

3 Executive Summary

This executive summary provides a synopsis of the Report of the Audit of the Register of Voters submitted to the IEBC in accordance with the Constitution and the Elections Act. The substance of the audit approach, methodology, findings and recommendations are included in the main report. This executive summary is provided only as an illustrative snapshot of the audit as well as to serve as a cross reference to the detailed findings set out in the main report.

As provided in the Constitution and the law, this report was prepared solely for the Independent Electoral and Boundaries Commission (IEBC) for the purposes of implementing the recommendations arising from the audit of the Register of Voters. We also recognize that under the law, the IEBC is obligated to submit a copy of the report to the National Assembly and the Senate. This report should therefore not be utilised for any other purpose. In deliberations and subsequent public dissemination of the findings, both IEBC and Parliament should take cognizance of the nature of some of the findings which are necessarily confidential and require to be treated as such.

In discharge of their roles, both IEBC and Parliament take sole responsibility for determining the level of disclosure of the findings. KPMG does not accept any liability for any disclosure, publication or use of the report other than for discussions relating to the implementation of the recommendations arising from the audit.

The rest of this report is set out under the following subheadings:

Subheading	Executive Summary Ref	Main Report Ref
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3.1 Contracting and commencement

KPMG Kenya (KPMG) was retained by the Independent Electoral and Boundaries Commission (IEBC) to carry out the audit of the Register of Voters as provided for under the Constitution and the Elections Act. The audit was initially planned to commence in December 2016 but was delayed by a legal challenge which was determined on 30 March 2017, allowing the audit to commence. Another two applications were subsequently filed in the High Court which both IEBC and KPMG continued to defend. The first of these applications was determined on 27 April 2017 while the second is yet to be determined. These legal challenges and the public

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vilification that followed were to test KPMG's commitment to provide these services. But we were convinced right from the proposal process that we were serving the Constitution and people of Kenya, and would not relent from that focus and commitment.

3.2 Background and context

The audit of the Register of Voters has been carried out against a background of mistrust that has been accumulated over several decades, and with the Register of Voters suspected to be the primary tool for mischief in disputed elections.

Prior to the promulgation of the new Constitution in August 2010, Kenya had paid a heavy price for this historical mistrust. This mistrust largely pitted those who are seen to be on the side of the authorities in power and therefore perpetrators of injustice, against those who are excluded, oppressed or marginalised. This mistrust was translated into clamour for power by each group, primarily along ethnic divides. It raised the stakes in influencing voting patterns, either through physical disruption of populations, manipulation of the register of voters, or outright rigging. This inevitably led to pre-election violence, disputed elections and post-election violence. The Akiwumi Commission inquired into the tribal clashes that had occurred in Kenya between 1991 and October 1998 and noted that political competition was the primary cause of the tribal clashes: "We have no doubt that the tribal clashes were politically motivated and that existing conducive situations were exploited¹²". This was to be followed by various efforts to inject integrity in the electoral process, with mixed results. Above all, the Constitution promulgated in 2010 set a new path for governance, social co-existence and inclusive prosperity. In particular, in the preamble to the Constitution, we now acknowledge the Almighty God, honour "those who heroically struggled to bring freedom and justice to our land¹³", and take pride in "our ethnic, cultural and religious diversity, and determined to live in peace and unity as one indivisible sovereign nation.¹⁴"

In 1997, under the auspices of the Inter Parties Parliamentary Group (IPPG), minimum reforms were implemented that provided for consultations in the appointment of Commissioners into the then Electoral Commission of Kenya (ECK), as well as embark on a comprehensive review of the Constitution. The Constitutional review process that the IPPG had agreed upon remained incomplete by the time the 2002 elections were held. The National Rainbow Coalition (NARC) government that assumed power after those elections committed to the constitutional review process that resulted in the draft that was presented for the referendum in 2005. This was defeated and the divisions that had characterised the coalition spilled in the 2007 elections.

In the lead up to the general election in 2007, the government was accused of reneging on IPPG reforms which had not been anchored in law, and unilaterally appointed new Commissioners into the ECK without consulting other political parties. The results of the election were disputed and the country plunged into post-election violence. To resolve that crisis, international mediators were brought in and a pact was entered into to establish a Government of National Unity and implement comprehensive reforms, including the process that led to the new Constitution in 2010. The resolution also established the Commission of Inquiry into the Post-Election Violence (CIPEV or the Waki Commission), and the Independent

¹² Report of the Judicial Commission of Inquiry into the tribal clashes that had occurred in Kenya since 1991 and chaired by Justice Akiwumi Molade Akiwumi (The Akiwumi Commission), 19 August 1999

¹³ Constitution of Kenya, 2010

¹⁴ Ibid

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Review Commission on the general election held on 27 December 2007 (IREC or the Kriegler Commission). The findings of the Kriegler Commission passed a damning indictment on the conduct of the 2007 election and blamed this on both sides of the political divide, conduct of stakeholders, incompetence in ECK, and a less than credible Register of Voters. The implementation of the new Constitution promulgated in 2010 created a new legal and institutional framework leading to the first elections under that Constitution in 2013. The elections were also to end in electoral disputes with 188 election petitions filed in Court. The most prominent of these was the petition on Presidential results which was determined by the Supreme Court, including less than complimentary allegations by the Petitioners on the quality and credibility of the Register of Voters, which the Court did not agree with. A charged political atmosphere together with the reports that followed in subsequent years implicating IEBC in corruption matters, only contributed to fuelling deeper mistrust of, and loss of confidence in the Commission.

It is against this background that sections of Kenyans took to the streets culminating in the establishment of the Joint Parliamentary Select Committee on matters relating to the IEBC (JPSC-IEBC), and enactment of the recommendations of the Committee through the Elections (Amendment) Act, No. 36 of 2016.¹⁵ This amended the Elections Act, 2011 to introduce a new Section 8A which provides that:

“1) The Commission may, at least six months before a general election, engage a professional reputable firm to conduct an audit of the Register of Voters for the purpose of—

- a) verifying the accuracy of the Register;
- b) recommending mechanisms for enhancing the accuracy of the Register; and
- c) updating the Register.”¹⁶

The law further provided for the early engagement of a professional reputable firm to conduct the audit for the purposes of the general election constitutionally scheduled for 8 August 2017.

In addition to this law, we have also established that the audit of the Register of Voters is a necessary component of the exercise of IEBC’s constitutional functions of continuous registration of citizens as voters, and regular update of the voters’ roll.

Against this backdrop, the audit of the Register of Voters therefore presents the IEBC with an opportunity to build public trust and inspire confidence in the Register and electoral process in the lead up to the general elections in August 2017. In addition, the audit is also an opportunity to capture important lessons that can inform reform efforts to deepen democracy and truly honour the sovereign power of the people of Kenya.

KPMG has taken this context into account and carried out the audit through a comprehensive methodology purposed to honour and secure the sovereign power of the people of Kenya, and which respects the IEBC’s constitutional independence on matters relating to the registration of voters and updating of the voters’ roll.

It is the tragic circumstances briefly outlined in this context that the audit is trying to cure by inspiring confidence in the credibility of the electoral process and the Register of Voters as a key contributor to credible, free, fair and peaceful elections. In this way, the audit can act as a

¹⁵ Elections Amendment Act, Act Number 36 of 2016 (commenced on 4th October, 2016)

¹⁶ Section 8A, Elections Act, 2011.

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catalyst to refocusing the country to the promise and high aspirations that Kenyans have for themselves in the Constitution. It is a task that KPMG took on with great commitment.

3.3 Stakeholder engagement

Having recognized that the audit was serving the Constitution and people of Kenya, and despite the very short timescales provided and delays occasioned by legal challenges, the approach to the audit included engagement with key stakeholders to provide them with understanding of the methodology and expected outcomes. The stakeholders included:

- Political Parties
- Inter-Religious Council of Kenya (IRCK)
- Representatives of various Civil Society groups
- Representatives of the Private Sector
- Government representatives particularly responsible for maintaining and providing the reference data required for the audit
- Both electronic and print media for countrywide dissemination
- Representatives of International Missions in Kenya.

Each of these stakeholder groups was provided with a comprehensive presentation of the approach and methodology, the expected outcomes and the limits of our scope. The groups engaged in vibrant discussion and identified a number of issues and recommendations. These are briefly summarized in the table below:

Key issue	Recommendations
Distinction between audit of the voter register and research on voter registration	<ol style="list-style-type: none"> 1. IEBC to carry out research on voter registration to determine why approximately 5.6m voters are excluded from the Register, and implement corrective measures to achieve higher coverage. 2. Identify the inter-agency issues that may be hampering registration coverage and develop an appropriate inter-agency framework.
Mistrust of the IEBC and agencies providing the reference data	<ol style="list-style-type: none"> 1. All data presented for the audit must be owned and certified by specific authorized officers within the Commission and agencies providing state agencies reference data. 2. Consideration should be given to carrying out comprehensive audit of the data and processes maintained by the state agencies providing the reference data. This will ensure the integrity of the data used by IEBC in safeguarding the sovereign power of the people of Kenya.
Safeguarding the independence of the IEBC	<ol style="list-style-type: none"> 1. IEBC needs to implement a transformative programme aimed at building a credible institution that can win the trust and confidence of most Kenyans.

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Key issue	Recommendations
	<ol style="list-style-type: none"> The IEBC will need to build its capacity and embed the highest standards of integrity to demonstrate excellence and the highest standards of performance in the discharge of its constitutional mandate. IEBC must employ only people with the character and capacity aligned to its role, and implement systems and processes that win the confidence of stakeholders To avoid the high cost paid by the country from a flawed electoral process, the IEBC should be accorded appropriate resources to implement the transformation programme.
Risk of unauthorized access to IT systems	<ol style="list-style-type: none"> IEBC to implement appropriate controls to safeguard their technology environment IEBC to authorize the auditor to carry out tests of risks of unauthorized access and supplementary report delivered and recommendations implemented.
Communication of the results of the audit to stakeholders	<ol style="list-style-type: none"> In addition to reporting to Parliament, there should be broader communication of the results of the audit to key stakeholders and the Kenyan public. For public accountability, there should be a framework for reporting progress in the implementation of the recommendations to the public on a regular basis.
Post-implementation review before certification of the register.	<ol style="list-style-type: none"> Before certification of the Register of Voters for the elections on 8th August 2017, IEBC should retain the auditor to validate that the recommendations from the audit have been implemented. Reconciliation of changes made to the Register of Voters from the cut-off date of the provisional Register of Voters that was subject to the audit, to the date of certification of the Register of Voters.

3.4 Overview of our approach and methodology

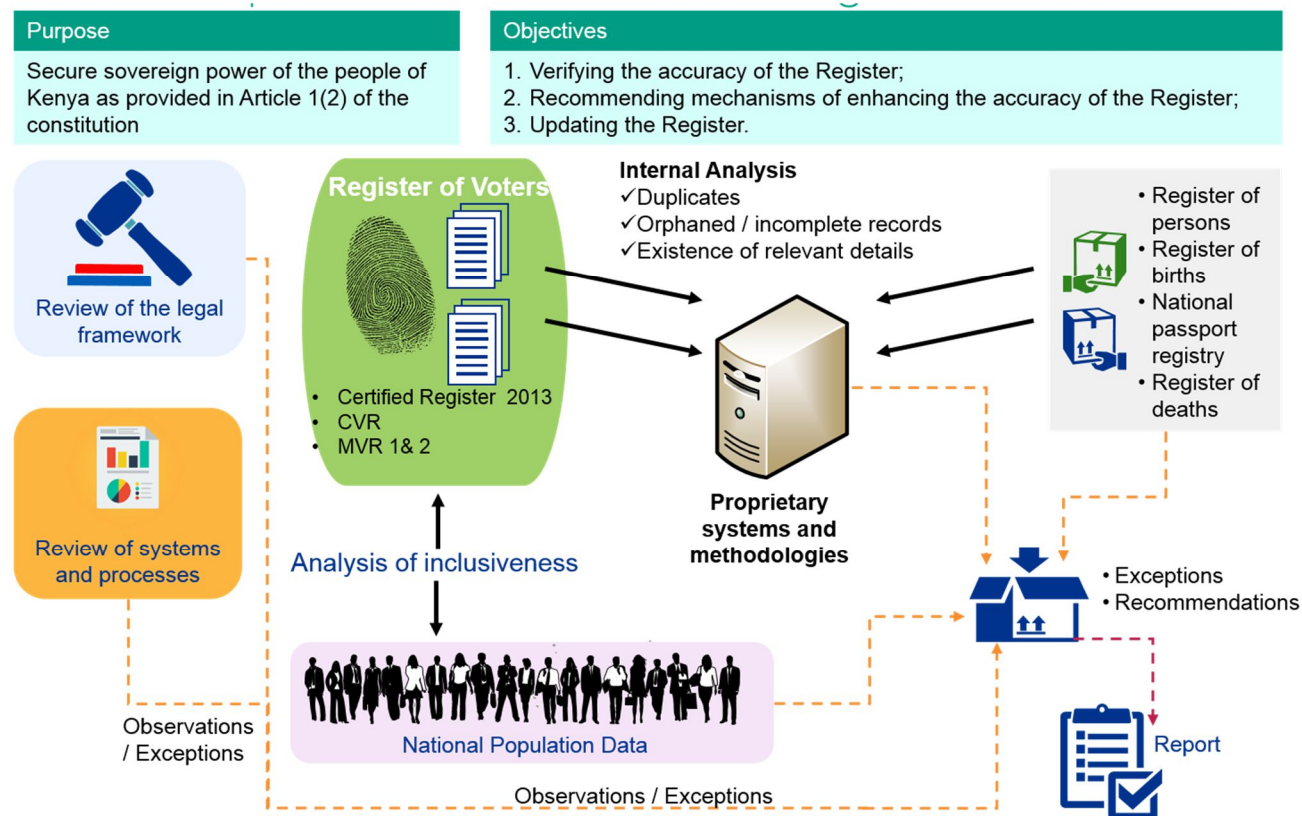
The methodology for the audit of the Register of Voters is grounded in the Constitution of Kenya and applicable laws.

