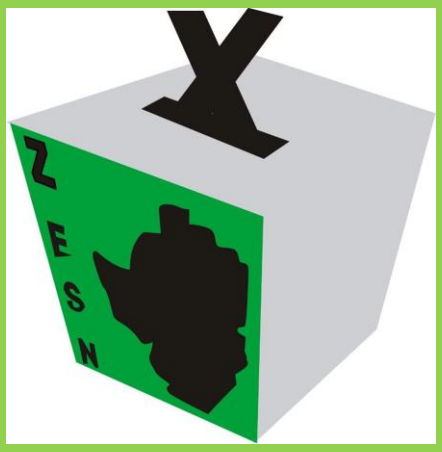
ZIMBABWE ELECTION SUPPORT NETWORK



Analysis of the Zimbabwe Voters' Roll

A comparative analysis of the Main and Supplementary voters' registers of Marondera Central constituency

2015

Table of Contents

1. Executive Summary 1
2. Methodology 4
   Data Sources 4
   To Determine Accuracy 4
   Comparisons of Registered voters in the roll based on age, gender 4
   Currency of Data - Increase/decrease of voting population over time 4
   Comprehensiveness 5
   Assumptions 5
3. Background 6
4. Legal Framework 6
5. Marondera Central Constituency Analysis 8
   Introduction 8
   Accuracy 8
      Registered Voter's Analysis by Age Group 14
   Completeness – 2015 Registered Voters' Analysis by Gender and Age 16
      Introduction 16
      Main Register Analysis 18
      Supplementary Register Analysis 20
      2015 Voters' Register Potential Duplicate Voters Analysis 24
      Analysis of Voters that are 100 years old and above as of 1st October 2015 25
   Currency of the 2015 Voters' Register 25
      A Gender and Age analysis of the data from Voter Rolls from 2013 25
      Percentage Increase and Decrease of Voters from 2013 27
6. Recommendations 32
7. Conclusion ..... **Error! Bookmark not defined.**
Appendix 1 33

1. Executive Summary

The Audit of the voters' register for the Marondera Central was carried out in the period 21 to 25 September 2015. The analysis constituted of a study of the two 2015 registers focusing mostly on areas of accuracy, completeness and currency of the two registers. The 2015 register was presented in 2 forms – the main register and the supplementary register. In order to determine currency, the datasets were compared to the 2013 voters register. The data referred to as the "2013" voters' register was data that had been used to conduct a similar audit in 2013 and was a provisional voters' register received from the Registrar General's (RGs) office in June 2013. The datasets were also compared to data extrapolated from the 2012 census data to determine completeness.

The registered voters for these constituencies were as follows:

1. The Main Register for *Marondera Central* had **18,624** registered voters of whom **10,858** voters were Female representing ***58.30%*** of the total number of voters and **7,766** Males who are **41.70%** of the total number or registered voters.
2. The Supplementary register for *Marondera Central* however had **18,956** registered voters of whom **9,338** were female representing **49.26%** of the total registered voters the remaining **9,618** voters are male representing **50.74%** of the total number of voters registered.

The following were the findings of this analysis

1. The data captured in both the ***Main*** and ***Supplementary*** register seems to have some typographical errors.
    a. There was an instance of 2 occurrences of the same ID number in the Supplementary register implying that there is no uniqueness constraint in the database that stores the data.
    b. The names of voters have invalid characters and numbers – this has to be addressed when doing data validation before saving the record in the register.
    c. The date of birth analysis detected what would seem to be inaccuracies in capturing of the data that could stem from persons not knowing their dates of birth or negligence during data entry. There are also records that have invalid dates that point to data capture/lack of data validation issues.
2. The Main register and The Supplementary database share some records namely:
    a. When compared by ID numbers – only **179** records
    b. When compared by part of the ID number – only **323** are shared
    c. When compared by surname, similar sounding first names, gender and date of birth – **405** records are shared.

    This should not be the case as the supplementary register was data captured to supplement the main register and thus before adding any record from the 2013 register into the supplementary register – the data capture process should have looked for the existence of this record in the "main" register.

3. Both datasets had a small number of potential duplicated records. The supplementary dataset had slightly more of these records when compared to those in the main dataset. When the datasets are merged the number of potentially duplicates shoots up significantly.

4. Both datasets had large numbers of underrepresentation in all age groups when compared with the eligible population with exception of 41-45 age group for the supplementary set. However, when both were merged into a single dataset the underrepresentation was limited to the 18 -30 age groups and persons aged 56 years and above.
5. Age distribution analysis
    a. The youth (18-30) form **35.12**% of voters registered in ***Main Register***, the middle age (31-64) has **60**.**89**% of those registered and the old people are **3.39**% of the registered persons.
    b. The youth (18-30) form **17.31**% of voters registered in ***Supplementary Register***, the middle age (31-64) has **77.71**% of those registered and the old people are **4**% of the registered persons.
    c. The **Main** dataset did not have any persons who would be 100 years and above as of 1st October 2015. The **Supplementary** dataset had **12** individuals.
6. When compared to the 2013 register, the results are as follows
    a. For the Main register
        i. There are **7,554** records that were present in the 2013 register and are still present in the Main register.
        ii. There are **19,334** records that were in the 2013 register and not in the Main register i.e. not reregistered for whatever reason (Migration out, deceased, lack of interest).
        iii. There are **11,070** records in the Main Register which were not in the 2013 register i.e. Migrations In and new registrations.
    b. For the Supplementary Register
        i. There are **7,659** unchanged records that were present in the 2013 register and are still present in the Main register.
        ii. There are **19,229** records that were in the 2013 register and not in the Main register i.e. not reregistered for whatever reason (Migration out, deceased).
        iii. There are **10,963** records in the Main Register which were not in the 2013 register i.e. Migrations In and new registrations. This is a strange occurrence since the supplementary dataset was a subset of the 2013 dataset. These records need to be examined since they point to a huge data capture anomaly.
7. Using the district level census data obtained from ZimStat, it was established that Marondera Central's Constituency has an eligible voting population of 32,272 persons. Additionally, the following observations were made:
    a. The ***Main*** register
        i. Of the **18,622** registered voters, **58.30**% are female and **41.70**% are male while the eligible population is **49.55**% female and **50.45**% male. This is possibly explained by the fact that the data for the main register was collected during the day, a time when man, are mostly away from home.
        ii. All age groups are underrepresented in this dataset
        iii. It's noted that only **51.72**% of the constituency's eligible population registered to vote in this dataset.

b. The ***Supplementary*** register
    i. Of the **18,944** registered voters, **49.26**% are female and **50.73**% are male while the eligible population is **49.55**% female and **50.45**% male.
    ii. There is a small over representation of the **36-50** age group that accounts for **4.93**% of the total registered voters.
    iii. It's noted that **51.59**% of the constituency's eligible population registered to vote in this dataset.
c. When the 2 registers are merged and analyzed
    i. Of the **37,566** registered voters, **53.74**% are female and **46.25**% are male while the eligible population is **49.55**% female and **50.45**% male.
    ii. It's noted that **102.31**% of the constituency's eligible population registered to vote in the Merged (***Main*** + ***Supplementary*** registers) dataset.
    iii. There is a substantial over representation between **31-55** age group of **8,320** persons that represents **22.15**% of the total registered voters
    iv. There is a substantial under representation in the rest of the groups of a total of 7,471 persons that represents **20.35**% of the total registered voters

8. The increase of persons registered from 2013 is as follows:
    a. A comparison between the 2013 register and the Merged (***Main*** + ***Supplementary*** registers) register shows that that *Marondera Central's* constituency net increase of voters registered, when compared to the 2013 dataset, is ***10,678*** persons or **28.45**% of the registered voters in 2015 or **39.71**% increase of the **26,888** that had been registered in 2013.

2. Methodology

The methodology used to conduct this study was to analyze the voters' registers of *Marondera Central* constituency was as follows:

Data Sources

The data herein referred to as the ***Main*** and ***Supplementary*** data was received in Excel form. Analysis in this report was conducted by comparing data from these registers to:

1) The District level census data used to project and calculate the eligible populations for each of these constituencies will be sourced from the publicly available ZimStat reports. The source data is in PDF format.
2) The 2013 voters' register as released by the Registrar-General in June 2013.

All these data sources were processed and placed a relational database management system called SQL[1] Server for all comparisons and analysis. For some analysis the Main and Supplementary dataset were merged into one dataset herein referred to as ***Merged.***

To Determine Accuracy

The method used looked at the data fields captured and validated their accuracy by checking whether the data fields carry records that are improbable. For example, names will be checked for the existence of numbers and special characters. Dates of birth will be checked for underage persons and for distribution across the days of the year. ID numbers will be checked for uniqueness and possibility of having duplicates.

