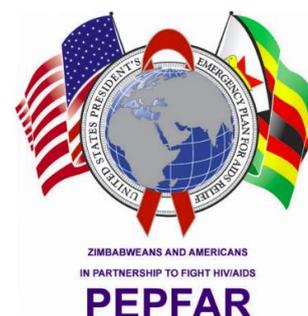




# Smart Investment to End HIV AIDS in ZIMBABWE based on Hotspot Analysis



21<sup>st</sup> January 2015

Analysis and Report by

United Nations World Food Programme, Zimbabwe



**vam**  
food security analysis

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## List of Acronyms

ANC	Ante Natal Care
AIDS	Acquired Immune Deficiency Syndrome
BCC	Behavioural Change Communication
CDC	Centre for Disease Control
GDP	Gross Domestic Product
GBV	Gender Based Violence
HCT	HIV/AIDS Counselling and Testing
HBC	Home Based Care
HIV	Human Immuno-deficiency Virus
IEHDC	Action Institute for Environmental Health and Development Communication
IGA	Income Generating Activities
MC	Male Circumcision
MTCT	Mother to Child Transmission
MOHCH	Ministry of Health and Child Care, Zimbabwe
NASA	National AIDS Spending Assessment
NAC	National Aids Council
OI	Opportunistic Infections
OVC	Orphaned and Vulnerable Children
PLWHIV	People Living with HIV and AIDS
PMTCT	Prevention of Mother to Child Transfer
SADC	Southern African Development Committee
STI	Sexually Transmitted Infections
TB	Tuberculosis
UNAIDS	United Nations Programme on HIV/AIDS
UNDESA	United Nations Department of Economic and Social Affairs
WFP	United Nations World Food Programme
WHO	World Health Organization
FAO	Food and Agriculture Organization
UNICEF	United Nations Children’s Education Fund
ZNASP	Zimbabwe National HIV and AIDS Strategic Plan
ZDHS	Zimbabwe Demographic and Health Survey

## Summary

This analysis uses existing datasets on prevalence, incidence, risk factors and service provision to identify investment areas for effective HIV/AIDS prevention and treatment. Data was converted into standardized values ranging between 0 and 1. The standardized values were summed up to provide a composite score which was classified into “high”, “medium” and “low” categories. Districts with high ranking were designated as hotspots while those with medium category but high risk factors were classified as potential hotspot areas.

The following are some key observations from the analysis:

Service delivery in terms of ART and PMTCT increased by up to five times between 2004 and 2013. It was also noted that majority of the PLWHIV live within 3 Km from an ART site which shows a generally good service coverage. Therefore more efforts should be placed to increase the functionality and capacity of the existing service delivery centres which requires a capacity assessment of existing centres to identify gaps needed to be addressed increase functionality and effectiveness.

Female prevalence was generally higher than that of males in all the data reviewed and. While this is unsurprising, it is a reminder to ensure that the investments are female-focussed. Matabeleland South consistently had the highest prevalence but the lowest people living with HIV (**Map 3 and 17**). The national incidence was also noted to be highest in this province as well as in Bulawayo (**Map 13**). These two areas present the highest likelihood of having new infections and therefore require an enhance prevention investment portfolio. In addition, further studies are needed to understand the dynamics in these areas to address the high prevalence and incidence (**Map 13**).

Provinces housing the main borders entry points (Beitbridge, Kariba, Victoria Falls, Plumtree, Forbes and Nyamapanda) generally showed high risk factors (**Map 28**). Also patterns of high prevalence were observed in farming areas, growth points and mining areas. More efforts and interventions are required in these populations to reduce the spread and impacts of HIV and AIDS in these communities.

The main geographic hot spots cover the entire Matabeleland South Province, two districts in Matabeleland North (Nkayi and Bubi) as well as Bulawayo, Mazowe and Marondera (**Map 37**). There are also 14 districts which have a high potential to become hotspots and need to be prioritized for investment in both prevention and treatment. These include: Bindura, Buhera, Centenary, Chegutu Urban, Chipinge, Epworth, Hurungwe, Makonde, Makoni, Mhondoro- Ngezi, Mount Darwin, Mutasa, Mutare, Nyanga, Shamva and Chipinge (**Map 37**).

In 2011 the allocation was in tandem with the provinces that have been identified as hotspots i.e. Matabeleland south, parts of Matabeleland North, Mashonaland Central, Marondera from Mashonaland East and Mazowe from Mashonaland Central (**Map 37**). The HIV spending seems to be consistent with PLWHIV with the exception of Mashonaland West where this is a need to increase spending (**Map 45**). In 2012 Matabeleland south which is the province with all districts identified as hotspots, spent very little on prevention activities. Deliberate efforts should be made to increase prevention activities. Also there is a need to augment the allocation to address the high risk factors in the country.

This analysis had some limitations. Some of the data such as risk factors was highly aggregated and therefore it would help for further studies to be done to cover the identified geographic hotspots (medium and high) and livelihoods. More causal analysis is also recommended to increase the depth of analysis and understand the confounding factors which would strengthen the design of context-specific HIV/AIDS programmes. Also more attention is needed to harmonize and standardize data storage formats to facilitate data integration and analysis

# Chapter One: Background

## 1.1 Introduction

The hot spot analysis project provides a prospect to analyse and determine populations and geographic areas (hotspots) at risk of HIV/AIDS infection as well as critical gaps in the coverage of current HIV/AIDS programmes. This project is an Inter-agency initiative of Ministry of Health and Child Care, NAC, UNAIDS and WFP. It is hoped that this analysis will assist in making smart investment case geared to ending HIV/AIDS in Zimbabwe by informing future programming strategies. A detailed desktop review of peer reviewed documents, surveys and published articles was conducted to provide the situational analysis of HIV/AIDS in Zimbabwe. It explores the hotspots based on trend analysis of prevalence, incidence and risk factors and attempts to identify gaps in service provision. Ultimately the data compiled and analysis process generated a series of graphical products which are compiled into an atlas.

## 1.2 Objectives of the Study

- Collate and review existing information on HIV-AIDS situation in Zimbabwe, including drivers and impacts.
- Collate and map HIV-AIDS trends and patterns of prevalence, incidence, risk factors and delivery services over time.
- Identify hotspots by geographic focus and population groups and livelihood categories.
- Assess the coverage of delivery services and possible gaps in provision of services.

## 1.3 Structure of the Report

**Chapter 1** provides an overview of the HIV situation in Zimbabwe and background to the report.

**Chapter 2** focuses on literature review and impacts of the epidemic.

**Chapter 3** looks at the HIV/AIDS spending in Zimbabwe

**Chapter 4** details the methodology that was used for this study.

**Chapter 5** presents the main findings of mapping exercise and identifies HIV hotspots.

**Chapter 6** covers conclusions and recommendations.

## 1.4 Limitations of the Study

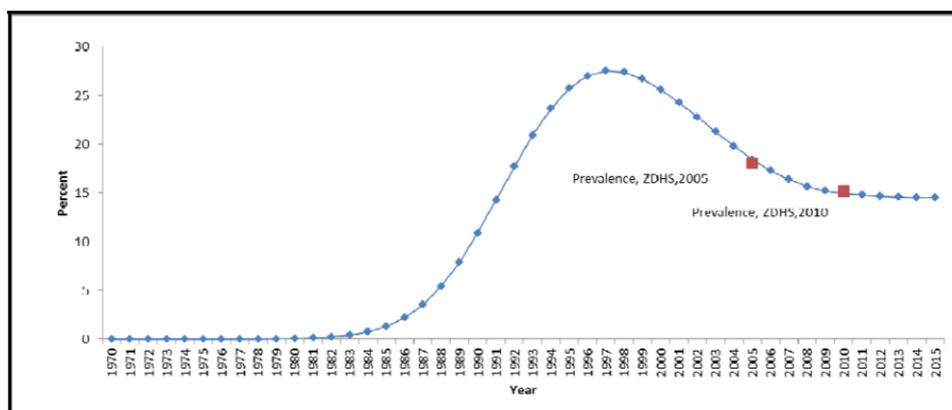
This study focusses on geographic and temporal patterns of different parameters of HIV/AIDS and provides an overview of impacts and spending. However, it does not attempt to explore causality of the patterns observed, which is outside the scope of the study. Data availability was a major challenge for this analysis. Most available data was aggregated at the district and province level which limited the types and depth of the analysis. Also the data was stored in non-standard formats which made data processing and integration very laborious and time-consuming.

## 1.5 HIV Situation in Zimbabwe

Since 2005 the Zimbabwe HIV epidemic has declined<sup>1</sup> (**Figure 1**). The prevalence of Zimbabwean adults aged 15-49 years declined from 18% in 2005/06 to 15.2% in 2010/11<sup>2</sup> albeit still one of the highest HIV prevalence rates in the world. The incidence rate is 0.98% and the HIV epidemic is generally hetero-sexually driven<sup>3</sup>. The HIV prevalence is more significant in urban areas compared to rural areas. While, the 15-24 years women age group's HIV prevalence is 1.5 times higher than the male counterparts. The HIV prevalence for males becomes higher than that of their female counterparts after the age of 30 years. The decline in HIV prevalence could be due to many factors including, high HIV deaths, increase in HIV awareness, increase in responsible behaviour such as condom use, reduction in number of sexual partners and delay in sexual encounter by young people<sup>4</sup>.

HIV prevalence levels across the country are fairly homogeneous, with overall prevalence being similar across provinces.. Nevertheless, some hotspots have been identified in this analysis. In response to the high numbers of HIV/AIDS, the Government of Zimbabwe and partners are implementing a comprehensive multi-sectorial response to HIV/AIDS. Action IEHDC (2012), indicates that high HIV prevalence in Southern Africa is located along commercial transport corridors, this indicates that the spread of HIV can be linked to mobility.

**Figure 1:** Showing the Decline in Zimbabwe HIV prevalence over the years



Source: *Global AIDS Response Country Progress Report (2014)*

Zimbabwe has high rates of marriage, compared to other countries in the Southern African region. People marry comparatively early. Another consequence of early marriage is that the majority of PLWHIV are in a marriage setup (about three quarters of male PLWHIV and over half of female PLWHIV). Of all infected couples with at least one of the partners HIV infected, 47% are sero-discordant, representing an opportunity for prevention in couples.

HIV infection is also clustered in people with a history of STIs, especially genital ulcer disease. There has been a decline of STI episodes recorded at public health facilities, but there are recent reports of STI increases in certain population groups like youth in Harare and mine workers in Mhondoro<sup>5</sup>.

<sup>1</sup> Zimbabwe National HIV/AIDS Estimates, 2011.

<sup>2</sup> See Zimbabwe Demographic and Health Survey 2010/11 and 2005/06.

<sup>3</sup> Global AIDS Response Country Progress Report, 2014

<sup>4</sup> Zimbabwe, Analysis of HIV Epidemic, Response and Modes of Transmission, 2010

<sup>5</sup> Zimbabwe Analysis of HIV Epidemic, Response and Modes of Transmission, 2010

<https://www.k4health.org/sites/default/files/Zimbabwe%20Analysis%20of%20the%20HIV%20Epidemic%20Response%20and%20Mode%20of%20Transmission.pdf>

The prevalence of male circumcision is very low in Zimbabwe, in the 2005 ZDHS, some 11% of men were circumcised. Such a low level is unlikely to affect overall HIV transmission to an important degree. Circumcision is traditionally practised in a few ethnic groups only like Tonga, but there is evidence that many Zimbabwean men are interested and willing if the procedure is done safely and is affordable.

## Chapter Two: Literature Review

### 2.1 Definition of a hotspot

An HIV/AIDS hotspot is defined as a geographical area or location with evidence of high prevalence of HIV, STIs or behaviours that put people at risk for acquiring HIV infection<sup>6</sup>. Wand and Ramjee<sup>7</sup> use the term “hotspot” and “cluster” interchangeably and their definition of a hotspot is detected within a defined geographical location during a specific time frame when a location has a disproportionate excess of HIV infections when compared with neighbouring areas under study. At the same time, the Climate and HIV/AIDS hotspot analysis, defined a hotspot as “a location or activity where the adaptation potential is at risk of being exceeded”<sup>8</sup>. In addition, UNDP 2004<sup>9</sup>, view the notion of a hotspot as “places where sexually related services and HIV risk related factors co-exist”.

### 2.2 Key Drivers of the epidemic

There are many drivers that lead to HIV. These include mobility and migration, concurrent sexual partnerships as a result of separation from permanent partners<sup>10</sup>. The epidemic in Zimbabwe is driven predominantly by heterosexual transmission, which accounts for more than 80 percent of new infections. Mother-to-child transmission is also an important factor, accounting for 7 percent of infections<sup>11</sup>. The highest numbers of new infections have been recorded in the 20-29 age group.

New infections are a result of low-risk heterosexual sex (56%), with casual heterosexual sex (24%) and transactional sex (paid sex) with (14%). The second significant source of new infections is Mother-To-Child-Transmission (PMTCT)<sup>12</sup>.

According to SADC<sup>13</sup>, the drivers of HIV in Southern Africa include:

- Extreme poverty and income inequalities;
- High mobility and migrant labour between rural and urban areas, within countries and between Member States;
- Gender dynamics and gender-based violence;
- Illiteracy;
- Stigma and discrimination;
- Alcohol abuse;
- Emergency situations such as civil conflict, war and displacement;
- Multiple sexual partners;
- Low rates of male circumcision; and
- Cultural determinants, such as cleansing.

In Zimbabwe, multiple studies have confirmed that multiple partnerships, especially long term concurrent partnerships remain a key driver and is frequently underestimated (based on self-reported behaviour in

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<sup>6</sup> World Health Organisation, 2013, [http://apps.who.int/iris/bitstream/10665/85511/1/9789241505826\\_eng.pdf](http://apps.who.int/iris/bitstream/10665/85511/1/9789241505826_eng.pdf)

<sup>7</sup> Wand and Ramjee , <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2984578/>

<sup>8</sup> Climate and HIV AIDS , <http://www.fao.org/nr/climpag/pub/Climate%20and%20HIV-AIDS%202004%20Gommes.PDF>

<sup>9</sup> <http://www.hivpolicy.org/Library/HPP000943.pdf>

<sup>10</sup> Action IEHDC, 2012, <http://www.action.co.zw/?wpdmact=process&did=Ml5ob3RsaW5r>.

<sup>11</sup> [www.unaids.org](http://www.unaids.org)

<sup>12</sup> [www.unaids.org](http://www.unaids.org)

<sup>13</sup> <http://www.sadc.int/issues/hiv-aids/>

surveys). According to the National Behaviour Change Strategy baseline survey of 2007/08, 28% of men and 9% of women reported having two or more sexual partners in past 12 months, and 10% of men and 3% of women reported having had a concurrent sexual partnership.

**Male circumcision (MC) level:** <sup>14</sup>Zimbabwe is a low-circumcision country with none of the provinces having MC prevalence above 19%. WHO has recommended scale-up of MC in high HIV prevalence countries as an additional HIV prevention strategy. New modelling data, generated by using Zimbabwe data, suggests that communities, and especially women, may benefit even more from MC interventions than previously thought. The study predicted a large effect on reducing male-to-female HIV transmission, increasing by 40 the infections averted by the intervention overall and doubling the number of infections averted among women.

**Condom use of longer-term relationships:** Several contemporaneous studies and reviews attempt to gauge the importance of condom promotion and distribution in the Zimbabwean epidemic. They generally conclude that condoms are likely to have had an effect on the course of the Zimbabwean epidemic. While condoms were a family planning tool in the early 1990, they became a risk reduction tool in causal and commercial relationships as the AIDS epidemic unfolded, and there are reports of more consistent condom use in recent years. Unfortunately, there is no robust trend data on condom in longer-term relationships.

### 2.3 HIV Prevalence-Patterns and Trends

Zimbabwe has a generalised HIV epidemic<sup>15</sup>, with exceptionally high level of HIV prevalence in the past and significantly lower levels at present-- , adult HIV prevalence has almost halved from 26.5% to 14.3% over the 12 years from 1997 to 2009. Comparison with other Eastern and Southern African countries shows that in the mid-1990s, Zimbabwe probably had the highest HIV prevalence in the world. Since then, the epidemic has contracted faster than any other HIV epidemic in the Eastern and Southern Africa. In 2005, according to the 2005/6 DHS. 18.1% of adults aged 15-49 years were HIV positive. In 2009, the Spectrum estimate for HIV prevalence in adults aged 15 and above was 14.3% (using DHS and ANC surveillance data, as well as population growth projections) and in children 0-14 years it was 2.1%.

<sup>16</sup>Zimbabwe has an estimated 1.2 million people living with HIV (PLWHIV), still representing the third largest HIV burden in Southern Africa. In Zimbabwe, the highest number of PLWHIV ever reached was an estimated 1.8 million (ranging from 1.6-1.9 million) at the end of the 1990s. In 2009, there were an estimated 1 million adults aged 15 and above and 150,000 children under 15 living with HIV<sup>17</sup>. It is also estimated that since this peak, well over 100,000 people have died every year due to AIDS-related causes up to 2007. Estimates and projections of adult mortality show that in 2010, Zimbabwe had one of the highest rates of pre-mature adult mortality in the world, largely due to AIDS. Annual mortality increased from 244 per 100,000 in 1990 to 577 per 100,000 among adult women 15-49, while mortality among adult men was even higher, increasing from 344 per 100,000 in 1990 to 725 per 100,000<sup>18</sup>. However, AIDS related mortality is following a decreasing trend.

AIDS-related mortality and reduced HIV incidence keep HIV prevalence 'in check', but population growth and life-prolonging antiretroviral treatment maintain the actual number of positive people at a high level in Zimbabwe. As of 2009, the estimated number of annual deaths (70,000) exceeded the number of annual new

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<sup>14</sup> Zimbabwe Analysis of HIV Response and Mode of Transmission Report, 2010

<sup>15</sup> **Generalized HIV Epidemic:** The HIV prevalence rate is >1% in the general population. (source: <http://www.cdc.gov/hiv/risk/other/poverty.html>)

<sup>16</sup> Zimbabwe Analysis of HIV Epidemic, Response and Modes of Transmission, 2010 <https://www.k4health.org/sites/default/files/Zimbabwe%20Analysis%20of%20the%20HIV%20Epidemic%20Response%20and%20Mode%20of%20Transmission.pdf>

<sup>17</sup> UNAIDS, [www.unaids.org](http://www.unaids.org)

<sup>18</sup> Zimbabwe Analysis of HIV Epidemic, Response and Modes of Transmission, 2010

HIV infections (48, 000), and the percent of HIV positive Zimbabwean adults is slowly declining. However, the absolute number of positive people has recently stabilised rather than declining<sup>19</sup>. The main two reasons for this is the prevailing population growth rate and ART. The population growth rate is projected at 2.1% (2010-2015). Urban population has come down from over 6% in the 1980s to an estimated 1.7% in 2005, whereas rural population growth has reduced from over 3% in the 1980s to a negative growth rate -0.1% by 2005. While Zimbabwe's current fertility rate (of 3.4 children per woman) would translate into population growth, out-migration and deaths due to AIDS seem to have caused population growth to stagnate during the late 1990s and early 2000s. So it is in urban areas where PLWHIV numbers are expected to rise year on year simply due to the positive population growth rate. Concerning ART, the number of people currently on ART increased from 85,000 to 215,000 between December 2008 and December 2009. The increase was a result of programme decentralization as well as expansion of outreach programmes particularly in Global Fund supported districts<sup>20</sup>.

The Zimbabwean HIV epidemic is geographically homogenous. HIV prevalence is similar across provinces and rural-urban zones. HIV prevalence shows little variation across the ten provinces, ranging from 15.1% (Masvingo) to 20.8% (Matabeleland South)<sup>21</sup>. Geographical homogeneity also applies when HIV prevalence in rural and urban zones is compared. Rural and urban residents have similar odds of being infected (17.6% in rural and 18.9% in urban areas,  $p=0.063$ ).

There may be considerable heterogeneity in HIV prevalence at local level. As described for rural Manicaland and for Antenatal Care (ANC) sentinel sites. The Manicaland HIV/STD Prevention Project in eastern Zimbabwe showed that in the 2001-03 survey, HIV prevalence was much higher in the small towns (33%) and also increased in the estates (21%) compared to the rural business centres and villages (16%)<sup>22</sup>. Coffee *et al* reported that HIV prevalence was at 50% in females living in the least developed subsistence farming areas. Among migrant agricultural workers, prevalence was 39% for women and 26% for men, compared with 30% and 21% for other sexually active women and men, respectively<sup>23</sup>.

HIV prevalence has steeply declined in all areas of the country in the past decade. It declined among 15-49 year old pregnant women nationally from 32% to 24% over the period 2000-2004, and continued to decline in subsequent surveys for women up to age 40<sup>24</sup>. According to the 2009 ANC Sentinel Surveillance report, HIV prevalence among pregnant women 15-49 years declined from 17.7% in 2006, to 16.1% in 2009 ( $p<0.001$ ). Prevalence at urban sites declined from 26.5% in 2002 to 15.5% in 2009, while prevalence in rural sites declined from 22.4% in 2002 to 14.5% in 2009. Prevalence in sites classified as other was higher than prevalence in urban or rural sites but also declined from 28.9% in 2002 to 20.5% in 2009.

## 2.4 Impacts of the epidemic

### i. Health Sector

The HIV/AIDS epidemic has posed and will continue to pose tremendous challenges to the health systems of the developing countries, especially in the most severely affected countries. HIV/AIDS increases overall health expenditures for both medical care and social support at the same time that it is claiming the lives of doctors and nurses in the developing countries.

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<sup>19</sup> Zimbabwe Analysis of HIV Epidemic, Response and Modes of Transmission, 2010

<sup>20</sup> Zimbabwe Analysis of HIV Epidemic, Response and Modes of Transmission, 2010

<sup>21</sup> ZDHS, 2010, <http://countryoffice.unfpa.org/zimbabwe/drive/2010-11ZDHSpreliminaryReport-FINAL.pdf>

<sup>22</sup> Zimbabwe Analysis of HIV Epidemic, Response and Modes of Transmission, 2010

<sup>23</sup> Zimbabwe Analysis of HIV Epidemic, Response and Modes of Transmission, 2010

<sup>24</sup> Gregson *et al.* 2010:6, <http://ije.oxfordjournals.org/content/39/5/1311.full>

The World Bank has estimated that a country with a stable 5 per cent adult HIV prevalence rate can expect that each year between 0.5 and 1 percent of its health-care providers will die from AIDS. In contrast, a country with 30 per cent prevalence would lose 3-7 per cent of its health workers to the HIV/AIDS epidemic<sup>25</sup>. Absenteeism and illness among health workers is a major issue. The quality of care of AIDS patients may also suffer because caregivers fear contracting the disease.

Many countries in the developing world are faced with a high demand for treatment of AIDS related diseases, making it difficult to satisfy the demand for treatment of other diseases. Information on bed usage by AIDS patients is available for major hospitals in a number of countries. For many of the most affected countries, the loss of hospital capacity may be on the order of 50 percent.

Calculations by the World Bank suggest that the effect of HIV/AIDS on total health care costs is likely to be quite large, even in countries that are spared the most serious epidemics. As HIV/AIDS increases the demand for health care, it will tend to drive up the effective price of health care as well, amplifying the impact on total health-care spending. Higher prices will lead some people to forego care they would have sought at the lower price, with the poor likely to feel the greatest effect. However, the price responsiveness or elasticity of demand for adult health care is usually small, since people who are sick and who have the ability to pay will often pay whatever is needed to get well<sup>26</sup>.

In many affected countries, the health budget allocated to the HIV/AIDS epidemic has increased, leading to the compression of the non-AIDS health budget<sup>27</sup>. One of the reasons for a higher allocation to AIDS in the health budget is that AIDS is far more costly to treat than other conditions. A study in Zimbabwe shows, for instance, that hospital care for HIV/AIDS patients was twice as expensive as that for the non-HIV/AIDS patients.

In the less developed countries, especially in the most affected ones, the total effects on the health sector are already serious and are projected to increase sharply as the number of AIDS cases grows. Increased need for health-care services, together with an eroding supply of health-care workers, risks degrading the quality and quantity of health care for whole populations.

## ii. Economy

According to the UNAIDS and UNDESA<sup>28</sup> the epidemic represents serious challenges on the whole national economy, this is because it affects the whole spectrum of the economy. The effects of HIV/AIDS, will affect first, families, individuals then firms, businesses and governments. The epidemic also aggravates deprivation leading to poverty and disparity in incomes as GDP declines. According to UNAIDS, in 1997, 23 to 24\$ was approximately the additional cost for treating the disease per household and 4000 Z\$ was the average cost for funerals in 1998<sup>29</sup>.

As national and individual savings finance HIV/AIDS costs, it leaves less income for investments besides that the epidemic diminishes foreign investments. Otherwise, high costs, decrease of profits and productivity for firms will be noticed. HIV/AIDS diminishes education rates and agricultural production resulting in an increase in food insecurity. Moreover, the HIV/AIDS results in markets and suppliers declining, in employment and labour losses. The epidemic may also deplete income of households besides the fact that the cost of goods keep increasing on the market, leaving households with very little buying power.

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<sup>25</sup> World Bank, 1999, [http://www.un.org/esa/population/publications/AIDSimpact/90\\_CHAP\\_VII.pdf](http://www.un.org/esa/population/publications/AIDSimpact/90_CHAP_VII.pdf)

<sup>26</sup> World Bank, 1999, [http://www.un.org/esa/population/publications/AIDSimpact/90\\_CHAP\\_VII.pdf](http://www.un.org/esa/population/publications/AIDSimpact/90_CHAP_VII.pdf)

<sup>27</sup> Impacts on the health sector, [http://www.un.org/esa/population/publications/AIDSimpact/90\\_CHAP\\_VII.pdf](http://www.un.org/esa/population/publications/AIDSimpact/90_CHAP_VII.pdf)

<sup>28</sup> United Nations Department of Economic and Social Affairs

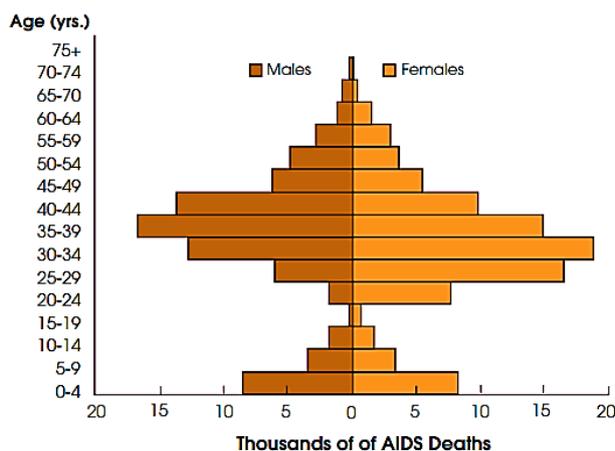
<sup>29</sup> Source: [Aids In Africa, Country By Country](#)

### a. Labour and Labour Market Disorganization

According to **figure 2**, the majority of the people infected are the workforce (aged from 15 to 49 years)<sup>30</sup>. The high morbidity and death rates affects labour quality and results in supply loss, debilitates the labour, rising of absenteeism, skills losses, efficiency and knowledge losses, accelerate staff turnover as well as morale drop which may lead to diminish the productivity. According to the FAO<sup>31</sup>, the disease by 2020, will result in the loss of 23% of the labour force in Zimbabwe. Labour turnover and death result in a less experienced labour force with lower productivity leading to direct diminish of the nation`s productivity capacity.

