

Good Governance Practices in Public Administration

**DOCUMENTATION OF
MOBILE BOOKKEEPING INITIATIVE
OF
SOCIETY FOR ELIMINATION OF RURAL POVERTY
(SERP)**

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1. INTRODUCTION

The term 'Self-Help Group' (SHG) generally means *“a small group of persons who come together with the intention of finding a solution to common problem such as medical issues, livelihood generation or watershed management, with a degree of self-sufficiency”*¹.

The idea of SHGs underwent a paradigm change when Mohammed Yunus² mobilised poor women in Bangladesh into SHGs under the umbrella of *Grameen Bank*. With the success of his initiative, SHGs came to be seen as entities for micro savings and borrowings for the poor. From this perspective, an SHG can be defined as *“a small economically homogeneous affinity group of the rural poor voluntarily coming together to save a small amount regularly, which is deposited in a common fund to meet members' emergency needs and to provide collateral free loans decided by the group”*³.

In India, formation of SHGs started in the early 1990s with support from organisations such as the Mysore Resettlement and Development Agency (MYRADA). SHGs were further strengthened through SHG-Bank linkage programmes⁴ supported by the National Bank for Agriculture and Rural development (NABARD). SHGs became a powerful tool for rural poverty alleviation and empowerment of women through Government initiatives such as *Kudumbasree* (Government of Kerala) and *Velugu* (erstwhile Government of united Andhra Pradesh).

Key characteristics of SHGs are briefly listed below:

- Creation of a common fund by the members through their regular savings
- Decision making through periodical group meetings
- Use of social capital for ensuring repayment of loans
- Small and reasonable loan amounts repayable in short cycles

Figure 1: Women at SHG meeting



¹ Womens' Self-Help Groups in Andhra Pradesh: Participatory Poverty Alleviation in Action by Dr.Joy Deshmukh-Ranadive, Senior Fellow, Centre for Womens' Development Studies.

² Muhammad Yunus is a Bangladeshi social entrepreneur, banker, economist and civil society leader who was awarded the Nobel Peace Prize for founding the Grameen Bank and pioneering the concepts of microcredit and microfinance

³ (2013). R. Geethanjali, K. Prabhakar, ' conomic Development of Women through Self Help Groups in YSR District,Andhra Pradesh, India

⁴ The SHG – Bank Linkage Programme was started as an Action Research project in 1989 , an offshoot of a NABARD initiative during 1987 through sanctioning Rs. 10 lakh to MYRADA as seed money assistance for experimenting Credit Management Groups. Under the SBLP, following three different models have emerged: Model I: SHGs promoted, guided and financed by banks. Model II: SHGs promoted by NGOs/ Government agencies and financed by banks. Model III: SHGs promoted by NGOs and financed by banks using NGOs/formal agencies as financial intermediaries. Model II has emerged as the most popular model under the SBLP programme. Commercial banks, co-operative banks and the regional rural banks have been actively participating in the SBLP.

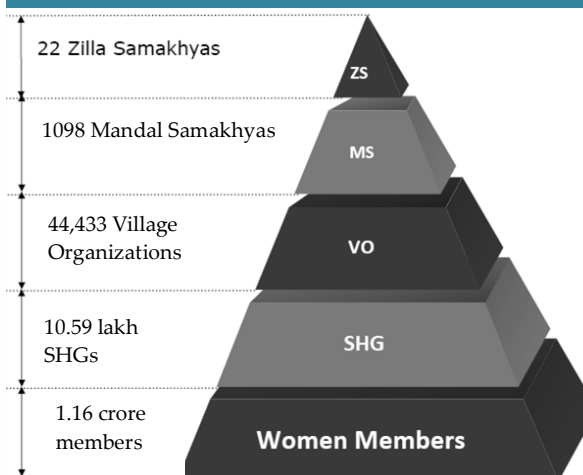
- Affordable rate of interest (slightly higher than banks but lower than money lenders) varying from group to group and loan to loan
- Leveraging the pooled funds for income-generating activities
- Establishing linkage with banks for obtaining larger credit support

Self Help Groups in Andhra Pradesh and Telanaga

The unified State of Andhra Pradesh had a history of promoting SHG movement since 1979 under Development of Women and Children in Rural Areas (DWCRA) programme. It became a tool of poverty alleviation with the *Velugu* programme⁵ (renamed as *Indira Kranti Patham* in 2004) and establishment of the Society for Elimination of Rural Poverty (SERP) in 2000. SERP was set up as an autonomous entity to mobilize SHGs for livelihood enhancement and employment generation for the poor.

As on November 2013, the State had mobilized and organized close to 1.16 crore poor women in rural areas into 10.59 lakh SHG groups. These groups were federated into 44,433 *Village Organizations* (VO) and then into 1,098 *Mandal Samakhya*s (MS) spanning across 22 districts of the erstwhile united State of Andhra Pradesh. The district level networking of SHGs are called *Zilla Samakhya*s (ZS)⁶. These groups have built up a corpus fund of Rs.750 crores consisting of their savings, borrowings from banks and revolving funds from government programs.

Figure 2: SHG Organizational Structure
(Data as per SERP annual report 2013-14)



Mobile Bookkeeping (M- Bookkeeping)

Maintaining books of account and records is crucial to management of SHGs and confidence building among the members. SHGs have to ensure that all books of account

⁵ Velugu was the state government programme launched by GoAP with World Bank support in 2000 for promoting and operating SHGs

