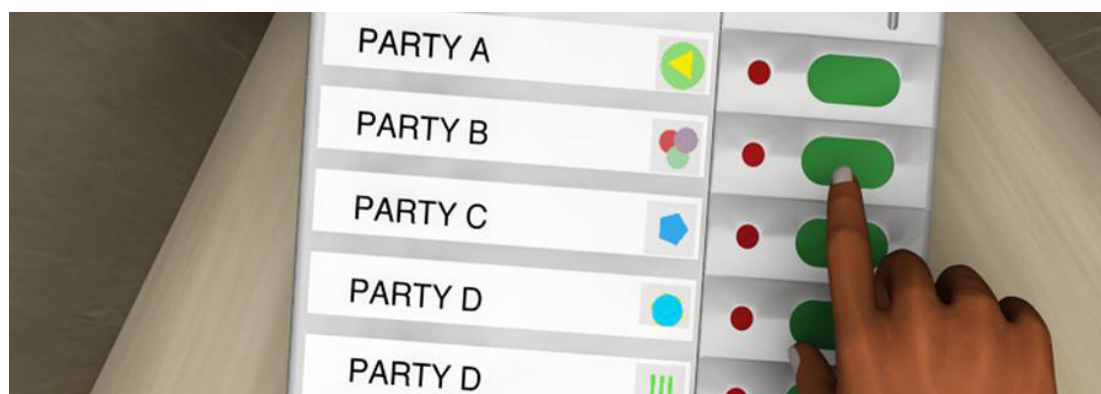# Election Watch

Briefing Paper No. 1

By Nangula Shejavali

ELECTRONIC VOTING MACHINES

INTRODUCTION

At the end of November 2014 Namibia is set to become the first African country to use electronic voting machines (EVMs) in a national election. The Electoral Commission of Namibia's decision to use EVMs dates back to 2004. Since then several batches of EVMs have been bought from the Indian company Bharat Technologies. Since Namibia first decided to buy EVMs, concerns have been raised about the need for the machines to have a Voter Verified Paper Audit Trail (VVPAT). In October 2013, the Indian Supreme Court ruled that a VVPAT was "an indispensable requirement of free and fair elections" as it "ensures the accuracy of the voting system". When drafting the new Electoral Bill, the Law Reform and Development Commission (LRDC) recognised the VVPAT standard. However, the EVMs purchased by the ECN do not have the option of printing a slip that each voter can verify as correct. In order to avoid confusion and minimise the possibility of disputes over EVMs, it is important that the ECN consult with all stakeholders, principally the political parties registered for the election, to ensure they have confidence in the system being used. In addition, it is crucial that a comprehensive, mass voter education programme is rolled out to ensure that prospective voters know how to use EVMs and have confidence in their reliability.

The use of technology in elections is not new. According to the ACE Electoral Knowledge Network, "these technologies range from the use of basic office automation tools such as word processing and spreadsheets to more sophisticated data processing tools, such as data base management systems, optical scanning and geographic information systems."[1]

Namibia is no exception to this ongoing trend, and in its preparation for the 2014 National Assembly and Presidential Elections, the Electoral Commission of Namibia (ECN) has introduced or made use of various technologies. For one, the ECN in 2013 launched it use of a Biometric system to ensure easier registration of voters. In this regard, 904 machines – "which were manufactured in South Africa, have components such as a laptop notebook, a fingerprint scanner, a camera, a signature pad and a barcode scanner to ensure that correct details of voters are recorded to prevent duplication"[2] – were purchased to register eligible voters for the upcoming elections. In addition to the Biometric Machines, the ECN has also introduced the use of Electronic Voting Machines (EVMs), which have already been used in a by-election and two local authority elections this year (Ohangwena – 5 August 2014, Bukalo – 22 August 2014, and Otjinene – 29 August 2014).

The Electoral Knowledge Network cautions that although "these technologies open up new frontiers and offer new possibilities for the electoral process, especially for voting operations, there may be unforeseen risks involved, such as an increase in vote selling or difficulty in auditing election results. Careful consideration also needs to be given to the risks of inappropriate or untimely introduction of technology, especially if it has the potential to compromise transparency, local ownership or sustainability of the electoral process."[3]

1   ACE – The Electoral Knowledge Network, 2014. Elections and Technology. Retrieved from http://aceproject.org/ace-en/topics/et on 23.08.2014.
2   Kahiurika, N., 2013. ECN Launches the Biometric Machine. The Namibian, 18 December 2013. Retrieved from http://www.namibian.com.na/indexx.php?archive_id=117802&page_type=archive_story_detail&page=365 on 23 August 2014.
3   ACE, 2014.

What the new Electoral Bill says about Voting Machines (Section 97)

Voting machines in elections

97.

(1) Before the commencement of the poll on a polling day at any polling station, the presiding officer must -

    (a)   satisfy himself or herself that all voting machines to be used at the polling station are cleared of any votes;

    (b)   permit the inspection of the voting machines by the persons entitled in terms of section 94(1) to attend at the polling station, and who are so present; and

    (c)   immediately thereafter close and seal all the voting machines in the prescribed manner.

(2) Despite anything to the contrary contained in this Act or any other law, the Commission may adopt voting by way of voting machines in the manner as may be prescribed, including -

    (a)   the manner of registering and recording of votes by way of voting machines;

    (b)   the procedure relating to voting to be followed at polling stations where voting machines are used;

    (c)   the procedure as to counting of votes recorded by way of voting machines; and

    (d)   the safe custody of voting machines, in respect of any constituency, region or local authority area as the Commission, having regard to the circumstances of each case, may specify by notice in the Gazette.

(3) The use of voting machines referred to in subsection (2) is 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.

(4) In the event that the results of the voting machines and the results of the paper trail do not accord, the paper trail results are accepted as the election outcome for the polling station or voting thread concerned.

Although the use of Biometric systems was broadly welcomed, the introduction of EVMs – particularly in the absence of a paper trail – has received a mixed response. The EVM clearly presents a number of benefits in carrying out an election, ensuring a speedy counting process, and allowing for long-term cost savings. But it also presents a number of challenges in terms of the level of transparency, understanding of the system, and potential manipulation. The use of the EVM has been legalised in the new Electoral Bill (Bill 10 of 2014), and the ECN has made it clear that the machines will be used for voting in the upcoming National Assembly and Presidential Elections, despite the absence of a paper trail, which the Bill prescribes.

This paper explores the legal framework for the use of EVMs in Namibian elections, highlights the role and importance of the paper trail advocated for by the Bill and the LRDC, presents arguments against the need for a paper trail, profiles the India case in which the Supreme Court called for the implementation of a paper trail (currently being introduced in that country in stages) and considers issues that arise for election observation, maintaining the integrity of the process, and defining possible ways forward. This report also includes two important interviews – one with the Director of the ECN, Professor Paul Isaak; and another with LRDC Chairperson, Sacky Shanghala.

LEGAL FRAMEWORK

The introduction of Electronic Voting Machines (EVMs) has been a topic in the discourse around Namibia's electoral reform since 2004, and in 2006, the Electoral Commission of Namibia began consultations on the prospects of acquiring and using EVMs in the Namibian electoral process. With the challenges to 2009 election outcome, and the calls by the High

Court for a revised electoral law, talk of the use of EVMs escalated, with proponents of the EVM citing benefits such as increasing the speed of the count (especially given the six day delay in announcing the result of the 2009 election), decreasing the amount of time for voting, eliminating any irregularities in the election process, and essentially increasing the level of transparency and accountability.

The use of EVMs was gazetted in accordance with the Electoral Law in 2009[4], and is included in the new Electoral Bill, with Section 97 of the Bill setting out the requirements for the use of these machines[5].

Importantly, it does so with certain conditions, which are meant to enhance accountability and to ensure that the election outcome can be verified should a challenge to the election be presented. In this vein, Section 97(4) of the Bill includes the condition that a paper trail be used simultaneously for every electronic vote cast. Section 97(5) adds that this paper trail be the accepted as the election outcome for the polling station concerned, where the results of the voting machine and paper trail are not the same.