**Figure 2:** Estimated AIDS Deaths by Age and Sex, 1998-2018

#### Estimated AIDS Deaths by Age and Sex, 2003, 1988–2018



Source: AIDS Impact Model, 2003.

### ii. Economic Impact on Agriculture

HIV/AIDS diminishes farming production of both cash and food crops and also crop variety due to labour loss. In 2000, agricultural labour losses was 9.6% and would reach to 22.7 % in 2020 according to the FAO<sup>32</sup>. For commercial and business firms, HIV may cause losses in experienced and skilled labour resulting in low productivity and general shortage of labour during crucial periods of planting and harvesting. The employer also incur other employment related costs such as, rising costs of staff welfare, training, recruitment, and funerals. The individual farmworker families, are experiencing shortage of labour, reduction of labour supply, lack of essential inputs, experienced and skilled labour loss, revenue and output losses, accumulation of

knowledge and land losses and eventually switch to less labor-intensive crops. The switch to less-labor-intensive crops implies shifting from export crops to food crops which will reduce over the long term, national export earnings and needed foreign exchange. According to the UNDESA<sup>33</sup>, the farming production has decreased at close range of 50% in households affected by HIV/AIDS.

### a. Economic Impact on Firms

The disease involves expenditures increase, higher production costs, reduction of profits and the decrease of productivity which causes output. These higher production costs prevent Zimbabwe to stay competitive. During the decade 1993-2003, the nominal output loss due to HIV/AIDS, was 103.67 billion<sup>34</sup>. Since 1998, manufacture output losses were 25% and the mining output losses was 20% since 1999.

<sup>30</sup> Figure 1: Estimated AIDS Deaths by Age and Sex, 1998-2018

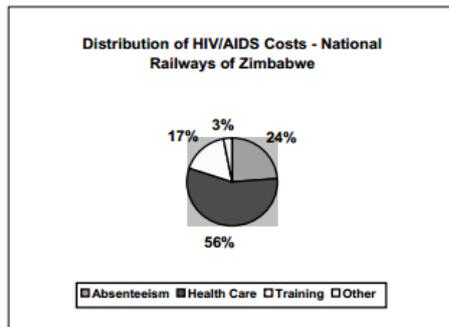
<sup>31</sup> Food and Agricultural Organisation, [www.fao.org](http://www.fao.org)

<sup>32</sup> Source: HIV/AIDS and South Africa's Agricultural Sector: Impact on Food Demand

<sup>33</sup> United Nations Department of Economic and Social Affairs

<sup>34</sup> Figure 2: Distribution of HIV/AIDS Costs – National Railways of Zimbabwe

**Figure 3:** Distribution of HIV/AIDS Costs – National Railways of Zimbabwe



Indeed, expenditures (or costs) are increased by health care costs (which represents the highest expenditure percentage for firms as we can see on the figure 3), burial fees, health insurance, training and recruitment. The cost of AIDS to National Railways was equivalent to 20% of the company's profits and absenteeism cost up to Z\$80 million in 1997 (**Figure 3**). High costs due to HIV/AIDS could impede investments by the firms. Even foreign investors choose to defer investments as HIV/AIDSs will affect cost structure of any investments.

### iii Education

HIV/AIDS affects the overall management of the education system. Indeed, it depletes the national supply of skilled teachers, the number of skilled teachers, the absence of pupils because of illness and orphanhood. Students are leaving schools also in order to save on educational expenses and increase household labour but also in order to take care of sick persons. This substitution of labour by students limit pupils' ability to attend schools and learning. That is why the labour might be undereducated and unskilled in the long term. 48% of primary and secondary school orphans dropped out schools due to the disease and death of their parents<sup>35</sup>. In 1999, 86 000 primary schoolchildren lost a teacher according to UNAIDS and UNICEF. The result is an increase of training costs, difficulties to replace the well-experienced and skilled labour and the investment loss in the human capital stock. Other impacts include under-performance, the loss or absenteeism of skilled teachers, education and education management officers within the education and training institutes. These consequences have a negative impact on the quality of education, overall educational attainments, skills development and human capital which affect economic performance.

### iv Food Security

HIV/AIDS is capable of having devastating effects on household food and nutrition security<sup>36</sup>. With regards to food security, HIV/AIDS affects the livelihood systems of households<sup>37</sup>. The level of impact on households varies according to the household's production activities which can either be agricultural or non-agricultural. The impacts have to be contextualised to the economic and social-cultural of the household or individual<sup>38</sup>. HIV/AIDS causes a reduction in farming production, therefore, a reduction of cash crops and food crops due to labour loss. On the long run, the HIV epidemic leads to a chronic food crisis - low quantities, less nutrition among the affected households and individuals. At the same time, HIV impairs the nutritional status of an individual by compromising the immune system, additionally it suppresses the nutrient intake, absorption and use<sup>39</sup>.

<sup>35</sup> Source : The HIV and AIDS Epidemic in Zimbabwe

<sup>36</sup> FAO, <http://www.nac.org.zw/sites/default/files/Hot%20spot%20Mapping%20Report.pdf>

<sup>37</sup> HIV/AIDS, Food and Nutrition Security: Impacts and Actions, [http://www.undg.org/archive\\_docs/3100-HIV\\_AIDS\\_Food\\_and\\_Nutrition\\_Security\\_Impacts\\_and\\_Actions.pdf](http://www.undg.org/archive_docs/3100-HIV_AIDS_Food_and_Nutrition_Security_Impacts_and_Actions.pdf)

<sup>38</sup> The impact Of HIV/Aids On Food Security, <http://www.fao.org/docrep/meeting/003/Y0310E.htm>

<sup>39</sup> Food Insecurity, Depression, and Energy Security Among Individuals Living With HIV/AIDS In Rural Appalachia , [https://etd.ohiolink.edu/!etd.send\\_file?accession=ohiou1312916096&disposition=inline](https://etd.ohiolink.edu/!etd.send_file?accession=ohiou1312916096&disposition=inline)

## Chapter Three: Zimbabwean National Aids Spending Assessment

According to the UNAIDS Global Report (2012), Zimbabwe is among thirteen countries in Sub-Saharan Africa that have registered a dramatic decline of new HIV infections of at least 50% among adults (15-49 years) between 2001 and 2011. Nevertheless, Zimbabwe still faces a high HIV burden. HIV Estimates for 2012 show that Zimbabwe had 1.32 million, or 1 in 10 people living with HIV, making it one of the countries in Sub-Saharan Africa worst affected by the epidemic. Of the total PLWHIV, 186,748 (14%) were children 0-14 years old. AIDS related deaths among adults has resulted in a cumulative total of 947000 orphans as of 2012 but this number is projected to decline to 767000 by 2015 due to the positive impact of ART and other interventions<sup>40</sup> (MOHCC 2012 HIV estimates). Zimbabwe is also experiencing high HIV and TB co-infection rates of 82% with the latter being responsible for about 50% of deaths among PLWHIV<sup>41</sup>. According to the Zimbabwe National AIDS Spending Assessment (NASA) (2011 – 2012) report, Zimbabwe has made significant strides in responding to HIV and AIDS. This is evidenced by the high coverage of ART and PMTCT<sup>42</sup>, a decline in mortality due to HIV related causes and a decrease by 50% in new HIV infections among adults 15-49 years between 2001 and 2011.

### 3.1 What is NASA

The National AIDS Spending Assessment (NASA) approach to resource tracking is a comprehensive and systematic methodology to determine the flow of resources for HIV response from the source to the point of service delivery. The primary objective of this project is to track resources, leveraging both technical and financial resources for implementation, management, monitoring and evaluation of the AIDS response for 2011-2012.

The specific objectives are:

- i. To adapt NASA methodology, classification and tools to the Zimbabwean context;
- ii. To build requisite capacity for AIDS resource tracking using the NASA methodology in NAC;
- iii. To conduct an AIDS spending assessment focusing on public, private and external resources for the response from 2011 to 2012 (2 financial years);
- iv. To catalyse and facilitate institutionalisation of tracking of AIDS expenditures in NAC;
- v. To identify the flow of expenditures on HIV and AIDS by sources of funding, agents, functions, service providers and target beneficiary population; and,
- vi. To contribute data towards the mid-term review of the ZNASP II and inform prioritisation of resources for the remaining years of the ZNASP II.

### 3.2 Total HIV and AIDS Spending in Zimbabwe

The total spending on HIV and AIDS in Zimbabwe in 2011 and 2012 was US\$ 258 425 867 and US\$ 314 770 705 respectively<sup>43</sup>, showing an increase of 22%. This equated to \$19.34 and \$22.94 per person (applying the entire population) in 2011 and 2012. According to the same report, the largest source of HIV and AIDS funding in Zimbabwe was the external development partners, who in total contributed 66% (US\$ 170 million) in 2011, increasing by 32% to reach to US\$ 224.4 million (77% of the total) in 2012. The public contribution of US\$ 28.6

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<sup>40</sup> HIV estimates, 2012, <http://www.nac.org.zw/category/tags/hiv-and-aids-statistics>

<sup>41</sup> Zimbabwe National HIV And Aids Strategic Plan [ZNASP II] 2011-2015, <http://www.nac.org.zw/sites/default/files/Zimbabwe-National-HIV-AIDS-Strategic-2011-2015-Plan.pdf>

<sup>42</sup> UNAIDS, 2012 Global Report & ZNASP II MTR

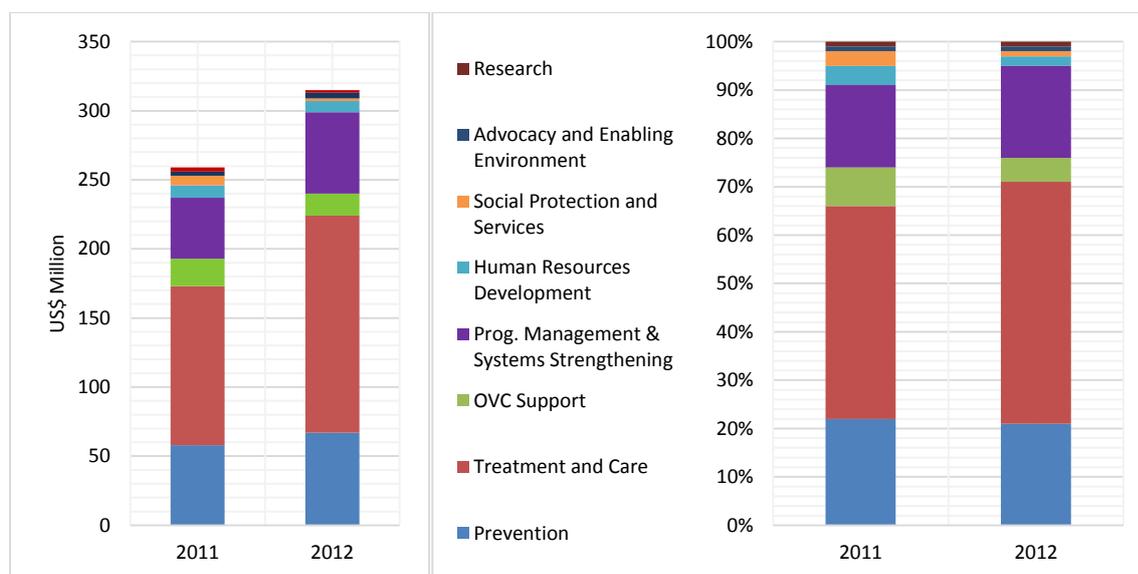
<sup>43</sup> Zimbabwe National AIDS Spending Assessment, 2011 – 2012 Report, <http://www.unaids.org/en/dataanalysis/knowyourresponse/nasacountryreports>

million (11%) in 2011 increased nominally by 21% to reach US\$ 34,6 million (but remaining proportionally at 11% of the total) in 2012. The private sector, including businesses and out-of-pocket expenditure (OOPE) made up US\$ 59.8 million (23%) in 2011 and decreased by 7% to US\$ 55.8 million (18%) in 2012.

Zimbabwe has broad categories of HIV and AIDS spending and these are summarised as:

- Prevention – eg. behavioural change communication (BCC), youth programmes, voluntary medical male circumcision (VMMC), elimination of mother-to-child transmission (eMTCT), post-exposure prophylaxis (PEP), HIV counselling and testing (HCT), interventions for vulnerable populations including most-at-risk populations (MARP), condoms etc.
- Treatment – eg. ART, home-based care (HBC), palliative care, out- & in-patient costs for opportunistic infections (OIs) & sexually transmitted infections (STIs), TB treatment, etc.
- Orphans and vulnerable children (OVC) – health, family, educational, social support.
- National systems strengthening & program coordination - co-ordination, planning, M&E, surveillance, operational research, drug supply systems, facility upgrading etc.
- Human Resources (HR) – this is ONLY training and capacity building for HR. The actual salaries were captured under the activities the staff performed.
- Social Protection – cash transfers, income generating activities (IGAs), material (in-kind) support, etc.
- Enabling Environment – advocacy, human rights protection, gender-based violence (GBV) prevention, institutional development etc.
- Research – clinical, social (behavioural/economic) etc.

**Figure 4: HIV Activities in Zimbabwe – Thematic Areas (2011-12, US\$ mill, %)**

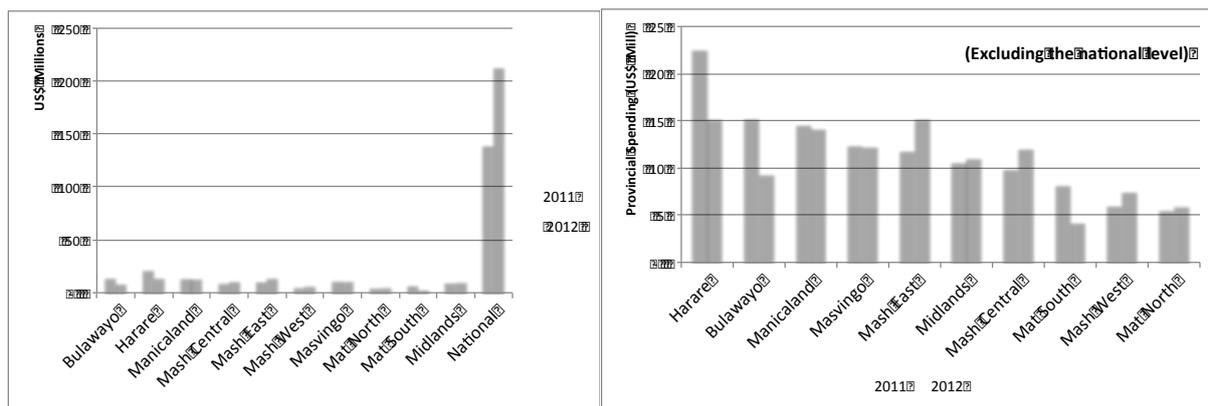


The broad thematic categories shows that the treatment and care activity took the largest proportion (44%) in 2011 (US\$ 114.7 million), which further increased to 50% (US\$ 156.8 million) in 2012. This category however, is not only for ART but also includes HBC, palliative care, OI and STI treatment etc. The next largest category is the spending on prevention activities at US\$ 57.4 million (22%) and US\$ 67.2 million (21%) in 2011 and 2012 respectively, followed by the programme management and national systems strengthening activities with US 43.6 million (17%) and US\$ 58.6 million (19%) respectively. Of concern was the decrease in spending on Orphan and Vulnerable Children (OVC), going down from US\$ 20.6 million (8%) in 2011 to US\$ 16.4 million (5%) in 2012<sup>2</sup>.

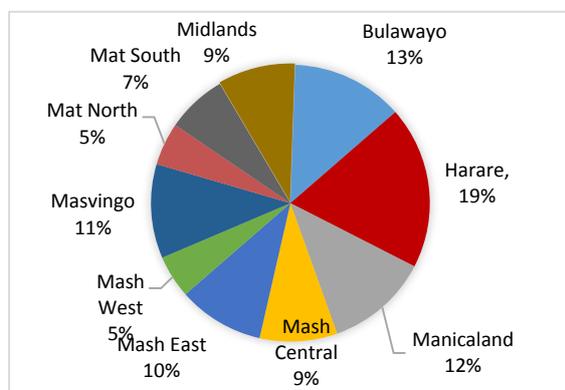
### 3.3 Provincial and National Spending

Harare had the highest spending in 2011 at US\$ 22.7 million, but it reduced significantly to US\$ 15.2 million, forming 19% in 2012 (excluding the national level). Spending for Bulawayo's also decreased from US\$ 15 million in 2011 to US\$ 9.4 million in 2012 (13%), as did Matabeleland South from US\$ 8 million to US\$ 4 million. Spending for Manicaland, Masvingo, Midlands and Matabeleland North remained more or less the same between the years, while only Mashonaland East, West and Central actually increased slightly. Proportionally (as shown in **Figure 6**), the provinces appear to have received more or less equal shares, apart from Harare and Bulawayo receiving slightly more percentages, as would be expected for major metropolitan provinces. **Figure 5** shows the allocation of HIV and AIDS spending per province.

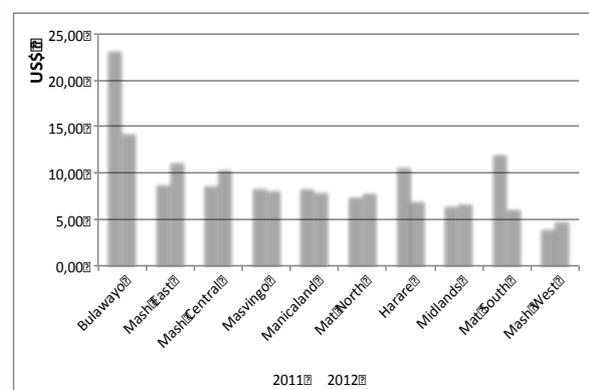
**Figure 5: Provincial and National Spending (2011-2012, US\$ mill)**



**Figure 6: Proportional Split of HIV Spending between Provinces (2012, %)**



**Figure 7: Provincial HIV Per Capita Spending (2011-2012, US\$)**



Although Harare has the highest proportion of the HIV and AIDS spending (**Figure 6**), its per capita spending in 2012 was US\$ 7.18, or about half of Bulawayo's which is US\$ 14.42 per person in the province (using the Census, 2012) according to **Figure 7**. Mashonaland East has the next highest per capita spending at US\$ 11.35 followed closely by Mashonaland Central at US\$ 11 per person. The other provinces all spent around US\$ 6/7/8 per person, with Mashonaland West spending the least at US\$ 5 in 2012.

## Chapter Four: Datasets and Methodology

A composite index derived from the following normalised set of indicators was used to identify the geographic hotspots. These indicators were:

- i. HIV prevalence
- ii. HIV Incidence rates
- iii. Risk factors (defined by a combination of condom use, multiple sexual partners, high risk sexual intercourse and young people fertility as a proxy for pregnancy gives and estimation of risk factors by young people)
- iv. Service coverage data.

**Figure 8** shows the process used to construct the index. Each of the indicators were standardised using the following transformation<sup>44</sup>.

$$XS_{ij} = (X_{ij} - \text{Min}_{x_j}) / (\text{Max}_{x_j} - \text{Min}_{x_j}) \quad j = 1,2, \dots,4 ; i = 1,2, \dots,89.$$

where:

- $XS_{ij}$  is the value of the standardized observation for district  $i$  of indicator  $j$ ;
- $X_{ij}$  is the actual value of the same observation;
- $\text{Min}_{x_j}$  and  $\text{Max}_{x_j}$  are the minimum and maximum values of the same observations for component  $j$ .

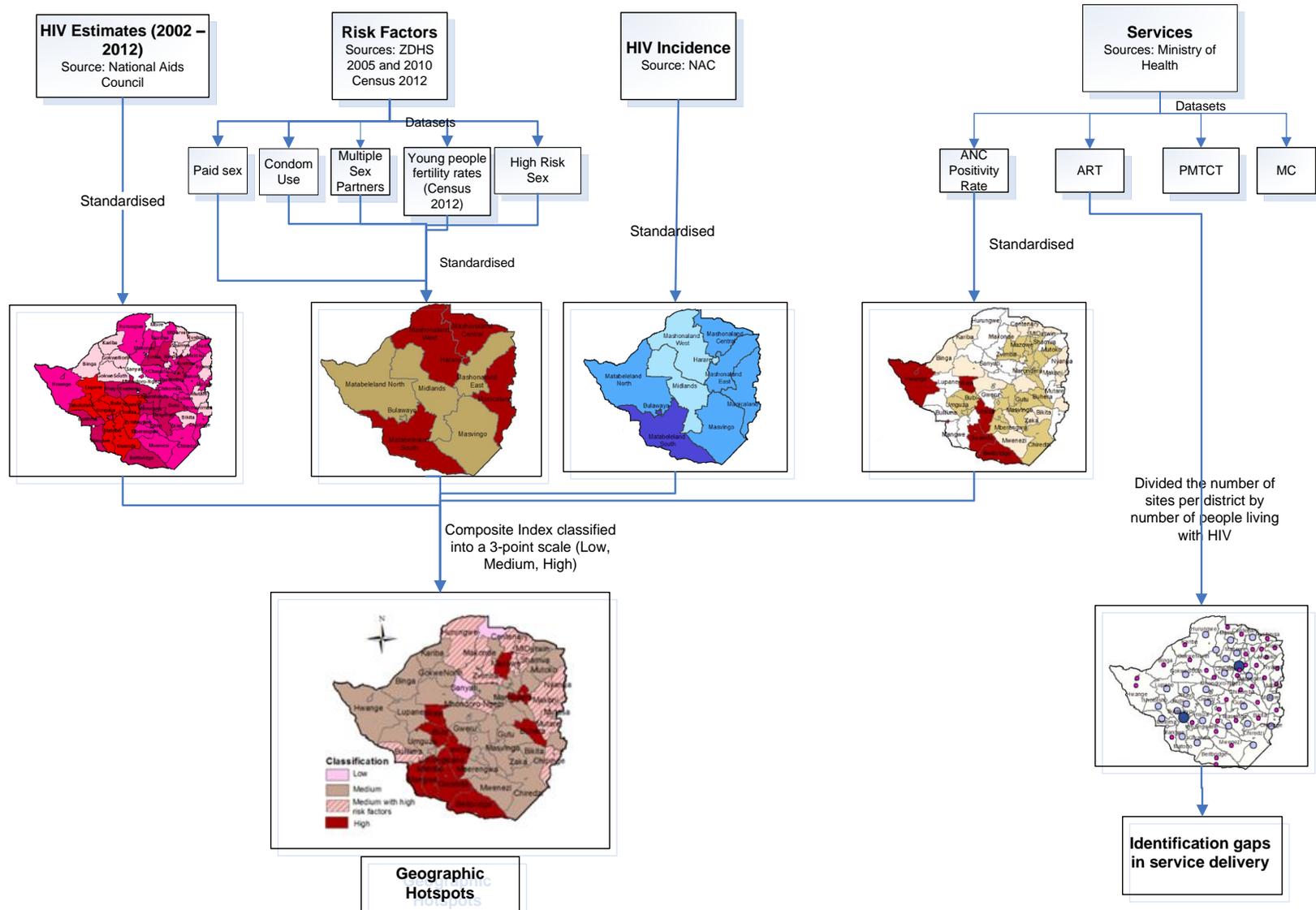
This transforms the values of observations in a particular variable array so that they take a range of values from 0 to 1 which is necessary to minimise variability and also allow comparability across datasets. The standardised values of each indicator were classified into a 3-point scale (1, 2, 3) where 1 = Low, 2 = Medium and 3 = High. These points were summed up into a composite index and the index was classified into Low, Medium and High categories. The medium classification was further clarified into three categories i.e. medium with low risk factors and medium with medium risk factors (these two are represented on the hotspot map as medium) and medium with high risk factors). Medium with high risk factors are those areas that are not hotspots but have great potential to become hotspots if the risk factors are not mitigated. In addition to geographic hotspots, an attempt was made using existing prevalence or positivity rate data to identify age group and livelihood zone based hotspots. The ANC positivity rate data was summarised by age- categories and livelihood sectors to give an idea of hotspots by population category and livelihood.

In order to determine if there are any gaps in service delivery, the number of sites (for ART and PMTCT) per district was divided by the population of people living with HIV to get an average number of clients per site. This was used as a proxy for access proxy services.

