A Permanent Register of Voters for Uganda

Foreword

It was an honour to have been selected to assist the Republic of Uganda Commission for the Constituent Assembly in their considerations on improving the country's voter registration process and constructing a permanent computerized Register of Voters.

This mission report, prepared under the auspices of UNIX Project UC/\ 93-S14 with funding provided by the United Nations Department of Development Support Management Services, is the product of an intensive three week exercise of information gathering, analysis, policy discussions, technical investigations, document preparation and critical reviews by Commission management and staff.

The first three weeks of May 1994 was a very busy time in the Constituent Assembly Commission offices in Kampala. During this period the 284 democratically elected Constituent Assembly delegates commenced formal sittings, chose their Chairman and started deliberating on a new Constitution for Uganda. At the same time the UNDP Technical Assistance Team, which had assisted the Commission with preparations and delivery of the Constituent Assembly Election, were wrapping up their project operations. Both national and expatriate staff were in the final stages of preparing to leave posts they had occupied for the previous eight months or more.

I must, of course, take full responsibility for any faults and shortcomings that are contained in this report. Limitations of time simply did not permit full exploration of all aspects of the challenge at hand. Credits, where they are due, deserve to be shared with the management staff of the Constituent Assembly Commission, the professional staff of the UNDP Technical Assistance Team and a number of other Uganda Government and United Nations personnel. All gave generously of their time and provided thoughtful insights on a range of solutions to the challenge of voter registration and electoral roll maintenance in Uganda.

I would like to pay a special thanks to Ruth N. Mugerwa, the National Consultant for Informatics assigned to the Constituent Assembly Commission. Without her patient guidance and good-humoured tolerance I would have made many inappropriate assumptions about what is ---and what is not yet ---possible in the current environment of profound change in Uganda.

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Executive Summary

While challenging, the development of a computerized Permanent Register of Voters for Uganda is both feasible and cost-effective.

However, if this initiative is to proceed preparations must begin immediately due to the large proportions of the project. Management agreements, financial commitments, partnership arrangements and suitable physical facilities must be in place by mid-June 1994. Unless these pre-requisites are met quickly and effectively, it will be impossible to construct the Register and have it ready for updating and production use in time for anticipated electoral events. A Presidential Election or General Election (or both) could occur as early as December 1994.

This study proposes that the Register be constructed using standalone personal computer technology, extensive manual controls and a centralized approach to data entry, data repository maintenance and voters list printing. It is strongly recommended that contingency planning measures be undertaken to minimize the risk of both human and technological failure. A paper-based archive of voter registration documents will need to be constructed and maintained in order to provide a signature-verified audit trail showing the history of each and every voter registration in the country. Such a resource will be necessary to prove the integrity of both the Register system and voter registration procedures when court challenges are launched regarding voting results.

Constructing the Register and updating voter registrations for the next national electoral event in Uganda, using the procedures proposed, is projected to cost 2.8 billion U Shs. This must be compared to the manual registration and list preparation exercise undertaken for the Constituent Assembly Election which required a budget of more than 3.9 billion U Shs. The potential for cost avoidance of more than one billion Shillings makes a strong financial business case for quickly getting underway with constructing the Register of Voters; this equation is further strengthened by the prospect of continued reductions in voter registration costs associated with an increasingly efficient Register update process repeated during subsequent electoral events.

In qualitative terms, the proposed registration update process provides an opportunity to substantially improve existing voter registration information in Uganda with less effort than would be associated with repeating the entire registration exercise. A computerized Register of Voters can provide the future Electoral Commission with increased readiness to administer elections and referenda, and better abilities to perform voter registration activities. Properly managed, the Register and registration update procedures can symbolize the importance that is being attributed to individual voters while enhancing the Electoral Commission's abilities to administer electoral democracy in Uganda.

Management of the required physical and administrative environment of the Register will require specialized skills. Rapid development of a computerized Register infrastructure demands a team of dedicated professional resources to ensure that it is built with adequate robustness while being efficient in operation and easy for data entry operators to learn and use. A careful evaluation will need to be made regarding whether or not implementation of the project requires expatriate consultants to assist on-site. If it can be done with available Ugandan talent it should; if not there should be a conscious process of technology and knowledge transfer in order that the expertise exists in the country after the project is complete.

Significant commitments of computer hardware will need to be dedicated to the Register of Voters function on an on-going basis to ensure that it is ready to be used for an electoral event that can be called at any time. Using this equipment as a government resource should be considered for non-electoral periods, but it is strongly recommended that the hardware not be moved away from its permanent site in Electoral Commission offices.

Strong leadership will be required to overcome inertia and remove many obstacles to constructing the Register and fully developing registration update procedures within the necessary timeframes. The technical obstacles are not likely to be the largest; these will be political, organizational and financial. An automation project of this size, undertaken within the timeframes outlined, is a substantially larger and mom ambitious undertaking than most computer systems projects in Uganda to date.

Management must be aware that them will be a wide-spread tendency to believe that the construction of a Register is a relatively simple undertaking made easier by the use of computers. Conceptually a Register of Voters is easy to understand; operationally it is a complex and labour intensive technical and administrative structure that must be created using many interlinked pieces that can not all be built or put into place at the same time. Policy makers must not be deluded into thinking that creating and operating an electronic repository, computer production centre and source document index that maintains over 7 million voter registrations is a task that can be done without substantial preparation or commitment of resources.

Should the computer&d Register of Voters be constructed, it could provide significant additional value as an information resource for the Government of Uganda. Potential for using the Register as a foundation for National Identification Cards, a Register of Births and Deaths or even a Population Register warrants further exploration.   However, preparation for upcoming electoral events must take priority in the short term.   Starting the development of the Register, and preparing associated procedures for voter registration updates, will help move the country into a significantly better state of preparation for the historic electoral activities that lit ahead of it.

Introduction

Context

Uganda is in a state of nation-building and transition to new democratic structures. A Constituent Assembly was elected on March 28, 1994 and 284 democratically elected delegates began formal deliberations mid-May on a new Constitution for Uganda. The Constituent Assembly (CA) members arc scheduled to arrive at a final agreement on the contents of the Constitution before December, 1994.