An overview of the methodology is illustrated in the Figure 1 below and briefly explained in the subsequent section.

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Overview of the audit methodology

Figure 1- Overview of the Audit Methodology



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In addition to taking cognizance of the background and context informing the need for the audit of the Register of Voters, our methodology included five key areas briefly described below.

3.4.1 Review of the legal framework

We carried out a review of the legal framework governing the voter registration process and generation of the Register of Voters. Like the motion that gave birth to the statutory demand for the audit, our approach has confirmed that the audit of the Register of Voters is firmly anchored in the sovereign power of the people set out in Article 1 of the Constitution. Our review has also taken account of the spirit set out in the preamble and Articles 10, 12, 38, 81, 83, 86, 88, 249 and 260 of the Constitution. From this review, IEBC has a clear Constitutional mandate to carry out the audit and did not require to be compelled by legislation. In terms of the hierarchy of power in the constitutional framework, IEBC enjoys an elevated status being the body that superintends the process through which citizens exercise and delegate their sovereign power under Article 1(3) of the Constitution. Its independence is firmly established in the constitution. The related electoral laws and regulations, as well as legislation relating to citizenship and registration of persons are all aimed at facilitating the IEBC to discharge its independent role.

We have included amongst our key findings (Refer to Section 4) the issues that emerged from this comprehensive review of the legal framework, and included recommendations on measures that can enhance the accuracy of the Register of Voters.

3.4.2 Review of voter registration systems and processes

Our approach has included a review of the voter registration processes set out in the law and regulations, and implemented by the IEBC. In addition, we have also reviewed the underlying systems and infrastructure on which the Register is hosted. This review included obtaining a broad understanding of the process of recruiting personnel involved in voter registration, including the mechanisms in place to confirm their character and competence before deployment. In addition, we also enquired into the voter registration process (including biometric registration), voter transfer process, voter update process, the process of expunging of deceased voters from the Register, quality assurance and validation processes; and inspection and verification processes.

We also carried out reviews of the biometric voter registration system and database including a review of:

- Database controls and maintenance
- Security of data and underlying infrastructure
- Segregation of duties.

In our technical proposal, KPMG had proposed to carry out penetration testing on the RoV Database to establish the risk of unauthorized access and manipulation of the data hosted in the register. The IEBC however did not authorize these tests. The Commission advised KPMG that it is acquiring new ICT infrastructure for purposes of the elections. The Commission further advised that the law requires that the system to be used in the elections be tested and certified at least 60 days before the elections. Additionally the Commission stated that it has put in place other measures to ensure that the security and integrity of the entire system for

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the elections including the biometric register, undergo the test as one-system-test instead of having isolated tests.

We wrote formally to the Commission on several occasions to explain the implications of this limitation of scope on the integrity of data in the system, and therefore the credibility of the register. The IEBC indicated that it would reconsider its decision and communicate to us accordingly. At the time of preparing this report, the authorisation for these tests had not been provided. Should these penetration tests be authorised by the Commission, the work will be carried out after the submission of this report and a supplemental report issued to the Commission.

Our findings from the review of these systems and processes are included in the key findings in this executive summary.

3.4.3 Internal analysis and data analytics on the Register of Voters

The terms of reference included in the RFP indicated that the Register of Voters that would be subjected to audit would include the certified register of voters as at 2013 and additional registered voters as at 30 June 2016 from the Continuous Voter Registration (CVR) and the first round of the Mass Voter Registration (MVR1). By the time the audit commenced in April 2017, the second Mass Registration of Voters (MVR2) had been completed and the courts had ordered that CVR should continue. The IEBC sought to include the entire and most current Register within the scope of the audit by KPMG. KPMG agreed to cover the additional scope under direct procurement and for the purpose of the audit, cut-off date of the registration data in the Register of Voters 11th April 2017.

Under the terms of the Contract between the IEBC and KPMG, the IEBC was to present the Register of Voters to be subjected to the audit. In addition, the IEBC was also to procure or facilitate access to the duly certified state agencies reference data for the purposes of the audit. The date of engagement was predicated on the provision of this information. This was availed to KPMG as summarised in the table below:

Table: Presentation of the Register of Voters and Reference Data for the audit.

Reference Data and Register of Voters	No. of records provided	Date of Certification
National Passports Data duly certified by the Director of Immigration as provided in section 5 of the Kenya Citizenship and Immigration Act, or provided in section 16 of the Kenya Citizenship and Foreign Nationals Management Service Act.	1,291,576	13 April 2017
Provisional Biographic Register of Voters duly certified by the Commission Secretary / CEO.	19,646,673	24 April 2017
Provisional Biometric Register of Voters duly certified by the Commission Secretary / CEO.	19,647,835	14 May 2017

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Reference Data and Register of Voters	No. of records provided	Date of Certification
Data on National IDs from the Principal Registrar of Persons under the National Registration Bureau in accordance with section 5 of Registration of Persons Act. This certification was received from the Directorate of Immigration and Registration of Persons, and signed by the Director of National Registration.	25,323,059	15 May 2017
Data on Deaths from the Principal Registrar of Births and Deaths appointed under section 3 of the Births and Deaths Registration Act, duly certified by the Director, Civil Registration Services.	435,175	19 May 2017

In our technical response to the IEBC, we had indicated that the particulars in the Register of Voters would be matched against the Register of Births to identify potential underage voters in the Register of Voters. The Register of Births was however not provided for purposes of audit. We were therefore, unable to match the Register of Voters against the Register of Births. In any event there is no unique identifier maintained in the Register of Births that would have enabled the linking of the particulars of records in the Register of Voters against particulars in the Register of Births.

In future it is crucial that the State considers implementing an integrated Citizen Registration system which facilitates the linking of persons' records through the use of a unique personal identifier throughout the full lifecycle of an individual.

As indicated in the table above, the certified biographic register was presented to KPMG on 24 April 2017 and subsequently subjected to internal analysis through the use of Data Analytics Tools. Through use of these automated tools, KPMG was able to assess the accuracy, completeness and validity of voter registration details and particulars in the Register. This internal analysis aimed to identify any duplicate records, identify any orphaned or incomplete records, and confirm the existence of relevant details required under the law i.e. Name, ID, Gender, Biometric Information and polling station among other details in the Register. This internal analysis covered a 100% of all the 19,646,673 records presented to us by the IEBC.

Through this analysis, KPMG was able to identify which records required closer scrutiny and identify a directed sample for inclusion in the sample for biometric analysis.

We set out overleaf a graphic presentation of the national coverage and geographical distribution of the Register of Voters.

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3.4.3.1 *Summary of national coverage and geographic analysis of the Register of Voters*

We have analysed the reference and voter registration data provided to determine the national enrolment rates and trends in, as well as the national distribution of the 19,646,673 total registered voters by County. This analysis is set out in figure 2 overleaf.

Active IDs (25,323,059) as provided by the National Registration Bureau, and the number of eligible voters who have attained the age of 18 years (25,212,055) as well as estimated total population both provided by the Kenya National Bureau of Statistics. Based on information received from the NRB and certification received, we noted that the total number of active issued 2nd generation IDs in circulation is 25,323,059. We noted that the number of certified IDs differed from the total number of IDs reported in the JPSC-IEBC (26.3 million) and the number previously reported to the IEBC by NRB vide a letter dated 19 October 2016 for purposes of certification of the national ID cards amounting to 27,650,424¹⁷ (refer to annexure 3). In our discussions with the director of NRB, the director explained that the variances / discrepancies relate to 1st generation IDs / cards not replaced with 2nd generation cards and IDs that are not in circulation.

¹⁷ Refer to Annexure 3 – NRB data certification

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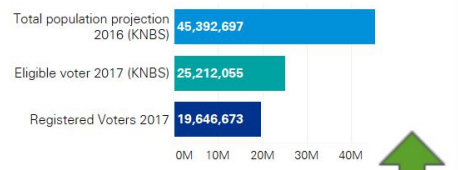
Figure 2 - National Coverage



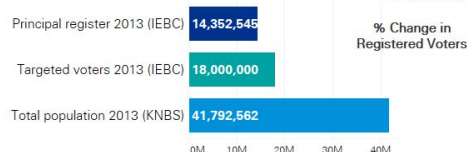
National Coverage



2017 statistics

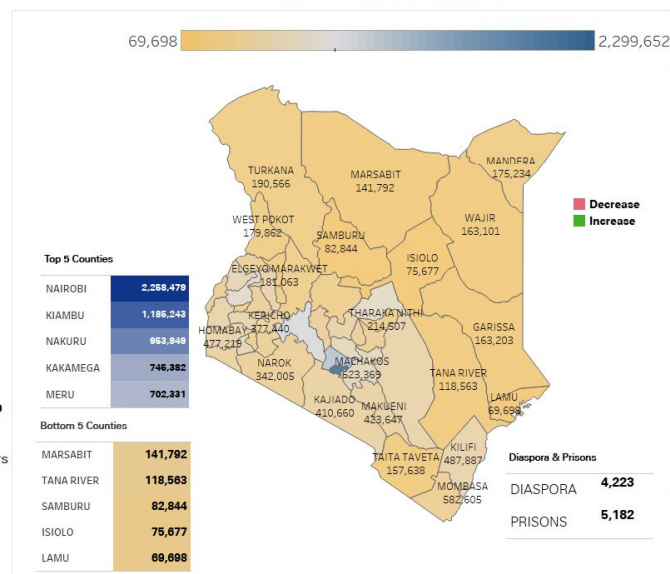


2013 statistics



Registered voters 2017 (IEBC)	Eligible voters 2017 (KNBS)	Issued ID's (NRB)	Principal register 2013 (IEBC)
19,646,673	25,212,055	25,323,059	14,352,545

National Coverage of Voters 2017



Enrolment rate by county

	Registered Voters 2017	Enrolment Rate 2017	Principal register 2013 (IEBC)	Enrolment Rate 2013
BARINGO	230,728	63.84%	173,653	67.05%
BOMET	324,583	68.34%	252,358	74.14%
BUNGOMA	559,989	62.60%	410,462	64.03%
BUSIA	352,433	72.83%	251,305	72.46%
ELGEYO MA.	181,063	75.46%	134,568	78.01%
EMBU	312,576	93.08%	227,286	94.44%
GARISSA	163,203	40.27%	115,202	39.66%
HOMABAY	477,219	76.12%	325,826	72.52%
ISIOLO	75,677	81.19%	54,462	81.53%
KAJIADO	410,660	91.85%	304,346	94.98%
KAKAMEGA	745,382	69.00%	567,460	73.30%
KERICHO	377,440	77.12%	290,458	82.81%
KIambu	1,186,243	111.90%	861,629	113.88%
KILIFI	487,887	67.58%	336,132	64.97%
KIRINYAGA	353,139	102.81%	265,290	107.76%
KISII	546,564	72.92%	412,945	76.87%
KISUMU	539,006	85.96%	385,820	86.41%
KITUI	474,840	64.16%	324,673	68.77%
KWALE	282,037	66.71%	174,443	57.57%
LAKEPIA	247,341	95.24%	173,905	93.44%
LAMU	69,698	105.52%	52,346	110.58%
MACHAKOS	623,369	87.23%	445,096	86.91%
MAKUENI	423,647	73.63%	298,221	72.32%
MANDERA	175,234	26.26%	120,768	25.25%
MARSABIT	141,792	74.86%	104,615	77.07%
MERU	702,331	79.60%	487,265	77.06%
MIGORI	388,147	65.06%	283,862	66.39%
MOMBASA	582,605	95.34%	408,747	93.34%
MURANG'A	593,769	96.85%	452,841	103.05%
NAIROBI	2,258,479	110.31%	1,728,801	118.16%
NAKURU	953,949	91.12%	695,318	93.02%
NANDI	347,186	70.88%	263,254	74.99%
NAROK	342,005	61.79%	262,738	66.23%
NYAMIRA	280,622	71.15%	219,358	78.65%
NYANDARUA	337,774	87.08%	255,984	92.09%
NYERI	461,434	102.28%	356,380	110.22%
SAMBURU	82,844	56.87%	61,114	58.54%
SIAYA	457,663	83.53%	311,919	79.43%
TAITA TAVETA	157,638	85.13%	113,862	85.80%
TANA RIVER	118,563	75.92%	79,455	70.99%
THARAKA N.L.	214,507	90.26%	155,487	91.29%
TRANS N.ZOIA	340,843	64.00%	244,640	64.09%
TURKANA	190,566	34.25%	132,885	33.32%
UASIN GISHU	450,845	77.51%	330,630	79.31%
VIHIGA	271,785	75.33%	202,822	78.44%
WAJIR	163,101	37.85%	118,091	38.27%
WEST POKOT	179,862	53.93%	120,986	50.62%

3.4.4 Comparison against reference data and biometric analysis

3.4.4.1 Comparison against reference data

In addition to the internal analysis of the Register of Voters, we also carried out validation processes to establish whether a 100% of the 19,646,673 included in the Register of Voters were supported by either a valid ID as certified by the Registrar of Persons, or a valid Passport as Certified by the Director of Immigration. For the purposes of the conduct of the audit, the agencies operating under the statutes within the purview of the Kenya Citizens and Foreign Nationals Management Service Act are required to avail the information to the IEBC electronically for cross-referencing.

