTs through 97,878 post offices.

The State Government agency responsible for MGNREGS works submits wage list and the consolidated amount of wages to its concerned post office where the wages are credited in the workers accounts as per the list. The workers are then intimated about receipt of their wages who attend the post office to withdraw the amount of their wages from their accounts.

The historical trend of number of MGNREGS accounts in Post Offices is as follows:

1. 01.04.2009: 2.92 crore accounts
2. 01.04.2010: 4.25 crore accounts
3. 01.04.2011: 4.90 crore accounts
4. 01.11.2011: 5.29 crore accounts

Amount disbursed (in Rs.) through post offices in each financial year after the inception of the scheme:

1. 2008-09: Rs.3,863 crore
2. 2009-10: Rs.7,900 crore
3. 2010-11: Rs.9,179 crore
4. 2011-12: Rs.4,863 crore (up to October 2011)

Postal Circle wise details of number of accounts and amount disbursed as on 01.04.2011:

Circle	Progressive total of No of accounts opened up to March, 2011 (Since inception)	Amounts disbursed during the year 2010-11
Andhra Pradesh	13040596	29173024211
Assam	1866448	1865984739
Bihar	5444970	8511522873
Chattisgarh	3479425	8544229898
Gujarat	2049129	3319163569
Haryana	118347	97100214
Himachal Pradesh	75293	182293171
Jharkhand	3317668	6094625780
Karnataka	1588139	1895743536
Kerala	189824	504948330
Madhya Pradesh	1524744	3294556747
Maharashtra	1578669	1839736912
North-East	524960	1748147582
Orissa	1631541	4061424389
Punjab	272912	301254714
Rajasthan	6178288	11273714963
Uttar Pradesh	376268	780162166
Uttarakhand	221810	306689705
West Bengal	5575937	7997510433
Total	**49054968**	**91791833932**

Issues relating to costs

India Post runs various savings schemes as an agency of Ministry of Finance and is remunerated on the basis of number of live accounts per annum as per the costs estimated for operating the accounts. The costs incurred by India Post while opening and maintaining MGNREGS accounts have been estimated internally and also through the Administrative Staff College of India. Such studies have revealed that average number of transactions is higher in the case of MGNREGS accounts when compared to ordinary post office savings bank accounts, and that is why the cost to operate such accounts for India Post is higher than that for ordinary post office savings bank accounts. An Expert Group constituted by the Ministry of Finance has pegged this cost to be Rs 165.59 per account per annum. In addition, the Department has to make extra efforts and spend extra money in order to meet statutory obligations under the National Rural Employment Guarantee Act, 2005[69]. The matter relating to reimbursement of such costs is under consideration with the Ministry of Finance and Ministry of Rural Development.

Challenges faced while disbursing MGNREGA wages

Major challenge faced by the India Post while disbursing MGNREGA wages are concerned with conveyance of cash to the paying post offices; particularly for the post offices located in remote and far flung areas. As the cash flow has significantly increased after implementation of MGNREGS wage disbursal by post offices, the existing cash management structures such as line limit and cash retention limits were found to be inadequate to meet these requirements. Such limits were originally fixed taking into account the local security conditions. The revisions to these limits to ensure that adequate cash is available at the post offices making disbursements entailed making extra security arrangements.

The other challenge relates to the availability of man power at Branch Post Offices in rural areas. As the staffing arrangements and working hours for these post offices are fixed on the basis of their regular work, they are generally not equipped to take care of spurts of work generated occasionally due to MGNREGS wage disbursal requirements. As this work is not regular in nature, the man power cannot be augmented on regular basis in these Branch Post Offices. Such constraints are being addressed by offering monetary incentives to the people performing beyond requirements of their duty.

Plans ahead

India Post has already embarked upon an ambitious programme of ICT induction in all its post offices in order to further widen and deepen an already unmatched reach of postal network. The programme involves computerizing and digitally connecting all the post offices including those in rural areas. In addition to Main Computing Devices, all the rural Post Offices are being provided with biometric devices, GPS, smart card readers and writers, bar code scanners, digital cameras and printers under Rural ICT programme. Solar Panels are also being supplied to more than 129,000 existing Rural Branch Post Offices to ensure back up power availability. The programme, to be piloted in six states within next six months, will facilitate faster payments and faster integration of information on MGNREGS payments. It will also help India Post to achieve interoperability with other entities engaged in delivering financial services.

