

## **USE OF INFORMATION TECHNOLOGY IN PROMOTING ACCOUNTABILITY IN RURAL DEVELOPMENT PROGRAMMES: ANALYSIS OF WEB BASED MIS AND MOBILE APPS**

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### **Abstract**

*Government of India is implementing a number of rural development programmes aiming to transform rural lives. Motto of minimum government and maximum governance coupled with increased financial allocations to these programmes makes it imperative to put a robust accountability mechanism so that these programmes meet their objectives. Role of information technology has been recognised by the Government by in promoting horizontal and vertical accountability in rural development programmes. This paper describes and critically analyses the role of web-based management information systems (MIS) and mobile application based citizen information and feedback system in various rural development programmes and also suggest ways to strengthen these two mechanisms.*

**Keywords:** *Accountability, Rural Development, MIS, Mobile App*

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### **I. Introduction**

Accountability is one of the indicators of good governance. Rural population in India face multi-pronged development challenges. These areas have poor infrastructure, housing, health facilities, educational facilities, agricultural productivity and per capita income in comparison of urban areas. Government of India, through multiple centrally sponsored and

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central sector schemes and special assistance, has been working towards achieving rural transformation where every habitation will be connected with all weather roads, every family will have a pucca (durable) house, every child will get free quality education, every vulnerable person will get social assistance, those in distress will be given employment, youth will be skilled to enhance their employability, micro-credit and micro-enterprises will be promoted to ensure local economic development. This saturation approach in rural development is reflective of the global resolve of 'leaving no one behind' stated in Agenda 2030 with seventeen sustainable development goals.

Government of India implements various rural development schemes. Important among them are Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), National Social Assistance Programme (NSAP), Pradhan Mantri Gram Sadak Yojana (PMGSY), Pradhan Mantri Awaas Yojana-Grameen (PMAY-G), , Deen Dayal Antyodaya Yojana-National Rural Livelihood Mission (DAY-NRLM), Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY), Shyama Prasad Mukherjee National Rurban Mission (NRuM), Sansad Adarsh Gram Yojana (SAGY) etc. in rural areas of the country through State Governments and Union Territory Administration. Budgetary allocation for these rural development programmes has been enhanced substantially from Rs. 58,623 crores during 2013-14 to Rs. 1,24,147 crores during 2020-21. Due to Covid-19 pandemic, the Government of India has further enhanced allocations for these programmes. For example, for implementation of MGNREGA, an additional amount of Rs.40,000 crores has been allocated to provide employment. Apart from this allocation to the MoRD, there are other programmes such as Pradhan Mantri Krishi Sinchayee Yojana (PMKSY), Swachha Bharat Mission- Grameen (SBM-G), Jal Jeevan Mission (JJM), National Health Mission-Rural (NRHM), Finance Commission (Fourteenth and Fifteenth FC) grants, Rashtriya Gram Swaraj Abhiyan (RGSA) etc. of other Ministries. Increased budgetary allocation for rural development programmes coupled with the current NDA government's motto of minimum

government and maximum governance makes it imperative that a robust accountability framework should be in place which not only strengthens the administrative accountability but also social accountability. MoRD has created a multi-pronged accountability framework by improving upon earlier mechanisms and introducing new ones. MoRD's accountability framework, inter-alia, includes Management Information System (MIS), and Mobile App Based Citizen Feedback. All of these three mechanisms use information technology extensively for real time monitoring and feedback. Other accountability mechanisms include National Level Monitors (NLM), District Development Coordination and Monitoring Committees (DDCMC) or DISHA Committees, Common Review Missions (CRM), Geo-tagging of assets, Financial Audit, Internal Audit, Social Audit, Independent Evaluation of Schemes, Direct Benefit Transfer, Grievance Redressal, Ombudsman etc. These mechanisms together create a robust accountability framework in implementation of rural development programmes in India.