Comparisons of Registered voters in the roll based on age, gender

The Voters will be categorized in four groups, defined as follows:

Under age: below 18 years old as of 1st October 2015
Youth: 18 – 30 years old as of 1st October 2015
Middle Age: 31-64 years old as of 1st October 2015
Old age: 65+ years old as of 1st October 2015

Currency of Data - Increase/decrease of voting population over time

The method used was to establish whether the data in the register was current or not, attempting to establish whether there were any changes since 2013, and if so what these changes are. It entailed extracting the number of persons who were added and the numbers of persons who were removed. This analysis did not attempt to find reasons of removal persons (be it migration or removal of the deceased) since there is no comprehensive dataset of all constituencies. The net increase was given as a percentage for each constituency under the study.

[1] SQL (Structured Query Language) is a standard interactive and programming language for getting information from and updating a database

Comprehensiveness

In order to establish completeness/comprehensiveness of both registers, comparison was made with the most localized population distribution by District age group and sex data from the census. The data was in the form of the district level population distribution by district age group and sex data extracted from the 2012 Census Report. The analysis sought to find out the numbers of the underrepresented and overrepresented population sets in the constituencies and compute the probable eligible population. This gives a fair understanding of how "good" the register is in as far as removal of deceased/migrated persons and also how well it captures people who have recently come of voting age. An analysis of the number centenarians gives a glimpse into the effectiveness of the process of removal of deceased persons.

All analysis that use the age will use 1-October-2015 as the reference date to compute the age for 2015 records and will use 31-July-2013 as the reference date to compute the age for 2013 records.

Voters registered in the diaspora are not factored into this study.

Assumptions

The assumption is that the constituencies under this study have the age breakdown of the population of Marondera District available in the ZimStat reports.

3. Background

The National Assembly by- election for Marondera Central was held on the 19th of September 2015 as a result of the expulsion of Ray Kaukonde from ZANU PF and his subsequent recall from Parliament. The Constitution in Section 129 (1) (k) provides that: the seat of a Member of Parliament becomes vacant if the Member has ceased to belong to the political party of which he or she was a member when elected to Parliament. Upon notification of the Speaker of the National Assembly the President made a proclamation for by-election for the Marondera Central Constituency.

In line with provisions of the Electoral Act, the Commission piloted a polling station based voter registration system for the Marondera Central by-election. ZEC's methodology during the pilot project was mainly via a house-to-house voter registration; a significant deviation from existing practice in Zimbabwe. Although the methodology was still in line with the legal framework, it required a complete overhaul of observers' and parties' observation of the process.

The ZEC conducted fresh voter registration by going house-to-house during the day to register people and this data is referred to as the "main" register. The supplementary data was created by ZEC doing data entry of data from the old 2013 register that was not on captured in the main into a supplementary register. The data entry involved data capture from handwritten forms from individual voters. The process was not a double blind data entry and so it was extremely vulnerable to data capture errors. The two datasets were combined and used in the September 19th by-election.

ZEC prepared the supplementary roll to ensure that voters who did not participate in the pilot, but were in the 2013 voters roll, could vote on September 19. A supplementary roll was created using the Marondera Central 2013 voters roll as the baseline. Voters on the 2013 list were allocated polling stations using addresses that were already on the ZEC database.

The Main Register for Marondera Central had 18,624 registered voters of whom 10,858 voters were female representing *58.30%* of the total number of voters and 7,766 males who are 41.70% of the total number or registered voters.

4. Legal Framework

Voter registration is provided for in Section 17A of the Electoral Act (Chapter 2:13) as a continuous process in order to keep the voters' roll up-to-date. Furthermore, Section 22A of the Act mandates the ZEC to compile polling station voters' rolls for elections. ZEC therefore in line with this provision piloted the polling station based voter registration for the Marondera Central by-election.

In sub section 3 of the Electoral Act the Commission shall within a reasonable period of time provide any person who requests it, and who pays the prescribed fee, with a copy of any ward or constituency voters' roll, either in printed or in electronic form as the person may request. The law further states that political parties, candidates and accredited observers can at a prescribed fee be given a copy of the Voters' roll. The law prescribes that the format shall allow its contents to be searched and analysed. In accordance with section 39(2) of the Electoral Act, the President proclaimed the nomination and polling dates for the by-election.

5. Marondera Central Constituency Analysis

Introduction

As of 2008[2] the total registered voters for Marondera Central stood at 26,225. The In 2013 the registered voters increased to 26,888, representing an increase of 663 voters. From 2008, there was a 2.5% increase in registered voters. The 2013 data was received from the RG's office as of 19th June 2013 and does not incorporate mobile voter registration exercise that was conducted from June 9 to July 9 2013.

The ***Main*** data received for *Marondera Central* constituency had a total of ***18,624*** voters in 30 polling stations while the ***Supplementary*** data had a total of ***18,956*** voters in 29 polling stations found in 12 wards. The difference in polling stations was because one file namely '***ward10 Borradaile Hospital***' could not be opened using the supplied password

A Research and Advocacy Unit report states that ZimStat puts the population of the constituency in 2012 as being **62,120 [3].**

Accuracy

The rolls provided by the Zimbabwe Electoral Commission have seven fields namely Surname, First name, Gender, Date of birth, Voting Address, Block and ID Number. All the voter records in the rolls that were provided have the required fields.

Gender

All records had Gender entry either as 'a male' (M) or 'female' (F)

ID Numbers

ID Numbers are supposed to be unique however the ***Main*** dataset has one record that is

Table 1

No.	Surname	Firstname	ID_Number	Sex	DOB	Voting_Address
679	MUPAMHANGA	CATHERINE	07-121293 K 07	F	29/09/1979	4399 BOTEREKWA, CHERUTOMBO, MARONDERA
442	MUPAMHANGA	CATHRINE	07-121293 K 07	F	29/09/1979	8/258 TAPIWA CLOSE, NYAMENI, MARONDERA

When comparing the length of ID number (after stripping away the space and hyphen) and the results are as follows:

The Main Register had the following results

Table 2

Length Of ID	Number Of Records
12	1,722
11	16,902

[2] A Profile of Constituencies: Understanding elections in Zimbabwe. ZESN 2008

[3] Extracted from the Research and Advocacy Unit's ***ODD NUMBERS* report** by Derek Matyszak ***11 June 2013*** http://archive.kubatana.net/docs/demgg/rau_odd_numbers_130611.pdf

The ***Supplementary*** Register had the following

Table 3

Length Of ID	Number Of Records
12	1,252
11	17,704

It is unclear why some records have 11 characters and others have 12.

When comparing data from the ***Supplementary*** and ***Main*** register it was noted that by direct comparison of the full ID number – – there were – 179 records that were in both datasets. Examples of these records are shown in Table 4.

Table 4

source	id_number	Surname	Firstname	Sex	DOB	Voting_Address
main	34-047013 X 34	NYAKUDZI	ALEXANDER	M	12-Oct-71	1 MBENDE, YELLOW CITY, MARONDERA
supp	34-047013 X 34	NYAKUDZI	ALEXANDER MASIMBA	M	12-Jan-71	10 TAFARA STREET DOMBOTOMBO, MARONDERA
main	18-047036 S 18	MUTSVENGURI	JOHN	M	24-Aug-69	14 RUJEKO DRIVE, YELLOW CITY, MARONDERA
supp	18-047036 S 18	MUTSVENGURI	JOHN	M	24-Aug-69	3883, RUSIKE PARK, MARONDERA

By comparison of the 2 sets by part of the ID number – there were – 323 records that were in both datasets. Examples of these records are shown in Table 5.

Table 5

source	Id number	Surname	firstname	sex	DOB	Voting address
main	45-185774 W 43	NKHOMA	SHARONROSE THOKOZILE	F	23-Jan-91	1143 MUNHONDO, RUVIMBO PARK, MARONDERA
supp	45-185774 W 45	NKHOMA	SHARONROSE THOKOZIL	F	23-Jan-91	3 1ST STREET, CHINYIKA FLATS, MARONDERA
main	43-183591 R 07	BETERA	BEHEAVEYOURSELF	M	3-Nov-94	222 TANGWENA SQUARE, NYAMENI, MARONDERA
supp	43-183591 K 07	BETERA	BEHEAVEYOURSELF	M	3-Nov-94	222 TANGWENA SQAURE, NYAMENI, MARONDERA

It seems like there is a pattern to these changes based on the voting address. By comparison using surname and the soundex of the first name, sex and date of birth – 405 records are shared in both datasets. When a cursory scan was made – a number of records which shared surname and the *soundex of the first name, sex and date of birth* which the all intents and purposes the same record – had id number issues - were what looked like typographical errors as seen in the record. Examples of these records are shown in Table 6.

Table 6

source	Id number	surname	firstname	sex	Date of birth	Voting address
main	18-074170 L 18	BADZA	MEMORY	F	21-Oct-77	1302 SAMOYO, CHERUTOMBO, MARONDERA
supp	18-9074170 B 18	BADZA	MEMORY	F	21-Oct-77	1838 MAKOMO ROAD, CHERUTOMBO, MARONDERA

While these duplicates will be addressed in the duplicates section – the typographical errors stand out and can be considered a data capture/data validation issue.

