Airavat: An Automated System to Increase Transparency and Accountability in Social Welfare Schemes in India

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ABSTRACT

Activist groups have taken up information dissemination and feedback collection as a means of rights advocacy in India. However, it is not easy given the difficulty in procuring and disseminating information at a large scale. Beneficiaries are often not able to help themselves as information systems are administration facing, because of poor literacy and the inability to access the Internet. Further, beneficiaries are not well informed of their rights and entitlements under different government schemes to know how and when to file grievances. We aim to solve these problems by designing and testing prototypes for information dissemination and feedback collection in various contexts. In our current prototype we describe an automated tool that sifts through the data on an MIS and conveys personalised information to the beneficiaries through voice calls. This is a work in progress, and our first exercise on providing MIS-extracted information to people through phone calls led to 70% of the beneficiaries who noticed a discrepancy in the data to agree to file a grievance on their behalf. We are continuing to scale the work, make it more automated, and run qualitative interviews with all stakeholders to understand causality linkages with transparency led grievance filing, assisted by appropriate ICTs, to increase accountability.

Categories and Subject Descriptors

K.4.m [**Computers and Society**]: Miscellaneous

General Terms

Human Factors

Keywords

Accessibility, Airavat

1. INTRODUCTION

India's right to information movement had tremendous success in making strategic use of transparency for securing government accountability. Thanks to this success, demanding and disseminating information are among the most used tools in the work of activist organisations in the country today. Provisions for suo moto disclosures in many recent legislations are expected to reduce problems such as data fudging and corruption [2, 7, 8, 9]

and improve grievance filing and redressal processes [4, 6] in government schemes. Civil Society Organisations (CSOs) also collect feedback on government programmes from people and use it for filing grievances and undertaking advocacy. Mediating information is one of the important means through which activist organisations empower people, but this work has significant challenges due to the effort it takes to access the public records, disseminate them in hundreds of villages that CSOs cover and collect feedback on them. In addition, beneficiaries are often not aware of their rights and entitlements, how to access the information, or where to complain when their rights are violated [1].

We hope to change that by using the exploding network of mobile phones. Working with activist-partners, we identify areas where we could develop information dissemination or feedback systems that the partner believes could be empowering in that particular context. Following this, prototypes are developed, tested, refined and made ready for implementation. We call each type of intervention a campaign and we expect new campaigns to emerge with changing circumstances. The emphasis of the process is on understanding public action in the region and what kinds of information can empower rural citizens in dealing with the powerful government and the social actors engaged in running it. We name our system *Airavat*: A system that uses ICTs in appropriate ways to convey campaign related information through voice calls, and get feedback on actionable steps that can be undertaken by different stakeholders. In this note, we discuss one such campaign on the National Rural Employment Guarantee Act (NREGA), in the state of Andhra Pradesh. For this campaign, we are using a three step process. One, we are building a system to sift through data on the MIS to generate personalised summaries for the beneficiaries, including cues for filing grievances. Two, we will convey this information to the beneficiaries using voice calls, thus breaking the access barrier. Three, in case any discrepancies are detected, we will help beneficiaries register grievances through our voice-based system. In this note, we present the design and working of this campaign, and results from an initial experiment.

2. BACKGROUND ON NREGA

The Government of India enacted NREGA to reduce rural poverty and stem rural-urban migration. The Act guarantees a minimum of 100 days of work to every rural household, members of which are willing to do manual labour. Accordingly, job cards are issued to households, the job card holders can demand certain types of work for their communities, and work is assigned after approval from the local panchayat[1] and higher government authorities. No heavy

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[1] A gram panchayat is a group of villages and is a local self-governance body in India. Gram means village in Hindi. A mandal is an administrative sub-division of a district in India. It typically is made up of a group of gram panchayats.

machinery is allowed, and the work cannot be outsourced to a contractor [5]. The Act provides for unemployment allowance in case the state is not able to give the household the minimum number of guaranteed work-days. Besides, the Act provides for basic work-site facilities like drinking water, toilets and creches. The broad process-flow for this scheme is (also see Figure 1):