## **2. Web Based Management Information System (MIS)**

Management Information System (MIS) has emerged as an important tool for generating data which helps in the management functions by facilitating decision making. It plays an important role in real time monitoring the progress of implementation of schemes and programmes. MIS focuses on inputs and outputs. As the number and allocations of rural development programmes have grown over the years, MoRD has developed web based MIS for all these programmes. These MIS have been developed by government agency National Informatics Center (NIC). Developing and operating these MIS involves (i) assessment of the information needs of programme division and other levels; (ii) collection of information; (iii) classification of information; (iv) feeding and storage of information; (v) retrieval of information in form of reports; (vi) analysis of information and finally (vii) decision-making on the basis of analysed information. While developing MIS following principles need to be kept in mind for these MIS to be effective: (i) use of a log-frame; (ii) authentication and validation of

information; (iii) periodicity and regularity of data feeding or reporting; (iii) easy accessibility of information to authorities and public; (iv) utilisation of data for management decisions and community monitoring; and (v) user-friendly. MoRD programme divisions, State and district authorities have been using these MIS extensively for monitoring and review of the progress of implementation of schemes. Reports generated from these MIS are the key tool for categorizing States, identifying problem areas and problem States and discuss them during Performance Review Committee (PRC) meeting held twice a year.

## **2.1 MIS of PMGSY**

OMMAS, the MIS of rural connectivity scheme PMGSY, is among the best which facilitates planning, execution and monitoring of the scheme. Monitoring of private contractor building roads is done by OMMAS which has the facility of automatic checking of information flowing from contractors to government managers.

Main features of OMMAS are as follows: Website is available 24 hours, 7 days a week and the information is on web and can be accessed from anywhere. Data entry is at origin i.e. PIU level which helps to avoid duplicity of effort and data and no manipulation is possible at higher level. Every manual process in the programme has a corresponding module in the software, so the workflow and data flow are both maintained side by side. The software generates real time reports and thus helps in decision-making at the State and Centre level. Quick and easy compilation of data is possible at district, State and national level. The website contains reports on all aspects of a road starting from the proposal to completion, giving both physical and financial progress, available to citizens all over the world in the public domain. In districts where connectivity is a major hurdle in data entry, the offline module has been provided. For every level there are authorized users who can make an entry in different modules of the software.

Main reasons for successful implementation of OMMAS are as follows. Personnel entering data at the district level have an engineering background and it is not difficult to train them in using software. Ministry is strictly monitoring entry into OMMAS and has linked it to sanction of funds. Lowest level of implementation is district where internet connectivity is good.

Although MIS of PMGSY is considered as one of the best, there are some shortcomings also. In its Report No. 23 of 2016, CAG reported that even after more than 13 years, States were still in the process of updating OMMAS data. Fund Processing and ARRR modules were not implemented. Absence of application controls led to invalid data entry. MIS reports generated through the system were inaccurate and unreliable. This report recommended that the Ministry of Rural Development may ensure that deficiencies in the operationalisation of OMMAS are rectified so that it may serve an effective tool for monitoring and decision making in implementation of the programme (CAG, 2016. P.84).

## **2.2 MIS of MGNREGA**

Another good MIS of the Ministry of Rural Development is NREGAssoft of MGNREGA. Each stakeholder can access relevant information through the portal. This is working as an important management tool for progress monitoring, course correction by the programme division. This MIS has become an important tool for public disclosure of information. NREGAssoft is a real time MIS “where there are checks and balances embedded in the system itself through software programming, which links different implementing mechanisms and activities are linked in the MIS in such a way that one will not be able to carry out activity-2 without performing activity-1” (Nandy Debmalya, 2018). Most of the processes under MGNREGA have got digitized by now with the use of MGNREGsoft.

MGNREGASoft has following modules: (i) Worker Management Module (ii) Works Management Module (iii) Fund Management Module (iv) e-FMS Module (v) Labour Budget Module (vi) Social Audit Module (vii) Cost Estimation Module (viii) Grievance Redressal System (ix) Staffing Position Module (x) Knowledge Network/ Solution Exchange. Reports available in these modules NREGASoft are accessible to everyone, charting a new era of transparency in the rural development programmes. By using these reports and informed citizen can ask for explanation from implementing authorities at forums such as Gram Sabha and through that process can enforce accountability.