Since the process of data capture of the secondary data source was done to supplement the data in the main records, there should be no intersection between the two registers. The presence of this data indicates that the supplementary data set was not checked for duplication.

Voter Names

Ideally, the surnames and first names of voters should not have numeric or special characters. There were cases that had correctness issues namely – numbers in the names and special characters such as the tilde (`) and double quotes that would ideally not be part of valid names. Examples of these records are shown in Table 7.

Table 7

Source	Surname	Firstname	Id_Number	Sex	Dob_Text	Voter_Address
main	CHIREMBA`	JULIET	07-098139 S 07	F	4/4/1975	3976 GAKAWA, RUSIKE PHASE 1, MARONDERA
supplementary	CHIGWANDA `	EVISON	34-048716 Y 34	M	28/06/1971	1470 RUVIMBO PARK, MARONDERA
main	KAGOTSI	PORTIA (TWIN 1)	42-242779 W 42	F	9/6/1990	2/92 ZAMBEZI, NYAMENI, MARONDERA
main	GAKANJE	FARAI MARIA S.	43-000410 A 43	F	7/9/1959	3760 MUSEWE, RUSIKE PHASE 1, MARONDERA
supplementary	BRUCE	STELLA`	43-004688 A 00	F	20/10/1954	48 NHENGU EXTENSION, RUJEKO, MARONDERA
supplementary	KATANDAWA	MIRIAM (TWIN II)	43-031895 Y 18	F	19/12/1967	34 RUSIKE CIRCLE, NYAMENI, MARONDERA
main	MURAPA	GREAT- NATIONS	43-056743 G 42	M	12/2/1977	1814 MUGODO DRIVE, RUVIMBO PARK, MARONDERA
main	RUZVIDZO	CAROLINE`	43-058968 A 80	F	1/11/1977	10 SAMURIWO STREET, DOMBOTOMBO TOWNSHIP, MARONDERA
supplementary	BERA	DAINA `	43-070081 E 42	F	11/10/1937	1396 REKAYI TANGWENA, PARADISE PARK, MARONDERA
supplementary	MAKON"ONDA	YASIBU	63-1217580 P 63	M	14/07/1983	909 MAGAMBA WAY, NYAMENI, MARONDERA

This means that there are validation issues on the data capture software as it should ideally not accept some of these characters. The consequences of these numbers and invalid characters on the printed out roll would be sorting distortions. If the rolls were to be sorted by Surname for example – the special character would break the sort order and place the incorrect record on a different page making it difficult to locate it and likely to prejudice the voter. For example if a voter's record has a name has a tilde (`) instead of the apostrophe (') it would not appear together with the records with names with apostrophes (') but rather will be sent to the end of the list.

Date of Birth

While the Main Register did not have any records with invalid dates, the supplementary dataset contained 12 records with invalid dates – the dataset is attached as an addendum to this report. These are obvious data capture errors. Examples are shown in Table 8.

Table 8

NO.	SURNAME	Firstname	ID_NUMBER	SEX	DOB	VOTER_ADDRESS
153	LAWSON	VAUGHN HOWARD	43-076157 J 00	M	21/07/0981	18 FOURTH ST, PARADISE, MARONDERA
106	CHIOTA	CLARIS RUVIMBO	43-070592 K 43	F	08/12/0180	1013 MBUYA NHEHANDA ROAD NYAMENI TOWNSHIP, MARONDERA

When conducting an analysis on the distribution of dates of birth across the year, as expected the largest number of birthdays recorded are on the 1st of January. This normally happens when voters don't really know their birthdays but know the year.

Figure 1 shows the distribution of these dates on the *Main* Register dataset. These are the top 255[4] birth days of the year

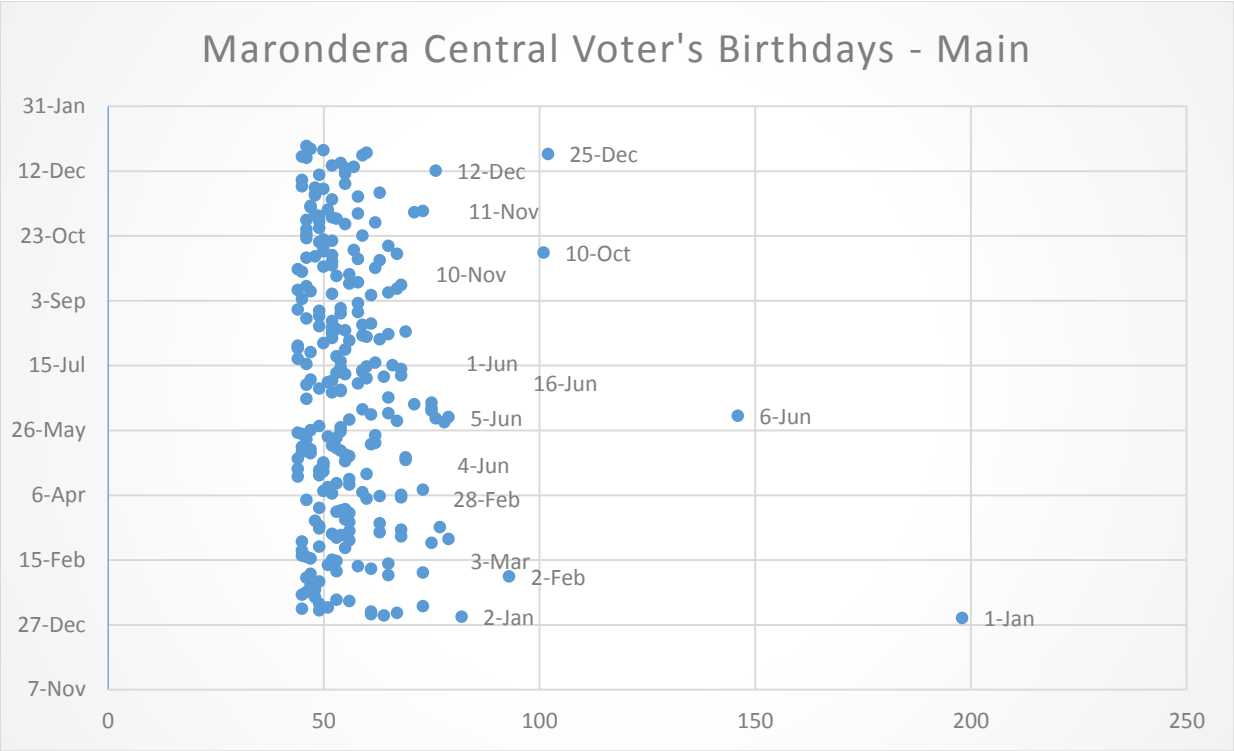


Figure 1

Figure 2 shows the distribution of this data in the *Supplementary* register dataset.

[4] This is due to a limitation on Excel to visualize data series that have more than 255 data points.

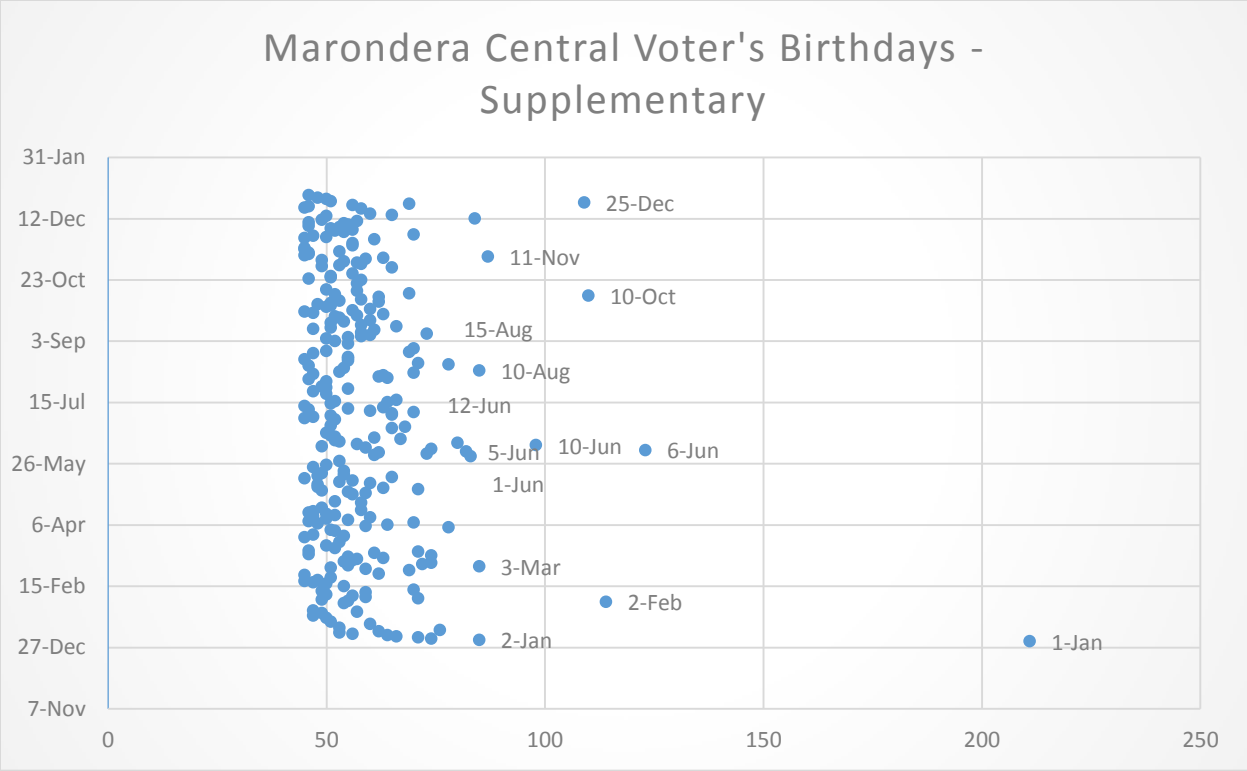


Figure 2

Similar to other previously audited datasets from Zimbabwe, there are huge numbers of outliers on dates such as, 10 of October, 6th of June, 2nd of Feb i.e. basically any date that is easy to key in (01-01, 02-02, 03-03, 04-04 etc.) and Christmas (25-Dec).

