
CHAPTER 6

Computerization of *Mandal* Revenue Offices in Andhra Pradesh: Integrated Certificate Application

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Information and communication technologies are important tools of the government of Andhra Pradesh to become SMART (simple, moral, accountable, responsive and transparent). Andhra Pradesh is the first state in India to design a state-wide computerization program covering all levels of the administrative spectrum from the smallest—the *Mandal* Revenue Offices—to the top-most, largest and most powerful. This paper presents a review of the computerization program of the 1,124 *Mandal* Revenue Offices in the state and its first application—the delivery of statutory certificates stating caste, place and date of birth, and land holding, to individuals in a few minutes without the current delay of 20 to 30 days.

Introduction

The government of Andhra Pradesh (AP) plans to introduce computers at all the levels of state administration to improve citizen services. The government has consolidated computerization and provision of technical services into a separate department. AP was ahead of other states in creating a citizen's database. The Statewide Multi-Purpose Household Survey (MPHS) was launched in 1995. It is being used to store large volumes of data—information useful to make quick, transparent and objective decisions and to cut bureaucratic delays at various levels. Other uses are for analysis of citizen data and information exchange through networking. All high profile information technology (IT) initiatives in the state are largely the result of Chief Minister N. Chandrababu Naidu's vision and determination. Political leadership is particularly important for cross-departmental IT projects.

With the large Andhra Pradesh Secretariat Campus Network at one end of the spectrum and the *mandals* (lowermost institutionalized tier of the state

administration) at the other end, the *Mandal* Revenue Offices (MRO) project envisages introducing computers right down to the *mandal* level. For the Andhra Pradesh State Wide Area Network (APSWAN) a 2 MBPs optic fiber link would connect the state secretariat with the 23 district headquarters, and serve as the backbone for “multi-services” (voice, video and data). These multi-services would improve coordination between the state headquarters and the district offices in managing various regulatory, developmental and hazard mitigation programs of the state government. They would also ensure quick, accurate and efficient aggregation of large amounts of data generated at the *mandal* levels for performance monitoring and analysis at both micro and macro levels.

The Setup

Many villages constitute a “*mandal*.” There are 1,124 *mandals* in the state, each with a population ranging from 35,000 to 500,000. A group of 7 to 15 *mandals* forms a Revenue Division. There are in all 78 Revenue Divisional Offices in the state. One or more Revenue Divisions are grouped together to form the 23 districts.

The Scope

The scope of the project is to computerize all of the *mandal* Revenue Offices (1,124), Revenue Divisional Offices (78), Collectorates at state headquarters (23), the office of the Commissioner of Land Revenue, Directorate of Economics and Statistics, and the central headquarters in Hyderabad. The two-year computerization project would include data collection, coordinating the implementation of different databases, and developing human resources through intensive training. Funding for the computerization of the *mandals* is a part of a World Bank Hazard Mitigation and Emergency Cyclone Recovery Project, which supports the government’s efforts to improve data collection and communication of relevant hazard and vulnerability reduction information from the district and *mandal* level to citizens.

In MRO offices, apart from land records and data from the MPHS, there are large volumes of data relating to the Public Distribution System, elections, and flood and cyclone management. The MPHS data include socioeconomic details of all citizens living in the *mandal*. In addition, it has a large amount of data that is generated periodically at village/*mandal* level through surveys and in departmental monitoring forms.

The scope of the project includes, for all of the *mandal* offices: procurement and installation of necessary hardware and software; field verification, validation and updating of the MPHS database; and development and

installation of various software applications; development of IT human resources through extensive training on computers, general and application software to 5,000 MRO staff; and assignment of unique identification numbers to all citizens in the state.

There are three categories of work to be automated.

Category I (work process to be computerized)

- Issue of *integrated certificates* (which have details of caste, place and date of birth), birth and death certificates, income certificates, pensions, ration cards, reports and periodicals.
- Maintenance of village revenue records, *patta*¹ transfers, management of revenue demands, management of government/ surplus lands.

Category II (Manual work processes monitored on computer)

- Assignment of government/surplus lands, land acquisition, collection of revenues, monitoring of public grievance, court cases, welfare schemes, hazard mitigation planning relief and rescue operations, and disbursing compensation.
- Monitoring the performance of every employee of the state government.
- Statistical information on land holding census, crop particulars, weather and climate, live stock census, economic census, population census, irrigation surveys, house building and agricultural wages.