However there are a few operational shortcomings in the MIS of MGNREGA. Nandy Debmalya (2018) has analysed functioning of MIS of MGNREGA and has given few examples of why the MIS is not showing correct ground situation: (i) As there is no practice of issuing a dated receipts of the demands and hence makes it easier to hide delay in job allocation; (ii) Once the FTO is signed by second signatory the wages are shown as paid in the MIS which may be credited to the account later. Thus MIS gives misleading information with regard to time taken in payment of wages. (iii) Number of job cards shown in the MIS is not trustworthy as some genuine job cards are also deleted to meet DBT targets and household having worked for even 1 day in three years is considered an active job card. (iv) While payments for materials may be made in advance, whether material has actually been delivered on worksite or not is not known.

### **2.3 MIS of NSAP**

MoRD has developed and IT enabled pension fund management system called NSAP-MIS. The NSAP-MIS apart from providing details of programme implementation also has application tracker. NSAP-MIS system may be adopted and used by States as per their own requirements. The functional features of NSAP-MIS are as follows. The States / UTs are required to maintain a database of eligible beneficiaries including all details

of the beneficiary and photograph. Legacy data also need to be maintained. Data of new pensioners are entered directly on the NSAP website, using logins of 'application receiver', 'verifying officer', 'sanctioning authority' and pension is disbursed by the "Pension Disbursing Authority (PDA)". There is a fund flow module for estimation of funds needed. Fund allocation and release is done from Ministry to State to District to PDA. Results of periodic verification of beneficiaries can also be entered in the NSAP-MSI.

### **2.3 MIS of PMAY-G**

MIS of Pradhan Mantri Awaas Yojana-Gramin (PMAY-G) AwaasSoft is a workflow based transaction level MIS. It is accessible to all Stakeholders. All the critical functions of PMAY-G like the identification of beneficiaries from SECC, target fixation, fund release, sanctioning, monitoring progress of house construction can be done through MIS. Block level nodal authority uploads beneficiary waitlist registers beneficiaries; enters MGNREGA identification number, details of bank accounts, photographs of existing and new proposed site and makes fund transfer order releasing instalments, all through this MIS. District reviews and approves house sanction proposal and allocates annual targets to each block, whereas State allocates targets to districts.

Several reports can be obtained from AwaasSoft such as progress of house sanction and construction; status of receipt and expenditure of funds; status of benefits given from other convergence schemes, GIS based reports etc. These reports can be generated Gram Panchayat wise with individual beneficiary details and can be seen different housing scheme-wise and year wise. 10 years of housing schemes information are available on Awaassoft.

### **2.4 MIS of DAY-NRLM**

DAY-NRLM e-gov application has been created by NIC. Different levels of users perform different functions on DAY-NRLM e-governance application.

State admin user performs following activities using the respective menus: Manage User, Manage Access, Help Desk, Unblock User, Reset Password, Block Identification, Human Resource, Reports, Location Master Standardization, Delete SHG, Shifting Bank Branch, VO CLF Delete, LGD Mapping, Fund Disbursement Module. State level user (with State Role) will perform following activities: Master Trainer Profile, Training and CB, Help Desk, Manage Bank, Manage Branch, Management Unit Details, Key System Approval Dates, Quarterly Target, Approved Block MPR, Human Resource, District Identification, Reports, NRLM Commodities, Fund Proposal Report, LGD Mapping, Fund Disbursement Module. District level user will perform following activities: Master Trainer Profile, Training and CB, Help Desk, Manage Bank, Manage Branch, Management Unit Details, Human Resource, Block MPR Verification, Reports, Location Master Standardization, Fund Proposal Report, LGD Mapping, and Fund Disbursement Module. Block level user will perform following activities: Training and CB, Help Desk, Management Unit Details, Human Resource, Register Self Help Group, Progress till 31st March, Quarterly Target, Progress during the reporting month, Reports, GP wise SHG list, First Level Federation(VO), Shifting (SHG & Village), Second Level Federation(CLF), SHG Details in PDF, Third Level Federation(BLF), NRLM Commodities, Fund Proposal Report, LGD mapping, Community Cadre Profile, and Fund Disbursement Module.