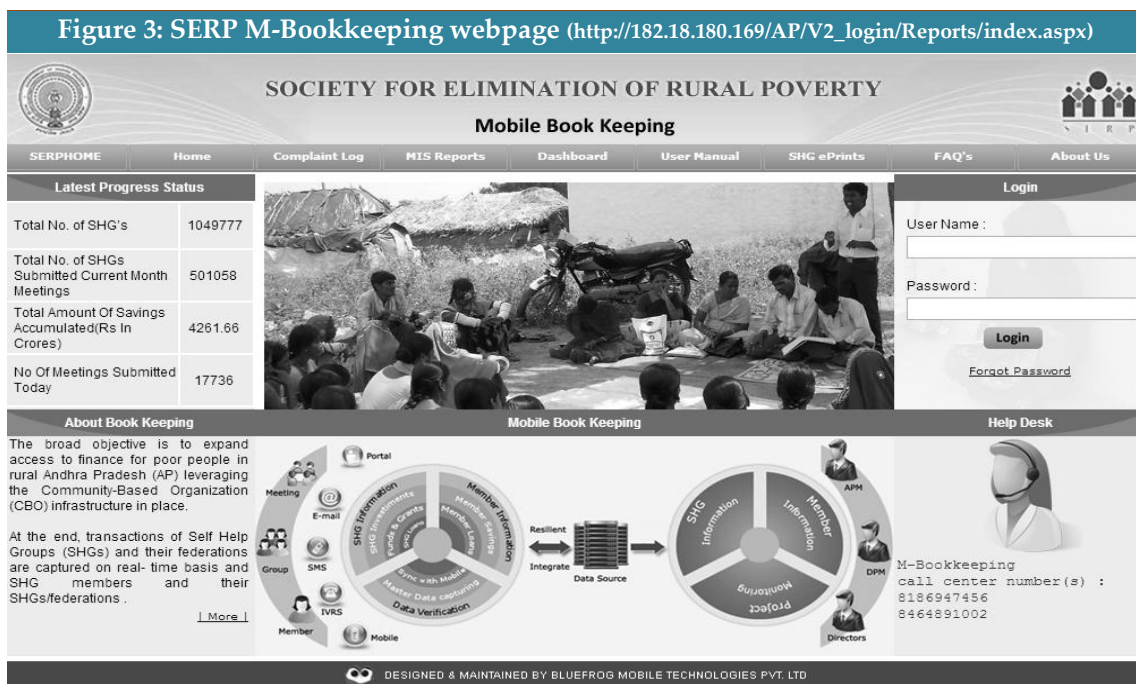
⁶ (2014). Indira Kranthi Patham. 'Society for Elimination of Rural Poverty Annual Report for the year - 2013-14'

are maintained up-to-date to ensure transparency and accuracy. Properly kept records are not only of reference value but also useful in future planning and decision-making⁷.

Realising the importance of proper book-keeping for the profitability and sustainability of SHGs, SERP initiated the 'Mobile Bookkeeping (M-Bookkeeping) project'. The project uses technology to help SHGs record their financial transactions in a simple and efficient manner.

According to SERP, M-Bookkeeping is intended to replace manual bookkeeping systems in SHGs for ensuring transparency and accuracy in operations/transactions and avoiding drudgery of bookkeeping. It also aimed to creating detailed Management Information Systems (MIS) for stakeholders at all levels.

It is expected that M-Bookkeeping initiative would enhance the transparency and credibility of SHGs especially in the eyes of lending institutions and facilitate the performance grading of SHGs.



Documentation Methodology

The following sections comprise a documentation of the M-Bookkeeping initiative. The format for this documentation has been prescribed by the Department of Administrative Reforms and Public Grievances (DAR&PG), Government of India.

⁷ (n.d) Shrotriya, G.C, Prakash D. Self-Help Groups -A Handbook Daman. IFFCO foundation

Accordingly, the documentation of M-Bookkeeping is presented in seven sections, namely (1) Situation before the intervention, (2) key challenges faced by innovators, (3) strategy adopted, (4) results, (5) sustainability, (6) key lessons learnt and (7) replicability.

This documentation is based on detailed primary and secondary research. Primary research involved consultation with key stakeholders of M-Bookkeeping such as SHG members, Community Auditors, M-Bookkeepers, SERP Officials, implementing team in Mahboobnagar and Warangal districts and officials of Bluefrog Ltd.(Technology Partner).

2. SITUATION BEFORE THE INTERVENTION

SHGs mobilised under IKP in the State have four major financial sources. These are savings of members, community investment funds⁸ from SERP, loans from banks under SHG-Bank linkage and interest spread⁹.

As an organisation which provide micro thrift, credit and other financial services to the poor in rural, semi-urban and urban areas, SHGs are required to maintain certain books to keep track of membership, decisions and accounts. These books include the following:

Figure 4: Sample of books to be maintained by SHGs

- **Minutes Books:** This book should contain the proceedings of meetings, the rules and regulations of the group, names and full addresses of the members, and details of deposits received and loans given, details and comments of the visitors and major happenings in the village etc.;
- **Savings and Loan Register:** It should contain information on the savings of the members separately and of the group as a whole. Details of individual loans repayments, interest collected, balance etc. are to be entered in this book;
- **Members' Passbooks:** Individual members' passbooks encourage regular savings;
- A regular **correspondence file** to be maintained which should have all the correspondence of the group with the bank, members and other agencies

⁸ The Community Investment Fund is one of the most key components of IKP Project. CIF funds come from the SGSY scheme. The CIF provides resources to the poor communities for use as means to improve their livelihoods. This component supports the communities in prioritizing livelihoods needs by investments in sub-projects proposed and implemented by the community (SHGs / V.Os / Mandal Samakhya (MS) and other Common interest groups). There are three types of sub-projects namely (a) Income Generation, (b) Productive physical infrastructure and (c) Social development. The bulk of the C.I.F budget is for income generation. Out of the total IKP project budget, CIF is the most important component that determines the level of employment generation for the poor. CIF acts as a catalyst in capital formation at all levels including SHG, VO and MS and offers great leverage for raising bank funds. (Source: <http://www.cgg.gov.in/workingpapers/Improving%20poor%20service%20delivery%20in%20departments%20with%20large%20public%20interface%20-%20rural%20development.pdf>)

⁹ Difference between borrowing and lending rates

It is crucial for the financial health of every SHG to track the status of its outstanding loans to members, the status of its loans from external institutions, and the member payments due at the next meeting. This information is required for financial planning, pursuing delinquent payments, and deciding whether to issue further loans to a member. Knowing the credit history of each member helps in deciding upon future loan disbursements. Accurate and timely bookkeeping also ensure that accounting procedures are followed and are in compliance with the rules of the SHG¹⁰.