The methodology included our proposal provided for use of data from the Register of Births to identify under-age voters who may be included in the Register of Voters. However, no such register of births is maintained and without unique id to link to the Register of Births, it would have been difficult to use the data to carry out these checks. Instead, the date of birth in the Register of Voters was compared to that on the ID and Passport data as the basis for identifying whether there are any under-age voters in the Register of Voters.

As will be noted from the key findings from the audit included in section 3.5, there are no formal procedures for multi-agency collaboration in the provision of the comparison data and this presented a considerable challenge in obtaining the data required for the audit. Whilst we were provided access to the information on IDs and Passports from the respective agencies for the purposes of the audit, this was not availed to the Commission prior to the audit as required under the law. There were also certain limitations imposed on our access occasioned by privacy considerations that limited our ability to maintain independent audit evidence of the data provided. However, we obtained the appropriate certifications from the requisite agencies and were able to carry out the required audit procedures to confirm the accuracy of the Register, and identify the actions required to be carried out by the IEBC to enhance accuracy and efficiency in the update process.

We also compared the Register of Voters to the Register of Deaths provided and Certified by the Director of Civil Registration. The quality and completeness of the data on the Register of Deaths raised a number of issues and considerable work needs to be done to improve coverage in the registration of deaths, the accuracy of the data capture, and collation of complete records at the centre.

The absence of a multi-agency framework to provide the required reference data to IEBC on a regular basis meant that this data was requested and in some cases compiled only after the request for the purposes of the audit. Based on the data provided, we have identified the records that need to be expunged from the Register, those whose accuracy needs to be confirmed, and included recommendations on proposed improvements to enhance completeness and quality of the data. KPMG recommends the inaccuracies identified be rectified and use of biometric identification of voters as the primary mechanism on polling day.

3.4.4.2 Biometric analysis of the Register of Voters

Our approach in the biometric analysis took cognizance of the challenges necessarily encountered in the processes of setting up a register of voters with data relating to both

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biographic and biometric information. Biographic information includes details of ID or PP no., full name, gender, and date of birth among other fields in the database. Biometric includes details of fingerprints and facial images. In practice, not every voter will be registered with all required biometric and biographic information. The overall quality of the Register of Voters is lower when many voters are registered with partial information. Therefore an important part of the audit was to assess the completeness of the biometric data available in the Central BVR system.

Even where all required biometric information is available in the biometric domain (i.e., voters are registered with all required fingers and face images are captured), the quality of the biometric information itself could be low and severely limit its usability in the verification and identification of voters, as well as in de-duplication and adjudication processes. For example, facial images might be out of focus and fingerprint images can be smudged making them unusable or difficult to match. As part of the audit process, it was therefore important to carry out appropriate tests not only to assess the completeness but also the quality of the biometric information maintained in the Register.

This biometric analysis of the register was carried out on a sample identified through two processes: a directed sample based on the exemptions identified from the internal analysis of the biographic data resident in the Register, and a random sample to test the integrity of the biometric information in the entire Register.

3.4.4.3 Analysis of inclusiveness in the Register of Voters

Our terms of reference also included an assessment of the inclusiveness of the Register of Voters with regard to age, gender, people living with disabilities and geographic distribution.

3.4.5 Report on the audit of the Register of Voters

KPMG has completed the audit of the Register of Voters and now submits this final report which provides:

- Detailed description of the context, our approach and methodology and key findings
- Recommendations to enhance the accuracy of the Register, its update and thus ensure a credible Register
- Description of exceptions identified and the recommended actions to address those exceptions
- Report on the legal, systems and process improvements required to secure the integrity and security of the Register of Voters

The report has been prepared to take account of the findings and recommendations that relate to the forthcoming elections in August 2017, as well as medium term recommendations that can be subsequently implemented to strengthen the independence and institutional capacity of the IEBC, and establish multi-agency arrangements that can enhance the accuracy and efficiency in updating the Register in a manner than can win the trust and confidence of the people of Kenya. The table below provides the KPMG view of the period within which the recommendations laid out across the report should be considered for implementation. In certain areas of the report KPMG have redacted aspects of voters' names in order to preserve the subjects' privacy.



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Audit work stream	Pre verification	Pre certification	Pre elections day	Elections day	Medium term	Total
Stakeholder	3	2	1	1	4	11
Legal framework	-	3	2	3	17	25
Voter registration, transfer and updating processes	5	13	4	2	31	55
Analysis of the RoV	2	25	12	12	8	59
Database and infrastructure security	17	6	4	-	17	44
Inclusiveness of the RoV	-	3	11	-	74	88
Total	27	52	34	18	151	282

3.5 Summary of key findings and recommendations

3.5.1 Review of the legal framework

The review of the legal framework has identified a number of issues and we would like to highlight four of these in this summary. These include:

3.5.1.1 The people of Kenya enjoy unfettered sovereign power

The people of Kenya enjoy unfettered sovereign power under the Constitution. Even where legal and administrative measures are being put in place, these are intended to facilitate the exercise of this sovereign power rather than deny citizens that right. However, the people do not fully embrace and exercise this sovereign power to realize their individual, family, community and national aspirations. As a result, IEBC's voter registration drives do not achieve the intended targets and makes this a very costly process.

We recommend that IEBC works with other stakeholders to provide civic and voter education to equip citizens with the knowledge and understanding that they require to exercise the sovereign rights under the Constitution.

We also recommend that every administrative measure that is put in place regarding the process of registration of voters be assessed against the yardstick of facilitating citizens exercising their sovereign power.

3.5.1.2 IEBC's elevated constitutional position

The IEBC has an elevated constitutional role in safeguarding the sovereign power of the people of Kenya. It is primarily through the IEBC that the sovereign power of the people is delegated to the institutions set out in Article 1(3) of the Constitution. In addition, the IEBC's independence as safeguarded under the Constitution equips the Commission with the power and authority to assert its independence. Its capacity, character and conduct must accord with this elevated position and maintain independent and unwavering focus on truly honouring and protecting the sovereign power of the people.

We recommend that there be an organizational transformation initiative for the IEBC to assert its independence, build public trust in it and protect the sovereign power of the people of Kenya.

3.5.1.3 The audit of the Register of Voters is IEBC's constitutional function

The audit of the Register of Voters is a constitutional function of the IEBC and is firmly anchored in the Constitution and the law. The support provided by Parliament under Section 8(A) of the Elections Act would appear to be supplementary to the constitutional mandate already available to the IEBC. This accords with the determination of R.E Aburili, Judge, in High Court Petition no 129 of 2017 which states: "*It must be understood quite clearly that the work of auditing the Register of Voters is the function of IEBC*"¹⁸. IEBC has however not been

¹⁸ High Court of Kenya, Constitutional and Human Rights Division, Petition No.129 of 2017, Okiya Omtatah Okoti vs IEBC & others, Para 314 of the Judgement delivered on 27 April 2017 by R.E. Aburiri, Judge.

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proactive in establishing mechanisms for maintaining the accuracy of the Register of Voters, including independent audit thereof.

It is recommended that the IEBC asserts its independence and discharges its mandate in accordance with the Constitution. This will require the IEBC to be more proactive in the process of registration and in particular, invoke Article 35 of the Constitution to require other departments of Government to provide the information they hold to enable the IEBC to update the Register of Voters.

3.5.1.4 *Legal and institutional coordination to enhance accuracy in Register of Voters*

There are a number of areas where rationalization of laws is required to achieve greater accuracy in the Register of Voters and facilitate the people of Kenya to exercise their sovereign power under the Constitution. The areas that require attention include:

- Operationalisation of the Kenya Citizens and Foreign Nationals Management Service Act;
- Rationalisation of Registration processes with consideration for an integrated registration process, including the use of a unique identifier in the entire process from birth to death, and clarification on expired passports;
- Rationalisation of Election laws and Regulations;
- Giving effect to the disqualification criteria under Article 83; and
- Enhancing control over transfer of voters.

We recommend that IEBC establish a multi-agency, multi-stakeholder collaboration framework and prepare a medium term plan to ensure that these issues are addressed at least two years before the next elections.

3.5.2 Review of voter registration systems and processes

3.5.2.1 *Biometric Voter Registration Processes and System*

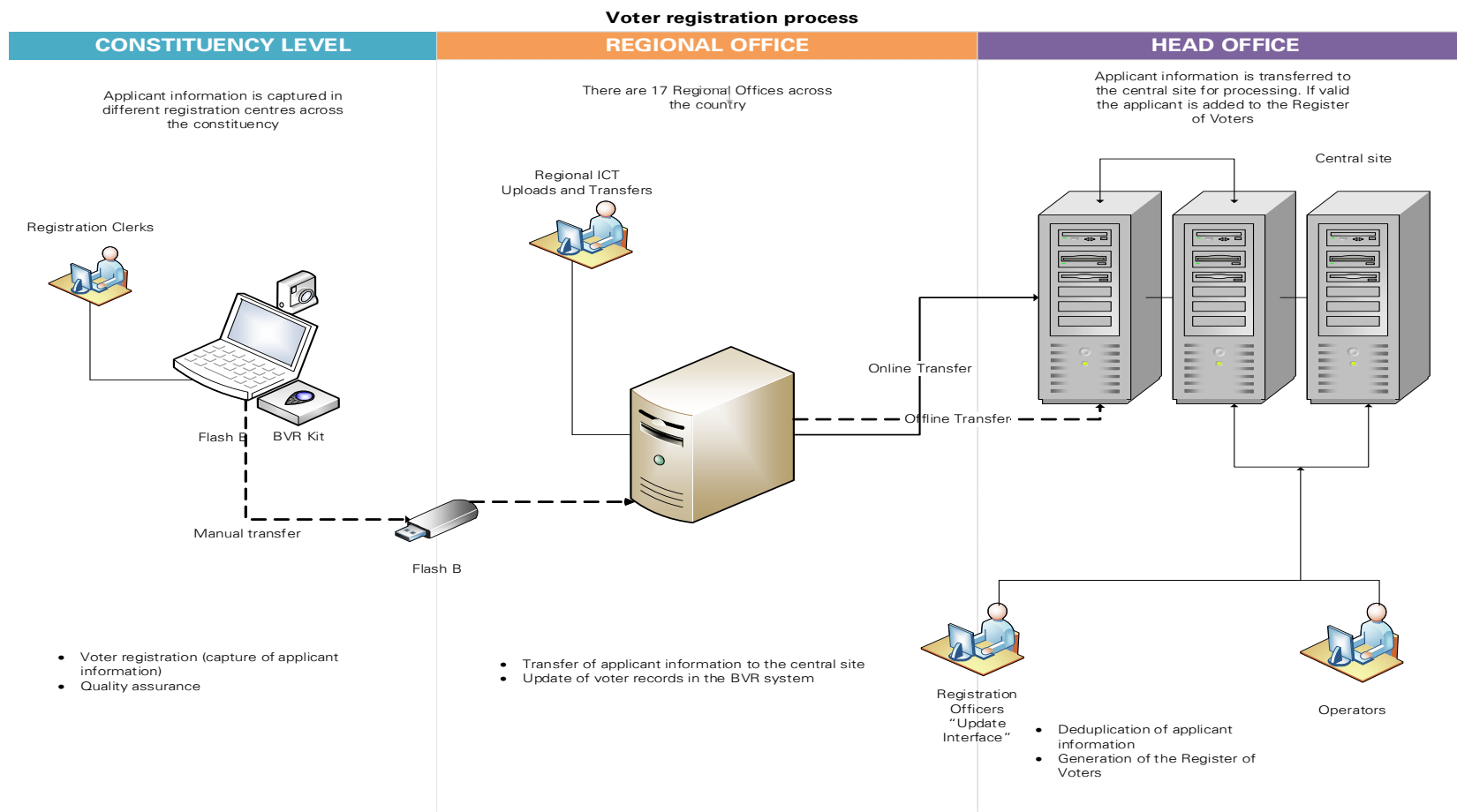
The Commission has implemented a BVR system for supporting voter registration, voter transfer and voter updating processes. The BVR system is composed of offline BVR kits at the constituency level, regional servers situated at 17 IEBC regional offices¹⁹ in the country and these are linked to a central processing site at the Commission's head office.