- Eligible workers demand work.
- Job is opened in the village.
- Workers are assigned work.
- Attendance is recorded in on-site muster-rolls.
- Measurement of the work is done and the wages are determined proportionally.
- Pay-order is generated and payment is received through bank accounts or post offices or payment agencies. This must happen within 14 days from the date of completion of the assigned work.
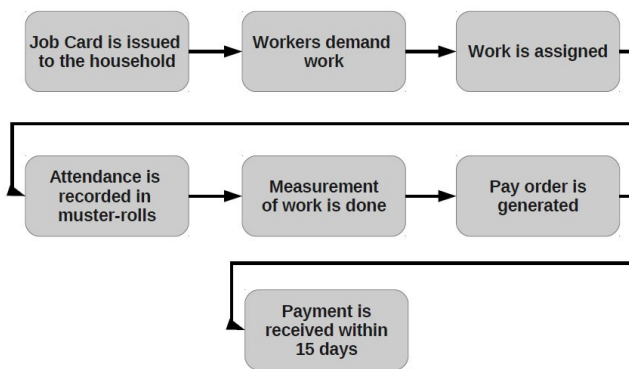

Figure 1: The different stages in NREGA workflow.

2.1 Problems with the Implementation

While the scheme sounds good on paper, several implementation problems have come to light. People are often not aware of their rights and entitlements such as how to apply for a job card, the fact that work can be demanded, access to unemployment allowance in case the state is not been able to provide work, etc [1]. Attendance and payment related documents can be fudged, especially when offline data entry systems are used [2, 7, 8, 9]. For example, 63% of the respondents in an audit programme reported that muster-rolls were never filled on-site [12]. Frequent problems are also discovered on complaints of delayed payments, ghost workers, work not opening in certain villages, bias in allotting work, measurements of work not being carried out, and machinery and contractors being used at the work-sites [11, 12, 10].

2.2 Solutions in the Law

To guard against the problems mentioned above, the law recommends transparency measures such as wall-writings about projects and employment on panchayat office walls, and extensive MIS tracking of the scheme with information on job-cards, work-allocation, muster-rolls and payments. In most cases, paper-based data recording is done on site, and later converted to digital. Accountability measures are recommended such as filing of grievances online on the MIS portals or via phone helplines, with redressal guaranteed within a fixed time-frame. The government also engages NGOs to undertake social audit and report any inconsistencies.

2.3 Incompleteness

CSOs have pointed out that these solutions are however not enough.

- **Accessibility issues:** As discussed earlier, simply making all data accessible via an MIS is not enough. Most beneficiaries cannot directly access the MIS due to illiteracy and poor Internet connectivity, and need a different communication interface, or have to rely on intermediaries such as NGOs and social workers to help them.

- **Empowerment and awareness issues:** Beneficiaries are not well aware of the provisions of the schemes, mechanisms for grievance redressal, and helpline operators are infamous for having an indifferent attitude towards the rural poor and are often misinformed themselves.

- **Workflow based verification:** Most lapses happen when beneficiaries are either not able to get their demand for work registered, or the data recorded about work done and workers registered at sites do not match the actual reality, or the payments recorded do not match the actual payments made. Therefore the data recorded on the MIS needs to be analysed via a stateful workflow engine, and verified against the realities on the ground.

- **Scalability of social audit:** The government mandates NGO-led social audit of NREGA, and some states such as Andhra Pradesh have been able to achieve a significant coverage, but social audit is expensive in terms of manpower since door to door surveys are undertaken to match recorded data with actual interviews of people.

In the next section, we describe how we aim to bridge these gaps through an ICT-led intervention meshed closely with on-ground processes for stakeholder engagement.

3. SOLUTION OVERVIEW

We broadly follow a three step process: Get data from the MIS to generate personalised summaries for the beneficiaries by modelling the workflow outlined in Figure 1, convey the information to the beneficiaries over voice calls, and in case of any discrepancies to help the beneficiaries file grievances. Our hope is that when beneficiaries are better informed of the data recorded officially on the MIS, they will discover potential discrepancies, and demand resolution.

Our design is motivated by several reasons. The choice of using IVR (interactive voice response) systems seems appropriate since voice connectivity in India is now widespread, barring the very poor most households at the BoP own mobile phones, and the voice medium is accessible to even poorly literate people. The actual architecture of picking up data from the MIS and feeding back valid grievances, provides a seamless connect with the systems that the government is putting in place. The functionality we are building only complements and does not overlap the systems already being put in place by the government. Finally, the training and field processes required to implement the system are simple and can be taken up by NGOs or social enterprises in a scalable manner.

