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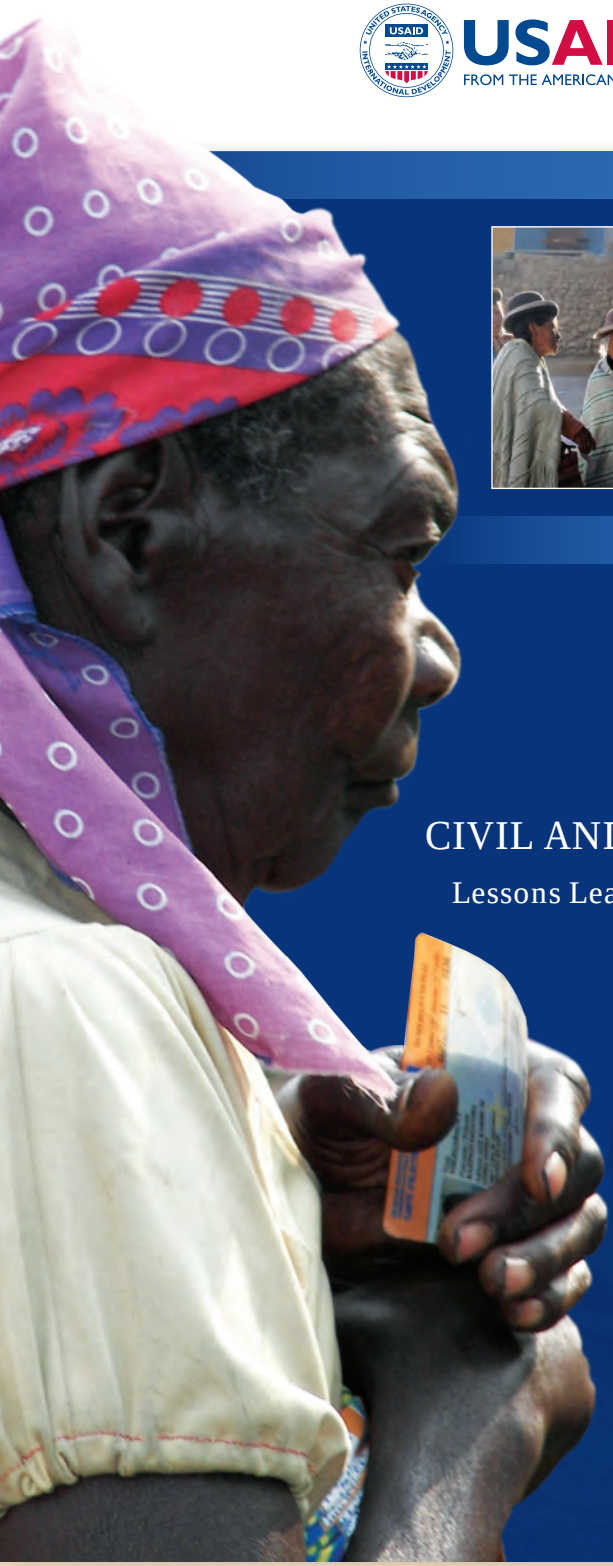

CIVIL AND VOTER REGISTRIES:

Lessons Learned from Global Experiences

Edited by Michael Yard

International Foundation for Electoral Systems

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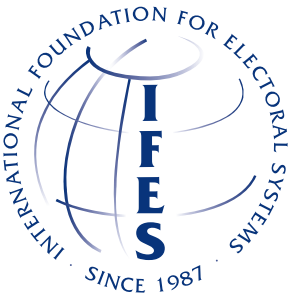

International Foundation for Electoral Systems

Civil and Voter Registries:
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Edited by Michael Yard

Contributors:
David Avery
Gabrielle Bardall
Gavin Campbell
Peter Clayton
Staffan Darnolf
Shalva Kipshidze
Ernesto del Rosario

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Michael Yard
Editor

ABOUT THE AUTHORS

Michael Yard is a recognized international election administration and technology expert and has advised election authorities in Armenia, Bosnia and Herzegovina, Ghana, Guyana, Kenya, Kosovo, Liberia, Macedonia, Moldova, Nigeria, Peru, Serbia, South Africa, Tajikistan, Tanzania, Ukraine and Yemen.

Yard has provided authoritative technical assistance on election technology and systems for voter and candidate registration, political finance tracking and reporting, procurement, logistics, fleet management, vote tabulation and results dissemination. He has particular expertise in voter and civil registration systems, large-scale data entry, data validation and database design. Drawing on 25 years of experience in systems analysis and design and software development, Yard has technical knowledge of a variety of technical platforms, operating systems, programming languages and applications. He has advised election authorities on procurement of appropriate hardware and software.

Peter Clayton has worked in many different roles on elections around the world, including as a voter registration/voter list advisor and project developer, budgeting advisor and trainer, senior operations officer, IT project manager and advisor, and calculator of election results and seat allocation. His work has included operational planning, preparing timelines and budgets for various elections (Nepal, Afghanistan, Iraq out-of-country voting, Cambodia, Kosovo) in addition to coordinating, monitoring and problem solving election operations. He normally works across different election departments to analyze their individual requirements and pull them together in order to assist in their joint solutions.

Clayton has worked as an election administrator and adviser for IFES, the United Nations, the International Organization for Migration and the Organization for Security and Cooperation in Europe since 2001, in addition to being an election observer for OSCE and the European Union for six elections. He also runs his own business development consultancy using Microsoft Excel when not working on elections.

Staffan Darnolf currently serves as chief of party for IFES in Zimbabwe with extensive experience in election administration and strengthening the capacity of

election management bodies (EMBs) to plan and organize democratic elections. Most recently he led IFES' projects in Cambodia. The project covered political finance and women's role and participation in the EMB. Darnolf also established IFES' work with the Electoral Commission of Uganda where information and communications technology solutions were introduced to improve the national voters roll, as well as voters' access to polling stations.

In addition, Darnolf previously worked as IFES' chief of party in Moldova, Pakistan and Nepal. In Afghanistan, he spent two years working as a senior advisor to the Interim Afghan Electoral Commission and as an international election commissioner seconded by IFES to the Joint Electoral Management Body. In addition, he served as an election adviser on IFES projects in Iraq, Kosovo, Nigeria, Zambia and Sierra Leone. Darnolf holds a B.A. in Public Administration and a Ph.D. in Political Science from Goteborg University, Sweden.

David Avery was the chief of elections for the United Nations Assistance Mission Iraq and head of the International Electoral Assistance Team for the parliamentary election of 2005. During an electoral career of over 30 years he has held senior election positions for the United Nations, IFES and the International Organization for Migration in countries as diverse as Sudan, Iraq, Afghanistan, Pakistan and Suriname as well as Cambodia and Sierra Leone. Avery began his electoral career with the Australian Electoral Commission in 1974.

Gavin Campbell is a database systems developer with experience of small- and large-scale system implementation in both commercial and governmental organizations. His extensive experience in developing countries includes more than four years as an information technology specialist with the Guyanese Elections Commission and work with the Immigration Services of Angola as a software engineer.

Ernesto del Rosario has close to 40 years of experience in different IT and non-IT technical, engineering, management and consulting capacities. He has successfully conceptualized and delivered breakthrough solutions in managing projects for multinational private manufacturing and financial corporations and

large public agencies in the Asia Pacific region. Del Rosario has worked with the Commission on Elections in the Philippines (COMELEC) as the director of Information Technology between 2003 and 2008 and later as an IT consultant from 2008–2009.

Shalva Kipshidze currently serves as IFES' chief of party in Liberia. He brings 13 years of experience in election assistance to IFES and has served as chief electoral data management advisor to the election commissions of Sierra Leone, Afghanistan and Iraq while working for the United Nations. Most recently, Kipshidze has been working as senior advisor for voter registration for IFES in Liberia, where he has provided critical support to the National Elections Commission (NEC).

In addition, he has worked for both IFES and the National Democratic Institute for International Affairs in his native Georgia. On several occasions, Kipshidze worked as a staff member and consultant of IFES in Azerbaijan, the European Commission in Lebanon and the International Organization for Migration in Jordan. He holds a B.A. from Tbilisi State University, Georgia, and an M.A. from the Central European University, Prague, Czech Republic, as well as an M.A. from the University of Newcastle Upon Tyne, U.K.

Gabrielle Bardall is an independent consultant and a doctoral candidate at the Université de Montréal. In 2005–2006, she participated in a six-week professional exchange with Elections Canada during the 39th General Elections to learn about the Canadian electoral system. From 2005 to 2010 she worked for IFES as a research officer in Washington, D.C., and in several project offices in west and central Africa and Nepal. She holds a B.A. from McGill University in Montréal and an M.A. from the Institut d'Etudes Politiques in Paris.

ABOUT IFES

The International Foundation for Electoral Systems (IFES) is the global leader in election assistance and democracy promotion.

IFES promotes democratic stability by providing technical assistance and applying field-based research to the electoral cycle in countries around the world to enhance citizen participation and strengthen civil societies, governance and transparency.

Every IFES project is staffed by national and international personnel while partnering with local election management bodies and civil society organizations. This homegrown approach ensures that the expertise offered by IFES fits the needs of the country or context and the benefit of assistance outlasts the life of the project. Our work is nonpartisan and includes projects that:

- Help citizens participate in their democracies
- Increase politicians' accountability to the electorate
- Strengthen government institutions

Since its founding in 1987, IFES has worked in 133 countries — from developing to mature democracies.

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CIVIL AND VOTER REGISTRIES

Lessons Learned from Global Experiences

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Introduction

Voters in Nepal confirm their identities with a poll worker before voting.

> *"The will of the people shall be the basis of the authority of government; this will shall be expressed in periodic and genuine elections which shall be by universal and equal suffrage…"*
>
> Universal Declaration on Human Rights, Article 21

The right to have a voice in selecting those who govern is enshrined as a basic human right. We recognize that voting on Election Day is the ultimate expression of this right. The process of registering voters and creating an accurate voter list is a key part of the electoral process that makes the exercise of this right possible. Although there have been elections without registering voters (e.g. South Africa in 1994), going through a registration process and producing a voter register offers significant advantages beside the obvious benefit of providing all

eligible voting-age adults an opportunity to exercise their franchise. These advantages may include:

- Expanding the timeframe allowed for voters to establish eligibility
- Providing greater transparency by allowing stakeholders to scrutinize the list and object to any voter if they have evidence that the person is not eligible
- Allowing an appeal process for a voter who is denied inclusion
- Serving as a basis for planning for procurement and delivery of election materials
- Reducing the opportunity for ballot-stuffing or fraudulent alteration of vote counts by limiting the number of valid votes from any polling station to the number of registered voters at that station
- Providing a number of eligible voters that can be used for calculating voter turnout
- Providing a list of electors to assist parties and candidates with canvassing
- Providing a basis for validation of signatures for nominations, petitions, candidate recalls or other measures that are only open to participation by registered voters
- Establishing a basis for limits on campaign spending when laws tie limits to criteria of "per registered voter"
- Assisting with delimitation of electoral areas
- Expanding the opportunities for civic education on the responsibility to participate in elections

Given the importance of voter registration to the electoral process, this study takes stock of the experiences of election administrators worldwide in designing and implementing registration systems to identify key principles and lessons learned in this area. While the findings in the rest of this study are not based on an exhaustive review of voter registration in all environments, they are based on experience in critical *types* of environments and on the collective experience of many experts who have spent their professional careers addressing voter registration worldwide. The lessons learned from these experiences form the basis for the findings in this study.

Global Principles in the Local Context

We should begin our discussion of principles with an acknowledgment that the best process of creating an electoral roll is a happy marriage between adherence to universally accepted principles and responsiveness to local context. These two do not always coexist in perfect harmony; however, every policy and procedural decision ought to strive to honor both of these.

A good starting point for common principles is the Universal Declaration of Human Rights, which states that the authority of any government is rooted in universal and equal suffrage. Everything that we do in our efforts to produce an accurate electoral roll should be guided by this basic principle of universal and equal suffrage. The following *principles* serve this *principal*:

- Integrity — the registration process should be fair, honest and strive to allow all eligible persons to be included on the rolls while preventing inclusion of ineligible persons
- Inclusiveness — all eligible persons should be allowed to be on the roll without regard to political preference, literacy, ethnicity, etc.
- Comprehensiveness — the roll should include all eligible persons and have a special focus on including segments of the population that are often marginalized, including women, youth, persons with disabilities, the poor, remote location, etc.
- Accuracy — registration data should be recorded and maintained in a way that guarantees the highest possible degree of accuracy
- Accessibility — no one should be required to overcome major obstacles of distance or physical barriers in order to be included
- Transparency — all processes of enrolling and updating voter records should be open to scrutiny by stakeholders
- Security — all data should be protected from unauthorized access or alteration and protected from loss due to user error or disaster
- Accountability — all changes to the electoral roll, as well as all claims and objections must be handled according to established laws, regulations and policies; all decisions should be made publicly

- Credibility — the electoral roll must be compiled and maintained in a way that will create and maintain confidence of all public and political stakeholders
- Sustainability — registration must be done in a way that can be maintained and/or repeated legally, financially, technologically and politically
- Cost-effectiveness — when evaluating different approaches to registering voters, the EMB should consider whether multiple solutions could achieve the same result, or if a lower cost solution can achieve an acceptable result; more expensive is not necessarily better
- Informed electorate — it is a fundamental responsibility of the registration authority to make sure that eligible persons know when, where and how to ensure their information is included and that they have easy access to information about where to vote

Varieties of Voter Registration

The concept of registering voters seems simple enough — all that is needed is a list of all persons who are eligible to vote and adequate information to uniquely identify each eligible voter. Yet implementing this simple concept consumes a huge amount of resources. In reality, it is rarely done to the complete satisfaction of stakeholders or election administrators.

The apparent simplicity of the task belies the actual complexities and challenges of creating an accurate, acceptable and sustainable voter register. There are always groups and individuals who may seek to fraudulently sway the register, either by adding ineligible persons or by creating obstacles to registration of legitimate voters. Ineligible persons may include deceased persons, voters who no longer reside in the area, youths who have not reached the eligible age, multiple registrations by the same individual or outright fictitious names. Legitimate voters may be prevented from being registered by physical intimidation, social pressure, misinformation or no information, cumbersome administrative requirements, limited access to registration centers, lack of required identity documents, etc. Groups may be specifically targeted for exclusion, such as persons of “undesirable” political persuasion, ethnicity or

gender. Or they may be excluded by a failure to allocate adequate resources, such as having too few registration centers in rural and remote areas.

"The harsh reality is that any voter register that is accurate today will be less accurate tomorrow unless effective procedures are put into place to keep the register current."

A further complication of voter registration is that this process registers human beings, who resist easy and/or permanent classifications. Voters who are eligible to vote in a particular constituency today may move away from that constituency before any election date. Voters who are underage will have birthdays that change their eligibility. Voters may change names, addresses and families. Some will be hospitalized or incarcerated, work or holiday overseas, or be called to active military duty. All these scenarios impact the type and location of lists where voter names should be included. For voters that die, many countries lack adequate reporting mechanisms to ensure these deaths are reported to any authority let alone an electoral authority. The harsh reality is that any voter register that is accurate today will be less accurate tomorrow unless effective procedures are put into place to keep the register current. Depending upon the requirements of the electoral calendar this may not be a problem, as it may be more cost-effective to do a periodic re-registration. But in cases where elections may be called at any time, there is a need for well-defined procedures to maintain the currency and accuracy of the register.

Even when all possible steps are taken to create a broadly inclusive voter register and prevent and detect fraudulent registration, electoral management bodies (EMBs) may be plagued with suspicions of registration fraud. A lack of confidence by political parties or the public can be as damaging to elections as actual fraud. It is not enough, therefore, that a voter register is accurate — the register must inspire confidence. In some mature democracies voters have confidence and trust in the voter register simply because there is a culture of acceptance of electoral processes. In other environments, this confidence can only be won by long relationship-building with political parties and stakeholders or by creation of procedures that allow complete transparency.

INTRODUCTION

The requirements for accuracy, comprehensiveness, currency, transparency, cost effectiveness and sustainability of a voter register are stringent. To ensure all requirements are met, it is worth looking for models that can serve as guides in how to go about the process of voter registration. Yet any search for models soon runs into the reality that almost every implementation includes lessons on what not to do as well as examples of best practices. Even when a very good model does exist, it is rarely possible to export that model easily to another country.

Differences in laws, cultural norms, communication and transportation infrastructures, reliability of electrical supply and weather conditions can have an impact on selection of an appropriate methodology for registration of voters. With increased utilization of biometric technologies for voter registration purposes, even the physical traits of the population can effect what is or is not appropriate for any given country.

When viewed within the context of constant change, political haggling and a myriad of variables that differ from country to country, this seemingly simple task of creating a list of names of eligible voters takes on a new complexity. There are no easy black-and-white answers about the best approach to collecting data, uniquely identifying individuals, keeping the data updated or how best to build transparency into the process. And yet, there is much value to be gained from studying the experiences of others because every registration process does share a number of common goals and issues. Regardless of all the variations that impact the process, every registration must determine how to:

- Establish a unique identity through the use of identification cards, documents, etc., so the voter can prove he or she is the person one claims to be
- Prove eligibility, including a minimum, age, citizenship and residency or location where the voter is eligible to be registered
- Associate every voter with the appropriate constituency and be able to connect each voter to a state or municipality, district, town or village election for which the voter is eligible to cast a vote
- Efficiently capture necessary data about every voter and store it in an accessible and usable form

- Remove voters who become ineligible due to being declared not of sound mind, criminal conviction or other reason
- Keep the data current by tracking changes in voter status if a continuous registration process is deemed necessary and/or cost-effective
- Build confidence among the public and the stakeholders in the accuracy, comprehensiveness and, most importantly, the political neutrality of the voter register

Who Registers Voters?

One key factor that differentiates voter registration processes in different countries is who has responsibility for compiling and maintaining the register. There are a variety of models for assigning this responsibility, including:

- EMB has sole responsibility
- Civil registry agency has sole responsibility
- Shared responsibility between EMB and civil registry
- Other government agency
- Shared responsibility between EMB and other government agencies, such as department of births and deaths, who are required to report this data to the voter registration authority
- Military
- International organization

Closely related to the issue of who has responsibility for maintaining the register is the question of how the data are collected. Is information obtained only from the voter, or is it also transferred from other sources and records such as driver's licenses, birth and death registries, local government agencies, etc. While a decision to access other governmental and non-governmental data sources may be made solely for purposes of efficiency, the decision moves the focus away from personal responsibility and more toward institutional responsibility. Although both approaches are common, it is worth asking which approach reflects the values of the EMB and other stakeholders.

Responsibility for maintaining the voter register may be further distinguished by whether it is centralized or decentralized, or a hybrid. There have been instances of registration documents maintained only at the local level, to the extent of having local registrars bind original hand-written registration forms into a registration booklet. Up until 2005, Sri Lanka created voter registers at district offices, manually typing lists of names to be added and removed and then re-typing the complete voter lists annually, incorporating the changes from these lists. In other countries the register is maintained as a single centralized database, while others maintain data at regional or district offices and at a national center.

"Regardless of what agency has responsibility, the concept of ownership of data has a significant impact upon who is responsible for maintaining the register, and what is involved in fulfilling that responsibility."

Regardless of what agency has responsibility, and the extent of centralization or decentralization, the concept of ownership of data has a significant impact upon who is responsible for maintaining the register, and what is involved in fulfilling that responsibility. There are instances where government agencies "own" the registration data and carefully guard it against any kind of public access. At the other end of the spectrum there are countries where voter register data is considered to be in the public domain and is freely accessible to anyone. Some countries allow payment for an electronic or paper copy, or make the register available for download from the Internet. Typically the question of the degree of accessibility to the data is determined by factors such as security. At times, conflicting rights to data privacy argue against a right to public inspection of voter lists. EMBs in some countries maintain a "silent" list of voters (often used by the judiciary, undercover police officers and those whose names and address details should not be publicly available, for example persons with court sanctioned non-molestation orders).

A few examples serve to illustrate how variable levels of access to voter data can be. Between 1996 and 2001, the voter register in Bosnia was maintained by the Organization for Security and Cooperation in Europe (OSCE), which went to great lengths to meet requirements for publicly displaying data

while trying to protect voters from intimidation. Lists were printed without identifying the location of voters or the constituency for which they intended to vote. This did lead to some confusion about the actual identity of some voters on the list since many voters have the same or similar names. However, in this case, the threats to physical safety of voters outweighed the possible ambiguities.

In Armenia in 2004, while compelled by law to publish voter lists online, Armenia's visa department refused to provide even basic data on the ages of voters, insisting that this data could be misused by other countries to assess the potential strength of the military by analyzing the number of persons at an age that would allow military service. Likewise, in Guyana in 2001, the Guyana Elections Commission (GECOM) denied multiple requests for access to voter registration data by political parties, fearing that the data might be misused to create counterfeit voter lists. Nonetheless, GECOM finally agreed to provide extracts of the register in Adobe portable document format (PDF), with security provisions to deter against extracting or altering the data.

In the United States, the 2002 Help America Vote Act mandated that every state keep a centralized database of voters, but individual counties usually maintained the data. Although states kept a centralized database, laws governing access to the data varied widely; 28 states allowed unrestricted access to and buying and selling of voter lists, and 22 states had varying levels of restrictions.[1] As seen in the United Kingdom, local registration offices maintained the register, but anyone can purchase a copy of a local register. Since 2002, however, the registration form has had a box that voters can choose to opt out of inclusion on any register that is sold. It is estimated that 40 percent of voters opt out of such inclusion.[2]

1 Kim Zetter, 2009. "For sale: The American voter, "*Wired* (11 December), at http://www.wired.com/politics/security/news/2003/12/61543, accessed 1 March 2011.

2 "UK.gov May Abolish Edited Electoral Roll: Six Options for Register Reform Published" (1 December 2009) at http://www.theregister.co.uk/2009/12/01/electoral_register_reform/, accessed 1 March 2011.

Accuracy of the Voter List: Roles and Responsibilities

There is a fundamental philosophical question that goes beyond who is responsible for the administration of the voter registration process. That is the question of responsibility for accuracy. It is not unusual for EMBs to be defensive about the accuracy of the voter register. This defensiveness is often reflected in claims about accuracy such as statements to the media that the register is "99 percent accurate." This need to give a numeric score to the accuracy of the voter register also leads to a common question about what is an internationally acceptable standard for accuracy in a voter register.

There are a few problems with any attempt to establish a fixed percentage of accuracy, either for any given voter register or as a standard requirement for acceptability.

First, these claims are often made without any procedure for measuring accuracy and with no clear understanding about what the number means. Does this refer to comprehensiveness or just to accuracy of the data about those included? Does 99 percent accurate mean that 1 percent of voters have names misspelled or inaccurate data such as date of birth? Does it mean 99 percent of eligible voters are included or that 99 percent of voters are assigned to correct constituencies? Without a well-defined metric for accuracy and comprehensiveness, it is impossible to understand what a percentage score indicates.

Second, any attempt to come up with a simple number as an international standard fails to take into consideration the wide variations in the types of populations being registered. In a country with relatively low transience and well-defined addresses and systems for recording births, an omission of 1 percent of voters, or an error in critical data on 1 percent of voters, might be politically unacceptable. By contrast, it may be impossible in highly transient or nomadic environments to accurately register 80 percent of voters. In countries without adequate birth records it may be impossible to accurately capture dates of birth for large numbers of voters. Lack of adequate geographical definitions

such as street names or even standard village names may make it difficult to precisely define constituency boundaries and assign voters accurately.

Third, any attempt to define a standard would have to compare only countries with similar types of registration structures. For example, a voluntary registration system would have much different levels of acceptable participation than an involuntary system. A continuous registration system might have a higher number of deceased persons on the register than a periodic registration system.

Finally, such defensiveness reflects an underlying perception that the EMB is primarily responsible for accuracy. In most environments, the electoral authorities depend heavily upon other stakeholders such as political parties, media and civil society to safeguard the registration process, to motivate voters to register and to scrutinize the list of voters for inaccuracies. Without responsible participation by these other stakeholders, and by the voters themselves, the EMB has limited control over the degree of accuracy.

Rather than being defensive about the accuracy of the register, it is better for an EMB to focus on creating a credible process for registration. A credible process should ensure registration is open and accessible to all eligible voters; the register is transparent and accessible to stakeholders and the public for scrutiny, to the extent allowed by laws and policies concerning data privacy; and there are simple procedures for reporting and correcting errors when detected. If the EMB has provided accessibility and transparency in the registration process, then the other public and political stakeholders bear at least as much responsibility for accuracy as does the EMB.

Putting the Pieces Together: A Shared Responsibility

This brief overview makes it clear that putting together a credible voter registration process involves a broad range of input — from global standards and historical perspectives to a large number of local participants that may

include the EMB, a number of government agencies, international partners and registration workers at central and local levels. In order to gain the confidence of all stakeholders, the process must also engage political parties and candidates, civil society, media and the voters themselves.

“The will of the people” and “universal and equal suffrage” are lofty concepts that reflect fundamental human rights. Implementing these concepts requires cooperation between a number of competing forces, coordination between many different sources of information, and commitment by a broad, representative group of stakeholders working together toward a shared vision of the common good.

The Components of Voter Registration

In southern Sudan, voters were registered months in advance of the January 2011 referendum on self-determination and issued voter identification cards.

The previous section addressed some underlying issues to consider when starting to look at the voter registration process as well as the system to develop an accurate and sustainable voter list. Global experience indicates that a number of key issues must be considered to ensure an efficient process that respects individual rights of voters and the composite interests of electoral stakeholders. In this chapter we focus on the key components and common options for implementation. We start this discussion with the legal framework underlying voter registration.

What Are the Options and Issues for Legal Framework?

Ideally, the laws governing voter registration should be organized in a logical hierarchy. Such an arrangement leaves implementation details to the body responsible for conducting registration. This allows adequate flexibility for the registration authority to respond to changes in procedures based upon experience and/or improvements in technology.

For example, first, the constitution would establish the right to vote and basic requirements for eligibility. Next, legislation would detail the requirements for eligibility to register and vote. It would also define which body is responsible for registering voters. This body should be able to pass regulations, as needed, to create orderly procedures for registration and access data from other agencies. Finally, the responsible body formalizes these procedures by passing regulations. When legislation devolves this regulatory authority to an EMB or other institution, it is important to create mechanisms to inform the public of all regulations that impact their registration.

There are a number of circumstances where this ideal is not attainable, so it is important for the legal structure to reflect the realities of the environment. For example, in a post-conflict environment it may be necessary to enact laws at a higher level where they are less subject to manipulation for political reasons. There may also be a need to enact specific legislation to protect basic principles or to protect the rights of minority voters, such as the United States Voting Rights Act of 1965.[3]

Ideally, any national legislation should focus on enforcing the right to vote and/or protecting democratic principles. It should leave the definition of procedures to lower-level regulations that can be more easily adapted and modified.

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3 This act was written in response to deliberate attempts to disenfranchise African Americans by creation of literacy tests as a qualification for voting. The Act prohibits the imposition of any "voting qualification or prerequisite to voting, or standard, practice, or procedure ... to deny or abridge the right of any citizen of the United States to vote on account of race or color."

Aside from defining rights, responsibilities and procedures for registration, the law should also address the issue of right to information versus right to personal privacy. For purposes of transparency it is important to allow broad access for political parties, civil society organizations and voters to scrutinize the voter register, but specific situations may require imposing some limitation on access. This is particularly true in post-conflict environments, where registered voters may be subject to intimidation and abuse.

The basic principle of data privacy is that the individual providing personal data must consent to all the ways the data will be used when providing it. Further, the collector of the data may only use it for purposes that are disclosed at the time of collection and may retain the data only as long as necessary to fulfill those purposes. In the case of voter registration, making basic voter data available for public scrutiny is usually a legitimate use of data collected for purposes of enfranchising voters, but whenever possible, the ways that this data will be shared should be established before the data are collected. This may include public posting of printed lists, distribution of the data to political stakeholders and/or making the voter lists (or subsets of voter data) available on the Internet. The EMB should take care to not make more data public than is necessary to identify the voter. For example, it may be prudent to not display mailing address and/or telephone numbers if these are included in registration data since this information may be misused for marketing products and services.

Body responsible for maintaining the voter list

As stated previously, there are many different models for assigning responsibility for maintenance of the voter lists, including EMBs, ministries of Interior or Justice, Bureau of Statistics, Census Bureau and even police. Regardless of which organizations or agencies have responsibility for maintaining the data that forms the basis for a voter register, it is critical to determine who has final responsibility for production of the final list of voters used for conducting elections. The law should carefully establish who has this responsibility and provide adequate authority for this body to ensure cooperation from any organization that provides data. It is

helpful to clearly define the responsibilities of other organizations who maintain public data related to the voter register. For example, a department of births and deaths should have a clear requirement for sharing lists of deceased persons with the voter registrar's office. The chart below shows other bodies that commonly interface with the registration authority and their role.

It is important for the legal framework to identify any other agencies that may be required to share information with the voter registration authority. The framework should enable that authority to request information from other agencies when appropriate and relevant to the responsibility of maintaining an accurate register.