The figure 3 below provides a high level overview of the BVR system implemented by IEBC.

¹⁹ There is movement towards the 47 counties as the basis of organising the IEBC and away from the 17 regions. However, the registration process still occurred based on the 17 regions.

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Figure 3 - High level overview of the BVR system implemented by IEBC



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The key findings reported from the audit of the RoV in relation to voter registration include:

Complete and accurate update of data on applications for registration in the Register of Voters

The BVR system setup necessitates manual transfer of enrolment files from the BVR kits at the registration centers to the regional centers using flash disks. The enrolment files are transferred to regional servers for upload to the head office via online or offline transfer processes. Due to the current practice of offline transfer of files between the registration centers and the regional offices, there exists a risk of loss of enrolment data before it reaches the regional office. This risk also exists when the data is transferred offline from the regional offices and head office. MVR II statistics indicate that the 78% of the enrolment data transferred from the regional offices to the head offices was done offline.

After the MVR II, the Commission carried out a quality assurance (QA) exercise which was aimed to confirm that all voters who applied to be registered were included in the Register of Voters. Through this exercise, the ROs identified applications missing from the preliminary RoV. KPMG analysed the QA results and noted 4,209 voter registration applications from 19 constituencies were missing from the database containing the register of voter records.

QA results from the other 273 constituencies including diaspora and prisons were not available at the time of the audit. For these constituencies, we recommend that the Commission completes the QA and validation processes and implement any corrective actions where relevant.

Input and validation controls over applications for voter registration

During the voter enrolment process, applicants' details are captured on the BVR kit enrolment screen. These details include the identity document number, identity document type, applicant name and date of birth.

KPMG inspected the enrolment screen on the BVR kit and noted that it does not have input controls to enforce the requirements over the validity of voter eligibility documents, national identity document (ID) number or a passport. As a result, it is possible to capture invalid details and particulars in the BVR systems e.g. alphabetic characters in ID number field and numeric characters only in the passport field.

KPMG noted 60,853 voter records in the RoV with invalid ID details and 6,872 records with invalid PP numbers. Further, there was a voter record without ID or PP number details.

KPMG noted records with future registration dates, invalid identification document numbers that do not conform to the standard formats adopted by the relevant state agencies and names in the identification number field, names comprising numeric characters only, passports without expiry dates and IDs with expiry dates. These voter records do not conform to the eligibility criteria set out in the Constitution. These data input validation gaps also manifest in other mandatory fields such as first name and surname resulting in inaccuracies in the RoV. We understand the Commission has requested a system change from the vendor to introduce validation controls for mandatory fields in the BVR kit.

In the immediate term, the invalid details identified need to be investigated and rectified to enhance the accuracy of the particulars in the register. A list of exceptions in this regard has been provided by KPMG to the Commission.

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These all suggest poor data capture and processing controls and ultimately impact the public trust in the quality of data in the Register of Voters. We suggest a data governance review be undertaken that deals with the data ownership, data stewardship and data operations i.e. monitoring and currency and relevance of current data model.

Voters with invalid voter identification documents in the Register of Voters

IDs and PPs are issued by NRB and the DIS respectively. KPMG noted one instance on 4th February 2017 when the Commission published a list of Kenyan National ID numbers for records that were in the RoV that did not match with the NRB records. There is no evidence that a similar exercise was done for passports in relation to voters who registered with passports in the Register of Voters.

There is no evidence that the Commission regularly verifies the authenticity of voter identity document numbers in accordance with the eligibility criteria in the Constitution, by comparing the records in the RoV with the relevant state agencies reference data in order to identify and take appropriate action for voter records without valid identity document numbers.

KPMG analysed the current RoV ID numbers against NRB data and noted that the RoV still had 171,476 voter records without matching ID numbers. KPMG also analysed the RoV PP numbers against data from Department of Immigration Services and noted that there were 17,523 voter records without matching PP numbers.

Without regular verification, applicants who use identity documents that are not authentic may be able to register successfully resulting in non-compliance with eligibility criteria set out in the Constitution.

In the immediate term, KPMG recommends that the Commission investigate and adjudicates the exceptions noted from the audit. A list of exceptions in this regard has been provided to the Commission.

KPMG recommends that the Commission should periodically compare the RoV against ID data and PP data from the NRB and the Department of Immigration Services respectively.

Presence of voter records with the same identity document numbers

Deduplication is a process of comparing an applicant biometric (fingerprints and facial images) and alphanumeric details (ID/PP number) with the records in the RoV to deter an existing record from being saved more than once. As part of the deduplication process, the BVR system checks whether an applicant's identification number exists in the database containing the voter records.

KPMG analysed the RoV as provided to us for purposes of the audit and noted that there were 197,677 voter records with shared ID/PP numbers.

KPMG subjected the 197,677 and other irregular exceptions to full biometric de-duplication and only 123 duplicates were detected in this population. This would imply that the Commission has accuracy issues during data capture and that these have not been captured or fully resolved during the biographic deduplication processes.

KPMG understands that the Commission has requested a system change from the BVR system vendor to introduce a feature to restrict a new registration having an ID or passport number that already exists in the RoV.

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A list of the exceptions noted has been provided to the Commission for adjudication and rectification in the immediate term.

No centralized BVR kit records showing the serial numbers by location

The Agreement, dated 24 September 2012, for the Sale and Purchase of Hardware and License of Software for a BVR System (BVR Agreement) between Canadian Commercial Corporation and Government of Kenya (GoK) through Ministry of Finance and the Commission indicates that 15,000 BVR kits would be supplied to the Commission.

According to the BVR kits stock ledger and stock control card obtained from the Commission's national warehouse, KPMG noted that 15,000 BVR kits were delivered by Safran to IEBC's national warehouse between 10 October 2012 and 9 November 2012. The delivery notes indicated the serial numbers of the BVR kits received.

Additionally 1,500 existing IEBC kits and 300 IEBC Poll Books, which had previously been acquired from Code International, existed prior to the procurement of the new BVR kits. These were also retrofitted for purposes of Biometric Voter Registration, in 2012. This brings the total number of kits available for Biometric Voter Registration to 16,800.

In preparations for the 4 March 2013 general elections, the BVR kits were distributed to the Commission's regional warehouses to facilitate voter registration exercise conducted between 19 November 2012 and 18 December 2012.

KPMG noted that the Commission distributed the BVR kits without first recording centrally the serial numbers of the BVR kits being distributed to the regional warehouses. As a result, the Commission is not able to provide records showing the identity i.e. serial numbers of BVR kits that have been sent to the Commission's regional warehouses.

From inquiry with the manager systems support and datacenter and the system administrator, we were informed that the first six characters of a voter registration application number in the Register of Voters relates to the BVR kit number used to register the applicant. KPMG also performed a walkthrough of the registration process and noted that the first six characters is the BVR kit number. KPMG analysed these first six characters of the voter registration application numbers for the records in the Register of Voters and noted that there were 16,593 unique first six characters of the voter registration application number.

We recommend that the Commission prepares a central master list of BVR kits with serial numbers on the basis of delivery notes. The Commission should carry out a stock take of the current BVR kits, record their serial numbers and reconcile this against the master list to establish that all BVR kits are accounted for.

We further recommend that the Commission should periodically perform a reconciliation of the inventory of BVR kits and record the serial number, as a unique reference, for each kit.

3.5.2.2 Removal of deceased persons from the Register

The Election Act No 24 of 2011 states that, "for purposes of maintaining an updated Register of Voters, the Commission shall update the Register of Voters by deleting the names of deceased voters and rectifying the particulars therein"

The removal of the deceased voters should ideally be a very easy and straightforward exercise if the data is available. In practice however, the removal of deceased voters presents one of

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the biggest challenges for the Commission as there is no central electronic list of the number of deceased kept in the country. IEBC resorts to collecting the information on its own through its registration officers who liaise with the sub county offices, and health institutions to collect information on deceased.

The Commission's current process of removal of deceased persons from the RoV places the responsibility of collection of deceased voters' records on ROs. The ROs obtain the information from the Assistant Chiefs and sub-county civil registrars through a triangulation process as opposed to obtaining a centrally certified list of deceased persons from the CRS.

The data available from the civil registration bureau is in manual format in the form of booklets of 250 registers of forms D1 or D2. The summaries are published in the vital statistics reports capturing age, gender and county information.

Accuracy of the data

The data collected is not always accurate and fit for purpose for the IEBC. The records in many instances lack ID Numbers of the deceased persons, and in other cases the ID number represents the person who reported the death. This is usually a data entry issue at the point of collecting the information. Therefore the IEBC cannot rely on the records provided.

Timing and collation of the data

The sub chiefs are expected to take the information to the sub county registration offices bi-weekly, the sub county offices are then expected to present that data to the regional offices on a monthly basis. The timing differences have implications on data collection and collation at the head office. By the time the IEBC gets hold of the information, a lot of time may have elapsed.

Low registration coverage for births and deaths

The registration coverage of births and deaths as reported by the Civil Registration Department is also a major challenge for the IEBC. The published death registration coverage rates average at 40.66% for the past five years. The implication of this is that the IEBC does not have the full view of deceased persons which affects the ultimate number that may need to be expunged from the register.

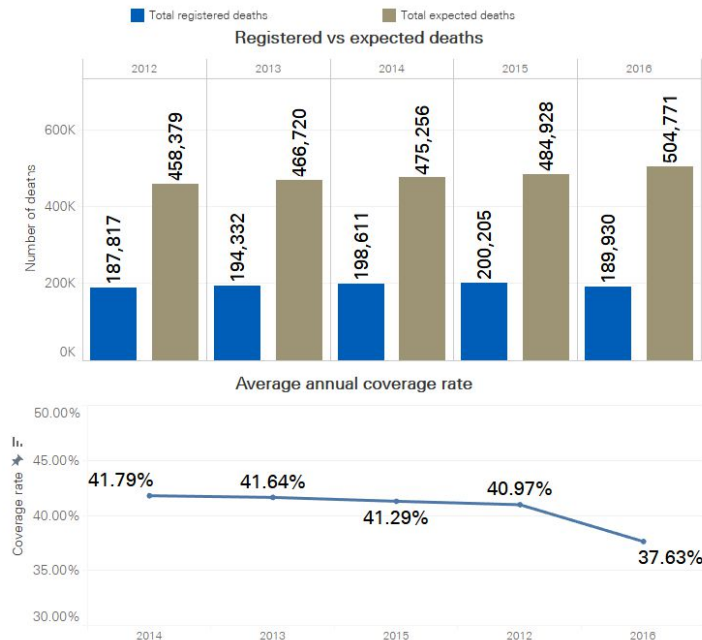
The Figure 4 and 5 below provides some statistics to demonstrate the extent of the challenge faced by the Commission in respect of update of the register to delete deceased voters.