The top 15 dates of birth for voters in the *Main* register are as show in Table 9

Table 9

Voters	Date Of Birth
198	1-Jan
146	6-Jun
102	25-Dec
101	10-Oct
93	2-Feb
82	2-Jan
79	5-Jun
79	3-Mar
78	1-Jun
77	12-Mar
76	12-Dec
76	4-Jun
75	28-Feb
75	16-Jun

The top 15 dates of birth for voters in the *Supplementary* register are as show in Table 10

Table 10

Voters	Date Of Birth
211	1-Jan
123	6-Jun
114	2-Feb
110	10-Oct
109	25-Dec
98	10-Jun
87	11-Nov
85	3-Mar
85	10-Aug
85	2-Jan
84	12-Dec
83	1-Jun
82	5-Jun
80	12-Jun

It is difficult to say why this phenomenon is exhibiting itself the reasons vary, from persons not knowing their birthdays or clerical errors when doing data entry regardless – this is still a data inconsistency.

The bottom 20 days of birth is as shown in below.

Main

Table 11

Voters	Day of Birth
12	Feb-29
27	29-Apr
28	23-Apr
28	18-Nov
28	31-Jul
29	31-Oct
29	31-Aug
31	28-Jan
31	26-Feb
32	21-Dec
32	20-Jan
33	30-Aug
33	31-Mar
33	13-Nov
33	19-Apr
33	11-Jan

35	1-Dec
35	26-Nov
35	4-Dec
35	27-May

Supplementary

Table 12

Voters	Day of birth
4	Feb-29
21	31-Jan
23	13-Oct
25	31-Mar
27	17-Dec
27	31-May
29	29-Jun
29	19-May
29	30-May
29	31-Oct
30	30-Apr
31	30-Jul
31	29-Aug
31	19-Jul
31	31-Aug
32	31-Jul
33	22-Jun
33	29-Jul
33	13-Feb
35	22-Apr

It is not surprising to see February 29, a leap year day, with the least number of people however, as seen in both Table 12 and Table 13, dates towards the end of the month generally seem to have very few people born in them but they are not the only ones. It is difficult to say why this phenomenon is exhibiting itself or if there is a pattern to the dates with the fewest number of persons. The reasons can vary from persons not knowing their birthdays or clerical errors when doing data entry regardless – this is still data inconsistency.

Registered Voter's Analysis by Age Group

When conducting the age breakdown analysis, the following segregation by was done.

Youth being 18-30 years old as of 1st October 2015

Middle Age being 31-64 years old as of 1st October 2015

Old age being 65+ years old as of 1st October 2015

Table 13 contains the analysis of the breakdown of voters by the three major categories for the ***Main*** register.

Table 13

Age Group	Female	Male	Grand Total
UNDER 18	0.01%	0.00%	0.01%
18 – 30	20.69%	14.43%	35.12%
31 – 64	35.20%	25.70%	60.89%
65+	2.40%	1.57%	3.97%
Grand Total	**58.30%**	**41.70%**	**100.00%**

The age breakdown by raw numbers is as seen in Table 14

Table 14

Age Group	Female	Male	Grand Total
UNDER 18	2		2
18 – 30	3,854	2,687	6,541
31 – 64	6,555	4,786	11,341
65+	447	293	740
Grand Total	**10,858**	**7,766**	**18,624**

The 2 under age voters will be 18 at the end of October

No.	Surname	Firstname	ID_Number	Sex	DOB_text	VOTER_ADDRESS
126	CHIWANZA	MEMORY	47-200737 Y 47	F	30/10/1997	14 KASIPITI WAY, RUJEKO, MARONDERA
680	PAHLELA	DAVIDZO	54-123942 W 54	F	18/10/1997	1497 NYACHURU, CHERUTOMBO, MARONDERA

Table 15 contains the analysis of the breakdown of voters for the ***Supplementary*** data source.

Table 15

Age Groups	Female	Male	Grand Total
18 - 30	8.50%	8.80%	17.31%
31 - 64	38.45%	39.26%	77.71%
65+	2.31%	2.68%	4.98%
Grand Total	**49.26%**	**50.74%**	**100.00%**

The age breakdown by raw numbers is as seen in Table 16

Table 16

Age Groups	Female	Male	Grand Total
18 - 30	1,611	1,668	3,279
31 - 64	7,284	7,437	14,721
65+	437	507	944

Grand Total	**9,332**	**9,612**	**18,944**

Completeness – 2015 Registered Voters' Analysis by Gender and Age

Introduction

In order to conduct this kind of analysis it was important to get information that represented the population breakdown by percentage of the data collected in the 2012 census. This information was sourced from the ZimStats[5] Mashonaland East report and the Marondera district population breakdown is as presented in Table 17.

Table 17

Age Group	Male	Female	Total	Sex Ratio
0 - 4	7.49	7.60	15.08	101.51
5 - 9	6.33	6.41	12.74	101.28
10 -14	6.64	6.18	12.82	93.16
15 - 19	5.77	4.78	10.55	82.87
20 - 24	4.58	4.28	8.86	93.63
25 - 29	4.32	4.22	8.55	97.69
30 - 34	3.57	3.39	6.96	94.72
35 - 39	2.80	2.75	5.55	98.17
40 - 44	2.14	1.93	4.07	90.34
45 - 49	1.42	1.48	2.90	104.52
50 - 54	1.22	1.71	2.94	139.97
55 - 59	1.07	1.29	2.36	120.69
60 - 64	0.87	1.08	1.95	124.93
65 - 69	0.68	0.81	1.49	119.32
70 - 74	0.61	0.65	1.26	105.56
75 +	0.89	1.03	1.92	115.69

The sex ratio presented in the report was of the number of Males for each 100 females. For purposes of voter register audit calculations in this document – the sex ratio was computed by finding the numbers of females registered for every 100 males. This is because historically marginalized populations are youth and women. The figures under Male, Female and Total represent the percentage of the total population that each age group (and gender) holds. The methodology used to project the data forward is contained in Appendix 1.

The computed eligible voters for *Marondera Central* constituency in 2015 are as seen in Table 18 below. The data is broken down into age group cohorts that are as follows

18-20 – youth that have recently come of age to vote

21-25 and 26-30: youths who have possibly voted at least once before

[5] The national report by the Zimbabwe National Statistics Agency – ***Mashonaland East Report*** http://www.zimstat.co.zw/dmdocuments/Census/CensusResults2012/Mash_East.pdf

The rest are middle age and elderly people but having been lumped up into 5 year age group cohorts.

Table 18

Eligible Population 2015				
Age Group	**Male**	**Female**	**Total**	**Sex Ratio**
18 - 20	2,150	1,782	3,932	83
21 - 25	3,139	2,785	5,924	89
26 - 30	2,748	2,638	5,387	96
31 - 35	2,407	2,311	4,718	96
36 - 40	1,931	1,865	3,797	97
41 - 45	1,493	1,403	2,897	94
46 - 50	1,060	1,033	2,093	97
51 - 55	808	1,006	1,815	125
56 - 60	703	907	1,610	129
61 - 65	589	725	1,314	123
66 - 70	470	572	1,042	122
71 - 74	322	363	685	113
75+	704	799	1,504	113
Grand Total	**18,525**	**18,191**	**36,717**	**98**

This data is represented in a population pyramid as seen in Figure 3.

