Electronic Voting and the 2014 Namibian General Elections

CONTENTS

PREFACE

EISA has been interested in electronic voting for the past six years, mainly due to its involvement in the management and delivery of corporate elections in South Africa, where the use of electronic voting could provide increased efficiency. EISA's interest is also based on the fact that many countries are considering adopting electronic voting while some are experimenting, with electronic voting in their national and local government elections. EISA needs to be prepared to meet the challenges of observing a largely "invisible" process.

In order to understand how different electronic voting systems and technologies work, EISA deployed technical observer teams to three countries that have used different electronic voting systems, namely the Philippines (2010) and Brazil (2010), and more recently the 2014 Namibian general elections where EISA deployed a pre-election assessment team ahead of and during Namibia's general elections. A technical expert was also deployed.

This report focuses on the Namibia general elections 28 November 2014, which were the first such elections in an African country conducting a national election using electronic voting. It presents a brief overview of electronic voting processes, the option used by Namibia, and a summary of findings based on direct observation by the EISA team also drew on observations from other election observer missions deployed to Namibia.

The EISA team is thankful for the access to information provided by the Electoral Commission of Namibia (ECN) and the information and materials provided by Namibian civil society organisations that monitor electoral processes in Namibia, particularly the Election Watch project of the Institute for Public Policy Research (IPPR).

INTRODUCTION

Electronic voting (EV) refers to the use of electronic systems to cast and count votes. It includes punched cards, optical scan systems, direct-recording electronic systems (DREs) and electronic voting machines (EVMs). It also applies to the transmission of votes via telephones, private computer networks, or the internet. In general, two main types of electronic voting can be described:

- Supervised electronic voting: in the presence of representatives of electoral authorities (e.g. electronic voting machines located at polling stations);
- Remote electronic voting: takes place within the voter's own privacy without direct supervision by representatives of electoral authorities (e.g. voting from personal computers, or mobile phones).

Electronic voting systems have been in use since the 1960s when the United States introduced the punched card system. This system was then followed by Optical scan voting which allows computers to read voters' marks on the ballots. Later, DRE voting machines, which record and tabulate votes in a single machine, were introduced especially in countries with very large electorates, such as Brazil and India. In some countries, they were used and discarded due to integrity concerns. More recently, internet-based voting systems have been introduced in some European and North American countries.

There are also hybrid systems that include an electronic ballot-marking device (similar to a DRE) with the capacity to print a voter verified paper audit trail, and use a separate machine for electronic tabulation.

In the early 2000s, India introduced EVMs designed and developed by Government-owned equipment manufacturers. The EVMs comprise a set of two devices running on batteries. The voter uses one device, the Voting Unit, and an Electoral Officer operates the other device called the Control Unit. A cable connects both units. The Voting Unit has a button for every candidate, and can hold up to 15 candidates, but up to 4 Units can be linked to accommodate up to 60 candidates. The Control Units have three buttons, namely one to release a single vote, another to see the total number of votes cast, and another one to close the voting. The results button is hidden and sealed, and cannot be pressed until the Close button is pressed.

Electronic voting systems may provide a number of advantages:

- It may speed up and ensure accuracy of the voting and counting process
- It may increase voter turnout
- It may reduce fraud
- It eliminates invalid votes, both null and blank votes
- It reduces the use of paper

