

A hacker's perspective on Mozambique's 2014 elections

The hackers specialize in looking for weaknesses in the security features of a system and demonstrate their expertise by stealing or manipulating data. In this note we look with the eyes of hackers at the tabulation process in the forthcoming elections. The central question is which vulnerabilities we can identify in the security features. Or in other words: are there instances in the process where manipulation is possible?

Every now and then we read reports in the media that “hackers” managed to break into a highly secured database or system for electronic payments. Government institutions, banks or companies that develop software with strong security features often contract such hackers to test the solidity of the safety measures they built into new procedures and applications. The hackers specialize in looking for weaknesses in the security features of a system and demonstrate their expertise by stealing or manipulating data.

In this note we look with the eyes of hackers at the tabulation process in the forthcoming elections. The central question is which vulnerabilities we can identify in the security features. Or in other words: are there instances in the process where manipulation is possible? An electoral process is traditionally subject to strict security measures as these must guarantee that the results reflect correctly and transparently the preference expressed by each of the voters. If there is widespread trust that all actors will respect the rules of the game, the security measures do not need to be elaborate. But the stronger the perception that not everyone will always play by the book, the stronger the need to enhance and enforce security measures.

The country's electoral legislation has been under constant revision. A new package was discussed and approved after every electoral cycle so far. At the core of these discussions was not how the electoral system can become more representative, how technical flaws can be removed or how the system can become more cost-effective. Time after time the driving force for reforms have been experiences that the system had been “hacked”.

The most recent reforms concentrated on the integration of party members in the Technical Secretariat for Electoral Administration as well as in the teams that staff the polling stations. The aim of these measures is not to make the process more efficient, but purely to improve the protection against “hackers”. Renamo has systematically accused Frelimo of “stealing” elections and based on that logic they would only rely on their own loyal eyes watching over all the operations to prevent fraud. As part of the peace negotiations Renamo managed to push through a last-minute amendment of the election legislation to integrate party representatives of the three parties in Parliament in Election Commissions at all levels, the STAE at all levels and now also as polling station staff.

Many observers are convinced that this measure drastically reduces the possibilities to manipulate the results at the polling station. The question is now if these new measures eliminate all vulnerabilities, and still leave possibilities for hackers to invisibly influence or capture (a part of) the tabulation process.

In previous elections “hackers” multiplied and diversified tactics and methods. Ballot box stuffing soared to the extent that the CNE had to exclude the results of hundreds of polling stations in 2009 (mainly in Tete, Gaza and Niassa). In other cases valid ballots were invalidated during the counting process, or result sheets were tampered with (numbers altered), or even exchanged by new ones. During the 2013 municipal elections several people were caught carrying blank ballots, which was a new phenomenon. This should be impossible, because only a specific sequence of ballots are printed and packed for every polling stations. No extra ballots should exist and the printer provides STAE with the list of sequential numbers for each polling station. In fact STAE can identify to which polling station each ballot belongs. There have also been unexplained and unexplainable alterations of the results between the various levels of tabulation (district/city-province-national).

Some areas are more prone to manipulation than others. When nationwide participation dropped around 40% between 1999 and 2004, official results show that participation in Tete province increased with 18%. Tete is the only province where the absolute numbers of voters increased every election. Gaza also shows participation levels that are way above the national average. In 2009, participation in several districts of Gaza province was over 80% (Chicualacuala 96%, Massangena 88%, Massingir 83%), while national average was around 45%. Very strong deviations from average participation, without a reasonable explanation, are usually an indication of manipulation. Large-scale ballot box stuffing is laborious and thus tampering with result sheets can be done more secretly and has higher impact. The CNE excluded close to 200 polling stations (over 85000 votes) from Tete province in 2009 because of irregularities (we assume, because the CNE never explained why they did so).

The current legislation requires a large-scale mobilization of party representatives to be present in the electoral management bodies and at the polling stations. It will be a huge challenge for MDM and Renamo to post sufficiently trained staff in each of the 17000 polling stations. And in some areas they may have difficulties to deploy due to intimidation or simply be lured into the temptation of a bribe. Observers traditionally concentrate on the more hotly contested areas, but looking at Gaza and southern Tete, fraud often seems to occur in areas where one party strongly dominates. Generally, the increased presence of party representatives at polling stations does strengthen the guard at polling station level but it does not make the process waterproof against “hackers”. Rather than taking risks at the polling station, hackers could opt to exploit the window of opportunity after the voting.

Election day is long and exhausting, certainly when the results for 3 elections need to be counted as will be the case on 15 October. Most watchdogs will be sleeping, resting, recovering the day after. According to the official CNE instruction (Directiva 2 of 9 August 2014), the presidents of the polling station need to deliver the result sheets “personally, or through the most secure way” to the District or City Elections Commission within 24 hours after the voting closed. A hacker would find this a suitable window of vulnerability to act. Party representatives and observers do receive copies of result sheets and may follow the transport with their own means, but the latter never really happens.

The District/City Elections Commission then has to produce the first aggregate result within 72 hours of closing of the polls. STAE is responsible for the technical-administrative part of the process and a sub-commission of the local CDE/CEC has to do the supervision. There is no observation foreseen, not by party representatives, journalists or observers. At this moment it is not clear what technical precautions STAE will foresee against possible wrongdoing during the district count. What guarantees are there that result sheets will truthfully be entered into a system (and what kind of system). Fraud can be subtle, for example by allocating the highest number of votes to a certain candidate during the tabulation. As such the consistency of the data

on a result sheets (number voters=valid votes + invalid votes + blank votes) remains intact.