There is provision for obtaining Analytical Reports through Report menu. The following series of reports are available on DAY-NRLM e-gov application:

- (i) Masters Reports (6 reports) i.e. nodal officers details, location master standardization status, block identification status, district categorization for interest subsidy, census mapping status, and LGD mapping status;



- (ii) Reports on Human Resource (4 reports) namely human resources status, human resources entry tracker, human resource status with regard to functional areas, and human resource status of induction;
- (iii) Community Cadres Reports (4 reports) namely abstract of community cadres, category wise cadres report, details of community cadres, and reports on master trainers;
- (iv) Reports on Self Help Group (13 reports) namely SHGs in NRLM Database, SHGs Profile Entry Status, SHGs Social Category Wise, SHGs Member Social Category Wise, SHGs Data Porting Status, SHGs with and without Bank Account, SHG Bank Wise Detail, Check Duplicacy SHGs, Age Wise Intensive Block, SHG, Functioning Under NRLM, Three months old SHG with Bank Account, Six and Nine months old SHG, SHG And Member Profile Monitoring Report;
- (v) Fund Disbursement Report (18 reports) namely Fund Disbursement Monitoring Status, RF to SHGs (By Source of Fund), RF to SHGs (By Disbursement Unit), RF to SHG in a Month & Year, RF to SHGs and remaining eligible SHGs, RF to Social Category SHGs in a month, RF to Social Category SHGs in a FY, Total RF to Social Category SHGs, CIF to SHGs (By Source of Fund), CIF to SHGs (By Disbursement Unit), CIF to SHGs in a Month & Year, CIF to SHGs and remaining eligible SHGs, CIF to Social Category SHGs in a month, CIF to Social Category SHGs in a FY, Total CIF to Social Category SHGs, Fund Disbursement to SHGs, Fund Disbursement to VOs, Fund Disbursement to CLFs (6) Federations Report (2 reports) namely Promotion Of SHG Federation, Federation Detail Report.
- (vii) Reports on Commodities (6 reports) namely Commodity Module Report, BlockWise Top Commodity Report, Commodity Product Wise Report, Service Wise Detail Report, Block Wise Data Potential Report, Block Wise Data Existing Report
- (viii) Reports on MPR (23 reports) namely MPR Entry Status, Coverage of Blocks under Intensive Strategy, Coverage of GP under Intensive Strategy, Coverage of Villages under Intensive Strategy, Mobilization of Households into SHGs, Promotion of SHGs, Amount of Savings

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Mobilized by SHGs, Disbursal of Revolving Fund(RF) to SHGs, Disbursal of CIF to SHGs, Promotion of Village Organizations(VO), Promotion of CLFs, Disbursement of VRF provided to VOs, Disbursement of CIF provided to CLFs, Achievement against NRLP RFD Indicators, MPR Entry Level, Compiled Report Of All MPR Indicators, Implementation Unit Wise Progress, Month Wise Progress Under NRLM, Key Performance Indicators, and Monthly Fund Status Report.

- (ix) Training and CB Reports (3 reports) namely Category Wise Trained Participants, Tracking CB Activities, and Details of Training.
- (x) Exception Reports (6 reports) namely Submission of MPRs, Saving Bank A/C Status, RF Disbursement Status, MCP Preparation Status, CIF Disbursement Status, and SHGs Part of VO.
- (xi) Convergence Reports (4 reports) namely Aspirational Districts, Mission Antyodaya, SAGY-GPs, and ST-Dominant Districts.

In addition there are two Mission Management Unit Reports and a Household Survey Report which can be obtained from DAY-NRLM e-gov applications.

## **2.5 MIS of DDU-GKY**

For Administrative authorities and PIAs of DDU-GKY, there were no end-to-end, workflow-based system to facilitate online management of training and placement. To fill this gap, the application DDUGKY-MPR (<https://kaushalpragati.nic.in>) has been developed to capture training needs and manage co-funding and implementation support to DDU-GKY in different States of the Country. SRLM Admin can plan for providing skill training to youth living in rural areas in their state and after that monitor the progress of the training programs. This portal helps them to identify the focus areas related to SC/ST, minorities and women and fix targets for needy and vulnerable groups. Project Implementation Agency (PIA) can share information on training venue, infrastructure, special areas, faculty,

resource material availability etc. with MoRD and SRLM authorities with the help of this portal. In addition, to upgrade skills Kaushal Panjee has been created. PIAs can register trainees or candidates can themselves register in Kaushal Panjee.