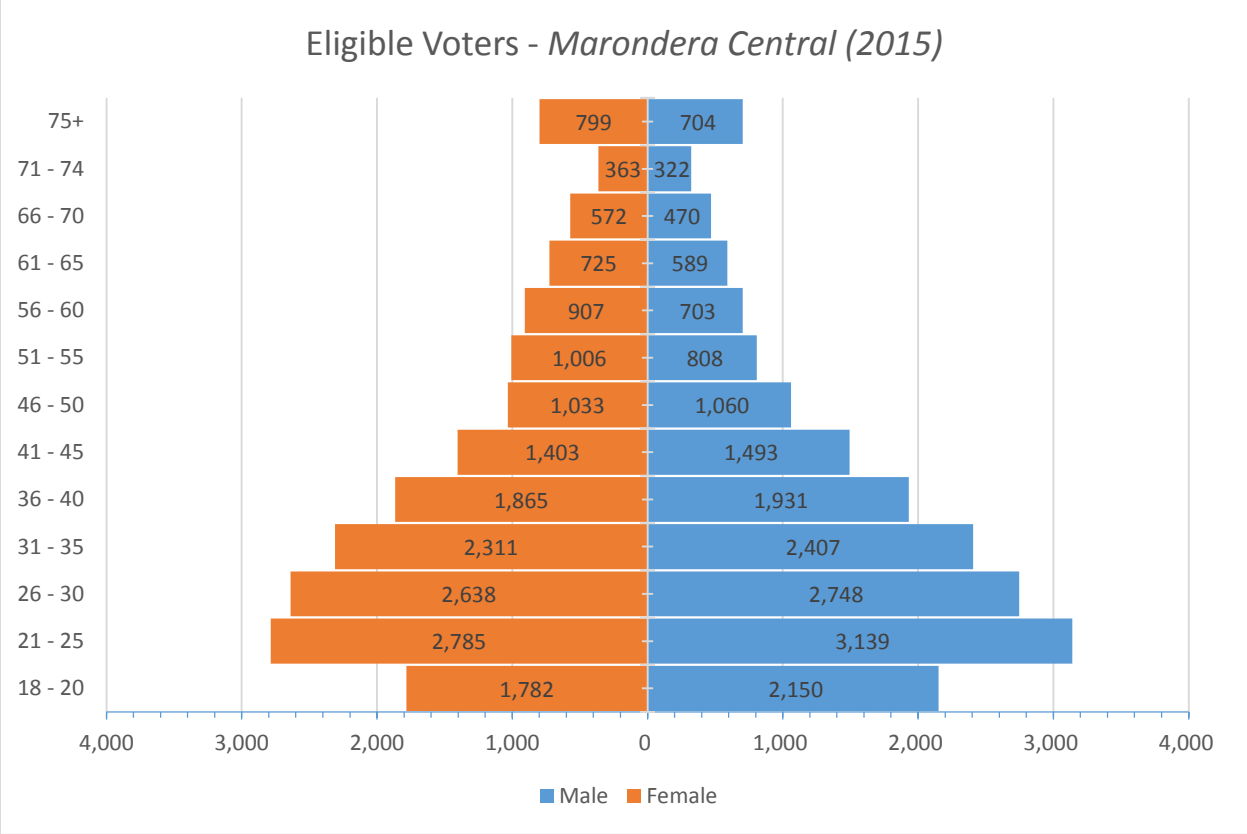


Figure 3

Main Register Analysis

The registered voters in the ***Main Register*** were extracted from excel files found in the "*Main Voters' Roll*" folder of the sent files , aggregated and broken down into the same cohorts and are as presented in Table 19.

Table 19

Main Voter's Roll - Registered Voters 2015				
Age Group	**Male**	**Female**	**Total**	**Sex Ratio**
Under 18		2	2	
18 - 20	613	693	1,306	113
21 - 25	986	1,547	2,533	157
26 - 30	1,088	1,614	2,702	148
31 - 35	1,267	1,847	3,114	146
36 - 40	1,041	1,476	2,517	142
41 - 45	946	1,137	2,083	120
46 - 50	646	798	1,444	124
51 - 55	360	617	977	171
56 - 60	331	448	779	135

61 - 65	214	290	504	136
66 - 70	131	177	308	135
71 - 74	63	99	162	157
75+	80	113	193	141
Grand Total	**7,766**	**10,856**	**18,622**	**140**

The Population pyramid of the voters on ***Main Register*** as in presented in *Figure 4*

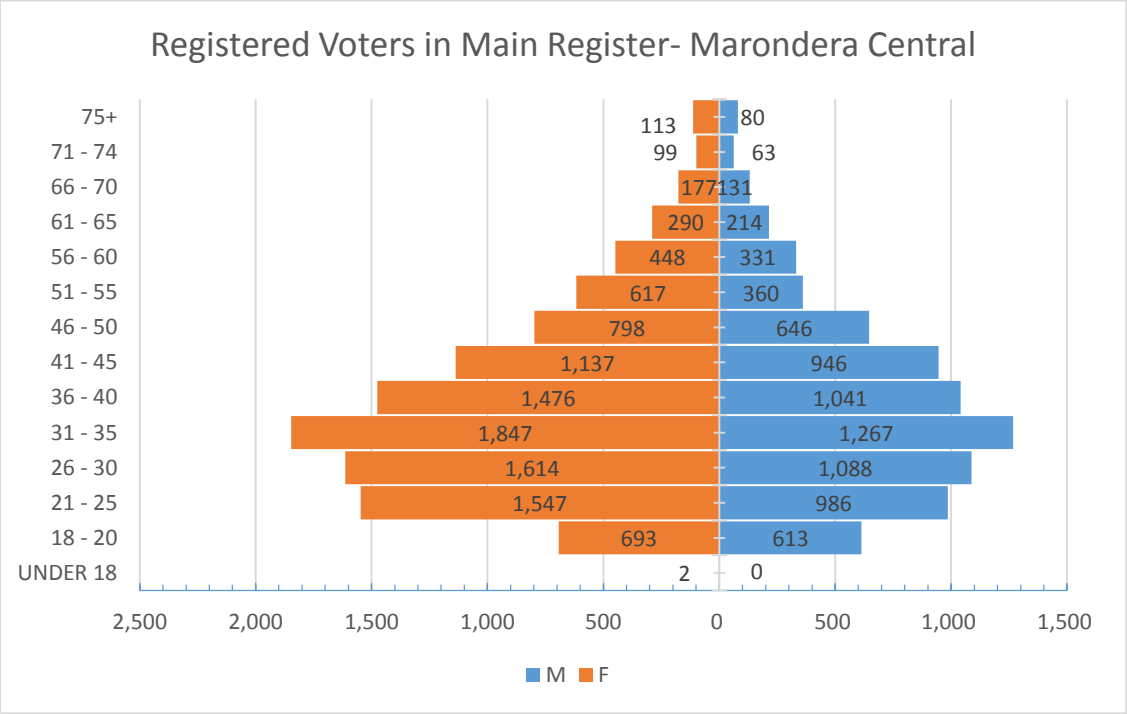


Figure 4

Using the sex ratio, it is visible that the number of women registered in each age group is much higher than the expected number found in the eligible population (Table 18) when compared to their male compatriots.

Table 20

Over/Under Representation			
Age Group	**Male**	**Female**	
18 – 20	1,537	1,089	
21 – 25	2,153	1,238	
26 – 30	1,660	1,024	
31 – 35	1,140	464	
36 – 40	890	389	
41 – 45	547	266	
46 – 50	414	235	
51 – 55	448	389	

56 – 60	372	459	
61 – 65	375	435	
66 – 70	339	395	
71 – 74	259	264	
75+	624	686	
Over representation			
Under representation	10,759	7,335	18,095

Observations

1. From Table 20, all age groups have been underrepresented.
2. The constituency has **50.72**% of its eligible voters registered to vote.

Supplementary Register Analysis

The registered voters in the ***Supplementary Register*** were extracted from excel files found in the "*Supplementary Voters' Roll*" folder of the sent files, aggregated and broken down into the same cohorts and are as presented in Table 21.

Table 21

Supplementary Voter's Roll - Registered Voters 2015				
Age Group	**Male**	**Female**	**Total**	**Sex Ratio**
18 - 20	58	53	111	91
21 - 25	642	583	1,225	91
26 - 30	968	975	1,943	101
31 - 35	1,777	1,879	3,656	106
36 - 40	1,808	1,740	3,548	96
41 - 45	1,675	1,487	3,162	89
46 - 50	1,039	908	1,947	87
51 - 55	537	627	1,164	117
56 - 60	399	438	837	110
61 - 65	236	242	478	103
66 - 70	160	141	301	88
71 - 74	79	79	158	100
75+	234	180	414	77
Grand Total	**9,612**	**9,332**	**18,944**	**97**

The Population pyramid of the voters on ***Supplementary Register*** as in presented in *Figure 5*