Soon after the Constitution is finalized, it will be put into effect and closely followed by a Presidential Election and a General Election. The elections (possibly to be held at the same time) will allow each Ugandan citizen who is a registered voter to choose a national candidate as their choice for President, and a local candidate to represent the geographic constituency in which they reside. Elected representatives will meet in the nation's Parliament. The Presidential Election and General Election arc tentatively scheduled to be held in December 1994 or during the first few months of 1995. local elections to establish District Councils in the thirty-nine established districts arc expected to follow the General Election.

If the delegates to the Constituent Assembly are unable to resolve contentious issues, Section 18 of the *Constituent Assembly Statute* provides for a referendum (or referenda) to be held. Contentious issues are those that receive more than one half of the votes of CA delegates, but less than two thirds. Some political observers suggest that there may be three or four issues of this nature. Others emphatically state there are none. All agree that the Commission for the Constituent Assembly must be ready to administer a referendum should it be required.

It is possible that by-elections will be required for some of the members of the Constituent Assembly as a result of a number of pending court challenges, because of deaths of CA delegates or dismissals resulting from strict rules regarding non-attendance. At the time of this writing the Constituent Assembly Commission was awaiting legal clarification from the courts with regard to whether a by-election or repeat election exercise was necessary for the electoral area of Bukomansimbi.

Voter registration and the production of voters lists was problematic during the preparations for the CA Election. The Commissioner for the Constituent Assembly, Mr. Stephen B. Akabway, is personally committed to improving the voter registration process for future electoral events in Uganda and has gone on public record stating that preparation of voters lists will be professionalized before Ugandans return to the polls.

The Commissioner asked the UNDP to assist in an evaluation of whether it would be both feasible and cost-effective to re-use the registrations that were collected for the CA Election, place them in a computerized format and then use the resulting data base contents to produce a list of voters that could be updated during each subsequent electoral event.

This study is the result of that evaluation.

Draft Constitution

The delegates to the Constituent Assembly are debating a Draft Constitution that was formulated by a special Commission tasked with its creation. The Draft contains numerous references to

standard types of electoral procedures and **calls** for the creation of a permanent Electoral Commission.

None of the Sections dealing with electoral process arc reported to be controversial with delegates, nor arc any expected to undergo significant amendment during debate. The following provides a brief summary of Draft Constitution references that impact the design of a computerized Register of Voters and on voter registration update procedures:

- Electoral Commission. Section 86 spells out the functions of the election administration body. One of the seven major functions is a requirement "to compile, maintain and revise the voters register."

- Election Timetable. Section 92 recommends that an election be held within 60 days of a dissolution of Parliament. Without a Permanent Register of Voters being ready, the Electoral Commission will be very challenged to meet this timeframe. Voter registration for the Constituent Assembly Election required more than 8 weeks of effort.

- Presidential Elections. See 154 (6) makes clear the possibility of Presidential Elections being held separately from General Elections.

- National Referenda. Envisioned to be held as necessary - e.g. Set 98. (1) - on political systems - movement versus political party representation; See 154 - when disagreements arise between the Executive and the Legislature.

- Voter Registration Status. A pre-condition for a number of legal activities - e.g. Set 106 - Presidential Candidate must be nominated by 1,000 registered voters covering at least 2/3 of all districts; See 107 - registered voters can challenge the validity of an election by presenting a petition. Without an on-going Register of Voters it will not be possible to determine who is a registered voter.

- Recall Provisions. Section 136 - if a petition is signed by at least one-third of the voters in Constituency, the Electoral Commission shall declare the scat vacant and hold a by-election; See 206 " ...the mandate of an elected member of a District Council may be revoked by the electorate...".

- Local Elections. Section 201. (3) "The system of local government shall be based on democratically c&ted councils at every local government unit." Section 204. (2) - District Councils including "one person from each electoral area within the district elected by universal adult suffrage through a secret ballot." See 226 - local government elections other than elections for a District Council - "Council may, after consultation with the Electoral Commission, decide that an election to the Council shall be by secret ballot." Presumably voters lists will be used to determine eligibility for each of these local elections.

Legal Constraints

Electoral law in Uganda is not yet defined in any permanent or detailed way. The eventual contents of the negotiated Constitution will significantly impact what type of electoral laws the Government will consider itself having a clear mandate to introduce.

Section 100 of the Draft Constitution provides the ability for Parliament to enact laws on elections, and has a further transitional provision (Sec. 293) stating that the current government should establish an lnterim Electoral Commission and establish laws for elections and all matters pertaining to elections. Exactly when such laws will be passed is, as yet, unknown.

The Commission for the Constituent Assembly remains statutorily responsible for any electoral activity that results from the CA, but does not have a formal mandate to prepare for a Presidential or General Election. Nevertheless, it wishes to be as proactive as possible in order to provide a solid electoral management structure that a new Electoral Commission can assume ownership of when it is appointed.

Lists and Election Legitimacy

In all established democracies 'clean' voters lists arc used to protect the integrity of the electoral system and for reporting functions. Establishing an accurate list of electors is necessary for:

- Determining fairly who can vote on polling day;

- Ensuring that electors vote only once;

  Establishing a proper count of voters;

- Calculating election supply and staffing requirements;

- Managing the flow of transactions on polling day; and

  Determining voter turnout.

The Register Concept

A register of any type consists of both an administrative structure and a physical technique. An administrative apparatus is required to meet the need for large-scale information gathering on the part of the organization. The physical component is required to store and access the information that needs maintenance.

Registers arc not a new invention and have been widely used in industrialized nations for many years in order to implement or support a variety of regulated administrations. Studies indicate that the common elements associated with successfully created registers over the past two centuries are:

  Compelling necessity;

- Something important to be qualified against a set of selection criteria;

- A need for a system to compile, maintain and retrieve data;

- A requirement for the ability to produce authoritative lists and reports that are needed in the management of an event, situation or need, and

- Necessary technical and administrative infrastructures.

 A Register of Voters can be formally defined as:

> *A dedicated technical and administrative structure that is capable of collecting, manipulating, storing, maintaining and retrieving data and can process the information necessary to produce various voters lists and reports required to manage electoral activities.*

The electoral systems of most western democracies rest on a permanent Voters Register of some kind. Registers arc used in United States, Great IMain, Australia, France and Germany, for example. All have become computerized over the past several decades.