Table 1. Stakeholders and the Registration Authority

Type of Agency	Role
Civil registry agency	Coordinate updates of addresses and status changes with voter registry.
Courts	Report findings of mental incompetence, felony convictions, or other court decisions affecting the right to vote.
Police and defense forces	Provide information on persons who will be deployed away from their normal polling station on Election Day so alternate arrangements can be made to allow them to vote.
Departments in the Election Commission	Provide lists of election officials required to work on Election Day. These lists may be required to allow such officials to vote before Election Day, or in a polling station other than the one where they were originally registered.
Departments responsible for tracking emigration or overseas work permits	Coordinate with the voter registry to indicate those persons who are out of the country on Election Day.
Political parties, stakeholders and the public	Formal mechanism for objecting to the inclusion of any person's name on the voter list if they have adequate grounds for such objection.
Prison authorities	Report those who are incarcerated if the law and procedures allow for voting in prisons.
Hospital authorities	Special registration by hospital authorities if countries have special provisions for those who are hospitalized on Election Day.
Embassies and overseas missions	Registration of overseas voters.

Specific issues related to civil registry

In cases where there is a civil registry, the voter register may be extracted directly from that registry or the two agencies may coordinate data updates between two separate databases. Logic indicates that it is more efficient to have a single agency maintaining a civil or population register than to have two different agencies duplicating efforts every time a person changes his or her name or moves to a new location or dies. However, there are six key considerations when extracting the voter register directly from a civil registry.

First, a new civil registry may not provide a sound base for the voter list. If the civil registry is new and has not yet registered the entire population, then any decision to rely upon that agency should be deferred until the registry has matured and can provide a sound basis for providing voter data. Otherwise, a failure or even a delay of the civil registry process can result in significant problems with planning for an election.

Second, the provisional list should be open to scrutiny before being finalized. Even in cases where there is a mature civil registry, there are political implications to directly extracting voter data, as this may put too much decision-making authority into the hands of a governing party concerning who is or is not included in the register. Ideally, a provisional voter list should be extracted and subjected to scrutiny by political parties and the public. There should be adequate resources and procedures to ensure that errors and omissions will be addressed before the data are published as a final register of voters.

Third, an independent EMB may generate more trust in post-conflict societies. In post-conflict and repressive societies many people have spent years hiding where they live from state authorities. They are more likely to trust an independent EMB with their personal data than a state department civil registry often run by an interior or police ministry.

Fourth, electoral and administrative boundaries may not align. Electoral boundaries are not always aligned with the organizational structure of government agencies. For example, there have been many problems in trying to

align electoral boundaries with census blocks. If the data are not maintained in a way that facilitates identifying the constituencies a voter belongs to, this can cause major problems in organizing elections.

Fifth, a non-electoral agency may not be sensitive to electoral considerations. If maintenance of a voter register is not a primary responsibility of the organization charged with maintaining the data, that organization may not be sensitive to timelines and other requirements for election management. Additionally, a non-electoral government agency may not recognize requirements for comprehensiveness, accuracy, political neutrality, transparency, etc.

And finally, the mechanism for transferring data may not be ideal or adequate. For example, in Indonesia, the Ministry of Home Affairs handed voter list data over to the EMB as 70,000 Microsoft Excel spreadsheets, copied onto 465 CD-ROMs.

Identity, eligibility and constituency

It is a common problem for electoral management bodies to struggle over defining requirements for a voter to prove identity. Unless there is a national ID card or some other de facto standard ID card, the EMB must establish what is acceptable documentation or methods for proving identity. Some commonly used documents include birth certificate, driver's license, social security card, and records from religious institutions, banks or utilities.

When none of these are available it is common to establish a form of identity by attestation, whereby an established local leader or one or more neighbors can sign an affidavit, attesting under penalty of perjury, to the identity of the individual in question. The risk of such a provision is that it may be possible for a small group of persons to load the electoral roll with a number of fictitious voters. To deter against this possibility some laws limit the number of times any individual can attest to another's identity, and/or include restrictions against someone who is only identified by attestation from attesting for another person, though such limitations may be difficult to enforce.

Proof of identity alone is not sufficient for voter registration purposes. It is also important to establish criteria for proof of eligibility — of basic requirements such as age and citizenship and geographical eligibility to vote within a specific constituency. It is important to create a system that can provide sufficient geographical granularity to allow redrawing of electoral constituencies and assignment to polling stations. In some areas it is impossible for voters to give any address more specific than a neighborhood or village name, while others have sophisticated geographical information systems with digitized maps and global positioning satellite coordinates for every voter.

The key point of geographical granularity is that it is very difficult to draw detailed electoral boundaries or assign specific polling stations unless the electoral roll contains adequate specificity to locate every voter within defined boundaries.

The Process of Registration

Security, transparency and auditability

Because of the political nature of the voter register there is always a risk that someone may attempt to tamper with the data to gain a political advantage and a corresponding suspicion that such tampering may occur. Therefore, it is important to have adequate security measures in place to guard against unauthorized access to the voter register database. A detailed security plan is beyond the scope of this study; however, it is worth mentioning that any security plan should include measures to prevent unauthorized access and detect if anyone has been able to successfully bypass the prevention measures. Internal security measures should also include tracking every transaction applied to voter data including the identity of any user who made changes, when and by what authority.

The ideal is to have a method that allows stakeholders to “audit” all changes to the register. This includes production of periodic reports showing all additions, all deletions and all changes to the voter list broken down to the most specific level. In many cases this will be the polling station level, but in countries that do

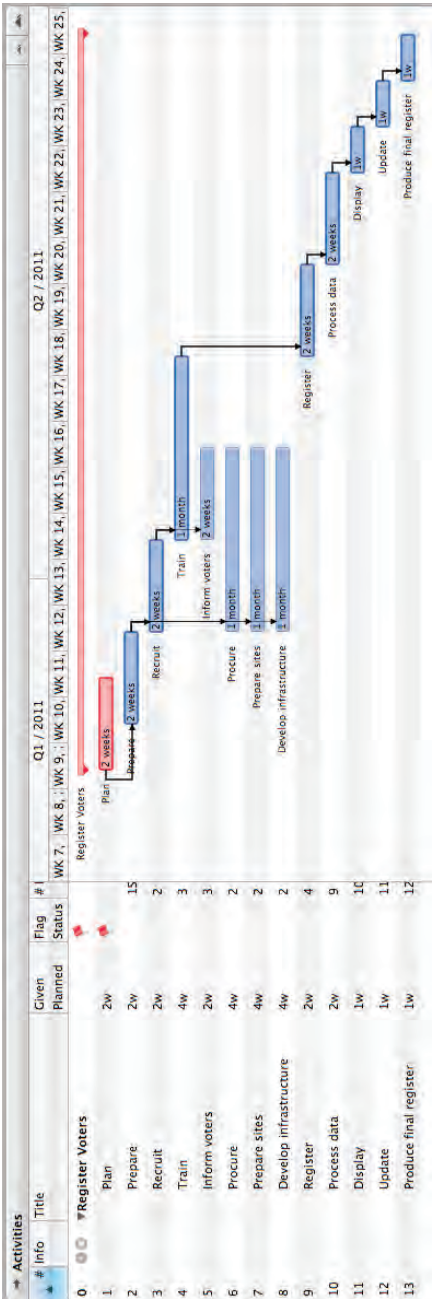
not break voter lists down to the polling station level it may be county, village, neighborhood, etc. Sharing these reports with all stakeholders can help build confidence in the impartiality and competence of the EMB.

Timeline

As with many aspects of planning for voter registration, it is impossible to prescribe a "one size fits all" timeline for registration. The time required to conduct a registration depends upon the population and geography of the country, complexity of identification and eligibility requirements, available resources and the experience of the EMB. Regardless of all these variations, there are some common activities that should be scheduled. The following task list may serve as a starting point but should not be taken as a comprehensive list. It is also noted that these activities are not necessarily sequential; many may overlap, but it is important to identify which activities are precursors to other activities.

- Adoption of required regulations and policies, in consultation with political and other stakeholders whenever possible
- Drafting registration procedures
- Procurement of necessary systems and materials
- Production of registration materials
- Production of training materials
- Training of registrars
- Public information campaign
- Distribution of registration materials to registration centers
- Registration
- Data capture, if not done concurrently with registration
- Data consolidation, checking for duplicates, application of any data validation rules
- Distribution of ID cards, if this is a part of the registration process and if not done at time of registration
- Printing provisional voter lists
- Distribution of provisional voter lists

Figure 1. Sample Voter Registration Planning Timeline



- Public display for claims and objections
- Incorporating changes from public display of data
- Printing final voter lists
- Quality assurance checking and packing of voter lists
- Distribution of voter lists to the polling stations

Maintenance of the Data

When discussing the voter register, it is important to make a distinction about whether we are talking about a product or a process. The product is a database or a paper list for use on Election Day. In order to have an accurate product, there must be a well-defined process for creating and maintaining data. Every printed electoral roll begins a steady decline in value from the moment it is printed. People die, emigrate or move to a new location, others come of age or change their names; with every individual human "change" event, the information on the list becomes more outdated and inaccurate.

Without a well-defined process, the data in an electoral roll database suffers the same degradation over time. In order to update the data there are two main models, periodic updates and continuous registration. If the country relies on a civil registry, the continuous registration model must be used, as the database must capture births, deaths, marriages and other civil events. An EMB with a standalone electoral roll has the option of either periodic or continuous update, or a combination of both. Over the past 15 years the trend has been for countries to at least give lip service to the concept of a continuous registration process. There seems to be a common agreement that this is the better option; however, this may not reflect the realities of requirements and costs.

More recent opinions evaluate the experience of countries that have done continuous registration over the past decade or longer and point out that voters have little interest in informing the EMB of deaths, relocations, marriages, etc., unless there is an election on the horizon. This means that countries with the best

continuous registration must still plan for a more intensive period of updates as part of the election cycle. At the same time, a civil registry may create stronger incentives for keeping information current, thereby reducing the intensity of the pre-election requirement.

This raises a question as to whether the benefits of continuous registration or a combined civil registry are sufficient to justify potentially higher costs. Factors that must be considered on a case-by-case basis are whether there are existing permanent centers that can take on the additional responsibility for continuously updating data, whether elections are on a fixed calendar or can be called at any time, public trust of the EMB versus trust in any government agency that may be involved in maintaining the data, etc. There is no easy answer to a preference for periodic, continuous or civil registration.

Handling Duplicate and Multiple Registrations

Different countries face varying degrees of problems with duplicate registrants on the voter roll; this seems to be related as much to the culture as to any measure in place to address the issue. In mature democracies there is an expectation of fairness, and a stigma associated with any attempt at electoral fraud. There may still be duplicates on the electoral roll but these will usually be the result of error or carelessness, such as when a voter relocates to a new area and does not notify the electoral authorities in the original constituency.

In countries with less entrenched democratic values, winning at any cost is valued more than perpetuating principles of democracy, and fraudulent multiple registration is just one more way to increase the chance of winning.

Detection

The methods for detecting duplicate and multiple occurrences of a voter on the electoral roll are essentially the same, regardless of whether the names got there by accident or by design.

Databases can be matched for exact duplicates of text and date fields including name and date of birth. This approach is effective only in cases where the same voter appears more than once with the same data, and where dates of birth are known and fully recorded.

"There should be an opportunity for political stakeholders to scrutinize the electoral rolls and raise objections."

Database matching techniques can also look for close similarities in the data. This may include combinations such as: same last name, first initial and date of birth; same name and year of birth; or reversed last name and first name and same date of birth. This approach can find many suspected duplicates as voters often make only minor changes to the information they provide when registering multiple times. However, the approach involves a great deal of work and requires great care be exercised to avoid removing legitimate voters who have similar information.

There should be an opportunity for political stakeholders to scrutinize the electoral rolls and raise objections. Including pictures of every voter dramatically improves this approach.

Implementing some form of biometric matching, most commonly either automated fingerprint information system (AFIS) or facial recognition can also help identify duplicates. It should be noted that, similar to database matching in similar data, this approach can help identify suspected duplicates, but great care must be exercised to remove duplicates in a transparent and legal manner. It is also critical when implementing a biometric system to ensure that the time, resources and skills are available to complete the process, otherwise significant resources can be consumed with little end benefit.

Deterrence

It is remarkable that in countries with frequent complaints of multiple registrations, there are rarely any charges filed against those who have committed electoral

fraud. This failure may be due to inadequate funding or lack of will to enforce the electoral code; however, the result is the same. No detection method, whether database matching, public scrutiny or biometric system, will be 100 percent effective at detecting duplicates. Therefore, for any of these methods to have the desired impact it is important that they be paired with good public information, laws that prohibit multiple registration and strong enforcement of penalties for violations of electoral law.

Electronic access to voter register

As election management bodies continue to search for ways to increase accessibility to the voter register, a number of countries have made their voter lists available through three major electronic platforms: CD-ROM or DVD, the Internet and SMS queries.

The published CD-ROM or DVD allows wide distribution of the voter register to stakeholders, allowing political parties and civil society organizations to play a more active role in scrutinizing the register and informing voters of any inaccuracies. It also informs voters where to go on Election Day. The disadvantage of this distribution is that once the CD or DVD is out of the hands of the EMB there is no control over how the data is used.

The Internet allows for online queries of the electoral role, even if Internet access is not widely available in the country. Sometimes these queries are limited to searching for a single individual, with a limit on how many searches may be performed by the same user; in other cases entire polling station lists can be viewed by online users. An emerging trend is allowing voters to complete an application for inclusion or to modify their data over the Internet. The data is saved in a temporary database until the voter appears in person to confirm the registration. At that time the registrar scans a bar code or enters a number to authorize moving the data from the temporary database to the electoral roll. The advantage of such a system is that it can provide a valuable tool, not just for individuals, but also for political parties and civil society organizations to do

registration drives while still keeping the EMB in control by requiring in-person confirmation of any data entered.

And finally, as mobile telephone access increases, several countries have allowed the voter to send an ID number as a text message to an advertised phone number. The system responds back with an SMS providing all voter details.

Registration Operational Support

In conducting voter registration it is important to provide support for many different types of activities. Some of the primary activities are listed below.

Civic/voter information

The best-defined laws and procedures and latest technologies cannot deliver a successful voter registration if the public does not show up to register. The success of any registration depends upon informing all eligible persons of when, where and how to register, including identifying any documents necessary to prove eligibility. Beyond these basic details it is often important to motivate them to register. This may require special emphasis if there are segments of the population who face social, economic, political or other obstacles to registering. For example, many countries plan special campaigns aimed at increasing the number of women who register, or targeted at young, first-time voters.

Training

Voter registration often depends upon a large number of ad hoc, temporary employees who may have little knowledge of the requirements and procedures. Training should go beyond an explanation of the law and include actual hands-on experience with registering “sample” voters. An effective training program should also include an assessment to measure whether all workers have effectively understood the information provided.

Engagement with political parties, civil society organizations and media

The goal of any voter registration process should go beyond accuracy to also build public confidence. This requires buy-in from a large number of stakeholders. The best way to gain confidence is to involve stakeholders in the process from the beginning. This involvement can take a variety of forms: having stakeholders represented as commission members,[4] creating advisory councils, allowing non-voting observers at policy meetings, holding public forums to request input, conducting regular media briefings, etc. The degree to which stakeholders accept the legitimacy of the register often has a direct correlation to how much these stakeholders were involved in or kept informed of key plans and decisions.

Logistics

Voter registration is a huge and often complicated exercise in logistics. It requires delivery and retrieval of equipment and supplies to centers throughout the country and to central offices at the close of registration. There may also be requirements for regular, weekly or periodic delivery of completed registration forms back to the central offices or providing additional materials and backup equipment to support registration centers during the process. This may require coordination with other government agencies to provide security, transport, staffing, office spaces or registration sites. In systems that rely on distributed technology, registration may also require development and maintenance of complex data networks and contingency plans for synchronizing data where the network may be temporarily unavailable or fail outright.

Monitoring and evaluation

As important as initial planning is to the success of a registration process, there is no better way to identify weaknesses and potential improvements than

4 It is noted that having an EMB composed of political party representatives, while providing important stakeholder input into policy-making, may not be the best model for structuring an EMB. Such a structure may allow too heavy of an emphasis on how every decision impacts the political party at the expense of concerns about how it impacts the electoral process and/or the voter.

through the process of conducting an exercise and a careful assessment of its effectiveness. There are a number of methodologies for building in a process of evaluation and improvement; one of the simplest is the "define-measure-improve" model depicted below. The feedback mechanisms for identifying issues and areas of improvement may include management oversight, surveys of voters, monitoring media responses, and careful and objective reading of observer reports. The key point is that every registration has opportunities for improvement, and it is important to define mechanisms for getting feedback and responding by implementing a continuous improvement process.

Case Studies Overview

The following case studies are selected to provide examples of a variety of registration exercises in both developing and mature democracies. The selection is not intended to represent model registrations, but rather to provide a broad

Figure 2. Define, Measure, Improve Process

overview of the challenges to successful registration. The selection helps identify issues that must be addressed to improve the chances of success. They are broken down into three categories:

I. First-time registration, or complete re-registration
II. Strengthening existing registration with new technology
III. Continuous register or civil register

First-Time Registration

Nepal initiated a voter registration process in 2010 even without an election on the calendar that year.

Introduction

The creation of a new voter registry is a major undertaking. In most cases, it is the most complex project that any EMB will be required to manage — at times raising even greater challenges than the actual conduct of an election. A new voter registration exercise may be required in any of the following cases:

- Newly emerging democracy
- Post-conflict state
- Major government transition
- Loss of confidence in an existing voter register

Creation of a new voter register is often coupled with planning for a national election exercise and is often subject to aggressive timelines. However, it is a mistake to rush into such an exercise without taking time to carefully analyze long-term requirements and plan for how the register may be used in future elections. Inadequate planning can result in the failure to create a sustainable or even usable register, resulting in an erosion of confidence in the electoral authority and electoral processes.

The realities of a post-conflict environment may force unreasonable timelines and may even justify the creation of a one-off voter register, knowing that the register will not be usable past the first election exercise. However, this decision should be made after some discussion of additional requirements needed for creating a register that will be reusable.

Post-conflict registration exercises conducted in the past decade provide valuable lessons that help guide those responsible for implementing a new registration.

Those responsible for conducting a registration process have confronted a number of issues that are common to first-time registration exercises:

- Urgent requirement to produce a voter register in a very short timeframe
- Incomplete legal framework that changes as procedures and training are being developed to support the registration exercise
- Inheriting questionable existing data sources that may or may not be in a usable database format and were probably not created for election purposes
- Large numbers of refugees and internally displaced persons combined with a requirement to enfranchise voters in the very constituencies from which they fled
- Inadequate systems of defining physical addresses, including frequently changing street names and village names
- Inadequate or nonexistent identification documents since many documents may have been destroyed (at times intentionally) during the period of conflict or issuance of such documents may have been skewed by political influence either by denying documents to some, or by issuing multiple documents to others

In our first case study, Kosovo, the initial post-conflict registration was conducted by the Organization for Security and Cooperation in Europe (OSCE) and assisted by IFES. In spite of a relatively small population, the registration faced many difficult challenges. The departure of the Serbs who had held most government positions and owned most businesses meant the country had very little capacity to provide logistical, technological or even clerical support to the registration exercise. Very few of the mostly Albanian population left behind had adequate identification documents.

The case study on Afghanistan describes multiple attempts to create a workable voter register under conditions of extreme hardship. In the wake of the U.S. invasion of Afghanistan, the Bonn agreement of 2001 sought to create a democratic state in the country that had no formal national government for over 20 years. There was no accurate census to provide realistic estimates of the population, no existing legal framework, no existing data sources and no recognized identity documents. In spite of all these obstacles, the Bonn agreement imposed strict timelines for the conduct of elections. In what may be the most expensive voter registration exercise ever conducted, nearly $200 million was spent in an attempt to register approximately 8 million voters. And yet, this attempt failed to produce voter lists for use in polling stations on Election Day.

In Iraq, the team responsible for voter registration inherited a list of persons who had signed up for a food distribution program with the responsibility to transform that list into a voter register. The post-conflict security situation prevented opening a large number of registration centers for a short period of time — a registration methodology often employed to prevent multiple registrations. As in many post-conflict environments and developing countries, there was no existing system of addresses and many persons did not know their date of birth. The urgency to conduct elections, combined with limited resources and questionable security, dictated that this would be a single-use voter register. Again, because of security concerns, data processing was outsourced to another country, despite the near-inevitable decreased level of accuracy that would result from this decision. In spite of these many obstacles, the team was able to produce a register that was usable for the conduct of elections.

Case Study: Kosovo

Peter Clayton

Kosovar men wait in front of the first pilot registration center in the village of Miras on April 19, 2000, the first day of civil and voter registration undertaken by the Organization for Security and Cooperation in Europe and the United Nations.

Introduction

Data integrity and accuracy problems plague the voter registry in Kosovo. Until 2004, the United Nations Mission in Kosovo ran the civil registry while the Organization for Security and Cooperation in Europe (OSCE) managed the voter registry. After 2004, the Ministry of Internal Affairs managed the civil registry while the Election Commission/OSCE managed the voter registry. Each responsible organization viewed the purpose of the registries differently. This issue, combined with a lack of coordination for mutual benefit of the Kosovo population has been the main cause of problems impacting the voter registry. This case study examines these issues faced by the Kosovo Election Commission and concludes with an analysis of the technology solutions which have been applied in the process.

Background

Since the Kosovo war ended in 1999, there have been seven national or municipal elections: the OSCE organized and supervised elections in 2000, 2001, 2002 and 2004; in 2007 the OSCE was also highly involved in managing the election; and in 2009 and 2010 the OSCE acted more in an advisory role while still organizing and being responsible for the voter registry. In 2000 there were just over 900,000 people on the voter registry, and by 2010, there were approximately 1.5 million.

The source data for the voter registry is the civil registry database, and the law states that the voter registry "represents the most recent available extract from the Central civil registry of all eligible voters who are registered as citizens of Kosovo,"[5] plus voters who register to vote outside Kosovo.

Each time the Election Commission/OSCE receives a new extract from the civil registry, it must make great use of technology staff and equipment to cope with inaccuracies and invalid or conflicting data to create the best possible, yet impossible to perfect, voter registry. It must then use technology to handle conditional balloting (whereby someone can vote at a different polling center from the one they were originally allocated) to manage the results of the problems caused during the election due to data issues. It is only with the use of high-power computers combined with skilled and election-experienced database developers that the Election Commission/OSCE is able to produce a voter registry that does not cause the large drop in credibility caused by the use of the raw civil registry data (i.e. without processing).

Database Software Used for Central Voter Registry and for Field Work

The central voter registry database uses Microsoft SQL Server software for merging, analyzing, general management and processing of data. Microsoft Access' database software is used for voter registration in the field when there is very little

5 Law No. 03/L-073 on General Elections in the Republic of Kosovo (5 June 2008), art. 7(1). Section A.

processing to be done, such as finding a single voter in the voter list on a CD. The use of Microsoft database software is generally deemed positive from an election point of view because it is normally easier to find skilled, experienced and qualified staff able to use Microsoft software compared to other database software such as Oracle. For example, consultants in Oracle software charge extremely high rates and often work on long-term and large-scale projects. As a result, they are not available to work on short contracts at short notice and for less pay in post-conflict countries. Therefore, Microsoft software is seen as a better solution when speed, cost and availability of skilled staff are considered.

With the OSCE responsible for large election databases, the Election Commission has not hired anyone who is capable of taking over the complex technological needs that have built up over the last 10 years. As a result, it is an increasingly difficult task to find the right level of skill even in using a Microsoft SQL Server. The standard government rates of pay for IT staff are too low to attract suitable staff to apply. Unless government rules can be amended, the only solution would be to outsource database work through a tendering process so that the necessary staff can be hired. However, outsourcing such a sensitive process to an external company when they will face severe political pressure makes the decision particularly challenging. This makes it very difficult for the OSCE to be in a position to hand over responsibility of the voter registry to the Kosovo Election Commission while it does not have suitable staff.

Another problem facing the Election Commission in hiring database developers of a high enough standard is that the Commission does not have staff with sufficient knowledge in IT to recognize what skills are necessary for new recruits, nor are they able to tell if the applicant meets the required standards. Many non-IT staff think IT staff only need the ability to mend computers and do not fully understand the highly complex and skilled database and software development work required to create the Kosovo voter registry. For example, non-IT staff do not understand how to test whether a recruit is able to carry out complex queries on a database and do not think about hiring IT project managers to oversee the work and timelines. Consequently, staff without the appropriate skills and experience are hired. The involvement of highly skilled international database

staff, in this case the OSCE, in the recruitment process is vital to make sure that suitable IT project managers and database/software developers are hired, trained and initially supervised until an eventual handover.

Main Issues Faced in Maintaining the Voter Registry

The main issues faced by the Kosovo Election Commission regarding the voter registry are:

1. The source of the data (the civil registry) is not within its control
2. The source of the data is not of high quality
3. The law says the civil registry must be used as the source of the voter registry

This means the Election Commission does not have control over the quality of its own data and finds it almost impossible to improve upon.

Pcode and address issues

Immediately after the Kosovo war in 1999, the UN Refugee Agency (UNHCR) set up a system of allocating each small geographical area of Kosovo a code, called a Pcode, so humanitarian aid and assistance could be administered to the right places. When people registered with the UN, their Pcode was entered into the civil registry which the Election Commission then used to allocate people to the nearest polling center.

Since the end of the war in 1999, street addresses have changed constantly due to political and local issues. As a result, very few people know their own address. The Kosovo government started to develop country-wide projects to create official addresses 10 years after the end of the war. This project is not expected to be completed for another five years.

With the Election Commission unable to use the address in the civil registry to allocate polling centers, it is forced to use the Pcode. However the Pcode was

not designed for the allocation of polling centers because the geographical areas are too large. When a person completes the civil registration form and does not know where a particular location is, they simply fill in a generic location in the middle of the municipality. In addition, when the UN Mission in Kosovo handed over responsibility of the civil registry to the Kosovo government after 2004, the Civil Registration staff stopped recording Pcodes in the civil registry database. As a result, the Election Commission had no reliable source of information on which to allocate a polling center to new registrants.

The resulting technological and semi-technological solution to this was

1. New registrants are sent to the municipal Election Officer to try to allocate the right polling center using contacts and local knowledge
2. If someone votes conditionally at a different polling center they are re-allocated to that one for the next election

The best intermediate solution would be to resume the use of Pcodes. The ideal solution is to have a better Pcode system, but this is not within the control of the Election Commission.

Inaccurate and missing data

When civil registry data was first entered in 1999–2000, the registration forms were sent abroad to be entered into the database. However the forms were sent to India, where data entry staff did not recognize the format of Kosovar names and addresses and their details were entered without the use of validation rules, resulting in the entry of very inaccurate data. There was also little quality control which meant that the code for the municipality might not match the name for the municipality, with the Pcode possibly in yet another municipality.

Inaccurate data has been used for the last 10 years for both the civil registry and voter registry causing continual problems and high costs for both registries. Simultaneously there has been a reluctance to spend money on re-registration. Much of this could have been avoided by carrying out the data entry validation process that was originally intended. The process for data entry in India was

supposed to include the use of data validation tables (lookup tables that make sure that only valid data could be entered) and valid name tables (lookup tables that make sure that only real names of people and streets are allowed to be entered). These lookup tables should have been constantly exchanged between India and Kosovo to ensure the validity of the data and should have included local Kosovar staff to approve the lookup tables. However local staff were not employed and the data entry in India continued without any validation rules, resulting in inaccurate and mismatched data that has damaged the credibility of the voter registry and wasted preliminary investments from the beginning.

This means that for municipal elections it is often impossible to know which municipality someone should vote for or which polling center to allocate them. The Ministry of Internal Affairs, the department responsible for maintaining the civil registry, still does not have simple data integrity checks for data entry. Incorrect or invalid data continues to be entered into the civil registry thereby reducing the credibility of the voter registry.

The original UN ID cards expired after five years, but unfortunately very little of the data was corrected in the civil registry when new ones were issued. There were still over 53,000 missmatching municipalities entered since 2006 and still people do not have full or valid addresses.

The best possible solution that the Election Commission/OSCE is forced to follow is not ideal. It requires that the Commission/OSCE handle the bad data by using complex software development and search each year's voting records to find the location where someone previously voted. If there is anything in the database that suggests this is one of the many possibly valid municipalities, the voter would then be allocated to a polling center. Others have insufficient data to allocate a municipality or polling center so they are allocated by the computers best guess and conditional balloting is used to cope with the problem later.

Deceased or non-residents still on the voter registry

For a deceased person to be removed from the voter list he or she should be marked as dead in the civil registry. While the Civil Status Office of Kosovo has

the most up-to-date record of deaths, the information is not passed on reliably to the civil registry Office and so an estimated 32,000 to 64,000 deceased (2 percent to 4 percent) remained on the voter registry in 2010 — including one of the prime ministers who had a state funeral and whose death was properly registered. This harms the credibility of the Election Commission and the election itself. The Election Commission does not consider that it has the right to use other sources of information to remove dead people from the voter registry even though it would require a simple database merge of the voter registry database and the civil status database.

There are also up to an estimated 400,000 people on the 2010 voter list who left the country but have not picked up a new Kosovo Identity card (a new legal requirement). If these people have fully left the country and are unlikely to return, then 25 percent of the people on the voter list are unlikely to vote in any election, leaving their names vulnerable to fraud and accusation of fraud.