Category III (back-office functions to be computerized)

- All personnel registers, registers under the District Office Manual, payrolls and 22 registers recording cash transactions.

Technology Used

In accordance with the IT policy of the state, a Client-Server architecture has been adopted in the project. Every MRO office will have at least one server and two client-PCs with adequate power to process the data and support the data mining capabilities envisaged in the APSWAN project. This would mean approximately 1,400 servers and 2,500 client PCs. At the headquarter level it is proposed to have PCs for faster processing and handling geographical information system data, while those at the *mandals* will be for data entry and information lookup. Since at present APSWAN extends only to the districts, dial-up-modems are to be used to access data located in remote MRO offices. Figure 6.1 provides an overview of the technical configuration, including the wide area network (APSWAN) at the state and district levels, and the campus local area network (LAN) to be established in public offices.

1. A *Patta* is a document establishing an individual's right of possession to land.

Integrated Certificates

The first phase targets issuing integrated certificates across a counter to citizens from the *Mandal* Revenue Offices. A view of a Citizen Customer interface counter can be seen from the picture in Figure 6.2.

The certificates will be based on a validated database. The aim is to cut down the delay in issuing an integrated certificate to an applicant from the present delay of 20-30 days to 10 minutes.

Since this information is the only authentic and permanent record of citizens, the certificate is of vital importance and has far reaching implications. The constitution of India lays down that all governments should take proactive steps to ensure special reservation to the people belonging to the Schedule Castes and Schedule Tribes and other socially backward castes. Like the affirmative action program in the United States of America, the Constitution relies on preferential treatment to uplift those communities that have been historically both under privileged and prevented from acquiring the economic and social skills necessary for economic success in contemporary society (Gupta 1998; Parikh 1997).

In Andhra Pradesh, out of a total population of 80 million, 16 percent belong to Scheduled Castes, 7 percent to Scheduled Tribes and 36 percent to Backward Classes. The Social Welfare Department coordinates all the developmental activities taken up by the government for the people belonging to these socially backward classes. The welfare schemes include free education, free hostels, free books, scholarships, various economic benefit schemes, subsidized medical facilities, infrastructure developmental schemes, land purchase schemes and weaker section housing schemes to name a few. According to the tentative figures available, the revised budget of the implementing department was a whopping \$18,940,000 approximately (Rs 81.5 crores) in 1997-98 and is estimated to go up to \$20,070,000 (Rs 86.32 crores) in 1998-1999! Integrated certificates containing caste particulars are necessary for a person to avail such benefits. This further underlines the importance and the implication of integrated certificates.

Implementation

Keeping in mind the absorptive capacity of the administrative system and the vastness of the scope of the project—both geographical and technological—implementation of the project is being phased. A pilot study was initiated in Moinabad Mandal of Ranga Reddy district in April 1998. As phase I of the project in August 1998, computers were introduced in another 90 MRO offices, located at the head quarters of Revenue Divisional Offices that were spread over 23 districts. This covered most of the urban areas of the state and hence a substantial population. In phase II the remaining 230 MRO offices located at the headquarters of the erstwhile *talukas*² will be taken up.

2. A *Taluka* is the same as a "*Tehsil*" in other states and a *mandal* in Andhra Pradesh. It is a unit of administration above the village and below a subdivision.