Electoral administration requirements in Uganda meet all the essential needs for creating a Register of Voters. However, electoral administrators must establish new technical and administrative structures to support the operation of such a Register and then institutionalize its role in Ugandan society.

Report Content Overview

The remainder of this report is divided into four sections. The following section describes the proposed 'Voter Registration Process' in step-by-step detail; it is followed by the 'Implementation Plan' which breaks out the stages, schedules and tasks of the project. These two sections provide a context for the 'Organizational Requirements section; the final section bears the title 'Options for the Future'.

A Technical Annex is provided which outlines the preliminary computer system specifications for the Uganda Voter Register Data Base. This annex material should be understandable to a lay reader, but is primarily written with an audience of systems analysts and programmers in mind.

Appendices indicating reference documents, persons interviewed and voter registration statistics from the Constituent Assembly Election follow the Technical Annex.

Should the reader wish to go directly to one of these sections, the Table of Contents, which appears immediately before this introduction, provides a guide to appropriate page numbers.

Voter Registration Process

Approach Options

In deliberations leading to the recommended process for registering voters and creating voters lists in subsequent electoral events in Uganda, the following general options were examined:

1. Repeat the methods used for Voter Registration in CA Election.

2. Manually product alphabetical lists of registered voters by Village using the CA Election registration documents; accept new registrations, corrections and deletions during a process of 'display' of the list at the local level; manually re-create a new alphabetic list for each polling station in time for use at the election.

3. Computerize the registrations taken in the CA Election; produce 'preliminary' alphabetically ordered lists and 'display' them in each local area; accept new registrations, changes and deletions via paper forms; enter the new transactions into the computer system; produce a 'final list for the electoral event. Sort the lists into the most appropriate order required for update or voting procedures before printing.

Option I was dismissed. It was felt that the difficulties that had been experienced with voter registration during preparations for the CA Election, and the Commissioner's well-publicized commitment to provide voters with a better system for the next event does not make this option viable. In addition, it was thought that there was considerable merit in re-using the registrations that were taken in the November '93 to January '94 timeframe, as the currency of the registration information would still be very high. It was agreed that coverage was only in the order of 85% of eligible voters, but this was regarded to be a much better starting point than beginning the entire registration process over again. Accuracy of the information contained in the Register Books that were used at each polling station was agreed to be suspect, but it was felt that a cross-check to the original 'RV' forms that were collected from each registrant would provide adequate controls in re-use of the data. Finally, it was agreed that a more cost-effective process than repeating the entire registration exercise for every electoral event needed to be found.

Option 2 was also dismissed. The difficulty experienced during the CA Election with trying to establish quality controls and consistent use of procedures by Registration Officers had taught some hard-learned lessons. The various foul-ups surrounding the creation of Register Books made the suggestion of implementing an even more complex procedure in the field appear risky and prone to failure. It was also felt that the amount of training and preparation activity associated with simply getting a 'display' list ready would severely tax the abilities of the CA Commission staff and would likely lead to inconsistent execution in the field at any rate. It was agreed that the numerical ordering method (using the RV form numbers) caused too much confusion in the CA Election, and that alphabetically ordered lists were preferable. It was further agreed that creating a list by Village would make the most sense for 'display' and update purposes. Commission staff suggested that, if multiple Villages were assigned to vote at the same location, it would be sensible to have a separate ballot box for each Village. If this was not economical, possibly because of the existence of many small Villages within one area, it was suggested that the list used at each ballot box should be somehow segregated by Village (perhaps each Village starting on a separate page) and then alphabetically ordered by name. Some members of the Technical Team were convinced that employing a manual process for such kinds of list re-creation, update, and renewal would be more expensive, more frustrating and certainly much more operationally complicated that simply repeating the entire registration exercise.

Option 3 was cautiously endorsed. Concern was expressed about the requirement for a large infrastructure to input and manipulate the data, the difficulties of obtaining secure and dust-free space to house computers and registration documents, the lack of adequate controls currently in place to collect the millions of source documents (Register Books and original RV Forms) that would need to come in from the field, and the complexities of creating a data base containing extensive on-line storage of mission-critical records in an environment where electrical power is rarely stable for more than a few hours at a time. Early estimates indicated that more than 50 computers would be required if the list was to be ready before the Constituent Assembly delegates completed their task and that the resulting printed list would be nearly a quarter of a million pages long. Tests, using Lotus 1-2-3 as an input vehicle, indicated that one operator would only be able to enter about 75 voter records per hour. It was agreed that the computerization option deserved to be investigated further to establish whether or not it could be done at a lower cost than a repeat manual exercise. It was also agreed that methods of establishing the computer environment needed to be flexible while minimizing risk, and should be designed in such a way that the physical implementation could be constructed quickly without extensively specialized technical Knowledge. Little concern was expressed about the manual update methods that would need to be employed in the field, but it was agreed that very careful controls would be needed to ensure that every 'batch' of additions, changes, and deletions was tracked from creation through to verified entry on the computer systems.

Computerization Alternatives

Three alternatives for computerizing the voters list were examined:

1. A centralized database using a high speed electronic network link between personal computers, a sophisticated relational data base writing records to a 'central server' computer, and an operating system on that file server with capability to store, manipulate and print more than 8 million records on a single processor.

2. A centralized repository of data base records created on a centralized pool of standalone personal computers (PCs) with data transferred via diskette to a 'central' PC. The repository computer tiles would be structured into subsets of a size that would allow the use of off-the-shelf relational data base software packages. Transfers of subset data to multiple processors would be possible whenever production demands required such action.

3. As per alternative two, except that data entry would be done at a decentralized District level, under the supervision of each Returning Officer. Diskettes would be sent to headquarters offices in Kampala for central storage of the data and printing of official lists for electoral events.