With a potential maximum of 30 percent of people on the voter list out of the country or dead, the civil registry currently has no procedures in place to remove these people, which affects the credibility of the election.

Seemingly unfixable source data

The Kosovo Election Commission does have a Memorandum of Understanding with the Ministry of Internal Affairs, which manages the civil registry, for fixing poor data, but there is little communication between the organizations and requests from the Election Commission to have large-scale problems investigated and fixed are not carried out. The Ministry of Internal Affairs does not have a centralized command structure that can enforce changes to procedures at a local level to improve the supply of accurate information to the civil registry.

This was similarly the case when the OSCE managed the Kosovo elections and the UN managed the civil registry. It seems that the civil registry staff believes that its data is good enough for its purposes and that sufficient pressure has not yet been applied to make the civil registry and Ministry of Internal Affairs staff do the work that the Election Commission needs to maintain a good voter registry.

"For each election, it is necessary to develop software that analyzes the voting patterns of each individual voter over every election since 2000."

The lack of improvement in the data from the civil registry has meant that the Election Commission (currently through the OSCE database staff) has an increasingly complex job for every election to deal with the bad source data that it receives. For each election, it is necessary to develop software that analyzes the voting patterns of each individual voter over every election since 2000. This software uses a complex set of rules to allocate voters to the best possible polling center using the little information that is available. These technological resources are increasingly hard to find locally as the complexity increases.

At the moment, because the OSCE has created the voter registry since 2000, the Kosovo Election Commission often underestimates the time, effort and skill it takes to create a workable voter list from such poor source data. Additionally, the Commission does not understand the level of skills and experience for suitable local staff that they would need to hire to replace the current OSCE staff. Therefore, the OSCE will remain the primary producer of the voter registry for the foreseeable future.

Change in the number of municipalities

For political, ethnic and historical reasons, the number of municipalities in Kosovo has changed from 30 in 2001 to 38 in 2010. However no government department in Kosovo has been instructed by the government to consider the additional municipalities, and even the Statistical Office of Kosovo does not have or share a definitive map of the official boundaries.

This caused a highly problematic case for the Election Commission when it was instructed to hold municipal elections in the new municipalities when they were not officially defined, and also when the source data was unreliable to begin with. It was only through the use of an enormous amount of data processing, to speed up the process, and manual checking of the resulting data that people were allocated to their probable new municipality. Conditional balloting allowed some

people to physically vote using a ballot that was later not counted because they were not allocated to the correct municipality.

Increased need for technology skills vs. technology skills of local population

With increasingly complex database processing for every election, database developing skills and IT project management skills become more and more difficult to obtain locally due to availability and cost. Without a change in the recruitment process and payment procedures it is very difficult for management of the voter registry to be successfully handed over to Kosovo staff, particularly if no improvement is made to source data. It will take at least two elections for skilled and experienced database developers and IT project managers to be in a position to take over the voter registry from OSCE staff. Therefore, these changes should happen as soon as possible.

If the civil registry source data was very clean then the skills and experience needed for IT database developers, IT project management staff and IT equipment would be significantly lower. It is unlikely this will happen through normal government processes due to different priorities of other government agencies and the lack of influence of the Election Commission.

Other Technology Solutions Applied in Kosovo

Conditional balloting and voting by post

Conditional balloting and voting by post would not be possible without the use of technology. In Kosovo a large data entry center is setup for each election where every page in the entire voter list is checked by a computer operator to mark those people who have voted. Next, data from every conditional ballot and postal ballot is entered to determine if it is eligible to be counted. This requires a large amount of resources in terms of infrastructure, IT hardware, networking, software, communications, staffing, management and money. An alternative system would only allow people to vote in their allocated polling center and would place the responsibility with the voter to register and arrive at the correct voting location.

In a post-conflict situation where large numbers of people are displaced, conditional balloting is a good tool for inclusivity. However as the situation normalizes, the cost becomes too high compared to passing back a small amount of responsibility to the voter to make sure their allocated polling center is correct. Postal voting can also be considered for implementation in embassies, once established.

Digital photographs on the voter registry

Initially the physical voter list was printed with the photograph of each voter next to his or her name. This meant identification was simple and ID cards were not needed on Election Day. A photo on the voter list was seen as especially useful in the immediate post-conflict situation. However from an IT perspective this was very time consuming and required powerful computers and plenty of quality control to function. Since 2004 this has been deemed unnecessary and terminated to allow time and resources to be allocated elsewhere.

Sorting three alphabets

In Kosovo three alphabets are used in the elections: Albanian, Serbian and Turkish (and also Cyrillic until 2001 for headings on some documents). This caused significant technological problems because the database software could not handle all three simultaneously when printing and could not sort the names appropriately using the local characters (e.g. c, ç, ć, č). A new method of creating a special database field that could sort names into the required order was created to meet local requirements.

Removal of duplicate voters

In 2002 the Election Commission (OSCE at the time) spent a lot of time searching for potential duplicate voters (e.g. by matching the first three letters of first name, last name and date of birth) and then comparing them visually using their photos to exclude duplicates and passing the information back to the civil registry for investigation. There are now thought to be very few duplicates in the voter and civil registry.

Polling center allocation by computer

Technology is used to allocate polling centers to new registrants by e-mailing the details to Election Commission staff in each municipality using Microsoft Excel, allowing for polling centers to be allocated more appropriately than if allocated centrally. This system has been found to be useful where local human knowledge is used to counter bad source data.

Polling station allocation software

To allocate voters to polling stations within each polling center, the OSCE created software that speeds up the process of determining where the split in names should occur to divide voters into the different polling stations based on the local language's special characters.

Computer reading of registration forms (OCR)

In 2001 the OSCE bought a series of digital scanners, special registration forms and some character-recognition software to speed up the data entry of voter registration forms. Forms were scanned and the software tried to recognize the letters on the form. Data entry staff confirmed whether the data were correct or not. However the software and process did not live up to expectations, particularly with regards to the special characters of the three local languages. In later elections, the Double Data Entry system was reinstated because it was more reliable, easier to manage and sustainable.

Conclusion

The Kosovo case is illustrative of both the strengths and limitations of technology in enhancing voter registries. A variety of technological solutions have been tested in a series of Kosovo elections to enhance the functionality of the voter registry. In the post-conflict environment, in which addresses were largely unknown and the deceased remained on lists, among a host of other issues, applications of technology were useful in updating the voter registry. Nevertheless, the main issues faced by the Kosovo Election Commission cannot be addressed through

the use of technology. The law mandates that data from the civil registry be the source of the voter registry, which has been problematic on several accounts. The Election Commission has limited control over the source of the data, and the data are not of a high enough quality for the purposes of the voter registry. This makes it difficult for the Commission to improve the quality of the registry overall. Coordination between the Ministry of Internal Affairs and the Kosovo Election Commission/OSCE and a streamlining of processes for the civil and voter registry are therefore desirable in the future.

Case Study: Afghanistan

Staffan Darnolf

An Afghan woman receives her voter identification card at a registration center in Kabul in 2004.

Introduction

In spite of three rounds of elections since 2001 and more than $200 million spent on voter registration alone, Afghan voters have yet to see their first voter list in a polling station. The Independent Electoral Commission (IEC) currently has two separate voter register databases that are incompatible and host millions of duplicates, fake voters, underage registrants and deceased. This failure has, to a large extent, contributed to exorbitant election costs and, more importantly, seriously undermined the credibility of the elections held to date. This failure rests with the people who designed and developed the voter registration methodology, primarily senior international advisors sent to Afghanistan to strengthen administration of the elections.

This case study begins by looking at the roles and responsibilities in the 2003–2004 voter registration process, followed by implementation of the United Nations Assistance Mission in Afghanistan (UNAMA) Electoral Component's voter registration plan, and an analysis of data collection and operational support in the voter registration process.

Background

Following the defeat of the Taliban regime in 2001 and the transition to a new political system, the need for elections became apparent. Even though largely driven by Western democratic ideals, the organization of elections was supported by a vast majority of the Afghan population. At the time, only a partially completed and highly controversial census conducted by the Soviet occupiers in the late 1970s was at hand. This meant that only rough estimates of the size of the Afghan population were available as the UNAMA set out to plan for the first election in several decades.

The so-called Bonn Agreement signed in December 2001 spelled out that elections should be held following a transitional period.[6] UNAMA was directly charged with registering the voters for the elections following the adoption of a new constitution.[7] UNAMA's Electoral Component (UEC), headed by Professor Reginald Austin, faced a daunting task to prepare the first round of elections in Afghanistan. Initially the process was solely UN-owned and its Electoral Component was underfunded, containing a handful of people and a recently established international community. As such, the priorities were many, pulling people in different directions. The ever present security concerns were tangible and affected every election planning exercise since Day 1 in Afghanistan. However, in mid-2003, the greatest obstacle to the progress of the voter registration process was a lack of funds, according to Austin.[8]

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6 The official title is: "Agreement on Provisional Arrangements in Afghanistan Pending the Re-Establishment of Permanent Government Institutions." See http://www.un.org/News/dh/latest/afghan/afghan-agree.htm.

7 See Bonn Agreement, Annex III.

8 See Austin, Reginald (2006) "Afghanistan: An Electoral Management Body Evolves," in Electoral Management Design: The International IDEA Handbook, Stockholm, p 114.

Although costly when compared to many other post-conflict elections and facing intermittent cash-flow problems, the biggest challenge to organizing elections in Afghanistan has actually been to develop a complete and accurate voter register.

2003–2004 Voter Registration Process: Roles and Responsibilities

Who was in charge?

The United Nations was charged with planning and implementing the first voter register in Afghanistan. Initially a handful of advisors arrived to establish UNAMA's Electoral Component in early 2003. Although the Bonn agreement only mentioned UN responsibilities with regards to the voter registration exercise, it was widely expected that it would also play a leading role in the actual running of the entire electoral process, including Election Day operations and the count. However, it was equally clear that Afghans must be an integral part of the process to build their capacity to manage elections independently in the very near future. An important step in this direction was the establishment of an Interim Afghan Electoral Commission (IAEC) in the summer of 2003, which was comprised of six senior Afghans appointed by Interim President Hamid Karzai.[9] A second decree issued the very same day, also put in place the Joint Electoral Management Body (JEMB).[10] The JEMB was the policy-making institution made up of the six IAEC commissioners and five international commissioners who jointly defined electoral policies and procedures. The international members of the JEMB were appointed by the special representative of the secretary-general of the UN (SRSG).

In spite of the larger presence of Afghans on the JEMB compared to internationals, a consensus provision made it de facto impossible for nationals to make a decision without all of the international members agreeing to the

9 See Interim-President Karzai's decree 39 of 26 July 2003.

10 See Interim-President Karzai's decree 40 of 26 July 2003. The decree tasked the JEMB with the issuance and publication of regulations, procedures, instructions, notifications and guidelines for the registration process (http://www.jemb.org/eng/jembbg.html). A subsequent decree of 18 February 2004 expanded its mandate to preparing, implementing and supervising the 2004 presidential election.

decision as well.[11] Furthermore, the IAEC was struggling to find its feet because in the initial months it did not have an office, computers or cars. During this time, only the most basic staffing requirements were fulfilled by the UN. However, more importantly, by the time the IAEC commissioners were appointed and the JEMB formally established in late July 2003, much of the planning for the upcoming voter registration exercise had already been completed by the UEC. Hence, the fundamental aspects of how to develop a voter register for the 2004 presidential election had already been decided by the members of the UEC. While the Afghans on the IAEC could have questioned and demanded changes, not only did none of them have any previous election experience, the whole electoral enterprise was running out of time and any further delays would have resulted in a breach of the Bonn agreement.[12] Subsequently, the voter registration methodology used for the 2004 presidential poll was the one designed by a small number of members of the UEC. Thus, the international experts defined what kind of data to collect, how to collect it, and what kinds of technology to use.

Even though the UEC was established in February 2003, it faced what proved to be insurmountable challenges to launch the voter registration drive in July as that was originally planned. The late arrival of UN election experts and a nearly empty bank account for a process that the UN team budgeted at $130 million were the main reasons behind the postponement, according to the UEC.[13] Since the UN experts did not have a fully funded program, the commencement of the voter registration drive was postponed several times. Security concerns were another factor mentioned in their discussions with donors. However, the UEC's unwillingness to begin voter registration until fully funded had several ripple effects. Primarily, it forced the Electoral Component to take a hard look

11 In fact, if no consensus could be reached the decision was to be deferred to the interim president, which is very unusual for what is supposed to be an independent election body (see JEMB Procedure 1/2003 Administrative Procedures of The Joint Electoral Management Body). However, according to one of the international members of the JEMB, Jean Arnault (SRSG) was not afraid of telling the international commissioners how to vote on certain issues (see Austin (2006), p 113).

12 Chief Election Officer and Head of UNAMA's Electoral Component Reginald Austin describes in some detail the problems related to launching the voter registration as per its plan in July 2003 due to a funding gap (See Austin (2006), p 114.

13 See Austin (2006), p 114 and UNAMA Electoral Component Memo, Feasibility of Elections in June 2004, 19 January 2004 from Area Managers to Reginald Austin.

at the suggested voter registration program in order to reduce costs, partially by fostering Afghan ownership of the process and by employing nationals throughout the field-based registration drive instead of being supervised by UN volunteers. This revision resulted in a budget reduction of $52 million.[14]

"Although the Bonn agreement only mentioned UN responsibilities with regards to the voter registration exercise, it was widely expected that it would also play a leading role in the actual running of the entire electoral process."

However, even with a budget reduction of 40 percent, the donors were not forthcoming. This forced yet another postponement of the opening of voter registration centers. Donors were not pleased with the postponement and in the end, primarily due to political pressure both from the international community and Afghan authorities, an extremely limited number of centers opened in the eight regional centers in early December 2003. This delay negatively affected the voter registration drive itself. In early January 2004, not even 5 percent of the estimated electorate was registered. More importantly, the international community's confidence in the Electoral Component was at an all time low. In fact, at a meeting between UNAMA's Electoral Component and the international security forces in early 2004, the American military presented an alternative voter registration operational plan.

For several weeks it remained unclear who was leading the voter registration process. At the same time, Interim President Karzai issued a decree effectively turning over the operational responsibility of not only the voter registration exercise, but the entire electoral process to the Afghans.[15] The JEMB Secretariat was no longer managed by UNAMA's most senior election expert, Reginald Austin; instead Farouk Wardak became its chief. UN staff, who up until that point had officially been heading all of the JEMB Secretariat's various departments, were posted to the positions of regional election officers and

14 UNAMA Electoral Component Memo, Feasibility of Elections in June 2004, 19 January 2004 from Area Managers to Reginald Austin.

15 See Presidential Decree of 18 February 2004 The Elements of Convening Elections during the Transitional Period.

provincial election officers. They were to become advisors to their Afghan counterparts who overnight formed the management team responsible for planning and implementing the voter registration and election. However, de facto it was only a change at the very top as Wardak was effectively one of the few who actually assumed his responsibility. At the heads of department level at the Secretariat and in the field, the decree had limited impact as the international community continued to take the lead. This was particularly true regarding the voter registration drive, as the JEMB was in the midst of its implementation when the decree was issued.[16]

Legal framework

The Afghanistan case is exceptional since the new administration is not simply inheriting a set of laws, regulations and procedures to be implemented by an existing and professional institution, but rather starting anew. In fact, in early 2003 the situation in Afghanistan was even more challenging because the decision was made to introduce an alien Western model into a conservative society accustomed to different governance structures. Afghans had a drastically different understanding of concepts such as individual rights, human rights, transparency and their relationship to state authorities. Afghanistan is a conservative Muslim society based on tribal affiliations, and its people have had limited exposure to the individual rights often associated with a functioning multi-party system based on a liberal democratic political system.

Based on the Bonn Agreement, a Transitional Islamic State of Afghanistan (TISA) was to be established via a Loya Jirga, or grand assembly. Once convened, it was to appoint an interim president. This took place in June 2002 when Hamid Karzai was elected Interim-President. Karzai ran TISA by issuing Presidential Decrees. Following a successful organization of a Constitutional Loya Jirga in December 2003–January 2004, a new constitution was adopted. The constitution dictated the new political system, electoral systems, as well the state structure, among other things. However, as no Parliament was in place, the interim president continued to rule by Presidential Decrees.

16 Policy decisions continued to be made by the Joint Electoral Management Body. As the name alludes to, it was a joint Afghan-International decision-making institution, but the actual design of the program still stemmed from the UN Electoral Component.

The 2004 Constitution states that Afghan citizens have the right to vote, but first citizens must be registered to vote.[17] A prospective Afghan voter must fulfill the following requirements to be eligible to cast his/her vote:

- 18 years of age on Election Day
- Afghan citizen at the time of registering to vote
- Not deprived of any political and civil rights as per an authoritative court of law
- Registered on the voter list[18]

Based on the voter registration data, the JEMB was to develop unique voter lists for each polling station. Furthermore, the voter lists should be made available for scrutiny by the electorate, political parties, candidates and observers no later than 15 days prior to polling day. The voters, on the other hand, were required to bring their voters cards issued by the JEMB to the polling station on Election Day.[19]

Implementation of the UEC Voter Registration Plan

The UEC submitted its amended voter registration plan to donors in early August 2003. It outlined a 15 October start date, with an end date in May 2004. For this project plan to be implemented, the UEC required $20 million immediately and the remaining money to follow without interruption. With these funds, vehicles, air support and recruitment of essential staff could come through in time. By 1 October 2003, UNDP and the Electoral Component had only managed to secure $11.3 million. Subsequently, the 15 October start date was a no-go and the voter registration exercise was again postponed.[20]

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17 See 2004 Constitution of Afghanistan, Art 33, and #28 Decree of the President of the Transitional Islamic State of Afghanistan on the The [sic] Adoption of Electoral Law, Article 13.

18 28 Decree of the President of the Transitional Islamic State of Afghanistan on the The [sic] Adoption of Electoral Law, Article 13.

19 2004 Electoral Law, Articles 14, 15 and 38.

20 For a detailed description, please see Reginald Austin's (UNAMA Electoral Component) 12 Nov. 2003 report, Voter Registration in Afghanistan: Operational Status Report and Options Paper.

The UEC therefore developed a new plan envisaging a staged registration process starting 1 December 2003 in the eight regional centers of Afghanistan. After two months it would be prepared to expand the registration process to the 30 plus provincial capitals, and a month later fan out to the districts. The best-case scenario indicated a completion date of approximately 31 May 2004.[21]

The UEC's dire analysis of voter registration preparations in November 2003 focused exclusively on the resource-mobilization challenges and security concerns associated with a staggered registration methodology. One plausible reason the Electoral Unit may not have raised any concerns about the implications of a phased registration for the quality of voter registration data was that this methodology was part of its original plan.[22]

The experts working for the UEC faced a daunting challenge to register the Afghan electorate. Nevertheless, since the first attempts by the UN and the OSCE to plan and implement voter registration programs in the early 1990s, the knowledge of how to register voters has developed significantly. Widespread access to computers, biometric data-capturing equipment, digital cameras and mobile and satellite phones have made drastic inroads into how national voter registration programs are planned and executed. However, by no means is the latest technology the best solution. In fact, the opposite is often true. Technology must be scaled to suit the environment in which it is to be used. The UEC decided to use a low-tech solution. In fact, it was almost identical to that used in Cambodia a decade earlier, where voters were issued cold-laminated voter cards containing a Polaroid-type photograph of the applicant, as well as basic information about the individual voter.

This brings to light a fundamental set of questions that should be considered by those planning to implement a process of voter registration. The questions that usually define the voter registration methodology include those listed below, each of which is discussed in the Afghan context in the sections following:

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21 Completion date actually only entailed ending voter registration. The final voters' lists were not expected to be ready until end of June 2004.

22 See Reginald Austin's (UNAMA Electoral Component) 12 Nov. 2003 report, Voter Registration in Afghanistan: Operational Status Report and Options Paper, Pp 2-4.

- How to ensure only eligible voters are registered and prevent multiple registrations
- How to ensure eligible voters' equal access to the registration process
- How to purge the voters list from multiple registrants
- How to allocate voters to a polling station
- How to ensure the voters register can be effectively updated

Confirming voter eligibility and preventing multiple registration

As is often the case in post-conflict states, citizens have either lost their identification documents, or other documents of crucial importance to establish the true identity of an individual. Birth certificates, educational records and other public records are sometimes lost in actual violence, or simply destroyed due to sub-standard storage of public records over time. In some cases, no public identification system has been operational for decades resulting in generations of citizens lacking any form of official documentation. This was the situation facing the UEC, as most of the public records were either destroyed or the issuing of a national ID booklet — a *tazkira* — was discontinued at times.[23]

Many Afghans had access to some sort of documentation tying them to an identity even though the national ID-booklet system was spotty, issuing of birth-certificates was far from perfect, and other identification documentation unreliable.[24] The United Nations Mission in Kosovo (UNMIK) faced a similar situation in 1999 and decided to allow a variety of identity documents and membership cards to prove a person's identity. In other places, an affidavit from a local authority or individual has been used as an alternative way of identifying prospective voter registrants. In Afghanistan, the UEC decided to be as inclusive as possible in the voter registration process and make it as easy as possible for Afghans to register. To achieve this goal, the UEC decided that any individual who

23 For more information regarding the *tazkira*, see Immigration and Refugee Board of Canada, Afghanistan: Issuance of taskera (tazkira) inside or outside of Afghanistan; information contained in the document during the Taliban and post-Taliban period, 18 December 2007, AFG102680.E, available at: http://www.unhcr.org/refworld/docid/47d6543dc.html [accessed 25 February 2010].

24 Some ethnic groups and women in general, were at a disadvantage as they often faced additional challenges obtaining birth certificates and school records.

approached a voter registration center was an Afghan citizen and qualified to register.[25] Therefore no proof of citizenship, identity or age was required.[26]

> *"Technology must be scaled to suit the environment in which it is to be used."*

Ensuring that as many Afghans as possible are given the opportunity to take part in the country's first election in decades is an admirable and understandable goal. On the other hand, the drawback of lowering the bar too much and thereby effectively allowing almost anyone to register is significant. Dealing with under-age voters is relatively simple, even if it is sometimes a judgment call made by the registration officer after consultation among the registration team. Locally recruited registration officers often know the approximate ages of village members. However, the more obvious and troublesome effect of this relaxed identification policy introduced by the JEMB, after recommendation by the UEC, is how the election authority is to prevent people from registering multiple times.

As the registration exercise was conducted during six months and in several phases — regions, districts, villages — there were significant risks that people would register multiple times. However, no safety mechanisms were put in place by the UEC when designing the voter registration plan. Even if no changes had been made to the no-documentation policy, by choosing to open all registration centers for a limited period of time instead of a staggered roll-out and applying indelible ink to the finger of a registrant, the risk of multiple-registration could have been significantly reduced.

Furthermore, had the chosen registration methodology included collecting biometric information from applicants using a well-established technology generating digital images, the JEMB could have used facial-recognition software to purge the database of multiple registrants. Instead, the UEC argued for the

25 "At a registration site, the registration team works from the presumption that every person that approaches to be registered is an Afghan and therefore is entitled to vote." Voter Registration Trainers Manual, JEMB, Process and Training Section, Afghanistan Voter Registration 2003–2004, p 8.

26 "Applicants are not required to produce any documentation when registering to vote." Voter Registration Trainers Manual, JEMB, Process and Training Section, Afghanistan Voter Registration 2003–2004, p 8.

almost-defunct Polaroid system, which does not enable the election authority to conduct this vetting process.

Equal access

The JEMB spent a significant amount of time and resources ensuring that all eligible voters in Afghanistan had a reasonable opportunity to register. The election authority opened thousands of static registration centers, in addition to organizing a mobile registration team that visited even the most remote villages in the country-side. In some instances, because of security concerns, registration either had to be cut short or relocated to district centers or neighboring districts.

The international community made sure the JEMB's Public Outreach Department was sufficiently funded to produce extensive sets of material for face-to-face interactions by more than a thousand civic educators, street-theatre groups, concerts, radio and television public service announcements, posters, leaflets, booklets, stickers, etc. In addition, other organizations such as the International Foundation for Electoral Systems (IFES) complemented the JEMB's public outreach activities throughout the registration and election process. The International Security Assistance Force (ISAF) network was also used to access media outlets.

Cleaning the voter register

As mentioned earlier, the voter registration methodology used in 2003–2004 was vulnerable to widespread abuse as no security measures to prevent fraud and abuse had been introduced. As a result, incidents of multiple registrations were extensive. Even with this major methodological flaw, the JEMB could have attempted to salvage registration data by cleaning duplicates from the voter register database.

Persons who registered more than once could have been spotted at the Data Center in Kabul where the JEMB had established a building fully equipped with 122 computers for data entry, at a great expense. This approach would only be effective if:

1. Identical personal information is used by an applicant more than once
2. Voter registration data is entered accurately
3. Data is entered in a timely manner
4. A policy is in place instructing staff of records to be deleted

It is highly unlikely that individuals use identical information when trying to defraud the registration system, especially when no documentation is required and a person could register at any registration center during multiple phases. The chance of duplicates being spotted by the system was extremely low for a significant time of the operation as the error rate at the data-entry point of registration forms was high. This effectively undermined even a theoretical chance of a comparison. However, an effective double-blind entry method was eventually utilized.

Furthermore, the many delays in establishing the Data Center itself, procuring computers, developing software and recruiting computer-literate data-entry staff, resulted in a serious backlog as hundreds of thousands of completed registration forms awaited data entry.[27] Hence, even if duplicate application forms existed, the computer system would not have been able to pick it up, as the data had not yet been entered. Unfortunately, no formal policy was ever established instructing the Data Center on what to do should duplicates be identified. Thus, the ability to clean the voter registration dataset at the back-end was effectively non-existent in 2004.

Allocating voters to polling stations

The 2004 Electoral Law states that voters are only allowed to cast their ballot in the polling station where their name is found on the voters list.[28] Several options exist for an election authority when assigning voters to a particular polling station. One of the easier solutions, both for the election authority and the individual voter, is to register people where they will vote on Election Day. Thus, voter registration centers and polling stations are the very same building. Informing the electorate where to vote is therefore extremely simple; return to the location where you registered to vote. An alternative is to allocate voters to polling stations after they

27 Mario Valle, Evaluation Mission For Afghanistan Elections Voters Registration Project (April 2006); Annex 7 Voters Registration Technical Evaluation.

28 2004 Electoral Law, Art. 14(1).

have registered. The advantage with the latter modality is that it is easier to evenly distribute voters to polling stations, as the election authority often has only a rudimentary idea of the number of people to be registered at any given location in a post-conflict society. The downside is that informing each and every voter where he or she must go to cast a ballot is a monumental task in many countries, especially in the Afghan context where there is no postal service, no uniform address system, a staggering illiteracy rate and large population movements.

From the outset, it seems that the UEC paid little attention to the importance of linking voters to a specific polling station. No such discussion can be found in any of the UEC's voter registration plans, or its written communication to external stakeholders during the lead-up to the commencement of voter registration. Perhaps it was assumed that collecting detailed address information from registrants during registration would generate the necessary geographical information to allocate voters to specific polling stations after the fact. If this was the case, many preparations must precede registration, especially an authoritative list of village names. If registration officers are allowed to accept any village name, it will quickly become impossible for the election commission to decipher where a person belongs, since one village has the same name in multiple districts of Afghanistan. When registration started, no such authoritative list of village names existed. Only later in the process were registration teams issued with such a list, but they were also instructed that it was not necessary to collect street addresses, sub-village information and the like. As a result, a significant number of registrants can only be pin-pointed at the district-level.

In the end, voters were not appointed to any specific polling station as no voter lists were printed and used in the 2004 presidential election. Voters simply showed up to any polling station in the province identified on his or her voter card and some of the details from the card were recorded on a blank voter list in the polling station.

Updating the voter register

Much attention is paid to securing a complete and accurate voter register in time for a specific election. Given the often significant costs associated with

establishing voter lists, it is critical that this investment is not squandered by perceiving voter registration as a one-off event. In many emerging democracies and post-conflict societies, population movements are considerable, as are mortality rates. Often cobbled with a young population, this results in voter registration databases quickly becoming obsolete if not regularly maintained and updated. However, the UEC seems to be mute on this particular topic.

It has not been possible to find any written documentation in which the UEC discusses how the suggested voter registration methodology would cater to large population movements, link it to death and birth records or name changes following marriages, or how it envisages updating the voter register for upcoming and scheduled elections. The centralized voter register remained a hugely expensive one-off attempt to create a national voter register.

Issues in Data Collection

Access to voter registration data

Laws governing privacy are rudimentary, or almost completely absent in Afghanistan. At the same time, the tradition among public institutions and companies is to be tightlipped about information, rarely sharing with the public. The laws and procedures governing the voter registration process strive to introduce a more open, yet controlled way of sharing personal information to a wider audience. However, the data generated from the voter registration process was to be used solely for the purpose of establishing the final voter list.[29]

External stakeholders such as registered political parties and their representatives were allowed to be present during voter registration in the centers. They were also authorized to protest when a person they believed to be ineligible was about to be registered. Domestic and international election observers were also allowed to be posted to Registration Centers.[30]

29 Presidential Decree on the Registration of Voters for the 1383 (2004) Elections; section 22.
30 Presidential Decree on the Registration of Voters for the 1383 (2004) Elections; section 13-14.