Acquisitions by the ECN to date, do not include mechanisms to produce a paper trail. However, despite this important clause in the Bill, the ECN has made it clear that it will go ahead with the use of the electronic voting machines in the 2014 Presidential and National Assembly Elections. This essentially means that voters will not be able to verify – at an individual level – whether the vote that they cast using the EVM, is indeed the vote recorded.

Indeed, it is on these grounds that those opposing the use of the EVM in the 2014 elections have based their arguments.

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4   Nunuhe, M., 2014. ECN ready for credible elections. New Era Newspaper. Retrieved from: http://www.newera.com.na/2014/05/13/ecn-ready-credible-elections/

5   Government of the republic of Namibia, National Assembly, 2014. Electoral Bill – B.10-2014. Introduced by the Minister of Regional and Local Government, Housing and Rural Development.

Following the introduction of the Bill in Parliament, for example, Kandy Nehova of the Rally for Democracy and Progress "pointed out that the paper trail provision was there to guarantee transparency and accountability and also to reassure the electorate that there would be no rigging." He accused Swapo of being "hell-bent on rigging the elections" because of the absence of a paper trail, and cautioned that "the electorate must be made aware of this dangerous move by Swapo to undermine the country's basic democratic principles and that RDP vows to fight against the use of EVMs." [6]

Additionally, following the Ohangwena by-election, in which the EVMs were first used, the LRDC pointed to the setback that given the absence of a paper trail, the verification of results in that, and future elections, is impossible. New Era quoted LRDC legal officer, Ndjodi Ndeunyema as stating: "How do you ascertain with these voting machines how a person has voted? How will you deal with issues that will fall from the elections being disputed, and what will you do when the machine malfunctions?" [7] These questions were posed to ECN Director, Professor Paul Isaak, and LRDC Chairperson, Sacky Shanghala, and their responses are captured on pages 9-11.

Although it was reported that the ECN had given certain assurances to the LRDC that any malfunctions will take place, Ndeunyema noted that, "But in abundance of caution, we as the LRDC recommend that a voting machine should be accompanied by a verifiable paper trail,"[8] pointing to Indian case law, in which the Supreme Court ruled that "the use of the verifiable paper trail is an indispensable requirement for a voter."[9] "The LRDC is persuaded by such reasoning. So our recommendation is that voting machines should be accompanied by verifiable paper trails," Ndeunyema told *New Era*.

IN SPITE OF THE LAW...

Despite the Section 97 clauses of the Electoral Bill, the ECN has made it clear that it intends to use the EVMs, whether or not paper trail capabilities are present[10]. In fact, before the Bill was even tabled, the ECN had already purchased the EVMs that it plans to use in the elections. Reports note 6,800 EVMs will be used for the National Assembly and Presidential election due at the end of 2014. The total cost of the machines purchased to date comes to approximately N$50 million[11]. The EVMs that have been acquired do not have paper trail capabilities.

This appears to contradict the electoral law. But the transitional provisions of the new Electoral Bill hint at the possibility the clauses on the paper trail need not be implemented immediately but would only come into force later. The EVMs utilised at two local authority elections and one by-election in 2014 were operated under the terms of the existing Electoral Act of 1992 (as amended in 2009 to introduce EVMs as an alternative to ballot papers), and have been praised for their effectiveness[12].

Section 208 (b), for example, notes that despite section 207 (which sets out the repeal/amendment of previous electoral laws), "(b) any notice, regulation, authorisation, order or certificate issued, made or granted or any other thing done in terms of any law referred to in Schedule 1, except in so far as may be otherwise required by this Act, is deemed to have been issued, made, granted or done under the corresponding provision of this Act." On 9 June 2014, the ECN gave notice of its intention to use the electronic voting machine in the next election, and therefore this falls in line with this section of the Bill.

Section 209 (2) provides a transitional provision. The full section – under the heading 'Short title and commencement' – notes that (1) This Act is called the Electoral Bill, 2014, and comes into operation on a date determined by the Minister of Justice by notice in the Gazette. (2) Different dates may be determined under subsection (1) in respect of different provisions of this Act."

Based on this section, the ECN could potentially be granted permission to introduce the paper trail at a later stage. However, in terms of ensuring general trust in the EVMs, and providing citizens with the surety of an accountable and reliable process, it is unclear whether applying such a provision would suffice.

In fact, the Chairperson of the Law Reform and Development Commission (LRDC), Sacky Shanghala, in an interview with *The Namibian*, was quoted as stating that without the paper trail, Electoral Voting Machines cannot be trusted and will disturb the peace in the country should they crash[13]. "Without the paper trail, how can voters be assured that the machines have not been pre-programmed to do anything else?" he has questioned. (See page 10 for IPPR's interview with Mr. Shanghala)

Former Director of Elections, Gerard Totemeyer, has proposed that "It is advisable that the ECN sticks to the traditional method of voting for the upcoming elections, as people are not educated enough about these machines." He recommends that the EVMs be used during by-elections and local authority elections in order to get citizens used to the technology before introducing them *en masse*[14].

Whether or not the absence of a paper trail would be detrimental to elections is questionable, though there is no doubt that the ability to verify one's vote is of utmost importance. According to the Namibian Sun, "Constitutional expert Nico Horn is of the opinion that the absence of a paper trail at this year's elec-

6   Mongudhi, T. 2014. Nehova Unhappy with EVMs. The Namibian, 01.09.2014. Retrieved from http://www.namibian.com.na/indexx. php?id=17120&page_type=story_detail&category_id=1#sthash.hNNOPHe3.dpuf on 01.09.2014.

7   New Era, 2014. LRDC puts EVMs under scrutiny. Published in New Era, 22 August 2014. Retrieved from http://www.newera.com.na/2014/08/22/lrdc-puts-evms-under-scrutiny/ on 23.08.2014.

8   Ibid

9   Indian Case Law, 2013

10   Namibian Sun, 2014. 'Paperless Voting Here to Stay', 02.06.2014. Retrieved from http://namibiansun.com/politics/paperless-voting-here-stay.66494 on 23.08.2014.

11   Namib Times, 2014. E-voting machines ready for use. 19 August 2014. Retrieved from http://www.namibtimes.net/forum/topics/e-voting-machines-ready-for-use on 23.08.2014.

12   Iileka, M., 2014. Electronic Voting Machines pass first test. Namibian Sun, 5 August 2014. Retrieved from http://sun.com.na/politics/electronic-voting-machines-pass-first-test.69907 on 25.08.2014.

13   Kahiurika, N, 2014. 'Shanghala says new voting machines could cause instability'. The Namibian, 05.06.2014. Retrieved from http://www.namibian.com.na/indexx.php?id=13688&page_type=story_detail&category_id=1#sthash.B7EjP7H0.dpuf on 23 August 2014.

14   Ibid

tions will not make a difference to whether parties go to court or not." Horn was quoted as saying that "When you look at the last election challenge it was mainly about people's conduct at the polling stations, issues at the verification centres. It had little to do with false ballot papers or related issues."[15]

WHY THE PAPER TRAIL?

The Voter-Verified Paper Audit Trail (VVPAT) or verified paper record (VPR) "is a method of providing feedback to voters using a ballot-less voting system. A VVPAT is intended as an independent verification system for voting machines designed to allow voters to verify that their vote was cast correctly, to detect possible election fraud or malfunction, and to provide a means to audit the stored electronic results."[16]

The organisation, Common Cause, notes that, "Every voter should have the opportunity to physically verify that his or her vote will be cast as directed by the voter. In order to ensure this, every machine must incorporate or produce a paper ballot that the voter can view before finally casting his or her vote."

International IDEA notes that because "e-voting systems are fundamentally different" to traditional forms of voting, and because "breaking the link between voter and vote (in order to ensure secrecy of the vote) means that the examination of an e-voting system after an election cannot prove directly that every vote was indeed counted and tallied as cast," "indirect proofs of the validity of the electronic results, such as paper trails or system certification, in combination with stringent quality control and security procedures, are exceptionally important."[17] The organisation notes that without these mechanisms in place, "manipulated or incorrect results produced by an e-voting system could remain undetected for a long time."