Alternative 1 was rejected as too ambitious, risky and expensive given the available timeframe and level of technical support currently available in Kampala. From a purely technical perspective, this alternative is the most desirable and would provide the best long-term solution. The use of UNIX as an operating system on a central 'server' computer, and DOS-based PCs as 'client' computers linked to the server via a Novell NETWARE local arca network, all using ORACLE software as a corporate relational data base product, has recently been adopted as the new national government standard by Uganda Computer Services. UCS is the central agency (reporting to the Commissioner for Data Processing) that provides data processing for all government departments who are not equipped with their own computing infrastructure. Reputedly it has the largest computing centre in the country and the best established pool of systems resources in government. Flowever, at the time of this writing, the new product set was still on order and had not been installed or tested, nor

had extensive training of staff been undertaken.   UCS expects to be operational with their new standard of computing tools within a few months, but concedes that there is much learning and testing that will be necessary before they are ready to build new systems with this technology. In the meanwhile they arc struggling with aging 'legacy' mainframe computer systems which are proving to be increasingly unreliable, inflexible and difficult to service.

Alternative 2 was endorsed as sufficiently flexible, the most easily constructed, the quickest to obtain the required hardware for, and the easiest to support with the current level of technical skills available in Kampala.

Alternative 3 was rejected, although seen as very desirable from a non-technical perspective. However, given that it would be operationally more complex, more expensive to implement and require a great deal of advance training and regular data collection travel, it came to be regarded as simply untenable.

Proposed Process Components

The proposed process of voter registration updates, assuming a computerized capture of the CA Election voter registrations has already been done, is as follows:

1.   Using the computer system, a 'preliminary' voters list is produced for each Village in Uganda. This list is alphabetically sorted within each Village on the 'surname' and 'other names' of the voters so that voter names appear A - Z within their Village printout.   A sequence number precedes each voter, and the list also indicates the voter registration number and gender of each registrant. The lists arc separated and bundled for delivery to each Parish in the country.

2.   A civic education program, for the entire voting populace, advises all prospective voters on the method that should be used for:

> 1) checking to see if they are on the list
> 2) getting added to the list if they are not registered
> 3) having the names of people who arc deceased, have moved or are otherwise not
>   qualified removed from the list.

The education program advises the public when the registration update campaign will begin and exactly when it will end.

3   The Returning Officers, District Clerks and County Registration Supervisors (AROs) arc all trained on what their coordinative responsibilities are during the registration update campaign.   County Registration Supervisors are provided with training materials and 'train the trainer' knowledge in order that they are equipped to train Parish Registration Officers.

4   According to a predetermined schedule, the County Registration Supervisors select and train one Parish Registration Officer and one Parish Registration Clerk in each of the 4,234 Parishes in the country.   They provide the Parish Registration Officers with adequate training materials and sufficient knowledge to train each of the RC1 Chairmen in their Parish.

5   According to a pre-determined schedule, the Parish Registration Officers train the RC1 Chairmen in their Parish arca on their paid role of mobilizing registration updates through:

> 1) encouragement of registration ADDitions by all non-registered citizens
>   identified in each RC1

2) the pm-identification and DELETE form processing of those names appearing on the list representing persons who have moved, arc not qualified to vote or arc deceased

3) identification and encouragement of registration CHANGEs for all registered citizens whose names or other information appears on the printed list with errors.

6   In advance of the public schedule set out in b) above, the lists for each Parish are delivered by the County Registration Supervisors several days in advance of the official start of the update campaign. The Parish Registration Officers provide the list for each Village to the corresponding RCl Chairmen for DELETE` form processing and ADDition and CHANGE mobilization.

7.   By the morning of the day before the official start of the update campaign, each RC1 chairman returns the list for their Village and a duly processed batch of DELETE forms to the Parish Registration Officer (perhaps in exchange for their first payment). Each RCl Chairmen who does not cooperate with this important deadline is subject to follow up by the County Registration Supervisor.

8   On the day of the official start of the registration update campaign the list for each Village is posted in the area of the Parish office (preferably on a wall) by the Parish Registration Officer. The officer ensures that a table and a supply of the necessary forms arc set up in an adjacent area to process new registrations (RV/CR form completions), corrections (a special CHANGE form, to be designed in advance) and deletions (a special DELETE form, to be designed in advance). Either the Parish Registration Officer or the Parish Registration Clerk arc stationed at the list display area for a pre-set number of hours each day during the campaign, 7 days a week.

9.   At the end of each day of processing, the Parish Registration Officer marks the public 'display' list with a line through each DELETE accepted, a pen-modified correction for each CHANGE processed, and with names for each new ADDitional registrant placed on an addendum sheet attached to the list for the Village. Each entry bear the initials of the official in the right hand column. This indicates the current status of the list to voters coming to see the 'display' and acts as a backup of the transactions processed in the event of accidental loss or theft of forms. It also demonstrates 'transparency' of the procedures associated with the registration process.

10   At the end of each week of update processing, the County Registration Supervisor collects the batches of ADD, CHANGE and DELETE forms for each Parish ensuring that 'batch header' forms are completed correctly and fully, and that accurate counts of the number of forms of each type arc recorded. A log of batches delivered to the Supervisor is kept by each Parish Registration Officer; a log of batches received is kept by each County Registration Supervisor.

11   At the beginning of each week the batches collected by each County Registration Supervisor arc delivered to the District Returning Officer. Statistics of the number of ADD, CHANGE and DELETE transactions collected for the District arc recorded along with a log entry on the batches delivered (by each County Registration Supervisor) and a log entry on batches received (by each District Returning Officer or District Clerk).

12   Once a week the District Returning Officer forwards to the Register Computer Centre in Kampala all the batches collected for his/her District in the previous week, completing a log of the specific batch numbers and statistics on the number of ADDs, CHANGEs, and DELETEs enclosed.

13.   The Register Computer Centre logs the batches received from each District and separates them by Parish for update processing. Once they arc successfully entered, they are logged out of the computer data entry section and filed in the registration document Archive.

14   Before the end of the registration update campaign, the District Returning Off&r, in consultation with County Registration Supervisors and with input from Parish Registration Officers, makes a final determination of which voting locations will be used to serve which villages and how many ballot boxes will be located at each voting location. Using supplied computer generated forms (yet to be designed) the allocation changes from the CA Election arc recorded by the Returning Officer and returned to the Register Computer Centre in Kampala.

15   The Register Computer Centre carefully enters all the modifications to voting location assignments for each Village and modifications to ballot box (i.e. polling station) assignments to each voting location.   A confirmation printout is produced and sent to each District Returning Office, County Registration Supervisor and Parish Registration Officer as information. Mistakes arc communicated by radio or telephone and logged for correction and follow-up by specific personnel assigned on short term for this purpose.

16   After all the registration ADDs, CHANGEs, and DELETEs, are entered for a District, the computer operators print the 'Final' List for the electoral event. This list is printed by polling station (i.e. ballot box number) with the Voting Location marked clearly on the top of each page of the printout. If there arc multiple Villages assigned to the Same polling station (i.e. ballot box), each Village will start on a separate page and the names of voters within that Village will be shown in alphabetical order. Very large Villages (e.g. 1,200 persons) may be divided alphabetically; for example all the persons in the Village whose surname begins with a letter between A and M might be assigned to one ballot box at the voting location, while persons whose surname begins with a letter between N and Z will be assigned to another. Two separate lists would be printed for such purposes. All 'Final lists are provided to District Returning Officers who then arrange for distribution to local voting location officials.

At the end of each Final List will be an 'audit section' showing all the registrations ADDed, CHANGEd and DELETEd during the registration update campaign.

17.   Voters will proceed to their assigned (and well publicized) voting location and take their place in the appropriate polling station line-up on the day of polling. Provided they arc registered they will be issued a ballot, be marked as having voted on the 'final' list, and be given instructions for completing their ballot and returning it to the ballot box.

18   After the election is completed, all the 'final' voters lists will be returned to the Register Computer Centre in Kampala where the flags for each registered voter having voted (Y) or not (N) will be recorded against their computerized record.

Issues for Resolution

During discussions a number of issues were aired that remain unresolved. They arc recorded here simply to ensure that they do not get forgotten in the policy development process that will need to follow a decision to create a permanent computerized Register of Voters.

- Provided that thy can showed evidence of registration, will voters be able to vote at any polling station or only at the one for which they arc registered?

 Will an extra copy of the list be necessary for RC1 Chairman usage? It is recognized to be extremely difficult to create duplicate copies due to lack of photocopying facilities outside of

largest urban centres. If produced at the computer centre, additional time or printers will need to be allocated for the purpose.

- How will the literacy and numeracy shortfalls of registration officials be dealt with? How will persons be assisted to verify that their names arc listed if they cannot read?

- How will registration officials "disinclination to follow written instructions closely" be addressed?

- I low many new registration forms will be required? Can the existing ones be used even though they have the words 'CA Elections' in the background? If new registration forms arc printed, should the numbering scheme be re-thought?

- How will registration control be established in a by-election to ensure a Candidate's supporters from outside the electoral area are not permitted to register and vote?

- How will the Register be regularly 'purged'? Can the update process do an adequate job? Should the names of registered voters who have not voted for several elections be investigated?

  Exactly how will 'delete' procedures work'? Under what circumstances can a voter make an objection to someone's name appearing on the list? What controls will be necessary to ensure that legitimate names arc not deleted for politically motivated purposes?

- Who will have access to the printed lists? Can Candidates obtain a copy? At what cost? If access is to be extended beyond the single 'official copy', some accommodation will need to be made in the area of printing or photocopying capability.

- What is the residency qualification for an electoral arca or constituency? Can persons who move be registered immediately? Or only after a period of time which allows them to familiarize themselves with the area, issues and political players? What about persons who consider a rural Village their home, but live and work in an urban area? Can they register in their 'home' Village, or must they register where they normally spend their time? Can this be controlled in any effective manner?

- Uganda has approximately 200,000 nomadic persons. When they move, the Village moves with them. I low should voter registration and voting location assignments be handled for these people?

- Is the idea of splitting villages alphabetically the most workable solution for polling purposes? Can the computer system be designed to retain geographic divisions and voting assignments if this was done competently for the CA Election?

- How will people be notified of where it is that they will be voting?

- How will people be prevented from registering and voting more than once? Will the finger-in-ink dipping process be used again? Will a computerized duplicate check after the election be used to identify duplicate registrants'?

- How can the civic education program be designed so that it effectively motivates people to check to see if they arc registered early in the process, rather than following the natural tendency to procrastinate until the deadline?

Implementation Plan

Planning Assumptions

This plan for implementing the computerized Register of Voters and the proposed registration update procedures makes a number of fundamental assumptions. They arc:

- The Constituent Assembly Election registrations will be used to avoid the necessity of repeating the entire registration exercise;

- The Voters List will be computerized and a Register of Voters technical and administrative infrastructure will be developed to make the Register permanent and institutionalized;

- The computerization of the Register will evolve over a period of 6 months, but a data capture program can be developed and hardware procurement can be undertaken as a top priority to be ready within one month of an official decision to initiate the project;

- The voter registration update campaign will occur only after an election or referendum date is set;

- Only registered voters will be able to vote and no additions will be accepted once registration is closed.

If any of these assumptions change, multiple aspects of the plan will need to be revisited.

Proposed Schedule & Deadlines

Election administrators in every Parliamentary democracy find that planning for electoral events requires that they set a target 'election-ready' date. For the purposes of planning the development of the Register of Voters and the registration update campaign, this date has been assumed to be November 1, 1994. It is further assumed that the polling date will be no sooner than January 12, 1995.

'Election-ready' in this context means that the necessary administrative components have been prepared and arc ready for an election process to start.

Key deadline dates under this scenario arc as follows:

- June 15, 1994 - Management agreements to proceed - funding arranged - political acceptance obtained;

- July 15, 1994 - Computer systems ready to allow data entry of CA Election registration;

- November 1, 1994 - Data entry of all registrations for the CA Election is completed - procedures and training materials for the registration update campaign are fully ready - 'preliminary' voters lists are printed;

- November 14, 1994 - Voter registration update campaign officially begins;

- December 5, 1994 - Voter registration update campaign officially ends;

- December 23, 1994 - Data entry of all voter registration updates is complete on Register systems;

- December 31, 1994 - 'Final' voters lists for every polling station are printed;

- January 6, 1995 - Voters lists are delivered to each Returning Officer;

- January 11, 1995 - Voters lists are in hands of local election officials in every Village.