The electorate's only opportunity to access voter registration data was during the display of provisional voter lists, a legal requirement. In 2004, the JEMB was running behind schedule and did not publish the provisional voter lists on time, nor were the lists easily available to the public. The election authority only made a token effort to comply with the law by printing the voter lists by provinces and only displaying them in large files available at a handful of locations in the country, effectively making them inaccessible to the majority of the electorate. The information available to political parties, candidates and observer groups was also limited. As a result, few voters verified their registration data.

Security, transparency and auditability of data

The security of the voter registration Data Center should be deemed sufficient since it was located on the JEMB Compound, which had adequate security arrangements given the threat level at that time. Since a large number of international UN employees worked on a daily basis at the compound, extensive security upgrades were implemented, including at the Data Center.

Observer groups and candidate agents were allowed into the Data Center; however they had little access which limited a meaningful understanding of the process. The observers only witnessed the numerous rows of data-entry clerks entering data from forms. The agents and observers had no authority to request to verify the data contained on a form with the data that was entered into the voter register database.

Voter registration data was never shared with political parties or observer groups, either in paper format or electronically. Only the UN staff managing the Data Center had access to the database.

Voter Registration Operational Support

As mentioned earlier, the 2003–2004 voter registration process in Afghanistan is an exception when the international community took charge in developing, funding and implementing the voter registration exercise. It is true, however, that the Afghan authorities attempted to "Afghanize" the process in early 2004

by appointing an Afghan to the position of director of the Election Secretariat, downgrading the UN's chief election officer to an advisory position and decreeing that all heads of departments be Afghans and all UN staff become advisors. However, when the decree was announced, the voter registration methodology had already been sealed and the $74 million voter registration initiative had already been launched.[31] Hence, the decree had limited real impact on the voter registration program as UN advisors continued to run departments and control regional and provincial offices of the JEMB. In fact, according to the individual actually running much of the voter registration and election preparations for the UN, there were more than 300 internationals on staff at the JEMB Secretariat, at the regional and provincial level, effectively covering every influential position in the process.[32] In addition, the UNDP was not only in charge of resource mobilization, but also responsible for the budget, thereby executing all key procurements under UNDP procurement rules.

Civic and voter education

With a budget of over $190 million and a large international security force willing and able to supply complimentary security, expensive transportation and air support, the resources put forth for an Afghan electorate of no more than 8 million voters were extraordinary. The Afghan authorities made a token contribution to the voter registration budget by covering some of the salaries of its national staff, but in essence it was an internationally funded operation. With such a large budget, it was possible to produce high-quality posters and pamphlets. The election authority hired international graphic designers to work alongside national artists with access to high-powered computers and a budget that could afford high-quality printing and large print runs. Furthermore, mass media public service announcements, dramas, small-grants programs and a massive face-to-face component saturated many parts of the country. However, security problems in some provinces effectively reduced the public outreach officers' access to partial and whole districts.

31 For more detailed information regarding the cost of the 2004 voter registration in Afghanistan, please see Darnolf, Staffan (2006) Cost of Registration and Elections in Afghanistan, in *Getting to the CORE — A Global Survey on the Cost of Registration and Elections*, UNDP and IFES. Washington, DC and New York.

32 E-mail correspondence with David Avery (23 February, 2010), who became UN's top election person in Afghanistan in the spring of 2004.

Training

Fully aware of the direct relationship between properly trained voter registration and election officials and a properly executed electoral process, the international community took voter registration training very seriously. As a result, the Election Secretariat's Training Department was supplied with a whole host of internationals to prepare, plan and develop training programs and manuals to train Afghan trainers. In addition, each province had an international training advisor to oversee training preparations and implementation within his or her area of operation. The training program utilized a cascade-based methodology resulting in several layers of trainings taking place before the actual voter registration officials manning the Registration Center were trained. Therefore quality control of the training program was critical to ensure that an acceptable level of training was being offered. It has not been possible to determine if a structured and uniform quality control mechanism was put in place for the training program of the voter registration program to discern whether Registration Center staff had sufficient knowledge of their tasks and responsibilities. In designing the training program and its materials it was necessary to take into account the extremely high level of illiteracy in Afghanistan, which also necessitated an extra focus on quality control.[33]

Interaction with political parties, civil society organizations, media and government agencies

The Election Secretariat established an External Relations Department which was charged with interacting regularly with political parties, candidates, civil society organizations and media outlets. It developed a large quantity of information material directly targeting the needs of these respective audiences. Furthermore, the department held meetings, briefings and trainings for their representatives. However, as is often the case, the relationship between the JEMB and political parties was strained at times as political parties were frequently accusing the election authority of partisanship and of failing to address their needs.

33 A UNICEF survey in 2003 showed that the male literacy rate was 49 percent while female literacy was only 19.6 percent. (http://www.irinnews.org/report.aspx?reportid=26342) (accessed 28 February 2010)

The JEMB allowed domestic and international observers to be present at all commissioners meetings when issues were being discussed and decisions taken. The election authority was highly dependent on support from several Afghan ministries. For example, the Afghan National Police (Ministry of Interior) was responsible for securing registration centers. The Afghan National Army (Ministry of Defense) was in charge of area security, ran checkpoints and could be called upon for minor incidents. However, larger security efforts would require the support of ISAF and its resources. The entire security umbrella was managed from joint operations centers (national/regional/provincial) and included representatives from intelligence communities, in which the JEMB was represented.

An integral part of the security plan was transportation of voter registration commodities and personnel. In most instances, transportation was arranged by the JEMB itself by hiring trucks (more than a thousand Russian jeeps were also procured for the project). On occasion, national and/or international air assets were used to transport sensitive and urgent materials to the provinces from Kabul.

The Ministry of Education facilitated the JEMB's work by making schools available as polling centers and filled the ranks of temporary workers with headmasters and teachers.

On occasion, the JEMB's provincial offices were co-located with ministries in provincial capitals. In most cases, the JEMB established its own offices and paid for them from the election basket fund managed by UNDP.

Adherence to International Principles

The end product of a voter registration program — voter lists in polling stations — is only a success if the electorate, parties and candidates competing for power across accept the use of the voter lists on Election Day. The likelihood of achieving this objective increases significantly if the voter registration process adheres to the following international principles governing a credible registration program.

Table 2. Voter Registration and International Principles

Inclusiveness	The voter registration program was developed by the UEC and largely in isolation from other stakeholders, including the Interim Afghan Election Commission. Civil society and political parties were almost completely excluded from the process and only received information about the registration program once it was finalized. Representatives of TISA were consulted in terms of logistical and security support while the president's office played an integral part in the timing of the program and to a certain extent its implementation.
Accessibility	The UEC and JEMB spent a significant amount of money and effort on informing the electorate about the voter registration drive. It developed and produced a multi-pronged strategy including both civic and voter education components utilizing direct and indirect means of communication. Furthermore, it made every effort to open registration centers across the country and keep the centers open for a sufficient duration of time enabling prospective registrants to take part in the registration activity.
Completeness	On the surface, registering more than 10 million voters in Afghanistan was hailed as a success by the JEMB, as the size of the electorate was between 12–14 million.[i] However, given the large number of multiple registrations, ghost registrants and under-age voter registration, the JEMB has no idea of how many legitimate voters the registration database contains. Anecdotal information indicates that the official registration figure is inflated with several million illegitimate names, indicating that a significant portion of the Afghan electorate was missing from the voter register.[ii]
Transparency	JEMB issues both regulations and procedures governing election observers and candidate agents' access to Registration Centers. The observers and agents also had access to the Data Entry Center. Due to the set-up and services rendered at the Data Center, transparency was limited as observers and agents could not check that the information contained on a form was actually the same data stored in the registration database. An unusual level of transparency was offered to domestic and international observers as they were allowed full access to the JEMB Commissioners meetings.

i - The size of the population and its age-structure are extremely difficult to gauge as no census has taken place for decades, no civil registry exists, and due to the wars large population movements have taken place, in addition to the direct and indirect fatalities due to fighting.

ii - For a discussion on the problems with the registration process and the figures presented by JEMB, please see Andrew Reynolds and Andrew Wilder, *Free, Fair or Flawed: Challenges to Legitimate Elections in Afghanistan*, Afghan Research and Evaluation Unit, (September 2004).

Accuracy	The voter registration process faced several challenges in obtaining an accurate voter register. First, no forms of identification or official documentation were required to register. Hence, the source data from the outset was partially faulty. Second, the quality of training received by the Registration Officials was unknown, as no quality control mechanism was put in place for the cascade training program. Third, the registration forms were only partially filled out as the JEMB itself instructed its registration staff that it was not necessary to fill out any information below the village level. In addition, given the problems with a non-standardized village list not being available during parts of the registration process and the fact that instructions to only use this village list were often not followed by Registration Staff, the collected registration data was also partially incorrect. Problems at the Data Center during data entry further compounded the accuracy problem.
Ease of Maintenance	The UEC-designed voter registration methodology was mute on the sustainability of the voter registration database to be developed under its stewardship. During the implementation phase of the voter registration program no attempts were made to address even the most basic sustainability aspects, beyond storing the collected data on a sufficient and appropriate computer system.
Cost Effectiveness	The budget for voter registration was what is to be expected of a process run by the UN in a hostile environment and where basically no previous know-how and electoral infrastructure are in place. However, with a UN-planned and driven voter registration process comes the expectation that the voter registration will be in accordance with international standards, as this is the reason why the international community is entrusted with the task. Failing to produce voter lists to be used on Election Day in the polling stations must be regarded as the ultimate failure of a $78 million investment.
Operational Effectiveness	At almost every step of the way, the UEC-led process was late in securing funding and ran out of time to procure key items for its implementation. Once the voter registration process had commenced, quality control mechanisms of the work in the Registration Centers were spotty, jeopardizing the data-collection. The coordination with other international and national partners to complement the work of the UEC was largely positive.
Fraud Prevention	The UEC utilized registration forms and voter registration ID-cards with some security features. The material was also procured internationally thereby reducing the risk of illegal reproduction in-country. However, given the almost non-existent check at the registration point, this was largely a process completely void of any anti-fraud mechanisms. The disappearance of booklets of registration forms further reduced fraud prevention.
Credibility	The voter registration process was almost completely undermined by the (real or perceived) large number of multiple-registrations and ghost registrants.

Table 2a.[i] Value of International Principles in Afghanistan

International Principles	Value *(1–5, 1 being the lowest and 5 the highest score)*
Inclusivity	2
Accessibility	4
Completeness	2
Transparency	3
Accuracy	2
Ease of Maintenance	1
Cost Effectiveness	1
Operational Effectiveness	2
Fraud Prevention	1
Credibility	1

i - This table was produced by the author of this case study.

Conclusion

Based on the analysis of Afghanistan's voter registration process throughout this case study, the table above places an estimated value on the process in Afghanistan with regards to each of the 10 identified international principles. However, what must be noted is that simply analyzing a voter registration program utilizing completeness, accuracy and timeliness are not good enough. A voter registration program can score high on all of these variables, yet still be far from a role model, as it can be hugely expensive, unsustainable, lack transparency and not be acceptable to key stakeholders.

Case Study: Iraq

David Avery

An Iraqi woman holds her passport and voting documents after registering to vote through an out-of-country registration bureau in Amman, Jordan, in 2005.

Introduction

The 2005 voter registration process and the following election cycle in Iraq are notable because they occurred against a background of ongoing military operations and a significant and powerful insurgency. The implications of this had a profound impact on both the conduct of registration and the later election. What should be noted at the very beginning is, despite many problems, an Iraqi list was produced. This can be contrasted with ongoing failure in Afghanistan and the abandonment of the initial list in East Timor.

In this context, the case study identifies key issues encountered during the 2005 voter registration process such as lack of technical capacity, identity issues, collection of geographic data and registration records among others. Analysis

of these issues is followed by recommendations in each area for future voter registration exercises in Iraq.

Background

The parliamentary elections held in December 2006 marked the end of the formal political process outlined in the Transitional Administrative Law (TAL) and Security Council Resolution 1546. On 15 December, Iraqis voted for their first long-term government at the national level after successive short-term governmental arrangements following the April 2003 collapse of Saddam Hussein's regime. The expanded participation of the Sunni community, which largely stayed away from the January 2004 election and the impetus provided by the Arab League–sponsored Cairo meeting aimed at reconciliation, generated expectations of a fuller franchise which indeed was the case. This led to a more even distribution of power between different political constituencies in the country following the engagement of the Sunni community in the political process.[34]

The voter register used in 2004 was based on the food distribution database running prior to the fall of Saddam Hussein. Changes were made to the list through two update processes for the January and October 2004 electoral events.

The original database was not designed as a voter list, which resulted in design flaws when it was adapted for this process. The selected software was not the most appropriate since the chosen platform was based around Lotus Notes, a contact- and name-management platform. The inclusion of updates provided more problems and highlighted the failure of the system to deal with either duplicate entries or geographic detail. The need for a whole new database specifically designed for voter registration was clearly demonstrated.

The indicative numbers of voters registered and the amendments made are depicted in the table on the following page.

34 The participation rate for the January election was approximately 58 percent and in the October referendum about 62 percent overall of registered voters.

Table 3.[35] Registered Voters and Amendments

Governorate	Registered Voters in January Elections	Total Added	Total Deleted	Total Aug 27 2005
Anbar	573,609	34,838	46	608,401
Babil	694,188	19,561	103	713,646
Baghdad-East (Risafa)	2,022,077	1,081	129	2,023,029
Baghdad-West (Karkh)	1,641,617	8,521	2,029	1,648,109
Basra	1,024,591	6,412	196	1,030,807
Diyala	623,618	49,839	1,481	671,976
Dohuk	404,320	2,812	38	407,094
Erbil	795,220	13,943	43	809,120
Karbala	408,640	8,481	105	417,016
Misan	415,887	21,253	569	436,571
Muthanna	293,919	7,297	249	300,967
Najaf	492,112	8,346	36	500,422
Ninewa	119,7938	7,681	741	1,204,878
Qadissiya	485,930	16,925	1,259	501,596
Salahaddin	497,394	38,677	235	535,836
Suleimaniya	913,646	8,822	28	922,440
Tameem	466,072	113,051	121	579,002
Theqar	778,574	17,271	302	795,543
Wasit	493,548	14,064	467	507,145
Total	**14,222,900**	**398,875**	**8,177**	**14,613,598**

The total population of Iraq was estimated to be around 28 million, the breakdown of which is shown in the table on the following page. Despite a lack of good demographic data for reliable population and age distribution, the potential for duplicate entries and the security environment, the registration of 50 percent of the estimated population was a success.

35 Table 3 was developed as an internal UN planning document. The information in the table is from a variety of sources, including UNHCR reports. Registration figures are from the first round of registration and subsequent changes.

Table 4.[36] Population Estimate by Province

Province	Population
Baghdad	6,291,935
Ninewa	2,692,275
Taameem	1,058,936
Diyala	1,309,933
Anbar	1,299,633
Babil	1,485,044
Kerbala	815,251
Wassit	981,783
Salah Addin	1,103,254
Najaf	1,039,662
Qadissiya	982,408
Muthana	607,815
Thi-Qar	1,581,493
Missan	880,543
Basrah	2,263,020
Dohuk	850,012
Sulaymania	1,544,384
Erbil	1,493,008
Total	**28,280,389**

Post Conflict Voter Registration: Key Issues and Problems Encountered

The key issues that need to be resolved in any voter registration system are the identification of an individual voter and the geographic placement of that voter into a polling center. This is usually achieved by what could be described as a "big bang" registration. This type of registration occurs in centers throughout a country, registers citizens for a period of time and then closes. The list is compiled and the individual voter then returns to the place he or she registered when the election is held.

36 Population estimates are based on any number of original sources, most likely drawn from UNHCR food distribution lists and such other information as could be used for building a population figure.

This process of registration resolves the most difficult issues of location and registration and is relatively fast. However, it has a number of drawbacks in implementation and can usually be used for a single election cycle. With each year that passes, the base data is further compromised as citizens become of age, change locations or die. Annually, an estimated change of 20 percent may be attributed to each list. In highly mobile populations or where there is a high birth rate, the percentage change will be higher. In Iraq (and Afghanistan) this approach was not possible due to the security situation.

Typically registration programs in conflict zones must capture data over a longer time frame in a more restricted number of locations. A smaller number of larger registration centers must be used. Additionally, it is imperative that larger centers are located in secure areas or can be secured. The consequence of such registration programs is allocating registered voters to polling stations that will only exist for the election.

The issuance of registration cards and collection of enough data to compile a list consumes a significant amount of time, often resulting in the collection of a minimum amount of geographic data. This limits the ability of future elections to be held at lower, provincial or local government representative levels. Further complicating list preparation and maintenance is the habit of grouping people into family units, where all members of a family are listed together. This can make for fast identification of names in a polling station, but creates a future problem as people shift locations and new voters are added. In addition, it also facilitates family voting to the disadvantage of the female vote. This is a significant issue in rural areas.

Individual voters are identified in four ways:

- Name — in western cultures this is a first name, second (or more) and family name. In Islamic countries the father's name is also collected as a discriminator. This can be used to automate and verify data.
- Date of birth
- Address, as much detail as possible that allows for greater accuracy in later districting needs
- Date stamp of registration

Together these four criteria provide sufficient data to compile an accurate list with the ability to be amended, added to and used into the future.

In the Iraqi context the individual data was far from complete and the date stamps were not available in the database since the original data was sourced from a food distribution list.

Another more general issue is that data was collected at a local level, goes through a provincial office, and is processed centrally. In the case of Iraq, actual data processing was moved to Dubai. An almost inverse proportional rule, however, is that the farther removed data processing is from the point of data collection, the lower the ability to discover errors and correct mistakes.

Generally, and Iraq was no exception, registration data are collected in a wave and moved to a central location where the data are entered. After the data is sent to a central location, data collection teams are dismissed. Later a list is prepared for a challenges and corrections period. During this time some of the registration facilitators from the central data center may visit a location to display a list for people to inspect. This process is hopelessly inefficient and yields little result. Local knowledge from the original data collection team is missing and review rates are abysmal. After a period of time, the voter lists are printed. There are almost always mistakes and errors of varying types, but little can be done centrally to make large corrections.

It seems that the lower the level at which a registration or electoral registrar presence is maintained, the stronger the ability to manage, discover and correct data problems.

The problems faced during the compilation of the voter register are discussed under the following headings:

- Technical capacity
- Names
- Date of birth
- Address/geographic data
- Date stamp of registration records

Technical capacity

Iraq has a well educated population and sufficient technically skilled people who were available to manage the voter register. Similarly, the Iraqi government has funds and the IEC did not lack the equipment that was requested.

That being said, the original database software was a poor choice and was not in fact a relational database. Further, Iraqi staff were not involved in the development of the software nor in its use to a great degree. International staff managed the database, which had unfortunate consequences when the pre-election amendments had to be processed and the international staff member most responsible for the database left the project. The poor choices in software and the lack of local staff experience in managing the data meant that when the pre-election amendments came to be processed, few knew how to effectively keep track of what was happening. There was confusion over the management of the original data sheets, the database and preparation and integration of the data with the main list. An estimated 500,000 duplicate entries were thought to be in the data. Errors were also made in trying to correct this, and many last-minute problems surfaced as the lists were printed. The database itself became a set of mini lists that had to be manually compiled to obtain a printable list.

Another issue that does not receive enough attention is the management of hard copies and archiving old documents. Hard copies often end up in boxes stacked in corners and in basements; after a number of transaction processes, retrieving original documents becomes difficult, if not impossible. Audits and verifications are likewise difficult to manage, and are sometimes dropped for being so time consuming. Hard copy library issues should be determined and planned for at the beginning.

Names

Though dealing with names often seems the simplest of tasks, it often becomes the most difficult issue. In Western societies the naming conventions coupled with good birth records mean that there are very few “twins” or records in a register where the name and date of birth are the same. Further, linkage to a geographic location means that voter list twins are a rare occurrence.

In Iraq (and similarly in Afghanistan and Pakistan) Islamic naming conventions mean that the incidence of same names is much higher. In some cases only a single name is used. In Afghanistan and possibly in Iraq's more remote areas some groups do not give females an individual name at all. A small pool of unique names, coupled with poor date of birth and geographic data records, increases the incidence of duplicates dramatically. However, this is further complicated by a lack of certainty of the presence of actual duplicates and creates doubts about data integrity.

To address this issue, and for cultural reasons, voter list names are not arranged in individual record order, but by family grouping. This is effective if done properly and where the election is held soon after registration. Each day that passes after registration brings new records. With only a provincial presence to review data before central processing, it becomes impossible to accurately place any new voter or make changes. Lists are soon sorted into groups of families, and a second sort of unknown names, many of which can appear to be duplicates, is conducted.

Part of the problem is a common view that names should only appear on a single list for a single polling station. This burden complicates an already complicated situation and in many cases it is ultimately a futile exercise. As a bar for fraud, a name appearing on a single list is doubtful at best in post-conflict situations.

Date of birth

Date of birth information is necessary to determine eligibility, but also to allow identification of individuals. The problem for Iraq and most post-conflict nations is that such information is not always available or collected. More remote or tribal areas or areas with long-term conflict situations have poor birth records or records that have been destroyed. In many cases obtaining the year of birth is all that can be hoped for.

This problem is common to all post-conflict elections, and all that can be done is to collect as much data as possible.

Address/geographic data

A common misconception is that a voter list is a simple list of names. In fact, a good voter list is a list of locations to which names are attached. The better the geographic data, the better the list and the more flexible the list for separating into districts at any level.

The first electoral event in Iraq was the January 2005 election, which was conducted with the whole country as a single electorate. This was acceptable as an initial post-conflict election solution, but it was not politically viable for the December 2006 election. The country was divided into provinces and seats allocated according to a negotiated formula. The delimitation process is beyond the scope of this case study, however.

Data on hand was sufficient to allow for a province-wide list. The allocation of names to individual lists had to be done manually, leading to many problems in extracting data. Only a single person had full knowledge to conduct the process and there were only a few people who could understand the process. The programmer managing the process left before the extraction, which caused major problems. The ability to audit, or verify and manage the process was compromised.

The data collected and the database design itself seem not to have been optimized for address-data handling. This is a major deficiency for any ongoing register.

Date stamp of registration records

The date stamp of registration records would seem a simple aspect of the registration process. However the data that were used to create the original database came in bulk, and subsequent amendments and additions did not have a date stamp nor were they linked back to the original record.

After processing the amendments, it was discovered that it was not possible to accurately identify which record should be removed. A long manual process was required that led to errors. It may be that some 500,000 duplicate entries were in the system at some stages.

It is critical to any ongoing registration system that entries be linked and clearly date stamped. The failure to do this caused a significant amount of confusion and additional work.

Recommendations

Technology

Far too often, the IT component of the voter registration process is under resourced and one or two people are responsible without sufficient support to document the systems being built or to support the integration of local staff. Necessary training and skill development is often lost in the immediate need to get things done. Priority should be give to proper resourcing and early integration of local staff in all IT components.

Software should be a proper relational database with sufficient capacity for at least 200 users and the capability to support a distributed network over a wide geographic area. The hardware for those users and networks may not exist at first, but it is usually introduced within a very short time. Effort should not be spent building software that has only a short life span and cannot be continued. It is well worth the development of a voter registration template to cover the basics.

All projects suffer from short lead-ins and limited initial funding. Completing as much work as possible prior to deployment would provide an enormous boost to the success of the final product. While not all countries require the same detail, a significant amount of design work and software selection and preparation could and should be done.

Hardware specifications should also be developed in a base form to allow for rapid procurement. Hardware exists in great profusion; it is the specification and purchase that becomes time consuming. In all cases, planning should allow for the support of offices in regions with links to the center. As mentioned above, they may not exist initially, but such offices should be aggressively sought and staffed. Machinery and applications to support them should be procured and implemented as quickly as possible.

The training of registration staff along with voter education programs is also subject to the same short time lines; this also could be partially prepared as an outline and kept ready.

It should be kept in mind that the database will contain potentially millions of names and should be constructed to support significant geographic detail and transaction records and log files. The opportunity should not be missed to build in-land use codes, if possible. This would indicate if an individual registrant resides in a free-standing dwelling, an apartment or other type of building. The data will be immediately valuable as an anti-fraud and audit measure and provide useful information to help formalize addresses as they are collected.

A data center was not available in 2006, but early identification of secure premises should be attempted to allow data entry in Baghdad.

Names

It is not possible to change cultural naming conventions. However recognition that names should be registered as individuals, rather than family groups, and the actual place of residence, should be sought. Many people register a village of origin or family location rather than by where they reside. This should be resisted actively as it distorts the register and causes significant problems for any subsequent election. In addition, each name should have a continuing ID number to more easily track later changes.

In addition, the idea that a voter can appear on only a single list has the potential to complicate the production of lists. A voter's name can appear on multiple lists within an area, or polling center without unduly promoting fraud. In fact, post-conflict election fraud is almost never traced to this phenomenon. Post-conflict election fraud is usually seen on an industrial scale with multiple registrations, alteration of results and ballot stuffing, where actual names play little, if any part. The efficiencies gained far outweigh perceptions of fraud. The use of ink mitigates the risk, and having a large center where all lists are the same will allow significant improvement to voter flow and list preparation.

If at all possible, registration results should be made available as early as possible to some form of recruited local registrars to audit and correct. This is probably a more useful and cheaper option than the traditional challenges and appeal mechanism which rarely has 10 percent of records checked.

Date of birth

The date of birth is critical to the voter register, though not always possible to obtain in full or accurately. This is part of the identification data, and every attempt must be made to obtain some information, even if only a best guess of the year of birth.

Geographic data

Geographic data is the keystone of all voter registers. Significant amounts of geographic data in the shape of village and town names, roads and the like exist within various government agencies. This should be integrated and used early. Geographic data will never be perfect, but should be identified and used as soon as possible; it is the key to a continuous register and the ability to develop an accurate register.

From the very beginning, every effort should be made to standardize registration address data and bring it into conformity with existing location names and addresses.

Civil register versus voter register

While not an immediate issue in Iraq, the concept of a single, civil register doubling as a voter register was also discussed from time to time. It is useful to look at some of the advantages and disadvantages of what is now a popular concept with donors and some administrators.

The advantage is that a single list is used for civil needs, security, police and elections. The list would be a more secure list, usually employing higher tech security features. Though initially more costly, it would be secure and less expensive than setting up a civil register and a separate voter list.

In reality, setting up a civil list is problematic in post-conflict countries from the very beginning. Such a list is mainly focused on police and security needs. It will also be the source for the issuance of passports and other government services. Therefore, it can be expected that turf wars will erupt between nascent government agencies for control of such an important database. Revenue can be generated from the database both for the organization and for individuals within the organization. It can also be expected that significant corruption and tampering with the database will exist from the start.

Additionally, there would be battles over maintenance, and it can be expected that exclusions of ill-favored individuals and groups will follow. These are only some of the problems that would follow from the use of the civil list for electoral purposes. Designed for different purposes, a civil list focuses on individuals and their relationships to other people and groups, not necessarily on the geographic and constituency needs of an election body.

Initial decision making and management

From the very beginning the decisions that are made regarding technical and structural implementation of the voter registration program will govern how it unfolds for several elections, not just the initial one. That being the case, it would be immensely useful if a long-term approach were taken when setting up the first program.

Decision points are whether the project will be implemented by international or local bodies. The typical answer is that internationals will carry out major planning and structural work with local staff collecting data. Initial planning should be done with a clear view to the development of technical and human resources that allow for an early switch to local management of a program that is sustainable in the longer term. In other words, development work conducted initially by more skilled international staff should cover the foreseeable needs of the local election body beyond just the current election. There should also be a clear timeline for the take-over of tasks by the local body, which helps people focus and allows better training and processes to be identified earlier.

Conclusion

This case study covers many issues and problems that were part of the Iraq voter registration program. For the most part, those issues seem common to many observed voter registration programs. All programs have been afflicted by late agreement to run a program, late funding and even later recruitment and arrival of key international staff. In at least two observed cases, the consequences of the problems mentioned has been the inability to either produce a list or use a list more than once. Considering the tens of millions of dollars invested, these are poor outcomes.

Studies such as this one are vital to achieve better results and ideally will focus attention on the need to have pre-determined structures and technical requirements ready for fast-track deployments.

Finally, despite all the issues, mistakes and errors that occurred, the Iraqi Election Commission and the International Team did produce a useable list in an ongoing war zone and later conducted a very successful election. That is a great achievement.

Strengthening Existing Registration with New Technology

Nigerian officials use a direct data capture system to register voters in early 2011.

Introduction

Although there are instances where an existing voter register is so inaccurate or so tainted by political mistrust that it must be completely abandoned, it is usually much easier to update the voter register than to start from scratch. The existing data is a valuable asset that can facilitate the creation of a new register even when a decision is made to abandon an existing register. The existing data may provide geographical structure, a good basis for estimating the number of voters in each constituency, a source for helping to identify voters or other valuable information.