In her pamphlet on VVPATs, Rebecca Mercuri (2004) writes that, "All fully-electronic voting systems are subject to the limitations and risks of computer technology. This includes the inability of examination, no matter how thorough, to detect the presence of hardware and/or software that could be used, deliberately or inadvertently, to alter election outcomes."[18] She goes on to say that, "Democratic elections require independent verification that a) all balloting choices have been recorded as intended and b) vote totals have been reliably and indisputably created from the same material examined by the voters. A Voter Verified Paper Ballot (VVPB) provides an auditable way to assure voters that their ballots will be available to be counted. Without VVPB there is no way to independently audit the election results. Equipment failures, configurations and programming errors have resulted in costly election recalls and disputes that could have been prevented with VVPB."

While there are strong arguments for the use of a VVPAT, there are also other who have argued that paper trails are not necessarily the answer to detecting error and/or fraud in the election process.

Daniel Castro (2007) argues that, "Requiring that voter-verified paper audit trails be added to (electronic) voting machines to detect error or fraud will not provide complete security in an election because the integrity of the election still depends on the chain-of-custody remaining secure."[19] He goes on to say that, "The real problem with the current generation of DRE [direct-recording electronic] voting machines is not that they use computers, but that the integrity of the election depends on maintaining a secure chain-of-custody of the voting machines and the ballots. This problem is not unique to DRE voting machines, because the integrity of the election in a paper ballot system is similarly dependent on a secure chain-of-custody. In either voting system, a ballot can be compromised only if malicious actors are able to insert themselves into the voting process by, for instance, stuffing a ballot box or changing the code in a DRE voting machine. In both types of systems, election officials employ physical security countermeasures such as locked ballot boxes, poll watchers, and police to mitigate these risks."

Essentially, Castro argues that the paper trail only presents an audit of what was cast, but does not ensure that that entire electoral process has been carried out, and that it is not the machinery, but the process that needs to be most secured. He also points out that the use of printers for the paper trail would "increase the cost and complexity of elections," and that the printers could themselves fail for various reasons, including "hardware failure, paper jams, lack of paper, or lack of ink." Castro also notes that paper receipts could potentially reduce the anonymity of voters; that a manual recount of paper ballots would stall the process and defeat the purpose of electronic voting; and that because "audit trails are less useful in proving that the voting machines functioned incorrectly; if there is a discrepancy between the audit record and the electronic record, neither voters nor election officials will know which record to trust. Ultimately, election law will determine whether the electronic record or the paper record is counted as the true ballot in a disputed election. If a paper audit record is the ballot, as advocated by many opponents of e-voting, then any error or fraud in the paper trail will result in incorrect election results. To steal an election, attackers would merely need to alter the paper ballots and then claim the DRE voting machines malfunctioned."

International IDEA recognises both the strengths and weaknesses of using a paper trail, and argues that in terms of ensuring trust of the process, the strengths – if applied with the right security measures – appear to outweigh the weaknesses. The organisation states that, "Adding a paper trail makes e-voting systems more complex and expensive. Bearing in mind the fact that many voters do not check their receipts, as well as possible mistakes in the manual recount and the need to resolve discrepancies between the electronic count and the paper count, paper trails are not a perfect solution for guaranteeing accurate and transparent elections. Still, if implemented in conjunction with proper audit procedures and mandatory random sample recounts, they become an important tool that makes it easier to build stakeholders' trust. Paper trails allow the verification of electronic election results and make it possible to identify any faults or manipulation in an observable and easily understandable process. The lack of a paper trail is often one of the first issues raised by opponents of electronic voting."[20]

15 Muraranganda, E., 2014. Experts divided on voting machines. Namibian Sun, 4 September 2014.
16 http://en.wikipedia.org/wiki/Voter-verified_paper_audit_trail
17 International IDEA, 2011. Introducing Electronic Voting: Essential Considerations. Policy Paper, December 2011.
18 Mercuri, R., 2004. Facts about voter verified ballots. Retrieved from http://www.notablesoftware.com/Papers/VVPBFacts.pdf
19 Castro, D., 2007. 'Stop the Presses: How Paper Trails Fail to Secure e-Voting.' The Information Technology and Innovation Foundation, September 2007.
20 International IDEA, 2011.

Recent Comments Raising Caution on the Use of the EVM without a paper trail

Dirk Conradie, Lawyer	Conradie noted that 'once a provision is in an Act, it must be implemented.' "If it is not used while the law says it must be used, it would be illegal," he said. (*Namibian Sun* – 04.09.2014)
Kandy Nehova, RDP MP	"Swapo wants to take all other political parties and the people of Namibia for a ride, that is why they introduced, at the last minute that the paper trail machines will only be used after the (November) elections." (*The Namibian* – 01.09.2014)
Sacky Shanghala, LRDC Chair	"Without the paper trail, how can voters be assured that the machines have not been pre-programmed to do anything else?" (*The Namibian* – 05.06.2014)
Usutuaije Maamberua, Swanu MP	"People have not been educated and therefore may not be in a position to use the new voting system. If ECN forces through the electronic voting system then the two systems must be used concurrently." (*New Era*, 22.05.2014)
Meundju Jahanika, Nudo secretary general	"These EVMs are questionable and are in no way reliable as even the paper trail that was promised is missing." (*The Namibian* – 10.10.2014)

THE CASE FOR EVMs

The case for using EVMs is a strong one – particularly in countries such as India, where the size of the population could seriously hinder the speed of the electoral process if the traditional paper ballot is used.

Chief amongst the advantages of the EVM is the enhanced speed and accuracy of the counting phase, which, based on Namibia's history with the election count (particularly the 6 days it took to announce results in 2009), would be a much-welcomed move. With the use of EVMs, tabulation of results is much faster and easier, and minimises the possibility of human error in counting.

Another advantage of electronic voting is that because the general process is faster (which is an important advantage given that the Electoral Bill envisages that voting take place in one day) than with the traditional paper ballot method, more voters are likely to turn out to vote. The novelty of the machines in Namibia's case – not to mention that this will be the first time that EVMs are used in Africa – could in itself inspire a large turnout.

The EVM also helps to reduce fraud at the polling stations and during the tabulation and transmission of results, by minimising possibilities for human intervention in the process – particularly if the security of the EVMs is tightly maintained before and after votes are cast.

In the long term, the electoral management body may also experience some cost savings in the electoral process, if the same machines are used in subsequent elections. Cost savings will come from not having to continuously print ballot papers for every election, from a smaller staff contingent or fewer staff hours being required. "The estimated saving on the switchover to EVMs in India in 2009 was approximately N$151.5 million, while 8,000 tons of paper was saved because no ballot papers had to be printed."[21]

The Election Commission of India summarises the advantages of EVM use on its website as follows: "The most important advantage is that the printing of millions of ballot papers can be dispensed with, as only one ballot paper is required for fixing on the Balloting Unit at each polling station instead of one ballot paper for each individual elector. This results in huge savings by way of cost of paper, printing, transportation, storage and distribution. Secondly, counting is very quick and the result can be declared within 2 to 3 hours as compared to 30-40 hours, on an average, under the conventional system. Thirdly, there are no invalid votes under the system of voting under EVMs. The importance of this will be better appreciated, if it is remembered that in every General Election, the number of invalid votes is more than the winning margin between the winning candidate and the second candidate, in a number of constituencies. To this extent, the choice of the electorate will be more correctly reflected when EVMs are used."[22]

The manufacturer of the EVMs that the ECN has purchased, Bharat Technologies in India, also cites a number of advantages of its machine. The manufacturer says that the EVM is completely fraud and tamper-proof. Other stated benefits are captured in the text box on page 6.

Additionally, it has been noted that the machines are purposely stand-alone machines (not connected to any network) "to prevent any intrusion during electronic transmission of results. Instead, the EVMs are collected in counting booths and tallied on the assigned counting day(s) in the presence of polling agents of the candidates."[23]

The Indian EVM has also been praised for its "simplicity" in terms of ease of use, and "reliability" in terms of use in adverse weather conditions, and in the absence of electricity supply.[24] Following the use of the EVMs in the Ohangwena, Bukalo and Otjinene, ECN Director Paul Isaak "praised the machines' reliability, accuracy, simplicity, and user and voter-friendliness."[25]

However, electronic voting is not without risks, and several countries remain unconvinced that the pros of using the EVM outweigh the cons. Many have opted to stick to manual voting mechanisms due to operational/technical constraints, or the implications this may have on their legal frameworks.