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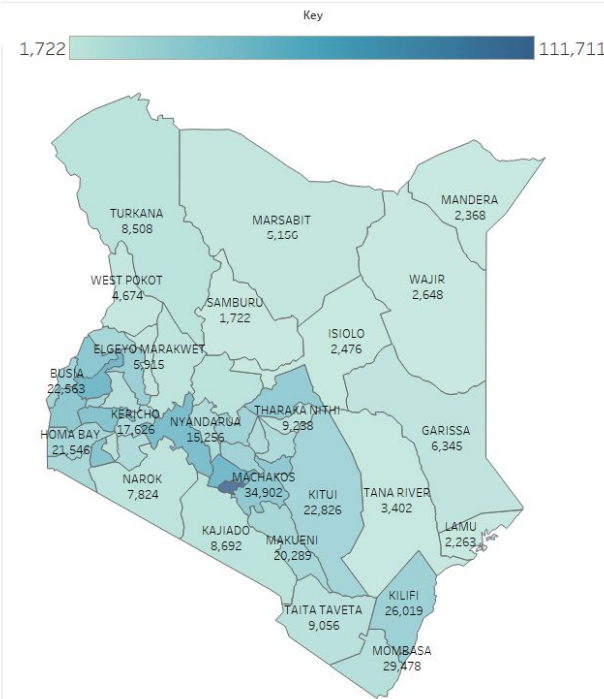
Figure 4 - Vital statistics on deaths

CRS Vital statistics on deaths (2012-2016: All i.e. Adults and children)

Total expected deaths (2012-2016: ALL) **2,390,054** Total registered deaths (2012-2016: ALL) **970,895** Actual deceased list (ALL) **435,175** Average coverage rate (2012-2016) **40.66%**



Total registered deaths



Source: Kenya Vital Statistics Reports-Civil Registration Services (2012-2016)

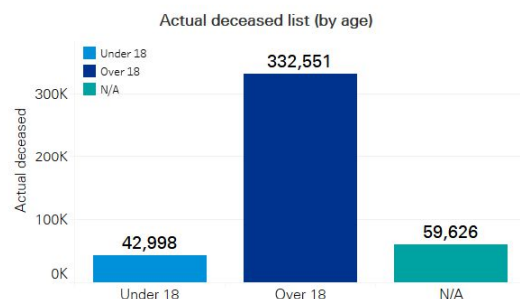
Total registered deaths deaths (2012-2016)

County.	Expected Deaths	Registered Deaths	Average Coverage
BARINGO	37,272	6,771	18.18%
BOMET	43,396	15,125	34.73%
BUNGOMA	94,284	36,195	38.37%
BUSIA	40,992	22,563	57.55%
ELGEYO MAR.	23,060	5,915	25.69%
EMBU	22,400	16,416	73.39%
GARISSA	15,600	6,345	34.16%
HOMA BAY	77,388	21,546	27.87%
ISOLO	5,342	2,476	46.23%
KAJIAO	32,371	8,692	26.86%
KAKAMEGA	114,173	51,368	45.05%
KERICHO	49,699	17,626	35.67%
KIAMBU	77,732	51,497	66.31%
KILIFI	65,372	26,019	39.86%
KIRINYAGA	29,296	15,133	51.64%
KISII	68,237	39,510	57.96%
KISUMU	81,515	41,699	51.22%
KITUI	57,423	22,826	39.81%
KWALE	42,189	11,545	27.27%
LAIKIPIA	30,049	8,592	28.64%
LAMU	7,071	2,263	31.99%
MACHAKOS	72,419	34,902	48.31%
MAKUENI	57,672	20,289	35.19%
MANDERA	49,805	2,368	4.77%
MARSABIT	12,944	5,156	39.67%
MERU	58,936	31,624	53.72%
MIGORI	73,520	19,125	26.02%
MOMBASA	54,786	29,478	53.86%
MURANG'A	58,511	24,750	42.27%
NAIROBI	148,129	111,711	75.59%
NAKURU	116,461	45,843	39.42%
NANDI	53,169	12,475	23.50%
NAROK	38,234	7,824	20.43%
NYAMIRA	34,592	9,938	28.69%
NYANDARUA	35,279	15,256	43.29%
NYERI	50,833	24,666	48.54%
SAMBURU	12,274	1,722	13.95%
SIAYA	98,576	35,458	36.02%
TAITA TAVETA	27,175	9,056	33.39%
TANA RIVER	17,107	3,402	19.93%
THARAKA NIT.	16,191	9,236	57.13%
TRANS NZOIA	50,748	19,959	39.33%
TURKANA	80,890	8,508	13.86%
UASIN GISHU	60,218	27,803	46.12%
VIHIGA	53,479	22,900	42.87%
WAJIR	25,190	2,648	10.53%
WEST POKOT	35,055	4,674	13.35%

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Figure 5 - Vital statistics on registered and expected deaths vs actual deaths list

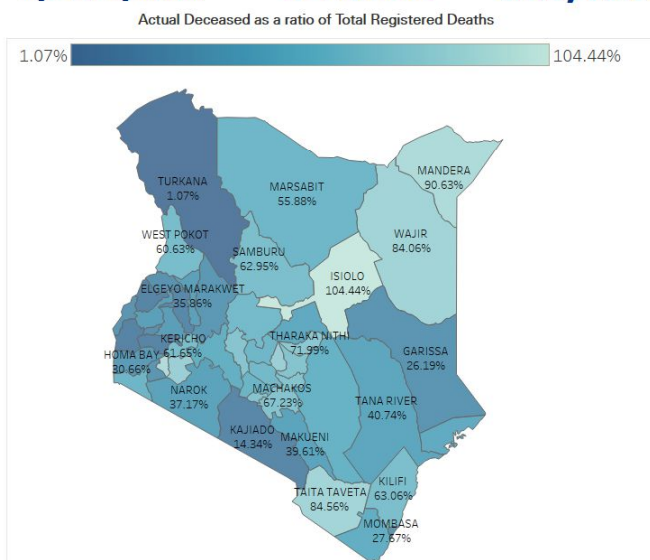
CRS Vital Statistics on registered and expected deaths vs actual deaths list (Nov 2012-Dec 2016)



Deceased with/without ID by age

Valid ID	Under 18	Over 18	N/A	Grand Total
With ID	819	196,988	26,000	223,807
Without ID	42,179	135,563	33,626	211,368
Grand Total	42,998	332,551	59,626	435,175

Total expected deaths (18 years and above) **1,534,009**
Total registered deaths (18 years and above) **621,832**
Actual deceased list (All) **435,175**



Source: Civil registry and Kenya vital statistics report (2012-2016)

CRS expected, registered vs actual deceased list (Jan 2012-Dec 2016)

County.	Total expected deaths.	Registered deaths.	Actual deceased list
Grand Total	2,390,054	970,895	435,175
BARINGO	37,272	6,771	1,959
BOMET	43,396	15,125	12,038
BUNGOMA	94,284	36,195	4,725
BUSIA	40,992	22,563	5,912
ELGEYO MA.	23,060	5,915	2,121
EMBU	22,400	16,416	11,007
GARISSA	18,600	6,345	1,662
HOMA BAY	77,388	21,546	6,607
ISIOLO	5,342	2,476	2,586
KAJIADO	32,371	8,692	1,246
KAKAMEGA	114,173	51,368	18,059
KERICHO	49,699	17,626	10,866
KIAMBU	77,732	51,497	27,800
KILIFI	65,372	26,019	16,408
KIRINYAGA	29,296	15,133	12,075
KISII	68,237	39,510	10,654
KISUMU	81,515	41,699	4,878
KITUI	57,423	22,026	11,623
KWALE	42,189	11,545	5,524
LAKEPIA	30,049	8,592	5,047
LAMU	7,071	2,263	1,020
MACHAKOS	72,419	34,902	23,465
MAKUEI	57,672	20,289	8,036
MANDERA	49,805	2,368	2,146
MARSABIT	12,944	5,156	2,881
MERU	58,936	31,624	13,716
MIGORI	73,520	19,125	10,625
MOMBASA	54,786	29,478	8,157
MURANG'A	58,511	24,750	14,280
NAIROBI	148,129	111,711	75,173
NAKURU	116,461	45,843	22,529
NANDI	53,169	12,475	4,202
NAROK	38,234	7,824	2,908
NYAMIRA	34,592	9,938	9,168
NYANDARUA	35,279	15,256	10,400
NYERI	50,833	24,666	13,791
SAMBURU	12,274	1,722	1,084
SIAYA	98,576	35,458	3,655
TAITA TAVET..	27,175	9,056	7,658
TANA RIVER	17,107	3,402	1,386
THARAKA NI..	16,191	9,238	6,650
TRANS NZOIA	50,748	19,959	4,730
TURKANA	60,890	8,508	91
UASIN GISHU	60,218	27,803	4,515
VIHIGA	53,479	22,900	5,052
WASIR	25,190	2,648	2,226
WEST POKOT	35,055	4,674	2,834

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Key results from review of deceased records

- According to information provided by the CRS, there were 1,820,639 deaths expected in the period 2012 – 2016 for persons aged 18 years and above (1,534,009 for the period November 2012 to December 2016).
- Of the above expected deaths, 739,276 deaths were registered by the CRS in the same period for persons aged 18 years and above (621,832 for the period November 2012 to December 2016).
- The CRS provided KPMG with a detailed certified list of 435,175 records of registered deaths in the period November 2012 – March 2017 across all age bands. The list of deceased records is summarized below

	Number of records Under 18 Years of Age	Number of records 18 Years and above	Number of records where Age Not Available	Total
Without ID Numbers	42,179	135,563	33,626	211,368
With ID Numbers	819	196,988	26,000	223,807
Total CRS deceased records	42,998	332,551	59,626	435,175

We compared the list of deceased records with IDs (223,807) against the Register of Voters.

After analysing this KPMG noted there are 92,277 records of deceased persons who are in the RoV with a matching ID and names.

A listing of these exceptions has been provided to the Commission to facilitate adjudication and update of the Register of Voter with the records of the deceased. The register should be updated prior to certification.

- 135,563 of the certified records of deceased from CRS above the age of 18 years do not bear ID numbers. In the absence of relevant ID numbers, it is not possible to compare these records against the RoV to determine if they exist in the register of voters.
- For the 33,626 detailed death registration records for persons whose age was not recorded and without IDs, it is not possible to compare these records against the RoV to determine if they exist in the register of voters.
- Detailed death records of the remaining registered deaths ($621,832 - 196,988 = 424,844$) had not been provided by the date of the audit report. In the absence of the required detailed death registration records, it is not possible to compare these records against the RoV to determine if they exist in the register of voters.
- In addition considering the expected death population of 1,534,009 there remains 912,177 unregistered deaths in the period 2012 – 2016. It is not possible to compare these records against the RoV to determine if they exist in the register of voters.
- Taking into account the number of registered deaths of 424,844 for persons aged 18 years and above, whose detailed death records have not been provided by the Civil Registrar, and the expected deaths of 912,177 for persons aged 18 years and above who have not

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been registered; and applying an enrolment rate of 77.58%, it can be deduced that there is a potential for an additional 1,037,260 deceased persons in the RoV. This number is broken down as follows:

Description	Number	Enrolment rate	Potential number in RoV
Registered Deaths per CRS for persons aged 18 years and above whose detailed death records have not been provided	424,844	77.58%	329,594
Expected Deaths per CRS for persons aged 18 years and above who have not been registered by CRS for the period November 2012 to December 2016	912,177	77.58%	707,666
Potential additional deceased voters in the RoV			1,037,260

- In the period November 2012 to the date of our report, the Commission has expunged only 11,104 deceased voters from the register of voters. When compared to the number of registered deaths, it is clear that the process of update of the register with deceased voters is severely ineffective.

Recommendations

Our key recommendations are:

- We recommend that the CRS provide complete and detailed lists of death records to substantiate the total number of registered deaths included in the Vital Statistics, reported as 739,276 (621,832 for the period November 2012 to December 2016).
- The Commission should develop a policy on the removal of dead persons from the voter's register. A policy is an important tool for the registration officers as it will provide clear guidelines on standard practice for removal of dead persons from the register, required documentary evidence and mechanisms for sharing of relevant information with relevant State Agencies in accordance with the Constitution and applicable laws. Currently the Registration Officers do not have confidence to remove deceased persons due to lack of clear policy.
- Collaboration and partnerships: For as long as the challenges within the civil registration bureau still remain, the commission's ability to maintain the register current and expunge deceased persons will remain a difficult task. The current practice by the Commission of working directly and closely with the sub chiefs and the health facilities to obtain data in the format that they need for purposes of collating death registration records has proven ineffective. For purposes of maintenance of the Register of Voters and the conduct of the audit in the future, the National Registration Bureau, the Kenya Citizens and Foreign Nationals Management Service and all other relevant agencies and institutions that hold information on Kenyan citizens should avail the information to the Independent Electoral and Boundaries Commission electronically for cross-referencing and information sharing.
- In order to support IEBC with complete data of deceased persons that captures the reported number of expected deaths the CRS needs to implement measures to improve death registration coverage across the country. Accurate and complete records of deaths is crucial to enable the IEBC update the register by removing deceased voters. To effect

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this it may be necessary for amendments to be made to the Births and Deaths Registration Act.

- In order to mitigate the risk of unregistered deceased persons being in the register of voters, it is imperative that the Commission utilizes biometric identification of voters as a primary mechanism on polling day.

Further details on the process of deceased from the register is provided in section 6.5.1.