Ideally, a requirement to improve an existing register does not face the same urgent timeline as the creation of a new one. There will be adequate time to

analyze existing data, pinpoint the types of problems that must be addressed, do feasibility studies on different approaches to solving those problems and strive to build consensus on new registration laws and procedures.

Motivation for changing an existing registration methodology can come from political dissatisfaction, availability of new technologies to address a problem or from the failure to keep registration data current. Whatever the reasons for requiring a new methodology, the attempt to define a new approach often faces political pressures. Parties who have been elected using the current voter register may resist change, while opposition parties may demand it, blaming their loss, at least in part, on a faulty voter register.

The Guyana case study describes two attempts to implement an automated fingerprint identification system (AFIS) to address concerns of potentially large numbers of duplicate voters. In both cases, the system relied upon fingerprints that were captured with normal rather than special ink and paper. Although this is not the preferred method for capturing fingerprints for an AFIS system, the legal requirement for doing house-to-house enumeration overrode the preference for using “live scan” fingerprint capture technology. Because of high levels of political mistrust, the fingerprints were matched outside of Guyana in both instances. The first attempt failed to provide satisfactory results, while the second attempt yielded substantial benefits in identifying duplicate voters.

Sri Lanka has a well-organized process for maintaining voter registration information that includes full accountability and auditability. However, prior to 2005, the system relied upon large numbers of typists re-creating an annual paper-based list. The department of elections had been working with a local software development company to create a system for computerizing the electoral rolls; however, when many records were lost due to the tsunami in December 2004, the requirement to computerize took on a new urgency. The Sri Lanka case study provides a look into automating a mature and well-organized manual process. One technological challenge that Sri Lanka shares with many other countries was the requirement to support data in more than one alphabet.

The Philippines case study provides a detailed account of efforts to improve a mature voter registration system by addressing a specific problem of potentially large numbers of fraudulent registrants. With more than 50 million registered voters, the implementation of a technological solution to a long entrenched history of cheating in elections required substantial investments in modifying the legal framework, as well as testing and implementing an acceptable solution.

Case Study: Guyana

Gavin Campbell

Voters search for their names on registration lists in Georgetown, Guyana, during the March 2001 presidential election.

Introduction

This case study examines the implementation of fingerprint cross-matching technology in Guyana as part of the construction of a new voter registry through house-to-house enumeration. In addition to an overview of the voter registration system, the study discusses the history of biometric technology in the context of elections in Guyana, and proceeds to a discussion of the most recent implementation.

Background

Elections in Guyana are overseen by a permanent Elections Commission, composed of a chairman and six commissioners. Three of the commissioners

are nominated directly by the president and three on the advice of the opposition leader.[37] The Elections Commission has a permanent secretariat, which is responsible for the management and operations associated with elections, including the maintenance of a permanent voter registry. This registry was compiled through a house-to-house enumeration conducted during the first half of 2008, and it is intended that the registry be updated by biannual cycles of office-based continuous registration.

As part of the electoral process, there is a claims and objections period prior to each election, which also serves to update the permanent registry. In order to be registered, whether during the house-to-house enumeration exercise or during a cycle of continuous registration, a prospective registrant is required to present an original birth certificate or valid passport. Since the presentation of a birth certificate is required to obtain a passport, possession of the latter implies possession of the birth certificate. Generally speaking, all Guyanese citizens and Commonwealth nationals who are bona fide residents in Guyana are eligible to register from the age of 14, but are not eligible to vote until the age of 18. Upon the completion of the registration process, each registrant is issued a national ID card, which is used for general identification purposes in addition to identification at the polling station.

The information technology function at the Guyana Elections Commission (GECOM) is generally well developed. The department consists of a systems administrator assisted by two support technicians and a helpdesk assistant, as well as an analyst programmer and a junior programmer. An IT manager, who from 2005 until 2009 was an expatriate consultant, provides oversight. The department is fully capable of maintaining and supporting the core registration system, developed in Microsoft Visual Basic .NET, and running on SQL Server and Windows 2003. A third party (De La Rue Identity Systems) provides an auxiliary system, the scope of which is limited to the production of ID cards using data from GECOM's system.

Ever since the general and regional election held in 1997, the IT function of GECOM has been surrounded by political controversy. The constant debate

37 Constitution of the Co-operative Republic of Guyana Act, Article 161.

about the completeness and accuracy of the electoral roll has always focused on the work of the IT division, with allegations of "padding," "dislocating," and other methods of disenfranchising eligible voters surfacing during every election period.

"The constant debate about the completeness and accuracy of the electoral roll has always focused on the work of the IT division, with allegations of 'padding,' 'dislocating,' and other methods of disenfranchising eligible voters."

The solutions offered to these issues have been varied. During 2000–2001, a Technical Oversight Committee was formed consisting of nominees from the main political parties as well as from civil society, all of whom were considered experts in information technology. During 2005–2006, a reduced committee was proposed, known as the Technical Monitoring Panel and consisting of one nominee from each of the two main parties and one from the donor community. This second committee was so consumed by politics that it was never officially convened, having failed to agree on its own terms of reference. On each occasion, these committees were invited to inspect the source code and to perform tests on a backup copy of the registration database. While this took place to a certain extent during 2001, the problems affecting the 2006 incarnation of the committee meant that neither political party took advantage of this opportunity.

The failure of these committees to provide adequate oversight during the registration process has led inevitably to allegations being made after the fact about the conduct of the IT department during the process.

During 2005, an overseas consultant was engaged to supervise the work of the department. This proved to be an effective deterrent to spurious allegations about the fixing of the database for two reasons. The first is that the consultant, being of Anglo-Saxon descent, was not visibly aligned with either main political party. Secondly, the consultant was not dependent on GECOM for his future livelihood and therefore able to rebuff any allegation without regard to political sensitivities. It is not obvious how any locally engaged manager would be able to overcome these difficulties.

Fingerprinting in Guyana Elections

For many years, even prior to the implementation of a permanent voter registry and the adoption of continuous registration, prospective registrants were required to submit a single thumbprint as part of the registration process. This served solely as a supplementary means of identification, since the notion of automated cross matching was not under discussion until more recently. Consequently, these prints were captured using ordinary stamp-pad ink on plain paper stock, rather than ink and stationery specifically designed for biometric purposes.

Immediately prior to the 2006 general and regional elections, the decision was taken to conduct fingerprint cross matching across the entire electoral roll. The fingerprints for this were taken from three sources: the 1996–1997 and 2000–2001 pre-election registration exercises and the continuous registration exercise conducted prior to the 2006 general and regional elections. The 1996–1997 and 2000–2001 registrants had only supplied a single thumbprint, whereas the 2006 registrants had supplied four prints (two index and two thumb).

The fingerprinting exercise was undertaken in conjunction with the Electoral Office of Jamaica, along with a separately organized consultancy firm whose employees were also employed by the Electoral Office of Jamaica. A number of experts from Jamaica came to Guyana to provide project management services and training to the local staff tasked with scanning the fingerprints. The resulting images were transported to Jamaica for cross matching.

Considering the inordinately high cost of the exercise (US$630,000 funded by USAID) for de-duplicating around 500,000 registration records, the results must be deemed unsatisfactory. Two categories of duplicates were returned: the definite and probable matches. Based on the results returned, there were cases of intransitive matches (Smith is Jones but Jones is not Smith) and cases of matches appearing in both categories (Smith is definitely Jones and Smith is probably Jones). The explanation offered by the contractor for these phenomena was the poor quality of the source fingerprints. Given that fingerprint quality is quantified at the point of template extraction, prior to cross matching, this explanation does not seem plausible. At the point of publication of the final list,

one member of the Elections Commission resigned, citing, inter alia, concerns about these unresolved questions.[38] In the end, no electors were removed from the roll as a result of this exercise.[39]

De-duplication of the 2008 House-to-House Enumeration Results

De-duplication process

As a result of the experience preceding the 2006 elections, the decision was taken to move more of the process in-house, to save costs and to take greater control of the process. Due to the mutual mistrust that has long existed between the two main political and racial groupings in Guyana, it was decided that the cross matching process should be conducted outside of Guyana. It was widely believed that no Guyanese could be trusted to operate the cross matching equipment (it should be noted that the parties that expressed such concerns had little knowledge of the actual workings of fingerprint cross matching).

It was decided that GECOM's internal IT systems should be upgraded to incorporate the functionality of the system left behind after the 2006 exercise, since this system provided neither an interface to GECOM's in-house system nor a mechanism to implement one. A third-party software library was purchased from Pegasus Imaging to allow the storage of fingerprints in the industry standard Wavelet Scalar Quantization (.wsq) format. Since GECOM was already using Pegasus Imaging products for form processing and photo enhancement, the cost of this was relatively small, US$5,000. The additional hardware used for the project was recycled from the 2006 exercise. GECOM's systems were upgraded to allow for the capturing of fingerprints from scanned forms at the same time as photographs and signatures. For this exercise, 10 prints were captured from each registrant. During the training of the field staff for the exercise, special emphasis was placed on capturing quality fingerprints. In addition, bright white cardstock

38 Report of the Commonwealth Observer Group on the 2006 General and Regional Elections, p 18.
39 The Report of the Commonwealth Observer Group on the 2006 General and Regional Elections, p 22 is inaccurate in this regard.

was used for the substrate and inkpads specifically designed for fingerprinting were procured.

At this stage of the project, no vendor had been selected to carry out cross matching. This made it unfeasible to incorporate template extraction into GECOM's systems, since most biometrics vendors use proprietary template formats. As a result, the noteworthy risk that the fingerprints captured in the field would not be of adequate quality for cross matching was introduced at a time when the field exercise was already under way. Ultimately the risk was mitigated by prevailing upon a vendor (Cogent Systems, Inc.) to test a small sample for free ahead of awarding the cross-matching contract.

For commercial reasons, Cogent Systems was unwilling to provide services directly to GECOM, but preferred to work through a reseller or agent. As GECOM's incumbent ID card supplier, De La Rue Identity Systems, was also a reseller of Cogent products and agreed to act as the intermediary. De La Rue's involvement was not wholly altruistic, as they were well aware that any future production of ID cards would depend on the completion of the cross matching exercise. The cost of the services provided by Cogent was around US$150,000, with an additional commitment to process further sets of fingerprints derived from the biannual continuous registration cycles at a cost of around US$5000 per set. Assistance for the initial payment was again provided by USAID.

Once the commercial terms had been agreed upon, Cogent Systems proved to be a cooperative supplier. The scanned fingerprints were dispatched to Cogent and the results returned promptly. In contrast to the 2006 exercise, there were no cases of intransitive matches or definite and probable matches.

Analysis and investigation of the results

Notwithstanding the fact that the majority of matches proved to be clear cases of double registration, generally due to persons having moved house during the course of the exercise, each individual case was investigated. Almost every case proved to be innocuous. For example, typical explanations included a person having moved house and re-registered, the prints of one member of a household

appearing on more than one form, a woman registering once under her maiden name and again under her married name, and in one case a GECOM field worker applying her own prints to a registrant's form. All of these difficulties can be attributed to failings on the part of GECOM's staff in the field, and the very fact that they were identified served to reinforce confidence in the system, as well as to provide material for future training. On this occasion, those persons positively identified as duplicate registrants were removed from the register.

Further interesting results were derived by comparing the results of textual cross matching with fingerprint cross matching, including instances in which more than one individual registered using the same birth certificate — typically family members. These findings were also fed back into GECOM's training material.

Effectiveness of the Biometrics Solution

The implementation of fingerprint biometrics was an important step in building stakeholder confidence in the registration process. The fact that it is a purely automated solution, used in many elections worldwide, meant that no political party could reasonably object to its implementation.

The fact that fingerprints had to be gathered in the field using ink and paper rather than electronic scanners turned out not to be a major impediment. Great emphasis was placed on fingerprinting during training, and each trainee took many sets of fingerprints before being deployed to the field. The template generation process is in fact quite tolerant of lower quality prints, but this was not disclosed to the field staff, who ultimately performed at a high standard.

As previously noted, the use of technology also helped to reveal other ways in which the registration process as a whole could be improved.

From a technical standpoint, it would have been preferable for the cross matching process to take place on site in Guyana. On-site cross matching would have allowed duplicates to be identified and investigated during the registration process itself, rather than at the end when the commission was

under pressure to produce a definitive list. Another consequence of off-site cross matching is that a registrant must wait until the end of the registration cycle before being issued an ID card. This consequence will be increasingly apparent as the cycles of continuous registration proceed, and in the end the inconvenience of the present arrangement may well outweigh the suspicion over Guyanese nationals operating the cross-matching equipment. Another factor will be the growing understanding of biometric technology amongst the non-technical staff and stakeholders of the commission.

Another preference would have been to identify a vendor in advance, so that the template generation process could have been incorporated into GECOM's systems, thus allowing much earlier feedback on the quality of the prints. The use of electronic capture devices would have been better still, but their use was precluded by the need to visit each household in the country. The greater part of the time spent by the vendor was in the template generation rather than in cross matching itself (the vendor is a manufacturer of specialized hardware for cross matching, making this part of the process highly optimized). This time could have been absorbed into GECOM's time for form processing had template generation been feasible in GECOM's system.

Nevertheless, GECOM was able to come to a workable arrangement with the biometrics vendor. Although the initial funding was provided by USAID, ongoing payments can easily be sustained from GECOM's local budget.

Conclusion

The following considerations should be taken by election management bodies when they are considering the use of fingerprint biometrics:

- If possible, a partnership should be established with a biometrics vendor at the earliest opportunity. This greatly reduces the risk of being left with an unworkable solution. Since each vendor's system performs practically the same functions, the more important consideration is the quality of the relationship between the EMB and the vendor.

- Whilst the use of electronic fingerprint scanners is preferable since they provide quality feedback at the point of capture, it is perfectly feasible to implement a meaningful biometric solution using paper and ink to capture prints. If the latter option is chosen, it is important to place emphasis on fingerprinting as part of training, ideally with the input of the biometrics vendor.
- Proprietary and open-source libraries exist for generating industry-standard fingerprint images, and even for implementing the new standards for template generation. If in-house software development capacity permits, these can be incorporated into the EMB's own systems, thus shifting much of the effort from the supplier to the EMB, with associated cost savings and increased transparency and control.
- If a vendor-supplied system is to be used, it must be well integrated with any other systems associated with voter registration.
- Every effort should be made to educate non-technical staff and stakeholders about the capabilities and limitations of such systems. No biometric system is infallible, but once the limitations can be explained and quantified, much greater confidence will ensue. The tendency to think of such systems as a magic solution must be avoided at all cost.

Case Study: Sri Lanka

Michael Yard

An ethnic Tamil woman shows her internally displaced person (IDP) identity cards before casting her vote at an IDP camp north of Colombo, Sri Lanka, in 2010.

Introduction

Sri Lanka has a long history of maintaining electoral rolls. Over many decades, the country developed a well-organized system that provides a model for transparency and accountability. Up until 2005 the system was completely manual. The system relied on ad hoc teams of typists, in each district electoral office, who would create paper lists of all changes to the register. After a period of display, the teams incorporate changes and retype the entire register for the district.

The Department of Elections (DoE) began working on a system to computerize registration in the late 1990s and began a district-by-district implementation of the system. However, when the tsunami of December 2004 destroyed the paper

records in several districts, the computerization project took on greater urgency. With assistance from USAID and IFES, the department rewrote the software for maintaining the rolls and installed computer systems in district offices.

The computerized system sought to maintain the well-defined procedures behind the manual system, while preserving and enhancing transparency and accountability. In this context, the case study considers the particular issues in the computerization of the electoral rolls in Sri Lanka, including issues of language, ID cards, data entry systems, security and internally displaced persons. Following the benefits analysis of the automated system, the study concludes with recommendations to continue strengthening the process in Sri Lanka.

Background

For election administration purposes, Sri Lanka is divided into the following structure:

- 22 Electoral Districts
- 160 Electoral Divisions
- 10,000 Polling Districts
- 13.3 million voters

Within each electoral district, voter registration is maintained by Electoral Division officers.

The voter register is compiled and maintained by an annual house-to-house enumeration, as required by law. The Electoral District officers (EDOs) collect enumeration forms and verify them against the current register to produce two forms which list changes to the register:

- Schedule A — Deletions
- Schedule B — Additions

All changes to a voter's data (e.g. change of name, relocation to a new address) are reflected by an entry on both Schedule A and Schedule B, with the old data being replaced by the new data.

"Parliament may be dissolved at any time by presidential proclamation, meaning that the election commission can be left with little time to produce a voter register."

These schedules are displayed for 28 days from November to December for claims and objections. Claims and objections are resolved by statutory inquiry and public inquiry as needed. A voter who does not accept the decision of the EDO has the right to appeal to a District Judge.

The average number of Schedule A and B changes per year comprises approximately 20 percent of the total register. The number of changes attributable to claims and objections is negligible. However, the public display of all additions and deletions provides an opportunity for political stakeholders to closely monitor changes to the registration and acts as a deterrent against fraudulent manipulation of the register.

After the claims and objections period, a new list is produced. This list incorporates all the changes from Schedules A and B and the results from any claims or objections. Following the production of this list, a "poll information card" is produced for each household showing details and the location of their polling station.

The current process of maintaining the voter lists is cumbersome and time-consuming. Parliament may be dissolved at any time by presidential proclamation, meaning that the election commission can be left with little time to produce a voter register. Due to this presidential power, previous snap elections were called and held before the voter register could be completed in Sri Lanka's two official languages — Sinhala and Tamil.

The 2005 presidential elections had numerous allegations of an inflated voter list. These were likely legitimate as there was no formal process for removal of the deceased. When implemented, the annual house-to-house exercise minimizes

any bloating. However, this was not possible in some areas due to security concerns, particularly in northern Sri Lanka.

The process of postal voting provided for military police, election staff, candidates and essential service staff (e.g. electricity, communications, petrol, etc.) required a cumbersome separate process of compiling postal registers.

This process of manually creating new electoral rolls every year means that the current official electoral roll for each district is contained in a single paper copy. Consequently, there was significant risk of losing data due to accident, negligence, violation of security or natural disaster, as evidenced during the 2004 tsunami.

Computerization of the Electoral Rolls

The Election Commission began computerization of the electoral rolls in 2001. By 2005, it had partially implemented a computerized system in three of the 22 Electoral Districts. The commission did an excellent job in planning and implementing this project, incorporating lessons learned from computerization of the first two districts into the third. The process already displayed the stability and sophistication of a well-designed, tested and maturing process, prior to international involvement and assistance.

The primary issue confronting the commission was a lack of financial resources to speed up the process. The commission requested financial assistance from USAID and implementation assistance from IFES. IFES was able to apply lessons learned from two decades of experience in voter registration to this experience in identifying technical and non-technical issues and suggesting refinements to the process.

Language/character encoding

Voter registers in Sri Lanka must be produced in two languages, Sinhala and Tamil. In order to avoid double data entry, the Election Commission previously used a product called GIST, a hardware device capable of transliterating between any two languages used on the Indian subcontinent. GIST was developed for

use under Microsoft DOS; however, no update was produced for compatibility with Microsoft Windows. The Election Commission addressed this issue by developing proprietary software to perform the same function.

In addressing the issue in this manner, the Election Commission encountered one of the major issues confronting the computer industry as it grew internationally: coding for text in computers. ASCII coding, developed in the 1960s, is a 7-bit system capable of encoding a maximum of 128 characters. The ASCII system has been used since the introduction of personal computers. By the late 1980s, additional and competing codes were developed for non-English languages which used Roman alphabets. However, "these standards lacked the capacity to render non-alphabetic languages that use sets of symbols and ideographs. To accommodate the goals of internationalization, the lowest common denominator — the number of bits assigned to each character — had to be increased."[40]

Many individual companies had been addressing the issue of character encoding by creating proprietary encoding schemes and corresponding fonts for each language. This is the path followed by the Election Commission. Although this solved the problem in the short-term, the creation of a proprietary encoding scheme created a number of other problems. First, there was no standard keyboarding scheme to correspond to the newly created character set. Second, there was no standard to guarantee data compatibility between different organizations. For example, if one organization created a character set where the number 64 corresponded to the letter A and another organization created a character set where the number 82 corresponded to the letter A, any attempt to transfer data from one organization to the other would result in an unintelligible jumble of characters. And third, due to the incompatibility, it would be nearly impossible to share data on an international medium such as the Internet.

The computer industry addressed this problem by agreeing to use the Unicode system, a 16-bit system capable of coding up to 65,536 characters.[41] IFES

40 Joseph Hargitai "Unicode: Writing in the Global Village" in "Connect: Fall 1996" http://www.nyu.edu/its/pubs/connect/archives/96fall/hargitaivillage.html

41 Unicode began as a project in late 1987 after discussions between engineers from Apple and Xerox. In 1990 both Microsoft and IBM joined the effort pushing it beyond critical mass needed to force industry-wide acceptance.

drafted specs for conversion of existing data into Unicode, for real-time transliteration between Sinhala and Tamil and worked with a local vendor to develop and test this module.

ID card number use for validation

Sri Lanka's national identification card number includes the holder's date of birth. This data should be compared with data typed from registration forms. In addition, the ID card number is self validating, including a checksum as the final digit. The Automated Electoral Rolls System (AERS) incorporated this checksum into data entry validation routines to detect any errors made when entering the ID card number.

Double-blind data entry vs. data dictionaries

The most accurate data entry systems use a double-blind methodology; commonly used for voter registration data. A double-blind method occurs when all data is entered by two separate typists. The system then compares both sets of data to identify any discrepancies. However, the experience of the Sri Lanka's Election Commission in computerizing the first two districts supports another solution. The Election Commission achieved a high degree of accuracy using data dictionaries for validating data as it is being entered rather than the additional cost of a comparison system.

"The Election Commission achieved a high degree of accuracy using data dictionaries for validating data as it is being entered rather than the additional cost of a comparison system."

Based upon best practices of electoral management bodies, the validation process was designed into AERS. Data validation tables were created for all possible fields, particularly those related to the name of the voter. The table includes each name both in Sinhala and Tamil, the gender associated with the name (male, female, or non-specific), and a regional code to indicate the area(s) where this is the preferred spelling. When a typist enters a name that is not found in the validation table, the data entry system displays an error message indicating

a possible typographic error. The typist has the option to override this error flag, in which case the new name is added to the validation table.

Detailed security and disaster recovery plan

Copies of all data are now maintained at multiple locations. A disaster recovery plan was developed detailing the process, time and resources required to recover from the loss of one or more database servers.

The IDP problem

The Election Commission was unable to conduct enumeration exercises in Jaffna because of security concerns. Over the past decade a large numbers of persons were displaced by violence in Jaffna District. The voter register for this district is now inflated with an undetermined number of names of deceased and those who have moved out of the area.

AERS is designed to allow persons to transfer their registration to a new district. However, the lack of a centralized register means the system still requires a voter to appear first in the district where he or she is registered and complete a form requesting removal from the electoral roll in that district. The EDO then provides the voter with a form showing that the record has been removed. This record is required to register in the new district. In cases where it is impossible for the voter to return to the district of origin, the EDO in the new district can request authorization from the EDO in the district of origin. This remains a cumbersome and manual process.

As the Department of Elections expands its data network, the system is scalable to allow automatic transfer to a new district without this two-step process.

Benefits of the automated system

The Automated Electoral Rolls System (AERS) was phased in over a two-year period beginning in 2006. The new system substantially reduces the time and resources required to maintain the electoral rolls. It also provides a platform for continuous improvement of voter list accuracy. Whereas previous manual

processing introduced some new errors every time the list was recompiled, the automated system allows the Department of Elections (DoE) to make corrections without introducing errors into unchanged voter records. AERS provided the following benefits:

- Automated creation of Schedule A and B lists
- Automated update of the electoral rolls from A and B lists following the display period
- Capacity to produce lists in a very short time, when snap elections are called
- Ability to maintain electoral rolls in Tamil and Sinhala, including "smart" translation between the two languages and alphabet transliteration
- Automated creation of postal registers for police, military, election staff, candidates, and essential service staff (electricity, communications, petrol, etc.)
- Automatic printing of poll cards in a few hours, which were previously manually typed for every voter on the electoral rolls
- Ability to provide on-demand printing of extracts, often required by voters for documenting residency
- System generates a CD-ROM of the electoral rolls that is provided to principals of schools to eliminate the need for printing most extracts to establish qualification
- Entire electoral rolls database has been converted to Unicode, providing a standard for encoding to be used by all other government agencies
- Ability to share information with other agencies (DoE worked closely with Information and Communication Technology Agency of Sri Lanka (ICTA) to ensure compatibility)

Recommendations

Make lists more widely available

Once the entire list has been computerized, the Election Commission should explore options for making the data more widely available to voters, political parties, NGOs and academics with a legitimate interest in the electoral process. The data could be available in a variety of media formats including CD-ROM, Internet, SMS, etc.

Organizational structure

It is common when first computerizing a voter register to rely heavily upon the information technology department for design, construction and management of the actual process.

There are a number of long-term disadvantages to this approach. The heavy workload of maintaining a voter register can distract the IT department from its focus on providing tools and infrastructure. The process often loses transparency because technology staff can find many shortcuts for maintaining and updating data, Finally, it is a data-security issue if the programmers who build the security routines also manage data entry. This means the data entry operators may have inside information on how to circumvent any security measures put into place.

The election commission should strongly consider creating a separate voter registration department with a clear division of responsibility between this department and IT staff. The voter registration department should rely upon technology staff for database design, security, ensuring availability of the data and developing tools for data updating and reporting. On the other hand, there should be a clear restriction against technology staff doing any modifications to the data.

Voter information

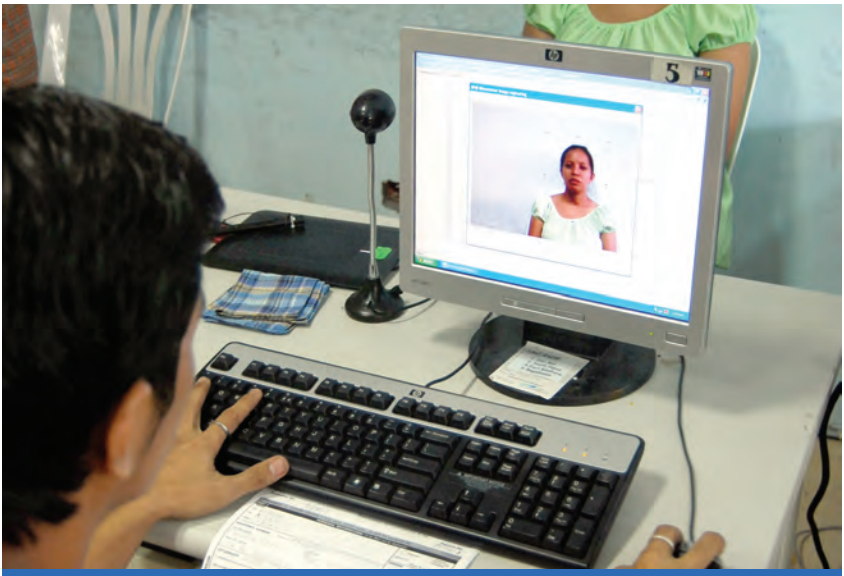
The Election Commission should implement a voter information campaign with the objectives of informing voters of computerization and increasing confidence in transparency of the electoral process.

Data integrity auditing

The election commission is encouraged to consider institutionalizing a formal audit of the voter registration data by an independent group. Such a regular audit can help detect any problems with the system, provide a strong incentive for the voter registration department to closely adhere to defined procedures and bolster political parties' confidence in the accuracy of the data.

Case Study: The Philippines

Ernesto de Rosario



An elections officer in Taguig City, Philippines, takes the photo of a woman registering to vote. Fingerprints and signatures also were collected from voters.

Introduction

Voter registration in the Philippines is a continuous registration process with an end-to-end automated registration system. Since the introduction of basic technologies more than 15 years ago, the voter registration process has continued to evolve. The goal of the Commission on Elections (COMELEC), the Philippine election management body, in implementing a computerized registration system has remained the same: to build and sustain a clean, accurate, complete, secure and updated system responsive to the demands of each future election.

This case study examines components of voter registration in the Philippines, including the Voters Registration and Identification System (VRIS) and the Voter

Validation System (VVS). It also considers challenges to voter registration in the Philippines more generally, such as voter identification, and identifies the advantages of the system in place. The study concludes with recommendations for EMBs considering the use of biometric technologies, based on the Philippine experience.

Background

The Philippine democracy uses a presidential form of government. The president is elected upon garnering a simple majority of the national votes for a single six-year term without re-election. The vice president is similarly and separately elected, but is allowed a single re-election. Congress is composed of the Senate and the House of Representatives. Twenty four senators make up the Senate, half of whom are elected nationally every three years for six-year terms. The House of Representatives has a total of 250 seats,[42] the majority of which are elected by district by majority vote. Twenty percent of the House seats are elected nationwide via the party list system using a first-past-the-post mode against a set percentage of total votes cast. Local officials are elected every three years, synchronized with national elections. Elections for the Autonomous Region of Muslim Mindanao, barangay (village) officials and the Sangguniang Kabataan (Youth Council) are also held every three years separately from national and local elections.