21 Smit, E., 2014. ECN unveils 'tamper-free' voting machines. Namibian Sun, 5 July 2013. Retrieved from http://www.namibiansun.com/politics/ecn-unveils-tamper-free-voting-machines.54679

22 Election Commission of India, 2014. FAQs – Electronic Voting Machines (EVMs). Retrieved from http://eci.nic.in/eci_main1/evm.aspx on 23.08.2014.

23 http://en.wikipedia.org/wiki/Indian_voting_machines.

24 Dabholkar, V. 2010. Electronic Voting Machine: An innovation from Bharat Electronics Limited (BEL). http://www.catalign.in/2010/10/electronic-voting-machine-innovation.html

25 New Era, 2014. ECN content with use of EVMs. New Era, 2 September 2014. Retrieved from: http://www.newera.com.na/2014/09/02/ecn-content-with-use-of-evms/

Advantages of the Indian EVM

Independent & Reliable
The EVM is compact and comes in its reusable carry pack. Further, the EVM works/operates on a battery power source. Making it independent and totally reliable.

Hi-tech Simplicity
To commence polling, the polling officer activates the "Ballot" switch on the control unit. The voter then has to press the button of his choice on the ballot unit. This is followed by a short beep sound, indicating that the vote has been cast. Once again, the polling officer has to press the "Ballot" switch to clear the machine for the next voter to cast his vote.

Super-sensitive circuitry : No invalid votes
Inside the control unit, hidden from you, is an extremely sensitive circuitry that takes care of common election errors or malpractices like vote duplication. For instance, if one were to press two or more buttons simultaneously, then no vote would be cast. Even if there was a micro-second difference in the pressing of the switches, the EVM is sensitive enough to trace and identify the twitch that was press first.

Instant results
Once polling is completed, the election results can be known instantly at the counting station by pressing the "Result"switch. This switch is located in a sealed compartment of the control unit.

Tamper proof design
The EVM is designed to be totally tamper proof. Each EVM comes with a sophisticated programme in assembly language: a software fully insulated against outside influence. And the programme is itself fused on to a customised micro processor chip at the manufacturer's end. This ensures that the programme is rendered tamper proof and inaccessible.

Result Printout
Normally, an EVM displays results on the display panel of the control unit. But a printout option is available with the use of a Download Adaptor Unit (DAU). The DAU has to be connected to the control unit and any standard printer. Further, with the help of a modem, the DAU can also enable transmission of voting information to a distant centralised computer.

(Sourced from Indian Elections, 2014. http://www.indian-elections.com/index.html)

Researchers in India have questioned the veracity of the claims that the EVM is completely tamper-proof, and a campaign has been ongoing in that country to highlight the danger of fraud in the electoral process, through tampering with the EVM[26]. (http://www.indianevm.com/campaign-detail.php)

In Germany, e-voting was declared unconstitutional in 2009. In the Netherlands in 2008, e-voting was suspended after 20 years of use when activists showed that the systems in use could, under certain circumstances, endanger the secrecy of the vote. Between 2005 and 2009, Ireland invested over 60 million euros in an e-voting solution, before deciding that the system was unreliable. For countries like Brazil, India, Estonia, and the United States that have decided to make use of EVMs, the benefits have outweighed the possible disadvantages of introducing this system, and each country will have different factors to consider in deciding whether or not to go electronic.

International IDEA has recommended that countries weigh the options at their disposal and evaluate alternative solutions before deciding on the use of the EVM. In many cases, this means making use of the EVM for speed's sake, but ensuring the existence of a paper trail in case of any challenges to the election.

The Electoral Knowledge Network goes on to say that given these pros and cons for using EVMs, it is important to note that "the accuracy and integrity of these machines depends not only on the companies and persons that design, programme, test and maintain them, but also the systematic checks and balances including system audits and certifications introduced by the EMB.[27] "Holistic security considerations – including diligent and knowledgeable observing by observer missions – are therefore key to ensuring the integrity of the entire voting system, preventing any avenues for fraud, and enhancing trust in the process.

26   Citizens for Verifiability, Transparency and Accountability in Elections (VeTA) Forum, 2014. http://www.indianevm.com/campaign-detail.php
27   The ACE Project, 2014. http://aceproject.org/ace-en/topics/em/emia/emia11

The PROS and CONS of using EVMs

PROS

- Faster vote count and tabulation.
- More accurate results as human error is excluded.
- Efficient handling of complicated electoral systems formulae that require laborious counting procedures.
- Improved presentation of complicated ballot papers.
- Increased convenience for voters.
- Potentially increased participation and turnout.
- Prevention of fraud in polling stations and during the transmission and tabulation of results by reducing human intervention.
- Reduction of spoilt ballot papers as voting systems can warn voters about any invalid votes (although consideration should be given to ensuring that voters are able to cast a blank vote should they so choose).
- Potential long-term cost savings through savings in poll worker time, and reduced costs for the production and distribution of ballot papers.

CONS

- Lack of transparency.
- Limited openness and understanding of the system for non-experts.
- Lack of agreed standards for e-voting systems.
- System certification required, but no widely agreed standards for certification.
- Potential violation of the secrecy of the vote, especially in systems that perform both voter authentication and vote casting.
- Risk of manipulation by insiders with privileged access to the system or by hackers from outside.
- Possibility of fraud through large-scale manipulation by a small group of insiders.
- Increased costs for both purchasing and maintaining e-voting systems.
- Increased infrastructure and environmental requirements, for example, with regard to power supply, communication technology, temperature, humidity.
- Increased security requirements for protecting the voting system during and between elections including during transport, storage and maintenance.
- Reduced level of control by the election administration because of high vendor- and/or technology-dependence.
- Limited recount possibilities.
- Need for additional voter education campaigns.
- Possible conflict with the existing legal framework.

LESSONS FROM INDIA

In 2013 the Indian Supreme Court directed the Election Commission to introduce paper trails for voting machines and the EMB has taken steps towards the introduction of VVPAT after more than 20 years of experience in the use of electronic voting machines which did not provide such a facility.[28]

The EVMs used during past elections in India are of the same technology as the EVMs that the ECN has purchased for the upcoming elections. As such, should take a leaf from India's book in terms of this Supreme Court ruling, especially given the fact that the new Electoral Bill calls for the generation of a paper trail when votes are cast using the EVM. The LRDC has also cited this case law as a basis for its insistence on the use of EVMs that have a paper trail generation function.

In the case of the Civil Appeal to India's Supreme Court, the Court found that "the 'paper trail' is an indispensable requirement of free and fair elections", noting that "the confidence of the voters can be achieved only with the introduction of the 'paper trail'". So while the judgment did not necessarily question the reliability of the EVM, it does take cognisance of the importance of voter's trust that the electoral process is deemed credible, free, fair and transparent, as noted in the Pyramid of Trust on page 8.

The appellant in this case, Dr. Subramanian Swamy, contended that "the present system of EVMs [which Namibia is set to use] as utilised in the last few general elections in India, does not meet all the requirements of the international standards and though the ECI (Election Commission of India) maintains that the EVMs cannot be tampered with, the fact is that EVMs, like

28   The ACE Project, 2014. http://aceproject.org/ace-en/topics/em/emia/emia11

Figure 1. The pyramid of trust
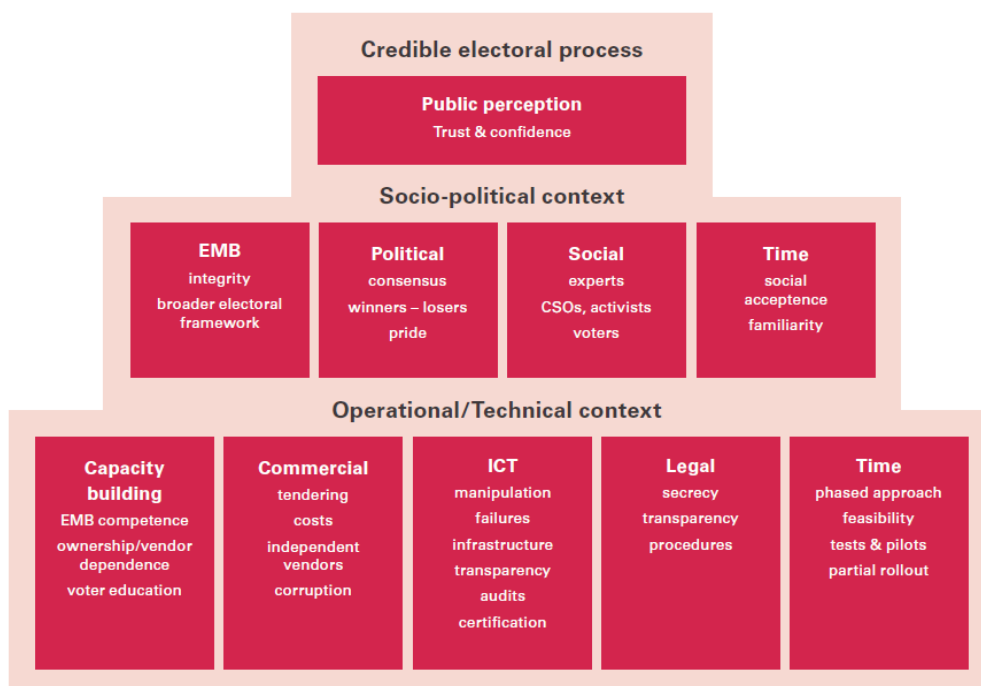
all electronic equipment, are open to hacking." Swamy further highlighted that the need for a paper trail as a safeguard that would "easily and cheaply meet the requirement of proof that the EVM has rightly registered the vote cast by a voter" by creating a print-out appraising the voter that his vote has been correctly registered and depositing this into a box, which could only be used by the Election Commission in the case of an election dispute. He noted that this system would "bring more accuracy in the present system and if a particular election is challenged on the ground that some particular identified voter's vote, or the votes of a group of voters have been suppressed/have not been correctly assigned by the EVMs" and allow more transparency in the process. Swamy also pointed out that the use of a paper trail was the only way in which a voter could be sure that his/her vote had been recorded, in favour of whom/which party it was recorded, whether or not the vote had been valid, and whether or not it had been counted. He argued that "unless and until answers to these questions are personally seen by the voter, it cannot be said that voting is made by him/her because 'pressing a button of choice and getting flashed the red light' is not actual voting in a real sense, unless the voter knows well of what has happened in consequence of pressing a button of his/her choice from the EVMs."[29]

Responding to these contentions, the Election Commission of India (ECI) argued that the EVMs were indeed tamper-proof and "of such high end technology that they cannot be hacked." The ECI also informed the Court that it was "exploring the possibility of incorporating a viable VVPAT system as a part of the presently used EVMs to make the election system more transparent", although previous field trials had been discontinued. Citing the law, the ECI also argued that it had "been given the discretion to prescribe recording of votes by such EVMs as it deems fit",

and that it had "exercised due diligence to ensure that the EVMs used are tamper-proof." Namibia's Electoral Bill is more specific in clearly stating the requirement of a paper trail; and India's electoral law has since been amended to allow for the use of the VVPAT. In addition to highlighting efforts to test a VVPAT system, the ECI further maintained that the glowing light next to the name of the person/party that the voter had voted for provided a "visual (electronic) assurance to the voter that the candidate for whom he has cast has actually got the vote. Thereafter, the light goes off to protect the secrecy of voting."[30]

The Court concluded that based on the information provided by both the appellant and the respondent, "we are satisfied that the paper trail is an indispensable requirement for free and fair elections. The confidence of the voters in the EVMs can be achieved only with the introduction of the paper trail. EVMs with VVPAT system ensure the accuracy of the voting system. With an intent to have fullest transparency in the system and to restore the confidence of the voters, it is necessary to set up EVMs with VVPAT system because vote is nothing but an act of expression which has immense importance in democratic system."[31]

The Court also permitted the ECI to introduce the VVPAT in gradual stages, given the large number of voting booths (over a million) that the ECI has to handle in each general election; and directed the government to provide the necessary funding.

The VVPAT has since been "introduced in 8 of 543 parliamentary constituencies as a pilot project in Indian general election, 2014. VVPAT is implemented in Lucknow, Gandhinagar, Bangalore South, Chennai Central, Jadavpur, Raipur, Patna Sahib and Mizoram constituencies"[32].

29   Supreme Court of India, 2013. Civil Appeal No. 9093 of 2013 – Dr. Subramanian Swamy (Appellant) versus Election Commission of India (Respondent). Judgment.
30   Ibid
31   Ibid
32   http://en.wikipedia.org/wiki/Voter-verified_paper_audit_trail

VOTER VERIFIABLE PAPER AUDIT TRAIL (VVPAT)

1 The EVMs currently display only the total number of votes polled, followed by votes secured by the individual candidates.

2 In the VVPAT system, when a vote is cast, a slip will be printed showing the name of the candidate, voter serial number and poll symbol.

3 Voter can see printout but not take it out. He can verify his vote was registered correctly. The paper trail can be used during a recount.

VOTERS NAME: XIIII
CANDIDATE NAME: III
CONSTITUENCY: XX10
PARTY: IIIOOX
DATE: XX-11-00
PLACE: XIX1X

4 The VVPAT system is on field trial and ready for deployment. 13 lakh VVPAT machines at an expense of Rs. 1692 crore would be needed for general elections. Karnataka polls won't use them.
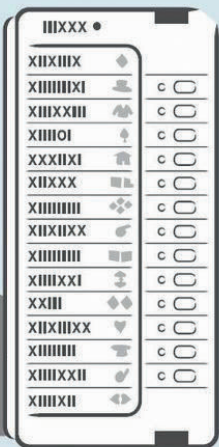
TEXT BY J BALAJI

This case law from India has some important lessons for Namibia. For one, it underscores the importance of voter confidence in the electoral system, irrespective of the robustness of the mechanics in place. Essentially, whether or not the EVM is tamper-proof, at the end of the day it is the voters who should have complete faith in the democratic value of the process for electing its government/leadership, for that election to be recognised as credible.
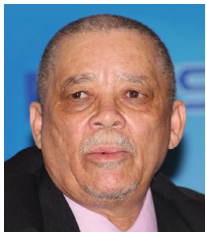
Interview with the Director of Elections Paul Isaak on Electronic Voting Machines (EVMs)

Why did ECN opt to use EVMs for this election?
The Commission opted for the use of Electronic Voting Machines to speed up the voting process and subsequently counting and announcement of results and overall to provide for a more efficient electoral process and in general to restore voter confidence in the Electoral Commission, being the only institution mandated to run elections in this country. EVMs were not specifically acquired for this election. The ECN opted to use EVM in previous elections as well. However, due to a number of factors, some being sufficient financial resources and the legal requirements pertaining to the use of the EVMs, the voting machine could not be introduced in prior elections. All issues have been addressed and the Commission has recently conducted three successful elections using the EVMs.

ECN first introduced the EVMs in 2007 when the first prototypes were delivered which served as demonstration tools to gain approval from all stakeholders. Intensive consultations and involvement with stakeholders were held to a point where stakeholders were taken to India to gain understanding of the EVMs and witness the manufacturing process for themselves, a process that saw the stakeholders giving their approval to use the EVM.

In your view what are some of the pros and cons of using EVMs ?
EVMs are safe and reliable to use as they are stand-alone machines consisting of two interconnected components. It cannot be accessed via any other means and it does not transmit any signal or connect to any type of computer network. Thereby making the machine safe to use in an electoral process. The machine is tamper proof and error free. The EVM retains the conventional features of voting and only simplify the voting process by replacing the manual ballot paper and ballot box. Some of the advantages of using EVMs are:
- User friendly operation sequence;
- Reducing long queues at polling stations;
- Counting is automated;
- Instant election results;
- Eliminates speculation of possible rigging as it is tamper-proof;
- It eliminates spoiled/rejected ballot papers;
- One of the special features of the Namibia custom made EVM is that it is user friendly for the visually impaired persons;
- EVMs eliminates the human error factor;
- Namibia custom made EVM has the option of a select and deselect button;
- A beep sound confirms that a voter has casted his/her vote.

So far the only issue recorded is that of the possibility of the battery running out of power although the EVM retains the information even when the battery is removed and during elections an extra battery is always provided. Additionally, in the short-term EVMs are expensive to acquire.