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<sup>44</sup> [http://www.wider.unu.edu/publications/working-papers/research-papers/2008/en\\_GB/rp2008-55/](http://www.wider.unu.edu/publications/working-papers/research-papers/2008/en_GB/rp2008-55/)

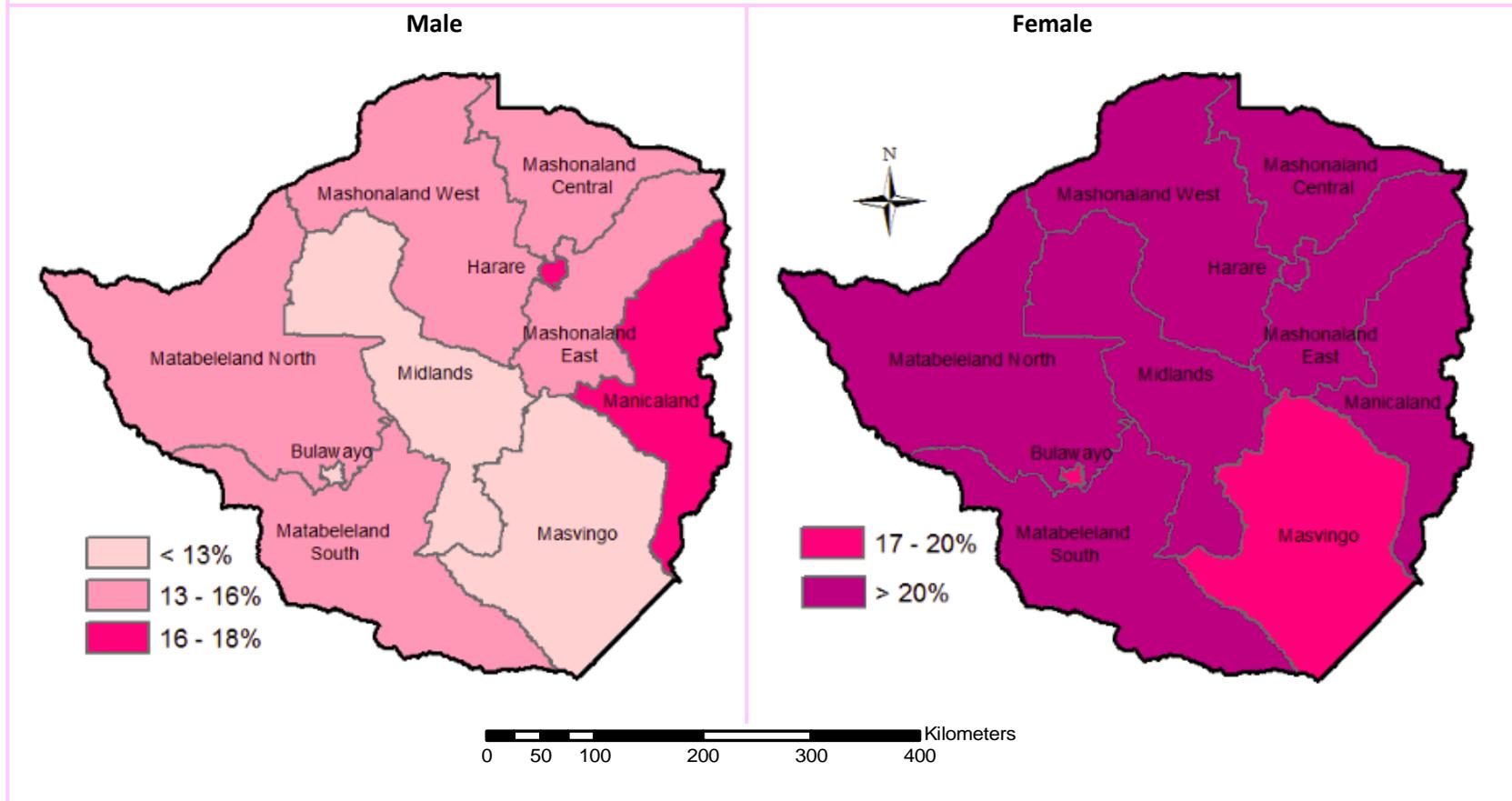
**Figure 8: Datasets and Methodology**



# Chapter Five: Findings

## 5.1 National HIV Prevalence

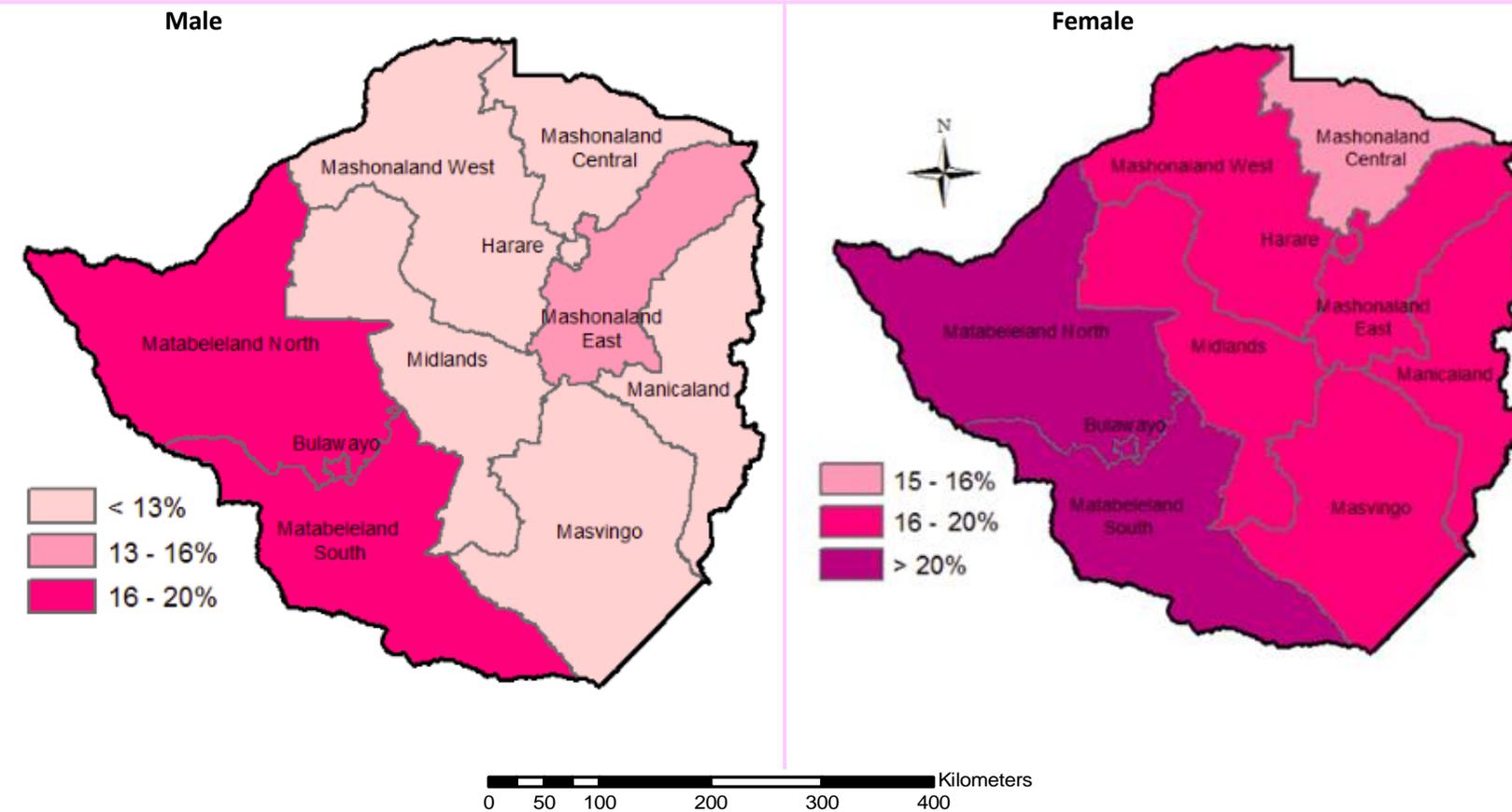
**Map 1:** HIV prevalence (15 – 49 Years) , 2005



In 2005, the women (15 – 49 years) generally, had a higher prevalence compared to their male counterparts. The highest prevalence for males was in Harare and Manicaland which were in the 16 – 18% category, and this category was the minimum for women with their prevalence starting at 17% for Masvingo and Bulawayo. The rest of the country for women had a prevalence greater than 20%.

**Data Sources:** Zimbabwe Demographic Health Survey.  
**Shape Files:** The Department of the Surveyor General.

**Map 2: HIV prevalence (15 – 49 years), 2010**

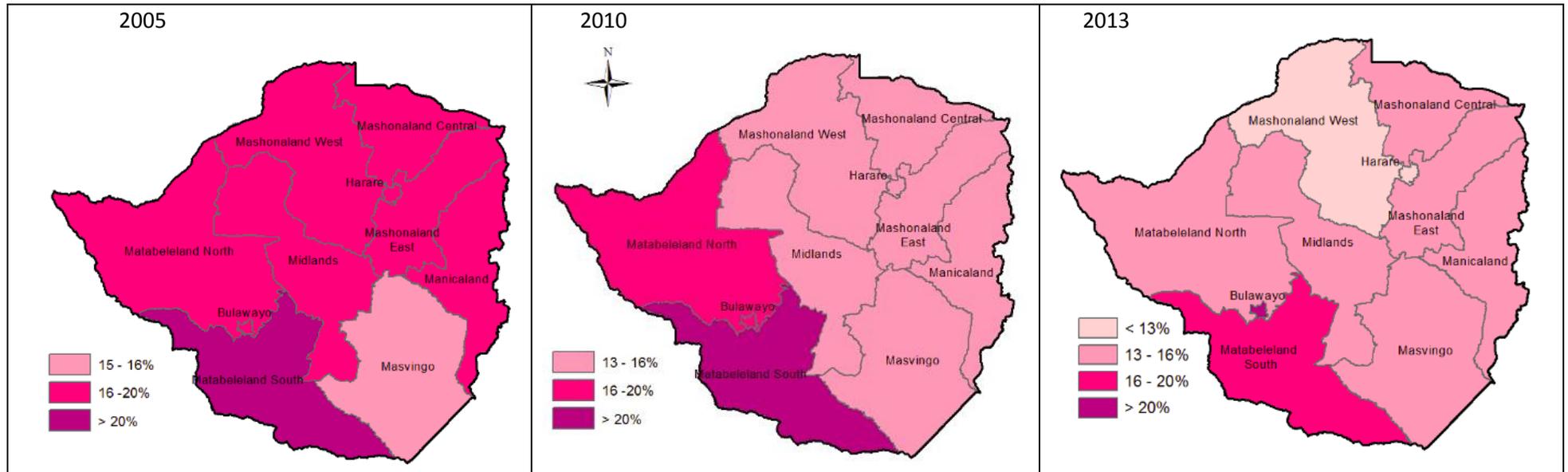


Compared to 2005, there is an improvement for the women with most provinces moving from > 20% to the 16 – 20% category. Bulawayo moved to the >20% category and Matabeleland remained in the highest category. For the males there was an increase in prevalence in Matabeleland and Bulawayo. A decline is observed for Manicaland, Mashonaland West and Central. In general prevalence in female was higher in males.

**Data Sources:** Zimbabwe Demographic Health Survey.  
**Shape Files:** The Department of the Surveyor General.

### 5.1.1 National HIV Prevalence Trends

**Map 3:** HIV prevalence rates by provinces



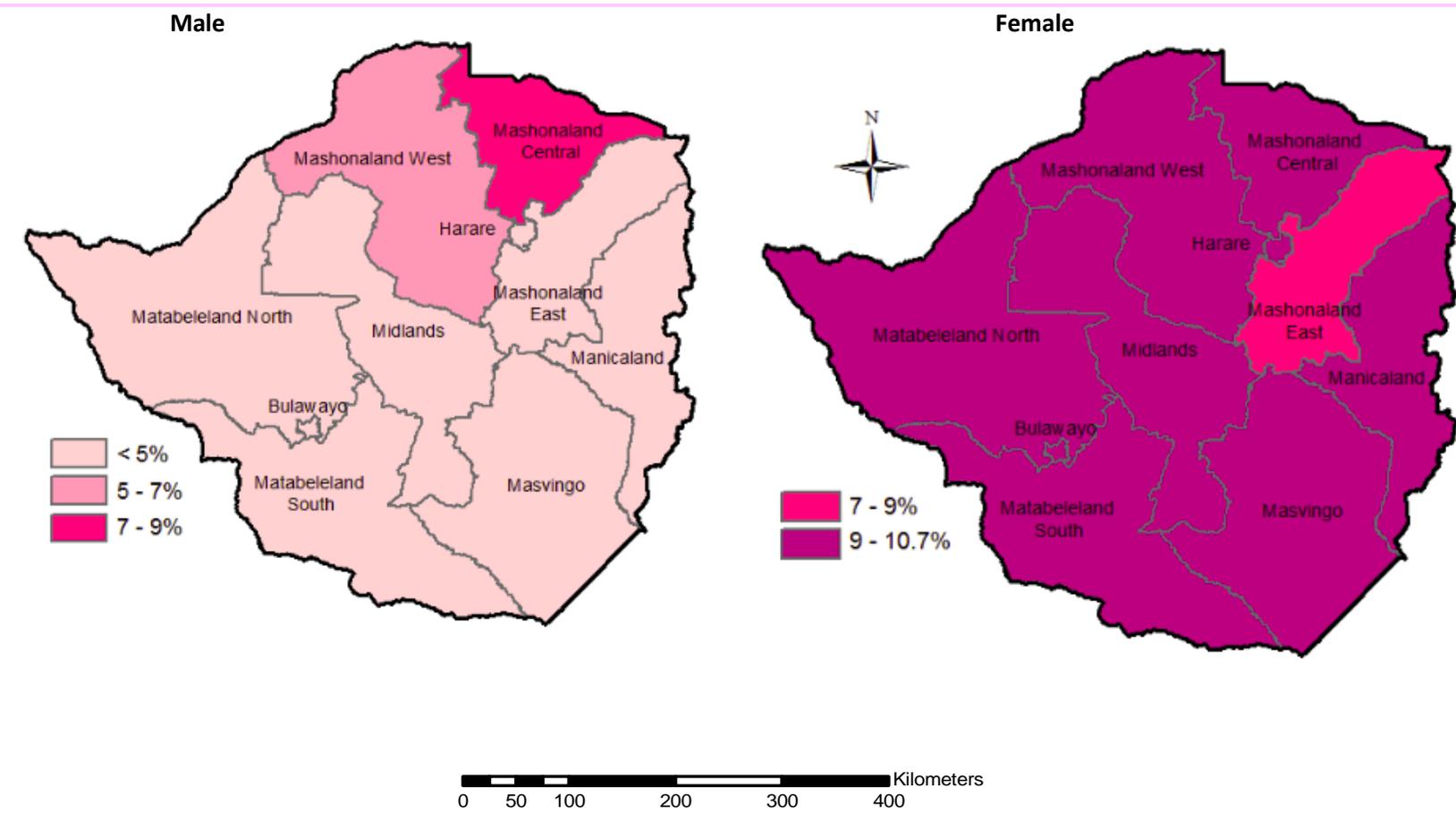
The HIV prevalence for 2005 shows that most parts of the country were in the 16 – 20% with Matabeleland South having the highest prevalence which is greater than 20% category. An improvement can be observed in the 2010 map as most of the country moved to the 11 – 15% with no changes in the Matabeleland. According to the National Aids Council estimates for 2013, only Matabeleland South has an estimate of above 17% as a result, Matabeleland South has consistently fallen in the highest HIV prevalence category.

According to the ZDHS 2010, the prevalence for young adults aged 15 – 24 years is also highest in Matabeleland south with a prevalence of 9.2% which is very high compared to provinces like Manicaland and Mashonaland west with prevalence below 5%.



5.1.2 HIV Prevalence amongst Young People

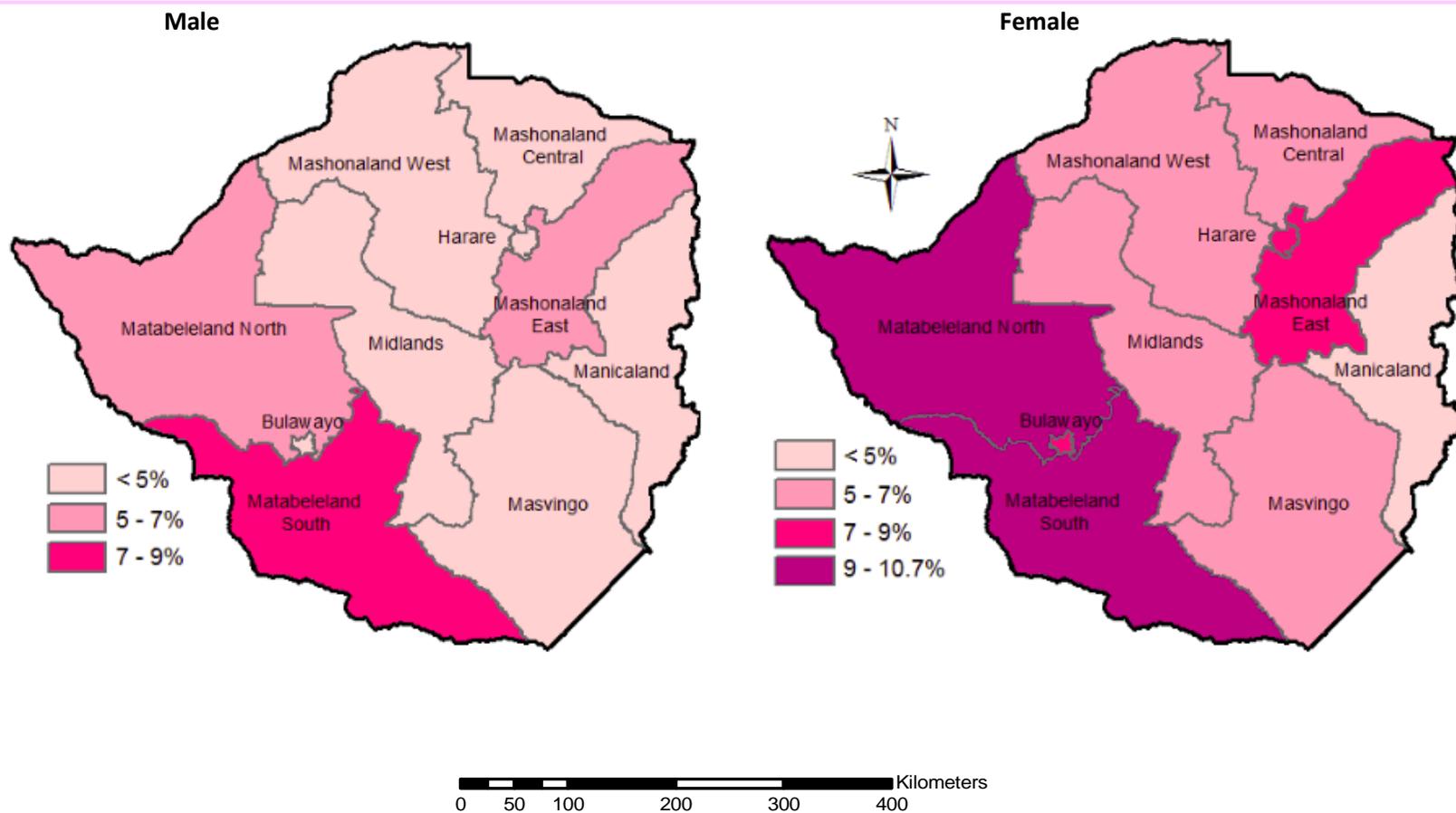
**Map 5:** HIV prevalence (15 – 24 years ), 2005



A high prevalence for the young women is observed in all the provinces compared to their male counterparts where most of the country is in the below 5% range, a category which is not available for the young women.

**Data Sources:** Zimbabwe Demographic Health Survey.  
**Shape Files:** The Department of the Surveyor General.

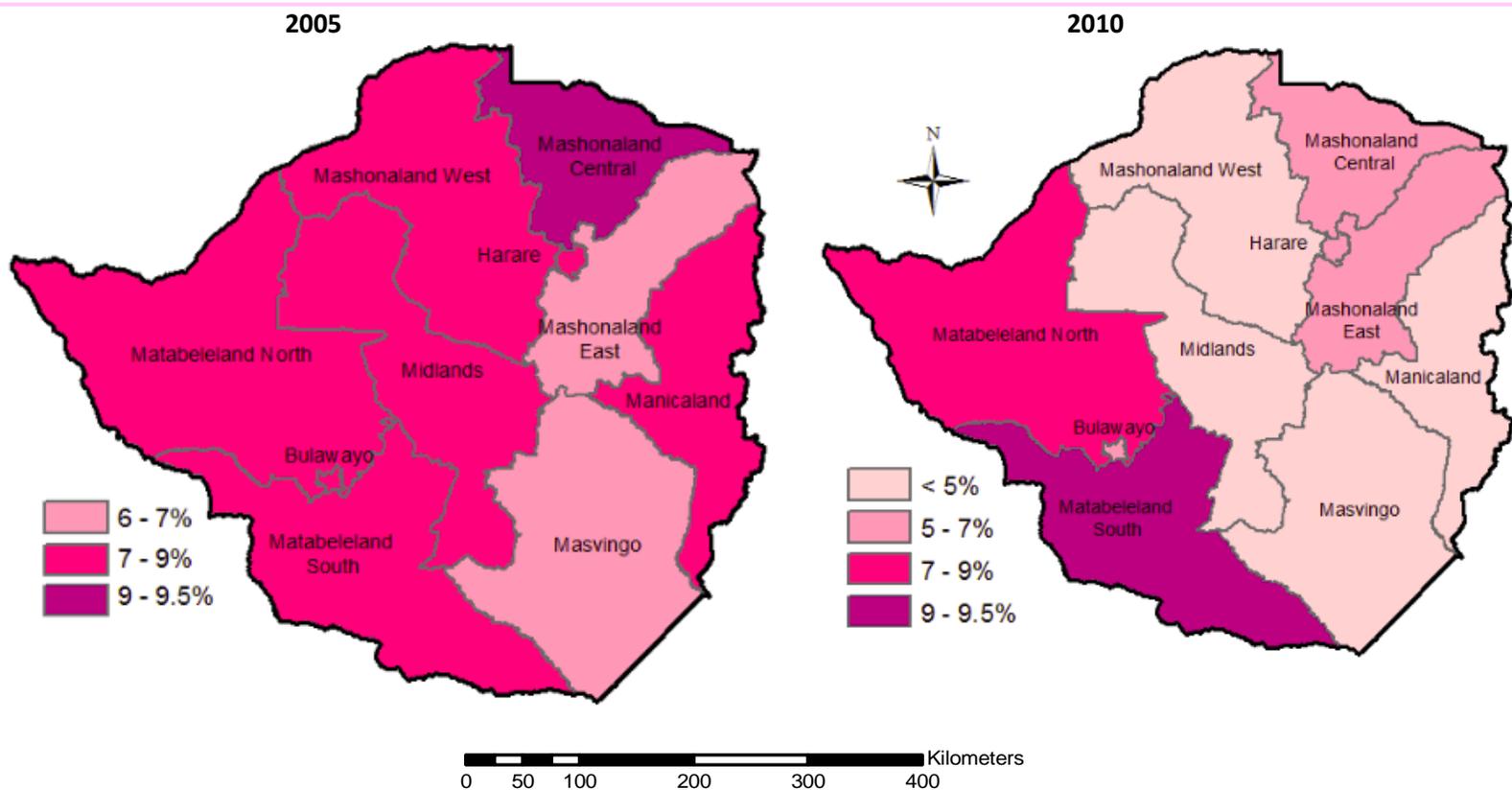
**Map 6: HIV prevalence (15 – 24 years ), 2010**



An improvement is observed for the young women which most provinces recording a decline in prevalence. This might be contributed by various factors including HIV deaths and services. The 15 – 24 years is an active ante natal care age group, and with the increase in HIV services, this might have greatly contributed towards the decline for women. The men for this age group shows a slight increase in prevalence with Matabeleland south recording an increase from <5% to between 7 and 9%.

**Data Sources:** Zimbabwe Demographic Health Survey.  
**Shape Files:** The Department of the Surveyor General.

**Map 7: National HIV prevalence (15 – 24 years )**



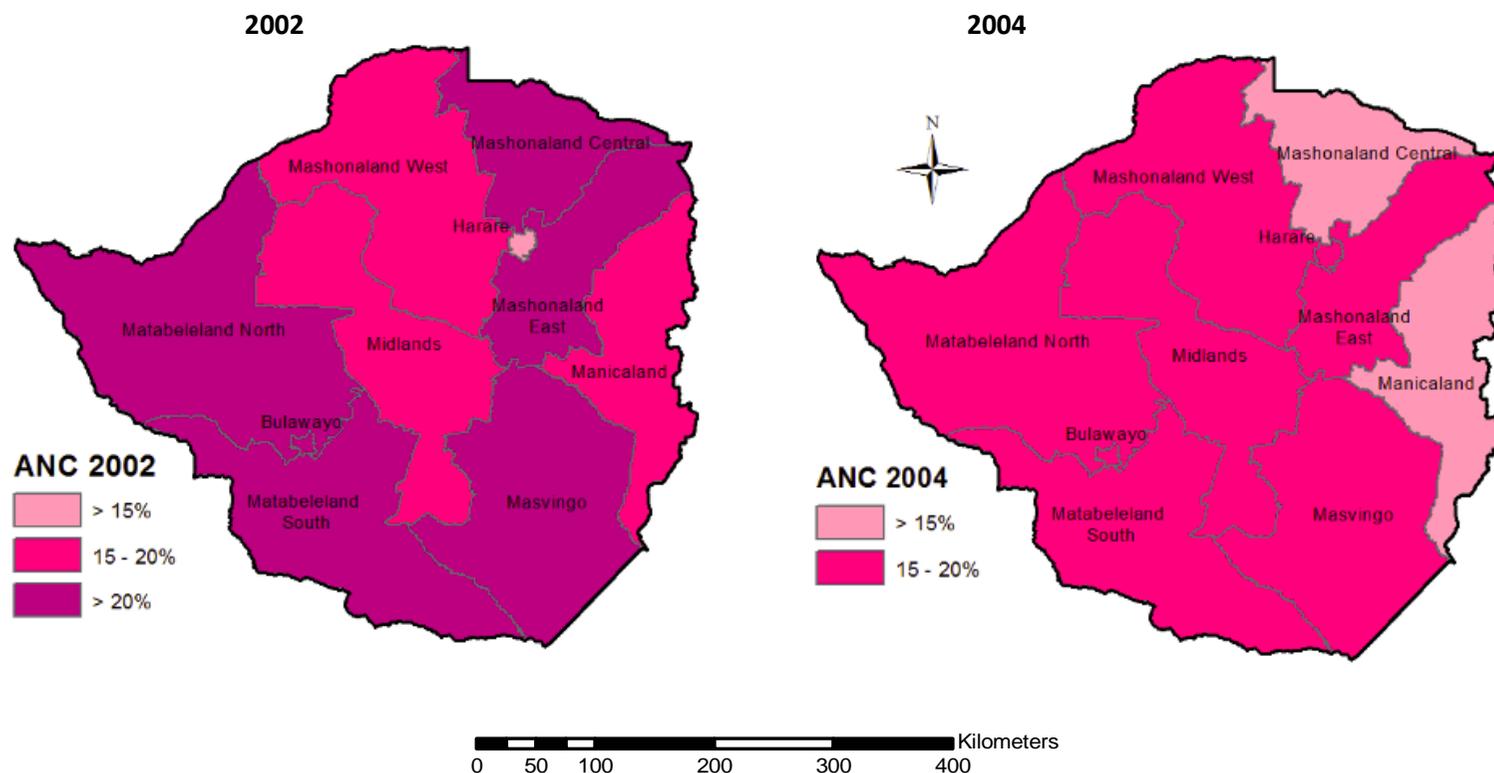
In 2005 the lowest prevalence was in Mashonaland East with a prevalence of 6.5% and the highest was in Mashonaland central with 9.4%. In 2010 Matabeleland South had the highest prevalence of 9.2% which was up from 7.6% in 2005. Mashonaland Central moved from 9.4% in 2005 to 5.2% in 2010. Mashonaland East remained in the 6-7 % category without much movement.