Given the low literacy levels of most SHG members, bookkeeping in many SHGs were being done manually, through literate external persons paid by the SHGs. With the increase in scope and number of SHG activities, the number of books to be maintained has increased, posing difficulties for SHGs.

a. Key drawbacks of the manual system

During 2000-2009, SERP had been using a manual system called *Masa Nivedikal* (Monthly Reports). As per this system, data was manually aggregated at various levels (SHG/VO/MS/ZS). Computer based reports at State level were prepared through data entry from manual reports. The program collected data from bottom-up and undertook analysis and report generation only at the top level for management decision making. SHGs had no access to any analytics to base their operational decisions on¹¹. Some of the key drawbacks in the manual system were as follows:

- i. ***Complexity of manual bookkeeping:*** With increasing diversity of SHG activities, manual bookkeeping system had upto 18 components. SHGs were required to maintain seven different types of books. Due to the difficulties involved, most SHGs were not maintaining all the required books and were highly dependent on SERP project staff for book updation.
- ii. ***High attrition of Book keepers:*** SHGs found it difficult to find and retain good bookkeepers due to low pay offered by the SHGs.
- iii. ***Errors in bookkeeping:*** Manual bookkeeping resulted in several errors and duplication in recording the dates of SHG meetings, attendance of members,

¹⁰http://www.ruralfinance.org/fileadmin/templates/rflc/documents/1180103191039_SEEP_Promoting_Quality_Bookkeeping_2006.pdf

¹¹ Rajasekhar.B (2013). Communitization of Technology & Democratization of information - leveraging Technology for the Poor. World Bank <http://siteresources.worldbank.org/INTRES/Resources/Rajsekhar.pdf>.

and calculation of interest paid. Further, many of the physical registers were getting misplaced or lost. The lack of transparency arising from these errors affected the effective functioning of SHGs and made it difficult for the SHGs to access bank loans. Inter-member disputes resulting from data errors often led to instances of defunct SHGs.

- iv. **Poor macro-level monitoring:** SHGs found it difficult to track their financial transactions in bulky physical registers, often riddled with errors. The task became all the more complex at higher levels where lakhs of SHGs and their transactions worth crores across large geographical areas had to be tracked. At this stage, SERP was highly dependent on field staff for gathering crucial data and could not even undertake annual auditing of SHG accounts.

This also resulted in SHGs looking at bookkeeping as an activity required only for SHG-Bank linkage. Further, higher level federations were unable to provide on-time and relevant support to SHGs. Lack of data availability was leading to poor decision making at all levels and resulting in poor internal lending due to lack of information.

b. Failure of eBookkeeping initiative

SERP turned to eBook-keeping in 2008 when persistent efforts to train SHG members in bookkeeping brought poor results. eBookkeeping was piloted in Bibinagar *mandal* in Nalgonda district and Manchala *mandal* in Rangareddy district. Around 260 laptops loaded with special accounting software were provided to the Village Organisations (VOs) across 4500 villages. All data pertaining to SHGs in a given VO was stored in the laptop with local password and login. The application was developed in local language and all bookkeepers were trained through master trainers.

As the initiative was running in offline mode due to connectivity issues, there was no mechanism to track the timeliness and accuracy of data entered by SHGs. The cost of netbook was another constraint in scaling up of the initiative. Allegations of laptop misuse and other irregularities in several locations led to the eventual shut down of the initiative. The lessons from the eBook-keeping experiment which led to M-bookkeeping are summarised in the following table:

Table 1: Lessons from eBookkeeping

Lessons	Alternative solution needed
Offline application leads to inconsistency of data	Centralized application, data standardization
Non-availability of connectivity at village level	Offline and online application
Not able to recover the data	Data can be pushed from the central server
Lack of familiarity with computers in the community	A familiar and simple device
Virus attacks in the system	Low end devices less vulnerable to virus attack
Need for basic computer literacy	A familiar device
Reinstallation/release of versions tedious as application had to be installed at every location	Distribution of patches through MS
Heavily interrupted power supply in villages	Charged mobile works for 6 hrs

c. Introduction of M-Bookkeeping

In view of the eBookkeeping experiment, SERP explored other automated bookkeeping options. Based on research and consultations, it arrived at M-Bookkeeping as a simple, effective and low-cost alternative. M-Bookkeeping was introduced in November 2011 with technical support from Bluefrog Mobile Technologies Pvt Ltd, Vizag.

i. Key features

- Records all SHG transactions in mobile
- Manages seven physical books electronically
- Records all types of savings (health, gender, education etc.), loans (Community Investment Fund, bank linkages, internal lending etc.), insurances (Aam Aadmi Bima Yojana, Abhayahastam, etc.), grants
- Centralized reports generation and MIS
- Provision for analytics
- Monitors daily activities of SHG

ii. Objective

- Capture all financial transactions of SHGs and monitor SHG performance on real-time basis
- Give information to SHG members for assessment of their own performance
- Enhance credibility of SHGs in banking system

iii. Scope

- Capturing transactional data in mobile at the point- of-transaction
- Replacing paper-based accounting with automated best practices
- Generating MIS at SHG and at all higher levels
- Offering online or offline capability as per network availability

3. KEY CHALLENGES FACED BY THE INNOVATORS

- a. **Technological challenges:** Given the failure of earlier technology interventions, the innovators had to focus on addressing the ground level concerns. The M-bookkeeping technology sought to address these concerns as follows:

Table 2: Key challenges and solutions

Challenges	Solutions offered by M-bookkeeping
Affordability (device cost)	An affordable device (Mobile)
Technology acceptance	Rural population familiar with mobiles
Power unavailability	Mobile based technology consume minimal electricity and work longer hours
Access to internet	Solution workable on both online and offline platforms. Access provided through a low cost SIM with GPRS ¹²
Quality of service	Reasonable tele-density in rural areas
Education & Training to end users	Minimum training/education required for end users

- b. **Implementation challenges:** M-bookkeeping intervention faced several implementation challenges some of which are discussed below:
- Scale and Scope of SHG operations:** M-bookkeeping was expected to cover around 11 million members/1 million SHGs/40,000 VOs/1099 MMSs/22 ZS spread over 2.67 lakh Sq. Kms. across the entire State. Multiple operations spanning 18 functional units had to be made IT compatible for illiterate/semi-literate users.
 - Compiling the database:** Creating an accurate database was crucial for getting the SIM cards required by the SHGs. To weed out erroneous SHG data, the implementing team undertook data validation and de-duplication/cleaning of data.