3.5.3 Analytics of the Biometric Register of Voters

KPMG performed a series of analysis tests for both biographic and biometric data on the Register of Voters including comparison to reference data provided by the National Registration Bureau, Immigration Department and the Civil Registry of Births and Deaths covering accuracy and validity of the register.

We identified exceptions during our analysis and classified them as follows;

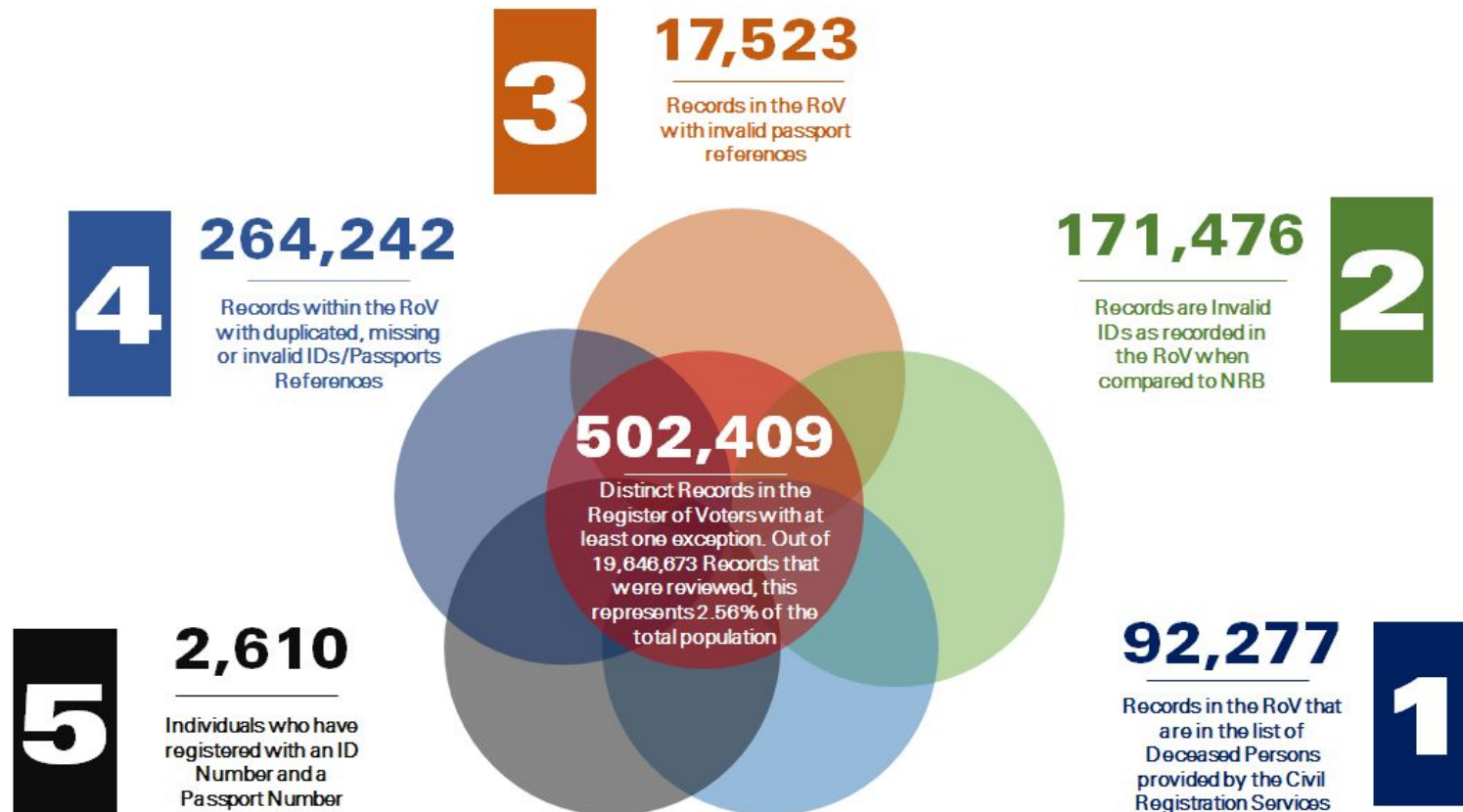
- Irregular Exceptions – These exceptions are findings that IEBC should endeavour to fix before the election as they may affect a citizen's eligibility or ability to vote.
- Accuracy Exceptions – These are exceptions where IEBC should consider a process of data cleansing immediately to address exceptions that will have a direct impact on voter identification on polling day. Other exceptions should be resolved on a longer term basis as part of IEBC's data governance activities.

The irregular exceptions included duplicate registration documents (IDs and passport numbers), and in one case a missing ID, inconsistent IDs and passports, ID/Passport numbers in the Register of Voters that do not exist in the certified register of IDs provided by the National Registration Bureau and the national certified list of passports list provided by the State Department of Immigration Services.

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The Figure 6 below provides a summary of the irregular exceptions identified from our analysis of the register;

Figure 6 – illustration of the summary of irregular exceptions identified from our analysis of the RoV



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Figure 7 – Illustration of the overall exception results



Irregular exceptions results

2017 REGISTERED VOTERS

19,646,673

TOTAL UNIQUE EXCEPTIONS IN RoV

502,409

VOTER RECORDS IN RoV WITH AT LEAST ONE EXCEPTION EXCLUDING DEATHS

411,503

SUMMARY

Total count of exceptions in RoV

550,044

RoV Duplicates, Invalids and Orphans

264,242

Registration with Invalid ID's

171,476

Deceased Voters with ID's in RoV

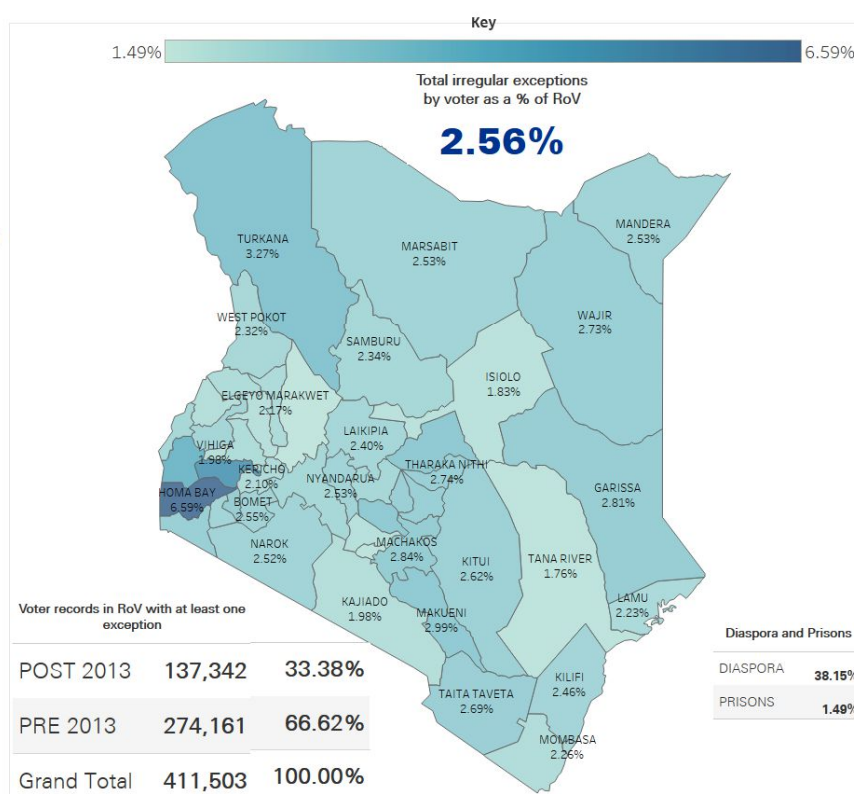
92,277

Registration with Invalid Passports

17,523

Voters registered with a Passport and ID

2,610



Distinct exceptions and voters by county

	Total distinct exceptions	Registered Voters 2017	Total exceptions (%)
Grand Total	502,409	19,646,673	2.56%
BARINGO	3,885	230,728	1.68%
BOMET	8,279	324,583	2.55%
BUNGOMA	11,118	559,989	1.99%
BUSIA	8,232	352,433	2.34%
DIASPORA	1,611	4,223	38.15%
ELGEYO/MARAKWET	3,927	181,083	2.17%
EMBU	8,545	312,576	2.73%
GARISSA	4,578	163,203	2.81%
HOMA BAY	31,434	477,219	6.59%
ISIOLO	1,382	75,877	1.83%
KAJIADO	8,149	410,860	1.98%
KAKAMEGA	18,064	745,382	2.42%
KERICHO	7,945	377,440	2.10%
KIAMBU	22,905	1,185,243	1.93%
KILIFI	11,997	487,887	2.46%
KIRINYAGA	9,536	353,139	2.70%
KISII	13,553	546,564	2.48%
KISUMU	26,840	539,008	4.94%
KITUI	12,484	474,840	2.62%
KWALE	5,790	282,037	2.05%
LAIKIPIA	5,936	247,341	2.40%
LAMU	1,554	69,698	2.23%
MACHAKOS	17,692	623,369	2.84%
MAKUEINI	12,678	423,647	2.99%
MANDERA	4,427	175,234	2.53%
MARSABIT	3,587	141,792	2.53%
MERU	21,310	702,331	3.03%
MIGORI	10,661	388,147	2.75%
MOMBASA	13,179	582,605	2.26%
MURANG'A	17,644	593,769	2.97%
NAIROBI CITY	40,295	2,258,479	1.78%
NAKURU	22,224	953,949	2.33%
NANDI	7,395	347,186	2.13%
NAROK	8,610	342,005	2.52%
NYAMIRA	7,875	280,822	2.81%
NYANDARUA	8,560	337,774	2.53%
NYERI	10,871	461,434	2.36%
PRISONS	77	5,182	1.49%
SAMBURU	1,941	82,844	2.34%
SIAYA	17,452	457,863	3.81%
TAITA TAVETA	4,247	157,838	2.69%
TANA RIVER	2,087	118,563	1.76%
THARAKA - NITHI	5,886	214,507	2.74%
TRANS NZOIA	7,304	340,843	2.14%
TURKANA	6,241	190,568	3.27%
UASIN GISHU	8,631	450,845	1.91%
VIHIGA	5,377	271,785	1.98%
WAJIR	4,457	163,101	2.73%
WEST POKOT	4,177	179,882	2.32%

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Key highlights from analysis of the Register of Voters

The total number of records that had at least one irregular exception, including ID cards for deceased persons, based on our analysis was 502,409 this represents 2.56% percentage of the Register of voters.

The total number of records that had at least one irregular exception, excluding ID cards for deceased persons, based on our analysis was 411,503 this represents 2.10% percentage of the Register of voters.

In our review we separated the irregular exceptions based on the registration date in the database and noted that 66.62% of the irregular exceptions relate to the period before the last election in 2013 and 33.38% of the irregular exceptions relate to the period after the last election which includes Mass Voter Registration I and II.

The accuracy exceptions relate to names, dates of birth and gender that do not fully compare between the IEBC and 3rd party databases noted above. The sources of the accuracy exceptions for IDs/Passports that agree to the state agencies databases were names that differ between the Commission Register of voters as well as dates of births and gender including a combination of the same.

For both the irregular and accuracy exceptions identified in the Commission Register of Voters, the Commission should review the source records to determine the root cause of the exceptions and make appropriate changes to the status of the various voters and document the basis of such a change. Given the exceptions identified we also suggest that the Commission provide appropriate guidelines to their registration centre officials in respect of resolving such exceptions consistently across the country during the verification exercise. Within the exceptions are 110 records where the Date of Birth between NRB and the Commission differ. Using the NRB birthdate these registrants were below 18 when they registered as a voter and would be considered under-age.

Our tests were also directed at the completeness of the register provided for the audit. In this regard we identified 158,480 records that were not yet considered to be a voter as at the cut-off date. These records included statuses such as suspended, rejected, deactivated, in progress and exception. Our review of the statuses indicates there are possible disenfranchised voters and IEBC should undertake a detailed review of these statuses to determine the root causes of these exceptions and make appropriate changes to the status of the various records and document the basis of such a change.