**Data Sources:** Zimbabwe Demographic Health Survey.

**Shape Files:** The Department of the Surveyor General.

5.1.3 HIV Prevalence among pregnant young women (15 – 24 years)

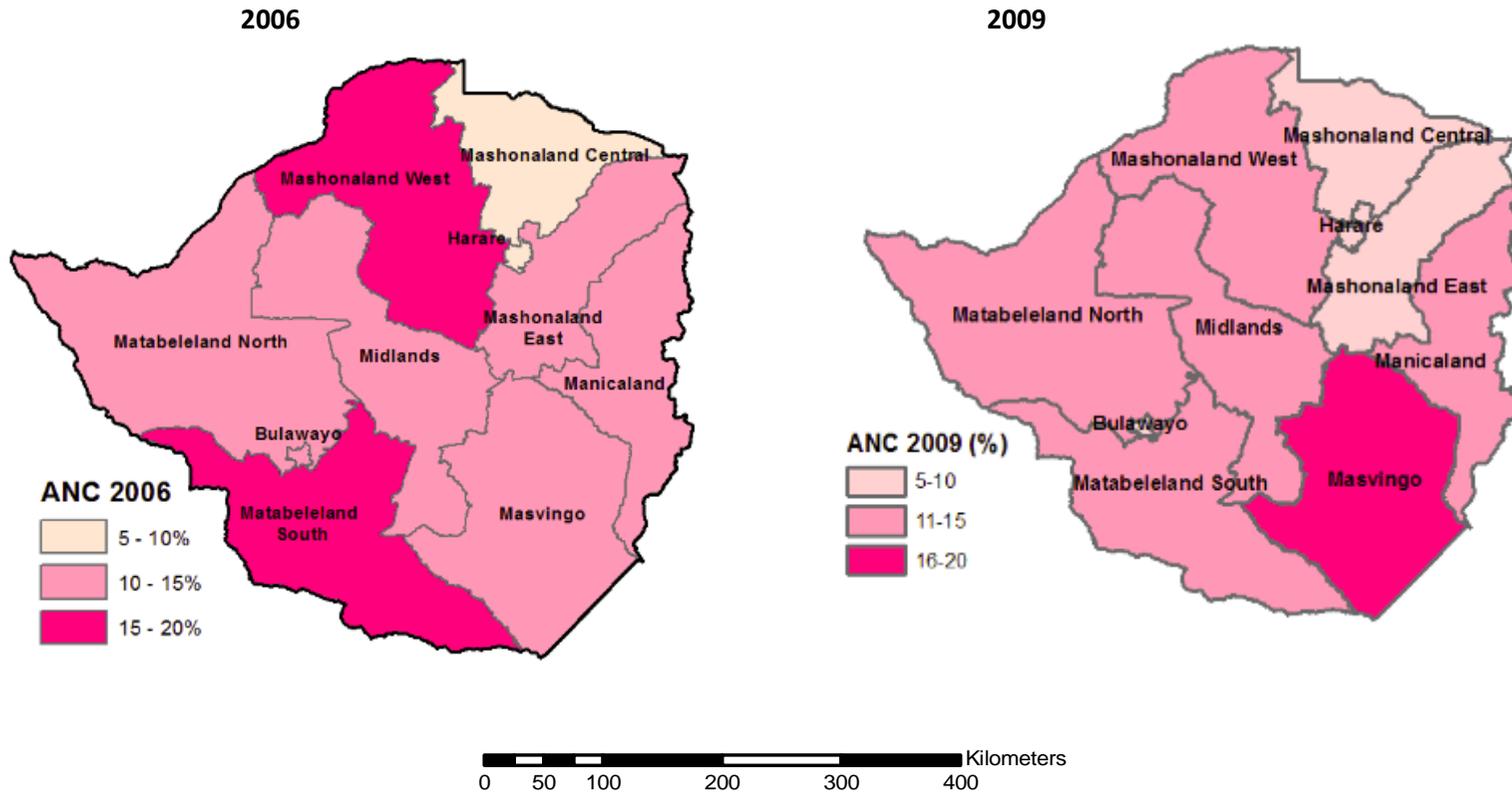
**Map 8:** HIV prevalence estimates among ANC attendees (15 – 24 years)



In 2002, most parts of the country were in the greater than 20% category, but a decline is observed in 2004 where most parts shifted to the 16–20% category. Mashonaland Central had the greatest decline from 20% to 13%.

**Data Sources:** Zimbabwe Demographic Survey.  
**Shape Files:** The Department of the Surveyor General.

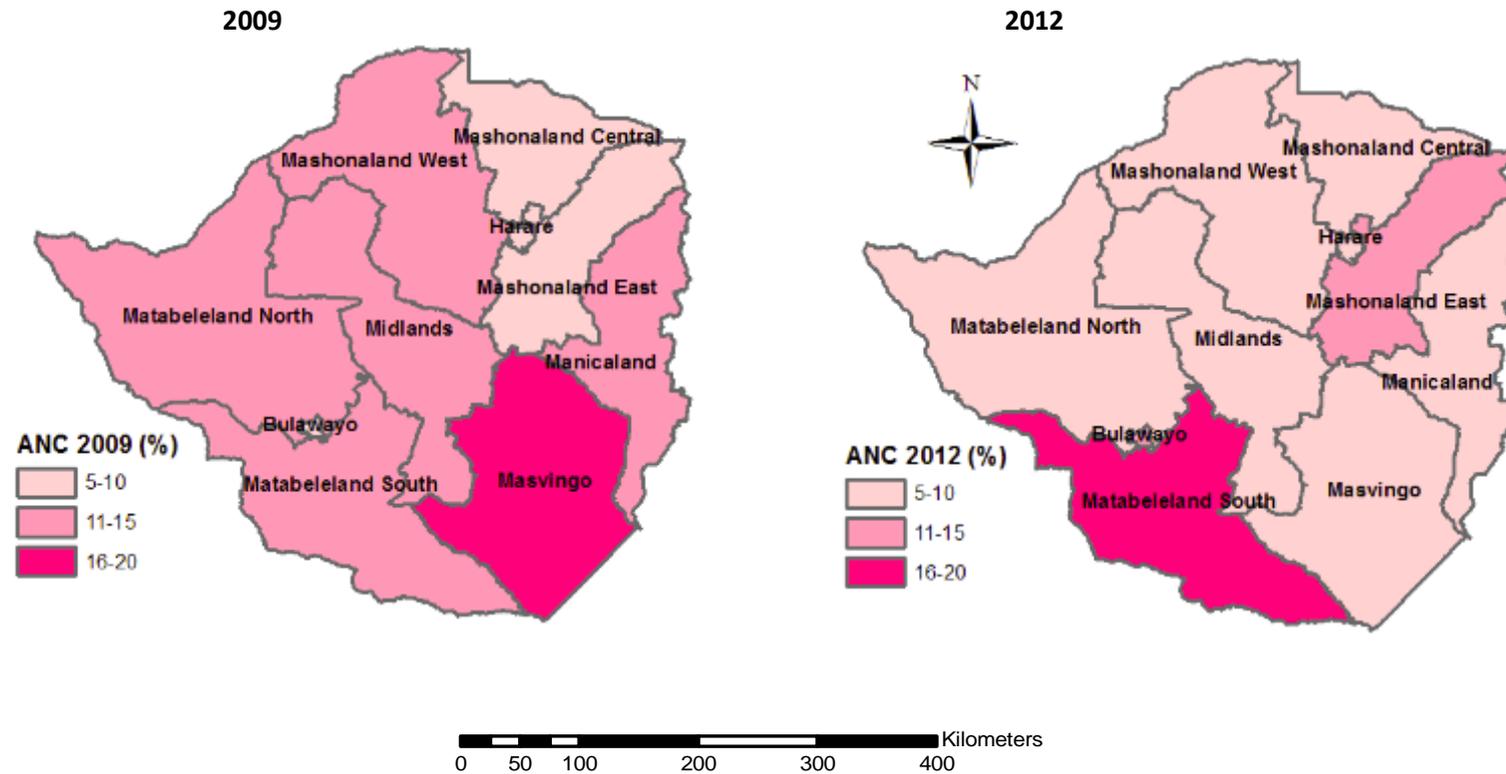
**Map 9: HIV prevalence estimates among ANC attendees (15 – 24 years)**



Compared to 2004, a decline continue to be observed with most parts of the country declining to less than 15% and having other provinces falling below 10% which is a new category compared to the previous years.

**Data Sources:** Ministry of Health and Child Care.  
**Shape Files:** The Department of the Surveyor General.

**Map 10:** HIV prevalence estimates among ANC attendees (15 – 24 years)

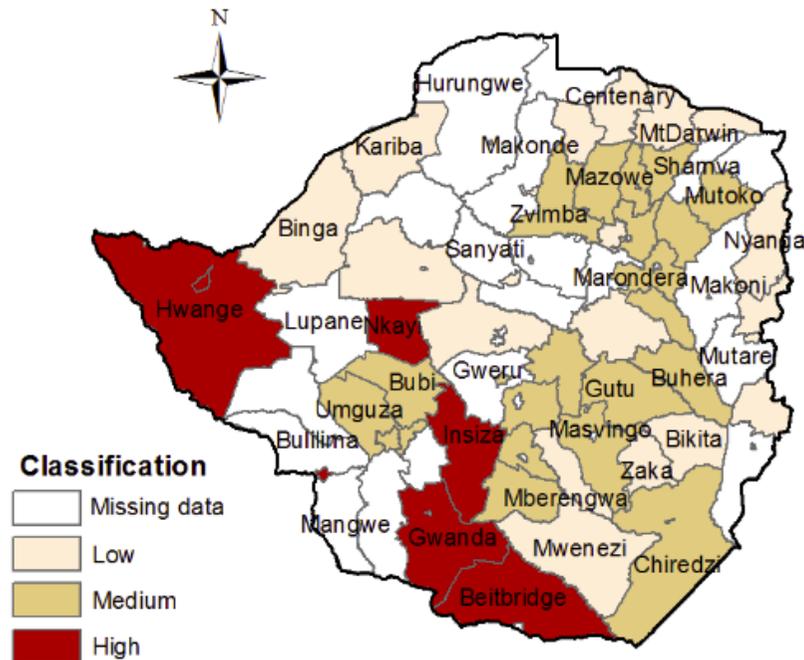


In 2012 most provinces except Matabeleland South and Mashonaland East, had prevalence less than 10%. Matabeleland South is the highest in 2012 with a prevalence of 18% up from 14% in 2009. Mashonaland East also experienced an increase from 9% in 2009 to 10% in 2012. Most parts of the country experienced a decline from between 11 – 15% to less than 10%. Increase in HIV interventions and an increase in HIV prevention choices for women might be contributing towards this decline.

**Data Sources:** Ministry of Health and Child Care.  
**Shape Files:** The Department of the Surveyor General.

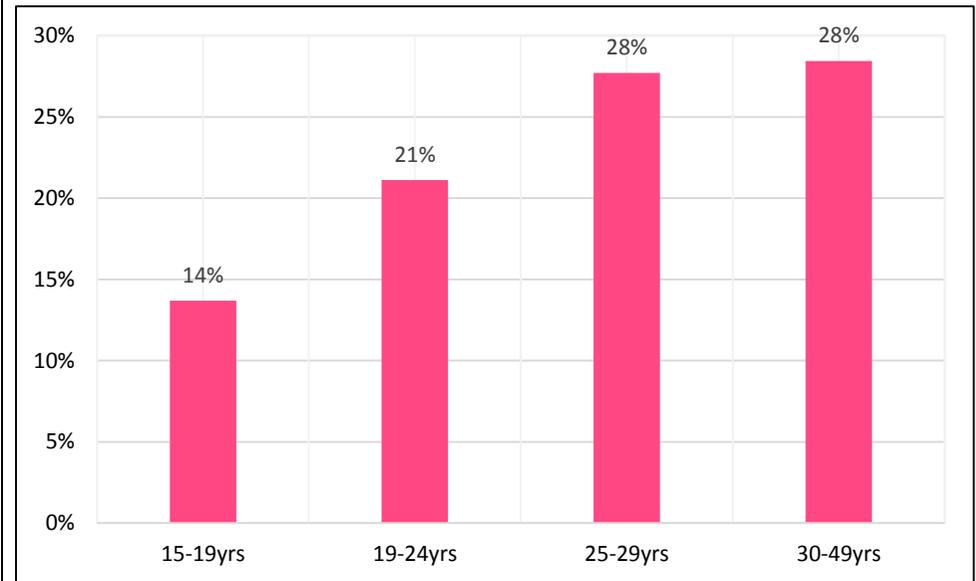
5.1.4 General trends of HIV positivity rate amongst pregnant women

**Map 11:** HIV positivity rate for pregnant women attending ANC per district, 2012



Source: NAC ANC Data

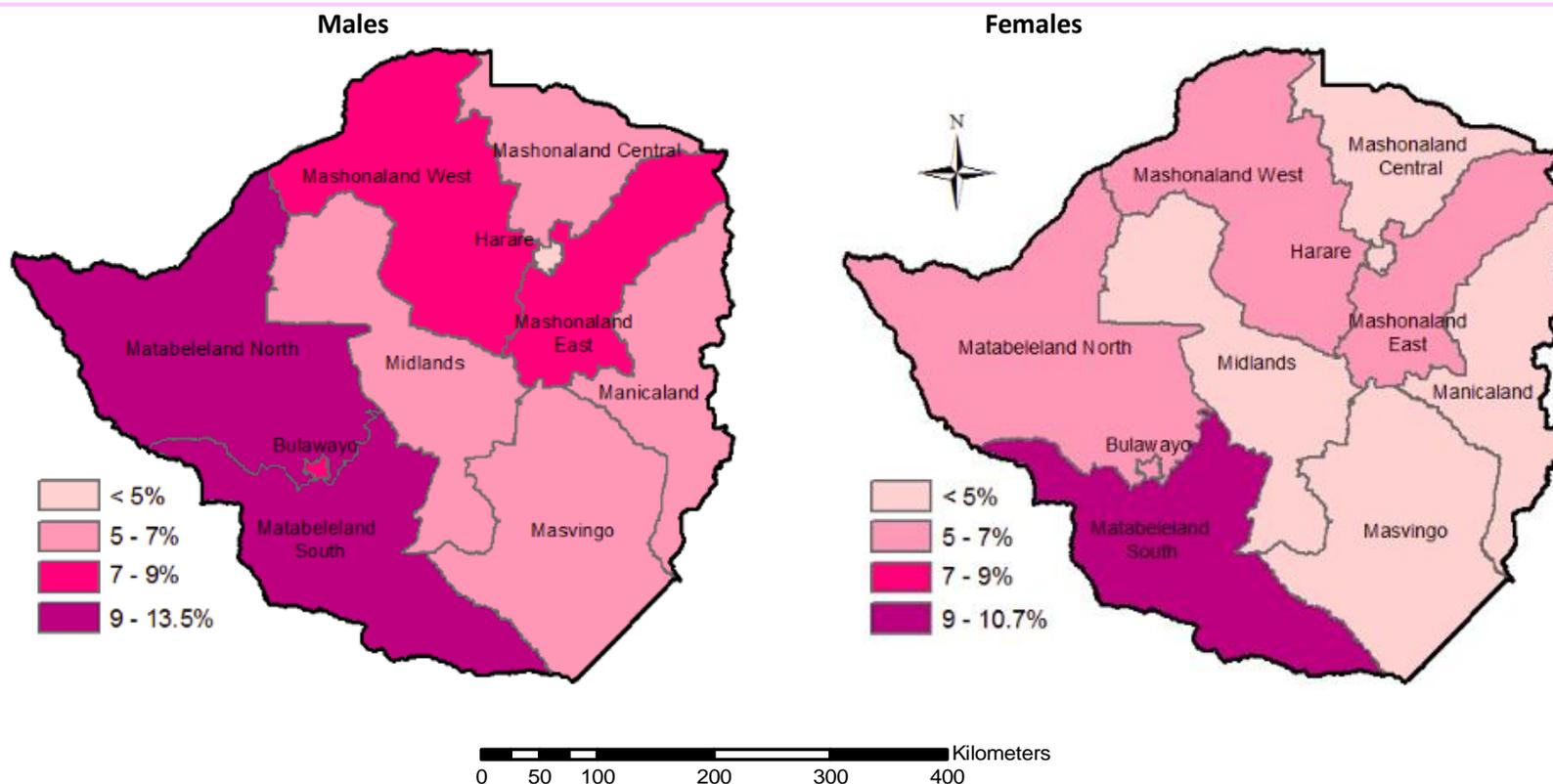
**Figure 9:** Average HIV positivity rate by age group for pregnant women attending ANC (2001 – 2012)



**Figure 9** shows the 12 year average (2001 – 2012) positivity rate for pregnant women, the 25 – 29 years and the 30 – 49 years age groups, have the highest average positivity rate for pregnant women. In 2012 (**Map 10**), Hwange, Nkayi, Insiza, Gwanda and Beitbridge had the highest HIV positivity rate. Compared to the national HIV prevalence, it can be seen that the districts with high HIV prevalence in **Map 4** are in Matabeleland south and north and these have high national HIV prevalence as shown in **Map 3**.

### 5.1.5 HIV Prevalence amongst Married Couples

**Map 12:** HIV prevalence amongst married discordant couples, 2010



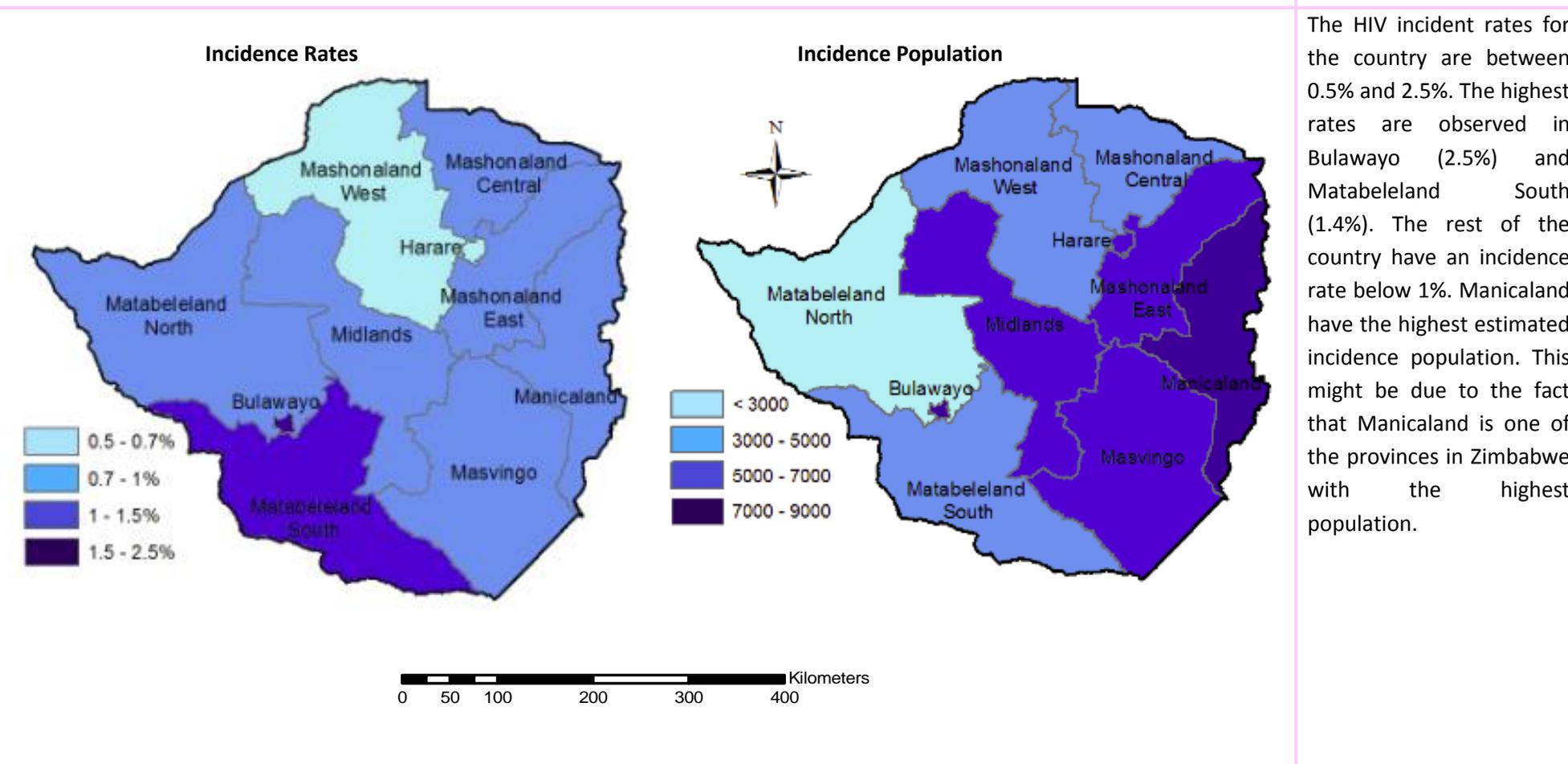
The HIV prevalence amongst discordant couples shows that generally, there are more men who are HIV positive compared to the women. Women generally have a higher prevalence compared to men, the study also shows that prevalence for men increases slightly above that of women from the age of 30 years. This low prevalence for women in discordant couples might be attributed to increase in knowledge for women through programmes like PMTCT, ANC and the general HIV awareness programmes and also due to more choices for HIV prevention methods among women.

**Data Sources:** Zimbabwe Demographic Health Survey

**Shape Files:** The Department of the Surveyor General.

## 5.2 HIV Incidence

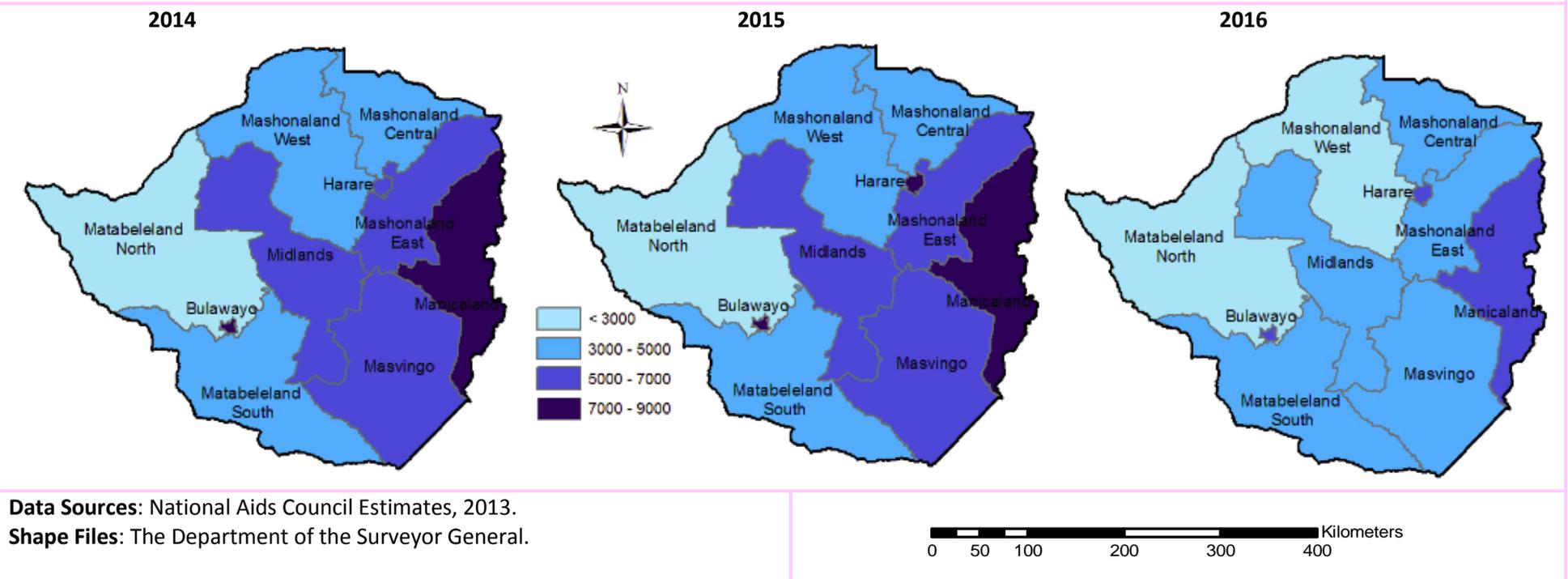
**Map 13:** Adult HIV incidence rates and population, 2013



The HIV incident rates for the country are between 0.5% and 2.5%. The highest rates are observed in Bulawayo (2.5%) and Matabeleland South (1.4%). The rest of the country have an incidence rate below 1%. Manicaland have the highest estimated incidence population. This might be due to the fact that Manicaland is one of the provinces in Zimbabwe with the highest population.

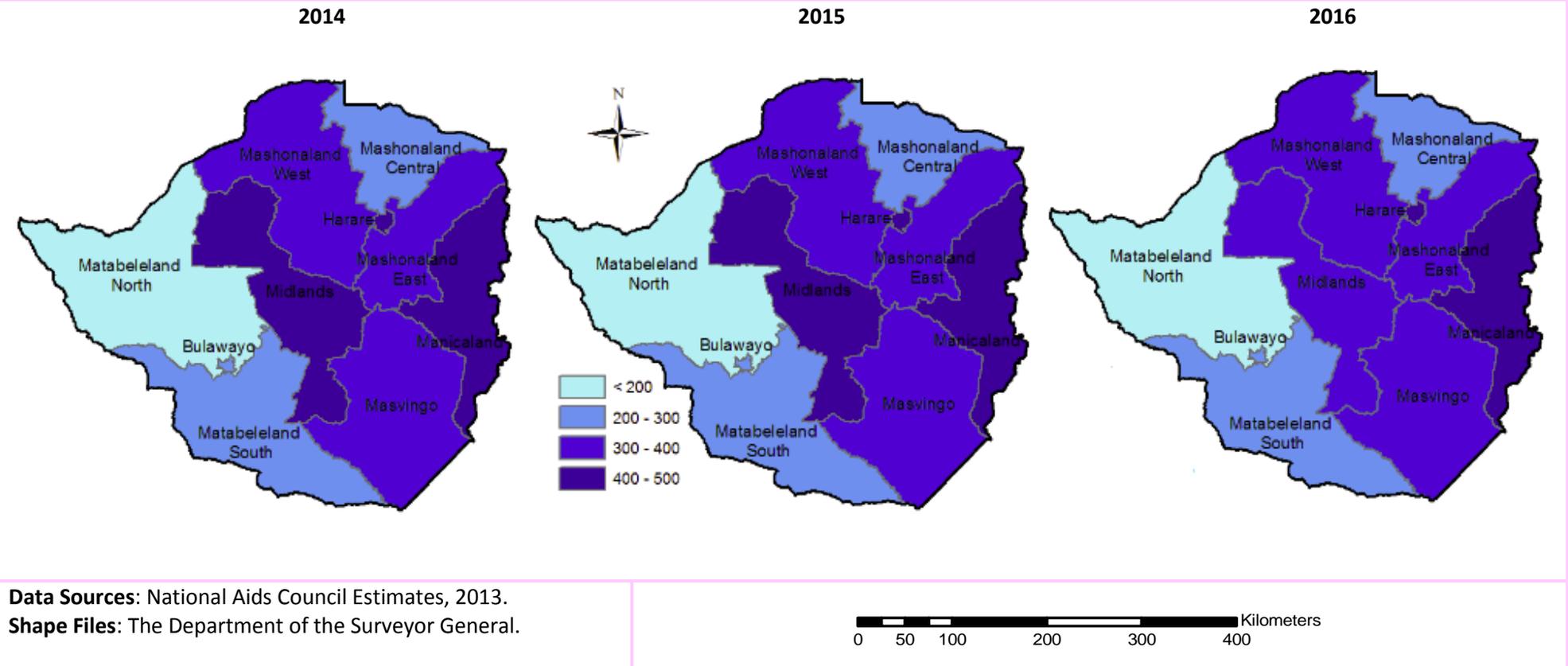
**Data Sources:** Zimbabwe Demographic Health Survey  
**Shape Files:** The Department of the Surveyor General.