Project Stages

In any project that requires a large number of concurrent activities to take place it is a standard management practice to break the overall process into component 'stages'. This allows managers to be delegated responsibility for a logical grouping of activities and to concentrate energies on meeting the deadlines associated with tasks that arc critical to completing a particular stage of project activity.

Senior managers must, of course, ensure that the overall project objectives arc well communicated, that all stages of activity arc adjusted to work together, that overlapping stages arc effectively linked, and that appropriate numbers and types of staff arc recruited or transferred as one stage is completed and another takes priority.

For the purpose of organizing the development of the Register of Voters and developing the registration update procedures, the following components or 'stages' arc proposed:

- Stage 1. Analysis and Planning

- Stage 2. Computer Preparations

- Stage 3. Data Entry of Constituent Assembly Election Registrations

- Stage 4. Voters List Display and Update

- Stage 5. Election List Preparation

The major tasks associated with each stage of the project arc presented in summary form in the following pages. Many sub-tasks will arise in the process of evaluating the measures that need to be taken to accomplish these major tasks.

Stage 1. Analysis and Planning

- Distribution of this report to appropriate managers and decision makers
- Evaluation of report, other options and policy considerations
- Senior management and policy maker discussions
- Discussions with UNDP
- Discussions with donor community

- Discussions with Data Processing Commissioner

- Evaluation of procurement options

- Evaluation of physical space options

- 'Prototype' exercise in Bukomansimbi repeat/by-election

  Formal management structure established

- Formal budgets prepared

- Formal agreements made

- Communication of plan to existing management staff

- Recruitment of new management staff as required (e.g. Registrar of Voters)

Stage 2. Computer Preparations

- Recruitment of project manager to head development project team

- Arrangement for physical office space and equipment for project team, data entry, data repository, register archive

- Procurement of data entry computers and printers

- Procurement of repository computers and printers

- Assignment of 2 business area specialists (persons who worked with the Commission during the CA election, understand computer technology and have a keen appreciation for and interest in electoral administration)

- Recruitment of 2 senior systems analysts

- Development of project plan and team roles and responsibilities

- Development of detailed specifications for data capture program
  Development of backup, diskette control procedures and contingency plans
- Assignment or recruitment of first 2 programmer/analysts

- Development of data capture/edit listing program

- Testing and finalizing of data capture/edit listing program

- Recruitment of technical writer/trainer

- Contracting for specialist technical resources required

- Contracting for hardware maintenance

- Setup and configuration of data entry computer hardware

- Testing of data entry hardware

- Preliminary setup of data repository computers and printers

- Documentation on data capture/edit listing program - user and system

- Full technical briefing and review of document flow for Register Operations Manager

- Training of data entry supervisors

- Training of data edit supervisors

- Production start-up assistance

- Recruitment of 2 additional programmer/analysts

- Detailed specifications for repository and print programs

- Development of repository and print programs

- Testing and finalization of repository and print programs

- Documentation on repository and print programs - user and system

- Production implementation of repository system

- Training of computer operators & programmers assigned to Register Operations

- Assessment of on-going Register maintenance requirements

- Enhancements to data capture & repository systems on a Release basis

Stage 3. Data Entry of Constituent Assembly Election Registrations

- Recruitment of Register Operations Manager

- Modification and re-furbishment of physical space to accommodate computers, data verification process, source documents and Register Archive

- Recruitment of Shift Managers
- Establishment of physical security and Register access procedures
- Recovery of all RV forms and Register Books from Districts

- Recruitment of data entry supervisors

- Recruitment of data edit supervisors

- Recruitment of data entry and data edit staff

- Training of data entry and data edit supervisors

- Training of data entry staff

- Training of data edit staff

- Recruitment and training of documentation clerks

- Recruitment and training of computer operators

- Recruitment and training of programmers/technical support

- Recruitment and training of statisticians
- Production start up
- Production control
- Preliminary List printing

Stage 4. Voters List Display and Update

- Recruit or assign Voter Registration Field Operations Manager

- Establish and document registration update procedure in summary form

- Obtain management agreement on process of updates

- Order registration forms and supplies as required

- Warehouse and organize forms and supplies into shipping lots

- Prepare and document Registration update role for Returning Officers

- Prepare and document Registration update role for District Clerks

- Prepare and document role of County Registration Supervisors

- Prepare and document role of Parish Registration Officers & Parish Registration Clerks

- Prepare and document Registration role of RC1 Chairs

- Obtain management agreement on roles and establish remuneration levels

- Prepare firm budget allocations and communicate same to Returning Officers

- Prepare training program/materials for Returning Officers, District Clerks and County Registration Supervisors

- Prepare training program/materials for Parish Registration Officers and Parish Registration Clerks

- Prepare training program/materials for RC1 Chairs

- Deliver training program to Returning Officers, District Clerks and County Registration Supervisors

- Send supplies, training materials and registration forms to Returning Officers and Country Registration Supervisors

- Monitor training of Parish Registration Officers and Parish Registration Clerks

- Monitor training of RC1 Chairs

- Send 'preliminary voters lists to each County Registration Supervisor

- Monitor registration activity and deliveries of batches to Register Computer Centre

- Send voting location/polling station assignment sheets to Returning Officers

- Monitor completion of polling assignments

- Monitor deliveries of polling assignment printouts to Register Computer Centre

- Monitor publicity of voting locations at local levels

- Send 'final' voters lists to Returning officers when ready

- Monitor deliveries of 'final' lists to local officials

Stage 5. Election List Preparation

- Recruitment of Shift Managers
- Recruitment of data entry supervisors
- Recruitment of data edit supervisors
- Recruitment of data entry and data edit staff
- Training of data entry and data edit supervisors
- Training of data edit staff
- Training of data entry staff
- Recruitment and training of documentation clerks
- Recruitment and training of computer operators
- Recruitment and training of programmers/technical support
- Recruitment and training of statisticians
- Receipt of batches of updates from field operations (organized by Parish)
- Production start up
- Production control
- 'Final' list printing

Organizational Requirements

Management Structure

The proposed senior management structure consists of:

1. A Registrar of Voters - responsible to the Electoral Commission for all aspects of voter registration and Register of Voters production and maintenance;

2. A Register System Development Project Manager, reporting to the Registrar of Voters, responsible for the development and successful implementation of the computerized Register infrastructure;

3. A Register Operations Manager, reporting to the Registrar of Voters, responsible for all production USC and control of the computerized Register and for maintaining the Archive of Registration Documents;

4. A Registration Field Operations Manager, reporting to the Registrar of Voters, responsible for logistical preparation, delivery and receipt of all registration materials, for the preparation and distribution of all voter registration training materials and programs, and for all voter registration update activities undertaken by RC1 Chairs, Parish Registration Officials and any other officials who may be tasked with registration functions.