ELECTRONIC VOTING IN NAMIBIA

In 2014, Namibia became the first African country to conduct a national election using electronic voting. The introduction of EV into the Namibian elections first started being discussed in 2004. With the challenges faced in the counting and tabulation processes in the 2009 elections, which led to a delay in the announcement of the election results, the use of EVMs found its way into the 2009 Electoral Act. As a result of this, the Electoral Commission of Namibia (ECN) began purchasing batches of Indian-manufactured EVMs.
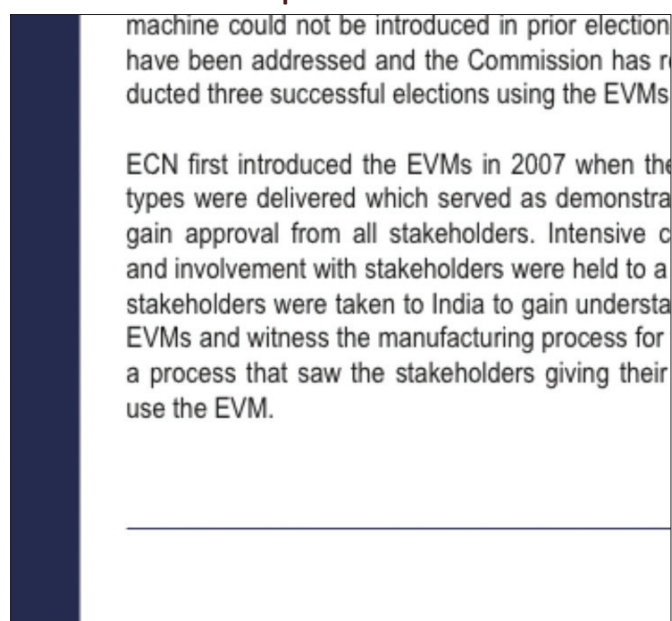
These EVMs are stand-alone machines and are not connected to any computer network. They do not transmit or receive any signal, therefore cannot be intercepted. EVMs are also powered by batteries, thus possible to operate in areas with no electricity for the entire duration of the voting and counting process.

The 2014 Namibian Electoral Act allowed the use of electronic voting, but introduced the requirement that the use of voting machines be subject to the simultaneous utilisation of a verifiable paper trail for every vote cast by a voter, and any vote cast is verified by a count of the paper trail. The introduction of this requirement in the Namibian Electoral Act of 2014 results from a court case in India, in which the Indian Supreme Court ruled that verifiable paper trail, should be indispensable for voter confidence in the system.
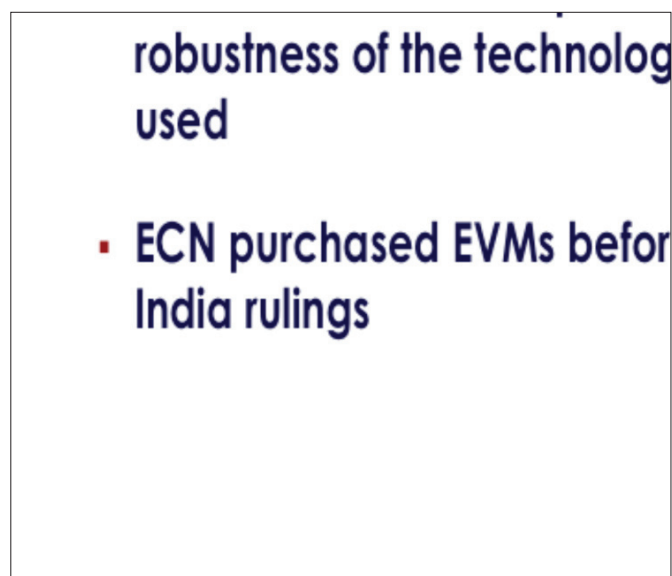
The Voter-Verified Paper Audit Trail (VVPAT) is intended as a verification system designed to allow voters to verify that their vote was cast correctly, to detect possible election fraud, and to provide a means to audit

the stored electronic results (see Picture 1 and 2 below). However, VVPAT technology is very recent, and many of the EVMs for the Namibian elections had already been purchased when the technology was made available in India. Therefore, the ECN decided to go ahead and use EVMs in the 2014 elections without the use of VVPAT. Instead they made use of a transitional provision in the Electoral Act that states that different dates may be determined in respect to the coming into operation of different provisions of the Act, and deferred the use of VVPAT to future elections.

Pic. 1: Explanation of VVPAT

machine could not be introduced in prior election
have been addressed and the Commission has r
ducted three successful elections using the EVMs

ECN first introduced the EVMs in 2007 when the
types were delivered which served as demonstra
gain approval from all stakeholders. Intensive c
and involvement with stakeholders were held to a
stakeholders were taken to India to gain understa
EVMs and witness the manufacturing process for
a process that saw the stakeholders giving their
use the EVM.

Pic. 2: EVM with VVPAT printer

robustness of the technolog
used

- ECN purchased EVMs befor
India rulings

The EVMs were first put to use in four local elections in August 2014 and in one by-election in November the same year, before being rolled out in the General Elections of 28 November.