**Map 14:** HIV incidence population (15 – 49 years)



The HIV Incidence population is estimated to decrease over the years. This can be a result of the HIV awareness programmes and prevention methods.

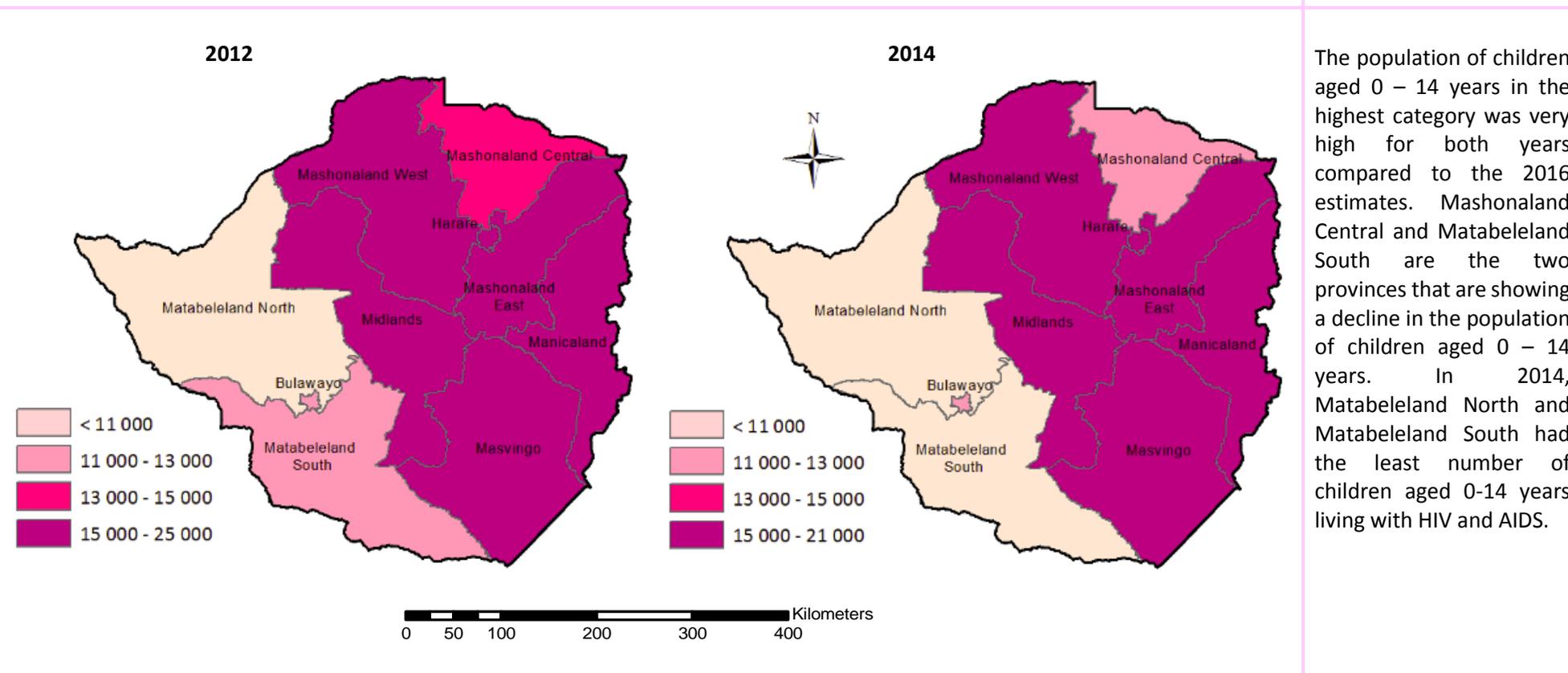
**Map 15:** HIV incidence population (0 – 14 years)



The incidence population for the 0 – 14 years remains almost the same for the districts over the years.

### 5.3 People Living with HIV

**Map 16:** People living with HIV ( 0 - 14 years )

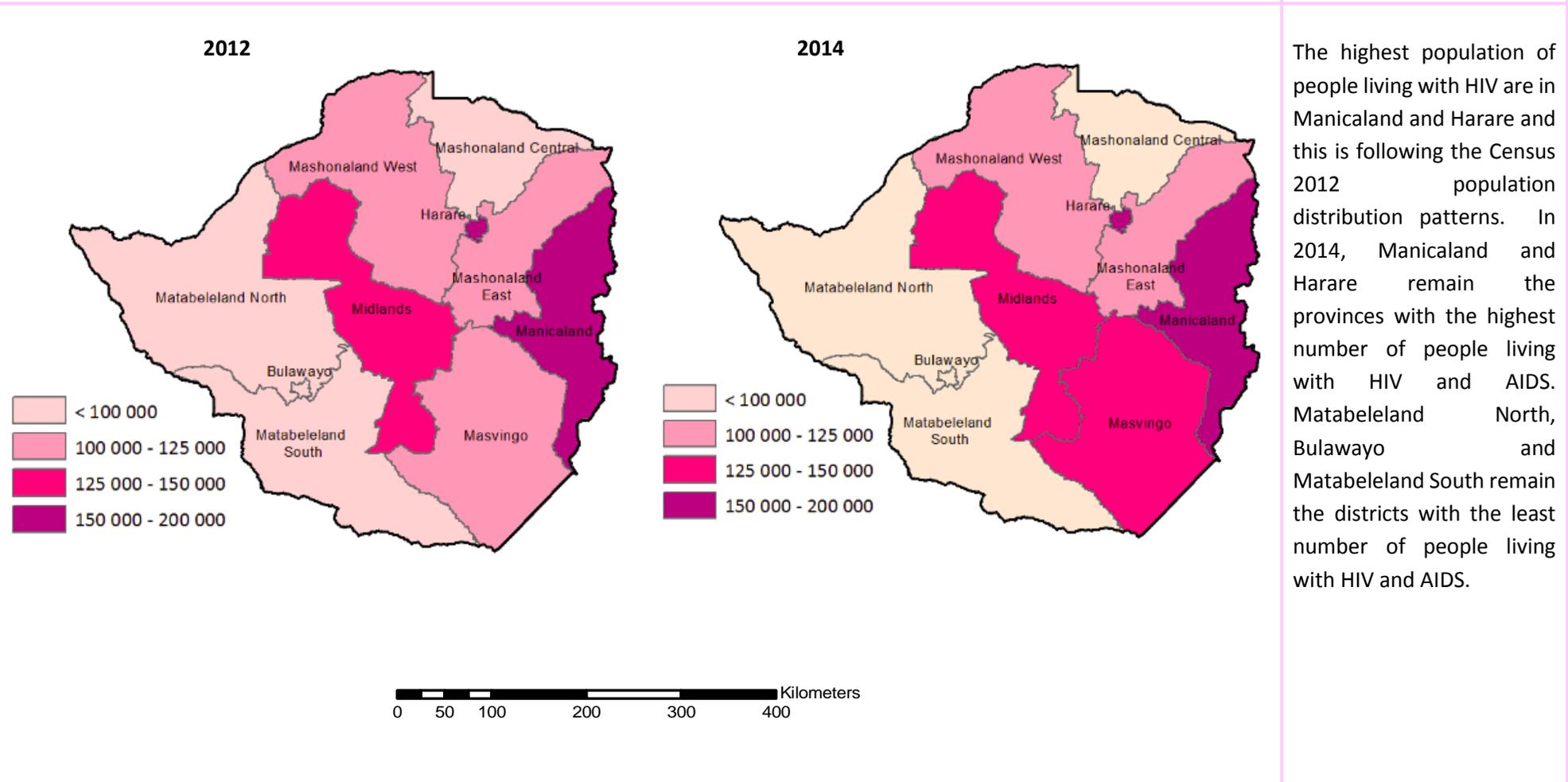


The population of children aged 0 – 14 years in the highest category was very high for both years compared to the 2016 estimates. Mashonaland Central and Matabeleland South are the two provinces that are showing a decline in the population of children aged 0 – 14 years. In 2014, Matabeleland North and Matabeleland South had the least number of children aged 0-14 years living with HIV and AIDS.

**Data Sources:** Ministry of Health and Child Care and the National AIDS Council.

**Shape Files:** The Department of the Surveyor General.

**Map 17: People living with HIV (15 – 49 years )**

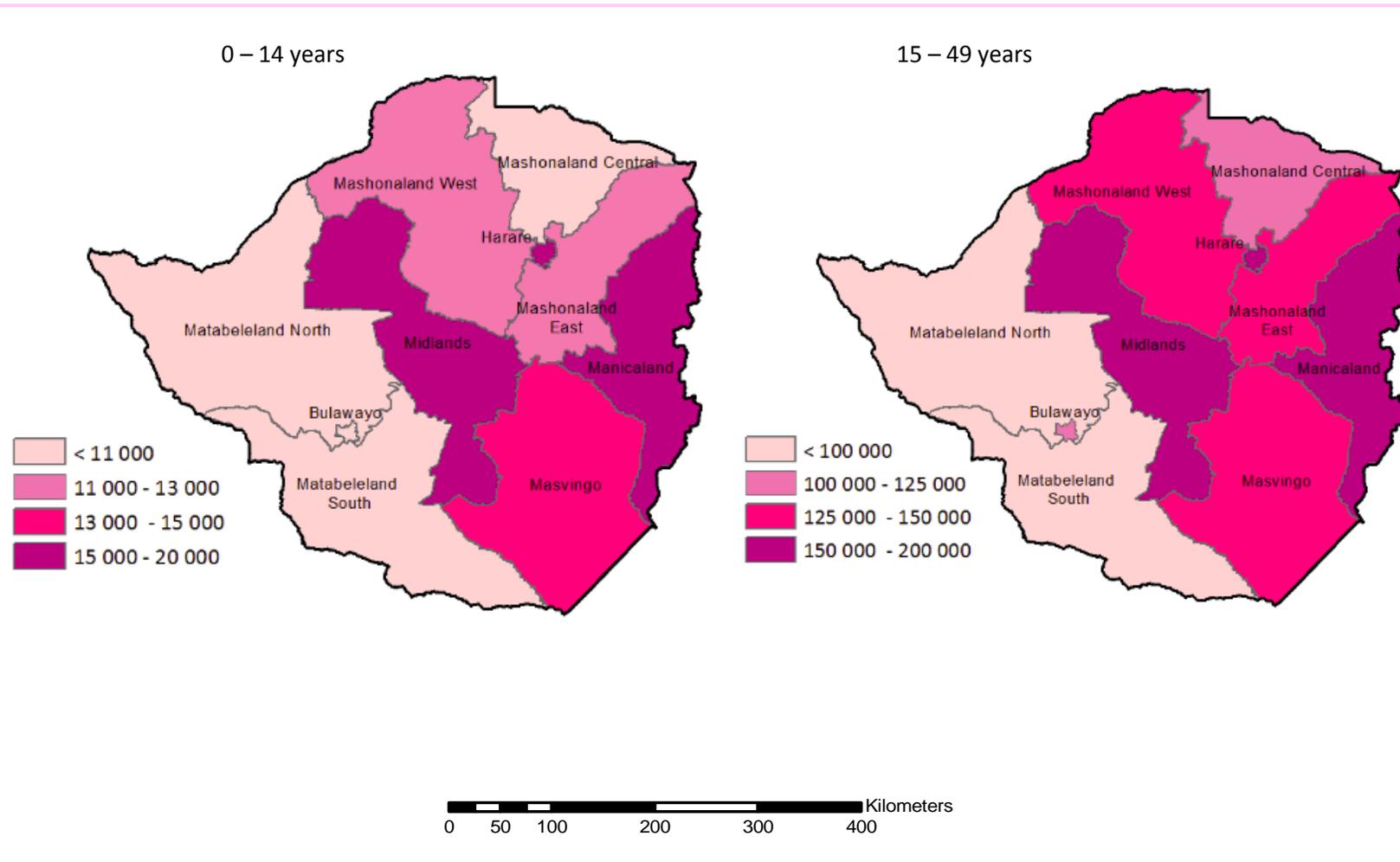


The highest population of people living with HIV are in Manicaland and Harare and this is following the Census 2012 population distribution patterns. In 2014, Manicaland and Harare remain the provinces with the highest number of people living with HIV and AIDS. Matabeleland North, Bulawayo and Matabeleland South remain the districts with the least number of people living with HIV and AIDS.

**Data Sources:** Ministry of Health and Child Care and the National AIDS Council.

**Shape Files:** The Department of the Surveyor General.

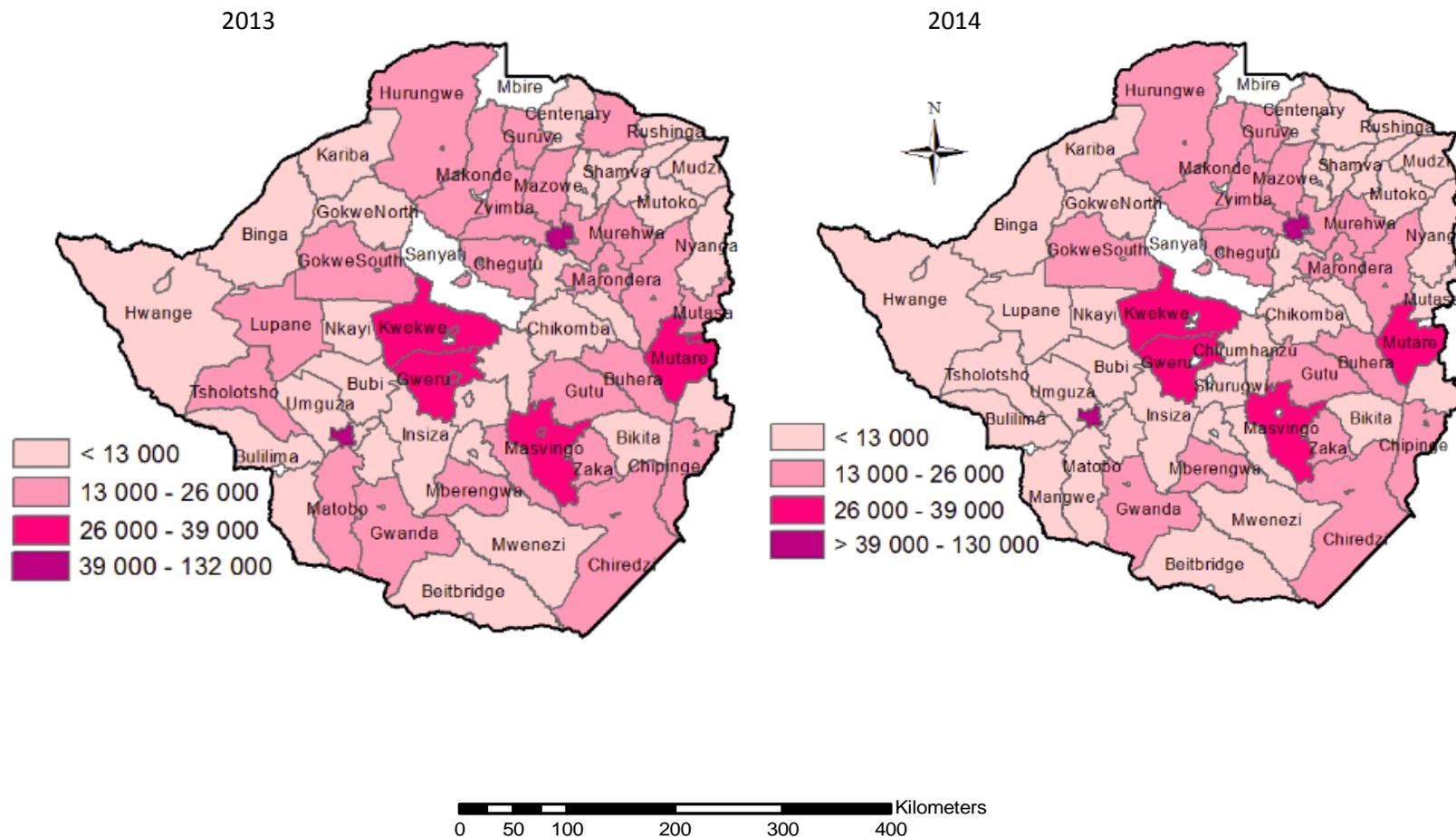
**Map 18:** People living with HIV, 2016



Compared to the population of people living with HIV in 2014, there will be increases in 2016. Whilst the rest of the country remains in the same category, Midlands will experience an increase of about 10 000 for the 15 – 49 years and about 2 000 for the 0 – 14 years age groups. Mashonaland Central will also have an increase for the 15 – 49 years age group of about 10 000 people living with HIV. The general increase can be attributed to the ART treatment which enables HIV patients to live longer.

**Data Sources:** Zimbabwe Demographic Survey.  
**Shape Files:** The Department of the Surveyor General.

**Map 19:** People living with HIV per district

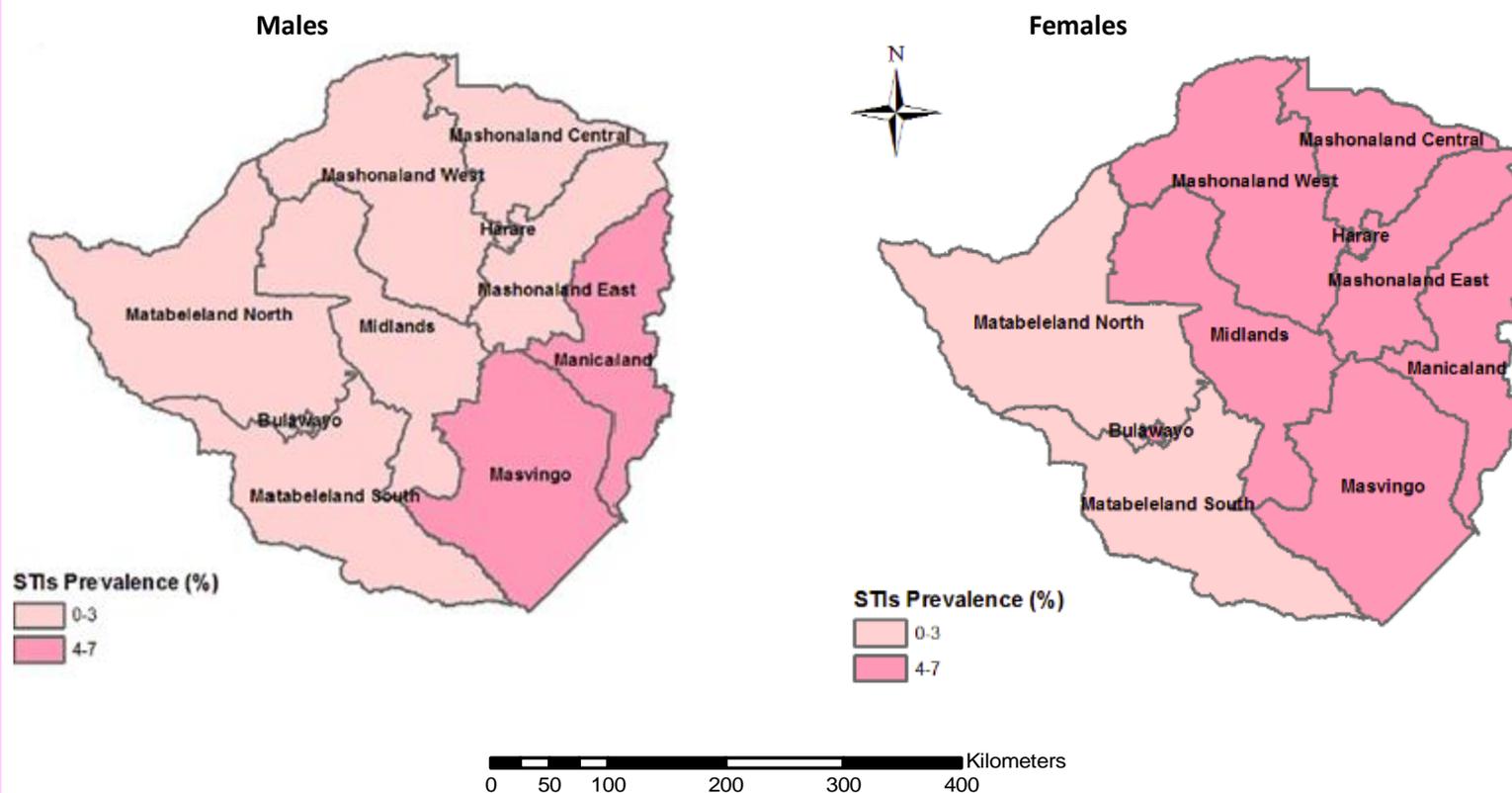


Both maps shows that the greatest population of people living with HIV is found in Harare and Bulawayo. Harare has the highest for both years, have a PLWHIV of around 130 000 in both years. Bulawayo has a PLWHIV of about 75 000 in both years. Mutare, Masvingo, kwekwe and Gweru are in the 26 000 to 39 000 category for both years.

**Data Sources:** Zimbabwe Demographic Survey.  
**Shape Files:** The Department of the Surveyor General.

## 5.4 Risk Factors

**Map 20:** Sexual transmission infections prevalence, 2005

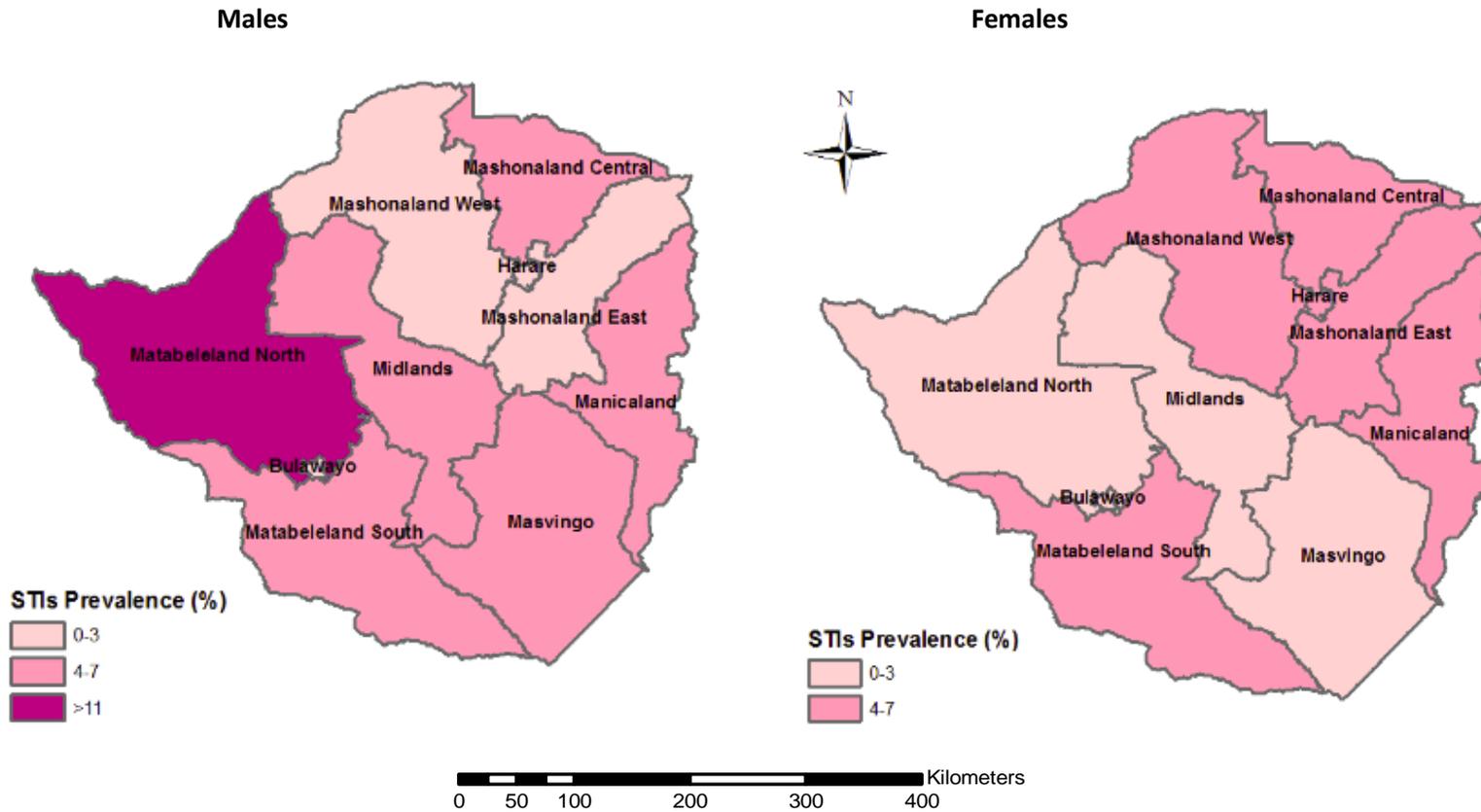


For the year 2005, the prevalence of STIs was generally low compared to that of HIV. The highest for males was in Masvingo and Manicaland whereas for the females only two provinces were in the 0 – 3% , (Matabeleland North and South), the rest of the country for the females is in the high category.