[69] http://nrega.nic.in/rajaswa.pdf

11.9 Recommendations

This Task Force makes the following recommendations for the role of India Post:

1. Use Aadhaar as KYC for opening POSB accounts and for Money Orders;
2. Link existing POSB accounts to Aadhaar;
3. Accelerate the deployment of Core Banking Solution (CBS);
4. Accelerate the IT infrastructure deployment at the last mile;
5. Ensure that devices being deployed in the field are compatible with the microATM standards;
6. To facilitate multiple service delivery points to customers, the feasibility of interoperability between the India Post network and that of the banks could be considered, subject to RBI approval;
7. Every post office should have at least one microATM in its premises;
8. The Government reimburse India Post at the same rate as banks for processing EBTs and subsidy payments;
9. Launch the India Post prepaid card[70] solution as per the RFP that has been floated;
10. Set up an acquiring network as described in the Report of Expert Committee on Harnessing the India Post Network for Financial Inclusion[71]; and
11. Investigate a temporary solution for participation in the electronic payments solution until the comprehensive CBS is rolled out.

[70] http://www.indiapost.gov.in/pdf/RFP_Pre-Paid_Card_Project.pdf

[71] http://www.indiapost.gov.in/Pdf/IIEF-IndiaPostReport.pdf

12. Roles and Responsibilities

12.1 Ministries (PNG, Fertilizer, Rural Development, etc.) and State Governments

1. Computerization of the workflows in order to originate payments electronically;
2. Education of beneficiaries about receiving benefits and subsidies into bank accounts;
3. Appoint a Accredited bank that for processing payments through the Aadhaar Payments Bridge (APB);
4. Build a last-mile transaction fee for EBT and DTS payments in the budget of the Scheme / Department; and
5. The last-mile transaction fee may be credited to the beneficiary's bank through the accredited bank using Aadhaar Payments Bridge.

12.2 Controller General of Accounts

1. Implement straight-through processing of all e-bills for EBTs and direct subsidy transfers; and
2. Aadhaar-enable the Government e-Payments Gateway (GePG), by implementing file formats and processes suggested for the Aadhaar Payments Bridge, and integrating with various accredited banks of Government Departments.

12.3 Department of Expenditure, MoF

1. Devise a procedure to incorporate a last-mile transaction fee for EBT and DTS payments into the administration fees of all Schemes involving such payments.

12.4 Department of Revenue, MoF

1. Accept electronic Aadhaar authentication as Proof of Identity under the Rules of the PMLA, 2002; and
2. Accept electronic Aadhaar authentication as Proof of Address under the Rules of the PMLA, 2002.

12.5 Department of Financial Services, MoF

1. Readiness of the PSU Banks for processing payments;
2. Catalyze the creation of the BC network; and
3. Design a logo for microATM in co-ordination with UIDAI and launch an Information, Education, and Communication campaign to inform consumers.

12.6 India Post

1. Accept Aadhaar as KYC for POSB accounts and Money Orders;
2. Implement CBS for POSB accounts;
3. Deploy microATMs in every Post Office; and
4. Join interoperability networks and service customers of other banks, and allow own customers to use ATMs, microATMs installed by other banks.

12.7 Reserve Bank of India

1. RBI in co-ordination with Government of India, State Governments, CGA, and the Sponsor Bank consider administering the last-mile transaction processing fee to be paid to banks for processing EBT, DTS, and other last-mile Government payments through microATMs and ATMs in supporting such Schemes at the Central or State level;
2. RBI may consider recognising the Aadhaar letter as a PoI and PoA for money transfer.
3. RBI may consider recognising electronic Aadhaar authentication as PoI and PoA for money transfer.
4. Notify guidelines for interoperability of Business Correspondents;
5. For facilitating EBTs to minors, RBI may consider standardising the rules and processes for opening and operating accounts of minors with banks and through the BC channel;
6. RBI could consider reviewing the incentive structure in the issuing and acquiring businesses, and benchmark interchange pricing in India to the best practices worldwide and
7. Publish a policy in conjunction with the Government of India to formulate a plan and set targets for reducing the usage of cash in the Indian economy.

12.8 Unique Identification Authority of India

1. Work with Central and State Government Departments to issue Aadhaar numbers to all residents who may receive EBTs and direct subsidy transfer;
2. Offer Aadhaar authentication services for KYC and transaction authentication;
3. Create a network of updation centres keeping in view the existing public or private sector infrastructure; and
4. Provide information relating to Aadhaar density and coverage to Government Departments and State Governments, on the basis of which decisions relating to deployment of Aadhaar-enabled solutions can be made.

12.9 NPCI, IBA, and Banks

1. Work with banks and payment processors to ensure that accounts are linked with Aadhaar;
2. Operationalize the Aadhaar Payments Bridge (APB);
3. Operationalize microATMs and the Aadhaar Enabled Payment System (AEPS);
4. Provide transparency portals for processing of Government transactions as per provisions of the Right to Information Act, 2005;
5. Implement interchange for interoperable microATM transactions;
6. Deploy a network of one million Business Correspondents; and
7. Deploy at least one microATM in every Bank branch.