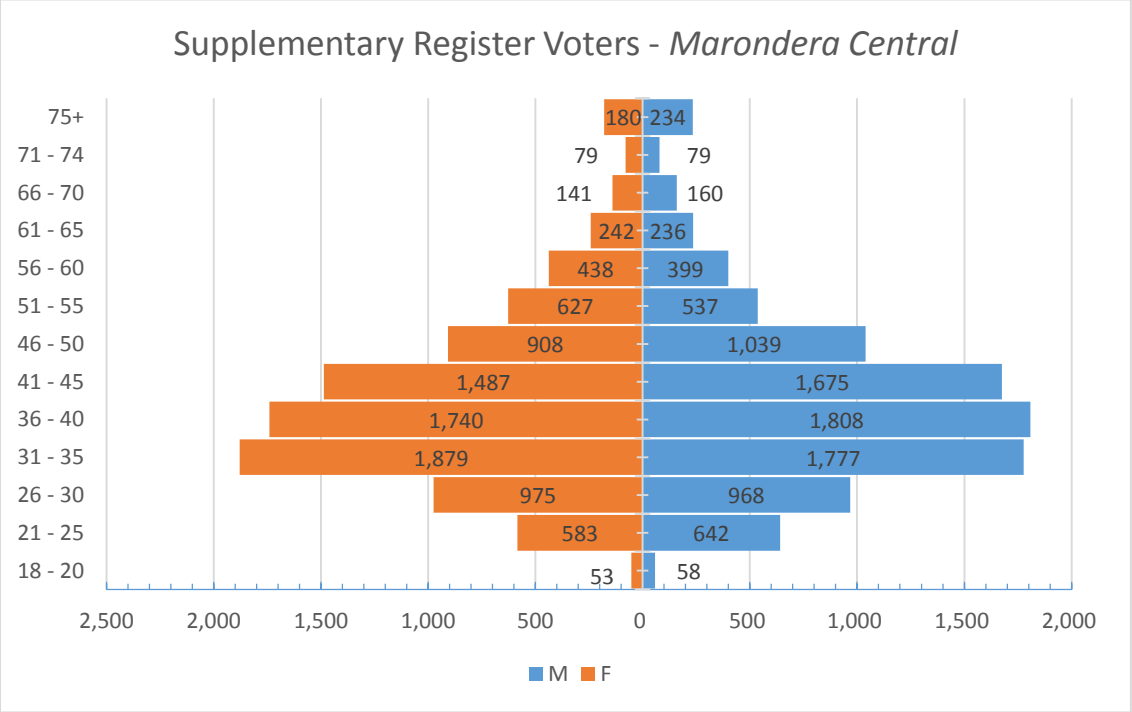


Figure 5

Using the sex ratio, it is visible that the number of women registered in each age group is much higher than the expected number found in the eligible population (Table 18) when compared to their male compatriots. The figures in Red in Table 22 below represent numbers of persons who are above the projected numbers of eligible persons. The figures in black represent the numbers of persons who are below the projected numbers of eligible persons.

Table 22

Over/Under Representation			
Age Group	**Male**	**Female**	
18 - 20	2,092	1,729	
21 - 25	2,497	2,202	
26 - 30	1,780	1,663	
31 - 35	630	432	
36 - 40	123	125	
41 - 45	182	84	
46 - 50	21	125	
51 - 55	271	379	
56 - 60	304	469	
61 - 65	353	483	
66 - 70	310	431	
71 - 74	243	284	

75+	470	619	
Over representation	182	84	265
Under representation	9,095	8,943	18,038

Observations

1. From Table 22, that most age groups have been underrepresented.
2. There are a handful of over represented persons all of whom are between 41 and 45
3. The constituency has **51.59**% of its eligible voters registered to vote.

Merged Register Analysis

Since the ***Merged*** register was used for the by-elections. It was deemed important to analyze the total merged dataset. The ***Main*** and ***Supplementary*** dataset were merged and aggregated and broken down into the same cohorts and are as presented in Table 23.

Table 23

Merged Voter's Roll - Registered Voters 2015				
Age Group	**Male**	**Female**	**Total**	**Sex Ratio**
UNDER 18		2	2	N/A
18 - 20	671	746	1,417	111
21 - 25	1,628	2,130	3,758	131
26 - 30	2,056	2,589	4,645	126
31 - 35	3,044	3,726	6,770	122
36 - 40	2,849	3,216	6,065	113
41 - 45	2,621	2,624	5,245	100
46 - 50	1,685	1,706	3,391	101
51 - 55	897	1,244	2,141	139
56 - 60	730	886	1,616	121
61 - 65	450	532	982	118
66 - 70	291	318	609	109
71 - 74	142	178	320	125
75+	314	293	607	93
Grand Total	**17,378**	**20,188**	**37,566**	**116**

The Population pyramid of the voters on *Merged Register* as in presented in *Figure 6*

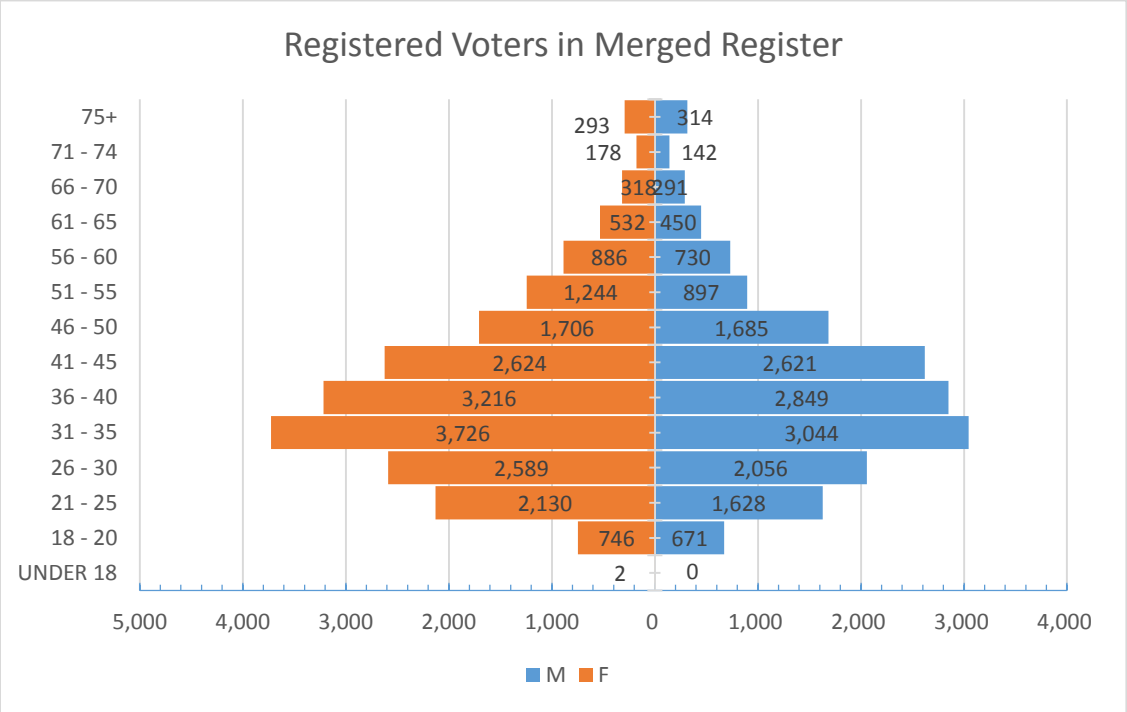


Figure 6

Using the sex ratio, it is visible that the number of women registered in each age group is much higher than the expected number found in the eligible population (Table 18) when compared to their male compatriots.

The figures in Red in Table 24 below represent numbers of persons who are above the projected numbers of eligible persons. The figures in black represent the numbers of persons who are below the projected numbers of eligible persons.

Table 24

Over/Under Representation			
Age Group	**Male**	**Female**	
18 - 20	1,479	1,036	
21 - 25	1,511	655	
26 - 30	692	49	
31 - 35	637	1,415	
36 - 40	918	1,351	
41 - 45	1,128	1,221	
46 - 50	625	673	
51 - 55	89	238	
56 - 60	27	21	

61 - 65	139	193	
66 - 70	179	254	
71 - 74	180	185	
75+	390	506	
Over representation	3,423	4,897	8,320
Under representation	4,571	2,900	7,471

Observations

1. From Table 24, it can be noted that the merged dataset would have reduced the under representation seen in the 18-25 age groups.
2. There are a handful of over represented persons all of whom are between 31 and 60 and are **22.15**% of the total register.
3. The merged dataset has **102.31**% of its eligible voters registered to vote.

2015 Voters' Register Potential Duplicate Voters Analysis

The best way to determine whether 2 records belong to one person is by examining their biometrics and since the biometric data for this dataset was not available, the approach used in determine whether two or more records are potential candidates for being thought of as being duplicated is one that involved analysis of the biographical data provided using similarity of the fields provided. The approach was to query the database using different numbers of queries (think of them as nets) that had criteria that was gradually relaxed as they proceeded and thus the first would be the strictest and would ideally 'catch' few records with would give persons that have a high likelihood of being duplicated. Subsequent queries would iteratively relax or remove one or more of the criteria used in the previous query to determine whether 2 records are potential candidates for being thought of as being duplicated – there by increasing the potential duplicates(multiple registrants) but would also reduce the probability that these records that are returned by the query.