We found an appropriate pilot geography in the state of Andhra Pradesh. AP has one of the most extensive MIS systems that is regularly updated, and also features an elaborate grievance redressal mechanism. Our contacts in the AP government facilitated API access to the MIS and grievance filing, which makes integration easy. Our work currently is constrained to the a single mandal, where we have good field partners who have helped us to engage with the community.

Our field process begins with populating an address-book of beneficiaries in a particular geography, using smartphones for data entry. This is a one-time process that needs to be done manually for each beneficiary. The address-book contains job card numbers, phone numbers, name among other demographic details of the beneficiaries. Next our system uses the job card number to grab data from the NREGA MIS and disseminate personalised information to the beneficiaries over voice calls. Depending on the stage of each beneficiary, the voice calls may advise people to register demand for work, or provide updates on the number of days of employment recorded on the MIS, information on wage disbursements recorded on the MIS, etc, and seek feedback. The feedback may be to actually register demand, or file grievances in case the beneficiary discovers a discrepancy. Simple DTMF input is used to capture this feedback. We next describe the process in more detail:

- **Information Dissemination:** The automated system queries the MIS for updates against the job-cards registered with us. On finding an update, the system schedules an automated voice-call to the participants informing them of the updates. Some examples of updates in this context are work demand registered, work has been allocated, muster-roll has been updated, pay-order has been generated.

- **Grievance Registration:** IVR menus navigable through DTMF inputs are used to collect information about grievances. Grievance registration can either be initiated by the participant (the participant calls the system and navigates a menu to register grievance) or by our system (participant detects a conflict in the automated update delivered). Grievances thus captured are transcribed by a human operator, and pushed into the government's online grievance registration system. Our system keeps track of the state of each participant, which makes grievance filing easier: each participant may be in one of the following states (Figure 2): job card has/has not been issued, registered/not registered work demand, allotted/not allotted work, paid/awaiting payment, awaiting a grievance redressal. After a grievance has been filed, our system keeps the participant updated about the status of the grievance displayed on the MIS through voice-calls.

- **Trend Detection and Profiling Module:** We plan to use the MIS to maintain group level profiles for each village, mandal and district. This will help detect trends, for example, to flag geographies which seem to have a trend of no work opening, delayed payments or low NREGA enrolment. Maintaining this information will help us identify bias in work allocation or if the implementation of the scheme in certain places is below par.

- **Scaled Information Verification:** Social audit is expensive in terms of manpower. Our system can be used to do information verification at scale. The system will use the data from the MIS and from the Profiling Module to intelligently find anomalies and verify them from the beneficiaries.

3.1 Challenges
We are facing several challenges while building the system.

- **Power sensitivities:** It has been observed that many participants are reluctant to file complaints, possibly fearing backlash from those with entrenched interests in maintaining the status quo of corruption. In such cases it might be difficult to persuade the participants to file complaints.
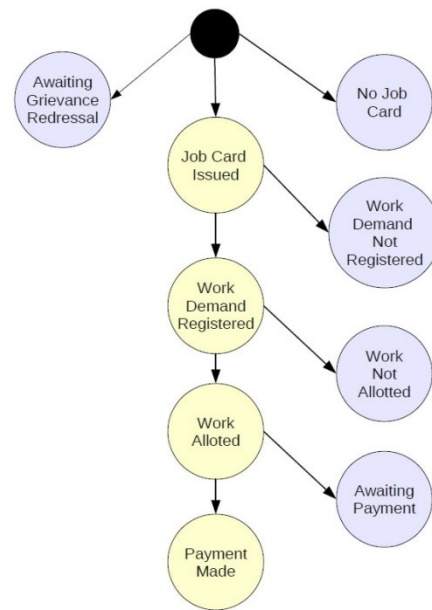

Figure 2: An example of states where a beneficiary can be in NREGA. There are several other states possible besides these.

- **Inexperience with technology**: The target audience for the system are manual labourers with no substantial exposure to Information Technology. Conveying and collecting information to them through automated IVR may be a challenge that could require training. It will be interesting to see if the incentive of remaining updated and getting their grievances redressed helps the participants self-train themselves.