The COMELEC was established as an independent constitutional body. It is the premier guardian of the ballot. It enforces and administers all laws and regulations relative to the conduct of elections, plebiscites, initiatives, referenda and recalls. Periodic electoral exercises give meaning to the constitutional provision that "sovereignty resides in the people and all government authority emanates from them."[43] Based on this constitutional mandate, COMELEC has defined its mission to bring about an electoral process that will faithfully reflect the sovereign will of the people expressed through the ballot.

42 The constitution permits the legislature to change the number of seats within the House.
43 Constitution, Art. III, Sec. 1.

The integrity of voter lists is the logical starting point for an electoral process to faithfully reflect the collective will of the people expressed through the ballot. To address this challenge, in 1996, Congress passed the Republic Act (RA) 8189 for a continuing registration system and provided for the implementation of a new comprehensive registration system, particularly the establishment of precinct boundaries, drawing precinct maps and installing a voter identification system. Computerized voter lists were first used in the 1995 senatorial and local elections, but the old problems of confusion, voter-substitution and disenfranchisement persisted.

To combat those problems, in 2000, COMELEC conceived the Voters Registration and Identification System (VRIS). It was an ambitious but comprehensive project that would have cost US$123 million had it not been dropped at the last minute. It was an integrated end-to-end system that could have finally built a cleansed, complete voter database consciously designed to dovetail the project to automate Election Day processes with a highly secure tamper proof ID system as a by-product. The abandonment of the VRIS project put the modernization of the registration system in limbo for the next three years.

Finally in 2003, COMELEC launched the Voters Validation System (VVS) which is essentially a smaller VRIS project. The Voters Validation System addresses:

- Capturing finger prints of first-time voters
- Biometrics data of already registered voters
- Building a central voter database to generate the Voters Registration Record (VRR), the Posted Computerized Voters' Lists (PCVL) and the Election Day Computerized Voters' Lists (EDCVL)

This project is currently in the process of implementation. With the recent addition of the Automated Fingerprint Identification System (AFIS) component in the middle of 2009, the original objective of building and sustaining a cleansed voter database is now in sight, 10 years later. However, completion of capturing and cleansing all finger print data is targeted for 2013, 17 years after RA 8189 was passed. Despite it no longer being fully compatible with the use of technology, RA 8189 serves as the operating voter registration law. It was complemented in 2002 by RA 9189, which is the Overseas Absentee Voters law.

The objectives of VVS, with the addition of AFIS, are to:

- Ferret out double, multiple and spurious entries in the CVL
- Assign voters in permanent precincts according to their voting addresses or residence
- Provide a system of regular cleaning and updating of the CVLs and project of precincts
- Prevent disenfranchisement and voter-substitution on Election Day
- Re-engineer processes that will make COMELEC's organizational structure more attuned to a modernized electoral system

Components of Voter Registration

Legal framework

The Philippines' electoral system is governed by a plethora of election laws passed in installments over many years. These are:

- The Omnibus Election Law (RA 881, 1985)
- The Synchronized National and Local Elections Act (RA 7166, 1991)
- The Party List System Act (RA 7941, 1995)
- The Continuing Registration Act (RA 8189, 1996)
- The Election Modernization Act (RA 8436, 1997)
- The Fair Elections Act (RA 9006, 2001)
- The Overseas Absentee Voting Act (RA 9189, 2002)
- The Automated Elections Law (RA 9369, 2007)

Local elections are governed by the Local Government Code (RA 7160, 1991).

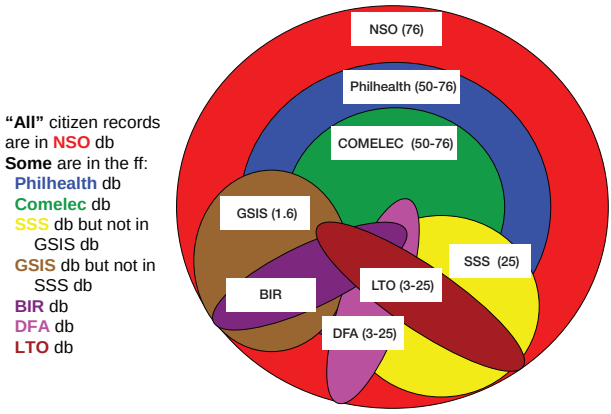
Established in 1940, the COMELEC is responsible for maintaining the list of voters. It is a constitutional body in which the chairman and six commissioners are appointed by the president for seven-year terms and confirmed by the Commission on Appointments composed of members of the Senate and House of Representatives.

Voter registry maintenance and data collection

Among the various government agencies that maintain registers are the National Statistics Office for population registry, the Government Service Insurance System (GSIS) for government employees, the Philippine Social Security System (SSS) for employees in the private sector, the Bureau of Internal Revenue for taxpayers, Philippine Health Insurance Corporation for health care beneficiaries (coverage is universal and will eventually cover the entire populace), the COMELEC for voters' personal records, Land Transportation Office (LTO) for drivers of land vehicles, Department of Foreign Affairs (DFA) for Philippine passport holders, etc.

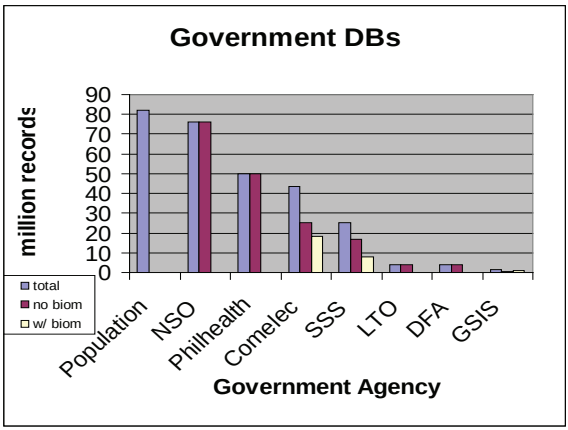
The COMELEC's voter database is not extracted from the population or any other registry. It is built from the ground up from the "live" capture of voter information, which requires the presence of the registration applicant. Shown below are profiles of the different major government databases. Figure 3 is a Venn diagram of the registry databases indicating the sizes in millions of records, how they overlap and exclusivities. Figure 4 displays the size of the different databases indicating what proportion have biometrics information and which do not. The nationwide voter registry profile is shown in Table 5 on page 108.

Figure 3. Philippines Government Databases



GOVERNMENT DATABASES

Figure 4. Government Databases by Agency



Voter identification and eligibility

An ongoing weak point of the voter registration system is identification of the voter prior to other voter information entering the system. Identification is based solely on the submission of any valid form of ID. Given the proliferation of fake IDs in the Philippines and the ease of having one produced, the true identity of each applicant cannot be assured with acceptable security. The applicant's birth certificate issued by the National Statistics Office should be the basic and mandatory identification document. It should be complemented by another valid ID with a photograph since the former has no recent photograph of the bearer. However, these requirements are not enforced, and in practice any valid ID is accepted.

Qualifications for voting are as follows:

- Filipino citizenship
- At least 18 years of age on Election Day
- Philippine residence for at least one year
- Residence for at least six months immediately prior to Election Day in the place where the voter intends to vote

Overseas absentee voters are exempt from the residence requirement if their domicile remains in the Philippines and they intend to return to the Philippines within three years of registering.

Table 5. Voter Registry Profile

		Registered Voters (RV)				Gender		Male by Age Group			Female by Age Group		
Island Group	Region	Total (Oct 2007)	RV by Island Group	% of RV by Island Group	RV by Island Group Projected to 20M	Male	Female	18-35	36-55	56 and older	18-35	36-55	56 and older
Luzon	NCR	6,039,543											
Luzon	CAR	840,003											
Luzon	Region I	2,627,050											
Luzon	Region II	1,735,563											
Luzon	Region III	5,471,830											
Luzon	Region IV	7,557,693											
Luzon	Region V	2,772,749	27,044,431	56.08	28,037,797	13,733,627	14,304,971	7,462,612	4,633,386	1,637,629	7,441,998	5,016,927	1,845,246
Visayas	Region I	3,916,326											
Visayas	Region II	3,661,471											
Visayas	Region III	2,340,901	9,918,698	20.57	10,283,021	5,036,886	5,246,135	2,736,955	1,699,321	600,610	2,729,395	1,839,986	676,784
Mindanao	Region IX	1,805,276											
Mindanao	Region X	2,230,537											
Mindanao	Region XI	2,383,123											
Mindanao	Region XII	1,896,712											
Mindanao	Caraga	1,307,954											
Mindanao	ARMM	1,641,792	11,265,394	23.36	11,679,182	5,720,761	5,958,422	3,108,561	1,930,043	682,157	3,099,974	2,089,808	768,640
Total		**48,228,523**	**48,228,523**		**50,000,000**	**24,491,274**	**25,508,728**		**8,262,750**	**2,920,396**	**13,271,367**	**8,946,721**	**3,290,640**

Voters are assigned to particular polling precincts on the basis of their address. Upon approval of their registration by the Election Registration Board they are notified by mail to which polling place and precinct they are assigned. The precinct number is also indicated in the voter's ID.

Data capture and procurement

The voter registration process in the Philippines is almost completely automated end-to-end. The efficacy of the solution as rolled out to date is not yet entirely clear. Voter data (demographics and biometrics including fingerprint, signature and facial data) are captured "live" using Data Capturing Machines (DCMs). The DCM is a PC-based workstation with the following peripherals: fingerprint scanner, signature capture pad and a digital camera for facial image capture. Data captured in the field are sent via CDs to the central data center for import, consolidation, database build up, alpha cleansing — which will eventually be done through AFIS — and generation of an Election Day voter list with with photos and paper IDs with simple security features.

Procurement of integrated field capture and central systems was done via a typical public sector procurement process that was not covered by the Procurement Law (RA 9184). No exhaustive field testing was conducted beforehand. Bidders responded to an RFP/TOR and their basic solutions demonstrated as part of the selection and evaluation process. The defined requirements were incomplete and the system developed was characterized by many unmet requirements. This situation generated a lot of problems in the field and at the data center when the system was implemented.

Overall, the selected technology faced many challenges over the years. Computer literacy levels of elections office staff were generally not satisfactory, although experience with the previous Computerized Voters List project was helpful. The climate in many sites was problematic especially with regards to digital cameras. At the height of the 2003–2004 capture campaign, half of the cameras became inoperable due to heat and humidity. The administrative environment in the field is also problematic for a typical field office since it is manned by only two people: the election officer and an election assistant. During

registration periods encoders are hired to help out, which creates some data security and control concerns. In many areas, politicians dislike the system as it is no longer possible for them to manipulate the list in their favor.

The VVS and the data capture system (DCMs) cost close to US$19 million in 2003; including the system deployed for registering overseas absentee voters. Attendant field and data center costs running into the hundreds of millions each year and totaling a couple of billion of Philippine pesos to date, have yet to be added. Unfortunately, good accounting of the attendant costs is nonexistent. The new system that will replace the VVS and DCM is costing COMELEC close to US$35 million. However, the system includes the AFIS facility that will finally conduct a true cleansing of the database through fingerprint matching at an accuracy rate of over 99.99 percent.

General IT capacity and funding

General IT capacity and competence are lacking in the voter registration process. The approved headcount is only about 20 percent of what it should be given the magnitude of geographic coverage, the massive size of the database (over 50 million voters to date), the frequency of elections (although generally on a three-year cycle, many other local, and regional elections and recalls are interspersed within that period), large-scale printing in short time frames to meet the needs of 250,000 precincts, over 250 districts, 1,631 cities and municipalities and 80 provinces. The competence of IT staff is a considerable challenge as funds for necessary technical training are scarce and work demands leave insufficient time for training for the IT component.

Given the above constraints, the development of automated systems is almost entirely outsourced. Only minimal system enhancements and programming are carried out by internal IT staff. In fact, the data center does not even have an application development system in its central data center. The VVS system is a proprietary system although its source code was never surrendered by the vendor who made the system, despite the fact that the contract clearly specifies that it is COMELEC who ultimately owns the system and has full access rights to it upon completion of the project (informally in October 2006). However, no

formal project closure ever transpired due to the vendor's failure to provide some deliverables despite years of appeal by the COMELEC. With the inception of the new and ongoing CVL Cleansing Project, it is hoped this issue will become academic as the old system will be entirely replaced by the new one. The bottom line is that there is currently no source code that can be inspected by stakeholders because the COMELEC does not have access to the source code. Perhaps the vendor of the new system will allow such inspection at some point.

Although it is an independent constitutional body, COMELEC depends on the government to fund its activities. By law it is prohibited from accepting any funding from any other bodies, including foreign entities. However, the COMELEC can fund the initiative to completion and ensure its productive use in the long term. Either the bulk of the required investment is already expended, or the subsequent project, will continue the VVS initiative which will deliver practically the complete functionality needed in the modernization of the registration system. What will remain is only the production of a high security ID, which is not mandatory to build and sustain a clean, accurate and complete voter database. The ID is simply a convenient by-product of the system.

Data capture and voter confidence

Voters willingly submit themselves to data capture; however, the tendency is to arrive en masse during the last few days of the registration period, thus straining the capture capacity of the system. This results in complaints that COMELEC does not have enough machines to cope with the large number of applicants. A large proportion of voters are more interested in obtaining IDs for purposes other than voting later on. The COMELEC ID emerged as one of the more trusted IDs by banks, companies and even foreign embassies, but is also the most faked ID. COMELEC assists in certifying authentication requests of the IDs via a few built-in security mechanisms such as the Voters Identification Number (VIN), which is acceptably unique to each voter.

Data are collected through the live capture of voter data from a pre-filled application form (see figures below for the field capture and the VVS central system). Applicants are asked to fill out the form and interviewed to determine the

Figure 5. COMELEC Registration Phase I

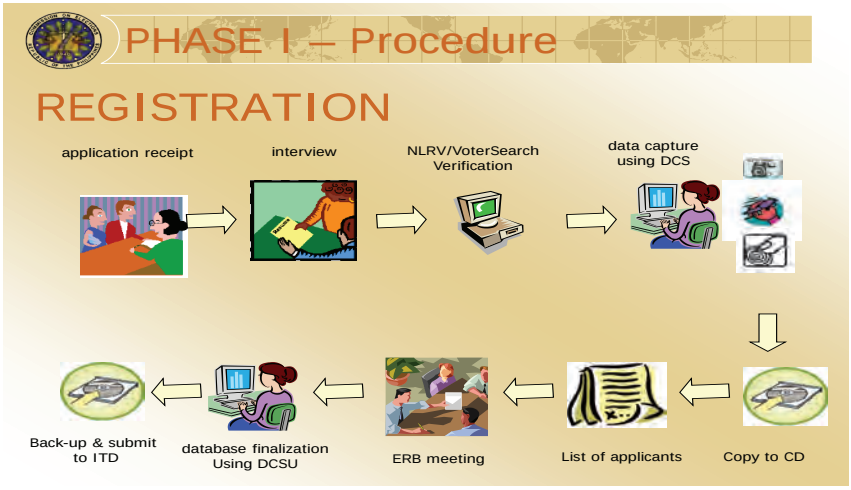
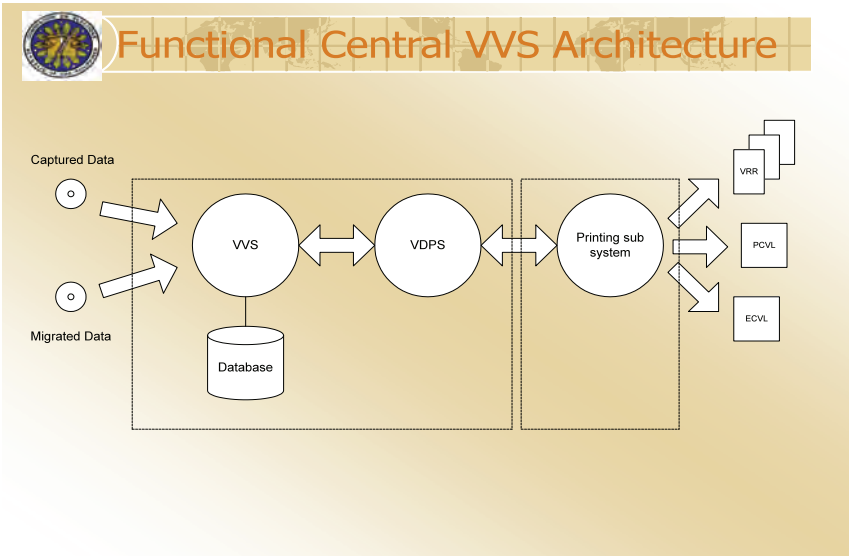


Figure 6. COMELEC Functional Center Voter Validation System Architecture



veracity of the data supplied and to clear up indecipherable entries. The applicant then goes to the capture workstation where demographics are encoded and biometric information is captured live. Encoding is a one-pass process with only cursory verification. This results in significant incidences of typographical errors and misspellings which are only detected at the central point, though errors must be corrected back in the field since the data center is prohibited from editing the data. Captured data for the day are backed up, written on CDs at weekly intervals (depending on the volume of data captured) and sent physically to the data center at COMELEC's Head Office. Training of the operators was done initially upon implementation, and refreshers are conducted each time the system is enhanced through personal field visits of the technical team from the data center.

Data maintenance

Voter data is maintained nearly continuously. Registration occurs in between periods of elections with a moratorium prescribed by law before Election Day. Additionally, some preparation time is allowed after an election and before registration resumes, and continues until the onset of the next prescribed moratorium for the next elections. Data are maintained and synchronized between the local and central sites. The concept of the Data Capture System as the "system of entry" and the central database as the "system of record" is a standing policy of the registration system. For control purposes, the Election Day final list of voters is only generated centrally from data submitted by the field.

Security, transparency and auditability

Stakeholders have the right to scrutinize voters and to file inclusion or exclusion petitions with the proper courts. Pending the passage of a privacy law, only internal COMELEC policies and measures are in place to protect privacy rights, which are very basic. Voter data is provided in only two instances:

1. When there is a court order compelling the provision of a particular voter's registration data
2. If the person requesting the information is the owner of the data himself

Because of the nature of the COMELEC voter database, which is the largest database with person-identifying biometrics information in the country, this has become a serious issue when external agencies request information — for example, when the police department is in pursuit of a crime suspect. To settle such concerns an Information Privacy Law must be passed by Congress.

Currently, only minimal security measures are in place to prevent or detect tampering. The hope is that the ongoing project that will replace the present system will consider incorporating adequate end-to-end information security mechanisms in the voter registration system.

Education and training

Each time an election looms, waves of civic and voter education suddenly occur. The recent initiative to automate Election Day processes dwarfs the effort employed in the voter registration campaign in terms of civic and voter education. This is one reason that even up until now many potential voters and old voters do not fully understand their roles, responsibilities and rights regarding voter registration. For example, many voters re-register whenever they transfer residence. This bloats the list of double registrants, and the voter has unknowingly violated the registration law.

User training is usually provided to relevant stakeholders whenever a new process, procedure or program is implemented. This is especially challenging to the IT department given that it has a very low headcount. A considerable attendant challenge is the geographic spread of the user sites. The limited number of technical people within the IT department, and the fact that several waves of trainings in many sites must be conducted, puts considerable strain on the IT department.

Engagement with political parties, civil society organizations, media and other government agencies

The Parish Pastoral Council for Responsible Voting (PPCRV), comprised of approximately 500,000 volunteers, is a nongovernmental organization (NGO)

whose main role is to help administer the voter list. PPCRV has helped COMELEC in voter training and manning of the precincts on Election Day, where it assists voters in looking for their assigned precincts.

In terms of political parties, interfacing usually happens more intensively whenever there are new changes to the process such as the automation of the registration process or the implementation of a new law pertinent to registration.

Media visit the commission daily. In fact, every major media outlet has at least one reporter assigned to cover the COMELEC. COMELEC is very open to media interviews and press conferences.

During election periods COMELEC is cloaked with enormous powers. It can request the use of resources from all government agencies including the military, police and all other public and even private entities if needed and reasonably justified. Public schools are the dominant polling sites for every election. The military and the police are enjoined to secure polling and canvassing sites as well as to provide logistical support such as the transport of ballots.

Advantages of the Voters' Registration System in the Philippines

Having had a completely manual mode of registration, the introduction of even basic computer technology more than 15 years ago definitely led to a net positive impact on the Philippines' voter registration process. The sheer volume of voter records — over 50 million to date with a 2.5 percent annual growth — is a compelling reason to automate the process. Whether this is cost-justified or not is unclear because no formal metrics were used in quantifying the real costs against the attendant quantified benefits. However, to prepare for each election across some 250,000 precincts nationwide, a cost-benefit justification may not even be called for. In managing an undertaking of such magnitude, the decision to automate the registration system or not boils down to a choice between an acceptable electoral event or an electoral event almost certain to be completely dysfunctional.

In actuality there were two waves in the application of computer technology that affected the Philippines' voter registration system. The first wave in the 1990s was a simple one-to-one sans process re-engineering conversion of the paper records into very simple and archaic digitized files (Xbase, Clipper 5.1 under DOS) in PCs at the local election office level. No consolidated central file was ever built, although backups of the local PC files were submitted to the central office solely for storage purposes of the 100,000 CDs.

Wave two, the Voters Registration and Identification System (VRIS), first attempted to completely revamp the end-to-end processes, the way data were captured, what data were captured, how files were built, cleansed and maintained, and what tangible output is generated. This first attempt, a five-year project circa 2000, was dropped for allegedly being too expensive and controversial. The second attempt for wave two (Voters Validation System or VVS) began in 2003 and is in scope a subset of the first, focusing on just the demographics/biometrics data capture, central database construction and alpha cleansing steps. The AFIS cleansing added in 2009 is just a recent addition.

After almost seven years VVS is still a work in progress, with 2013 foreseen as the possible endpoint of the project. In total, considering the first attempt in 2000, it will be a 13-year undertaking within a window of more than four national elections given that the Philippines basically has a three-year elections cycle. By any measure, this is too long and expensive, not to mention the negative impact of relying on an inaccurate and unreliable voters' database in four elections. This could have been completed in less than half the time had the 2000 attempt pushed through. In essence, the Philippines' registration system is not a hybrid one, but an integrated automated system with an extended completion schedule.

Design Attributes of an Ideal System

Figure 7 is a summary of the design attributes of the ideal Philippine voter registration system driven by equal voting rights as the core enabling principle.

Figure 7. Equal Voting Rights

Attributes of and Enabling Mechanisms for a Voter Registration System that Employs Equal Voting Rights as its Core Principle	
All qualified voters should be listed, and listed once	• Strong replicate discriminating capability • Highly accurate cleansing via AFIS or multi-biometrics • Voice biometrics for OAC • Efficient, responsive and secure capture and listing capability • High security and integrity capture system • Adequate resources for capture, transfer, reactiviation and correction • High integrity and efficient data transmission capability • Efficient, responsive, comprehensive and secure purging/deactivating capability for: - Deceased - Declared insane - Felons - Did not vote in two successive elections • Strong database security, high reliability, high availability, assured resilience against disasters and fast recovery from disasters • High quality information governance standards in place • Remotely sited business continuity facility
Only qualified voters for a specific election should be able to vote in only that specific election (no disenfranchisement and no flying voters[i])	• Strong voter right-to-vote verification capability • Stand-alone, on-site Election Day biometrics-based voter screening feature of voting system *or* an online, real-time biometrics-based voter system at voting point • Effective voter education and information dissemination system • Effective and responsive voter precinct assignment search system
Qualified voters can only vote once in the same election and only in the contest and location where they are qualified to vote	• Accurate, secure and timely precinct assignment system at central database • Accurate, secure and timely downloading of precinct assignments to the voting sites • Application of geographic information system (GIS) in managing precinct assignment of voters **Special challenge for the 2010 automated elections** As a transitory provision through an amendment of RA 8189, make a provision for mandatory voter validation for old voters who failed to validate in 2003 for a certain period before the 2010 elections.

i - A person who resorts to multiple registrations at the behest of unscrupulous politicians.

	Due to time constraint, the 2010 target for a completely AFIS-cleansed voter list is no longer achievable, but the need for the suggested mandatory validation for old voters should still be implemented immediately after the 2010 elections up to 2013. This is key to completing the capture of all biometrics information of all voters who do not have biometrics data in the database; otherwise, the presence of voters with no biometrics which cannot be subjected to AFIS matching will remain in the database indefinitely, thus preventing a 100 percent AFIS-cleansed voter database.
The registration law should have enough "teeth"	Make any attempt to tamper with or fraudulently manipulate the voters list at any level an election offense punishable with a jail term and a fine. An amendment to RA 8189 and RA 9189 similar to RA 9369's on the matter can be adopted.
Data Management Policy	The Data Capture System (DCS) shall be the official "system of entry" and the Voters Validation System (VVS) central database the official "system of record" for the entire voter registration system. The Posted Computerized Voters List (PCVL) and the Election Day Computerized Voters List (EDCVL) will be extracted, built and sent to the precincts from this system. The centrally machine-generated Voter's Registration Record (VRR) shall henceforth be the official VRR. This policy will place complete control of the intermediate PCVL and final EDCVL at the COMELEC central data facility.

Impact and System Assessment

Impact assessment

The strategic intent of COMELEC in modernizing the electoral system was conceptualized about 12 years ago. It was documented and duly promulgated by the en banc in what it aptly called Operation MODEX (modernization excellence). Put simply, COMELEC resolved to adhere to its primordial mandate of conducting clean, honest, orderly, peaceful and credible public elections. This time, however, with the judicious application of adequate and cost-effective technologies (within a carefully architected solution set) and the use of enlightened management

principles. In contrast, COMELEC repeatedly fell victim to the common pitfall of racking up “islands of automation” in the past. The new program committed to abide by a comprehensive modernization framework and a fully integrated approach to automating the registration, voting, counting and canvassing stages. The emphasis was shifted from looking at only pieces of technologies and products to finding long lasting, stable and integrated solutions to the problems that kept the commission from satisfying its primordial mandate. Automated registration is just one cog in the “machine” of modern elections that will eventually satisfy such a mandate.

The goals of COMELEC in implementing the computerized registration system can be simply stated as: to build and sustain a clean, accurate, complete, secure and updated system responsive to the demands of each future election. The objectives were clear and technically, legally and operationally feasible within the five-year project timetable allotted for the undertaking (2000-2005). To date, this has not become a reality for many reasons. First, the 2000 VRIS was scrapped due to controversies. That put the project in limbo for the next three years so that VVS began only in 2003. VVS is basically VRIS sans the AFIS component and the generation of high-security tamper-proof plastic voters IDs.

The bottom line is that even if the solution and approach were correct, ensuing delays put the project to date at a projected eight-year delay. What could have been done in 2005 under VRIS is now projected to finish in 2013. In the process, the system was not productively used in 2004 and 2007 and was not used in the most recent 2010 elections. The root factor delaying completion of this project is political will at the executive, legislative and COMELEC levels. The will to provide and run after the funding for the project was at best tepid over the last 10 years. Even today, funding for the AFIS component was just a last minute add-on to the elections automation budget. Over this period of delays, the population of voters grew from 35 to 50 million, hence the elusive catch-up situation the COMELEC is confronted with in trying to complete a project which started out in 2000. By 2013 the database size may reach 55 million.

System assessment

As mentioned earlier, an ongoing weak point of the system for identification of the voter is the process of pre-identifying voters. Though the process of pre-identifying eligible candidates is supposedly facilitated by the computerized registration system, easily done both at the local election office and at the central office, the process is not being applied productively. Unfortunately such facility still needs buy-in from the users. A painful example of its efficacy is the recent disqualification of 56 local candidates for the 2010 elections in Maguindanao, which unfortunately was not addressed by the concerned election officers and the Law Department until it was too late. The disqualification was based on the strength of certifications of the election officers that these 56 filers of certificates of candidacy are not registered voters, which input the Law Department swallowed entirely. The disqualification was already decided on by the en banc on the basis of the Law Department's recommendation to the effect and is the subject of a promulgated and published resolution taken up by the media. Upon belated verification from the central and local VVS databases, it came out that only four of the 56 are indeed not registered voters. The remaining 52 were unfairly disqualified due to the lack of due diligence in verifying the information from the databases. As a result, COMELEC must retract the resolution and reinstate the disqualified 52 candidates. Meanwhile the concerned election officers who falsely certified that all 56 candidates are not registered voters were recommended for firing.

On the matter of pre-identifying eligible political party members, party affiliation is not conducted through the registration system as the system does not contain any information pertaining to party affiliation. Instead, party affiliation is recorded manually by the Law Department via documents submitted during the period of filing of certificates of candidacy.

In terms of control, the local and central databases somewhat contributed to maintaining integrity of voter data. This is not yet as effective a system of control as desired. The complete capture of the biometrics of "old" voters (voters already registered before the roll out of VVS) and cleansing of the complete database via AFIS are projects still in the works.

Voter IDs are generated by the central system on a regular basis. This process was recently suspended and will resume pending AFIS cleansing of the database. Identity certification is regularly conducted at the local and central offices upon voter request. Ad hoc reports culled from the central database are also facilitated.

Planning for polling sites is easily done at the central level through ad hoc querying or reports. A regular function of the system is producing a voter list to expedite polling site processes on Election Day, and for the purpose of generating proof of right to vote. The two types of lists generated are: the Posted Computerized Voters' List (PCVL) and the Election Day Computerized Voters' List (EDCVL). The PCVL is the preliminary listing created for verification by the Election Offices from which a final listing, the EDCVL, is generated.