12.10 National Informatics Centre (NIC)

NIC will assist the concerned government organizations in the following tasks:

1. Incorporate Aadhaar number linkage into the IT systems of Schemes where payments are disbursed to individuals;
2. Provide Aadhaar authentication facilities in cases where NIC has implemented computerization of Government Schemes; and
3. Generate payment instruction files in the Aadhaar Payment Bridge format, and integrate payment details into the IT system of the Government Schemes where computerization is managed by NIC.

13. Recommendations

This Task Force makes the following recommendations:

13.1 The role of Aadhaar in payments

1. The Department of Revenue, Ministry of Finance should notify the acceptance of electronic Aadhaar authentication as Proof of Identity and Proof of Address, on par with document based verification in the Rules of the Prevention of Money Laundering Act, 2002;
2. The Government and all financial regulators recognize electronic Aadhaar biometric authentication as equivalent to a physical signature;
3. Based on the parity between physical and electronic documents recognized by the IT Act, 2000, all financial regulators should recognize electronic Aadhaar demographic authentication as Proof of Identity and Proof of Address; and
4. The Government and all financial regulators should recognize the Aadhaar number as a financial address for receiving and sending funds.

13.2 Government accounting and payment procedures (CGA)

1. The e-bill, e-sanction, e-advice, and e-payment processing should be straight-through and fully electronic;
2. Government Departments processing welfare and subsidy payments should computerize so that the information for payments originates electronically;
3. The GePG system of the CGA will process the e-bills, and advice the accredited Banks of the Government Department to credit the subsidy to the beneficiaries, along with a list of Aadhaar numbers and payment amounts; and
4. The accredited banks of the Government Department will direct payments to the beneficiaries through the Aadhaar Payments Bridge and settle the funds through any RBI accredited payment infrastructure in consultation with RBI.

13.3 Electronic opening of accounts

1. The RBI may consider defininga process for electronic opening of accounts, when the KYC information is either received electronically (as per provisions of the Information Technology Act, 2008) or can be verified electronically;
2. Allow customers to use any Aadhaar-enabled account or payment instrument to receive Government payments as long as that account and instrument is registered with the suitable data repository;

3. Banks and post offices should put physical and electronic processes in place to link existing accounts to Aadhaar numbers;

4. Open regular full-KYC accounts for beneficiaries, with debit/ATM cards issued, allowing customers to access these through all channels (even though a fee may have to be imposed on certain channels to ensure viability);

5. All Government schemes should transfer money into any one Aadhaar-enabled account of the customer's choice using the Aadhaar Payments Bridge (APB);

6. Government schemes should not mandate disbursal of cash and instead allow the beneficiary to keep the funds in their account, should they choose to;

7. Exceptions may be made in the case of social safety-net programs such as MGNREGS and NSAP pensions, until banks deploy a sufficient BC network and provide adequate service levels. Even in such cases, Government agencies should not insist on the opening of a separate account for the Scheme and transfer funds into the beneficiary's Aadhaar-enabled account; and

8. For facilitating EBTs to minors, RBI may consider standardising the rules and processes for opening and operating accounts of minors with banks through the BC channel.

13.4 Directing Government payments to individuals

1. All Government Departments gear up for the process of linking Aadhaar numbers in their databases in a time bound manner;

2. As per the RBI guidelines on EBTs, all banks should put a process in place and start linking bank accounts to Aadhaar numbers;

3. NPCI should implement Phase II of the Aadhaar Payments Bridge immediately and onboard all banks;

4. NPCI Should implement a transparency portal with detailed information on the processing of Government payments through the Aadhaar Payments Bridge that is consistent with the Right To Information Act, 2005; and

5. Central and State Government Departments should initiate the process of sending EBTs using the Aadhaar Payments Bridge in geographies where sufficient Aadhaar penetration has been achieved, after successful completion of pilot projects.

13.5 Business Correspondent network and microATMs

1. A last-mile transaction cost of 3.14% with a cap of Rs.20 per transaction be budgeted for various EBT, DTS, and last-mile payments through microATMs and ATMs;

2. The last-mile transaction fee may be administered by Government in co-ordination with CGA, RBI, and the accredited bank for the Scheme at the Central / State level;

3. If the beneficiary is not making a cash purchase, only the subsidized price may be charged to beneficiaries for subsidized goods such as LPG, fertilizers, and kerosene, since the subsidy can be reconciled electronically (for example, by using a microATM, debit card, Kisan Credit Card, etc.). Beneficiaries paying in cash should pay the market price and get the subsidy reimbursed into their accounts at banks and post offices;

4. The RBI should consider notification of interoperable BC guidelines for a microATM network, that are consistent with the NPCI's National Financial Switch(NFS) or any other organization's Switch, which meets the requirements under the Payment and Settlement Systems Act, 2007.