¹² General packet radio service (GPRS) is a packet-switching technology that enables data transfers through cellular networks

- iii. *Capacity building*: The problems faced by SHG bookkeepers with basic accounting were addressed through training in accounting for the bookkeepers by SERP's trainers.
- iv. *Data inaccuracy*: A random evaluation study conducted by SERP few months into the initiative showed 25 to 30 percent errors in the entered data. This was addressed by adding a feature that enabled the SHG members to get printouts of the data entered. These printouts were read out in the SHG meetings and validated by the members. This helped SERP in achieving upto 90 percent data accuracy.
- v. *SHGs' acceptance of the new system*: The simplicity and time saving features of the new system helped increase its acceptance among the SHG members. To give credence for the initiative and encourage active participation of the groups, community auditors were identified and trained in M-bookkeeping. At present, there are 800 community auditors and the number keeps increasing.

4. STRATEGY ADOPTED

a. Implementation Strategy

i. Choice of Technology

Use of mobiles, a device with penetration even in rural areas, calls for minimal investment and ensures cost effectiveness. Field interactions had brought to light the familiarity of members with mobiles, their frequency of use and relatively good connectivity even in villages. This prompted SERP to approach Bluefrog technologies that had a strong track record in helping government with mobile technology. The application uses fifth generation computer technology or Cloud computing¹³. Transactions of end users are captured through mobile devices to a centralised database.

ii. Selection of Service Provider

SERP identified two mobile service providers offering the lowest costs, Idea Cellular limited and BSNL which charge Rs. 17 and Rs.55 per month¹⁴ for 500 MB respectively. They also provide unlimited SMS, MMS, Voice blast and talk time facilities for 45,000

¹³ Internet based computing where by shared computing resource software and information are provided on demand via internet.

¹⁴ Although Idea charges less, BSNL is used in 3000 villages (especially tribal areas) as the Idea does not have connectivity

SHG M-bookkeeping members. Today, more than 99% of SHGs use the M-Bookkeeping service.

iii. Building of Database

During September 2010 - April 2011, SERP conducted a baseline study to create a member database of SHGs. All basic information about socio-economic condition of households was collected at SHG level and verified by reading out the same in a meeting conducted by the Village Organization (a kind of social audit). The verified data was submitted to *Mandals*. This was further submitted to the State through districts and the data was used to create a central data repository.

The data collected from baseline study was matched with the existing data and updated whenever required to create master datasets stored in M-bookkeeping server. These are used as automatic inputs during M-bookkeeping transactions where required. Data is updated through mobile or web portal, depending on the requirements of SERP.

iv. Piloting of Initiative

The M-bookkeeping software was piloted with few groups to assess the effectiveness of the package, acceptance of the technology and capability of members to enter the SHG financial transactions into mobile phones. All VOs were provided with mobile phones and SIM cards; IKP functionaries, Community Resource Persons and bookkeepers were trained in the using the software. The trained book keepers are able to enter financial transactions, generate reports and send SMS alerts to the groups, federations and the IKP staff for taking necessary actions to improve the performance of SHGs.

v. Training

Given the time and resource consuming nature of M-bookkeeping, SERP has developed an in-house software for targeted training. The software provided to SHGs is pre-loaded with member information. This software shows the general grading of SHGs and highlights aspects in which particular SHGs are lacking, thereby enabling targeted training by SERP.

After each training, information has to be updated at the Asst. Project Manager level. The software also tracks the grade of the SHG before and after the training. All trainings are directly conducted by SERP. At the *Mandal Samakhya* level, all bookkeepers are

trained by Mobile Master Trainers (MMTs). The training process is coordinated by the District Micro finance Groups (DMGs) and supported by the APMs.

In order to implement the initiative, nearly 40000 people have been trained and equipped with mobiles. The technology has captured savings, borrowings and other financial transactions covering nearly nine lakh SHGs comprising about one crore households. Based on the data generated, performance grading of SHGs is being done so that attention can be given to groups needing the most support. The use of a very simple technology and the availability of simple reporting mechanisms also ensure that the initiative can be easily replicated in other States.

b. Institutional Arrangements

The existing institutional arrangements of IKP were used to implement the programme. Additional structures/personnel were brought to perform following functions:

- i. **Village Mobile Book Keepers:** Each Village Organisation i.e. the village level federation of SHGs appoints a Village M-Book Keeper (VMBK) on a remuneration basis. VMBK is female person and is the resident of the village familiar with operating a mobile. Her major tasks include data entry, correction and validation.
- ii. **Community Auditors:** Appointed by the *Mandal Samakhyas* to manage a specific number of SHGs in various village organizations. The community auditors do regular auditing, advice the bookkeepers in improving the SHGs' financial condition and help rectify past mistakes.
- iii. **Mobile Master Trainers:** The VMBK receives training from Mobile Master Trainers and hand holding support in trouble shooting.
- iv. **Bluefrog Technologies:** Technical support, data processing, Data updation and Management, and transmission to Control Servers are done by Bluefrog.
- v. **DPMU/TPMU:** It undertakes data approval when new members or new groups are added and provide financial support for mobile maintenance.

c. Infrastructural Set Up

The major infrastructural requirement was the large scale procurement of mobile phones. SERP procured Nokia Asha 205 Model mobile costing around Rs. 3500 and

provided SIM cards, charges on which are paid on a monthly basis by SERP. SERP has also invested in purchasing printers at *Mandal* level. The operation of M-Bookkeeping is facilitated through the following components:

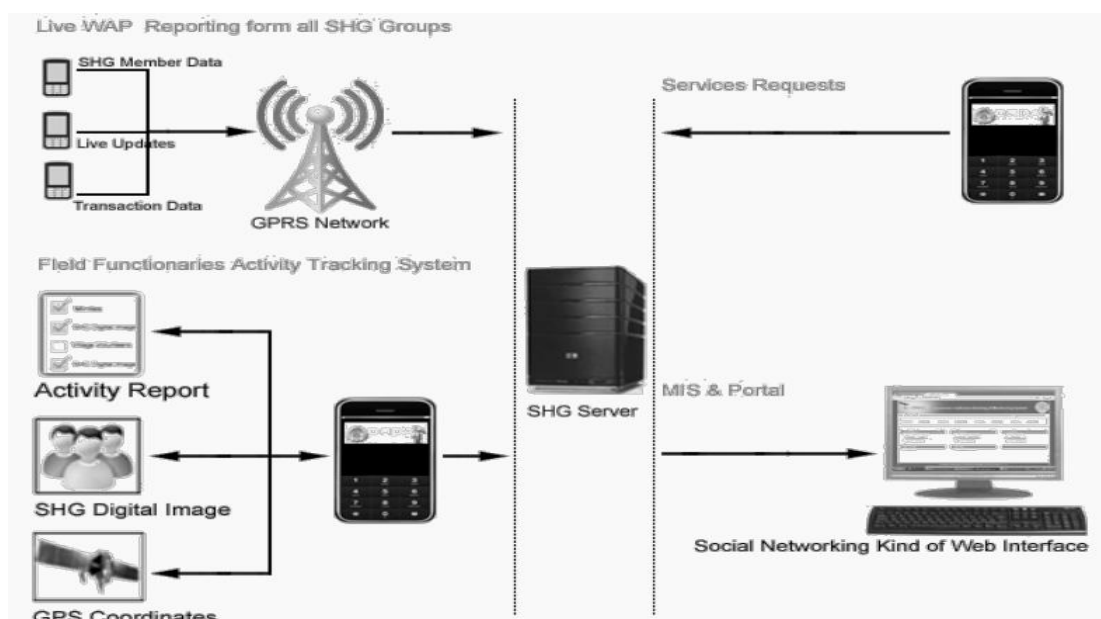
- A mobile with a camera, internet facility and a minimum internal memory of 5MB
- Cloud based Server for database management
- Web portal that displays detailed MIS for the promoters and decision makers
- Hardware such as printers for printing reports,
- Mobile Software Application
- A trained m-book keeper
- Mobile Master Trainers

d. Process Flow

Step 1: The M-bookkeeping application has around 257 fields from where the mobile bookkeeper enters the data of SHGs during their meetings.

Step 2: Within 15 minutes of the SHG meeting, the bookkeeper enters the transactions in the mobile. She then tallies the member attendance with the names in the register and verifies the attendance with member signatures. These attendance details are then entered in to the mobile and validated with a group photo of all the meeting attendees. It is then uploaded through the GPRS network to the central server and updated real time in the M-bookkeeping portal available in public domain.

Figure 5: M- Bookkeeping architecture



Step 3: To help members know their individual savings and loan repayment details, the bookkeeper records the transactions in their individual pass books. The amount collected as savings will be extended as loans to the SHG members. The remaining amount will be credited to the SHG's account in the bank. In the M-bookkeeping application, the fields (*dates of meeting, details of savings, individual loans, lending of internal savings, external loans from various department/schemes and banks, insurance details, details of assets, repayment dates etc.*) are displayed in the local language, Telugu. The savings credited to individual group accounts in the banks, the loan and the recovery details are captured through M-bookkeeping.

Figure 6:M- Bookkeeping sample screens



Step 4: Monitoring at SHG member level: Timely SMS alert pertaining to schedules, payment dates and defaults are sent to members. The members can at any time track the details of the meetings, savings, lending, loan repayment particular, etc., using their mobile phones.

The individual member's account details or the profit/loss details of SHGs can be known by checking the balance sheets from any mobile. Printed status reports are also supplied by the VOs every month both for the individual members as well as the SHGs. The members can also know about the financial condition by contacting the call centre. The status report enables all stakeholders to assess the performance of member organizations on a continuous basis and help them take corrective measures.

Step 5: Monitoring at SERP level: The Cluster Coordinator (*village level*), Asst. Project Manager (*Mandal level*), Area Coordinator (*cluster level*), Dist. Project Manager, Asst. Project Director and District Project Director (*district level*) monitor the authenticity of the

Figure 7: Various Stakeholders



data being uploaded and track the flow of finances. At the project level, the status of each SHG is monitored by grading them based on the regularity and the utility of their savings, loaning, and repayment discipline. According to the grading results, various interventions are designed to accelerate the performance of weak groups. Similarly the training needs of the office bearers at various levels are identified, designed, delivered and evaluated based on the progress monitored through MIS.

At the aggregate level, M-bookkeeping provides Decision Support System reports¹⁵ to the field functionaries and a more detailed Executive Information System report to the Chief Executive Officer, SERP, the Principal Secretary (Rural Development Department) or the Chief Minister. This has led to better supervision at all levels.

Reports

M-Bookkeeping enables the user to see reports relating to receipts and payments, income and expenditure, and assets and liabilities on the mobile using the relevant menu items.

There is a web portal dedicated to M-Bookkeeping in SERP website. This portal contains various reports- abstract, specific and analytical in nature on savings, loans, insurance, financial status, performance grading of SHGs, social and economic category wise SHG status, etc. Through its MIS reports, the portal presents position of the State as a whole with drill-downs and filtering options to look at district level, cluster level, project functionary AC/CC/APM/DPM levels, *Mandal* and the Village levels. In addition to the above, SHG level reports are also available for viewing and printing.