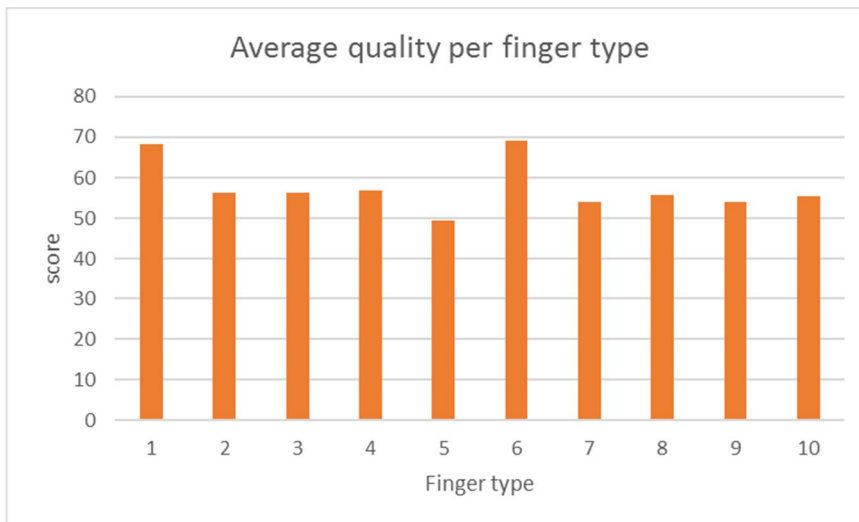
Biometrics review

The results of our biometric analysis provided evidence that the quantity and quality of finger print images captured by the Commission is good. This is evidenced by the test results of the quality that were checked against Genkey profile standards and the NIST NFIQ2 quality measures for fingerprints. The quantity of fingerprints captured per voter that were 6 or above represented 99.75% of the population sampled. Such a high capture rate greatly increases the chances of detecting duplicates during the deduplication process.

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The graph below illustrates the distribution of the NIST quality of the fingerprint images based on a random number selected:

Figure 8 - The distribution of the NIST quality of the fingerprint images



KPMG undertook a review of the biometric data in the RoV which included deduplication tests. The review was based on random sample of voters of 1.4 million and a directed sample based on the irregular exceptions noted above. For the random sample, three (3) real duplicates were identified from the 1.4 million records which suggests that the biometric deduplication process is good. Based on the duplicates identified in the random sample, the number of expected duplicates in the RoV can be obtained by extrapolation to 808 real duplicates with a 95% confidence interval. This represents 0.004% of the total records in the RoV.

For the directed sample 123 duplicates were identified from the population of 411,503 records, this would imply and reinforce the fact that the Commission has clerical errors at data capture and that these are not resolved during the biographic deduplication process. KPMG recommends the Commission reviews all the irregular exceptions noted above to determine the corrections required to a voters details.

Out of the 19,647,835 registered voters KPMG identified at least 5,247 records where the data suggests that no finger print images exist in the register. A breakdown of the distribution of the number of fingerprint images per record across the register is shown below:

Number of fingers	Number of subjects	Percentage
0	5,427	0.03
1	604	0.00
2	2,524	0.01
3	842	0.00
4	5,378	0.03
5	16,089	0.08
6	16,581	0.08
7	7,964	0.04

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Number of fingers	Number of subjects	Percentage
8	38,136	0.19
9	160,969	0.82
10	19,393,321	98.73
Total	19,647,835	100%

3.5.4 Database controls and infrastructure security

Overview

The Election Act 2011 holds that the Commission shall ensure that the technology in use for the elections is simple, accurate, verifiable, secure, accountable and transparent.

The electronic Biometric Voter Registration system is provided by Safran Morpho. The register of voters is stored in a central database held in servers at IEBC headquarters. The IT network in which the register of voters is maintained is a virtual private network that connects the BVR servers at the headquarters with 17 regional servers. This network is called BVR network domain and it is separate from any other IEBC networks.

The accuracy of the RoV is dependent on existence of effective controls that safeguard the BVR system environment. This involves implementing effective access controls to the RoV database and applications, proper configurations to critical equipment and infrastructure. In addition, ensuring existence of recovery and continuity mechanisms in the event of a disaster affecting the BVR system or the people, facilities and infrastructure supporting the system.

As part of the audit of the register of voters, KPMG performed database controls and infrastructure security audit over the database and infrastructure hosting the register of voters.

As part of the audit of database and infrastructure security the following systems were covered:

- BVR systems used for preparation, data capture and data transfer. These include: preload application; password generator; export application, restore application, upload application, transfer application and import application
- BVR systems used for processing, maintenance and generation of the register of voters. These include: Automatic Fingerprint Identification System (AFIS), Morphocivis and update interface.
- BVR.KENYA domain on which the BVR systems run
- Antivirus system used to safeguard Register of Voters server and computers

From our audit activities we made the following observations:

Penetration Testing and Vulnerability Assessment

Our approach to the audit of the register of voters (including security of underlying data and infrastructure as set out in the technical proposal and contract with the IEBC), included vulnerability assessment and penetration test.

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The objective of the penetration testing was to ascertain the Commission's security controls implemented to mitigate risks associated with unauthorized access and tampering of the RoV. Ultimately, the outcome is to enhance confidence to the electorate on the integrity and accuracy of the RoV. Therefore, the penetration testing is a critical component in the audit of the RoV.

In recent years, there have been numerous cases reported about election systems across the globe having been the subject of cyber-attacks. Notable reported cases in the recent past include elections in the United States, France and the Netherlands amongst others. It follows that Kenya is not immune to threats of cyber-attacks. Therefore the IEBC needs to ensure sufficient protection of the BVR systems from external and internal threats.

In accordance with the terms of engagement as agreed between the IEBC and KPMG, had proposed to carry out penetration testing on the RoV Database to establish the risk of unauthorized access and manipulation of the data hosted in the register. The IEBC however did not authorize these tests. The Commission advised KPMG that it is acquiring new ICT infrastructure for purposes of the elections. The Commission further advised that the law requires that the system to be used in the elections be tested and certified at least 60 days before the elections. Additionally the Commission stated that it has put in place other measures to ensure that the security and integrity of the entire system for the elections including the biometric register, undergo the test as one-system-test instead of having isolated tests.

We wrote formally to the Commission on several occasions to explain the implications of this limitation of scope on the integrity of data in the system, and therefore the credibility of the register. The IEBC indicated that it would reconsider its decision and communicate to us accordingly. At the time of preparing this report, the authorisation for these tests had not been provided. Should these penetration tests be authorised by the Commission, the work will be carried out after the submission of this report and a supplemental report issued to the Commission.

Weak database configuration and security controls on BVR

Setting the right database configurations considerably reduce the options that an attacker may use to access the database hosting the RoV with a view to make unauthorized changes or cause system unavailability.

On analysis of the Register of Voters database configurations, KPMG noted a number of weak configuration settings.

KPMG observed that there are two active default administrator accounts whose default passwords have not been changed. This significantly increases the risk of unauthorized access to the Register of Voters and using these accounts a perpetrator can add, delete or amend the voter details in the Register of Voters. KPMG also observed that audit logs for monitoring super user activity on the Register of Voters database have not been activated. Also, parameters that enable system administrators to change audit trails were enabled for all super user accounts in the Register of Voters database. We were informed that the system administrators review each other on an ad hoc basis. However, there was no evidence of the system administrators reviews. As such, a risk persists that changes made to the Register of Voters at the database level could go undetected.

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There is a database functionality called password verify function which when enabled ensures that password policy parameters are adhered to e.g. how many times a password can be re-used; how long before a user is forced to change a password, amongst other parameters. This password verify function was disabled for the database hosting the Register of Voters. The result of which is weak access controls over the security and confidentiality of the Register of Voters database.

Further analysis of Register of Voters database configurations revealed that it is susceptible to Denial-of-Service (DoS) attacks which may lead to unavailability of the database. A DoS attack involves numerous requests being sent to the database to overwhelm its processing resources which can then bring down the database. The Register of Voters database is susceptible to DoS because specific configuration parameters have not been set to prevent such attacks.

KPMG recommends that the Commission, in consultation with Morpho SAS urgently updates the database configurations (database hardening) to secure the database hosting the RoV.

Operational continuity controls over Register of Voters

KPMG was not provided with an operations continuity plan or an organization-wide Business Continuity Plan that IEBC would execute in the event of a disaster, to ensure continuity of critical operations. Lack of a business continuity plan would adversely impact the availability of the Register of Voters.

KPMG also noted that the Commission does not have an established disaster recovery (DR) site. As such, there is no secondary environment where operations including hosting and access to the biometric voter register database and related infrastructure can resume in the event of failure of ICT equipment and infrastructure which hosts the Register of Voters at the Head Office. Whilst we understand the Commission is in the process of procuring a co-location site and new IT infrastructure, in the event of failure of systems prior to the establishment of a secondary production environment, this could represent significant risk to the preparation for or during the elections in August 2017.

KPMG further noted that IEBC carries out backups of the Register of Voters onto backup tapes. There are no detached premises where these backups can be restored and tested. In the event that backup tapes were to be destroyed at Head Office, the Commission's ability to recover critical voter registration data will be impaired due to lack of redundancy. We are not aware of the restoration of these backup tapes in any environment.

The data center in which the Register of Voters is maintained lacks critical environmental controls. This increases the likelihood of incidences or a disaster. KPMG observed that the uninterrupted power supply (UPS) system had one (out of three) of the batteries with a faulty alert. Also, the data center's fire alarm / suppression system was faulty and, at the time of the review, had not been serviced since 18 September 2015.

In the course of the audit we noted that the air conditioning system in the data center failed with temperatures recorded in excess of 25 degrees. This had an adverse impact on server operations and critical processes.

KPMG recommends that, in the interim, the Commission improves the environmental controls and ensured the equipment and infrastructure is adequately serviced even if the Commission plans to procure the co-located sites. The procurement requirements of the co-located sites

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should consider physical and environmental controls that support electoral operational continuity in the event of a disaster

Approval of ICT policies to govern the technology environment on which the Register of Voters is prepared and maintained.

The Directorate of ICT has developed draft ICT policies. There is no evidence that the policies have been approved by the Commissioners. Further we did not obtain evidence that the draft policies have been communicated to the officers involved in the BVR systems and underlying technology. While the Elections (Technology) Regulations, 2017 are in place having been adopted in April 2017, the Election Act, 2011 envisages the existence of both technology regulations and a policy on technology.

To ensure consistent application of security measures around the technology supporting the RoV. KPMG recommends that the Commission should review, approve and facilitate implementation of effective information security policies. These policies should be upheld throughout the election cycle.

3.5.5 Analysis of inclusiveness of the register

The objective of this section of the assignment was to assess the inclusiveness of the Register of Voters and make recommendations to enhance its inclusiveness.

In assessing inclusiveness in the voter registration process and the Register of Voters, KPMG has taken into account principles of inclusiveness which require that the Register of Voters be compiled on the basis of non-discrimination and Article 83 of the constitution, which outlines the requirements of registration as a voter and prescribes that administrative arrangements for the registration of voters and the conduct of elections should be designed to facilitate and not deny any eligible citizen the right to vote. Special attention has been given to women, the youth, persons living with disabilities (PWDs), prisoners and voters in the diaspora.

Our approach to the assignment focused on key points of enquiry on the practices of the IEBC with regard to three key focus areas of voter registration which include voter registration system and process, voter education for voter registration, staff and logistics. An analysis of the register of voters against the NRB database on IDs Issued, CRB statistics on deceased persons and KNBS data on population dynamics. The findings provide a basis for KPMG's recommendations on enhancement of inclusiveness of all eligible Kenyans.

Analysis of the geographical distribution of the register of voters indicates Nairobi County has the largest concentration of registered voters at (11.50%), followed by Kiambu County (6.03%), Nakuru County (4.86%), Kakamega County (3.79%) and Meru County (3.57%). Counties with the lowest concentration of voters include Lamu (0.35%), Isiolo (0.39%), Samburu (0.42%), Tana River (0.60%) and Marsabit (0.72%). In terms of enrolment, migration seems to be a key factor in the geographical distribution of voters with the highest concentrations are found in urban areas while the lowest concentrations found in the Arid and Semi-Arid (ASAL) areas.

Analysis of voters across age and gender shows that the enrolment rates are fairly consistent amongst the same age groups. In examining the variance between the number of registered voters against NRB and KNBS databases, we note that voter registration amongst the 18 -19 year olds is significantly low at (1.05%) of the total registered voters, for a population that

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makes up (8.19%). It is also noteworthy that the number of IDs issued to this age group is only (1.99%) of the total number of issued IDs. The significance of this variance points to the low uptake of IDs. The 20 - 24 year olds also show a slight improvement in the registration rate from the 18 -19 year olds but still remain low in registration rates compared to the rest of the age groups. Mandera, Nairobi, Kisumu, Wajir and Garissa counties present the highest proportions of youth registered. Muranga, Makueni, Kirinyaga, Nyeri and Vihiga counties present the lowest proportions of youth enrolment.

Ages 25-64 raise no particular concerns. The over 65 year olds exhibit a peculiar attribute where the number of registered voters appear higher than the number of eligible voters both as projected by KNBS and NRB. The plausible explanations for this disparity could mean that either there are a number of deceased persons still in the register who have not yet been removed, or the possibility that the population estimates could be wrong amongst that age group.