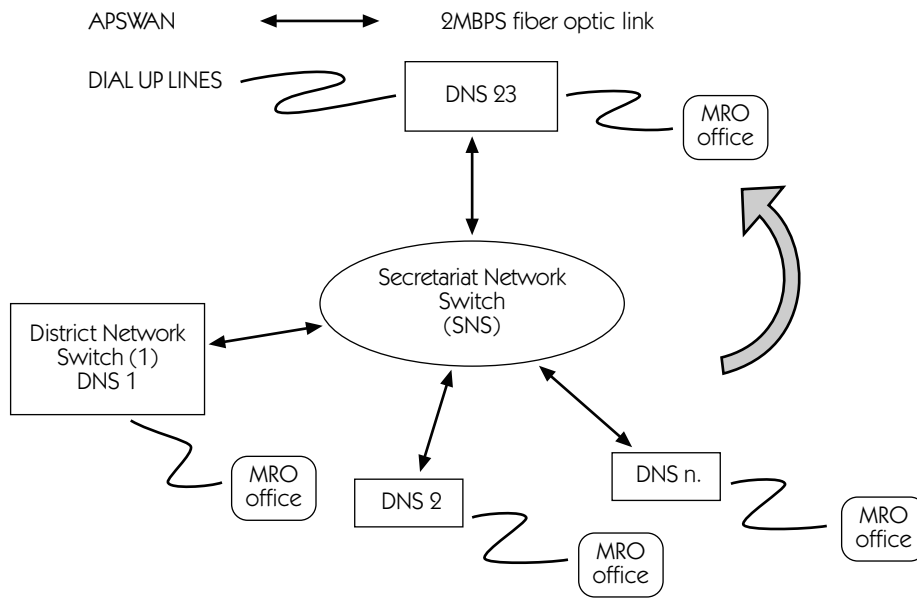


Figure 6.1 Functional Diagram of the APSWAN (AP State Wide Area Network)



Figure 6.2 View of a Citizen Customer Interface

Capability Building

For proper use of this technology computer training had to be imparted to the staff of the MRO offices. Two operators (at the level of junior assistants) and two System Administrators (at the level of senior assistants) were given training for periods varying from 10 days to 20 days in the operation of

computers and application software. In addition, a few persons from the office of the Collector were also given training. A total of about 410 persons have been trained under phase I.

Intensive training for a period of one month was imparted to four persons, identified from each district as District Resources Persons. Thus a total of 92 well-trained personnel assist the implementation of the project at the district level. Periodic refresher courses are also organized for them.

Capability building has now to be undertaken for another 4,000 persons. The training, based on a well-developed training syllabus, will be conducted at the district level by reputed training institutions.

Data Validation

Before actually using the voluminous MPHS data collected in 1995, it had to be verified and re-validated at the field level. After the teams of revenue department staff completed these verifications, the MRO certified the entire database.

Process Reengineering: The Existing Setup Versus the New Setup

In the existing setup, a person requiring a certificate of his/her caste or date of birth, has to apply in writing to the competent authority in form I or II, prescribed in Government Order No. 58, SW (J), May 12, 1997. The *Mandal* Revenue Officer (MRO) marks it to the Revenue Inspector, who in turn authorizes the Village Administrative Officer for inquiry. After the inquiry, if the Village Administrative Officer is satisfied about the claim of the applicant, he recommends issue of the certificate. The Revenue Inspector countersigns this recommendation. On receipt of the recommendation, the MRO marks the application to the clerk concerned, who fills in the relevant columns in the pre-printed integrated certificate. This certificate is numbered, entered in a register and sent to the MRO for his signature. After the MRO signs the certificate and affixes his seal, the certificate is given to the applicant after taking an acknowledgment receipt. This process takes between 20 to 30 days.

Under the new setup the applicant will apply for the integrated certificate in the prescribed form at the *Citizen Interface Counter*. The Junior Assistant/Operator will number it and check the correctness of the claim by checking with the validated and certified database in the computer. The authorized person/competent person will print out the certificate on the computer. The certificate issued by the computer will not only be exactly as per the format given in the relevant government order but will also have a bar code to identify it to check its authenticity. The whole process will take less than 15 minutes.

The MRO continues to be the authorized/competent person. It has now been suggested that since the entire database is to be certified by the competent

person, the Superintendent of the MRO office (who is of the rank of the Deputy *Tahasildar*³) be a resident officer available in the office at all times. This avoids unnecessary delay in the issue of the certificates in case the MRO is unavailable.

Site Preparation

In all the MROs minor civil and electrical works were required to ensure a decent building, electrical connectivity and grounding. All MROs under phase I were provided with a uniformly and aesthetically designed Citizen Interface Counter to bring about an improvement in the environment and work culture. This is intended to reduce the difficulties people face in having to go to various sections in the MRO to obtain services. It also reduces the level of corruption.

Security of Data and Audit Trail

In addition to keeping track of all the certificates issued, it is also mandatory to keep a record of the people who process the requisition, who authorize it, and who finally hand over the printed certificate. The software designed has the necessary facilities to capture the “electronic signature” of the personnel handling these facilities. Access to the database is controlled by the authorized personnel and would be thus read-only, with special provision for alteration.

Unique Identity Number

Each person in the database will have an individual identity number. This would be referred to as the Social Security Identification number. This number will be a 16 digit code, where the first two digits will represent the state, the next two the district, then the *mandal*, then the village/ward, then the household number, and the last serial number will be of the person in the household survey data. The identification number will be electronically transferred from one *mandal* to another in case an individual shifts his/her residence within the state.