**Data Sources:** Zimbabwe Demographic Health Survey 2005.

**Shape Files:** The Department of the Surveyor General.

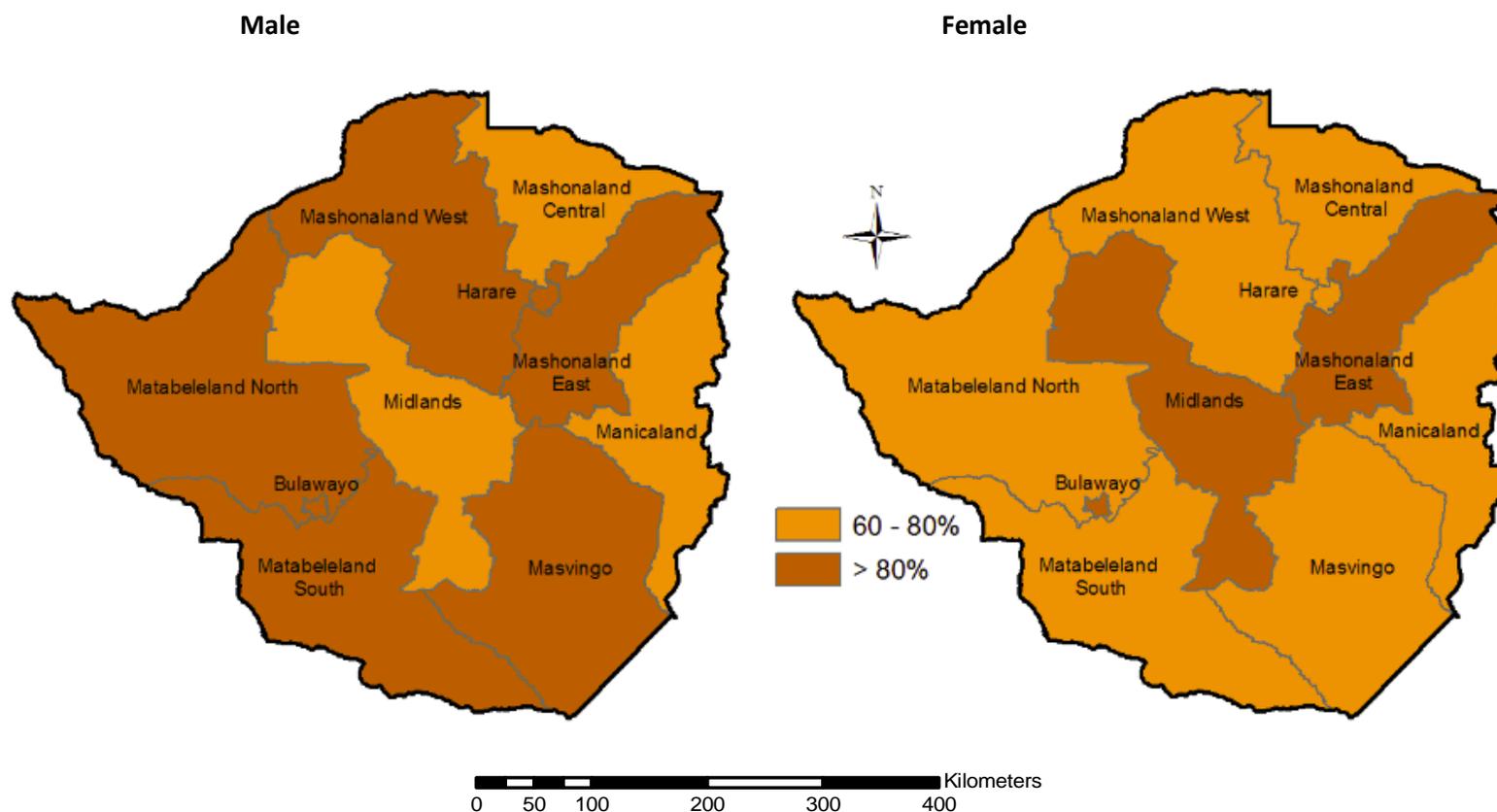
**Map 21:** Sexual transmission infections prevalence, 2010



In 2010 the situation is different with more males infected with an STI compared to the females. Matabeleland North has the highest prevalence of about 12% whereas the highest for the females is about 4% in Mashonaland central and Harare.

Data Sources: Zimbabwe Demographic Health Survey, 2010.  
 Shape Files: The Department of the Surveyor General.

**Map 22:** Knowledge of condom use as a prevention method, 2005

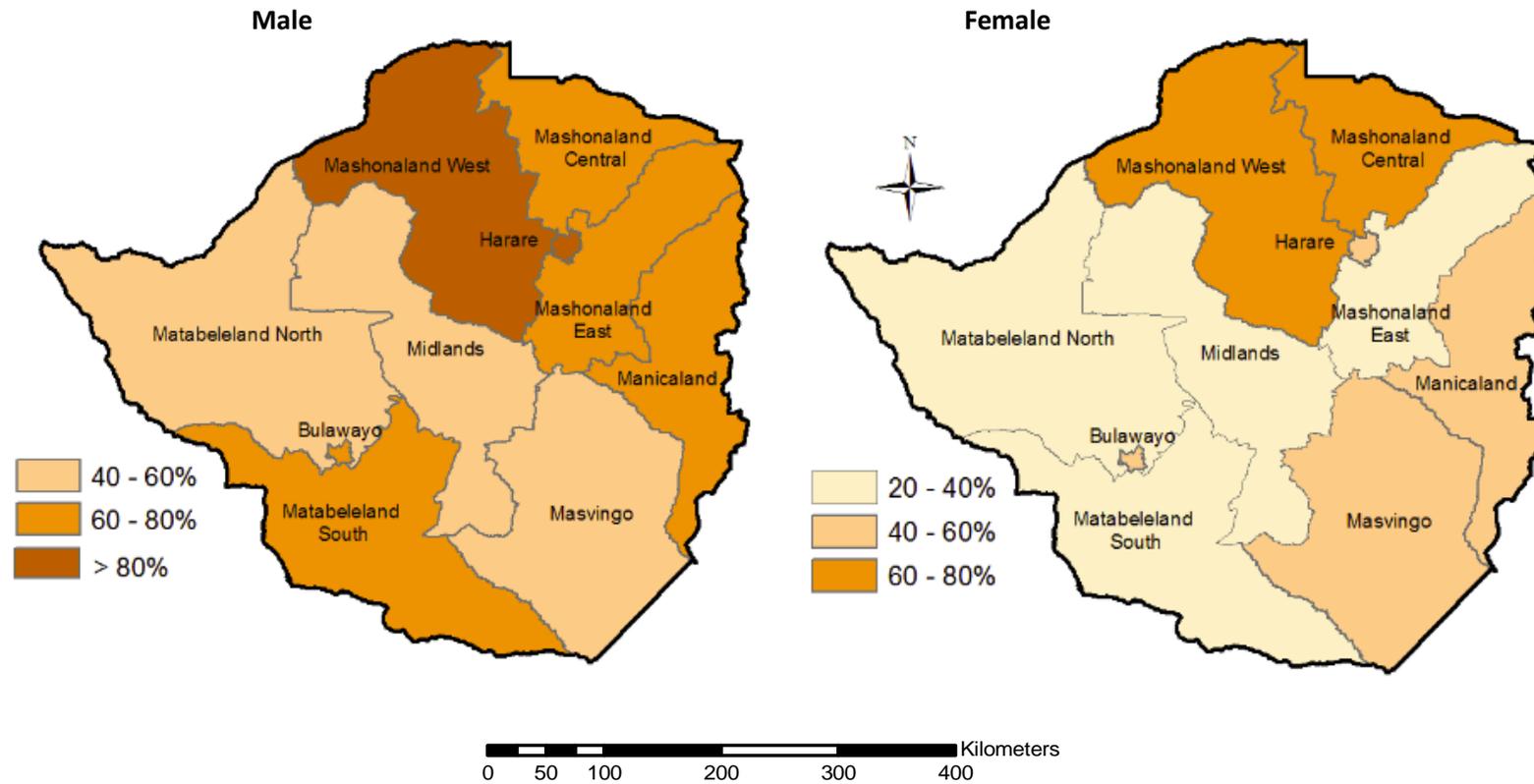


From the 2005 ZDHS data it is very clear that men had more knowledge that condoms can be used as an HIV prevention method compared to women. Only two provinces had more than 80% of women who are aware that condoms can be used as HIV prevention method.

**Data Sources:** Zimbabwe Demographic Health Survey, 2005.

**Shape Files:** The Department of the Surveyor General.

**Map 23:** Knowledge of condom use as a prevention method, 2010

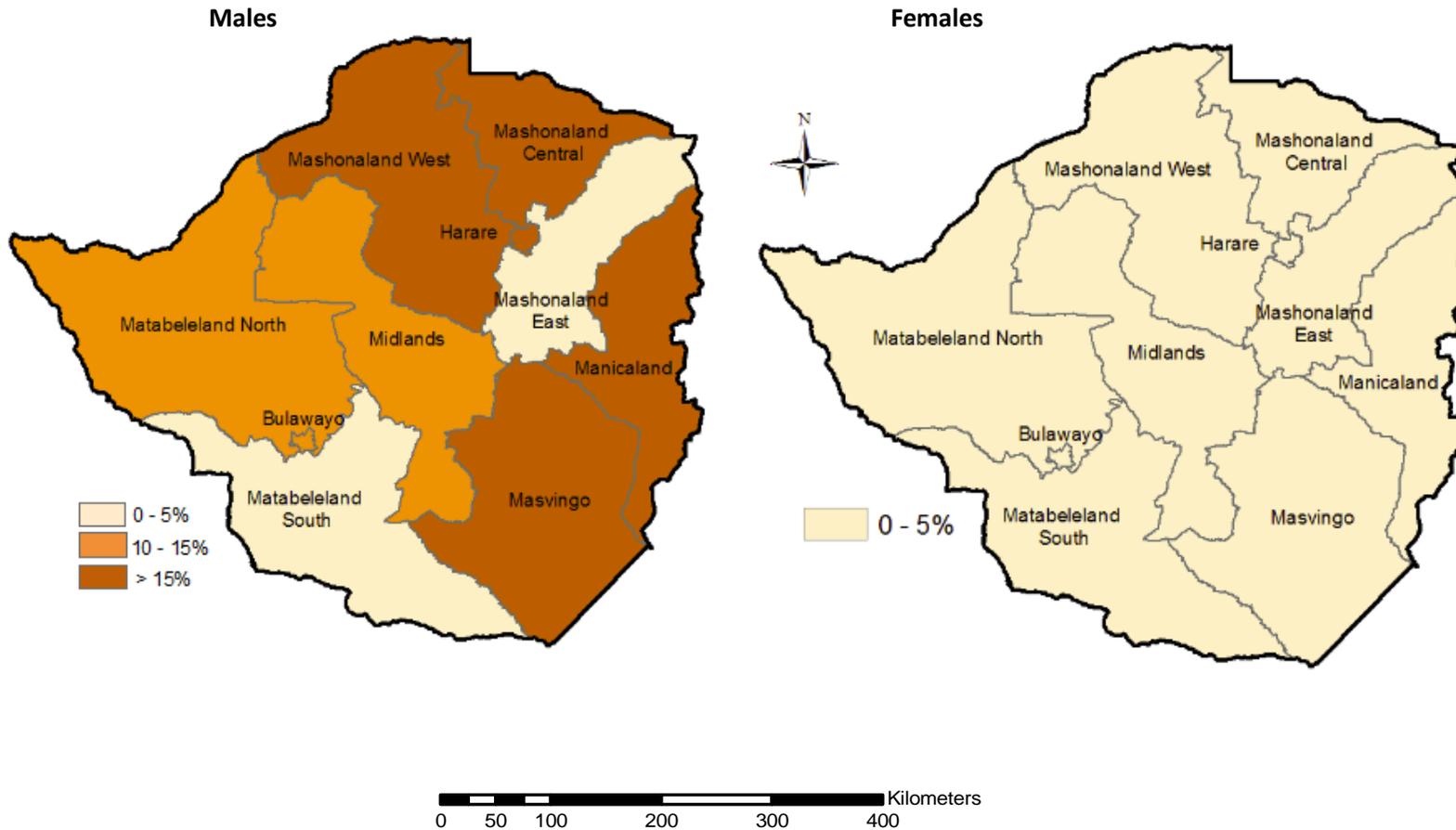


In 2010 more men than women responded positively to the effect that they had knowledge on the use of condoms as an HIV prevention method. When compared with 2005, it shows that generally women have less knowledge on the use of condoms as a preventive measure compared to men.

**Data Sources:** Zimbabwe Demographic Health Survey, 2010.

**Shape Files:** The Department of the Surveyor General.

**Map 24:** Multiple sexual partners, 2005



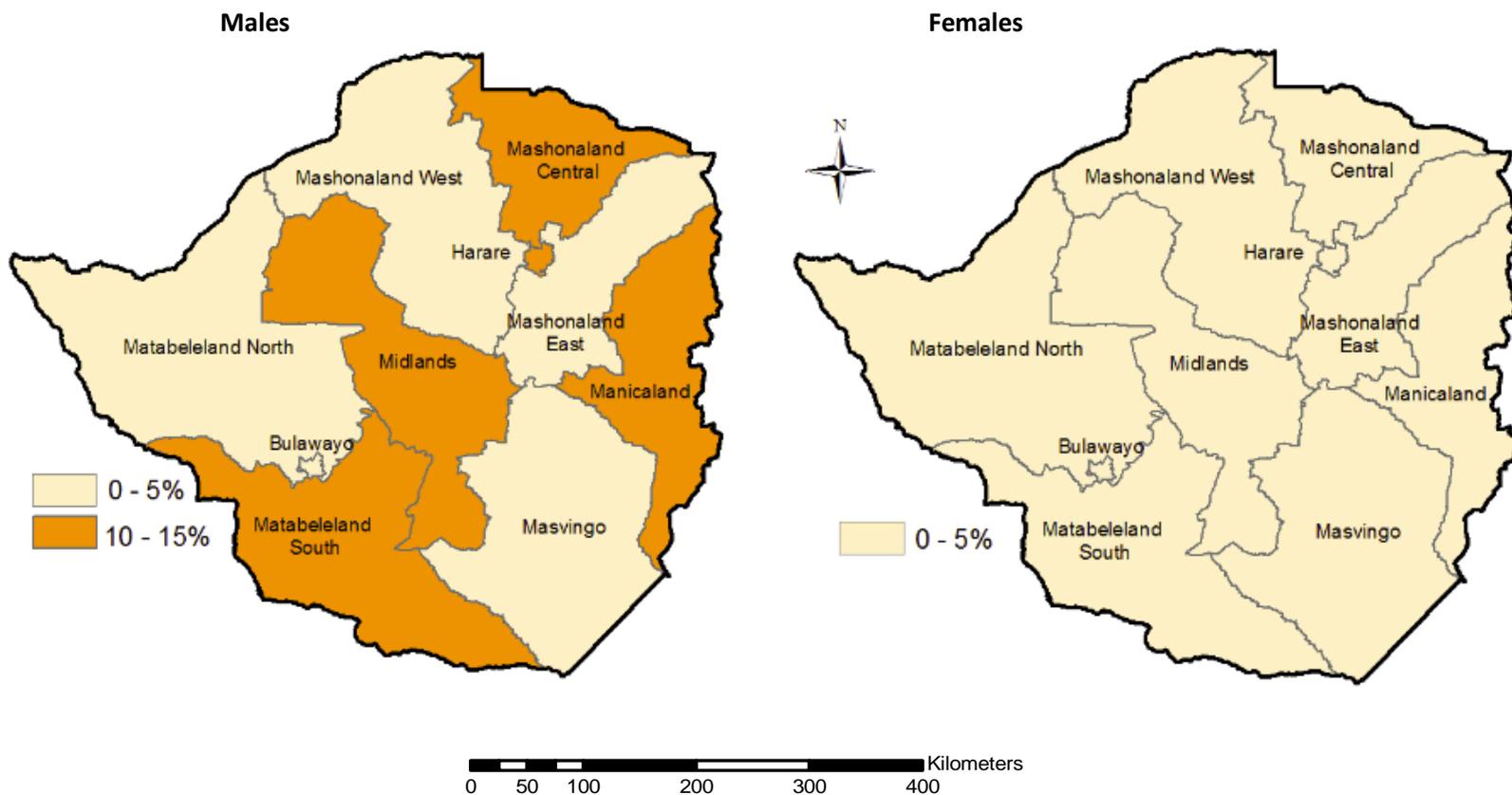
From the 2005 ZDHS survey, there are more men with multiple sexual partners compared to females. For the females, all the provinces have a prevalence of less than 5%, yet for the men only two provinces have less than 5%.

**Data Sources:** Zimbabwe Demographic Health Survey, 2005.

**Shape Files:** The Department of the Surveyor General.

**Map 25: Multiple sexual partners, 2010**

**Comments**

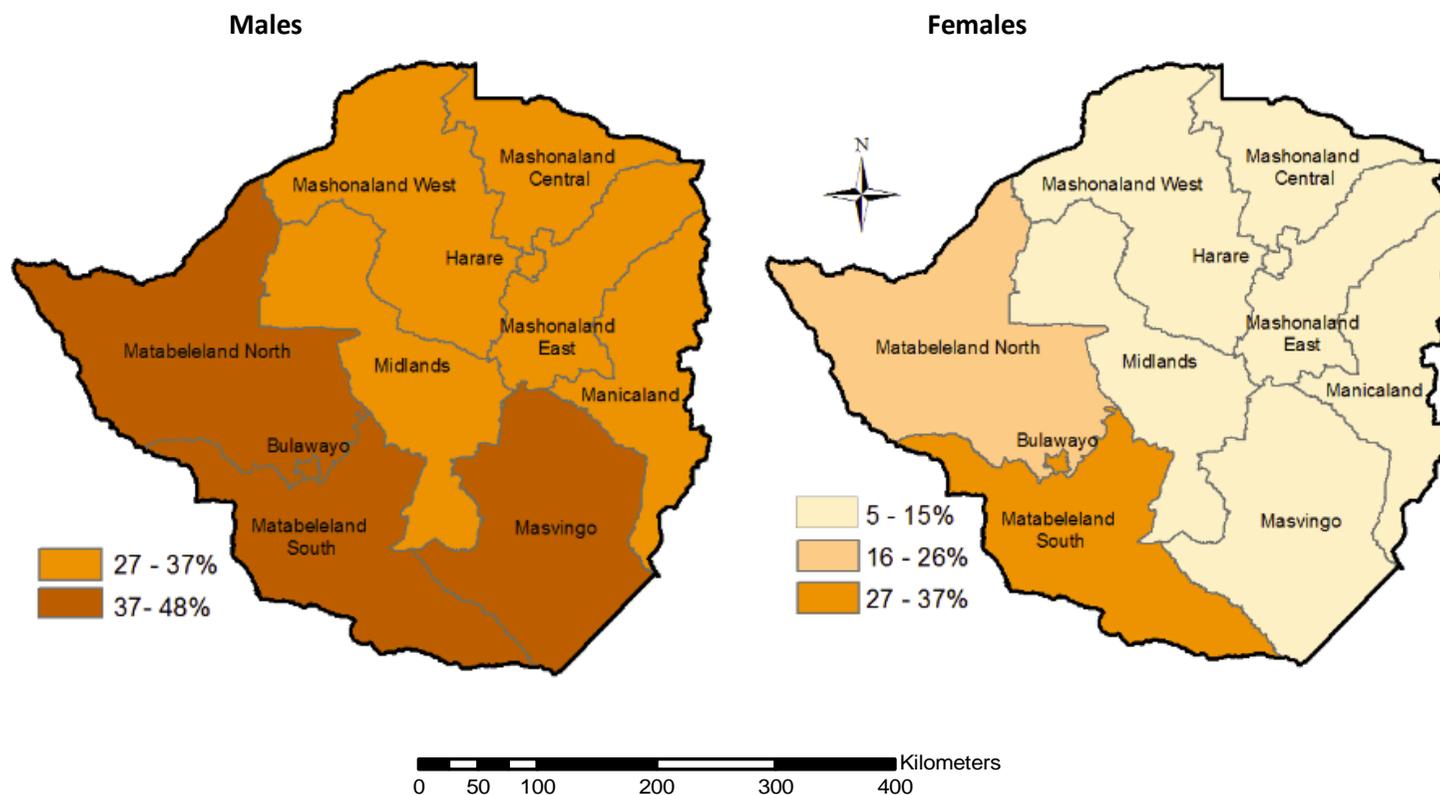


According to the ZDHS 2010 data, there is a slight decrease in the prevalence of males with multiple sexual partners as the highest prevalence is less than 15%.

**Data Sources:** Zimbabwe Demographic Health Survey, 2010.

**Shape Files:** The Department of the Surveyor General.

**Map 26:** High risk sexual intercourse, 2005

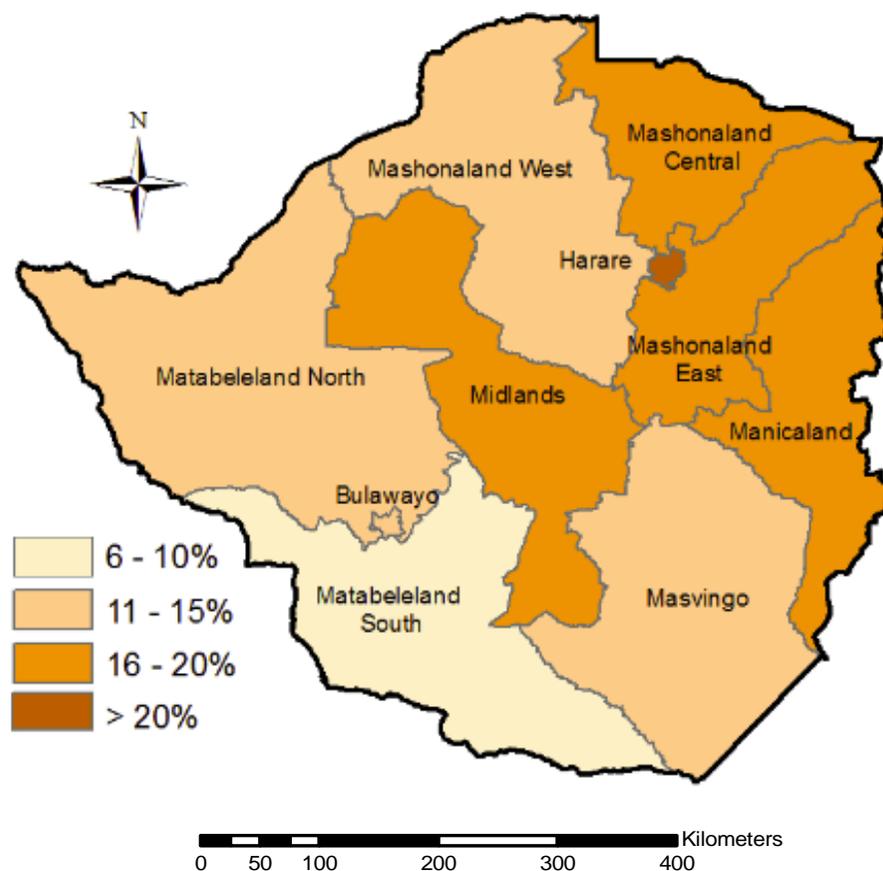


The prevalence of people who had been involved in high risk sexual intercourse is more for the males than the females. For all the districts the prevalence for the males starts from the 27 – 37 % category whilst that of the females starts from 5 – 15%. Matabeleland South has the highest prevalence for the women. For the man Matabeleland south and north and Masvingo have the highest prevalence. This data was only collected in the ZDHS 2005 and therefore there are no trend data.

**Data Sources:** Zimbabwe Demographic Health Survey, 2005.

**Shape Files:** The Department of the Surveyor General.

**Map 27:** Paid sex, 2010

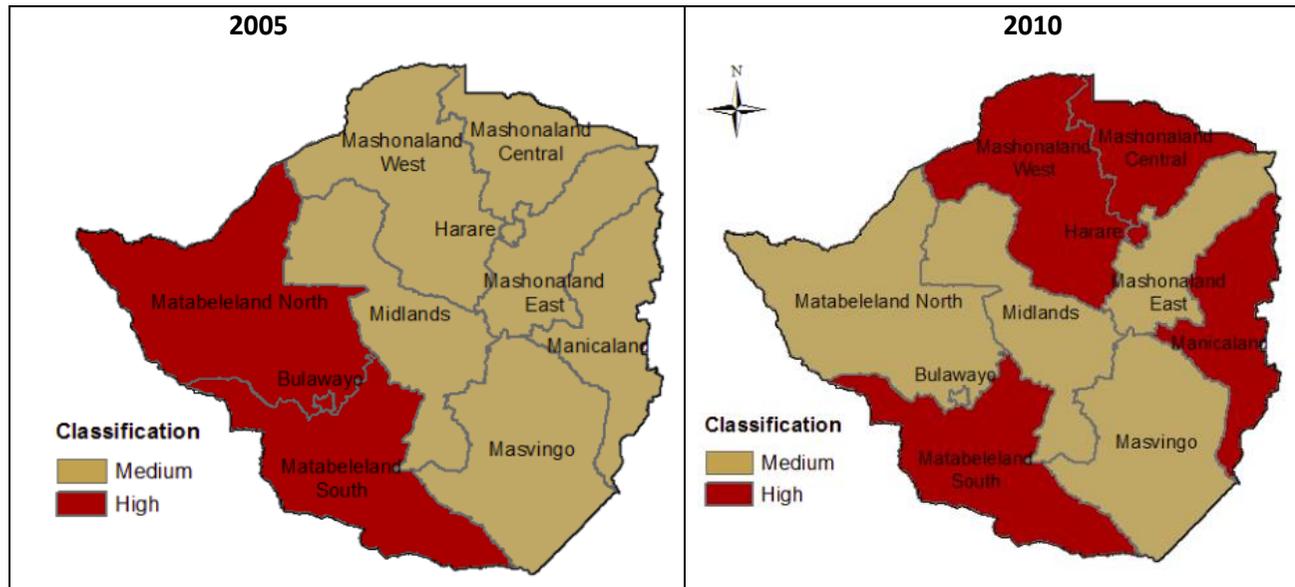


The percentage of men who paid for sex is highest in Harare with a prevalence of greater than 23%. It is lowest in Matabeleland South with a prevalence of about 7%. The prevalence is high in the eastern parts of the country, i.e. Manicaland, Mashonaland Central and East and also in Midlands.

**Data Sources:** Zimbabwe Demographic Health Survey, 2010.

**Shape Files:** The Department of the Surveyor General.

**Map 28:** Classification of risk factors by provinces for 2005 and 2010

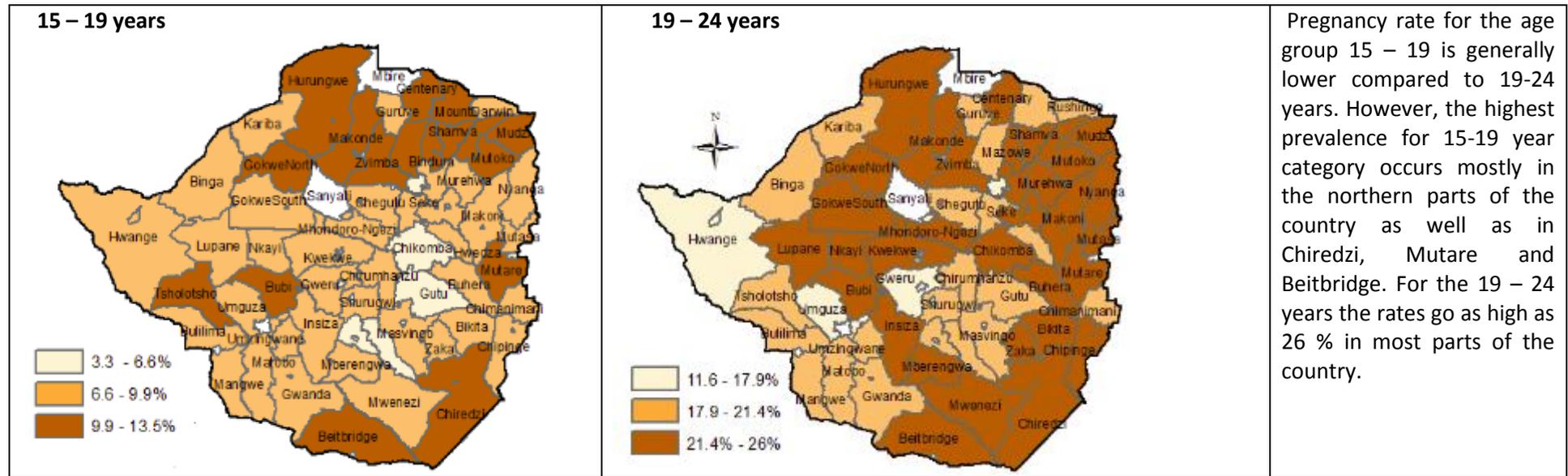


In 2005, no province fell under the low category, with the intensification of awareness programmes most of the country except urban areas and Matabeleland South remained under the high classification with Matabeleland North moving to Medium. Nevertheless the risk factors are generally still very high in the country as a whole as shown by 2010 data. In 2010, mostly the border districts had the highest risk factor.