A review of the enrolment rates (the number of eligible voting population against the number of registered voters), indicate that Kiambu County had the highest enrolment rate at 110.90%, followed by Nairobi (110.31%), Lamu (105.52%), Kirinyaga (102.81%) and Nyeri (102.28%) amongst the top five. Mandera County has the lowest enrolment rate (26.28%) followed by Turkana (34.25%), Wajir (37.85%), Garissa (40.27%) and West Pokot (53.93%). Comparisons against enrolment rates of 2013 and 2017 indicate that overall the enrolment rate has dropped with Nyeri, Nairobi, Nyamira, Muranga and Bomet leading. The notable improvements in enrolment rate from 2013 include Kwale, Tana River, Siaya, West Pokot and Kilifi.

The ratio of men to women in the register of voters is 49.33% to 50.57 against national ratio of men to women of 49.71% to 50.29% (KNBS 2009 population statistics). The ratio shows a slight improvement from 2013 with ratios of 49.12% to 50.88% women to men respectively. Interventions by the Commission are necessary to increase enrolment of women. Registration of women is conversely proportional to the national KNBS gender statistics. The gender index amongst the age bands indicate lower indices across all age groups except age groups (30-34), (55-64) and the over 65.

In terms of enrolments against issued IDs (NRB Data), the performance across all age groups and gender indicate a gap of 22.42% in enrolments. This represents approximately 5.7 Million eligible Kenyans who have not registered to vote. This may be an indication of voter apathy and points to the need for voter education. The commission together with stakeholders needs to redouble their efforts.

The number of persons with disabilities registered is only 143,812 (0.73%) of the register of voters against an expected estimated population of PWDS of 1,612,404. This is considerably lower than the estimated number of PWDS estimated at 3.5% of the total population. Diaspora and Prisons present very low numbers of registered voters.

An assessment of the voter registration system and processes from the perspective of inclusiveness indicate that the overall process was simple, transparent and inclusive. The requirements for voter registration was considered reasonable and fairly straightforward considering that IDs should be fairly easy to obtain. The requirement of being of sound mind presents a challenge to the Commission as it currently has no way of ascertaining one's state of mind. The IEBC has put in place mechanisms for voter education for all persons, however targeted voter education for women, youth, PWDS, persons in the diaspora and prisoners need to be put in place.



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A comparative analysis²⁰ of the registration rates amongst African countries indicate very high registration rates that surpass the voting age population estimates. Kenya ranks at number 31 with 78% enrolment rate against a class of countries such as Angola (114%), Lesotho (107%), Ghana (105%), Namibia (103%) and Seychelles (102%) ranking amongst the top five.

To enhance inclusiveness in voter registration, we have provided targeted strategies and recommendations. Some of the key strategies recommended include the adoption and implementation of actions to address the specific voter education needs, adoption of the draft social inclusion policy, development of stakeholder partnerships, development of targeted campaigns and provision of training to various stakeholders.

²⁰ Source IDEA

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The figure 9 below provides a high level summary of the key results of the analysis of distribution of registered voters by gender and age respectively

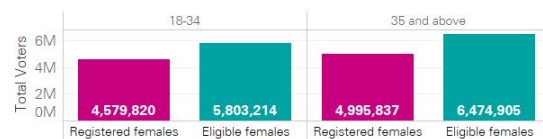
Figure 9- Distribution of registered voters by gender

Distribution of Registered Voters by Gender

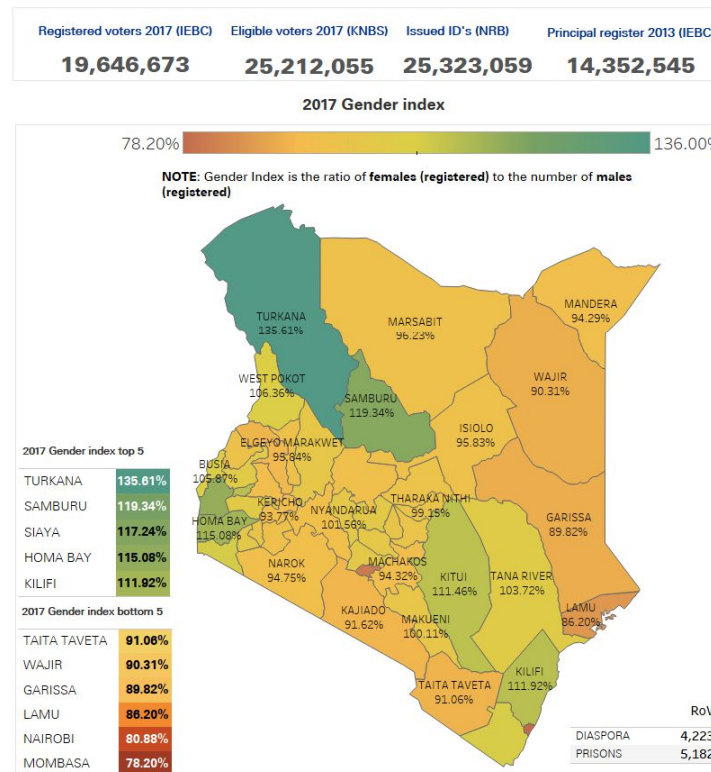
Gender balance comparison

Gender	2017 RoV	KNBS	NRB
	49.33%	50.43%	49.72%
	50.67%	49.57%	50.28%
Gender Index	0.97	1.02	0.99

Females registered vs eligible females (NRB)



Age and gender comparison



2017 Gender index

		% of RoV 2017 Females in RoV
BARINGO	230,728	50.10%
BOIMET	324,583	49.06%
BUNGOMA	559,989	49.26%
BUSIA	352,433	51.43%
ELGEYO MARAKWET	181,063	48.94%
EMBU	312,576	49.57%
GARISSA	163,203	47.32%
HOMA BAY	477,219	53.50%
ISIOLO	75,677	48.94%
KAJIADO	410,660	47.81%
KAKAMEGA	745,382	50.86%
KERICHO	377,440	48.39%
KIAMBU	1,185,243	50.34%
KILIFI	487,887	52.81%
KIRINYAGA	353,139	49.65%
KISII	546,564	50.38%
KISUMU	539,006	50.78%
KITUI	474,840	52.71%
KWALE	282,037	51.85%
LAIKIPIA	247,341	48.73%
LAMU	69,698	46.29%
MACHAKOS	623,369	48.54%
MAKUENI	423,647	50.03%
MANDERA	176,234	48.53%
MARSABIT	141,792	49.04%
MERU	702,331	49.30%
MIGORI	388,147	51.89%
MOMBASA	582,605	43.88%
MURANG'A	593,769	50.24%
NAIROBI	2,258,479	44.72%
NAKURU	953,949	48.70%
NANDI	347,186	48.40%
NAROK	342,005	48.65%
NYAMIRA	280,622	49.83%
NYANDARUA	337,774	50.39%
NYERI	461,434	50.51%
SAMBURU	82,844	54.41%
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TAITA TAVETA	157,638	47.66%
TANA RIVER	118,563	50.91%
THARAKA NITHI	214,507	49.79%
TRANS NZOIA	340,843	47.77%
TURKANA	190,566	57.56%
UASIN GISHU	450,845	47.93%
VIHIGA	271,785	52.73%
WAJIR	163,101	47.45%
WEST POKOT	179,862	51.54%

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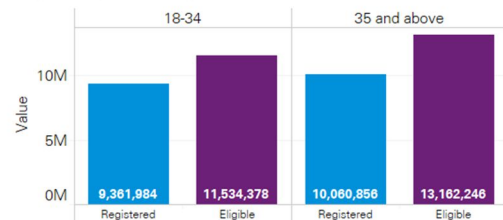
Figure 10 - Registered youth distribution by county- (Overall youth index)



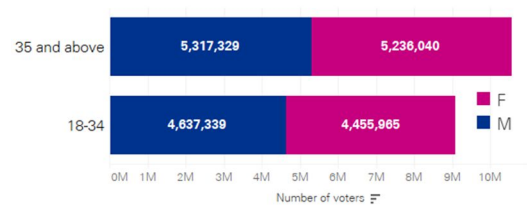
Registered Youth Distribution by County

Age	2017 RoV	KNBS	NRB
18-34	46.28%	55.16%	48.20%
35 and above	53.72%	44.84%	51.80%

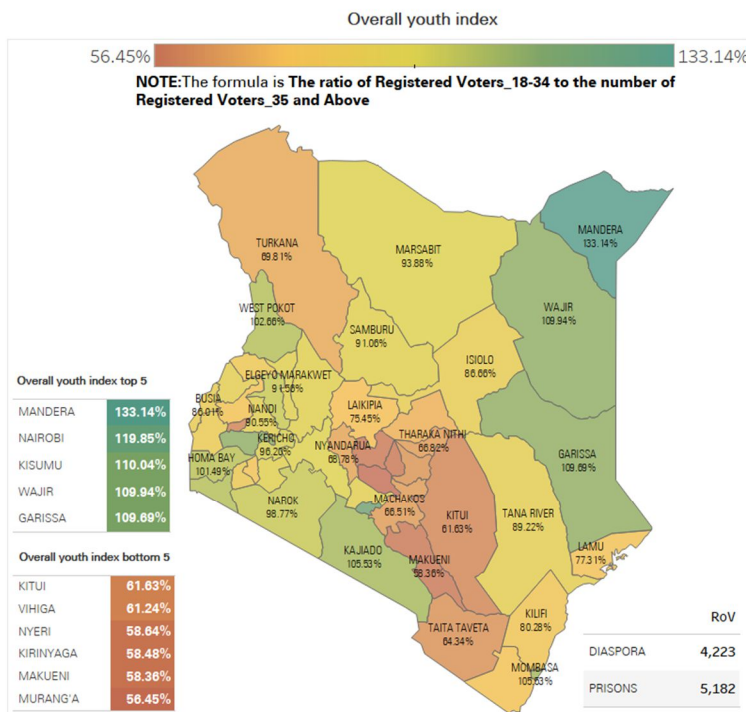
Registered youth vs eligible



Gender distribution by age



Registered voters 2017 (IEBC)	Eligible voters 2017 (KNBS)	Issued ID's (NRB)	Principal register 2013 (IEBC)
19,646,673	25,212,055	25,323,059	14,352,545



Overall youth index

	RoV	Registered 18-34 as a % of RoV	Registered 35 and above as a % of RoV
BARINGO	230,728	47.68%	52.32%
BOMET	324,583	47.71%	52.29%
BUNGOMA	559,989	46.86%	53.14%
BUSIA	352,433	46.24%	53.76%
ELGEYO MAR.	181,063	47.80%	52.20%
EMBU	312,576	39.44%	60.56%
GARISSA	163,203	52.31%	47.69%
HOMA BAY	477,219	50.37%	49.63%
ISIOLO	75,677	46.43%	53.57%
KAJIADO	410,660	51.35%	48.65%
KAKAMEGA	745,382	43.47%	56.53%
KERICHO	377,440	49.03%	50.97%
KIAMBU	1,185,243	47.46%	52.54%
KILIFI	487,887	44.53%	55.47%
KIRINYAGA	353,139	36.90%	63.10%
KISII	546,564	45.78%	54.22%
KISUMU	539,006	52.39%	47.61%
KITUI	474,840	38.13%	61.87%
KWALE	282,037	43.47%	56.53%
LAKEPIA	247,341	43.01%	56.99%
LAMU	69,698	43.60%	56.40%
MACHAKOS	623,369	39.94%	60.06%
MAKUENI	423,647	36.85%	63.15%
MANDERA	175,234	57.11%	42.89%
MARSABIT	141,792	48.42%	51.58%
MERU	702,331	41.79%	58.21%
MIGORI	388,147	50.66%	49.34%
MOMBASA	582,605	51.35%	48.65%
MURANG'A	593,769	36.08%	63.92%
NAIROBI	2,258,479	54.51%	45.49%
NAKURU	953,949	48.44%	51.56%
NANDI	347,186	47.52%	52.48%
NAROK	342,005	49.69%	50.31%
NYAMIRA	280,622	43.66%	56.34%
NYANDARUA	337,774	40.75%	59.25%
NYERI	461,434	36.96%	63.04%
SAMBURU	82,844	47.66%	52.34%
SIAYA	457,663	46.06%	53.94%
TAITA TAVETA	157,638	39.15%	60.85%
TANA RIVER	118,563	47.15%	52.85%
THARAKA NIT.	214,507	40.05%	59.95%
TRANS NIZOIA	340,843	45.10%	54.90%
TURKANA	190,566	41.11%	58.89%
UASIN GISHU	450,845	49.63%	50.37%
VIHIGA	271,785	37.98%	62.02%
WUJIR	163,101	52.37%	47.63%
WEST POKOT	179,862	50.66%	49.34%
DIASPORA	4,223		
PRISONS	5,182		