6 queries were executed on the *Main* register dataset – the description and results of these queries are as follows:

1. Potential duplicates by an exact match of ID numbers – there were **2** records sharing ID number "07-121293 K 07"
2. Potential Duplicates by Voter's names (spaces removed), with the same date of birth and Voting address being exactly the same – yielded **4** records from **2** potentially duplicated individuals.
3. Potential Duplicates by Voter's names (spaces removed) and having the same date of birth and voting addresses that sounded the same – yielded **8** records from **4** potentially duplicated individuals.
4. Potential Duplicates by Voter's names (spaces removed) and having the same date of birth yielded **8** records from **4** potentially duplicated individuals.
5. Potential Duplicates by Surname (spaces removed), similar sounding first-names and having the same date of birth yielded **14** records from **7** potentially duplicated individuals
6. Potential Duplicates by Surname (spaces removed), similar sounding first-names and having the same day of birth yielded **20** records from **10** potentially duplicated individuals

When the same queries were executed on the *Supplementary* register dataset

1. Potential duplicates by an exact match of ID numbers – there were **no** records
2. Potential Duplicates by Voter's names (spaces removed), with the same date of birth and Voting address being exactly the same – yielded no records of potentially duplicated individuals.
3. Potential Duplicates by Voter's names (spaces removed) and having the same date of birth and voting addresses that sounded the same – yielded **8** records from **4** potentially duplicated individuals.
4. Potential Duplicates by Voter's names (spaces removed) and having the same date of birth yielded **12** records from **6** potentially duplicated individuals.
5. Potential Duplicates by Surname (spaces removed), similar sounding first-names and having the same date of birth yielded **22** records from **11** potentially duplicated individuals
6. Potential Duplicates by Surname (spaces removed), similar sounding first-names and having the same day of birth yielded **24** records from **12** potentially duplicated individuals

The extracts of the records returned by these queries have been added as addenda to this report. All these are potential duplicates/multiple records and can only be determined to be records of the same person if their photos are used for manual adjudication.

Analysis of Voters that are 100 years old and above as of 1st October 2015

A query to lookup centenarians in ***Main*** Register yielded **no** records

While the supplementary data source had 29 individuals – a fairly high number of persons. It was noted that while 28 records were between the year **1903** and **1915** there were two records that had the 23/08/***1790*** and 14/06/***1862*** as the year of birth – these look like obvious mistakes.

The extracts of this query have been addendum to this report for manual verification using photos or acceptable identification that would verify that these individuals have been correctly captured.

Currency of the 2015 Voters' Register

In order to know whether the data is current – the test compare the 2015 register against the 2013 register.

A Gender and Age analysis of the data from Voter Rolls from 2013

The age breakdown of the 2013 voters' register used for comparison is as presented in Table 25.

Table 25

Eligible Population in 2013				
Age Group	**Male**	**Female**	**Total**	**Sex Ratio**
18 - 20	2,150	1,782	3,932	83
21 - 25	2,842	2,661	5,504	94
26 - 30	2,685	2,623	5,308	98
31 - 35	2,221	2,103	4,324	95
36 - 40	1,739	1,707	3,445	98
41 - 45	1,330	1,201	2,531	90
46 - 50	881	921	1,802	105
51 - 55	760	1,064	1,823	140

56 - 60	665	802	1,467	121
60 - 65	539	673	1,212	125
66 - 70	423	505	928	119
71 - 74	305	322	628	106
75+	628	719	1,347	114
Grand Total	**17,168**	**17,084**	**34,252**	**100**

When compared to the eligible voters at that point in time (2013) that is presented in Table 26

Table 26

Registered Voters 2013				
Age Group	**Male**	**Female**	**Total**	**Sex Ratio**
18 - 20	70	69	139	99
21 - 25	460	432	892	94
26 - 30	1,477	1,594	3,071	108
31 - 35	2,508	2,706	5,214	108
36 - 40	2,610	2,689	5,299	103
41 - 45	2,146	2,054	4,200	96
46 - 50	1,130	1,358	2,488	120
51 - 55	894	1,067	1,961	119
56 - 60	656	720	1,376	110
61 - 65	336	426	762	127
66 - 70	268	255	523	95
71 - 74	156	153	309	98
75+	345	309	654	90
Grand Total	**13,056**	**13,832**	**26,888**	**106**

The numbers of underrepresented and over represented persons in 2013 are presented in *Table 27*. The figures in Red represent numbers of persons who are above the projected numbers of eligible persons. The figures in black represent the numbers of persons who are below the projected numbers of eligible persons.

Table 27

Over/Under Representation 2013			
Age Group	**Male**	**Female**	
18 – 20	2,080	1,713	
21 – 25	2,382	2,229	
26 – 30	1,208	1,029	
31 - 35	287	603	
36 - 40	871	982	
41 - 45	816	853	
46 - 50	249	437	

51 - 55	134	3	
56 - 60	9	82	
60 - 65	203	247	
66 - 70	155	250	
71 - 74	149	169	
75+	283	410	
Over representation	2,358	2,878	5,237
Under representation	6,471	6,131	12,601

Conclusion

The comparison between the **Merged** Dataset and the **2013** register reveals that while the total of overrepresented persons increased in 2015 by **3,083** when compared to the 2013 register - underrepresentation went down by **5,130** people.

Percentage Increase and Decrease of Voters from 2013

Since a significant period of time has elapsed and data was recaptured it is expected that there was an increase of voters due to transfers into the constituency and registrations by hitherto unregistered individuals but also a decrease of voters who had passed away or left the country (herein known as departed) and those who moved to another constituency or chose not to reregister for whatever reason.

Main Register

Table 28 shows the decreased numbers and increased numbers of persons while comparing the two datasets by ID Numbers (spaces and hyphens removed).

Table 28

Total in 2015	In2015_NotIn2013	Total 2013	In2013_NotIn2015	Unchanged	SOURCE
18,624	11,070	26,888	19,334	7,554	MAIN

When using the first 8 characters of the ID number i.e. *43-183591 R* 07 – there were insignificant changes. The results of this comparison are seen in Table 29.

Table 29

Total in 2015	In2015_NotIn2013	Total 2013	In2013_NotIn2015	Unchanged	SOURCE
18,624	10,963	26,888	19,229	7,659	MAIN

The breakdown of the **11,070** persons added to the ***Main Register*** when the full ID is used to compare the ***Main*** register and the ***2013*** register is shown in Table 30.

Table 30

Age Group	Female	Male	Grand Total	Sex Ratio
UNDER 18		2	2	N/A
18 - 20	610	685	1,295	112
21 - 25	919	1,475	2,394	161
26 - 30	859	1,364	2,223	159
31 - 35	769	1,189	1,958	155
36 - 40	511	738	1,249	144
41 - 45	386	421	807	109
46 - 50	246	216	462	88
51 - 55	113	158	271	140
56 - 60	76	108	184	142
61 - 65	42	48	90	114
66 - 70	27	36	63	133
71 - 74	14	18	32	129
75+	13	27	40	208
Grand Total	**4,585**	**6,485**	**11,070**	141

The **19,334** persons who were removed (transferred, departed, or not reregistered) are shown in Table 31

Table 31

Age Group	Female	Male	Grand Total	Sex Ratio
18 - 20	51	43	94	84
21 - 25	338	290	628	86
26 - 30	1,124	1,183	2,307	105
31 - 35	1,997	1,988	3,985	100
36 - 40	2,012	1,912	3,924	95
41 - 45	1,664	1,390	3,054	84
46 - 50	823	864	1,687	105
51 - 55	626	662	1,288	106
56 - 60	418	419	837	100
61 - 65	224	233	457	104
66 - 70	179	137	316	77
71 - 74	122	88	210	72
75+	293	254	547	87
Grand Total	**9,871**	**9,463**	**19,334**	**96**

This represents the count of voters in the age groups they were in as of 31/07/2013.

Supplementary Register

Table 32 shows the decreased numbers and increased numbers of persons while comparing the 2013 voters register and the supplementary register by full ID Numbers (spaces and hyphens removed).

Table 32

Total in 2015	In2015_NotIn2013	Total 2013	In2013_NotIn2015	Unchanged	SOURCE
18,956	3,503	26,888	11,435	15,453	SUPPLEMENTARY

When using the first 8 characters of the ID number i.e. *43-183591* R 07 – there were insignificant changes. The results of this comparison are seen in Table 33.

Table 33

Total in 2015	In2015_NotIn2013	Total 2013	In2013_NotIn2015	Unchanged	SOURCE
18,956	3,475	26,888	11,413	15,475	SUPPLEMENTARY

The breakdown of ***3,503*** persons added into the supplementary register is presented in Table 34.

Table 34

Age Group	Female	Male	Grand Total	Sex Ratio
18 - 20	55	47	102	85
21 - 25	530	475	1,005	90
26 - 30	413	437	850	106
31 - 35	321	311	632	97
36 - 40	187	191	378	102
41 - 45	157	126	283	80
46 - 50	64	61	125	95
51 - 55	23	22	45	96
56 - 60	23	10	33	43
61 - 65	10	11	21	110
66 - 70	5	4	9	80
71 - 74	2	5	7	250
75+	3	9	12	300
Grand Total	**1,793**	**1,710**	**3,503**	**95**

The **11,435** persons who were removed (transferred or departed) are shown in Table 35.