The EDCVL identifies who has or has not voted since these lists are grouped by precinct and are signed and thumb marked by each voter after voting. This makes it easy to verify who has and has not voted. Voter registry information is made available to political parties and candidates at a minimal fee to cover supplies costs.

To improve transparency, lists are periodically provided to the public with consideration of voter privacy. Additionally, these lists are available upon formal request for a minimal fee to recover supplies costs.

Such information is not normally provided for non-electoral purposes unless there is a court order. The policy is that voter data will be provided in only two types of situations:

1. When the owner of the information is the one requesting it
2. When there is a court order

Pending the passage of the Privacy Law, this policy will remain.

Technology responsiveness

The system has somewhat improved transparency in the registration process at this point. Until all biometric data are captured and the entire database is cleansed, the desired transparency will not be achieved.

Stakeholder participation was nonexistent in the decision on the procurement of the new technology since much of the stakeholders' attention was focused on the automation of Election Day processes.

The "soft" elements of the overall investment such as staff training, quality manuals, service arrangements and public acceptance initiatives are not given adequate emphasis and importance. Most often these elements are afterthoughts attended to only when external pressure is exerted on the agency regarding these issues.

Conclusion

On the cultural and political fronts, the prevailing candidate's and his supporters' attitude that "an elected position is something worth dying (and even cheating) for" dictates the use of a technology that can effectively bar such shenanigans at the voter list level. In fact, it should dictate which technology and security safeguards to use in voting, results transmission and counting processes starting from verifying the voter's eligibility to vote and identity. In the Philippines, the whole gamut of fraud-prevention solutions is theoretically justifiable. Only costs temper the extent and degree of use of these fraud deterrents.

EMBs seeking introduction to voter registration technologies can benefit from the lessons learned from the Philippine experience. Specifically, the most relevant lessons learned can be summarized into four areas:

1. Begin the process to automate early and do not wait for the voter list to grow to the level where the project becomes a massive and expensive undertaking to avoid falling behind
2. Plan the project by carefully looking at the technologies that can be justifiably used with a reasonably short implementation window; prolonging the timetable puts the EMB behind schedule on staying current with a growing population size
3. Assure that continuous and sufficient project funding is available every step of the way

4. Implement computerized registration and the Election Day systems along the OASIS/EML (election mark-up language) standards; this will make the EMB resilient to technology changes and assure that interfaces among the components of these major EMB processes are smooth

Further, a biometrics-based solution may or may not be necessary depending on the country's elections culture. In the Philippines, a proof-of-concept AFIS pilot conducted in 2003 in one region resulted in the discovery of a 7.5 percent bloat in the voter list, proving a real need for such technology. If extrapolated to a national scale, this translates to enough fraudulent votes to possibly elect a president in a tightly contested election. An online system has great value, but is dependent on the level of penetration of a country's data communications facility. If the civil registry system and database are good enough for required voter list accuracy and integrity, the latter can very well be just a subset of the former. In the Philippines, the civil registry still consists of a computerized document image records (scanned from citizen birth/marriage/death hardcopy documents) retrieval system. This makes it basically impossible to be effectively used by COMELEC as a source of computer-processable digitized basic citizen records. This is a major weak point in the country's voter registration system. The registration process does not strictly impose the submission of an applicant's birth record upon registering for the first time. Any "valid" ID is accepted despite the well known fact that fake IDs proliferate the country. So in effect, the claimed identity (using the "valid" ID) of the applicant versus the real identity as established by an authenticated birth certificate is not necessarily established.

Continuous or Civil Register

Voters in India show their identification cards.

Introduction

There is growing interest in a move to various forms of civil registration that consolidates various government databases and other sources of data. Logic suggests that having a single agency responsible for all registration of persons and continuous maintenance of a single database used for many different purposes will see gains in efficiency and accuracy.

Case Studies

The challenge is that the different sets of data and different agencies that depend on that data may have different goals and different, sometimes conflicting, requirements. Using a government-controlled database as the basis for

conducting elections may substantially ease the burden on the EMB; however, this practice raises additional issues that must be addressed.

Election timelines are typically much less flexible than those of other government processes and the voter register may not be a central priority for the agencies responsible for maintaining the data. There are legitimate political concerns, as opposition parties may look askance at data provided by a government, suspecting the data reflects a bias toward larger numbers of those who support the governing party.

Georgia is a relatively new country, having declared independence from the Soviet Union in 1991. In the brief 20 years of its independence, Georgia made several attempts to create an accurate and politically acceptable voter register. In the face of ongoing criticisms by civil society and complaints by political parties, the government passed a law in December 2005 creating a civil registry agency. The new agency is responsible for almost all databases of persons required by the government, including registration of births, marriages and divorces, deaths, changes in civil status and passports, and it is responsible for providing that data to the Central Election Commission to form the basis of the voter register. The case study describes the process of data sharing between the civil registry agency and the Central Election Commission, identifying issues that still need to be addressed.

The Canadian national register of electors, while not technically a civil registry, involves the coordination of data with a number of large national databases. These include databases maintained by the revenue agency, the postal system and citizenship and immigration agency, agencies responsible for issuing drivers licenses in all provinces and territories, and all provincial and territorial electoral agencies. This consolidation of data sources was designed to replace a house-to-house canvass exercise that was conducted before each election prior to 1996. Canada has some unique requirements for voter registration maintenance. The system is one of passive registration, with the burden of responsibility placed upon the state to ensure enfranchisement of all voters. However, all persons also have a right not to appear on the voter register. The case study identifies a number of actions taken by Elections Canada both to measure and to build public acceptance of this new method for managing the voter register.

Case Study: Georgia

Shalva Kipshidze

A polling official checks the identity of a voter against a voters list in Gardabini, Georgia, in May 2010.

Introduction

During the preparation for this case study in January and early February of 2010, the author held several meetings with the now former chairman of the Central Election Commission (CEC) of Georgia, Levan Tarkhnishvili, the staff of the CEC and non-governmental and international organizations, such as the International Society for Fair Elections and Democracy (ISFED), the United Nations Development Programme (UNDP) and the International Foundation for Electoral Systems (IFES). The case study also uses several documents related to the voter registration process from recent years kindly provided by the CEC, non-governmental and international organizations, and various media publications. Utilizing these resources, the case study outlines the process of sharing data between the Civil Registry Agency (CRA) and the CEC. It discusses

issues of identity; security, transparency and auditability; and issues specific to the combining of lists. Commenting primarily on the processes surrounding the 2008 Georgian parliamentary and presidential elections, the study concludes with recommendations related to access, synchronization and cleansing of the lists.

Background

Georgia has a comparatively short history of running free and fair elections. Only after independence, gained following the collapse of the Soviet Union in 1990, were the first elections conducted and preliminary thoughts given to the formalization of electoral institutions as well as permanent voter lists. In 1990, during the elections of the Supreme Council of Georgia, the first register of voters was provided by public offices of regional, city, district and village councils. Collected data was handed over in the form of typed or handwritten lists to the Precinct Election Commissions.

In 1995, the government, self governance and governance bodies of Georgia started collecting voter data and providing Provincial Electoral Commissions (PECs) with typed and handwritten voter lists. Beginning in 2001 the data were collected and assessed by the appropriate District Election Commissions (DECs). The data were collected on the basis of information provided by the Ministry of Interior, Ministry of Justice, local self-governance institutions and consulates of Georgia. In addition, lists of voters from medical establishments, preliminary detention and military establishments were included. Internally displaced persons (IDPs) were also part of collected data.

In 2003 the first attempts were made to collect and computerize typed and handwritten voter lists provided by the Ministry of Interior. The centrally based computerization process was conducted by the CEC and supported by USAID through IFES. The process revealed serious problems with the lists provided by the Ministry of Interior. These problems were very diverse and resulted in the abandonment of the project by the CEC prior to the 2003 parliamentary elections.

Since 2004, following radical changes triggered by the Rose Revolution, a continuous passive voter registration system has been established. The system has been assessed with various degrees of approval from voters, political parties, non-governmental and international organizations. In very broad terms, the system implies that all citizens of Georgia are automatically registered as voters based on their birth documents, assigned to precincts based on a citizen ID and permanent residence/address assignment (in the case of refugees and IDPs, based on temporary residence) and removed from the list of voters based on a death certificate or ineligibility to vote. For those voters without a permanent residence, the CEC is creating special PECs. The system also implies that based on legislation, periodic updates (four times annually since January 2010) to the list must be implemented continuously as a joint effort between the different state agencies and finalized by the CEC.

Continuous registry does not imply, however, the possession and use of voter registration cards of any sort. Instead, each voter is identified at the polling station using a citizen's ID or passport.

Since 2004 significant changes to the legal framework and to the structure of collecting the voter registration data have been made. However, the standard challenges that hamper combined civil and voter registers worldwide are apparent in the list of voters in Georgia as well.

Legal Framework and Eligibility

Based on constitutional universal suffrage regulations, the list of voters "is a list of persons with an active electoral right, who are registered in a manner established by legislation according to election precincts."[44]

According to the legislation, all citizens 14 years of age and above are registered to their factual dwelling place and receive the Georgian citizen's ID card. The Civil Registry Agency (CRA), which operates under the Ministry of Justice of Georgia,[45]

44 Organic Law of Georgia — Election Code of Georgia, Chapter II, Article 9.1.
45 http://www.cra.gov.ge

performs the registration, runs the database of registered citizens and issues ID cards and other supporting documents. The CRA, along with other governmental bodies and agencies, discussed below, have an obligation to pass the up-to-date databases of citizens 18 years of age and above at the moment of submission to the CEC[46] of Georgia twice a year.[47] Recently Chapter Two of the Election Code of Georgia has been amended and all agencies including the CRA have a new obligation to provide the CEC with up-to-date databases four times a year (1 February, 1 March, 1 August and 15 November).[48]

"Based on constitutional universal suffrage regulations, the list of voters 'is a list of persons with an active electoral right, who are registered in a manner established by legislation according to election precincts.'"

The CRA has its own requirements and process for issuing citizens' ID cards and registering citizens into its database. In order to be registered as a citizen, individuals must present the certificate of birth and documentation certifying place of residence (ownership, co-ownership, etc.) or consent of the owner of the place of residence at the territorial office of the CRA. The following information is collected and entered into the CRA database: name, surname, date of birth, place of birth (all in accordance with the birth certificate) and place of residence. The CRA will also collect and assign the following information: the date of registration, personal number (a unique identifier for the individual and for other purposes such as driver's license, etc.), serial number and ID number, date of issuance and the period of validity for the ID. Persons with no permanent place of residence are registered according to the factual residence.

Since the CRA citizen registration database cannot cover some of the groups for which the CEC requires information — internally displaced persons, the

46 www.cec.gov.ge

47 Organic Law of Georgia — Election Code of Georgia, Chapter II, Article 9, Paragraph : "For the purpose of updating the general list of voters the institutions indicated in paragraph 5 (subparagraphs a-e) of this Article shall, on February 1 and August 1 of each year, furnish the updated or new data on qualified persons to the Central Election Commission of Georgia. The latter shall, based on this information, ensure the updating of the electronic database of the general list of voters".

48 http://www.cra.gov.ge/index.php?lang_id=ENG&sec_id=49&info_id=1151

deceased, those deprived of the right to vote, persons under provisional arrest, servicemen, émigrés — the following governmental agencies are also legally obliged to provide up-to-date information to the CEC: Ministry of Refugees and Settlement and its territorial agencies, Ministry of Defense, Ministry of Internal Affairs, Ministry of Foreign Affairs, Ministry of Labor, Health and Social Affairs, Supreme Court of Georgia and local self-government and government bodies.[49]

Registration of voters in Georgia is categorized as passive since voters are not required to register. Rather, all citizens are automatically registered as soon as they become of suffrage age. However, each citizen may check the accuracy of the data in the register of voters and request changes in case of inaccuracies.

All of these efforts in the years following the 2003 Rose Revolution have consistently improved the legal and practical basis to form a combined civil and voter registration system acceptable to all parties involved in the election process. The number of participating state agencies in forming one list maintained by the CEC is also consistently growing. However, there are significant shortfalls and difficulties in any combined voter and civil registration process,[50] and Georgia is no exception as revealed by numerous and recent research efforts undertaken by international organizations and Georgian NGOs.

During extensive interviews and research, a significant number of shortfalls and existing and potential problems in integrating data from several independent sources into one register were discovered and are discussed below.

The Components of Voter Registration and Maintenance of the Data

As mentioned above and as dictated by the recently amended Election Code of Georgia, the CEC bears final responsibility for the computerization of voter lists based primarily on the following data:

49 Organic Law of Georgia — Election Code of Georgia, Chapter II, Article 9, Paragraph 5.
50 See: Michael Yard, "Civil versus Voter Registries: Legal and Practical Considerations for Georgia", IFES, 2008.

- Data sources of territorially registered citizens of suffrage group from the CRA of the Ministry of Justice of Georgia (as of 1 February 2010, CRA identified and handed over to the CEC the list of 3,587,425 eligible voters)
- Data concerning deceased persons from the Ministry of Labor, Health and Social Welfare and Ministry of Internal Affairs, supplemented by the data from local self-governance and governance bodies
- Data concerning IDPs provided by the Ministry of Refugees and Settlement
- Data concerning ineligible voters, citizens deprived of their voting rights and persons in preliminary detention supplied by various sources including Ministry of Internal Affairs, Supreme Court of Georgia and other related governmental agencies

The above sources of data are integrated into one unified database, and voters are assigned to correct polling stations based on their actual residence as indicated in their citizen ID.

The unified voter register of Georgia is maintained and continuously updated based on the above sources by the CEC of Georgia. The CEC publicizes the lists on its website and provides citizens with the option to check the correct allocation of each registered voter using an SMS service that is supposed to be advertised well before the election takes place.

Identity

Based on the unified voter lists, the PEC issues a ballot paper when the voter presents a citizen's ID or Georgian passport on Election Day. While issuing the ballot paper the following data is checked against the voter list: name and surname, date of birth, place of registration (permanent address on citizen's ID, temporary address for IDPs, consular registration for persons abroad in case of national elections), personal number of citizen of Georgia and validity of citizen's ID or passport.

Security, transparency and auditability

Since 2006 there have been numerous audits and verification campaigns of voter lists conducted by NGOs, political parties and by the CEC itself.

On 12 September 2007 the CEC voted for provision N5/2007 which provided terms for creating special groups and set conditions for field activities of the CEC to conduct a nationwide campaign for improving voter lists. This campaign was mainly focused on door-to-door verification of voter lists across Georgia and identifying problematic geographical areas and other issues. This process was observed by the Georgian NGO International Society for Fair Elections and Democracy (ISFED) in close collaboration with the Council of Europe (CoE).[51]

ISFED conducted several audits of Voter Lists between 2006 and 2008 with the help of the Organization for Security and Cooperation in Europe (OSCE) and the CoE. During an interview on 1 February 2010 with ISFED Director Eka Siradze, it was indicated that ISFED is seeking funding to conduct further audits of the lists and to continue comparative analysis of the data as well as door-to-door investigative work.

In February 2008 ISFED and the CEC signed a Memorandum of Cooperation stipulating an active cooperation in the process to improve the unified voter lists. The memorandum also provided ISFED, for the first time, with exclusive rights to access the full version of the voters lists, including voters' personal ID numbers, which is kept confidential in all other cases. This enabled ISFED to start the proper process of the audit. First findings during the logical checking of the lists have revealed a significant amount of incomplete data. Errors identified included:

- Entries without the voter's first name
- Entries where the voter's name had fewer than two symbols (Georgian names very rarely have only two symbols)
- Entries where the voter's last name had less than three or four symbols
- No address information for the voter (although allocated to one or another PEC)
- Addresses with fewer than three symbols
- Obvious address mistakes
- No birth dates

51 Voters' List Audit, ISFED, Tbilisi, 2008.

- A small number of voters who would not turn 18 until upcoming parliamentary elections
- Voters with invalid personal ID numbers (zeros)
- Duplicates of ID numbers

In April 2008 after an exchange of findings with the CEC, ISFED was provided with the corrected version of voter lists. The updated version contained a decreased number of voters identified as deceased (from 435 to 141), voters older than 110 years of age, voters younger than 18 years of age and still one case of an invalid personal ID number. However, all duplicates were corrected and removed from the list.

In June 2008 ISFED began preparation for the full scale audit process. International consultants helped to finalize the concepts of sampling and methodology. The methods used in the audit process were internationally recognized, both list-to-people and people-to-list methods. The total number of interviewed respondents for the list-to-people method was 4,311 and for the people-to-list method, 4,261. The final margin of error was +/- 1.5 percent with a 95 percent level of confidence. The following three criteria were the aim of the voter list audit process:

- Comprehensiveness — proportion of eligible voters included in the list (people-to-list test)
- Currency — stating if the information was updated in a timely fashion (list-to-people test)
- Accuracy — the rate of error in names, addresses, gender and the date of birth using both tests

The proportion of eligible registered voters was 98.7 percent. A small proportion of voters (0.33 percent) were unregistered. Regional dissemination of the proportion of unregistered voters was also approximately equal across the country as well as between female and male registrants. The largest number of inaccuracies occurred in the address information for voters.

ISFED concluded that constant monitoring of the lists by civil society is the best way to ensure that activities for the improvement of voter lists are engaged in by all involved state agencies, not only the CEC. Despite the fact that ISFED recognized that the 2008 VLA results showed significant improvement in the quality of voter lists compared to the 2006 results, it has strongly recommended further improvements in the following areas:

- Internal migration and emigration
- Registration of ethnic minorities
- Transparency of the CRA and the CEC in compiling the voter lists

The director of ISFED also stated that the same access to the list of voters that the CEC has granted to ISFED must be granted by the CRA in order to have a full picture of the audit result. Unfortunately, at the moment the CRA has not granted such access to confidential data; however, ISFED is still continuing its work in this regard.

Issues occurring during the process of combining lists by the CEC

During the meeting with CEC Chairman Levan Tarkhnishvili and CEC staff, a number of issues were identified as critical during the process of combining voter lists received from the CRA and other state agencies as well. The most critical area identified is the capture of accurate address and geographical data.

Currently the CEC and the CRA are in the process of synchronizing the address tree. It is understood that such a process will result in identical coding of addresses of voters according to the DECs, PECs and places of residence. For this purpose, online connection between the CEC and the CRA has been established. However, the extent to which the process will be transparent and auditable is unclear.

A serious problem faced by unified voter lists is the high internal migration in combination with high illegal migration to foreign countries. This situation led to different political speculations. During the meeting with different stakeholders,

illegal (thus not registered anywhere) internal and external migration has been identified as a major problem which could be very difficult to address using the current registration system. The difficulty is that all citizens of Georgia receive the citizen's ID and passport at some point and effectively become part of the CRA Civil Registry. However, being a Georgian citizen in a large number of cases does not imply that all voters are present for elections in Georgia. It is speculated that over 1 million Georgians are living abroad illegally. Illegal emigrants are almost never registered in Georgian consulates for fear of deportation. Since illegal immigration implies that there is no possibility to move from the host country back to Georgia until deportation or a willful return to the country, they do not participate in elections in Georgia or in Georgian consulates in foreign countries. In most cases illegal émigrés appear in CRA databases and subsequently in unified voter lists.

"Most of the feelings of opposition nowadays towards voter lists in Georgia are connected with the possibility of inflated voter lists rather than with the previous fear that voters are not registered."

During the 2008 Voter List Audit (VLA), ISFED observed that out of 1,277 cases of un-conducted interviews, when respondents could not be found at the residing address indicated in the unified voter list, 37.3 percent of respondents were:

1. Previously residing at this address but currently living abroad (20.9 percent)
2. Previously residing at this address but not living there anymore (16.4 percent)

Both of these factors indicate the possibility of illegal immigration, since the Ministry of Foreign Affairs' lists of Georgian citizens registered in Georgian consulates abroad could not cover those cases during the implementation of data cleansing of the unified voter list.

Most of the feelings of opposition nowadays towards voter lists in Georgia are connected with the possibility of inflated voter lists rather than with the previous fear that voters are not registered.

Since the data sources of the voter registration are dispersed, the CEC faces significant computerization difficulties. There have been address information and naming convention conflicts between several databases. Unless steps are taken to use unified address information, it will become increasingly difficult and unsustainable for the CEC to use data cleansing methods several times a year. Numerous issues have been identified during the integration of different sources of information. It is clear that work needs to be continued for the improvement of the integration process. Identification of one uniform system of databases would reduce and eventually eliminate possible primary key and other referential data integrity issues. Thus, despite the fact that the following can be difficult to achieve in the near future, it is of essence that the CEC, as the body responsible for the maintenance of voters lists, demand uniform data fields and clarified and up-to-date address databases be used across IT systems of the main providers of data sources. Despite the fact that the CEC and the CRA are known to be working on integration issues (newly implemented online synchronization system), the process does not seem to be transparent enough yet to enable independent audit of this endeavor.

Conclusion

In the ongoing process of unifying the voter list in Georgia, the following recommendations, based on issues identified throughout this case study, ought to be considered.

Increased access to Civil Registry Agency records for voter list audits

The CEC provided full access (including personal numbers of citizens, otherwise non-public information) to ISFED for its comparative studies conducted in 2008 with funding from the CoE and the OSCE. During an interview with the director of ISFED in early February 2010, it was revealed that the same access was not granted to the Ministry of Justice Civil Registry Agency records. For successful future audits of voter lists, it is essential that ISFED and/or other non-governmental organizations are able to access the Ministry of Justice Civil Registry Agency records for comparative data analysis.

Synchronization of address tree between organizations

It is essential that the address tree is synchronized between the CRA and the CEC. It is also essential that such synchronization is eventually implemented between the CEC and other governmental agencies providing databases for the unified voter lists. It is also important that such endeavors are accessible for independent audit.

Address the issue of illegal émigrés

CRA data possibly includes a large number of illegal émigrés. The issue has to be systematically addressed by the CEC and other related government institutions.

Removal of deceased from the unified voter lists

In 2009 significant work was done by the state in order to synchronize receipt of information on deceased citizens. In most urban areas no burials take place unless the certificate of death is issued (graveyards are monitored by the authorities) and no certificate of death is issued unless the police are notified immediately following the death of the citizen. Subsequently, most urban areas have an up-to-date register of deceased citizens. This proved not to be the case necessarily in rural areas. In fact many deaths are followed by burials with no notification of the authorities since graveyards are not necessarily monitored by the authorities in rural communities. This results in deceased citizens still appearing in the unified voter list. Further work needs to be conducted with local self-governance and governance bodies addressing this issue and normalizing the process.

Case Study: Canada

Gabrielle Bardall

Quebec Liberal leader Jean Charest, standing right, and his wife, Michele Dionne, register to vote in their home riding of Sherbrooke, Quebec, Canada, in March 2007.

Introduction

Voter registration in Canada is based on the principle that registration is primarily a state responsibility and, as such, the state must provide a maximum of opportunities for electors to enroll. In a context of changing technologies and social realities, the Canadian Federal Government undertook an extensive modernization reform in the mid-1990s, moving to an "open list" or "continuous" approach to voter registration. The system capitalizes on the wealth of technological changes that took place in the last decade, including the digitalization of public records, the availability of custom software for analyzing and cleaning database information, and data-sharing applications. Fifteen years after its introduction and five general elections later, the resulting program has significantly reduced costs and administrative redundancy and improved the

accuracy of the voter lists. This case study examines the steps taken in the creation of the National Register of Elections, the maintenance of the Register, and its targeted revision that helped to reduce costs and improve accuracy.

Creation of the National Register of Elections

The Canadian National Register of Electors is a permanent database of Canadians who are eligible to vote. The voter register contains basic information about each qualified voter, including name, address, gender and date of birth as well as a unique identifier assigned to each elector to help track changes in his or her personal information. The register is used to establish the voter lists for all federal elections. It is established and maintained by Elections Canada, the federally mandated, independent, non-partisan electoral body responsible for organizing all national-level elections, by-elections and referenda.

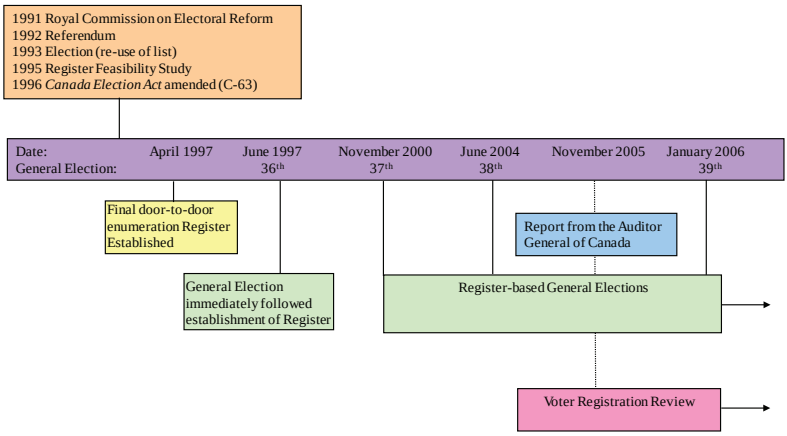
The permanent register was first created following the March 1996 federal by-elections, replacing the post-writ system that had been in place since 1930. The post-writ or enumeration system called for house-to-house canvassing before each electoral event by approximately 110,000 enumerators (for federal electoral events) who determined the eligibility of voters and generated a preliminary electoral list. However, by the mid-1990s the costly and time-consuming enumeration system was quickly becoming outmoded. The recruitment of the 110,000 enumerators had proved to be an increasingly difficult task while finding voters at home was becoming equally problematic, due to security concerns for both residents and enumerators in going door-to-door. Administrative duplications of enumeration between the federal and provincial and territorial levels were also efficiency and cost concerns.

In the late 1980s and 1990s, Elections Canada launched an analysis of the voter registration program, with a focus on identifying economies and improving cooperation with other jurisdictions to reduce duplication, leading to the modernization of the list. At the time it was being deliberated by the Senate Committee on Legal and Constitutional Affairs, six key founding principles of the permanent register were established:

1. Registration should be primarily a state responsibility
2. Voters should be able to register after election writs are issued, including on Election Day
3. A register of voters should be adopted only if it is nearly as efficient as an enumeration [quality of information]
4. Voters should have the right not to be registered and not to inform the state of their movements
5. Voters should have the right to have their names or addresses deleted from a voters registry at any time
6. Once the information has been entered into the voter register, it must be managed according to the strictest criteria for preserving [voter] privacy and confidentiality[52]

Since the introduction of the federal registry, a significant number of provinces have joined Canada and British Columbia (which has a long history with continuous registration) in using permanent lists, including Alberta, Ontario, Quebec, Newfoundland and New Brunswick. The clear and decisive move towards permanent voter lists across the country reflects the compound gains

Figure 8. Evolution of Register-based General Elections



52 From the proceedings of the Senate Committee on Legal and Constitutional Affairs, December 10, 1996. www.parl.gc.ca/english/senate/com-e/lega-e/42ev-e.htm, p 2.

and cost savings achieved through partnerships of a coordinated federal-provincial approach.[53]

A final enumeration was conducted in 1996, outside of the regular electoral period, to establish a database for the permanent register. At the time of its creation in 1996, the National Register cost $13.3[54] million to develop, including the costs of building computer systems, acquisition of computer hardware and software and similar costs from federal and provincial data sources, and excluding the costs of a final door-to-door enumeration to obtain data for the register. The $13.3 million figure also includes the cost of changes made to systems, processes and manuals produced by Revenue Canada and Citizenship and Immigration Canada. After its establishment, the permanent register cost approximately $5 million per year to maintain, including the cost of obtaining active consent from taxpayers and new citizens, and the cost of producing data files for data supplier organizations. After the initial outlay, the permanent register is estimated to have saved Canadian taxpayers approximately $130 million over the six elections following its introduction, in addition to those savings generated by provincial and territorial cooperation. Although one of the greatest obstacles to establishing a permanent list in Canada was the long-time perception of the high cost of an open list, the Canadian approach introduced in 1996 proved that the list could be created and maintained at a low cost and generate a significant savings for taxpayers by the second federal election following its creation.[55]

The transition to a permanent and electronic-based voter list was a significant shift in basic electoral principles for Canada and, as such, a variety of public concerns were raised at the time it was conceived and introduced. Anxiety over cost, privacy of personal information and trust of new technology figured high among public concerns at the time. Elections Canada invested in public polling and outreach before and during the transition, to identify public support for the program and keep the public and parliament informed throughout the process.

53 Jean-Pierre Kingsley and Bardall, "Voter Registration Modernization: A Case Study of the Canadian National Register of Electors." Pew Center for the States and International Foundation for Electoral Systems: Conference on Voter Registration Modernization. Canada, Toronto. June 4-5, 2009.

54 All dollar amounts refer to the Canadian Dollar.

55 Kingsley and Bardall, 2009.

For example, in early 1996 a public opinion survey by Elections Canada found 90 percent of respondents in favor of an open list, while independent surveys commissioned by Elections Canada later in the same year demonstrated that Canadians broadly supported the use of existing computerized sources to update a permanent list. The independent surveys also revealed a widespread, substantial level of confidence in Elections Canada for maintaining confidentiality and security of their personal information.[56]

"Confidence in the capacity of Elections Canada to protect the privacy of personal information was strong, especially when accompanied by protective legislation."