## **2.6 MIS of SPMNRM**

RurbanSoft is the MIS for Shyama Prasad Mukherjee National Rurban Mission (SPMNRM) with url <http://rurban.gov.in/index.php/login>. This MIS has all the important documents of the scheme such as list of Rurban clusters, SPMNRM framework of implementation, framework of implementation in States, model planning guidelines, success stories, list of frequently asked questions and their answers. On this MIS, sanction orders, circulars, notices, monthly progress reports, physical progress reports, digitisation status reports, information on Rurban GPs in Mission Antyodaya, information on Rurban GPs in Saansad Adarsh Gram Yojana (SAGY), lists of components and sub-components, optimised component lists, work monitoring reports, data entry reports, state briefs etc are available.

Apart from above MIS of selected schemes mentioned here, all other schemes of the Ministry of Rural Development have their own MIS.

## **3. MOBILE APPLICATION BASED CITIZEN INFORMATION AND FEEDBACK**

“Mobile communications technology has become the world’s most common way of transmitting voice, data, and services, and no technology has ever spread faster. Mobile applications for agricultural and rural development (m-ARD apps) could provide the most economic, practical, and accessible routes to information, markets, governance, and finance for millions of people who have been excluded from their use” (Qiang, Christine Zhenwei et al, 2012. P.1). Mobile Applications (M-apps) enables collection and dissemination of data for various purposes. Growth of mobile penetration in

India, including rural India is tremendous. As per Telecom Lead “India’s total mobile subscriber base including active and inactive users has reached 1,176 million in 2018. The proportion of active subscribers was approximately 87.28 percent of the total wireless subscriber base. India has 528.48 million mobile users in rural areas.” (Telecom Lead, 2019). Cisco’s 13th VNI estimates that 82.9 crore smart phone users by 2022 in our country covering 60% of population. Government is using this opportunity to reach out to large and scattered rural population through M-apps. In last 5 years, many mobile based e-gove applications have been launched by India. NIC has created an M-app store too. As of now 988 mobile based e-Gov applications are available and 62 demo applications are available (Ministry of Electronic and Information Technology, 2019).

Ministry of Rural Development with the technical support from National Informatics Centre (NIC) has developed a number of mobile apps to enabling better planning, monitoring and implementation of schemes and also to facilitate citizen engagement in these programmes.

### **3.1 Gram Samvaad**

MORD has created this m-app as a one point for information on seven rural development programmes including MGNREGA, DAY-NRLM, 15th FC, NSAP. It is aimed at citizen friendly dissemination of information and to ensure transparency and accountability (National Informatics Centre, 2017).

### **3.2 MeriSadak**

“MeriSadak” is M-app enabling users to provide feedback on progress, quality of PMGSY roads to implementing agencies. Any feedback/complaint received on MeriSadak app has to be resolved within 60 days. MeriSadak app has significantly contributed towards monitoring the quality of PMGSY rural roads. Highlighting the importance of Meri Sadak M-app, then Joint Secretary In-charge of PMGSY and Director General NRRDA Shri Rajesh Bhushan reported “Use of ‘MeriSadak’ mobile application to upload pictures

easily as evidence when reporting has made the application a real-time monitoring tool”(Bhushan Rajesh, 2015). Using ‘MeriSadak’ M-app total 116581 complaints have been registered by the end of financial year 2019-20.

### **3.3 AwaasApp**

AwaasApp M-app helps housing beneficiaries to report progress of house construction and claim release of next instalment of fund. Geo-tagged photographs of house or site can be uploaded at various stages. These photographs are verified by competent authorities as the block level in order to take necessary actions. Data from AwaasApp gets uploaded on AwaasSoft which is available in both online and offline versions (National Informatics Centre, 2016).

Awaas+ mobile application is an android based App which is exclusively made for the inspector to do the survey. The survey is for the people who were not covered in the SECC 2011. The initiative is to cover the people who are exempted from the PMAY-G benefits which are real holders of it. The survey is based on some simple questions which will be related to the person who has to be included in the list. Awaas+ is an extremely user friendly application.

### **3.4 Janmanrega**

In compliance with the transparency provisions of the MGNREGA, MORD has developed Janmanrega M-app. It is a Citizen-centric Mobile Application (CCMA) with facility to flow information from and to grassroots level. An initiative towards good governance, Janmanrega is an interface to improve quality of public services. (National Informatics Centre, 2017).