5. Every bank branch, post office, and citizen service centre should have at least one microATM in their premises, and every Gram Panchayat should have at least one microATM placed in the premises of an appropriate agency;

6. In case of interoperable cash withdrawal transactions, at least 2/3 of the transaction cost revenue received by the issuing bank from the Government should be passed to the acquiring bank deploying the microATM;

7. The framework for administering last-mile transaction fees to banks should be uniformly defined by Ministry of Finance for all Schemes;

8. Government Departments may mandate the use of biometric authentication for certain Schemes in order to ensure that the vulnerable sections of society are protected;

9. Government Departments, State Governments, and other Government institutions that send EBT or DTS payments to beneficiaries should set up a contact centre for the purposes of grievance redressal. Banks should also provide contact centres in addition to the grievance redressal mechanisms already provided by the Government and RBI for customers to report field issues related to BC operations;

10. In order to protect the consumer, a logo may be designed for use on microATMs and outlets, along with an Information, Education, and Communication campaign to inform consumers, along with audits that may be performed at randomly chosen locations on an ongoing basis to derive a statistically high level of confidence in the performance of the system; and

11. Connectivity challenges can be addressed by co-ordination with the Department of Telecommunications (DOT), as the microATM network is being rolled out.

13.6 Remittances

1. RBI may consider recognising the Aadhaar letter as a PoI and PoA for money transfer; and

2. RBI may consider recognising electronic Aadhaar authentication as PoI and PoA for money transfer.

13.7 Debit cards, electronic payments, and e-commerce

1. Government institutions should not differentiate between electronic payments and cash, and encourage the use of electronic payments. Instead of convenience charges, Government institutions should offer incentives to people to use electronic payments through all channels – POS, internet, and mobile;
2. The Government of India and RBI may formulate a plan and set targets for reducing the usage of cash in the Indian economy;
3. The RBI should review the incentive structure in the issuing and acquiring businesses, and benchmark interchange pricing in India to the best practices worldwide;
4. Debit-card transaction pricing should be priced favorably as compared to credit-card transactions, in light of safety due to authentication, and instant funding. RBI may examine this issue;
5. A standard rate schedule may be published by Government for acceptance of retail electronic payments when payments are made to a Government agency; and
6. All payments made by Government and Government institutions above Rs.1,000 should be made electronically.

13.8 Mobile Banking

1. The RBI may revise its mobile banking guidelines to allow customer's mobile banking registration on the basis of Aadhaar-mobile number authentication;
2. The Government should devise a procedure through which banks and other service providers can get access to the USSD channel, priority SMS, secure extraction of CLI, CLI over GPRS for building applications; and
3. A common forum should be set up to discuss the possibility of establishing uniform commercial terms between telecom companies, banks, and payment processors.

13.9 Role of India Post

1. Use Aadhaar as KYC for opening POSB accounts and for Money Orders;
2. Link existing POSB accounts to Aadhaar;
3. Accelerate the deployment of Core Banking Solution (CBS);
4. Accelerate the IT infrastructure deployment at the last mile;
5. Ensure that devices being deployed in the field are compatible with the microATM standards;
6. To facilitate multiple service delivery points to customers, the feasibility of interoperability between the India Post network and that of the bank accounts could be considered for RBI approval;

7. Every post office should have at least one microATM in its premises;
8. The Government reimburse India Post at the same rate as banks for processing EBTs and subsidy payments;
9. Launch the India Post prepaid card solution as per the RFP that has been floated;
10. Set up an acquiring network as described in the Report of Expert Committee on Harnessing the India Post Network for Financial Inclusion; and
11. Investigate a temporary solution for participation in the electronic payments solution until the CBS is rolled out.

14. Annexure I: Terms of Reference

F. No. 22(02)/PF II/2011
Ministry of Finance
Department of Expenditure
(PF-II Division)

New Delhi, dated the September 20, 2011

OFFICE MEMORANDUM

Subject: *Extension of Terms of Reference of Task Force for direct transfer of subsidies to include Aadhaar-enabled payment infrastructure- regarding*

Reference may please be made to this Department's communication of even number dated February 14, 2011 vide which a Task Force was constituted under the Chairmanship of Shri Nandan Nilekani, Chairman, Unique Identification Authority of India (UIDAI) to recommend and implement a solution for direct transfer of subsidies on Kerosene, LPG and Fertilizer to the intended beneficiaries.