The field management structure of Returning Officers is assumed to remain the same as it did for the CA Election. County Registration Supervisor, who will be titled as Assistant Returning Officer for polling day preparations, will be appointed in each of the 179 counties.

Physica/ Infrastructure

It is recommended that the Register Development Project Team, the Register Data Entry Centre, the Register Data Repository and Printing Centre, the Registration Document Archive and adequate space for the Registration Field Operations staff and necessary production supplies all be found in one office building, preferably all at ground level.

A depiction of one proposed layout is shown on the next page as Figure 1.

A detailed physical needs assessment should be undertaken in the early stages of finding an appropriate physical location. However, the following criteria can be used as an initial guide

- good physical security
- location easily accessible by transport
- good, even lighting, preferably with high windows to permit natural light during day
- quiet, dust free, air conditioned environment preferably for all rooms with computers, but absolutely required for Data Repository and Printing Centre
- sufficient data entry work space to accommodate more than one hundred computers and printers
- sufficient document archive space to accommodate more than 8 million registrations
- sufficient power outlets and electric service to accommodate 200 computer devices running simultaneously

- emergency power generator sufficient to meet on-going AC requirements in the event of power outages

Tables, chairs, shelving and adequate work surfaces will also need to be obtained and installed in the physical location.

There will be a requirement for rapid procurement and delivery of a large amount of computer hardware, outlined under the heading of 'funding' later in this section.

It is anticipated that meals will need to be provided to data entry and data edit operators during the capture of existing registration information and again during the update transaction process of an electoral event. Adequate provisions for the preparation and assembly of meals will need to be provided in the physical space.

Backup & Security

Safeguard measures will need to be implemented to guarantee and control protection, availability and accessibility of the Register systems and data.

Proper security measures arc required to ensure the safety of hardware and software systems and of the Register data at all times. These security measures must restrict data access only to authorized persons. A first level of security must ensure that physical direct access to the premises and hardware facilities is strictly monitored and controlled. A second level of access should employ a hierarchy of password control and automatically monitor the access and activity of persons authorized to USC or modify systems, and to retrieve, manipulate or remove data.

This implies not only that access be limited to a certain number of approved persons, but that a hierarchy of access authorizations be defined. Basic measures should include:

Restricted premise, software and data access;

- Safeguards to prevent accidental or unauthorized software modifications;
- Pre-authorized and controlled access to data fields or tables in all modes other than read-only to ensure the continuity and integrity of maintenance of data base information;
- Monitoring and logging of all system usage activities to ensure traceability.

Backup measures should ensure that hardware and software systems and data remain available when needed and within specified wait times, depending on the course of events. Since the backup strategy is intended to restore functionality within specified delay periods, the following areas need to be considered:

- Software Storage and Restoration
  Custom software and/or packaged software may be damaged at critical times and require restoration.

  Data Storage and Restoration
  Data can also be exposed to damage or destruction. Its continual processing may occasionally create situations that will require either partial or complete restoration. Effective periodic backup and easily applicable restoration procedures should be included in the design of both the data capture and data repository components of the

system. Rackup storage media should be archived off-site in the event of a disaster that restricts or removes access to the premises.

Contingency Preparations

A contingency plan is a set of procedures that outlines the sequence of activities that should occur if an event takes place that is detrimental to the installation, operations or safety of data, equipment or site. Security aims at protecting existing data, software and equipment against unauthorized access, destruction or tampering. v is meant to provide means and procedures to restore systems and data back to their pre-incident condition. Contingency plans should be developed at the time that backup and security measures arc defined. It is important that the Register management have a solid understanding of the procedures that would be followed if there is a need to recover from computer viruses, natural disasters, power failures or various types of equipment malfunctions.

At a minimum, a spare 'server' class computer and high speed laser printer should be purchased, appropriately configured and then locked away at a separate physical site in order that the data repository could be restored and printing of lists could be resumed, if necessary, after a disaster. DAT backup tapes should be stored at the same location as the spare 'server" computer and spare high speed laser printer.

Staffing

The project staffing requirements will be very demanding. Personnel management functions of the Electoral Commission will need to be extremely responsive to deal with the challenges of the 'shrink and grow' nature of large-scale electoral project delivery.

Within each of the three major areas of management activity (Register System Development, Register Operations and Registration Field Operations) the following staff requirements are anticipated:

REGISTER SYSTEM DEVELOPMENT (6 MONTHS)

- 2 Business Area Specialists full-time
- 2 Senior Systems Analysts full-time
- 4 Programmer/analysts full-time
- 3 Technical Specialists as required (equivalent to 1 full-time)
- 1 Technical Writer full-time

REGISTRATION FIELD OPERATIONS (1 MONTH)

- 39 Returning Officers
- 39 District Clerks
- 156 Loaders

- 179 County Registration Supervisors (AROS)
- 4,500 Parish Registration Officers

  4,500 Registration Clerks
- 40,000 RC1 Chairs

REGISTER OPERATIONS (3.5 MONTHS + 1 MONTH)

Staffing the Register for production work will likely provide the largest personnel management challenges in the project. It is anticipated that a minimum of two shifts will be required, with the possibility of third being necessary in the event of delays in production or the delivery of source documents.

The first shift would work from 7am to 3 pm with a 1/2 hour lunch break and two 15 minute coffee breaks. The second shift would begin at 3 pm and run until 11 pm, with a 7 pm 1/2 hour break for dinner, and two 15 minute breaks on either side of the shift. If possible, all staff would be given Sundays off in order to avoid complete exhaustion and stress overload.