Implementation Challenges

Problems Related to Data

Compiling a cross-departmental data posed major impediments that had to be overcome.

3. A *Tahasildar* is the officer in charge of a Tahasil/Taluka. In Andhra Pradesh he/she is known as the *Mandal* Revenue Officer (MRO).

- a. Since the data was collected 3 years ago, most of it had to be re-validated. This was done by teams of revenue department staff (since this data is in the custody of the Revenue and only they are empowered to make changes).
- b. There were no uniform standard codes in 1995 for the districts, *mandals* or villages, and for castes at the time of data entry. This created difficulties in accessing the correct data. Now, all codes have been standardized and their use has been made mandatory to all departments by a government order. This will facilitate exchange of information throughout the state, between departments at different levels.

Poor Infrastructure Facilities

Of the 1,124 MROs, 628 are located in government buildings and 496 in private buildings that have been rented. Many of these buildings are in bad shape and require repair. In many offices electrical wiring is unsatisfactory and in most cases grounding is not provided which is a pre-requisite for the trouble-free functioning of computers.

Vastness of Scope—Geographical and Technological

Approximately 4,500 computers along with related accessories like printers, UPS, and monitors, are to be installed in 1,124 MROs in 23 districts spread over an area of 275,045 sq. kms. The large scope and the vastness of the geographical area has created a need for extra resources to procure, deploy, operate and maintain the large number of computers. This in turn has presented difficulties in project management as a single unit in Hyderabad has to cater to all these demands.

Lack of Trained Human Resources

Another major challenge is the lack of human resources in terms of computer literate staff and absorption abilities for over 5,000 MROs. It was estimated that training 5,000 as computer operators at the district level at a man machine ratio of 1:1 would take approximately 6 months. To prevent “vaporizing” of the skills acquired, the timing of training and procurement and the installation of computers need to be synchronized.

Coordination with Various Departments

Establishing and maintaining project interfaces is an essential factor in the success of large, complex IT projects. In this project, activities are intermeshed

with previously undertaken projects and with the other on-going projects. Clear governance of the inter-relationships and coordination responsibilities among areas for delivery of application software requires a lot of communication from other departments and agencies, e.g. the MPHS database is handled by the Revenue Department the Hazard Mitigation Information System (HMIS) is handled by the Disaster Management Unit of the Finance and Planning Department and Commissioner, Relief; land records are managed by the National Informatics Center (NIC) and the Revenue department; and the Civil Supplies database is handled by the Civil Supplies department. The Social Welfare department frames the rules for the issue of integrated certificates given by the MROs of the Revenue Department. There is only one Project Director, with a limited number of supporting staff to ensure the implementation of this complex project cutting across various departments of the government. However, there is a high level Domain Expert Committee and State Level Committee on Computerization of Land Records to provide guidance. Andhra Pradesh Technological Services assist the Project Director in the technical component of the project, including the procurement of hardware, software and integration of modules from relevant departments and specialized agencies.

Work Culture

Though the revenue department provides an impetus to all other departments it is steeped in traditions, antiquated procedures and protocols, thus making it difficult to adopt innovations, such as the use of information technology. Persistent motivation and capacity building exercises are required to bring about this change especially at the initial stages. The process of demystification of computer technology has already started in all the phase I *mandals*.

Implementation Results and Benefits

Information technology has been successfully introduced in phase I MROs (90) for the issue of the integrated caste certificate. Data has been revalidated and the staff trained. Citizen interface counters have been set up. Application software has been identified and pilot studies are being conducted. The actual impact would be felt when the season for the requirement of the certificates sets in. The certificates are mainly issued to students belonging to socially backward classes at the start of the academic year, i.e., in the months of April through July, to obtain the benefits of the reservation policy. Phase II has already been initiated. A complementary land records package has been implemented in selected *mandals* of Ranga Reddy district.

This project is part of an overall AP Government strategy and there are many other sub-projects coming up. This assures some certainty in terms of

correctness of the implementation against a moving, larger target. Since this project is in the embryonic stage extrapolation of progress against milestones and cost incurred at this time might not produce the required results.

Conclusion

The IT application project described is very challenging both in terms of delivery and support. It is a complex operation, requiring coordination with various departments at different levels. There are very few examples of such a project in rural areas in any other developing country. The installation of over 4,500 computers for over 80 million records in the MPHS data base, developing customized software applications for diverse departments, and providing computer training to over 5,000 staff is a very daunting set of tasks. But long marches start with small steps—steady, confident and one at a time.

References

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