Data Source: ZDHS

Analysis done by WFP VAME Team

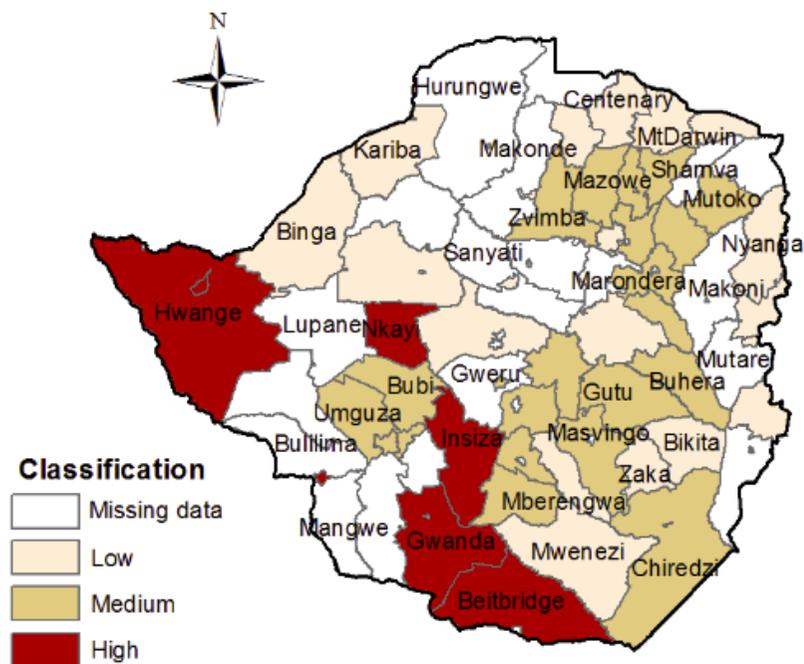
**Map 29 : Teenage pregnancy (Census 2012)**



**Map 30: Overlay of young people fertility maps**

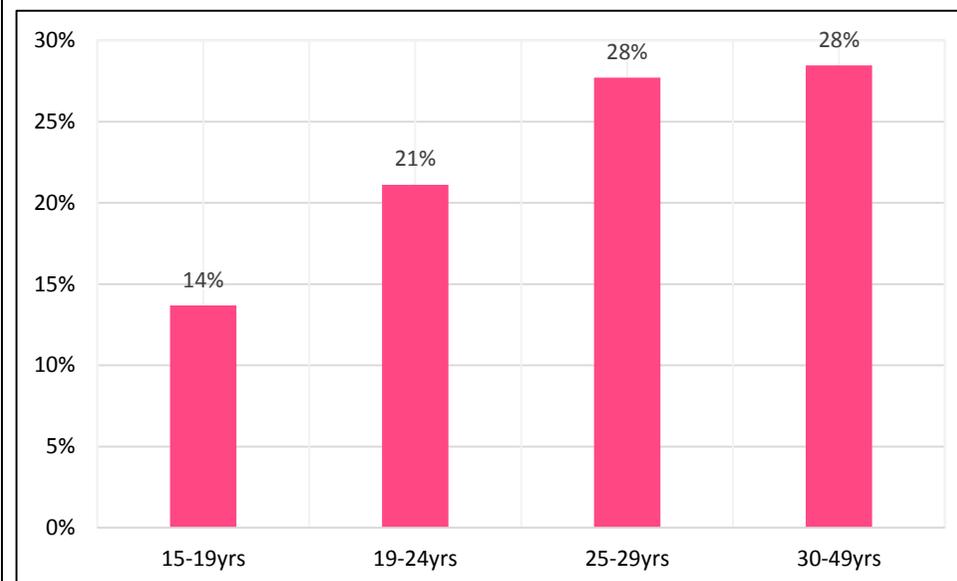


**Map 31:** HIV positivity rate per district, 2012



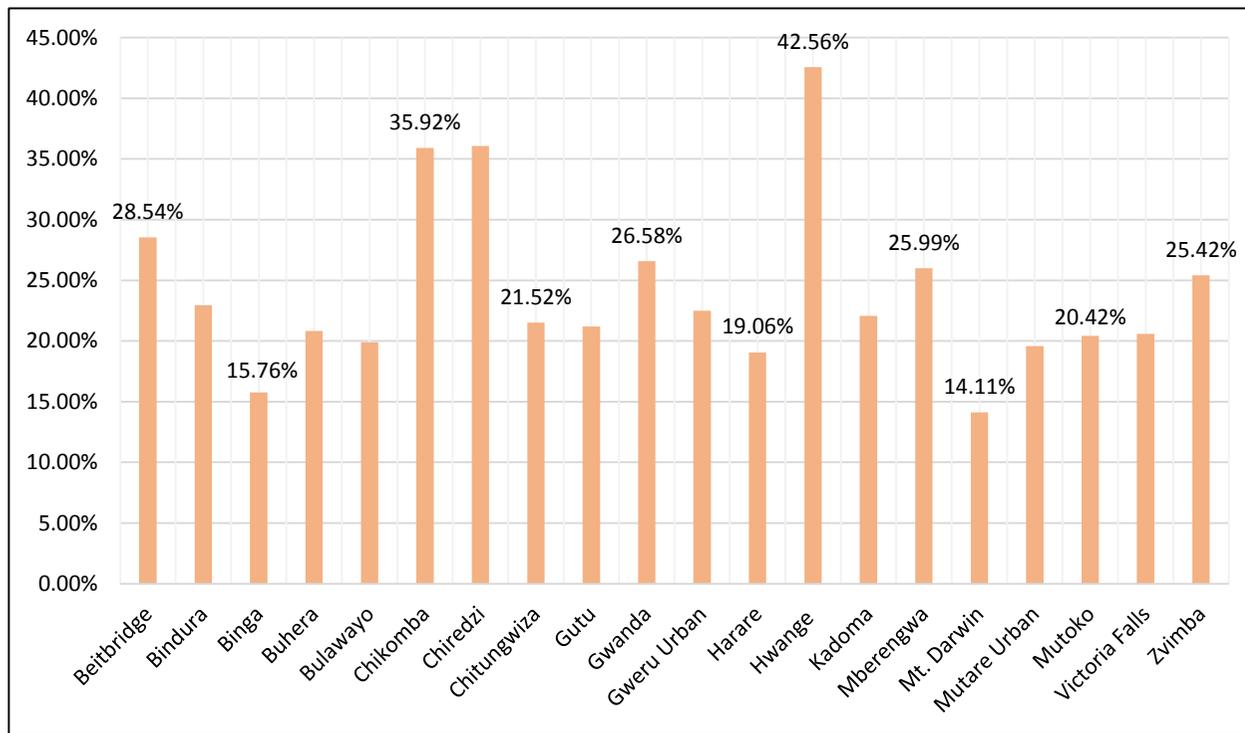
Source: NAC ANC Data (Analysis: WFP VAME Unit)

**Figure 10:** Average HIV positivity rate by age group for pregnant women attending ANC (2001 – 2012)



The ANC data is collected from 22 selected sites, in 19 districts. The average HIV positivity rate is calculated from the site positivity rates for the period 2001 to 2009 (**Figure 10**). From the averages Chikomba, Chiredzi, Hwange and Beitbridge have very high HIV positivity rates. The HIV positivity rate is also generally high for the 30 – 49 years amongst pregnant women and also for the 25 – 29 years. In 2012, the highest prevalence of HIV positivity rates among pregnant women was observed in Gwanda with a rate of 28%, followed by Insiza and Hwange with 24%. Compared to the 2001 – 2009 average rate of 42% for Hwange, there is a sharp decline in the positivity rate for pregnant women attending ANC clinics.

**Figure 11: Ante Natal Care (ANC) HIV positivity rate by districts (2001 – 2009)**



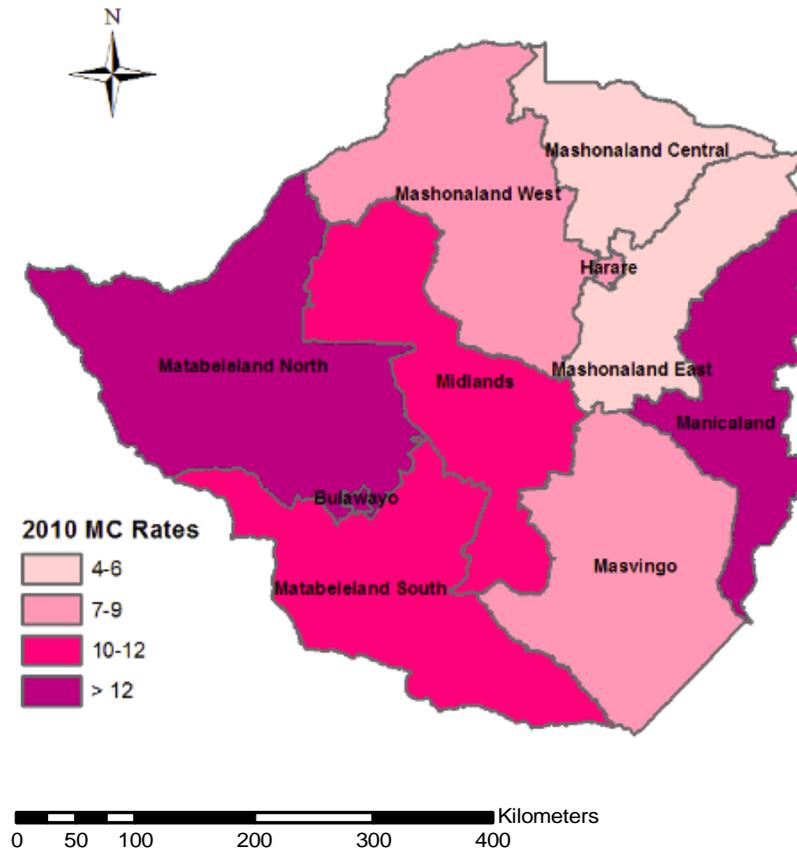
The average HIV positivity rate among pregnant women who visit ante natal care clinics is highest in Hwange with an average positivity rate of 42.6%. Chiredzi and Chikomba have an average rate of almost 40%. Beitbridge has a positivity rate of 29%.

**Data Sources:** National Aids Council, Ante Natal Care National Surveillance

**Shape Files:** The Department of the Surveyor General.

## 5.5 Maps for Service Delivery

**Map 32:** Male circumcision, 2010

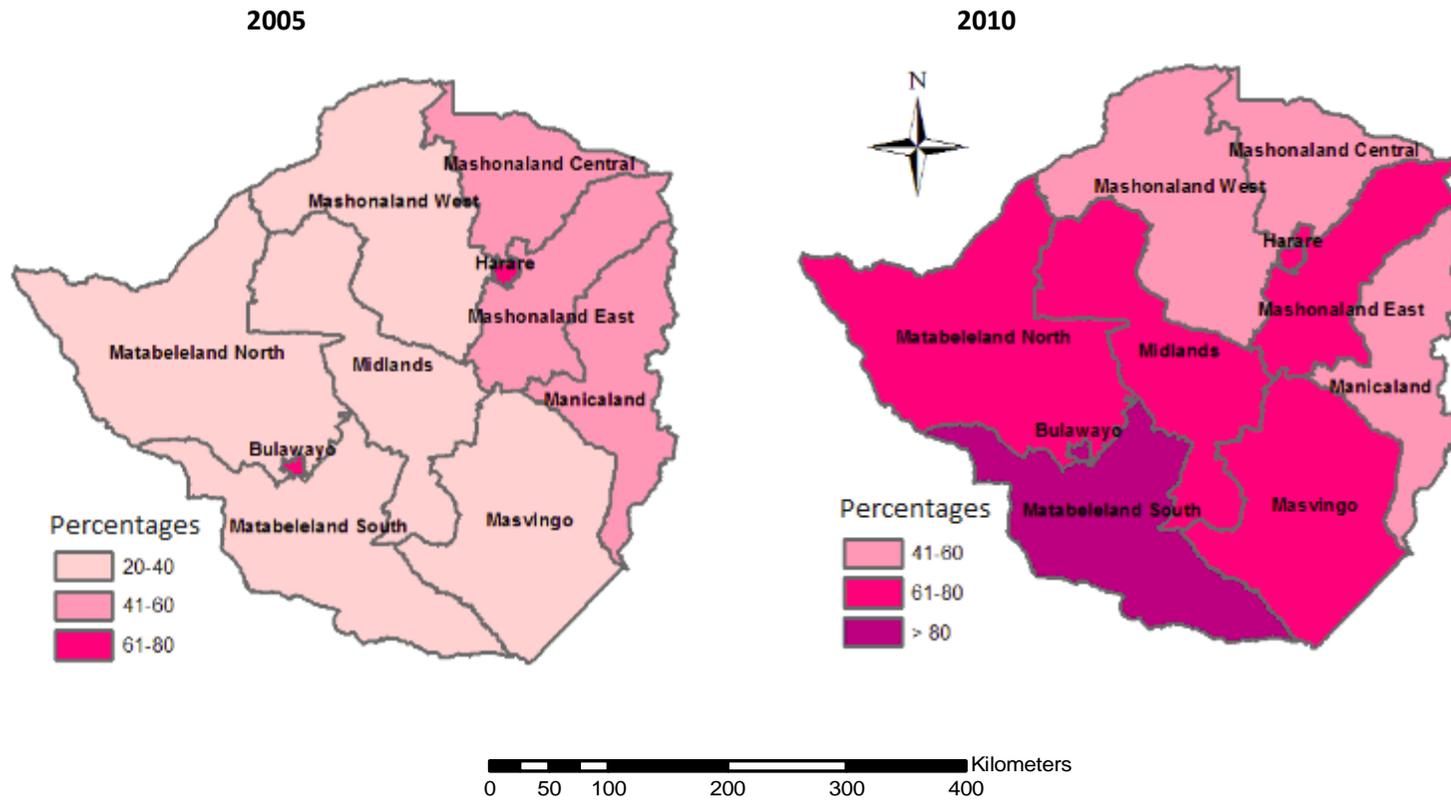


Male circumcision rates are highest in Manicaland and Matabeleland North. Mashonaland Central and Mashonaland East have the least male circumcision rates.

**Data Sources:** National Aids Council, Ministry of Health and Child Care.

**Shape Files:** The Department of the Surveyor General.

**Map 33:** Voluntary HIV counselling amongst pregnant women

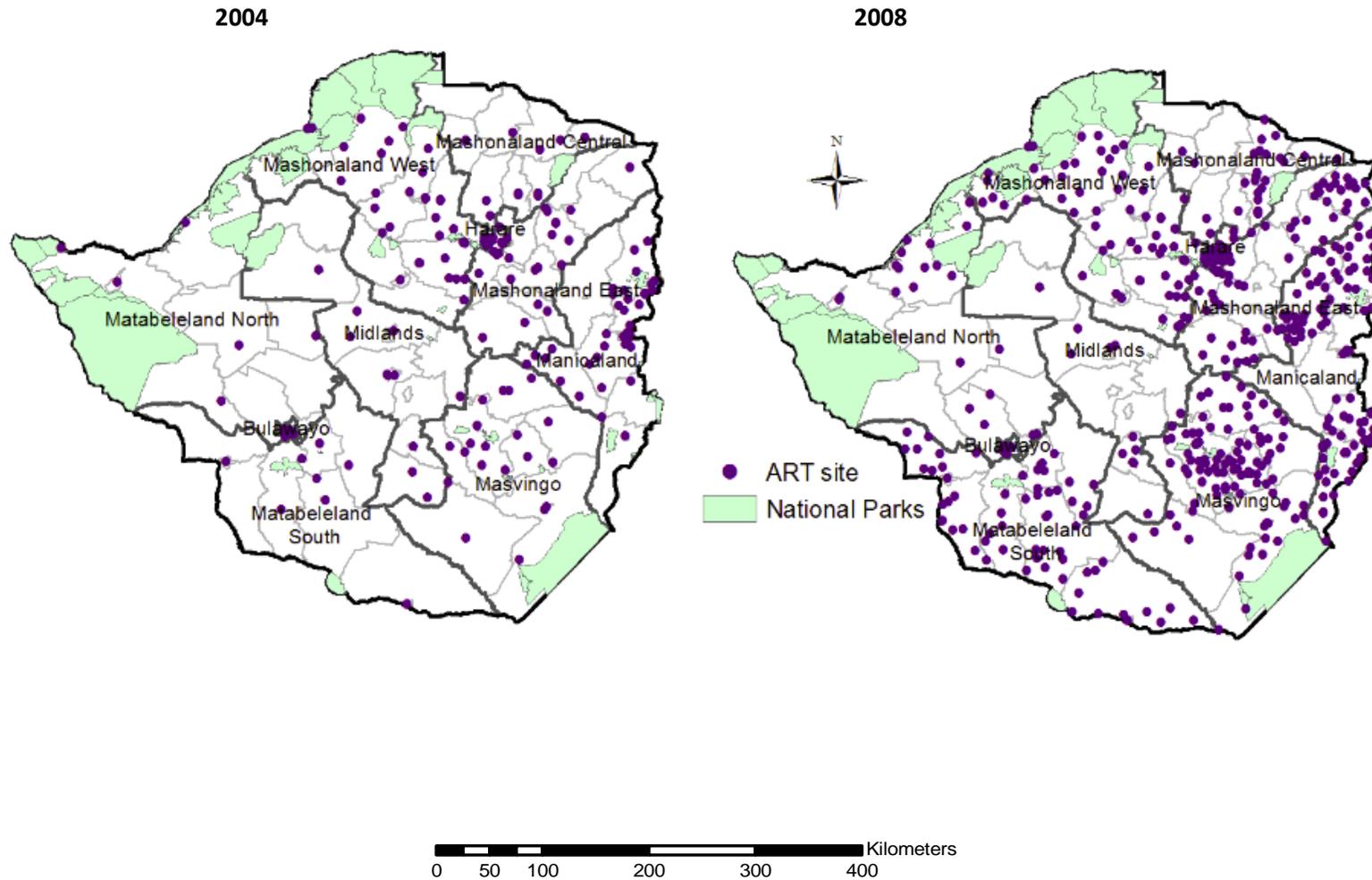


The maps shows an increase in the uptake of HIV testing and counselling services in most of the provinces with Matabeleland south increasing from less than 40% to more than 80%. Four other provinces moved from less than 40% to between 60 and 80%.

**Data Sources:** Zimbabwe Demographic Health Survey, 2005 and 2010.

**Shape Files:** The Department of the Surveyor General.

**Map 34:** Anti-retroviral and PMTCT sites

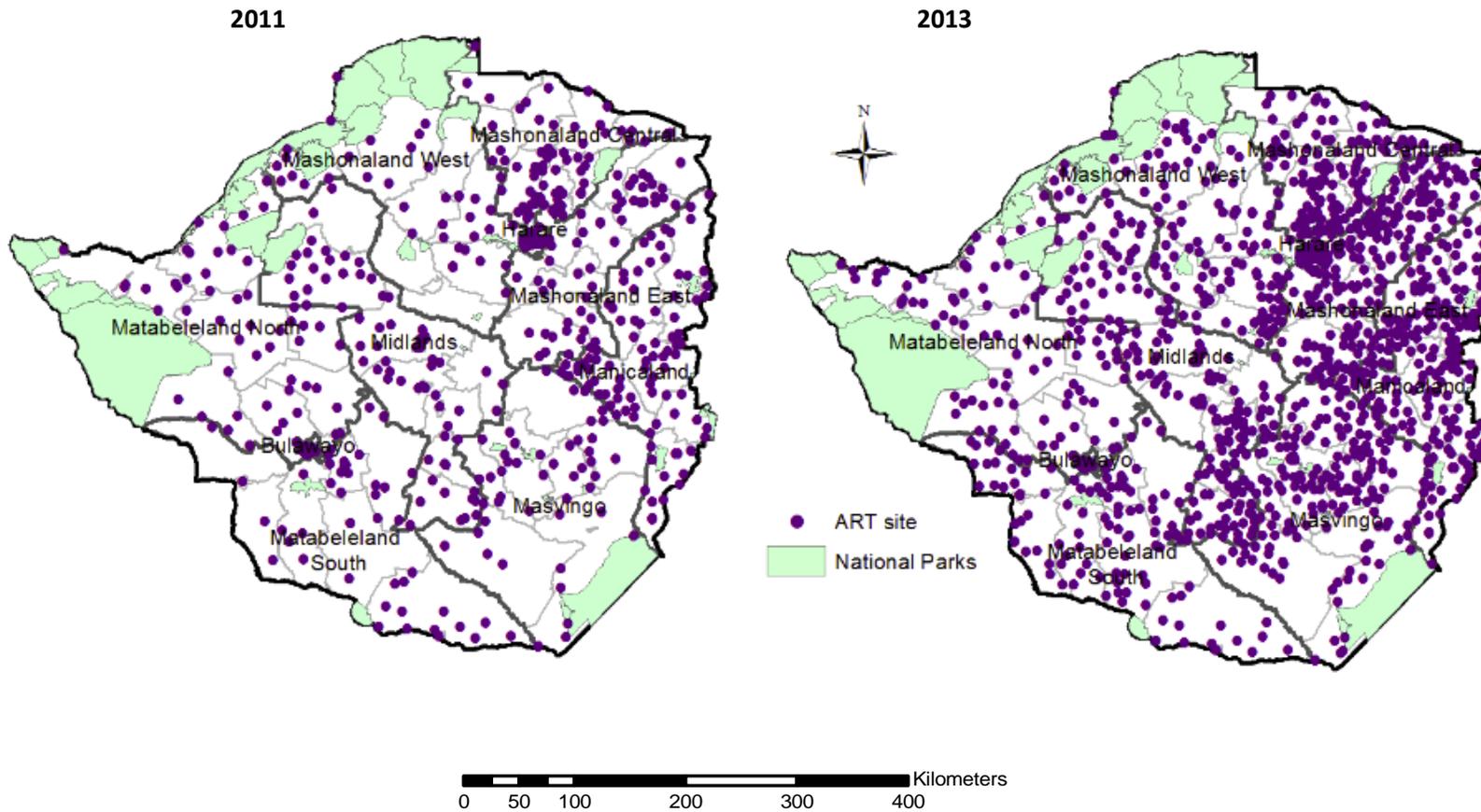


When the HIV interventions started in 2004, there were very few, approximately 210 sites mainly concentrated in urban areas. Areas like Midlands and Matabeleland North had very few sites. In 2008 the sites increased to 600, and the increase can be observed in Matabeleland South, Masvingo, Manicaland and the Mashonals. Midlands and Matabeleland North remained with very few sites with slight increments in Binga and Kariba.

**Data Sources:** Ministry of Health and Child Care.

**Shape Files:** The Department of the Surveyor General.

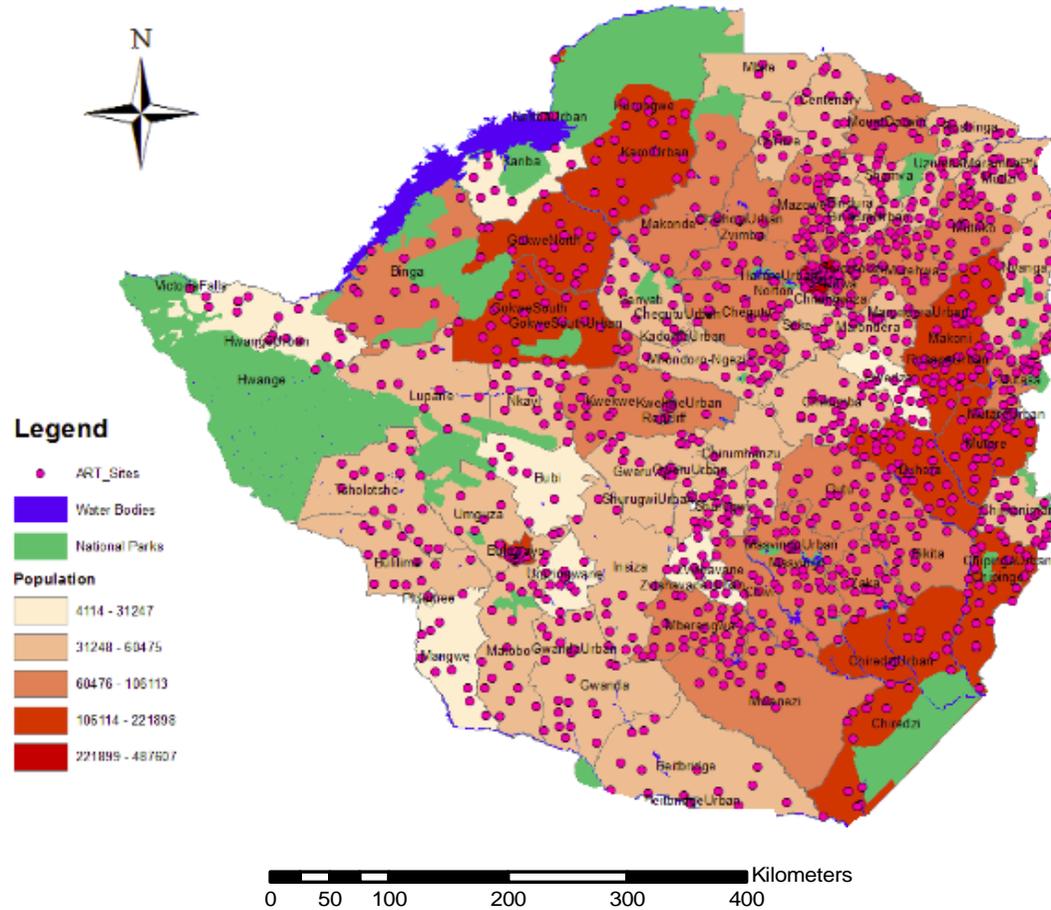
**Map 35:** ART and PMTCT sites



The health centres offering ART and PMTCT services have generally been increasing over the years with 2013 with approximately 1230 sites. Compared to the PLWHIV trends, the distribution of the ART sites is following the PLWHIV distribution patterns. Matabeleland North and South would appear as if they have fewer sites but according to the census 2012 figures, these provinces have fewer people and they also have fewer people living with HIV. Manicaland, Mashonaland West and East, Harare and Bulawayo have very high populations of PLWHIV and they also have more ART and PMTCT sites.

**Data Sources:** Ministry of Health and Child Care.  
**Shape Files:** The Department of the Surveyor General.

**Map 36: People living with HIV and ART sites**



**Comments**

In terms of absolute numbers, Gokwe, Hurungwe, Makoni, Mutare, Mutasa, Karoi, Buhera, Chipinge, Chiredzi, Chitungwiza, had the highest number of people between 200,000 and slightly below 500,000 living with HIV and AIDS. Bubi, Mangwe, Hwange, Hwedza had the lowest number of people living with HIV and AIDS. Some of the sites with the highest number of people also have more ART sites. These include Buhera, Mutasa, Makoni and Mutare.