How much has been spent on EVMs?
The total cost of the EVMs in 2009 and 2014 is an equivalent to plus/minus U$5,566,430 (approx. N$61,230,730 at 2014 exchange rate)

How many have been bought?
3,400 Ballot units and 1,700 control units were sourced in 2009. 3,400 additional ballot units and 3,400 control units have been acquired since then.

How will the EVMs be deployed in terms of ensuring that they are distributed across the country so that all voters can vote without delays?
The statistics of the General Registration of Voters (GRV) are used to determine the distribution of the EVMs. GRV statistics are used as a basis as to how many people could be expected at a given point together with the number of polling stations in a given area. EVMs will therefore be distributed accordingly.

How is ECN working to ensure transparency, voter confidence and accountability given lack of paper trail?
Some check and balance measures are put in place to account for number of people that have cast their votes at a polling station. The total number of votes captured on the EVM should tally the total number of persons recorded on Form 3 'ELECT 27 (a)'. Political party agents are also present at the polling stations and can verify the number of people who entered the polling station and cast their votes, which at the end of the day should tally with the total number of votes recorded on the control unit and Form 3 "Elect 27(a), thereby ensuring transparency of the entire voting process.

Given lack of paper trial what will happen if an election is challenged and a recount is sought?

Should there be a court challenge, the EVM is able to print the entire database on the control unit, which can be submitted together with affidavits as per the requirements of the Electronic Evidence Act. As mentioned above additional internal checks and balances have been put in place, namely Form 3 'Elect 27 (a)', which the voter is required to sign. The total number of voters recorded on the form should match the total number of cast votes on the EVM. Should a voter decide not to vote after the required form is completed the form will be amended accordingly. Furthermore, the results on the control unit are maintained even when the battery is removed and can be printed at any given time and can serve as evidence.

The Voter Verified Paper Audit Trail (VVPAT) was introduced in India on an experimental basis based on the court judgement on the use of the VVPAT in conjunction with the EVM. That judgement was based on the Indian EVM which is different from the Namibian EVM. The Indian EVM only has candidate buttons and candidate lights and does not include the red register button that the Namibian EVM has which allows the voter to make correction if he/she makes a mistake. Furthermore, the candidate light on the Namibian EVM stays on until the vote is cast by pressing the red register button as opposed to the Indian EVM on which the candidate light on flashes for a fraction of a second.

Which countries has the ECN looked to for best practices on the use of EVMs?

Before deciding on the EVMs, the ECN researched different electronic voting systems such as Brazil and USA. The EVM has only been successfully used in India.

Voter education on the use of EVMs is very critical. What efforts has ECN introduced so far?

Although ECN experiences the challenge of lack of sufficient human and financial resources, voter education officers in the regions are constantly providing voter education on the use of the EVM on a daily basis. The turnouts at most of the voter education sessions were very impressive.

It is our intention in the build up to the national elections is to have intensive national simulation exercises similar to the exercises in Ohangwena, Bukalo and Otjinene where voters were given an opportunity to interact with the EVM as if it was a real election. The dates and places where these simulation exercises will take place will be announced in the media.

What lessons did the ECN learn in recent elections conducted in Ohangwena, Bukalo and Otjinene?

The recently conducted elections in all three areas went extremely well with no problems experienced with regard to the use of the EVM. Voters were confident in using the EVM and the results were announced in good time. However, the ECN has experienced that the preparation of the EVMs by the Returning Officer is quite a cumbersome process. Therefore measures have been put in place to speed up the process come the November elections. Lastly, minor issues on the forms as required in terms of the regulations will have to be amended.

Interview with Sacky Shanghala, Chairperson of the Law Reform and Development Commission (LRDC)

How is the use of EVMs encapsulated in the new Electoral Bill?

Firstly, the Electoral Bill, 2014 (the Bill) refers to Voting Machines and not Electronic Voting Machines. For technical legal purposes, the distinction between a 'voting machine' and an 'electronic voting machine' is clearly definable. The Bill therefore permits the use of voting machines, which is a more flexible genre than Electronic Voting Machines.

Secondly, note that a 2009 Amendment to the Electoral Act, 1992, section 79B, legalised the use of Voting Machines in elections. Section 78B of the Act is however much less elaborate than what is proposed in section 97 of the Bill.

Section 97(1) seeks to ensure that the outcome of an election is not susceptible to error and/or manipulation.

Although the Namibian Constitution states in Articles 28(2)(b) and 46(1)(a) that elections are to be by secret ballot, only an extremely narrow and rigid interpretation would lead to the conclusion that 'ballot' implies that only physical ballot papers can be used.

On what basis was the use of the EVM proposed in the Electoral Bill? (i.e. what are the benefits for Namibia(ns), and how do they outweigh the potential costs?).

Voting Machines allow for efficient counting of votes, significantly reducing the waiting period for election results. They have a zero percent margin of spoilt votes due to voter inadvertence; unless a voter willingly decides not to vote and even then it is not a spoilt vote. They are environment friendly as they reduce the amount of paper to be used in an election – reducing electoral carbon footprints. They are less costly as there is a lower amount used in the printing of ballots.

Conversely, there are dangers because if they are designed poorly, they can facilitate ballot fraud. Examples abound in jurisdictions where voting machines have been used. Moreover, a quick search engine search will reveal a plethora of research publications to that effect.

What is the view of the LRDC regarding the use of the Electronic Voting Machines in the upcoming November National Assembly and Presidential elections?

The LRDC's view is contained in and derivable from the Electoral Bill 2014 which is a draft legislative product of its view/recommendation. Voting Machines can be used in a given election but subject to the use of a verifiable paper trial. To the extent that such verifiable paper trail units are not available, the Minister must ensure bringing that section to life the moment they are available - *lex non cogit ad impossibilia* (The law does not compel a man to do that which is impossible.)

What does the lack of a paper trail mean for the confidence that voters might or might not have in the electoral system?

The LRDC's view is that a "paper trail" is an indispensable requirement of free and fair elections. The confidence of the

voters in Voting Machines can only be existent if there is a "paper trail" system to ensure the accuracy of the voting system. The proposed Namibian Constitutional Amendment Third Amendment Bill, 2014 requires that elections be independent and transparent. This is an additional standard on top of what currently exists in various provisions of the Namibian Constitution. Section 97(3) and (4) of the Bill is therefore drafted with an intent to have fullest transparency in Voting Machines and to ensure the confidence of the voters because voting is nothing but an act of expression which has immense importance in democratic system.

What lessons can/should be learned from the India case in terms of the Civil Appeal (9093 of 2013) in this regard?
The conclusion is self-evident; a verifiable paper trail as a safeguard is indispensable to an election. Although not binding, the LRDC holds the Indian judgement of *Dr. Subramanian Swamy and others v Electoral Commission of India Writ Petition (C) NO. 406 of 2012* in high regard as it is persuasive authority from the largest Commonwealth democracy jurisdiction for an apex court. The voting machines indicted in the case were manufactured by the same company that supplied the Voting Machines procured by the Electoral Commission in Namibia. Therefore, what is good for the goose must be good for the gander.