- **Changing phone numbers:** Rural India has a trend that people change phone numbers often to switch to network providers with better short term deals. Having built an address book with phone numbers, it will be difficult if a vast number of participants change their phone numbers. It will be interesting to see if the value provided to the participants is enough to motivate them to update us with their changing phone numbers.

4. CURRENT STATUS
We are piloting the system in a single mandal in Andhra Pradesh. Using an ODK [3] application we have enrolled over 1,000 participants from 6 gram panchayats in the programme through door to door data collection. These participants are now receiving automated voice calls on general awareness of NREGA.

4.1 Grievance Reporting
Before starting with an automated IVR system, we ran a manual survey over phone to collect grievances. This manual exercise is intended to help identify the rights wordings to use for the survey, and also how many questions to ask the people to ensure that the beneficiaries do not get confused. There are three questions we are interested at this stage to be able to identify potential grievances: If payment has not been received for work done, if full payment has not been received for work done, or if the field assistant (FA) has not come to collect demand for work in the last week. We prepared three different scripts to ask these questions, each addressed to a different set of beneficiaries. Two scripts asked all

the three questions but were worded differently. The third script only asked the first question.

We first identified beneficiaries registered with us who, according to the MIS, had payments delayed by more than 4 weeks after completion of work. Although the rule is 14 days we find that 1 month has become the norm for payment. We ran this exercise on data between 1st March and 23rd June 2013. We were able to reach 52 people from the list and all 52 agreed to participate in this exercise. After the survey, 39 (75%) of them said that they had received the payment, 12 (23%) had not received the payment while 1 (2%) was uncertain. 9 (75%) of the 12 who had not received payment agreed to file a complaint for non-payment.

Next we verified if the amount received by the participants was in accordance with the records. 24 (77%) people of the 31 we asked this question said that the amounts on the records were correct, 5 (16%) said they were incorrect and 2 (7%) said that they were uncertain. 4 (13%) people who received amounts inconsistent with the records said they were paid less while 1 said he was paid more. 3 (75%) out of the 4 people agreed to file a complaint for less payment.

We then asked 38 people if the Field Assistant (FA) had come to record demand for work in the last week. 21 (55%) confirmed that the FA had come, 14 (37%) confirmed that the FA had not come, while 3 were not sure. 10 (71%) of the 14 people agreed to file an anonymous complaint against the FA, 3 (21%) did not want to file a complaint, while 1 was not sure. Table 1 summarizes the key findings.

Table 1: Summary of the results from the manual phone survey

Payment not received	12/52	23%
Agreed to file complaint for nonreceipt of payment	9/12	75%
Amount received was less	4/31	13%
Agreed to file complaint when amount received was less	3/4	75%
FA did not come to collect demand last week	14/38	37%
Agreed to file complaint for FA's absence	10/14	71%

4.2 Information Dissemination

We made automated wage-summary broadcasts over IVR for some pay-orders generated for one panchayat. Out of the 27 calls scheduled, 17 were answered and listened to in their entirety, 4 calls were disconnected while in progress, while 6 calls were not answered. The next step for us is to verify if the participants were able to understand the information conveyed through the call, and also understand why some people disconnected the calls.

4.3 Preliminary Findings

A majority of the beneficiaries (more than 70% in all cases) agreed to file a grievance when prompted. The fact that grievances had not been filed earlier may point to a lack of awareness to register grievances, or a lack of suitable modalities, or simply a lack of empowerment among the people. The exact reasons may become clearer after we conduct field interviews with the participants. The several mismatches between the MIS records and the ground-truth (word of the participant) also point to gaps in the delivery mechanism of NREGA.

5. CONCLUSION

In this note we report our initial campaign to build a suite of ICT tools to increase transparency and accountability in social welfare schemes in India. With a small sample of people, we ran an exercise of informing them manually over the phone about the payment status recorded on the MIS for work being done by them under NREGA, and in case of a discrepancy we asked them if they would want to register a grievance. More than 20% of the people reported a discrepancy in the official data, and more than 70% of them agreed to file a grievance. These are initial steps and we are building systems to evaluate these ideas at scale on how can we take transparency to the last mile, and bring accountability.

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