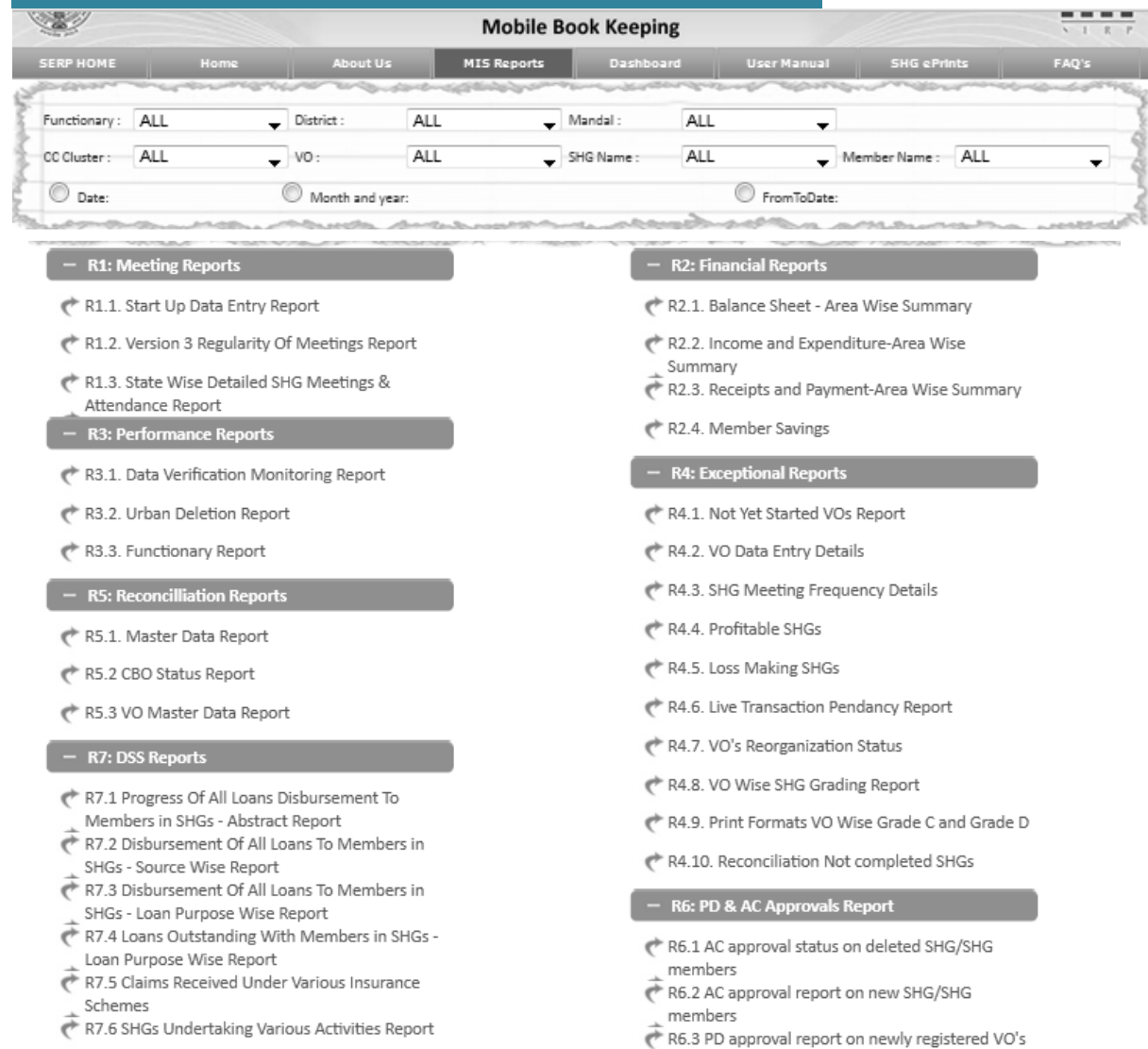
The following reports are useful for SHG management and record keeping purposes.

- SHG Status Report – Comprises of general and financial data, corrections and journal entries) after reconciliation
- SHG Status Report – Comprises of information on SHG meetings (date wise and each member wise) and transactions (general data of SHG, SHG members, Balance Sheet and current meeting transactions)

¹⁵ DSS includes state-wise start-up data entry report, state-wise savings report, SHGs financial balance sheet area wise summary and state-wise grading report.

- SHG Grading Report – Details of SHG performance grading done on dynamic data of the last six months transactions

Figure 8: MIS reports generated under M-Bookkeeping



e. Unique Features

- VO as a unit for mobile:** Each Village Organisation is taken as a unit for assigning one mobile. In order to make the scale manageable, the recent policy of SERP mandates each VO to have not more than 30 SHGs under it.
- Capturing of Transactions at SHG meetings:** The bookkeeper is expected to attend the SHG meeting, enter transactions in the mobile in real-time and upload the data to the server.

- iii. *Local language*: Given the challenge of enabling non-literate SHG members to acquire proficiency in bookkeeping practices, the software used the local language, Telugu. Although web-reports are currently in English, SERP is planning to provide these reports also in Telugu.
- iv. *Weightage for use of M-bookkeeping in Grading*: To ensure the adoption of M-bookkeeping by all SHGs, 5 marks were assigned for this component in SHG grading. The software provides a link to all SHG members to see their performance and the grades and take a print out where required.
- v. *Video Conference*: A major implementation strategy is the direct video conference conducted by the Chief Executive Officer of SERP with all staff members up to area coordinators. SERP staff is allotted to different districts to conduct regular visits to various villages to track the implementation of M-bookkeeping.
- vi. *Alerts*: SHG members receive regular SMS alerts to their registered personal mobile phone numbers about their financial transactions after each meeting.
- vii. *Help desk*: SHG members dealing with mobile bookkeeping application can seek clarification for doubts and queries from SERP resource persons and can get technical assistance from the BlueFrog call centre.
- viii. *Peer learning*: The mobile technology promote cross-learning among the bookkeepers by providing them free calling facility and opportunities for interaction during meetings. This peer-group learning strategy is very effective and has contributed to the success of this initiative.