2. It has been decided to extend the Terms of Reference of the Task Force to include an Aadhaar-enabled unified payment infrastructure, so as to also include the following:

i. Recommend a detailed solution architecture for direct transfer of subsidy wherein Ministries and State Governments through a payments bridge can transfer funds into any Aadhaar-enabled bank account on the basis of the Aadhaar number;

ii. Recommend an architecture for e-banking through interoperable Business Correspondents and examine alignment of current standards for devices that will be deployed by them;

iii. Recommend an architecture to align the recommendations of the Inter- Ministerial Group on a Framework for the Delivery of Basic Financial Services using Mobile Phones with Aadhaar enabled payments infrastructure;

iv. Recommend a solution that incorporates a robust, customer support and grievance redressal mechanism;

v. Recommend the feasibility of extending the solution architecture to include payment instruments apart from bank accounts and post office savings bank accounts to facilitate the fostering of e-commerce;

vi. Oversee and evaluate the implementation of the solution proposed on a pilot basis through the concerned Implementing Ministries, as and when approved by E-GoM; and

vii. Suggest a common framework to adopt the above solution to all Government welfare schemes involving disbursements to individual beneficiaries. The solutions devised by the Task Force should ensure that the entire country can leverage the same payments platforms.

viii. Recommend an approach to harmonize various exercises related to opening bank accounts for financial inclusion and electronic benefit transfers;

ix. Identify and recommend amendments, if any, required to existing Government payment and accounting procedures to enable direct subsidy transfers.

3. The solution designed by the Task Force may necessarily be incentive-compatible for all stakeholders in payments processing, respect beneficiary choice, drive competition, be fully interoperable and should be an implementable solution;

4. For the purpose of this extended Terms of Reference, the Task Force will have the following as additional members:

i. A representative of the Reserve Bank of India;

ii. A representative of the Indian Banks Association;

iii. Director General, NIC;

iv. Controller General of Accounts (CGA) or his representative; and

v. CEO, National Payments Corporation of India (NPCI).

The Task Force may also co-opt other members who are, inter alia, industry experts, academicians and domain specialists to the Task Force based on necessity.

Report submission of the Task Force

5.1 The Task Force will submit its Final Report on the extended Terms of Reference within three months of the extension of the Terms of Reference. During this period, along with other pilots, the current pilots being undertaken by the Ministries implementing the Interim Report of the Task Force on Direct transfer of subsidies on Kerosene, LPG and Fertiliser will need to be aligned.

5.2 The recommendations of the Final Report on Aadhaar enabled payment infrastructure may also be incorporated in the Final Report of the Task Force on Direct Transfer of subsidies on Kerosene, LPG and Fertiliser.

Secretariat

6. The Department of Financial Services (DFS) may provide secretarial assistance to the Task Force for this particular mandate. A Joint Secretary from DFS will be nominated to function as the nodal officer.

6. This issues with the approval of the Finance Minister.

(Neehar Ranjan Pandey)
Deputy Secretary (P.F. II)
Tel: 23093109

To

1. Sh. B.K. Sinha, Secretary (Rural Development);
2. Sh. P.K. Basu, Secretary (Agriculture);
3. Dr. Sutanu Behuria, Secretary (Fertilizers);
4. Sh. G.C. Chaturvedi, Secretary (Petroleum & Natural Gas);
5. Sh. R. Gopalan, Secretary (Economic Affairs);
6. Sh. D.K. Mittal, Secretary (Financial Services); and
7. Sh. R.S. Sharma, D.G. (UIDAI);

15. Annexure II: Summary of Task Force meetings

Sr. No.	Date	Summary
1.	Oct 13, 2011	Introductory meeting
2.	Nov 1, 2011	Review of capacity of Banks, NPCI, and microATM standards
3.	Nov 24, 2011	Consultation with payments industry in Mumbai
4.	Dec 7, 2011	Review of DTS pilots and Government accounting procedures
5.	Dec 21, 2011	Consultation with State Governments, LIC, utilities, and IRCTC
6.	Jan 11, 2012	Consultation with banks on BC economics
7.	Feb 8, 2012	Last meeting of the Task Force to finalize the report

16. Annexure III: Estimates of volume of last-mile Government payments

This annexure aims to estimate the total cost to the government for enabling EBTs and DTS payments through BS's. Assuming that Government pays a transaction fee for all last-mile payments to banks at the rate of 3.14% with a cap of Rs.20 per transaction (Annexure IV) into Aadhaar-enabled accounts, the total transaction fee could be approximately Rs.5,000 crore, when fully implemented. However, as subsidized goods (fertilizer, LPG, kerosene, and food) will be purchased using electronic payments over time, which obviates the need for reimbursement of the subsidy, the actual expenditure may be much lower. The expenditure on funding last-mile transaction fees only for EBT payments is estimated to be approximately Rs.2,000 crore.