Since each Ballot Unit can only take up to 15 candidates / parties, if an election has more than 15 candidates / parties, additional Units can be added in tandem with the first one. In the case of Namibia, there was one Ballot Unit in one voting booth for the presidential election (nine candidates), and two Ballot Units in tandem in another voting booth for the legislative election (sixteen parties).

Pic. 3: Electronic Voting Machine: Control Unit and Ballot Unit on the left and Tabulator on the right

The Control Unit is the control section of the EVM and only a polling official operates it. This unit controls the polling process. The Control Unit consists of four sections: the display screen, the candidate set, the results button and the ballot button.

The Ballot Unit is the voter interface and voters only interact with this unit and not the Control Unit. It consists of an interconnecting cable which connects the Ballot Unit to the Control Unit, ready lamp buttons, one register lamp button, slide switch window, and 15 candidate buttons. A ballot paper is inserted under the transparent screen of the Ballot Unit.

The Tabulator is the unit placed, in the case of Namibia, at the Constituency Results Centre for the tabulation of results of all polling stations within a constituency. After the vote counting, the Control Units are physically transported to the Constituency results Centre, where they are connected to the Tabulators and the results are then tabulated.

The EVMs replace the issuing of a paper ballot with the pressing of a button on the Control Unit by the polling official and instead of the voter marking the ballot paper; she/he presses a green button corresponding to the political party or candidate of his or her choice on the Ballot Unit. The voter then has to press the red Register button on the Ballot Unit to complete the voting process. It is important to note that other processes in the polling station such as verification of voter identity against the voter register, checking if a voter has voted before by verifying the fingers for indelible ink and the inking process still remain in place.

Preparation Of Evms Before Election Day

By law, all EVMs and Tabulators must be checked by a manufacturer representative or by an expert person designated by the ECN, to ensure that they are in working order. This verification process takes place prior to any election at the ECN offices in the presence of election agents. After the verification process, the EVMs must be prepared for Election Day.

Returning Officers prepare the ballot units at the ECN offices in the presence of the election agents by recording the serial number of the ballot unit, stamping the ballot paper to be inserted and displayed on the ballot paper screen with an official ECN mark, inserting the ballot paper in the ballot paper screen, ensuring that the name of candidate or party corresponds with the candidate button and sealing the ballot paper screen with the seal clip provided by the ECN. The seal tag is then signed and election agents who are present are allowed to sign the seal tag.

The returning officer may connect more than one ballot unit to a single control unit if the candidates or parties partaking in an election are more than fifteen by setting the slide switch to the position marked "1" if a single ballot unit is used or to the position marked "2" if two ballot units are used and so on.

After having completed the preparation of a ballot unit, the returning officer prepares the control unit by connecting the ballot unit to the control unit using the interconnecting cable, switching on the control unit of the voting machine, recording the serial number of the control unit, and pressing the candidate set button to configure the voting machine.

After the returning officer has completed the processes referred to above, the control unit requests the setting of the number of elections and the type of election to be held, and the returning officer sets the number of elections followed by the type of election by pressing the first candidate button on the ballot unit if it is a candidate election, or the second candidate button on the ballot unit if it is a party election.

Afterwards, the returning officer closes the inner cover of the candidate set section on the control unit and seals it; closes the outer cover of the candidate set section on the control unit and seals it; places the control unit and ballot unit in their respective carrying cases; affixes a seal to the carrying cases and allows the election agents who are present to affix their own seals and record the seal numbers.

EVMs and Election Day

On 28 November 2014 (Election Day), the ECN deployed 2,080 sets of EVMs: 1,255 at fixed, full-time polling stations and 825 with the mobile teams that covered 2,711 temporary polling stations. The ECN also established a technical support system for the EVMs, with 121 Namibian IT technicians (one technician per constituency), and 31 engineers from the EVMs' manufacturer.

Before voting started, the EVMs were prepared by the polling station presiding officers and a pre-test was then conducted. All these procedures took place in the presence of the party agents and other authorised persons such as observers who were present at the polling station.

Presiding officers verified the seals on the carrying cases of the voting machine, removed the ballot unit and the control unit from their carrying cases, verified the seals and the serial numbers on the control unit and the ballot unit, connected the ballot unit to the control unit with the interconnecting cable and the control unit was switched on. Thereafter, they opened the outer and inner cover of the "result section" of the control unit and pressed "total button" to indicate that there were no votes recorded on the voting machine. If by any chance votes had been recorded on the voting machine, the presiding officer would press the "clear button" to clear any recorded votes.