Given the absence of a paper trail for the EVMs that will be used in the November election, what would happen, say, if the election results are challenged, and a recount is ordered?
Although the LRDC views a verifiable paper trail as indispensable, the reality however, is that the current voting machines procured by the Electoral Commission for purposes of the upcoming 2014 Presidential and National Assembly elections do not incorporate a verifiable paper trail system. If the legislature is persuaded by the LRDC, then a verifiable paper trail must be incorporated soonest. If the legislature is not persuaded by the LRDC, then, as a policy decision, the Minister of Regional and Local Government, Housing and Rural Development may keep section 97(3) and (4) abeyant post the 2014 elections until a verifiable paper trial process is incorporated. Again, *lex non cogit ad impossibilia*.
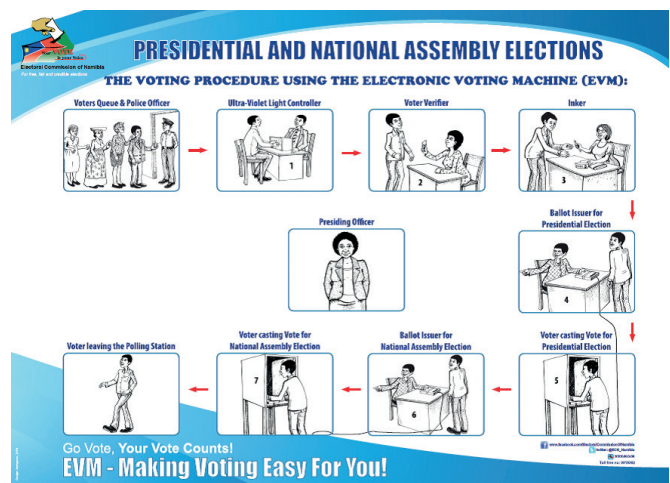
VOTER EDUCATION

Given the central role of voters in the election process, it is incumbent upon the ECN to ensure that voters are well versed in the process that allows them to decide on the composition of the government and to elect the President. The UN notes that "In every election, voter and civic education are necessary to ensure that all constituents—men and women alike—understand their rights, their political system, the contests they are being asked to decide, and how and where to vote. For an election to be successful and democratic, voters must understand their rights and responsibilities, and must be sufficiently knowledgeable and well informed to cast ballots that are legally valid and to participate meaningfully in the voting process."[33]

The transition from the traditional means of voting using a ballot paper – which has been practised since Namibia's independence in 1990 – to using the EVM, requires an enhanced level of voter education, not just in terms of the use of the device itself, but also to engrain a high level of public trust in the electronic voting system.

The ECN officially commenced training and voter education on the Electronic Voting Machines (EVM) in July last year[34], and has stepped up its efforts more recently, given the by-elections held in which EVMs were used. To date, the electoral management body has published adverts on its social media pages, in magazines and newspapers, and is flighting adverts on TV and radio. It has also been holding voter education sessions in various communities, informing voters about the process, and training them on the use of the EVMs. Experts from manufacturer Bharat Electronics have offered extensive training to Namibian electoral officials, who in turn have provided training to potential voters. It is understood that experts from Bharat will also provide technical support during the implementation phase.

(Source: Electoral Commission of Namibia)

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33 http://www.un.org/womenwatch/osagi/wps/publication/Chapter5.htm
34 http://africanewswire.za.com/ecn-officially-commences-training-and-voter-education-on-evm/

In Ohangwena, Bukalo and Otjinene – where a by-election and local authority elections were recently held – voters interviewed reported that the voter education sessions of which they were a part were helpful, with many praising the switch to the EVM. However, as noted earlier, it is critical that voters not only know how to use the machine, but that they trust the system that they are using to voice their democratic right.

In this regard, it is important that voters are educated on both use and functionality, as well as on the broader picture of how the EVM works and the mechanism set in place throughout the Electoral Cycle to ensure the credibility of the process. In the absence of a paper trail, this level of voter education is especially important, as voters should feel completely confident in the electoral system, and feel assured that there is no space for electoral fraud or malpractice to take place.

Furthermore, it is important that voter education, including simulation exercises with EVMs, takes place as broadly as possible, and in a way that is most accessible to people of different literacy levels, in various languages, of different age groups, and on platforms that best support their learning of this new system.

International IDEA recommends advance planning for voter education, noting that, "Well-informed voters will not only find it easier to use e-voting on election day; they will also find it easier to trust a new system if they understand why it is being introduced, what benefits it brings and how the various security measures that are built in support the integrity of the election."[35]

Key considerations for monitoring elections using new voting technologies

Pre-Election	"Pre-election tests and audits (as) an optimal opportunity for international election observers to assess not only the functioning of the electronic voting system but also the access of key stakeholders to the electoral process, including the technologies in use."
Throughout election cycle	"Location and chain of custody of machines throughout the election cycle. Election observers should pay particular attention to the chain of custody of the machines, especially once they have been distributed from the central warehouse, where testing likely takes place, to the polling places. Once the machines are deployed to the polling places, physical security measures become paramount as transportation and in-polling place storage provide a significant opportunity for tampering to take place. Because testing of the machines does not usually occur once the machines are distributed to the polling place, observing the chain of custody becomes the most effective means of ensuring that the equipment has not been tampered with or that any tampering that does occur is evident and that proper procedures are followed."
Post-election	"Depending on the electoral body, there may or may not be post-election audits that check the accuracy of the tabulated vote. These post-election audits would ideally occur before the official results have been announced and would be another opportunity for election observers to assess the efficacy and inclusiveness of the procedures in place."
Machine Life-cycle	"Observers should seek to answer the following questions when considering the certification process: What are the certification standards for a particular jurisdiction? Are these standards public information? Is the process for certifying electronic voting systems transparent? After the machine has been independently certified and accepted by the electoral body, the decision to deploy the technology can be made. At that point, election officials and poll workers must be trained to operate and use the machines. If the decision to deploy the technology is made too late, the amount of time available to test the machines, to properly train poll workers and election officials on their use, and to familiarise the electorate with the technology may be condensed to the detriment of the electoral process. Observation of the training of poll workers, election officials, and the electorate must be a central component of any e-voting observation methodology."
Cycle of data flow	"When considering e-voting, observers should try and identify all the delivery paths of information between various software programs and equipment. Understanding the expected flow of information will help observers to identify potential opportunities for manipulation of the system and to assess whether adequate security procedures (both technical and physical) have been put in place. The cyclical flow of information and equipment between the vendor, the tabulation centre, the warehouse, and the polling places requires that a certain level of security be implemented at each exchange of information to ensure that the system is, at least, tamper-evident."

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35 International IDEA, 2011.

CONSIDERATIONS FOR OBSERVER MISSIONS

Electronic voting also presents some new challenges for election observers. Namibia will be the first country on the African continent to use electronic voting machines for national elections, and it is important that local, regional and international observers understand the unique demands of observing an election conducted using EVMs.

In 2007, the Carter Center developed a methodology/guide for observing electronic voting. It prefaced the guide with the words: "The increasing use of new electronic voting (e-voting) technologies in elections around the world has been recognised by the international election observation community as one of the paramount challenges facing election observation today. As a whole, international election observation organisations have had relatively little experience observing elections in which e-voting technologies are used. In addition, the inherent lack of transparency of electronic voting technologies discourages easy observation."[36] This guide is still relevant today, and forms one of very few guides/methodologies on observing elections where electronic voting is being used.

The guide noted that "it is helpful to understand the path of the voting machine through several cycles—the election cycle, the life cycle of the machine itself, and the cycle of data flow between different equipment and software and different physical locations."

With regards to the pre-election audit, Charles Mubita, in an article on the EVMs, states that "The first step to be taken by the ECN is to audit the software and hardware of the available EVMs to ensure that they have a provision to interface with an Authentication Unit that would allow the manufacturer to verify whether the EVM being used in the election is the same they have supplied to the Commission. It is also important to make the voting software public. This is necessary to safeguard and guarantee the safety of our votes. The ECN should do all in its powers to ensure that we avoid unnecessary litigation during and after elections. If we are not ready, we should stick with the trusted paper ballots."[37]

In the absence of a paper trail, post-election audits are almost impossible (aside from the counting and tabulation activities). It is therefore even more important that observation teams pay attention to the broader security components of the electoral cycle in the pre-election and election stages.

In addition to paying attention to the path of the voting machine, as highlighted above, the Carter Center also notes certain implications for the staffing of observer missions. It recommends, importantly, that observer missions for electronic voting elections should include members with technical skills "who can provide distance guidance to the short-term delegation and to long-term observers and core staff and be available to participate in pre- and post-election assessment missions."