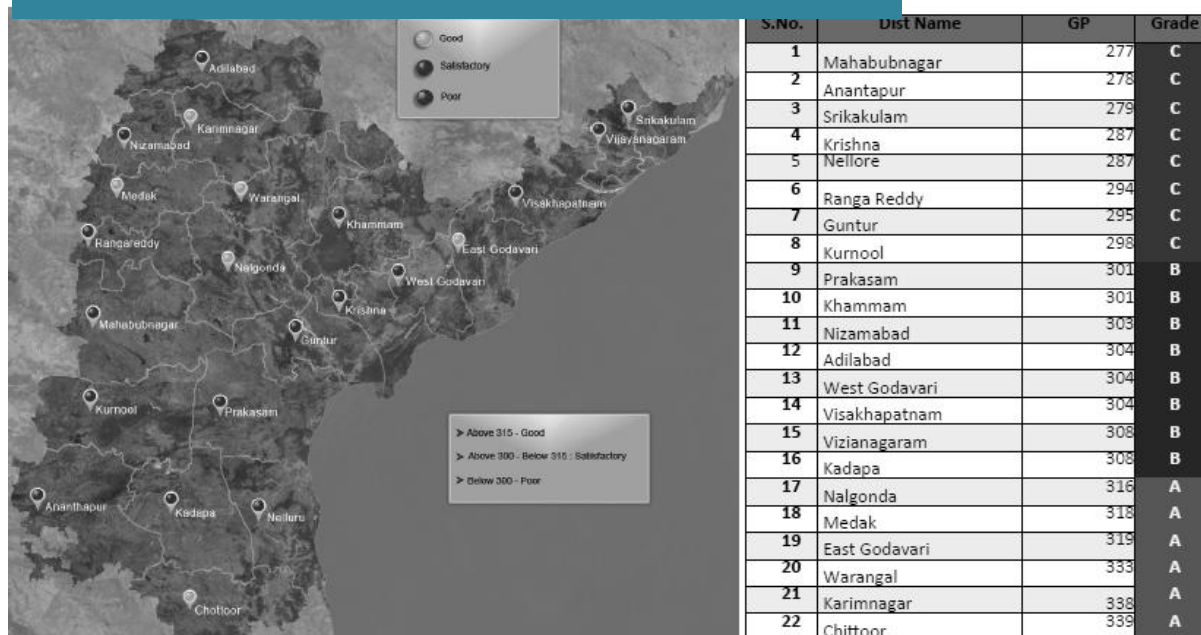
5. RESULTS

M-bookkeeping has furthered the advance of eGovernance in social programmes and has demonstrated the efficacy of technology for a sustainable SHG movement. The key results achieved by M-bookkeeping initiative are discussed below:

- a. *Promoting financial literacy*: Since SHGs are graded based on the reports and MIS generated through M-bookkeeping, members are more aware about the financial status of their SHG. The advice given by the community auditor has ensured more financial discipline among the members. This has led to an increase in the monthly contribution and the savings of members.

- b. *Saving time and efforts of bookkeepers:* M-bookkeeping has substantially reduced the drudgery of bookkeeping. It is simple, time and labour saving and eliminates the need for physical documents. This is evident from the fact that one book keeper is currently able to do bookkeeping for upto 25-30 SHGs compared to 5-10 earlier. This has boosted the income of bookkeepers thereby helping SHGs to retain them for longer periods.
- c. *Increased transparency and accountability:* M-bookkeeping system has enabled end-to-end monitoring of entire SHG transactions and activities and helps members, leaders and officers at all levels to keep track of SHG operations. As the accounts of SHGs are stored in the server and the information is passed on a real time basis to all concerned parties, possibility of fraud has been minimised. This has helped strengthen trust among SHG members and has contributed to more concerted efforts from everyone.
- d. *Reducing errors:* M-bookkeeping software can accurately calculate monthly loan receipts and payments, income and expenditure, etc. During monthly meetings, the printed statements are made available to the members. This has pre-empted frictions among members previously caused by wrong projection of SHGs finances.
- e. *Increasing credibility:* M-bookkeeping has also increased the credibility of SHGs in the eyes of lending institutions. As the SHG data is available online, bankers can freely access the financial details of any SHG. Such transparency has increased the flow of loans from banking institutions to the SHGs and has improved the SHG-bank linkage.
- f. *Minimised duplicate memberships:* Making available the entire SHG data in public domain has minimised the possibility of members holding memberships of multiple SHGs and cornering benefits from each of them. Such malpractices had earlier thwarted the confidence of SHG movement in the State.
- g. *Enabled grading of SHGs:* Grading enabled by M-bookkeeping has increased the ability of the project officials to monitor the performances of the SHGs and has enabled members to know the financial status of their SHG on a real time basis. The grading data can be seen at State, district, *mandal*, VO, SHG and individual member levels.

Figure 9: GIS view of district-wise SHG grading of the State



Source: B.Rajasekhar (2013)

- h. *Monthly vs. yearly audits*: M-bookkeeping system has enabled monthly auditing of accounts as opposed to yearly auditing earlier. This has enabled the SHG members to know the financial health of SHGs in a timely manner.

6. SUSTAINABILITY

M-bookkeeping has been operational since January 2012 and caters to a crucial need, for bookkeeping expertise in the SHG members. Given the large number of SHGs (10.27 lakhs) across the State and the dearth of members with bookkeeping skills, M-bookkeeping caters to a huge target group.

The key factors that contribute to the sustainability of M-bookkeeping are as follows:

- *Political will*: Political will is counted as one of the most critical success factors for any eGovernance initiative as it allows eGovernance champions within government to deliver and gain access to the required resources. M-bookkeeping initiative has strong political and administrative support of the Chief Minister, the Principal Secretary, Rural Development Department, the Chief Executive Officer, SERP and other implementing officials who have helped it reach a large scale within a short span of time.

- **Low initial investments and operational costs:** By using existing infrastructure available in villages and by using affordable software and hardware, the M-bookkeeping has ensured that the initial investments and operational costs are kept minimal. The monthly cost of internet usage paid by SERP ensures that all bookkeepers have internet connectivity on their mobile phones. The SHGs themselves pay for the service of book keepers and the community auditors from their funds and are even ready to invest in printers and other ancillaries. Such self-funding practices and initiatives by SHGs have made M-bookkeeping financially more sustainable.
- **Human resource:** Human resources involved in M-bookkeeping come from within the community including the bookkeepers, the master trainer and the community auditors. This has ensured easy availability of human resources and a sense of ownership among the community for the initiative. More women are interested in becoming bookkeepers as they feel that this enhances their social status in the SHG and the larger community.
- **Data compression technology:** M-bookkeeping uses the data compression technology in mobile. This has ensured that there is enough space in the low cost mobiles to process and store big data.¹⁶ The data compression technology has also ensured that the 2G internet connectivity is sufficient to transfer the M-bookkeeping data to the server. The data compression technology has made M-bookkeeping sustainable as it places minimal technical infrastructure demands.