After demonstrating that there were no votes recorded in the voting machines, presiding officers conducted a pre-poll test to ensure that all candidate buttons were functioning properly, and that votes cast were properly recorded and aggregated by the EVM.

The pre-poll test was conducted by allowing each election agent present at the polling station to select his or her candidate or party by pressing the "candidate button" corresponding to the name of his or her candidate or party and pressing the "register button" to cast his or her vote. After all election agents cast their vote, presiding officers pressed the "close button" to close the pre-poll test. Presiding officers then pressed the "results button"

to show the result of the pre-poll test which corresponded to the votes cast. After the results of the pre-poll were shown to all present, presiding officers pressed the "clear button" to clear the votes recorded during the pre-poll test.

Once the pre-poll test had been concluded, presiding officers closed and sealed the inner and outer cover of the results section with a clip seal, recorded the clip seal numbers and allowed election agents to verify the clip seal number. The EVMs were then ready for the beginning of voting.

After the end of polling, closing and counting procedures in the polling stations were strictly followed, and all EVM control units produced aggregated results that were accepted by all election agents. After the announcement of results at the polling stations, the control units were taken to the constituency results centres where they were then plugged into the Tabulators[1] to aggregate all the polling stations results for further transmission to the national results centre.

Observer findings on EVM performance on Election Day
Most election observation reports agree that polling station staff were generally well-prepared to conduct the EVM preparatory procedures and pre-poll tests, with some inconsistencies that are to be expected when systems are used for the first time. All the observed pre-poll tests produced the expected results and no complaints were recorded from election agents.

Five main questions were in the minds of stakeholders regarding the use of EMVs on Election Day: (i) would they accurately record and aggregate votes? (ii) would they function without major breakdowns? (iii) in the case of breakdowns, would the ECN be able to respond timeously to assistance requests? (iv) would voters use the EVMs with ease?, and (v) would the final polling station results produced by the EVMs be accepted by all stakeholders? The paragraphs to follow, explain the motivation behind questions in more detail.

Accuracy: Given that Namibian EVMs so far have no VVPAT capability, the only assurance that EVMs record and aggregate votes accurately is the pre-poll test conducted immediately before the beginning of vote. Since the EVMs do not transmit or receive any signal and are therefore immune from hacking, it is fair to assume that, following a successful pre-poll test, they will continue to record and aggregate votes accurately.

Breakdowns and technical support: There were a few cases of EVM breakdowns that were reported by observers. In all those instances, technical support from the ECN was swift and managed to resolve the problem without any major impact on the voting process. Most breakdowns at the polling stations happened in relation to the voter identification machines, not the EVMs.

Voter-friendliness: With the exception of voters who had voted in the few local or by-elections prior to the general elections, this was the first time the overwhelming majority of voters operated an EVM. On average voters took less than 30 seconds with each EVM to make their choice and cast their vote. There were many reported cases of voters who were unsure about which buttons to press, and in which order. However, with the prompt assistance from polling officials, the vote selection and casting process remained very swift.

Results acceptance: Despite the absence of a manual count that all present can visualize, follow and monitor, which was the norm under manual voting, party agents at the polling stations did not challenge the results

CONCLUSION AND RECOMMENDATIONS

There is a general consensus among observer groups that electronic voting was largely successful in Namibia, with one observer mission even recommending its adoption by other Southern African countries, and the permanent adoption of electronic voting in Namibia .

---

[1]   The tabulators worked like calculators that collated results from a number of EVMs

Some domestic stakeholders, particularly opposition political parties, still alleged that the system was manipulated in favour of the winning party, though no evidence was presented. In this regard, the ECN clarified that the EVM had no preprogrammed or computerised systems attached to them. They were standalone units that worked independently based on on-site programming on election day.

Many stakeholders however rightly feel that the electronic voting system was largely imposed on them without enough opportunities for them to familiarize themselves with it and "own" it.

EISA commends the ECN for taking the bold step to introduce EVM and noted that the use of the EVM was largely successful during the 2014 elections albeit the process experienced delays with the failure of the electronic voter identification system. Overall, the introduction of the EVM addressed the issue of spoilt and rejected ballots as all ballots were valid at the end of the process. It also contributed to the quick tabulation of the results as they were released on 1 December, less than 72 hours after the close of polling.