Volume of Government Disbursements

Assumptions				
Transaction fee as a percentage	3.14%			
Cap on transaction fee	20.00			
Scheme	**Amount**	**2010-11**	**Transactions**	**Txn fee**
	per txn	**(Rs.crore)**	**(crore)**	**(Rs.crore)**
Civil service pensions (Rs.3,000 per person / month)	3,000	54,000	18.00	360
Food Subsidy (Rs.1,000 average transaction amount)	1,000	60,000	60.00	1,200
LPG subsidy (Rs. 250 / transaction)	250	23,000	84.00	722
Kerosene subsidy (Rs.200 / transaction)	200	20,000	165.00	628
Fertilizer Subsidy (10.8 crore farmer Hoseholds with 3 transactions / farmer household)		62,000	32.40	648
Rural Housing (Rs.15000 / installment)	15,000	10,000	0.67	13
MGNREGS (Rs.750 / transaction)	750	24,000	32.00	640
NSAP pensions (Rs.200 / transaction)	200	4,000	20.00	126
ICDS (Rs.500 / transaction)	500	7,000	14.00	220
Social Security & Welfare – Ministry of Women & Child Development (Rs.1,000 / transaction)	1,000	9,000	9.00	180
SSA (Rs.750 / transaction)	750	7,000	9.33	187
NRHM (Rs.500 / transaction)	500	13,000	26.00	408
TOTAL		**293,000**	**413.40**	**5,332**

17. Annexure IV: Estimates of cost of last-mile Government payments

The cost of last-mile Government payments through BC sub-agents is estimated in this annexure. The costs are presented as a one-time account opening cost and a recurring per transaction cost. The transaction fee is shared by three stakeholders: the issuing bank, the network operator, and the acquiring bank. The transaction cost is estimated at 3.14% per transaction for an average transaction amount of Rs.500. As per this analysis, the issuer should retain roughly 1/3 of the transaction fee, and pass on roughly 2/3 of the fee to the acquirer. A cap of Rs.20 per transaction is recommended.

In the case of India Post, an Expert Group constituted by the Ministry of Finance has pegged the cost of MGNREGS accounts at India Post to be Rs 165.59 per account per annum. The analysis below estimates the total cost per account (issuing cost + acquiring cost) at Rs. 179.98, which also includes technology cost at the last-mile. Thus, the estimates of the banks are roughly comparable with those of the Government of India.

Assumptions					
No of BC sub-agents				150	
No of accounts per BC sub-agent				700	
Total number of accounts				105,000	
No of transactions per account per month			1		
Average transaction amount				500	
One time account opening expenses	Cost borne by	Unit of Measurement	Cost per Unit	No of units	Total Expense
Vendor cost per enrolment	Issuer	Per account	9.0	105,000	945,000
Digitization of data and upload to CBS	Issuer	Per account	9.0	105,000	945,000
Account opening form printing	Issuer	Per account	1.50	105,000	157,500
Magstripe card (life of 3 years)	Issuer	Per account	10.0	105,000	1,050,000
Card personalization	Issuer	Per account	5.0	105,000	525,000
Card distribution	Issuer	Per account	10.0	105,000	1,050,000
Welcome pack / Financial literacy	Issuer	Per account	10.0	105,000	1,050,000
Total expense spread over 3 years	Issuer				5,722,500
Average annual cost per account	Issuer				18.17
Transaction cost	Cost borne by	Unit of Measurement	Cost per Unit	No of Units	Total Annual Expense
CBS cost	Issuer	Per account annually	39.6	105,000	4,200,000
Network charge					
APB	Network	Per transaction	0.55		
AEPS	Network	Per transaction	0.20		

MicroATM (Rs.20,000 device depreciated over 3 years)	Acquirer	Per MicroATM / month	667.0	150	1,200,600
Cost of connectivity	Acquirer	Per MicroATM / month	100.0	150	180,000
Cost of printing receipts	Acquirer	Per transaction	0.25	150	315,000
Cost of FI switch	Acquirer	Per MicroATM / month	500.0	150	900,000
BC network administration cost (Salaries of supervisors, office etc.)	Acquirer	Total administration overhead per MicroATM per month	1,500.0	150	2,700,000
BC sub-agent salary	Acquirer	Agent salary per month	3,000.0	150	5,400,000
Cash management insurance	Acquirer	Per MicroATM / month	80.0	150	144,000
Cost of cash management	Acquirer	Per MicroATM / month	1,000.0	150	1,800,000
Training cost	Acquirer	Per agent annually	1,000.0	150	150,000
Total Annual Expense for Acquirer	Acquirer				12,789,600
Average annual cost per account	Acquirer				121.81
Total annual Issuer cost per account	Issuer	Account opening + recurring CBS costs			58.17
Total annual Acquirer cost per account	Acquirer	BC network + MicroATM costs			121.81
Issuer cost per transaction	Issuer				4.85
Acquirer cost per transaction	Acquirer				10.15
Network cost per transaction	Network	APB + AEPS			0.75
Total cost per transaction					15.71
Transaction fee as a share of withdrawal					3.14%
Issuer's share of the transaction fee	Issuer				30.65%
Acquirer's share of the transaction fee	Acquirer				64.62%
Network's share of the transaction fee	Network				4.74%