The following table captures the cost-benefit analysis of the M-bookkeeping system¹⁷:

Item	Amount
Cost of software & Infrastructure per Year	Rs.3.68 cr
Cost of 40,000 Mobiles @ Rs.3500	Rs. 14 cr
Connectivity @ Rs. 276 Per Year for 40,000 VOs	Rs. 1.1 cr
Total Expenditure for One Year	Rs. 18.87 cr
Expenditure per each of one of 11.6 Million members	Rs.16.20 /member
Cost for printing during manual bookkeeping (Rs. 195/year for 1.1 million SHGs)	Rs.20.2 crore

¹⁶ Under M-bookkeeping each VMBK handles around 25 to 30 SHG and there are almost 257 fields. If the mobile is not under the internet connectivity mobile has to store the data until it get connected to the internet.

¹⁷ Rajasekhar.B (2013). Communitization of Technology & Democratization of information - leveraging Technology for the Poor. World Bank <http://siteresources.worldbank.org/INTRES/Resources/Rajsekhar.pdf>.

Expenditure for M-bookkeeping	187.84
Savings per year in Book printing alone	1.37 crore

By enhancing the participation of SHG women, M-bookkeeping has strengthened the SHG movement itself. According to the officials of M-bookkeeping, *“the practice of M-bookkeeping has become an inevitable factor in sustaining the SHG movement in the state as it encourages the transparency in financial matters”*.¹⁸

7. KEY LESSONS LEARNT

Over the course of its implementation, M-bookkeeping implementers have developed various strategies by learning from the past mistakes and adapting to new demands. Some of the major lessons and areas of improvement for M-bookkeeping are as follows.

- a. **SMS facility - Regular updation and local language support needed:** There have been instances of SHG members not receiving regular SMS updates about the financial status of their SHG after each meeting. This issue arises from members changing their SIM cards and not notifying the new numbers to the M-bookkeeping officials. Regular updating of the mobile numbers of SHG women will have to be undertaken to make sure that the SMS facility is used to its fuller potential.
- b. **Mobile phones – Bigger frames and regulation on browsing content needed:** While the familiar and low-cost technology of mobiles has made it a viable device for bookkeeping, M-bookkeeping is still grappling with some technological issues. The small frames of the mobile cameras are not enough to capture the photo of all the SHG members to validate the attendance. There have also been instances of the phones being used for personal internet browsing thereby exhausting the 100 MB limit of GPRS data usage. Steps taken to address these issues include collaboration with internet service providers to regulate the use of websites other than that of M-bookkeeping in the mobile phones. SERP has already initiated talks to replace mobiles with tablets for better electronic book keeping.
- c. **M-bookkeeping software – Application errors and server glitches need rectification:** Some of the key issues encountered on the software side include frequent application errors in the initial days and slowing down of servers during peak times. As the technology partner learnt the nuances and demands of the project over time, these

¹⁸ Interaction with M-bookkeeping officials from SERP and district project officials in the districts of Mehabubnagar and Warangal as a part of this documentation.

errors have come down. The sever issues persist, resulting in time lags that prevent the officials from receiving data on real-time basis. The technology partner is taking several measures to pre-empt such glitches in the server.

- d. **Adaption to M-bookkeeping- Complete migration required:** Most SHGs have migrated from manual book keeping to M-bookkeeping and have largely adapted to the system. While SHGs appreciate the SHG grading tools and increased accuracy, they often tend to retain manual bookkeeping. Apart from familiarity, this tendency can also be traced to the demand placed by some banks for manual books of accounts. Hence, suitable steps may be taken to ensure complete migration of entire SHGs to M-bookkeeping as it is a prerequisite for the success of this initiative.

8. REPLICATION

M-bookkeeping is a highly replicable model. States like Tamil Nadu and Bihar with large SHG groups have already expressed interest in adopting this model. Following are the key factors which makes M-bookkeeping a replicable model:

- a. **Use of low-cost, simple device:** M- bookkeeping has been implemented using a basic mobile device which is affordable, easy to operate and familiar for people across the country. Such devices are available across the country and can be easily adapted for SHG groups across other States.
- b. **Requirement of minimal infrastructure:** M-bookkeeping requires minimum infrastructure for its operation. The basic infrastructure required for the application are a mobile with a camera, internet facility and internal memory of 5MB, cloud based server, web portal, hardware and M-bookkeeping software. The staff required includes trained M-bookkeepers, mobile master trainers and technical resource persons.
- c. **Uniform template:** Under M-bookkeeping, uniform templates have been created for data collection and reporting. As the books to be maintained by SHGs are similar across States, the M-bookkeeping templates can be used in different contexts with some customisation.
- d. **Minimum skills sets required:** M-bookkeeping has enabled women with basic literacy skills and familiarity with mobiles to do bookkeeping. M-bookkeeping can thus be considered as a model for the entire country for maintaining the SHG books of accounts.

Conclusion

M-bookkeeping provides a reliable interface between the SHGs and the senior management and other external stakeholders. This has helped augment their credit worthiness and ability to serve the poor. Today data of over 8 lakhs SHG groups are regularly uploaded into a central database by more than 40,000 book-keepers through their mobiles. The initiative has ensured accurate and up-to-date maintenance of books of accounts, promoted financial literacy among SHG members and has increased transparency, credibility and performance of SHGs.

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ABBREVIATIONS

AC	Area Coordinator
APD	Assistant Project Director
APM	Assistant Project Manager
CC	Cluster Coordinator
CEO	Chief executive Officer
CIF	Community Investment Fund
DMG	District Micro finance Groups
DPD	District Project Director
DPM	District Project Manager
GoAP	Government of Andhra Pradesh
GoTS	Government of Telangana State
IKP	Indira Kranthi Patham
MS	Mandal Mahila Samakhya
MMT	Mobile Master Trainer
SERP	Society for Elimination of Rural Poverty
SHG	Self-Help-Group
VMBK	Village Mobile Book Keeper
VO	Village Organisations
ZS	Zilla Samakhya