The pre-reform surveys are notable not only for the transparency and improved information they brought to the process, but as an indicator of the general awareness, civic education and confidence in Elections Canada of the Canadian public at the time the reform was introduced. General approval for the project was based on a relatively informed view — the independent survey in the summer of 1996 found 82 percent of Canadian adults strongly (47 percent) or somewhat (35 percent) approving of the project based on 12-minute interviews in which pros and cons of the project were considered.[57] Confidence in the capacity of Elections Canada to protect the privacy of personal information was strong (70 percent of respondents had no concerns about their name appearing in a permanent list), especially when accompanied by protective legislation including legislation limiting the data transferred from Revenue Canada (55 percent agreed legislation limiting data transfers to name, address and data of birth from Revenue Canada would provide adequate protection) and active and informed consent of the voters (80 percent supported control over transfer of personal information through a check box on the tax return to indicate agreement to use tax data to update the register).[58]

Based off these studies, voter registration reform was accompanied by legislative reform to respond to citizens' concerns for privacy protection. Thus, the personal

56 Angus Reid Group and Environics Research Group, July and August 1996.
57 Ibid.
58 Ibid.

information present on the Register is protected by a variety of legislation. Under the Canadian Privacy Act, Canadians may request access to their personal information held by Elections Canada and the Privacy Commissioner of Canada has the right to conduct audits on the collection, storage, updating and usage of voter data at any time. According to the Canada Elections Act, personal information on the register is disclosed only to members of Parliament, political parties and candidates, which are restricted in their use of the data for exclusively electoral purposes. The Elections Act also provides for data in the register to be shared with provincial and territorial electoral administrations, at which point data security is subject to the local legislation.[59] Overall, the surveys proved that the Canadian public was prepared for the reform and confident in the organizations undertaking the process, as well as identifying necessary accompanying legislative reforms.

Maintenance of the Register

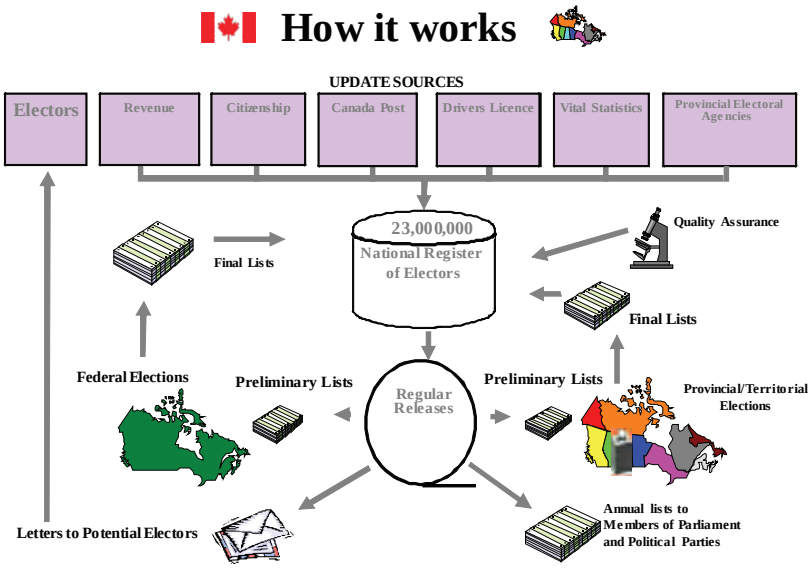
With the establishment of the National Register of Elections, the burden shifted to the maintenance of the database. Each year, approximately 17 percent of data information changes and must be updated in the register, or approximately 3.5 million voter entries out of over 23 million voters. Under the new system, the onus remained on the electoral system to reach out to electors, as opposed to popular models used in the United States where voters must come forward to register themselves. In 2003 new software was introduced to facilitate the revision and centralize revision activities. The register technology and systems are “stand alone,” or, in other words, are not linked with computers from the outside and belong exclusively to Elections Canada. All data used to update the Register of Electors is received by Elections Canada in electronic format and processed directly into the stand-alone software. The list is updated every three months between elections, with new records from the provinces (tax records, drivers’ licenses, etc.) as illustrated in Figure 9. The electoral list is revised both between elections and during the electoral period. Revision during the electoral period comprises 28 days, 12 of which include target revision. With the data from the final enumeration in place, Elections Canada began to systematically collect data on eligible voters from a variety of administrative sources to keep the register up-to-date. This process draws upon:

59 Elections.ca “Description of the National Register of Electors.”

- Federal income tax files from Canada Revenue Agency (change of address, identification of potential new voters)
- Federal citizenship and immigration data (addition of new citizens)
- Provincial and territorial drivers license files (change of address, identification of potential new voters)
- Provincial electoral agencies with permanent lists of electors, such as British Columbia and Quebec (add new electors, change of address, remove deceased voters)
- Provincial and territorial vital statistics (remove deceased voters)

This information is provided to Elections Canada on a basis of signed agreements with the suppliers. Elections Canada currently has two-way data-sharing agreements with all provincial and territorial electoral agencies, except for those in Saskatchewan and Yukon where Elections Canada receives but does not provide information. A two-way agreement also exists with Ontario's Municipal Property Assessment Corporation (MPAC) which has

Figure 9. Maintenance of the Register



the authority to establish voters lists for municipal and school board elections under Ontario provincial law. Federal data is provided based on the active and informed consent rules while provincial and territorial data is provided according to local legislation.[60]

"Although Elections Canada identifies potential new voters through its data-sharing system, independent confirmation of their citizenship is required before they are added to the voter register."

Individual active consent is required to permit the transfer of this data from any of the sources to Elections Canada. This consent is obtained largely through check-boxes on source data collection resources, including a check-box on income tax return forms from Canada Customs and Revenue or on citizenship application forms designed by Citizenship and Immigration Canada. Individuals who turn 18 receive a letter from the chief electoral officer asking them to confirm their eligibility to vote and to give their consent to be included in the Register.[61] Although Elections Canada identifies potential new voters through its data-sharing system, independent confirmation of their citizenship is required before they are added to the voter register. Confirmation is completed by a variety of means including identification of the voter on a provincial or territorial list, direct contact and confirmation, or "family matching" (uses the relationship of youth to older voters at the same address with the same last name to infer a family relationship; based on the relationship, citizenship is conferred between older and younger voters and eligibility of youth voters is confirmed).

Maintenance of the database using these administrative data sources is facilitated by a standardized data processing procedure for updating with each source. At the time the national register was introduced, the maintenance procedure followed five primary steps. First, the data to be updated was extracted from the Register (usually data per province) and moved to a working area and formatted to facilitate updates. Next, the incoming data was prepared to be applied as an update. Data was received from the sources in a pre-defined data file format.

60 Elections.ca "Description of the National Register of Electors"
61 Elections Today, p 17, Winter 2000, Vol 9, no 2

Data was converted to standard format according to a pre-defined protocol with each specific data source, accommodating incoming data from the various sources. Addresses were then standardized and brought to Canada Post standards for data matching. Records for update could be selected according to various fields including dates, addresses and names. The third phase of the maintenance process generates potential update transactions from incoming data sources by matching to the previous version of the data source received and to the Register. This allows potential changes, additions and deletions to be easily recognized in an output file with the master Elector Register data and the potential updates. The process was conceived as an automated activity with minimal manual intervention, which would accumulate data and refine it over time. Each update is subsequently submitted to an individual transaction analysis which analyses the potential updates to resolve and confirm any conflicts. The process takes into consideration weights given the various source reliability and is conducted through both manual and automated iterative processes. Finally, the valid updates are applied to the Register. Audit and history data is generated at this time.

The assignment and management of Canada's 65,000 polling districts is facilitated by the use of electoral maps. In partnership with Statistics Canada, Elections Canada maintains the National Geographic Database, which contains data on streets in Canada (names, address ranges, geographical features) for use for election operations and census purposes. Derived from the National Database, the Electoral Geography Database contains the cartographic information necessary for election mapmaking and is used to assign polling stations based on addresses through georeferencing. Election Canada's digitalized Geographic Information System is used to produce all maps (digital and printed) for election purposes and is used to support the electoral boundaries commissions. Political parties receive digital copies of electoral maps as well as access to the related web-application, GeoExplore, which is used by returning officers to manage elections in their districts.[62]

62 Chief Electoral Officer of Canada The Electoral System of Canada 2nd edition. 2007. Canada. http://www.elections.ca/res/canelecsys_e.pdf

Targeted Revision

The data from administrative sources seeks to establish the broadest and most inclusive database possible. However, within the overall strategy, this is simply a first step. The database becomes the object of a revision process in between elections as described above, a targeted revision during the pre-election phase and finally can be modified on Election Day itself, for voters who may not have registered through other means. This approach is consistent with Elections Canada's basic objective of offering the maximum opportunities for eligible electors to participate in elections and ensuring that the administrative function of the voter register does not in any way impede voter participation in an electoral event.

From the time the automated Register was created, Elections Canada was aware that the quality of the list would be lower in certain areas, especially those that traditionally experience high resident turnover such as high-rise buildings, special care facilities and nursing homes. To respond to this, Elections Canada initiated the targeted revision process which integrates Canada Post's National Change of Address Data (NCOA) with the local knowledge of the returning officers to identify high mobility areas for voter list revision. Since its original introduction in 2000, several research initiatives were undertaken to identify the demographic areas with the weakest accuracy in the Register and to refine and improve the targeted revision process. These areas, which include youth, highly ethnically diverse neighborhoods, and high mobility and low income areas, are the focus of targeted revision. The two-pronged strategy for targeted revision is comprised of two activities, including mailings to potential electors identified through the automated procedures whose eligibility must be confirmed and by returning officers (ROs) preparing physical maps of neighborhoods to be visited at the beginning of the electoral period.

Targeted revision takes place at the RO level. All voter lists used for the revision (as well as the final list) are sent directly from Ottawa however. Three lists are printed during the campaign: preliminary, revised and final. Targeted revision begins when each RO office sends a personalized voter information card to voters in its district six to seven days after an election is called to inform them of key dates, polling locations and instructions for changing wrong information that may appear on the Register.

Table 6. Targeted Revision Program

- **Definition**: special door-to-door revision carried out in —
  - High-mobility areas: 1,300,000 addresses
  - New residential areas: 265,000
  - Long-term care facilities: 4,440 institutions
  - Student residences: 810 residences
  - Other areas suggested by stakeholders

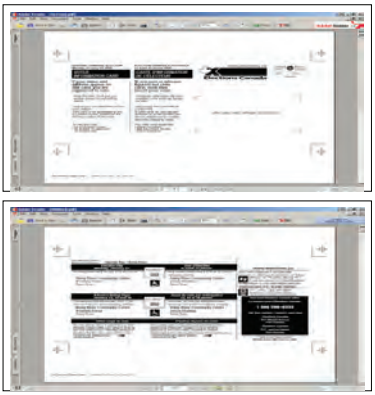
- **Objectives**:
  - Enhance coverage and currency of voters lists / fewer registrations on Election Day
  - Enhance voter registration services to targeted audiences consistent with Elections Canada outreach strategy
  - Involve candidates and parties in the voter registration process by sharing targeted revision plans with them

With up to 100,000 personalized cards to be labeled and mailed on time, the sending of the cards represents a significant logistical challenge for ROs. Within days of receiving the cards, the revision agents in each RO's Revision Center begin processing calls and in person visits, for corrections, questions, new registrants, etc. A second mailing is issued approximately two weeks before the elections to verify that all the cards have been received and to remind people to inform Elections Canada of mistakes and omissions. The information cards serve as a reminder and a call to action for many voters and, when accompanied by the ad campaign and reminder cards, serve as sufficient reminders to electors to revise their records on the list.

As corrections come in, revision agents use Elections Canada's made-to-order software, REVISE, to make corrections. From the time the first round of cards are mailed through the end of the targeted revision period, agents correct labels and re-send cards, add addresses to the lists for targeted revision, and develop cases of problematic registration for the RO to examine. Cards are not issued if there is an error in the name of the person, since they do not serve as official identification; they are only re-sent if there is a change in address or

Figure 10. The Voter Information Card

- Personalized information product mailed to all registered voters
- Confirms registration on the lists of electors
- Informs elector of where and when to vote
- Informs elector of how to get revised
- Call to action for electors to get revised
- Complemented by ad campaign and Reminder Card



polling station. Revision agents are enabled to add a voter whose address is not allowable in the REVISE system (e.g. new street, municipality) after the voter's file is reviewed by the RO and entered into the REVISE system manually.

If a voter provides proof that he or she is registered at the same address as another registered voter, that voter may have the other person removed from the voter list (e.g. a voter can remove a former tenant or a deceased family member). Theoretically, an angry spouse or roommate could wrongly remove a voter from the list, however the list is not contentious and same-day registration is permitted, and hence misuse of the system is minimal.

Those voter list actions which require a voter to come to the RO's office and provide additional documentation and signatures regarding another voter's registration are in cases of:

- Transfers (changes of address)
- Enrollment
- Death (certificate of death needed if the voter is not registered at the same address)
- Radiation from the list (if the voter is not registered at the same address)

To improve the quality of targeted revision, the director of revision may work with local and provincial government, including Department of Cartography, Territory Management, postal offices, and others, in order to identify new addresses, streets, etc. Agents work seven days a week during the revision period and staffing revision positions can be difficult because of the physical demands of the job.

As discussed, targeted revision focused on several key demographic groups. Youth voters are targeted specifically through drivers license and income tax records to identify new 18 year olds. Citizenship verification of youth voters identified through these means is conducted through family matching, provincial electoral lists or direct mailings and confirmation. Direct outreach in universities, junior colleges, shopping malls and cinemas is also organized during the electoral period to boost youth voter registration.

New developments (recent housing constructions and apartments) often do not appear in the Register at the time of elections if they have not been updated in the source data files due to lag times and election event timing. These voters will not receive a voter information card, so ROs are asked to identify these new constructions and supply the data to Elections Canada. Elections Canada maintains a database of “high mobility addresses” to assist the ROs in this task, including comparative rates of mobility. The addresses are visited by door-to-door targeted revision during the election period. Other high mobility areas, such as high rises and student housing complexes are similarly treated, through door-to-door targeted revision.

Elections Canada also conducts special outreach for voter list revision in nursing homes, long-term care facilities and other health institutions, where residents may have recently moved or may find it difficult to follow the standard steps for revision. Elections Canada requests lists of residents for these institutions at the beginning of the targeted revision process, to compare against the voter list. Targeted revision lists can be pre-filled by RO staff and taken door-to-door to residents by revising agents. The success of this revision depends largely on the cooperation of the institution staff and the privacy legislation governing each institution.

Conclusion

In terms of cost benefits, the Canadian model illustrates a unique case wherein the move to a continuous list created substantial savings. In addition to those cited earlier in this chapter, the permanent federal list creates significant administrative efficiencies through partnerships created with sub-national entities, including provinces, territories, municipalities and school boards that have signed agreements with Elections Canada. Register data is shared with provinces, territories and some municipalities to replace door-to-door enumeration or assist in door-to-door confirmation. In addition to the federal savings cited above, this coordination generates substantial additional savings for the administering partners. For example, Elections Canada's partnership with Elections Ontario saves Elections Ontario roughly $23 million per event, their partnerships with the Ontario Municipal Property Assessment Corporation generates $6 million in savings, $11 million with Elections British Columbia and $1.2 million with the City of Winnipeg.[63]

Partnerships have also played a key role in generating administrative benefits in the development of the list. The data source partnerships between Elections Canada and the other federal and provincial agencies enhance cost- and time-savings for and between the federal and provincial electoral administrations. The provincial and territorial chief electoral officers are members of the National Register of Electors Advisory Committee, along with representatives from the Registrars of Motor Vehicles and Vital Statistics, and the Federation of Canadian Municipalities, who meet regularly to discuss voter registration.[64]

During the public audits and reviews leading up to the decision to create the permanent list, the issue of quality of data vis-à-vis available new technologies and inefficiencies in manual-based registration programs took center stage. The auditor general's report issued at the outset of the modernization movement noted particularly the inefficiencies of the disparate software programs being used under the enumeration system and the potential gain for standardizing software used at both the federal and provincial levels.

63 Pew Center for the States and International Foundation for Electoral Systems: Conference on Voter Registration Modernization. Canada, Toronto. June 4-5, 2009.
64 Kingsley and Bardall, 2009.

Today, Elections Canada measures the quality of information in the Register to inform list users, to manage the quality of the Register and for operational reasons during an election. The quality measures of most interest are coverage (the percentage of people in the electoral population who are on the list) and currency (the percentage of people in the electoral population who are on the list and at the correct address).[65] These are measured to:

1. Determine impact of recent Register updates on quality of lists
2. Inform users on quality of lists (ROs, MPs, candidates, partners, etc.)
3. Derive revision projections before an event to assist in planning and resourcing at riding level
4. Compare to targets

Quality estimates for the register are made by comparing changes in the electoral population according to Statistic Canada (new 18-year-olds, new citizens, deaths, moves) to the changes made to the Register. According to these measures, as of October 15, 2006, the List of Electors met a 93 percent (± 2 percent) accuracy rate (target is 92 percent) and 82 percent (± 2 percent) currency rate (target is 77 percent). In June 2006, Elections Canada undertook a quality control confirmation study to review the accuracy of the register through interviews with 30,800 electors, using data sampling through a market research agency. A second control was scheduled for 2009.

Another notable aspect of the Canadian approach is its public outreach. Working from the principle that Canadian democracy is based on the right of all citizens to participate in decisions affecting them, Elections Canada expanded its community outreach efforts in 2005 by increasing their Community Relations Officers program. These officers are charged with developing contacts and reaching out to young Canadians, Canadians residing in long-term care facilities, incarcerated citizens with the right to vote, members of First Nations and other aboriginal and ethno-cultural communities to ensure they are aware of their right to vote and how to exercise it.

65 Elections Canada. Data Quality Confirmation Study http://www.elections.ca/content.asp?section=ins&document=index&dir=int&lang=e&textonly=false

Targeted public media campaigns are developed to reach historically under-represented populations and promote participation in the register and in the electoral event. For example, in order to address the low turnout of young voters (38 percent in 2004), Elections Canada has placed an emphasis on youth participation for the past decade. In 2005-06, Elections Canada sent out 170,000 “Leave your mark” cards to potential young voters who turned 18 but were not registered. In his remarks to the press at the launch of the 39th General Election in 2005, the chief electoral officer declared that Elections Canada would “collaborate with national student associations on an advertising campaign and visit university residences [ahead of the election] for targeted revision [of the National Register of Electors].”

In conclusion, the success of voter registration programs is traditionally measured according to three key criteria: inclusiveness, accuracy and cost.

Given the high cost of the enumeration system it replaced and the added benefits of streamlined software to improve coordination with provincial and territorial bodies, the cost savings achieved by the permanent voter register are substantial, roughly $40 million per electoral event outside of cost savings linked to administrative efficiencies through provincial and territorial partnerships. The accuracy of the list has proven likewise very comparable to the enumeration system, with roughly 95 percent accuracy and revamped efforts being undertaken this year to examine and address the accuracy of the list.

Although the impact of the continuous list on voter participation compared to participation under the enumeration system is still the subject of academic study in Canada, the fundamental approach of state-driven voter registration (as opposed to voter-instigated registration) has clearly proved most effective in promoting participation and increasing equality in access to the vote.

Summary — Issues and Recommendations

An identity card allows this Cote d'Ivoire voter to cast a ballot from Morocco.

Summary of Practical 'Lessons Learned'

Because of the many different variations in voter registration requirements, laws, geographical structures, communication and transportation infrastructure, available technologies, etc., it is impossible to define a single best process for creating and maintaining the voter register. Based upon the case studies presented here, we have attempted to distill a list of recommendations and best practices. Not all of the following recommendations will be relevant in every environment; however, we hope that by presenting them as a concise list they may provide a quick reference for those responsible for planning and implementing voter registration exercises.

This set of recommendations reflects many years of experience in registering voters. The lessons have been learned from unsuccessful and successful voter registration exercises.

The recommendations are organized into the following five categories, though in some cases the categorization is somewhat arbitrary as many of the recommendations may fit into multiple categories:

- Planning and organization
- Type of registration
- Building public confidence
- Implementing voter registration technology
- Sustainability

Planning and organization

Recommendation 1:

Before beginning any planning for voter registration, one should ascertain whether conditions exist that are conducive to support electoral processes. There may be instances when it is necessary to begin a registration exercise even if conditions do not allow for a credible process. A decision to continue in unfavorable conditions may result in a register that is not usable for future elections.

Recommendation 2:

Any system of assigning a geographical location to voters should provide adequate precision to support elections at all levels, including local government elections. The system should include provisions for how geographical location can be used to support future changes in delimitation of boundaries. If it is not possible to adequately define geographical location, the electoral system must take this into account when defining constituencies.

Recommendation 3:

Before defining a registration process, there should be careful assessment of key issues, type of electoral system, structure of the state, frequency of elections and registration methodologies to determine what is most appropriate in this instance.

Recommendation 4:
It is important to identify any differences in the goals and requirements of existing data sources when used as a base or supplement for voter registration data. In addition, one must identify the goals and requirements of the election.

Recommendation 5:
Including photos on the printed voter register can provide significant benefits in helping to identify voters on Election Day, particularly in countries that do not have a secure photo ID. Photo voter rolls, however, require significant time and resources for production and printing.

Recommendation 6:
It may be difficult to recruit local staff with adequate skills to manage registration processes or support required technologies, particularly in post-conflict and developing countries. A plan for developing local capacity and handing over maintenance skills and responsibilities should be considered from the onset.

Recommendation 7:
Three critical questions that should be answered early in the planning phase are:

- How will identity be established at the time of registration and on Election Day?
- How will residency and eligibility be determined?
- What evidence will be required to prove ineligibility (e.g. that a person whose name has been added has died, or is ineligible because of insanity, criminal conviction or other legal reason)?

This is especially crucial in environments where it is important to enfranchise displaced populations to vote in the areas from which they have fled.

Recommendation 8:
All registration data should be stored in a relational database from the point of data collection or at time of data entry. The relational structure of data should be defined early in the planning phase. A relational database enforces structures and validation rules that are very difficult to impose onto data at a later date.

Recommendation 9:

It is much more efficient to collect accurate voter data at the point of registration than it is to try to correct it later. This is a strong argument in favor of data entry at the point of registration, though the cost/benefit of such an approach should be weighed in each environment. Regardless of whether data is initially collected by keyboard, hand-written forms, optical mark recognition forms, or other means, the value of planning, well-defined procedures and effective training of registrars cannot be overemphasized. To the extent possible, there should be a mechanism for voters to immediately review data, either as entered on paper forms or as captured into the computer system. Any savings in time or money by short-changing training will likely be lost many times over in trying to recover from the mistakes caused by inadequate training and voter review.

Recommendation 10:

The practice of marking a voter's finger with ink can be an effective way to deter multiple registrations under certain conditions. Most significantly, if the registration period will last longer than a few days, then the effectiveness of ink is reduced as there is greater opportunity for the stain to wear off. In order to be effective, the ink selected must contain the correct proportion of silver nitrate, usually between 10 percent and 18 percent depending on the length of time the stain must last. It is also crucial to train registration workers in the proper technique for using the ink. Although there have been claims that ink can be removed with certain cleaners or household bleach, we have not found any study that verifies or debunks this claim.

Recommendation 11:

In cases where it is possible to conduct registration at the same site that will later become the polling station, more voters will already know where to vote on Election Day. Further, even if names or other information is captured incorrectly, the fact that the voter appears at the correct place, combined with a one-to-one correlation between those who registered and those who are voting at that location increases the likelihood of being able to recognize that the name on the list corresponds to the correct voter.

Recommendation 12:

An old project management adage provides the following options: "Fast, good, cheap — pick two." There are, however, limits to how quickly any system can be completed, regardless of how much money is available. Setting arbitrary dates for registration without adequate analysis and planning to determine the amount of time required creates a significant risk of failure.[66]

Recommendation 13:

Using electoral data for non-election purposes may create incentives for fraud that have nothing to do with elections. (e.g. Sri Lankans depend upon electoral records to prove eligibility for school enrollment; this has led to attempts to register in the wrong district for reasons that have nothing to do with elections, but still have a negative impact on elections.) Similarly, using the civil registry or other government agency data for electoral purposes may create an incentive to falsify that data for political gain. On the other hand, using the data for multiple purposes, such as for the civil registry, also provides incentives to keep the data current and accurate.

Type of registration

Recommendation 14:

If a voter register is based on a civil register, it should only be implemented once the civil register is firmly established.

Recommendation 15:

There is a need for the display of data, especially from the civil registry, to eliminate possible bias.

Recommendation 16:

Moving to a continuous registration can help reduce periodic updates at peak

66 In "The Mythical Man-Month," a classic essay in software engineering, former IBM software engineer Fred Brooks postulated what has come to be known as "Brooks's Law": "Adding manpower to a late software project makes it later." The reality is that there is an optimum number of developers who can work on a project of any size, and an optimum amount of time required to develop systems. More money, more developers, more tools, etc., only add to the complexity and consequently can delay delivery of the system.

demand times. However, even when there are permanent registration centers, human tendency to procrastinate will dictate that large numbers of persons will come to register or change information just before any important deadline. Queue management techniques may be used to help flatten the curve.[67]

Building public confidence

Recommendation 17:

Public opinion surveys can be used to measure and help build public confidence. By identifying areas of public concern, the EMB can provide targeted registration update exercises and/or public information campaigns on specific, key issues.

Recommendation 18:

Transparency and accountability are keys to confidence building. It is more transparent to display all changes to the voter register, not just the final product as this is easier for stakeholders to track.

Recommendation 19:

Institutionalized metrics help build political and public support. Establishing a periodic audit that measures the accuracy and comprehensiveness of voter data and then publishing the results of these audits clearly demonstrates levels of progress attributable to EMB policies and activities.

Technology

Recommendation 20:

Databases depend upon a unique identifier per voter. It is not advisable to build an identifier by a combination of names, date of birth, place of registration or other data. It is preferable to have a unique ID number assigned to every voter,

67 For example, it may be helpful to establish "express queues" for persons who register during specific periods that allow persons who fit the "express queue" criteria to enter in a special queue. This can be used to provide an incentive to come to a registration center at a specific time, e.g. Monday for voters with last name [A-F], Tuesday for last name [G-M], etc., or for persons who come on the day of the month on which they were born — the 1st of the month is express queue for everyone born on the 1st of any month. Although there will always be procrastinators who appear at the very last moment, any measures that can spread the registration demand over a longer period may reduce the resources required during the final days of registration.

whether existing (e.g. national ID number) or assigned by the EMB. The voter must be informed of this number through issuance of an ID card or receipt. Without this unique identifier it will be nearly impossible to update the data when a voter's status changes or to remove duplicates with any degree of certainty.

Recommendation 21:

Technology is often associated with improving accessibility (e.g. centralized databases allow a voter to transfer registration to a new location with a single trip to a registration center). However, technology can also degrade accessibility (e.g. expensive digital registration equipment may reduce the number of registration centers). The impact of any new system on access to registration should be considered along with other comparative advantages and disadvantages of the system.

Recommendation 22:

New technology has solved some long-standing issues (e.g. Sri Lanka converting to Unicode) but a significant investment of time and resources may be required to update systems and data to those new technologies

Recommendation 23:

Data validation, which may include the use of data validation dictionaries and double-blind data entry, is very important in the process of maintaining accurate registries.

Recommendation 24:

New technologies that have not been thoroughly tested and proven should be implemented cautiously. For example, if considering the use of handwriting recognition, it may be prudent to first test that technology thoroughly through a series of feasibility tests. Then one can replace a data entry operator in a double-blind data entry system. These two steps should be taken before implementing the new technology system-wide.

Recommendation 25:

Any choice of a software development platform should be influenced by the availability of local staff to support the platform, or should include plans for recruiting and training supporting staff.

Recommendation 26:
It may be prudent to recruit assistance from local universities, other organizations, or trusted advisors to help with defining job descriptions and requirements for technology support staff. These advisors may also assist in interviewing candidates for those positions.

Recommendation 27:
Technology is most effective when used to support well-organized registration procedures. It is much less effective when used in an attempt to make up for errors and omissions in registration processes and procedures. If procedures and management structures are not adequate to support a paper-based registration system, they will be inadequate to support an automated system, which will likely require a higher degree of organization. Small errors that might have had an impact on only a few voters in a manual system can quickly be replicated throughout a database with disastrous results.

Sustainability

Recommendation 28:
Conditional or tendered ballots can help enfranchise voters, particularly in environments with many internally displaced voters. However, conditional ballots should not be used as a long-term remedy. They should be used as a stop-gap measure until additional steps can be taken to update the voter register.

Recommendation 29:
All registration records should include a date stamp showing the actual date and time of registration as this can provide valuable information when resolving issues related to duplicate registrations. This information can also provide valuable data for time-motion analysis and for helping develop more effective queue management techniques.

Recommendation 30:

When implementing new systems to detect false or duplicate registrations it is important to also establish clear laws and procedures on how such duplicates will be resolved. Being able to identify who has registered more than once does not solve the problem if the EMB has no authority or procedures for removing the duplicate entries.

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1850 K Street NW, Fifth Floor • Washington, DC 20006 | www.IFES.org