18. Annexure V: Cost estimates for MicroATM switching

A transaction analysis of the NPCI Aadhaar Enabled Payments System switch yields an average price of 19.5paise per transaction. This includes the price of ON-US transactions being routed to UIDAI for authentication as well as OFF-US transactions that are cleared and settled between banks. The costing is done with the assumption that all transactions are routed through AEPS, whereas in practice, this may not be so. Hence, the cost per transaction could be higher if realized volumes are significantly lower than the estimates.

Banks may conduct last mile transactions through any network that is approved by RBI under the Payment and Settlement Act, 2007, to switch microATM transactions. The networks may set their prices according to the services offered to banks over and above the basic transaction switching services.

DIRECT TOTAL Expenditure for Aadhaar Enabled Payment System (Rs.crore)									Total
Aadhaar Enabled Payment System	**Total Incurred in FY 2010-11**	**Total Incurred in FY 2011-12**	**Proposed to be Incurred in FY 2012-13**	**Proposed to be Incurred in FY 2013-14**	**Proposed to be Incurred in FY 2014-15**	**Proposed to be Incurred in FY 2015-16**	**Proposed to be Incurred in FY 2016-17**	**Proposed to be Incurred in FY 2017-18**	
DIRECT Total Capital & Operating Expenditure	3.11	3.07	6.95	6.95	6.97	7.00	15.43	15.46	64.94

Volume & Revenue Projections (All numbers in crore)									Total
Business Model from April 2011	**2010-11 (PoC)**	**2011-12 (PILOT Stage)**	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**	**2017-18**	
Volume: Aadhaar Authentication	0	0	3	12	24	48	96	150	
Volume: MicroATM Switching	0	0	0.005	0.02	0.04	0.08	0.16	0.32	
Total Volume	**0**	**0**	**3.005**	**12.02**	**24.04**	**48.08**	**96.16**	**150.32**	**333.63**

Volume & Revenue Projections (All numbers in crore)									Average
Business Model from April 2011	**2010-11 (PoC)**	**2011-12 (PILOT Stage)**	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**	**2017-18**	
Cost per transaction	Free of charge	Free of charge	2.31	0.58	0.29	0.15	0.16	0.10	0.195

DIRECT Capital Expenditure for Aadhaar Enabled Payment System (Rs.crore)										
Sl No	Items	CAPEX in FY 2010-11	CAPEX in FY 2011-12	Proposed CAPEX FY 2012-13	Proposed CAPEX FY 2013-14	Proposed CAPEX FY 2014-15	Proposed CAPEX FY 2015-16	Proposed CAPEX FY 2016-17	Proposed CAPEX FY 2017-18	Item wise Cost
1	Capital Expenditure Cost of using Existing NFS switch + upgrades	1.00	1.00	1.00	1.00	1.00	1.00			6.00
2	Setting up basic AEPS	0.23								0.23
3	Development of UIDAI authenti-cation software	0.08							0.08	
4	UIDAI-NPCI Network connectivity (2 DCs)	0.02	0.04							0.06
5	Bank Network Cost (NPCINet)	0.50	0.50	0.50	0.50	0.50	0.50			3.00
6	Future enhance-ments to go from 20 TPS to 150 TPS	2.00	2.00	2.00	2.00			8.00		
7	Upgrade to new switch for high transaction volumes	10.00	10.00	20.00						
8	AMC for AEPS switch	0.10	0.10	0.10	0.10	0.10	0.10	1.00	1.00	2.60
Total Capital Expenditure		1.85	1.72	3.60	3.60	3.60	3.60	11.00	11.00	39.97

DIRECT Operating Expenditure for Aadhaar Enabled Payment System (Rs.crore)										
Sl No	Items	OPEX Incurred in FY 2010-11	OPEX Incurred in FY 2011-12	Proposed OPEX to be Incurred in FY 2012-13	Proposed OPEX to be Incurred in FY 2013-14	Proposed OPEX to be Incurred in FY 2014-15	Proposed OPEX to be Incurred in FY 2015-16	Proposed OPEX to be Incurred in FY 2016-17	Proposed OPEX to be Incurred in FY 2017-18	Item wise Cost
1	UIDAI -NPCI Network connectivity	0.01	0.10	0.10	0.10	0.12	0.15	0.18	0.21	0.97
2	Bank certification	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	2.00
3	Other operational costs (staff, marketing, etc.)	1.00	1.00	3.00	3.00	3.00	3.00	4.00	4.00	22.00
Total Operating Expenditure		1.26	1.35	3.35	3.35	3.37	3.40	4.43	4.46	24.97

19. Annexure VI: Cost estimates for Aadhaar Payments Bridge

A transaction analysis of the NPCI Aadhaar Payments Bridge solution yields an average price of 54.9 paise per transaction. This includes only the price of OFF-US transactions that are cleared and settled between banks. Due to the specific nature of the APB, the estimates on volumes and transactions are extremely conservative compared to those of the AEPS. As volumes build up, the APB transaction cost could be much lower.