### **3.5 Kaushal Panjee**

Kaushal Panjee (Skill Register), is a mobile app for DDU-GKY) and RSETI. Rural youth needing training can register themselves on it, free of cost and be connected to Training Partners and Banks working in collaboration with the MORD. Rural Youth can also get information about mobilization camps, training centers, job melas, start of batches etc. through this M-app (National Informatics Centre, 2017).

In addition there are a few apps which are currently not to be used by public such as Mission Antyodaya App for data collection for evidence based planning.

### **3.6 Mission Antyodaya App**

This app helps gather and upload information with regard to infrastructure at village and GP level and enables evidence based GP level development planning. In Phase -1, 50000 GPs were selected and enumerated by the states and further data for 2 lakh Gram Panchayats have been collected in phase-2. The census 2011 data is used as baseline data which will be updated and digitized by Gram Sevak as census 2017 data with the help of Android Mobile Application. Every Village data is being enumerated on the basis of questionnaire parameters. Gram Panchayat score is aggregated on the basis of total villages data within the Gram panchayat and the then Gram Panchayat ranking is decided on the basis of score received (National Informatics Centre, 2018).

### **3.7 GSA 18**

This GSA 18 M-app allows the user to login with which they can upload images and write testimonials for the events during the Gram Swaraj Abhiyan conducted by various departments and ministries to generate awareness and enrol beneficiaries in rural areas. The images will be verified by one authorized person who would be assigned for the particular area (National Informatics Centre, 2018b).

#### **4. EFFECTIVENESS AND RECOMMENDATIONS**

While these MIS are very useful in making information related to schemes easily accessible to the common people, there are certain issues with them. Criticising MIS systems as a mechanism of monitoring and accountability, Nandy says “It is high time that the Union government focuses on strengthening the local implementation and monitoring through sensible policies. It is a futile effort to introduce over-the-top technological solutions to deal with issues and leakages caused by complex social and administrative dynamics. MGNREGA can be revived only through concrete decentralised grassroot processes and not by flawed MIS data. While MIS is useful in capturing data on work that has happened on ground, linking implementing processes with the MIS proves to be detrimental for the health of the programme as it destroys local accountability, promote centralisation and administrative control and most importantly gives out false and misleading data which can be tampered for one’s vested interest. There is a genuine issue with the integration of modern day digital management systems with the data-centric achievement motivation of the administration. The MIS has become a tool to show whatever the top bosses intend and the whole system therefore works towards achieving the data on the MIS, causing tremendous implications on ground.” (Nandy Debmalaya, 2018). However, the experience of resource persons who are engaged in the facilitation of social audit of MGNREGA in different States, it is evident that for accessing information related to the implementation of MGNREGA at the GP level, NREGASoft has come very handy particularly when there is subtle resistance among implementing officials to provide relevant information and documents for the social audit. Perhaps that is why, these resource persons are advocating for similar real time transaction based MIS in all the schemes of Rural Development which can be easily accessible to one and all.

These ICT based feedback mechanisms are useful in terms of easy access, in-built mechanisms for follow up and also absence of human

interaction and threat of retaliation. However, for ICT platforms to be effective policy makers and senior implementation authorities must have a willingness to respond to the feedbacks and demands raised through these platforms. Fox says “ICT platforms can bolster upwards accountability if they link citizen voice to policymaker capacity to see and respond to service delivery problems. This matters when policymakers already care. Where the challenge is how to get policymakers to care in the first place, then the question is how ICT platforms can bolster downwards accountability by enabling the collective action needed to give citizen voice some bite”( Peixota Tiago and Fox Jonathan, 2016. P.24). And hence, policy makers and higher level authorities implementing various schemes need to be sensitized and oriented to be responsive and caring of the concerns of rural citizens. Further, to make these mobile apps more effective, government must ensure that all front line functionaries responsible for implementation of these schemes must have smart phone with required specifications. Availability of good mobile networks is another necessity. Even today, there are many rural areas where mobile networks have not yet reached or remain down due not non-availability of electricity and inadequate maintenance of mobile towers. Most importantly, people in general and youth group and SHGs members in particular need to be educated and oriented about these mobile apps and encouraged to use them to provide feedback and to register grievances.

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