Table 35

Age Group	Female	Male	Grand Total	Sex Ratio
18 - 20	27	36	63	27
21 - 25	210	203	413	210

26 - 30	596	643	1,239	596
31 - 35	863	1,045	1,908	863
36 - 40	957	1,127	2,084	957
41 - 45	805	916	1,721	805
46 - 50	476	657	1,133	476
51 - 55	409	527	936	409
56 - 60	343	388	731	343
61 - 65	174	251	425	174
66 - 70	139	155	294	139
71 - 74	71	86	157	71
75+	162	169	331	162
Grand Total	**5,232**	**6,203**	**11,435**	**5,232**

This represents the count of voters in the age groups they were in as of 31/07/2013.

The Merged dataset (Main + Supplementary)

Table 40 shows the decreased numbers and increased numbers of persons while comparing the 2013 voters register and the supplementary register by full ID Numbers (spaces and hyphens removed).

Table 36

Total in 2015	In2015_NotIn2013	Total 2013	In2013_NotIn2015	Unchanged	SOURCE
37,580	14,573	26,888	4,009	22,879	MERGED

When using the first 8 characters of the ID number i.e. *43-183591* R 07 – there were insignificant changes. The results of this comparison are seen in Table 37.

Table 37

Total in 2015	In2015_NotIn2013	Total 2013	In2013_NotIn2015	Unchanged	SOURCE
37,580	14,438	26,888	3,979	22,909	MERGED

The breakdown of ***14,573*** persons added into the Merged register is presented in Table 38.

Table 38

Age Group	Female	Male	Grand Total	Sex Ratio
18 - 20	665	732	1,397	110
21 - 25	1,449	1,950	3,399	135
26 - 30	1,272	1,801	3,073	142
31 - 35	1,090	1,500	2,590	138
36 - 40	698	929	1,627	133
41 - 45	543	547	1,090	101

46 - 50	310	277	587	89
51 - 55	136	180	316	132
56 - 60	99	118	217	119
61 - 65	52	59	111	113
66 - 70	32	40	72	125
71 - 74	16	23	39	144
75+	16	36	52	225
Grand Total	**6,378**	**8,195**	**14,573**	**128**

The **4,009** persons who were removed (transferred or departed) are shown in Table 39.

Table 39

Age Group	Female	Male	Grand Total	Sex Ratio
18 - 20	8	12	20	150
21 - 25	90	66	156	73
26 - 30	247	236	483	96
31 - 35	365	342	707	94
36 - 40	367	364	731	99
41 - 45	334	265	599	79
46 - 50	171	171	342	100
51 - 55	145	129	274	89
56 - 60	108	91	199	84
61 - 65	62	62	124	100
66 - 70	51	37	88	73
71 - 74	38	23	61	61
75+	110	115	225	105
Grand Total	**2,096**	**1,913**	**4,009**	**91**

This represents the count of voters in the age groups they were in as of 31/07/2013.

The resulting Net increase of voters registered when comparing to the 2013 dataset is ***10,692*** persons or **28.45**% of the registered voters in 2015 or **39.76**% increase of the **26,888** that had been registered in 2013.

6. **Recommendations**

- Polling station specific voters' rolls could make it easier for the electorate to be targeted and intimidated hence ZEC should put in place mechanisms to deter retributive violence and intimidation
- There is need for continuous voter education drives, to ensure that people are aware of the polling station voter registration as ZEC prepares to adopt the system for the 2018 harmonised elections
- The integration of Biometric voter registration (BVR) with the polling station based voters' rolls is vital given that system has the ability to significantly enhance the integrity and credibility of the voter registration process
- ZEC should incorporate lessons learnt from the Marondera Central polling station-based voter registration pilot exercise as a way of improving the system for future elections
- There is need to improve youth participation through programmes that enhance youth participation in particular first time potential voters in electoral processes such voter registration.
- There is need to pilot polling station based voters' roll in upcoming by-elections for instance in Nkulumane and integrate Biometric technology in the pilot and conduct a comparative analysis of the Marondera central polling station based voters' roll and the Nkulumane pilot.

Appendix 1

In order to estimate the total eligible population of a constituency from a past census, there is need for the national (or even better and preferably a localized) age group cohorts for the population of interest. In this case this data is in Table 40 and was only available at a district level.

Table 40

2012 Population Age Breakdown (%)				
Age Group	**Male**	**Female**	**Total**	**Sex Ratio**
0 -4	7.49	7.60	15.08	101.51
5 - 9	6.33	6.41	12.74	101.28
10 -14	6.64	6.18	12.82	93.16
15 - 19	5.77	4.78	10.55	82.87
20 - 24	4.58	4.28	8.86	93.63
25 - 29	4.32	4.22	8.55	97.69
30 - 34	3.57	3.39	6.96	94.72
35 - 39	2.80	2.75	5.55	98.17
40 - 44	2.14	1.93	4.07	90.34
45 - 49	1.42	1.48	2.90	104.52
50 - 54	1.22	1.71	2.94	139.97
55 - 59	1.07	1.29	2.36	120.69
60 - 64	0.87	1.08	1.95	124.93
65 - 69	0.68	0.81	1.49	119.32
70 - 74	0.61	0.65	1.26	105.56
75 +	0.89	1.03	1.92	115.69

Marondera Central's population would then look like the data in Table 41

Table 41

Population in 2012				
Age Group	**Male**	**Female**	**Total**	**Sex Ratio**
0 -4	4,650	4,720	15.1	99
5 - 9	3,932	3,982	13	99
10 -14	4,122	3,840	13	100
15 - 19	3,584	2,970	10.8	98
20 - 24	2,842	2,661	9.2	83
25 - 29	2,685	2,623	8.7	85
30 - 34	2,221	2,103	7	93
35 - 39	1,739	1,707	5.6	97
40 - 44	1,330	1,201	4	105
45 - 49	881	921	2.7	86
50 - 54	760	1,064	2.7	66

55 - 59	665	802	2.2	75
60 - 64	539	673	1.7	74
65 - 69	423	505	1.3	82
70 - 74	382	403	1.1	74
75 +	552	638	1.7	83

Given that these records were captured in 2012, 3 years later i.e. in 2015 the age breakdown would be something like what is presented in Table 42

Table 42

Population in 2015				
Age Group	**Male**	**Female**	**Total**	**Sex Ratio**
18 - 22	3,584	2,970	6,554	82.87154
23 - 27	2,842	2,661	5,504	93.62974
28 - 32	2,685	2,623	5,308	97.68638
33 - 37	2,221	2,103	4,324	94.71545
38 - 42	1,739	1,707	3,445	98.16738
43 - 47	1,330	1,201	2,531	90.33546
48 - 52	881	921	1,802	104.5208
53 - 57	760	1,064	1,823	139.972
58 - 62	665	802	1,467	120.6869
63 - 67	539	673	1,212	124.9261
68 - 72	423	505	928	119.3225
73 - 77	382	403	785	105.5633
78 +	552	638	1,190	115.6882

In order to layout these persons into the ***18-20***, ***21 -25***, ***26-30*** etc. age groups. The populations in each of the age groups was divided into 5 equal groups as shown in Table 43

Table 43

Persons Per Year		
Age Group	**Male**	**Female**
18 - 22	716.75	593.99
23 - 27	568.50	532.28
28 - 32	537.06	524.64
33 - 37	444.14	420.66
38 - 42	347.70	341.33
43 - 47	265.93	240.23
48 - 52	176.19	184.15
53 - 57	151.97	212.72
58 - 62	132.96	160.47

63 - 67	107.79	134.66
68 - 72	84.64	101.00
73 - 77	76.36	80.61
78 +	551.72	638.27

To use this data to compute the likely numbers of persons the ***18-20***, ***21 -25***, ***26-30*** etc. age groups. For example to compute the 18-20 age set one needs to take the ***18-22*** persons per year i.e. 629.99 * 3 (the number of years 18,19 and 20). To compute the other age groups, for examples the numbers of Males in the **36-40** we use ***33-37*** and ***38 – 42*** age cohorts to compute this i.e. take the ***36*** and ***37*** years from the ***[33-37]*** and ***38***, **39** and ***40*** from ***[38- 42]*** i.e. (444.14 * 2) + (347.70 * 3)

Eligible Population 2015				
Age Group	**Male**	**Female**	**Total**	**Sex Ratio**
18 - 20	2,150	1,782	3,932	83
21 - 25	3,139	2,785	5,924	89
26 - 30	2,748	2,638	5,387	96
31 - 35	2,407	2,311	4,718	96
36 - 40	1,931	1,865	3,797	97
41 - 45	1,493	1,403	2,897	94
46 - 50	1,060	1,033	2,093	97
51 - 55	808	1,006	1,815	125
56 - 60	703	907	1,610	129
61 - 65	589	725	1,314	123
66 - 70	470	572	1,042	122
71 - 74	322	363	685	113
75+	704	799	1,504	113
Grand Total	**18,525**	**18,191**	**36,717**	**98**