DIRECT Capital Expenditure for Aadhaar Payment Bridge System and Automated Clearing House (Rs. crore)										
		Capex incurred		Capex Proposed / committed						
Sl No	Items	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	Total
1	Capital Expenditure Cost of deploying APBS application	0.00	0.14	0.14	0.00	0.00	0.00	0.00	0.00	0.28
2	Capital Expenditure Cost of deploying ACH solution (*1)	0.00	12.43	2.50	0.00	0.00	0.00	0.00	0.00	14.93
3	Hardware & Software Upgrade (*2)	0.00	0.00	0.00	0.00	0.00	1.13	1.13	1.13	3.39
4	AMC for ACH (*3)	0.00	0.00	0.00	1.35	0.75	1.00	1.03	1.04	5.17
Total	Capital Expenditure	0.00	12.57	2.64	1.35	0.75	2.13	2.16	2.17	23.77

* Refer Notes

DIRECT Operating Expenditure for Aadhaar Payment Bridge System and Automated Clearing House (Rs. crore)										
		Opex Incurred		Opex Proposed						
Sl No	Items	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	Total
1	Direct Operating Costs (Inclusive of Data Centre / Bandwidth Cost and Other costs) (*4)	0.36	0.35	1.50	2.00	2.50	2.75	3.00	3.50	15.96
Total Operating Expenditure		0.36	0.35	1.50	2.00	2.50	2.75	3.00	3.50	15.96

* Refer Notes

DIRECT TOTAL Expenditure for Aadhaar Payment Bridge System and Automated Clearing House (Rs. crore)									
		Cost Incurred		Cost Proposed / Committed					
	Particulars	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	Total
	DIRECT Total Capital & Operating Expenditure	0.36	12.92	4.14	3.35	3.25	4.88	5.16	5.67	39.73

Volume Projections (All numbers in crore)									Total
Business Model from April 2011	2010-11	2011-12 (POC & PILOT Stage)	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	
Volume: Aadhaar Transaction Processing (*5)	0	0	0.36	7.20	10.80	14.40	18.00	21.60	72.36
Total Volume	0.00	0.00	0.36	7.20	10.80	14.40	18.00	21.60	72.36

Refer Notes

Cost per transaction Projections (All amounts in Rs.)									Average
Business Model from April 2011	2010-11	2011-12 (POC & PILOT Stage)	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	
Cost per transaction	0.00	0.00	11.50	0.47	0.30	0.34	0.29	0.26	0.549

Notes:

*1 - (a) 90% of ACH Application H/W cost amounting to Rs.5.80 crores, expected to be paid in year 2011-12 with the balance 10 % during 2012-13. (b) 80% of ACH Application S/W cost amounting to 10.77 crores, expected to be paid in year 2011-12 with the balance 20 % during 2012-13. (c) For funding purpose 75% of the amounts have been considered.

*2 - With growing transaction volumes, it is expected that the ACH systems would need some amount of up gradation. 75% of the budgeted Hardware and Software upgrade costs has been considered for funding purpose. These costs have been considered from the year 2015 - 16.

*3 - AMC, ATS and other costs is assumed to be levied by the ACH vendor from 2013 - 14 and 75% of the same has been considered for funding purpose.

*4 - Direct Operating Costs incurred on ACH includes Primary and Disaster Recovery Data Centre costs along with Bandwidth, Training, Traveling, Staff related costs and other operational costs.

*5 - Workings for APB Volumes have been attached below:-

APBS Volume (in crores)								
Particulars	Assumptions	Year Aadhaar No Volumes	2012-13 1	2013-14 20	2014-15 30	2015-16 40	2016-17 50	2017-18 60
Account Linked Aadhaars	15 % of Total Aadhaar issued		0.15	3.00	4.50	6.00	7.50	9.00
Transactions per month	2 times in a month		0.30	6.00	9.00	12.00	15.00	18.00
Interbank transactions	10% of total monthly tranx		0.03	0.60	0.90	1.20	1.50	1.80
Total Per Year			**0.36**	**7.20**	**10.80**	**14.40**	**18.00**	**21.60**