It is strongly recommended that incentives be provided to data entry operators for speed and accuracy. The better a data entry operator's work, the better paid they should be. Penalties should also be used for poor performance; staff who do not meet quota production requirements should be dismissed and replaced. Unexplained and unreasonable absences should not be tolerated; staff absent for more than two shifts without proper notice should be dismissed.

The very large numbers of staff for the two Register production efforts arc explained by the following statistical breakouts:

FOR THE DATA CAPTURE:. OF CA ELECTION REGISTRATIONS

- Number of voters to be entered = 7,181,394
- Data entry anticipated from corrections found in audit of RV forms against handwritten registers = 5% of 7,l81,394 = 359,070

  Total data entry records for preliminary list = 7,540,464
- Number of days for completion = 15 weeks X 6 days per week = 90 days
- Number of entries required per day = 7,540,464 divided by 90 = 83,783
- Number of entries required per hour = 2 shifts @ 8 hours = 16 hours divided into 83,783 = 5,236
- Number of data entry workstations required = 75 entries per hour divided into 5,236 = 70

FOR THE DATA CAPTURE OF REGISTRATION UPDATES

- Anticipated transactions:

  8% additions (new registrations, newly eligible, moves & a parish) = 8,625,200 X 8% = 690,016

  5% changes (corrections) = 431,260

  3% deletions (deaths, moves from a parish, other disqualification) = 258,756

Total = 1,380,032 + (5% corrections = 69,000) = 1,449,032

Number of days for completion = 17 days

Number of entries required per day = 1,449,032 divided by 17 = 85,237

- Number of entries required per hour = 2 shifts @ 8 hours = 16 hours divided into 85,237 = 5,327

    Numb of data entry workstations required = 75 entries per hour divided into 5,327 = 71

The numbers of staff anticipated for the two data capture efforts is as follows:

INITIAL DATA CAPTURE

- 70 Data Entry Operators per shift = 140 total for 2 shifts
- 35 Data Edit Clerks per shift = 70
- 2 Data Entry Supervisors per shift = 4
- 1 Data Edit Supervisor per shift = 2

    3 Documentation Clerks per shift = 6

- 2 Computer Operators per shift = 4

    2 Programmers/technical support per shift = 4

- 1 Statistician per shift = 2
- 1 Manager per shift = 2
- TOTAL = 234 + 10% overhead = 257

REGISTRATION UPDATES

- 71 Data Wry Operators per shift = 142 total for 2 shifts
- 35 Data Edit Clerks per shift = 70
- 2 Data Entry Supervisors per shift = 4
- 1 Data Edit Supervisor per shift = 2
- 3 Documentation Clerks per shift = 6
- 2 Computer Operators per shift = 4
- 2 Programmers/technical support per shift = 4
- 1 Statistician per shift = 2
- 1 Manager per shift = 2
- TOTAL = 236 + 10% overhead = 260

Funding

The preliminary cost projection for the development of the compute&d Register of Voters and for the implementation of the voter registration update process is shown on the following two pages titled as Figure 2.

Options for the Future

Register Maintenance

Once the series of historic electoral events pending in Uganda's near future are completed, policy makers and electoral administrators will be faced with the question of how often the Register of Voters should be updated. Should it be done only during electoral events? Once a year? Every six months? Continuously, on a daily basis?

The question fundamentally addresses whether the Register is to be 'permanent' or 'continuous.' Permanence requires that it remain in place; continuous suggests that, as well as being permanent, it will be maintained so that it is always up-to-date.

In many democracies the concept of a continuous Register of Voters is appealing to policy makers because it allows for shorter election campaigns. However the costs of maintaining a Register of Voters continuously can be quite daunting.

A number of administrative modifications to the method by which the Register is maintained should also be considered. Among these are:

- introduction of voter identification cards for USC at the polls;

- electronically scanning source documents to eliminate the need for a paper-based archive of registration documents;

- implementation of a Local Area Network (LAN) to speed the data collection work in Register operations;

- decentralization of the data entry function to the District, County or Parish level through the use of Wide Area Networks (WANs).

Data Resource for other Ministries

In all societies, adopting information technology as a tool to address the creation and maintenance of voters lists holds promise for sharply reducing costs if data is shared between organizations, electoral and otherwise. Uganda has a unique opportunity to create a Permanent Voters Register which provides long-term benefits for electoral democracy as well as cost-effective government administration . The computerized Register could provide a rich resource of continually updated 'on the ground' information which, through linkage with other existing data bases, could be extended to create a data base of multi-faceted national statistics providing a solid basis of informed planning at national and local levels

The Register of Voters could be a rich source of planning information for a number of Ministries and Departments in the Uganda Government. Among these are Education, Revenue Authority, Finance & Economic Planning, Census, Health, Local Government, Agriculture, Labour, and Social Affairs.

Register data could be also used for compiling country-wide societal statistics, food assessments, agricultural production projections and various types of social surveys. The data might be usefully employed by advanced learning and research institutions (e.g. Centre for Basic Research, the

Economic Policy Research Centre and the Institutes of Statistics at Makerere). As well, it could be a valuable resource for donor agencies and NGOs.

Following the examples of government infrastructures everywhere that arc being m-engineered using information technology, consideration should be given to making a business and data linkage between the functions of voter registration and vital statistics, citizenship records, passport control, and tax collection.

Section 44 of the Draft Constitution envisions a National Citizenship and Immigration Board whose functions would include the "registration and issue of national identity cards to citizens." Perhaps at the time this initiative is launched a linkage between various business functions in government that collect identical or similar data could be forged.

Foundation for a Population Register

Recent studies on the cost-effectiveness of continuous Registers of Voters have indicated that those countries that use Population Registers to generate their lists of eligible electors have the lowest costs associated with the registration aspect of elections. Good examples arc to be found in Sweden and Finland. Barbados very successfully introduced a national identity card and a Population Register through an extension of its voter registration activities.

The computerized Uganda Register of Voters could be used to lay the foundation of registration of all citizens and foreigners, and the cost-effective issuance of national identification documents. Such an approach would require careful anlysis and planning, but would potentially provide a solution to many information management issues faced by public administrators in Uganda.