There are some areas for improvement, both in the system, its deployment and management, and in the public perception about it. Below we present a number of recommendations to address those issues:

1. Introduce a VVPAT component to the EVMs in order to improve transparency and increase public trust in the system;
2. Create opportunities for regular interaction between stakeholders and the system, through presentations and simulations, to increase their familiarity with electronic voting and improve their trust in it;
3. Allow space for stakeholders to present suggestions for improvements to the system in order to strengthen their sense of ownership;
4. Provide continuous voter education about electronic voting and the mechanics of using the EVM to make a choice and cast a vote in order to make them familiar and comfortable with both the concept and the practice;
5. Strengthen the knowledge of polling station staff about preparatory procedures, pre-testing and how to assist voters without violating secrecy of voting; this is necessary in order ensure consistency in the application of procedures for future elections.

ABOUT EISA

INSTITUTIONAL BACKGROUND

EISA has since its inception in July 1996 established itself as a leading institution and influential player dealing with elections and democracy related issues in the African continent. It envisions an African continent where democratic governance, human rights and citizen participation are upheld in a peaceful environment. The Institute's vision is executed by striving for excellence in the promotion of credible elections, citizen participation, and the strengthening of political institutions for sustainable democracy in Africa.

Having supported and/or observed over 70 electoral processes in Africa, EISA has extensive experience in formulating, structuring and implementing democratic and electoral initiatives. It has built an internationally recognised centre for policy, research and information and provides this service to electoral management bodies, political parties and civil society organisations in a variety of areas, such as voter and civic education and electoral assistance and observation. Besides its expanded geographical scope, the Institute has, for the past several years, been increasingly working in new in-between election areas along the electoral and parliamentary cycle, including constitution and law making processes, legislative strengthening, conflict management and transformation, political party development, the African Peer Review Mechanism (APRM) and local governance and decentralisation.

EISA provides assistance to inter-governmental institutions, like the African Union, and the Pan-African Parliament, to reinforce their capacity in the elections and democracy field. The Institute has just signed an MOU with the Economic Community of Central African States (ECCAS); the East African Community (EAC); and the Common Market for East and Southern Africa (COMESA). Within the framework of these recently signed memoranda, the Institute will also provide similar assistance respectively these intergovernmental institutions. Its MoU with the African Union was also renewed in 2014.

With its headquarters in Johannesburg (South Africa), EISA has had field offices across the African continent and currently has offices in Central African Republic, Democratic Republic of Congo, Kenya, Madagascar, Mali, Mozambique and Somalia, and a regional liaison office at the secretariat of the ECCAS in Libreville, Gabon.

Election observation activities

EISA has deployed continental witness missions for the past ten years including missions to Angola (2008), Botswana (1999, 2004, 2009), Central African Republic (2010, 2011), Democratic Republic of Congo (2005 referendum, 2006 elections), Egypt (2011, 2012, 2014), Ghana (2008, 2012), Guinea Conakry (2010), Lesotho (1998, 2002, 2007, 2012,2015), Liberia (2011), Madagascar (2005, 2007, 2013), Malawi (1999, 2004,2009), Mauritius (2000, 2005, 2010, 2014), Mozambique (1999, 2004, 2009, 2013, 2014), Namibia (1999, 2004, 2009), Senegal (2012), Seychelles (2011), South Africa (1999, 2004, 2009, 2014), Tanzania (2005, 2010), Uganda (2011), Zanzibar (2005, 2010), Zambia (2005, 2008, 2011,2015), and Zimbabwe (2000, 2002, 2008), Reports on these missions can also be found on our website.

Electoral Institute for Sustainable Democracy in Africa

About EISA
EISA is a not for profit organisation established in 1996 based in Johannesburg (South Africa) with field offices in Central African Republic, Gabon, Kenya, Madagascar, Mali, Mozambique and Somalia.

Our vision
An African continent where democratic governance, human rights and citizen participation are upheld in a peaceful environment.

Mission statement
EISA strives for excellence in the promotion of credible elections, citizen participation, and the strengthening of political institutions for sustainable democracy in Africa.

Funded by