The Center also proposes that the observation team include long-term and short term observers with the following roles. It suggests that long-term observers work closely with technical experts, that they have some background or understanding in computer science or computer security, and that they "be the backbone of the electronic voting observation mission." Short-term observers, on the other hand, need not have a technical background, and would be "primarily be tasked with assessing the immediate pre- and post-election environment, election day events, and visually verifiable indicators of both the successful implementation of processes and procedures and the successful operation of the voting machines."[38] The 2012 Edition of the Handbook follows the Electoral Cycle more closely, but is founded on these same tenets.[39]

The more recent Handbook for the Observation of New Voting Technologies (NVT) by the OSCE Office for Democratic Institutions and Human Rights (ODIHR) follows a similar format in terms of the Carter Center's staffing recommendations, and highlights the varied forms of voting technologies that may exist, and the unique attributes of each that voters should pay attention to. Overall though, it notes the following specific tasks for Election Observation Missions[40]:

Specific tasks for Election Observation Missions (EOM) with NVT:

In order to effectively analyse the use of new voting technologies (NVT) in an election, each EOM will need to collect and assess certain information about the technologies in use, including:

- the type of NVT being used;
- the stated reasons for using NVT and the perceived advantages over traditional voting and counting processes;
- the process for choosing, procuring and implementing the NVT system;
- whether the decision to introduce NVT was widely agreed upon by political parties, voters and other election stakeholders or, conversely, was controversial;
- the legal regulations in place regarding the use of NVT, including observer access, as well as any ongoing discussions regarding the introduction or provisions for their use;
- which documentation is publicly available about the NVT and which documentation is only available to a restricted audience;
- the usability of the NVT system; and
- the training and voter education efforts for the use of an NVT system.

EOMs with an NVT Analyst (or technical expert as referred to by the Carter Center) will be able to obtain and analyse information in greater depth, considering issues such as the conduct of feasibility studies ahead of decision-making,

36 Davis-Roberts, A., 2007. Developing a Methodology for Observing Electronic Voting. The Carter Center, October 2007.
37 Mubita, C., 2014. Pitfalls of Electronic Voting Machines. Namibian Sun (Opinion), 12 June 2014. Retrieved from http://sun.com.na/columns/pitfalls-electronic-voting-machines.66895 on 25.08.2014.
38 Carter Center, 2007
39 The Carter Center, 2012. The Carter Center Handbook on Observing Electronic Voting. Retrieved from http://www.cartercenter.org/resources/pdfs/peace/democracy/des/Carter-Center-E_voting-Handbook.pdf
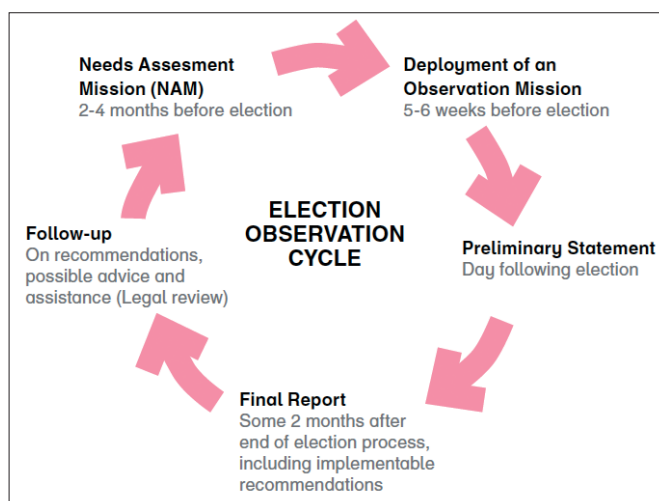40 OSCE Handbook for Observation of New Voting Technologies

selection and procurement of the system, certification and testing, usability, security of software and hardware, data protection, transparency, management of the system by election administrators, accountability of vendors and election officials, verification of the results and audits.

Regardless of the technology used, a crucial task for the EOM is to understand whether the NVT ensure the principles as outlined above, including the secrecy of the vote and the guarantee that the results fully reflect voters' choices, or whether there are gaps that could compromise their fulfillment.

Beyond assessing the technology, an EOM should also acquire other types of information about NVT use, based on meetings with state officials, candidates, political party representatives, civil society organisations, vendors, media representatives, judges, academics and specialists in the field, and others. Information, conclusions and recommendations resulting from the observation should be included in the EOM's reporting.

(Source: OSCE Handbook for Observation of New Voting Technologies)

The Handbook also provides a number of questions for consideration by observers, in terms of the decision-making on whether and how to introduce NVT, the legal context, the electoral system, political parties, civil society and the media, and the analysis of the NVT being used. There are no handbooks specific to the use of electronic voting in African countries, since Namibia will be the first. But the principles for observation remain the same, and political party agents, as well as election observation teams from across the continent and beyond would do well to familiarise themselves with the unique challenges that come with these technologies, to ensure a comprehensive assessment of the electoral process.

Needs Assesment Mission (NAM)
2-4 months before election

Deployment of an Observation Mission
5-6 weeks before election

ELECTION OBSERVATION CYCLE

Follow-up
On recommendations, possible advice and assistance (Legal review)

Preliminary Statement
Day following election

Final Report
Some 2 months after end of election process, including implementable recommendations

(Source: OSCE Handbook for Observation of New Voting Technologies)

CONCLUSION & RECOMMENDATIONS

Implement the VVPAT system (at least incrementally)
The EVM presents a number of important benefits for the electoral process. However, like India's Supreme Court, we are of the opinion that the paper trail is indeed "an indispensable requirement of free and fair elections". It is vital that the electorate are assured that the vote they have cast is indeed correctly recorded. In fact, this is a condition of the new Electoral Bill, and there should be no question as to whether the VVPAT system should be used. The only question is how soon?

The ECN should therefore begin – if at all possible, starting with the 2014 National Assembly and Presidential elections – to make use of the VVPAT. The VVPAT could be introduced gradually, as in the case of India. If the use of VVPAT is not possible from a practical point of view at these elections then extensive efforts will have to be made by ECN to persuade parties and prospective voters that the EVMs available are reliable and accurate.

Voter education should go beyond the basic use of the EVM for trust-building
Voter education is critical in any election, and when transitioning to a new method, it is even more important, as voters need to be clear on how to "cast ballots that are legally valid and to participate meaningfully in the voting process."[41] Importantly, and especially given the current absence of a mechanism for generating a paper trail, voters should be educated comprehensively on the use of the EVM, its functionality, its features, how it is resistant to fraud or tampering, and so forth. Voter trust in the electoral system is the most important key to credible elections, and voters should be fully aware of all the strengths, weaknesses, and vulnerabilities of the EVM. Further, voter education should be done in the most accessible and broadest way possible, to ensure that all eligible voters are reached.

Knowledgeable Election Observers/Party Agents
Election observers should be knowledgeable of the implications of NVT throughout the electoral cycle, to ensure that the observation function is fully carried out. Election observer missions should be staffed with at least one technical expert, where possible; and beyond monitoring the Election Day activities, pre and post-election audits should be carried out. If EVMs are used without any application of a paper trail, it is even more important that observers are sensitive to all the elements of how the EVM is dealt with throughout the cycle. (See section on Recommended Reading for Handbooks for Observing Electronic Voting)

Security beyond the technical
As Castro notes, "The real problem with the current generation of direct-recording electronic (DRE) voting machines is not that they use computers, but that the integrity of the election depends on maintaining a secure chain-of-custody of the voting machines and the ballots." It is important that the integrity of the system is secured throughout the electoral process, and at all points in the 'life' of the EVM. Beyond the issue of the paper trail, maintaining this 'secure chain of custody' is critical. The ECN should be able to demonstrate a high level of accountability, transparency and security throughout the election process, in order to win the trust of voters and allow for a credible election.

Key Recommendations on EVM Use from International IDEA

1   Define the goals clearly. Make sure electronic voting is the most appropriate solution.

2   Be aware of the challenges. None of the systems currently available is perfect, nor is there agreement on what a perfect e-voting system would look like. Learn from previous, international experience.

3   Get key stakeholders to buy in. Opponents of the system can and will come up with objections and weaknesses and create distrust in the system and potentially in the entire electoral process.

4   Provide for auditing and certification. These are important confidence-building measures and should be transparent, allowing stakeholders access to procedures and documentation.

5   Allow enough time for project implementation. Usually the technical implementation of e-voting systems takes at least one year after awarding the tender and it takes a much longer time for an e-voting system to be socially accepted.

6   Plan for training, professional development, and civic and voter education. Well-informed stakeholders will find it easier to trust a new system.

7   Consider sustainability issues and plan for the future. Consider the total cost of ownership, including review, upgrades and replacement as well as adjustments to new requirements over time, rather than the one-time purchase costs.

(Source: International IDEA, 2011. **Introducing Electronic Voting:** Essential Considerations, Policy Paper, December 2011)

Recommended Reading

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