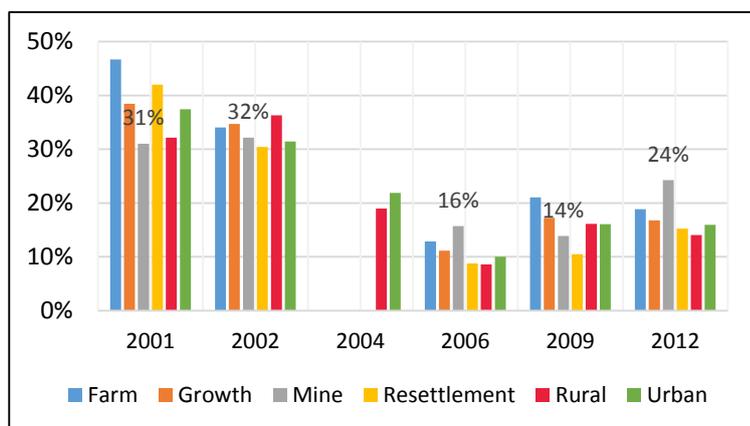
**Data Sources:** National AIDS Council.

**Shape Files:** The Department of the Surveyor General.



Other studies done in South Africa, Limpopo region, addressing high prevalence rates of HIV in the farming communities<sup>46</sup>, found that that farming communities are not fully receiving awareness messages like other communities.

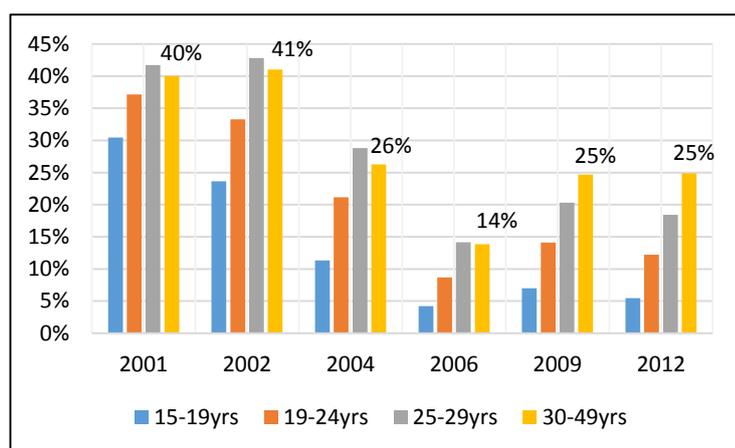
**Figure 13:** HIV positivity rates by livelihood sectors



Source ANC Data

### 5.6.3 Age Group Based Hotspots

**Figure 14:** HIV Positivity Rate by age group



Source: ANC data 2001-2012

Looking at the ANC data on year by year shown in **Figure 13**, the positivity rates for farming areas, growth points and mining areas are high in general. However mining areas had the highest positivity rate particularly in 2012..

In 2012 the mining areas had significantly high rates compared to other livelihood sectors, with a positivity rate of 24% up from 14% in 2009. This sharp increase in HIV positivity among pregnant women in mining areas needs to be investigated further. It can be concluded that areas that are densely populated have high spread of HIV infections.

Analysis of the ANC data by age categories show that, the 25 – 29 age group had the highest HIV positivity rate, From 2001 to 2004, the highest rate being 43% in 2002 (**Figure 14**). In 2006 the prevalence for the 25 – 29 years and that for 30 – 49 years were both at 14%. The prevalence for the 25 – 29 years age group rose again in 2009 to 20 and decreased slightly in 2012 to 18%. The HIV positivity rate for the 30 – 49 years, has also been high in 2001 up to 2004 with the highest being 41% in 2002. It decreased in 2006 to 14% before increasing dominantly in 2009 and 2012 to 25% followed by the prevalence of 25-29 years category.25%

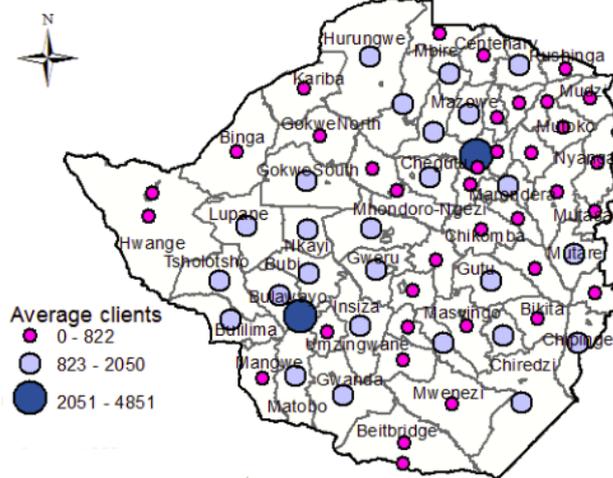
The average HIV positivity rates for the age groups from 2001 to 2012 according to **Figure 14** is highest for the 25 – 29 years and the 30 – 49 years age groups. These two age groups constantly have a high HIV positivity rates over the 12 year period and when viewed together with high risk factors prevailing in the country, the incidence rates and high prevalence rates, they define HIV age group based hotspots.

46

<http://www.researchgate.net/publication/266259810> The Perceptions of a Farming Community in the Limpopo Province on HIVAIDS

## 5.7 Service Delivery

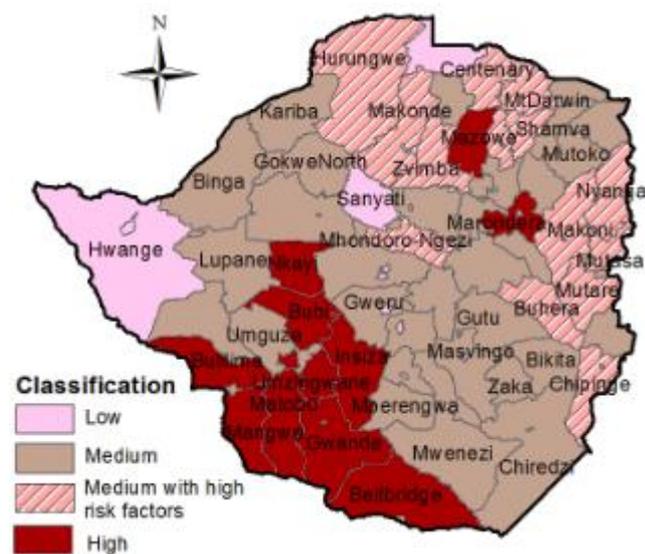
**Map 38 : Average clients per ART/ PMTCT site per district**



The average number of potential clients receiving service per site was calculated using the number of site per district and the number of PLWHIV within each district (**Map 38**). It is known that people travel to get services from health centres out of their own district boundaries but the percentage is very minimal due to the cost implications of travelling.

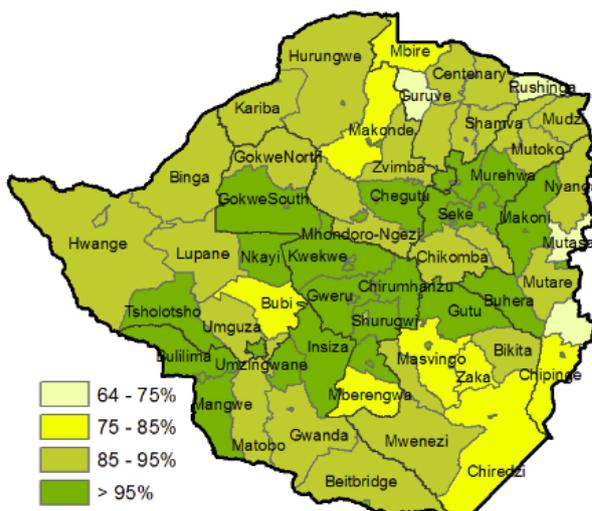
From **Maps 38** and **39**, the areas that are classified as high or medium with high risk factors, in general, have relatively low coverage given the high average number of clients per ART site. Harare and Bulawayo serve on average at least 2050 people living with HIV per site. More effort should be done to expand ART services in those areas.

**Map 39: HIV hotspots**



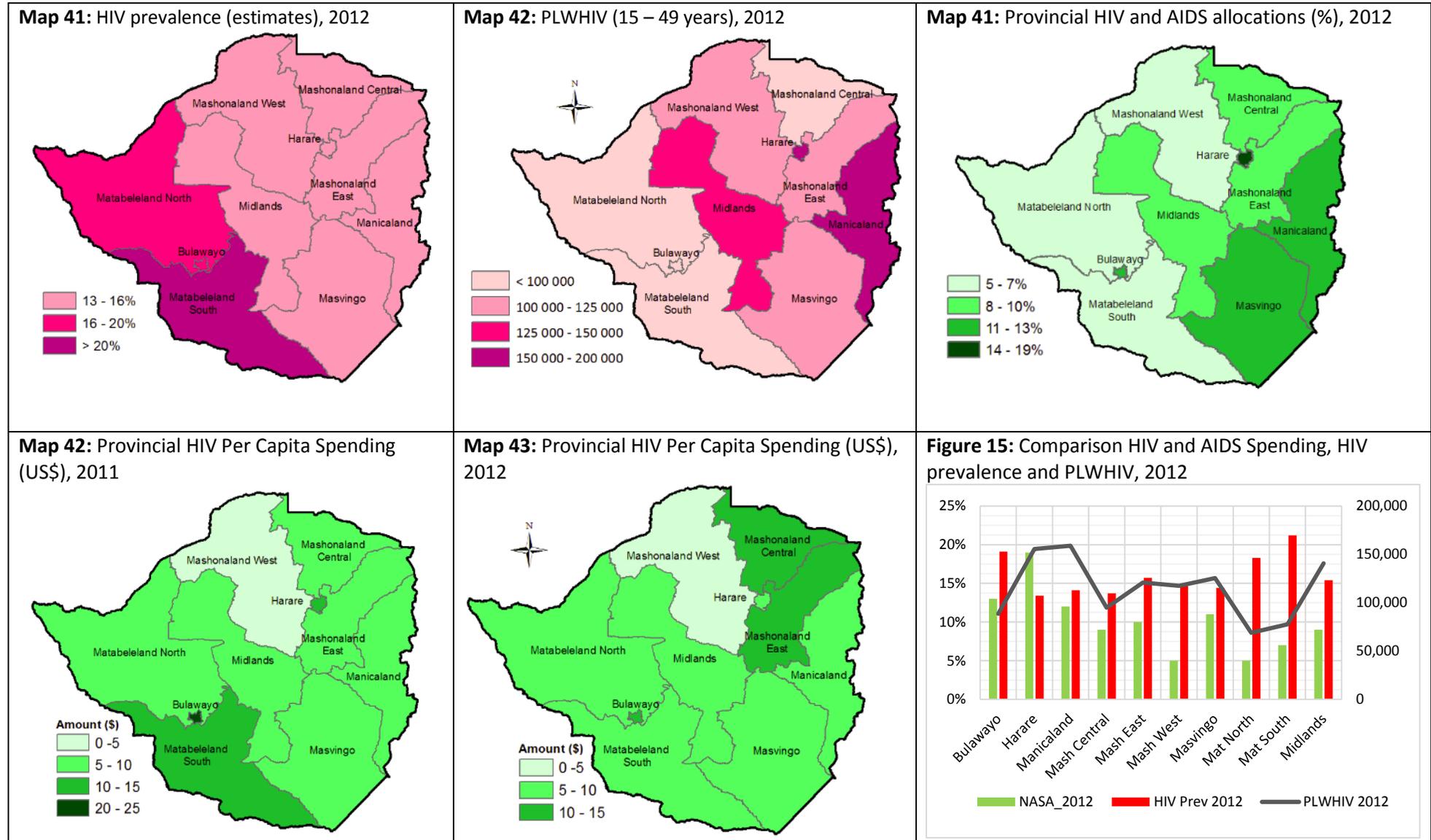
Further analysis was done to determine percentage of population within a ward travelling more than 3 hours to the nearest site (**Map 40**). Most districts have more than 85% of PLWHIV within 3 kilometres of an ART site. Only 4 districts that is Rushinga, Guruve, Mutasa and Chimanimani have between 64 and 75% living within 3 kilometres of an ART site. Most of the identified hotspots (**Map 39**) have greater than 85% living within 3 kilometres of an ART site.

**Map 40: Percentage of district population living with HIV within 3 kilometres of an ART site**



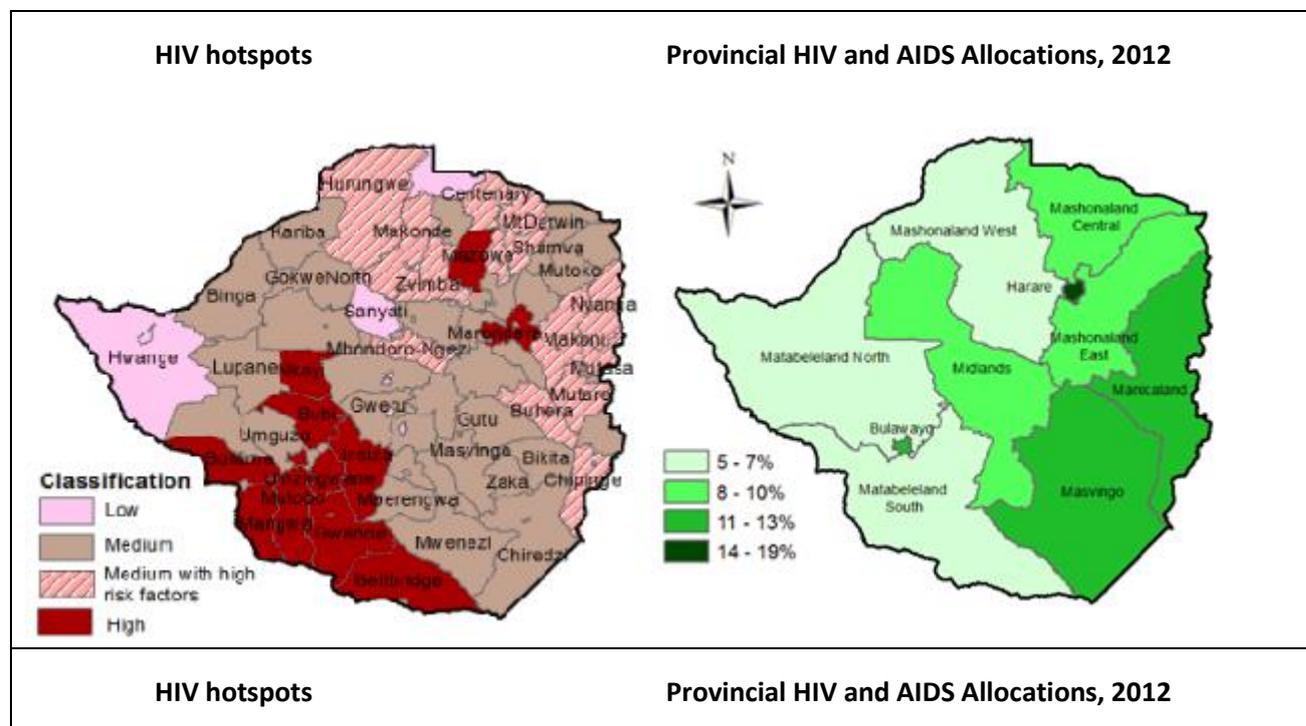
**Bubi** has been identified as a hotspot but has at least 75% of its population living with HIV living within 3 kilometres of an ART site. More efforts should be made to increase accessibility of the sites for this district as it is a hotspot. Other areas with higher risk factors that have low populations living within 3 kilometres of an ART site include Mutasa and Rushinga.

5.7 HIV and AIDS Spending



**Map 41 to Map 45** are showing 2012 HIV prevalence, PLWHIV, provincial HIV and AIDS spending, 2011 and 2012 provincial HIV per capita spending. Although Matabeleland South had the highest HIV prevalence for 2012, it had fewer people living with HIV or lower HIV burden. The NASA spending for Matabeleland south therefore is in the lowest category, the per capita spending for the same district is in the 10 – \$15 category which is the second highest category.

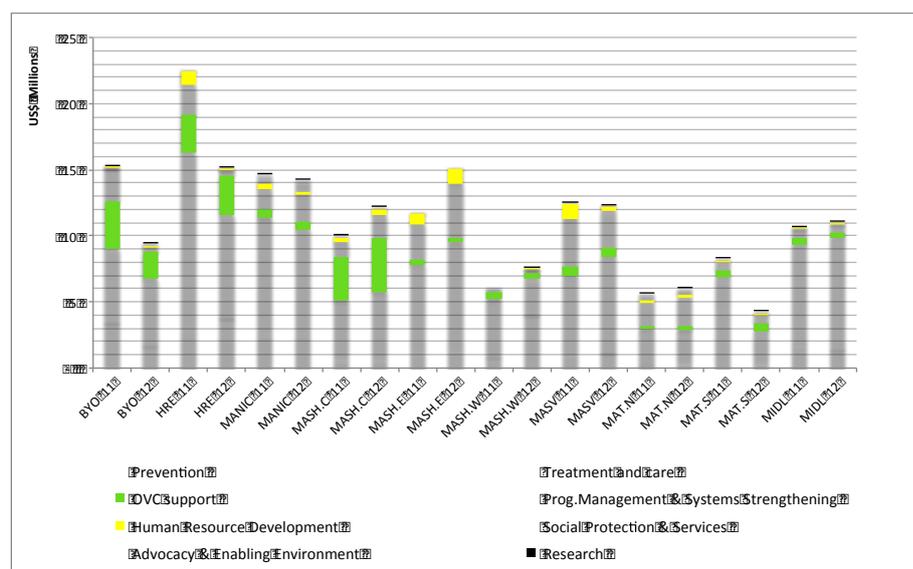
**Figure 16:** HIV hotspots and HIV and AIDS allocations



The provinces that have been identified as hotspots i.e. Matabeleland south, parts of Matabeleland North, Mashonaland Central , Marondera from Mashonaland East and Mazowe from Mashonaland Central, the HIV spending seems to be homogenous with PLWHIV. Of concern is Mashonaland West province it falls in the medium category for both prevalence and PLWHIV but its HIV spending is the lowest, lower than Mashonaland Central which has a lower population of PLWHIV. The per capita HIV spending for Mashonaland West is the lowest for both 2011 and 2012. The HIV hotspots map shows that Mashonaland West is a potential hotspot and special attention should be given paid to this province to prevent the province from becoming a hotspot. Other potential hotspots include Manicaland and parts of Mashonaland central, their HIV spending is also homogeneous with the PLWHIV.

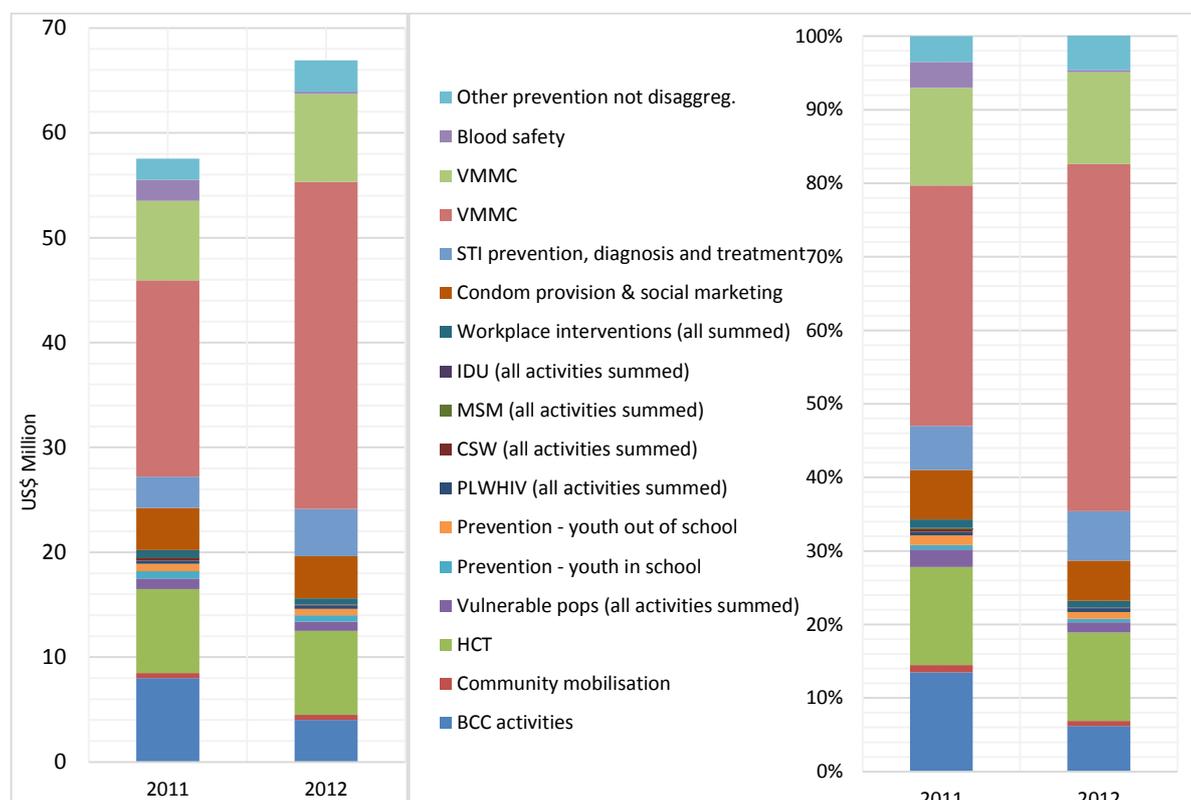
Most of the HIV and AIDS budget goes towards HIV treatment and care i.e. 50% in 2012, special attention should therefore be given as well to prevention especially in the areas identified as HIV hotspots and potential hotspots (**Fig. 16**). Matabeleland south which is the province with most districts identified as hotspots, spent very little in 2012 on prevention activities. Mashonaland Central also spent very little on prevention activities. More resources should be given to prevention activities for the areas identified as hotspots and potential hotspots so as to minimise the spread of new infections in these areas.

**Figure 17 : Provincial HIV and AIDS Spending by Thematic Area (2011-2012, US\$)**



Source: Zimbabwe National Aids Spending Consolidated Report (2011- 2012)

**Figure 18: HIV Prevention Spending in Zimbabwe (US\$ and percentage, 2011-12)**



Source: Zimbabwe National Aids Spending Consolidated Report (2011- 2012)

Almost half of the fund for HIV Prevention goes to PMTCT, for 2011 and 2012 i.e. 47% in 2012 (**Fig 17**). The budget for behavioural change communications (BCC) dramatically decreased from US\$ 7.8 million (13.5% of prevention spending) in 2011 to US\$ 4.2 million (only 6.2%) in 2012. Budget allocated to prevention in youths both in school and out school is almost 1.5% for both budget items. Females (15 – 24 years) have more than double prevalence compared to their male counterparts, it is recommended that more resources be channelled to this budget line to enhance more programmes for this age group. The spending on vulnerable and most-at-risk populations is very small when summed, and decreased from US\$

1.7 million (3% of prevention spending) in 2011 to US\$ 994 thousand (only 1%) in 2012. The findings of this study shows that it is necessary to ensure that allocations also cover livelihood based hotspots especially farming communities, mining communities and growth points. More efforts and interventions are required in these populations to reduce the spread and impacts of HIV and AIDS in the identified communities.

## Chapter Six: Summary of Findings and Conclusions

1. Female HIV prevalence is generally higher than that of male over the years therefore investments should prioritise female focused interventions.
2. Matabeleland South consistently has the highest prevalence over the last 10 years (2005 – 2014) averaging 20.6% while it has the lowest number of PLWHIV. On the contrary Harare and Manicaland which have an average of 14.2% and 15.2% respectively, have the highest number of PLWHIV. Matabeleland should focus more on prevention whilst those provinces with the highest number of PLWHIV should focus more on treatment.
3. HIV prevalence declined among the ANC attendees from 2002 to 2012. Highest HIV prevalence rates amongst ANC attendees in 2012 were observed in Hwange, Nkayi, Insiza, Gwanda and Beitbridge, all of which are in Matabeleland. This finding reinforces the need to focus on prevention in Matabeleland.
4. The national incidence is estimated at 0.98% except for Bulawayo which has the highest incidence estimated at 2.5% and Matabeleland South at 1.4%. This suggests that the likelihood of having new HIV infections is highest in these areas than any other parts of the country necessitates increased investments in prevention activities in these areas. In addition, further risk analysis is needed to understand the risk factors.
5. Risk factors are generally high in provinces with the main border entry points (Beitbridge, Kariba, Victoria Falls, Plumtree, Forbes and Nyamapanda) (**Map 28**). There is no province with low risk factors. In general, this suggests that more investments are needed to reduce risks to HIV infections in Zimbabwe. Main geographic hot spots cover the entire Matabeleland South Province, two districts in Matabeleland North (Nkayi and Bubi) as well as Bulawayo, Mazowe and Marondera see **Map 37**. Analysis by source of livelihoods shows that farming areas, growth points and mining areas have the highest prevalence.
6. There are also 14 districts which have a high potential to become hotspots and need to be prioritized for investment in both prevention and treatment. These include: Bindura, Buhera, Centenary, Chegutu Urban, Chipinge, Epworth, Hurungwe, Makonde, Makoni, Mhondoro- Ngezi, Mount Darwin, Mutasa, Mutare, Nyanga, Shamva and Chipinge (**Map 37**).
7. In terms of service delivery, ART and PMTCT have increased steadily from 2004 to 2013 by up to five times. Most of the potential hotspot areas above, have an average of 800-2000 potential clients per ART site. A deliberate effort should be made to increase accessibility of HIV-AIDS services and investments should be geared to ensure that the already existing sites are fully functional and are operating at their maximum capacity.
8. In 2011 the allocation was in tandem with the provinces that have been identified as hotspots i.e. Matabeleland south, parts of Matabeleland North, Mashonaland Central, Marondera from Mashonaland East and Mazowe from Mashonaland Central (**Map 37**), the HIV spending seems to be consistent with PLWHIV. Of concern is Mashonaland West province it falls in the medium category for both prevalence and PLWHIV but its HIV spending is the lowest, lower than Mashonaland Central which has a lower population of PLWHIV.
9. Matabeleland south which is the province with all districts identified as hotspots, spent very little in 2012 on prevention activities. Deliberate efforts should be made to increase prevention activities.
10. About 47 percent of the prevention spending goes to PMTCT while only about 6 percent goes to behavioural change communications which need to be augmented given that the whole country has medium to high risk factors.
11. More research needs to be done to determine the accessibility of the ART sites by comparing the actual number of people on treatment and the number of sites in a district taking into consideration the different functional capacities of each site. This will help in identifying gaps in the functional status of the sites as well as opportunities to enhance service delivery.

12. Also further research is needed on the risk factors, incidence and HIV rates for the towns or centres along the transport corridors. Bubi, with the highest HIV prevalence of 26.7% in 2014 needs further research to understand the dynamics of HIV-AIDS.
13. A more structured comprehensive study of HIV-AIDS dynamics is recommended based on a sample of hotspot, potential hotspots and non-hotspot areas as well as the main livelihood at risk i.e. mining areas, farming districts and growth points.