True, a technically sound PVT should be able to detect manipulation of results during the tabulation phase (at least for the presidential elections). Domestic observers have done PVTs since 2003. The experience learns that it is a highly effective tool when a full count (all polling stations) can be carried out. The PVT carried out by the Electoral Observatory has resulted in several changes of official results. In Marrumeu in 2003 a narrow win for the Frelimo candidate was turned into a narrow win for the Renamo candidate. In Nacala in 2008 a run-off was first denied by the Elections Commission but later allowed under PVT pressure. For general elections a PVT is based on a sample of 10% to 15% of a specific selection of all polling stations, proportionally spread over the national territory. Sample-based results have a margin of error, depending on the size of the sample and the political geography of the country. The PVT results for the 2004 and 2009 presidential elections matched the official results. However necessary the instrument, it has two downsides. The biggest is that a sample-based PVT can not be conclusive when the result is close. Take 1999 (52% for Chissano and 48% for Dhakama). In such case the type of PVT we can carry out in Mozambique can not be conclusive. The second downside is that it can only be reliably done for the presidential elections and not for the parliamentary and provincial elections because these would require different samples and domestic observers simply do not have the manpower.

The collection of as many results as possible from the polling stations is a necessary means to be able to opinion on official results, but the easy way out would be that the CNE facilitates such verification. A central problem for the credibility of results is that result sheets collected at the end of the counting in a polling station can not be traced during the tabulation process later on. We do not know which polling stations have been excluded, we can not check if the results of a particular polling station is correctly reflected in the official results database. There is currently a lot of control possible at the polling station, but far less afterwards. It would be a great leap forward if the CNE would allow access

to the result sheets of all polling stations, and that these result sheets can be checked by candidates and observers against their own copies and against what is in the CNE database. This requires some organization, but it is a low-cost measure that would dramatically increase the credibility of results. The electoral authorities have kept detailed results secret since 1994. Only for the first election is there a printed record with the results for all polling stations. This was never repeated afterwards, not for general and not for municipal elections. Only aggregate levels (municipal, district,...) have been published, usually long after each election, and these do simply not allow to verify the correctness of the results. Besides a control mechanism, it is also widely accepted good practice to make detailed results available.

But why do we need to worry? Not only do we have the antecedents of well-succeeded and failed attempts of fraud. If the most powerful contender, in this case the ruling party, has privileged access to the production process of election materials and tabulation software, it increases the risk that the integrity of the process gets affected. The two Mozambican companies that were contracted by STAE/CNE (Tipografia Academica and Escopil) have a clear and direct link with the ruling party. One of the main shareholders of printer Academica is a long-standing member of the Frelimo Central Committee. The IT company Escopil is owned by a current and former member of Government and some family members.

This creates a situation whereby a suspicion of privileged access to the production process of key aspects of the electoral process (ballots, result sheets, tabulation software,...) easily takes root. Some people may wonder if this explains how extra ballots and result sheets circulated, and one may wonder if control over the tabulation software is to allow a last resort (re)programming intervention if such need would occur (for example in case of a close result like in 1999).

A perception that integrity is compromised is damaging for an electoral process and for the legitimacy of the winning candidate and party. But the CNE can still decide to do away with this. One way would be to order and allow full transparency

during the district/city level tabulation. At this moment this looks like a window of opportunity for hackers, but it can be turned into a guarantor of transparency: CNE should allow and organize access to the result sheets used for the tabulation and to the official database where party representatives and observers can check the consistency between papers and database on the basis of a sample of result sheets. There is no legal impediment to do so. The result sheets are posted or made public at every polling station after the vote count, so there is no reason why such public documents do become secret in the tabulation phase. CIP appeals to the CNE to turn the tabulation process fully transparent and hence waterproof against hackers.

CIP, in close collaboration with FORCOM and the LDH developed an intervention that not only aims to detect fraud, but that also promotes the enforcement of legal provisions to prosecute officials and civilians that breach electoral legislation. Moreover, CIP will undertake a specific effort to monitor the tabulation process at district/city and provincial level. This intervention aims to complement other civil society efforts that seek to improve the fairness and transparency of the process, such as domestic observation and parallel vote tabulation.

FICHA TÉCNICA

Director: Adriano Nuvunga

Equipa Técnica do CIP: Baltazar Fael; Fátima Mimbire; Lázaro Mabunda; Borges Nhamire; Stélio Bila; Edson Cortez; Jorge Matine; Ben Hur Cavelane; Teles Ribeiro; Nélia Nhacume

Layout & Montagem: Nelton Gemo

Endereço: Rua Frente de Libertação de Moçambique (ex-Pereira do Lago), 354 r/c, Maputo - Moçambique

Contactos: Tel.: (+258) 21 492 335, Fax: (+258) 21 492340, Cel: (+258) 82 301 6391, Caixa Postal: 3266,

E-mail: cip@cip.org.mz

Website: <http://www.cip.org.mz>

Parceiros



Parceiro de assuntos de género:

