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**Age structural transition in Botswana in the
context of HIV/AIDS**

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Age Structural Transition in Botswana in the Context of HIV/AIDS

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*“ Like any science, demography must help man to behave more
effectively and to modify the course of events. (Louis Henry)”*

Executive Summary

An attempt is made in this paper to describe the demographic and HIV/AIDS situations in Botswana and to examine the possible role of HIV/AIDS on the age structural transition underway. The population of Botswana as on 2001 was 1,680,683, compared to 1,326,796 in 1991. This implies an average annual population growth rate of 2.4 percent during 1991-2001. Although there has been a notable decline in the total fertility rate (TFR) from 6.6 in 1981 to 3.3 in 2001, there is evidence also of increasing mortality rates in recent times. The population of Botswana has a relatively young age structure with 37 percent of the total population below 15 years while the 65+ population is only 5 percent. The median age has increased from 15.7 years in 1971 to 20.1 years in 2001. The proportion of the

economically age group is 58 percent which is likely to increase to 59.6 percent in 2011 and 62.1 percent in 2021. The high quality of human capital in terms of education, a stable and vibrant democratic political system, scope for infrastructure development and the assured flow of economic capital present an encouraging picture for Botswana to fruitfully utilise the “window of opportunity” invoked by the demographic transition.

Botswana ranks among the hardest hit with an HIV prevalence of 35.4 percent among women aged 15-49 years. It is estimated that almost 28,000 adults and children had developed AIDS by the end of 2002 and the total number of registered orphans was 37, 850. HIV/AIDS has serious impacts on the socio-economic and political development in Botswana. These impacts are broadly categorized in four groups i.e. demographic, economic, social and developmental. Education and Health sectors are of major concern to Botswana in relation to the depletion of skilled labour force. This will certainly affect the quality of education and health care services.

The Government of Botswana is committed to achieve its objective that by the year 2016, the spread of HIV will have stopped. It may be noted that Botswana is the only country in Africa which has launched the anti-retroviral treatment (ARV) free on a national scale.

The significant reduction of 0-14 population during 1981-2001, i.e. 23 percent, is partly explained by HIV/AIDS deaths among children. Given the socio-economic and demographic conditions prevailing, one would have expected an increase in the proportion of old population (65+) during 1971-2001. There was no increase. We may also recall that the life expectancy has declined in Botswana in recent years. This can well be explained by the high prevalence of HIV/AIDS. The increase in the proportion of economically active population may be partly the residual effect i.e. decreasing the proportion of young population and a static old age structure.

1. Introduction

Botswana became independent in 1966. At the time of independence, the population was around half million and the developmental infrastructure was too low. However,

with the discovery of diamonds in 1967, the economy started growing rather rapidly since late 1970s. Now, the per capita GDP of a Batswana is around US\$ 2127 per annum – one of the highest in Africa. Consequently, the lifestyle of an average Batswana began to change fast. Fertility and mortality started declining. Unfortunately, the high prevalence of HIV/AIDS in the country has its impact on mortality which is on the increase during the last decade.

In this backdrop, an attempt is made in this paper to examine the possible role of HIV/AIDS on the age structure despite the demographic achievements in the country. Age structural transition – a process and consequence of shifting age structure from a young aged population to old aged population- is an integral by-product of demographic and epidemiological transitions in a country.

2. Demographic Situation of Botswana

The population of Botswana as on 2001 was 1,680,683, compared to 1,326,796 in 1991 (CSO, 2001). This implies an average annual population growth rate of 2.4 percent during 1991-2001. During 1981-1991 and 1971-1981, the growth rates were 3.5 and 4.5 respectively. Although there has been a notable decline in the total fertility rate (TFR) from 6.6 in 1981 to 3.3 in 2001, there is evidence also of increasing mortality rates. The crude death rate rose from 11.5 to 13.5 during 1991-2001, reversing the trend recorded earlier. The increase in the mortality rates has impacted negatively on life expectancy at birth, which now stands around 55.7 years, a loss of approximately 9 years since 1991. This, no doubt, is attributable to the widespread high prevalence of HIV/AIDS in Botswana.

Table 1: Total fertility rates and crude birth rates in Botswana; 1971-2001.

Fertility Rate	Year			
	1971	1981	1991	2001
Total fertility rate	6.5	6.6	4.2	3.3
Crude birth rate	45.3	47.7	39.3	28.9

2. Age Structural Transition

The population of Botswana has a young age structure with 37 percent of the total population below 15 years while the 65+ population is only 5 percent (CSO, 2001). The sex composition of population has been female advantaged. The sex ratio (males per 100 females) in 2001 stands at 94. However, it is encouraging to note that the gap in the sex ratio is getting narrowed while it stood at 84 in 1971.

Botswana has been experiencing declines in both mortality and fertility levels since the 1980's. This demographic change has resulted from socio-economic change and its occurrence underlies much of subsequent social change that the country is undergoing. Recent estimates indicate that the crude death rate has declined from 13.7 in 1971 to 11.5 in 1991 and to 12.4 in 2001 (CSO, 2001). While infant mortality rate has dropped from 97.1 in 1971 to 48.0 per 1000 live births in 1991, it increased to 56 per 1000 live births in 2001. The probability that an one-year-old child will die before reaching age 5 has declined from 0.0358 in 1981 to 0.0160 in 1991. Consequently, life expectancy at birth has increased from 55.5 in 1971 to 56.5 in 1981 and 65.3 years in 1991. The gains in the chances of survival of infants experienced in the Nineties have apparently been lost mainly due to HIV/AIDS. The probability that a child will die between exact age one and exact age five stood at 0.024 in 1987, declined to a low level of 0.018 in 1992 and increased to a high level of 0.029 in 2001. The trend shows that the probability is increasing (R.J. Majelantle, 2003). This is attributed to mother to child transmission of HIV/AIDS. Unfortunately, the gains in life expectancy did not sustain mostly due to the rapid increase in the HIV/AIDS epidemic. Life expectancy has declined to 55.6 years in 2001 (CSO, 2001).

The levels of mortality between males and females are almost identical with males experiencing slightly higher mortality before 15 years . Between 15 and 30 years , females experienced higher mortality which may be explained by higher maternal mortality associated with HIV/AIDS. From age 30 onwards, men experience relatively higher mortality than women. These gender differences at ages above 30 can be explained by unusually high incidence of tuberculosis among men and high rates of road accidents. The high incidence of tuberculosis among men in Botswana is

not a new phenomenon.; the HIV/AIDS epidemic has made the situation worse (R. J. Majelantle, 2003).

Most of the recent loss in life expectancy was experienced from birth to age 40. This can be explained by relatively high infant mortality and adult mortality in child bearing ages. From ages 45 and above, older people are expected to live longer in 2001 compared to 1991 because they are not affected by the increase in adult mortality as a result of HIV/AIDS.

As regards fertility, the total fertility rate (TFR) has declined from 6.5 children per woman in the 1970s to 5.7 and 5.2 children per woman in 1988 and 1991 respectively, but further declined to 4.7 children per woman in 1994 and 3.3 in 2001. These estimates show that fertility levels dropped by 19 percent during the past decade; higher than the 10 per cent which is now conventionally accepted as indicating an onset of irreversible fertility transition.

Table 2. Population by age, Botswana, 1971,1981,1991 and 2001 censuses.

AGE	1971		1981		1991		2001	
	Number	%	Number	%	Number	%	Number	%
0-4	98173	17.6	172153	18.5	193665	14.6	195646	11.7
5-9	91036	16.4	148954	16.0	196614	14.8	208296	12.4
10-14	75321	13.5	119727	12.8	183483	13.8	209968	12.5
15-19	55305	9.9	92457	9.9	152525	11.5	203705	12.2
20-24	37756	6.8	78385	8.4	116883	8.8	170614	10.2
25-29	31428	5.6	62573	6.7	99848	7.5	147766	8.8
30-34	27007	4.8	46144	5.0	80633	6.1	113755	6.8
35-39	24988	4.5	37444	4.0	66228	5.0	95343	5.7
40-44	21535	3.9	33689	3.6	48198	3.6	76373	4.6
45-49	21469	3.9	29217	3.1	39049	2.9	63480	3.8
50-54	16431	2.9	24216	2.6	33711	2.5	45100	2.7
55-59	13712	2.5	21917	2.4	27748	2.1	33305	2.0
60-64	11372	2.0	17121	1.8	22756	1.7	28615	1.7
65+	31078	5.6	47933	5.1	65454	4.9	83244	5.0
Total	556611	100.0	931930	100.0	1326795	100.0	1675210	100.0

Table 3. Summary of Age distribution , Botswana, 1971-2001.

AGE	1971	1981	1991	2001
0-14	47.5	47.3	43.2	36.6
15-64	46.9	47.6	51.9	58.4
65+	5.6	5.1	4.9	5.0
Total	100.0	100.0	100.0	100.0
Median	15.75	15.86	17.44	20.09

Fig.1. Trends in Age group (15-64), Botswana - 1971-2001.

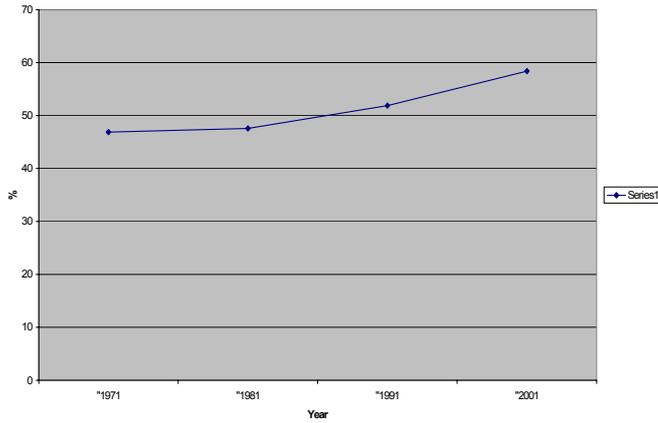


Fig.2. Trends in Age group (65+), Botswana - 1971-2001.

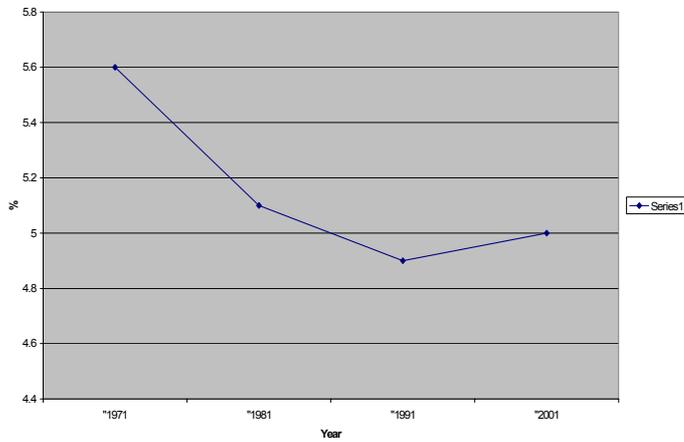


Fig.3. Trends in Age group (0-14), Botswana- 1971-2001.

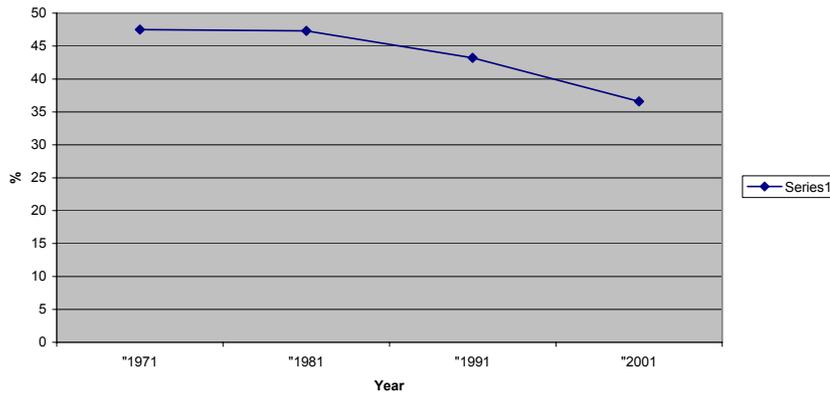


Table 2 presents the summary statistics of the trends in age distribution in Botswana since 1971. The median age has increased from 15.7 years to 20.1 years. There was no appreciable increase during the 10 year period of 1971-1981 due to a stagnant high fertility. However, due to decline in fertility, the median age has increased to 17.4 in

1991 and 20.1 in 2001. The same trend is observed in the young and adult age groups as well. Since 1991, there has been dramatic changes in the proportions of 0-14 and 15-64 age groups. The proportion of 0-14 age group now stands at 37 percent while that of the economically age group at 58 percent.

3.1 Demographic Bonus

The nature of the changing age structure of the population during demographic transition has various social and economic implications. Economic demographers observe that the decline in the dependency ratio and increase in the labour force population during the age structural transition brings in a “demographic bonus” or “window of opportunity” brought in by the demographic transition. During the period of window of opportunity, social sector expenditures are reduced due to lesser demand for health care services by the smaller young and old aged population as well as reduced demand for educational services due to declines in the growth of school aged population. Therefore, the demographic bonus is likely to contribute partly to the growth of the national economy if favourable and adequate policies are pursued. The report of the Symposium on Population and Economic development held in Italy in 1998 characterises the window of opportunity as (a) more workers producing more total output, if they are productively employed; (b) greater accumulation of wealth, if savings occur and are productively invested and (c) a large supply of human capital, if appropriate investments are made in its formation (Birdsall and Sinding, 1998).

Botswana is favourably placed in this context. The proportion of economically active population now is more than half of the population – 58.4 percent which is likely to increase to 59.6 percent in 2011 and 62.1 percent in 2021 (CSO, 1997). The high quality of human capital in terms of education, a stable and vibrant democratic political system, scope for infrastructure development and the assured flow of economic capital present an encouraging picture for Botswana to fruitfully utilise the “window of opportunity” invoked by the demographic transition. The ‘demographic bonus’ had a positive impact on the economic growth in all Southeast Asian countries except in the Philippines (K. Navaneetham, 2002)

4. HIV/AIDS Situation in Botswana and its impact

According to UNAIDS estimates , 42 million people were infected with HIV globally in 2002, and of these, 29.4 million (70%) lived in Sub-Saharan Africa. Approximately, 14 million children also had been orphaned by HIV/AIDS, with 11 million of them in Sub-Saharan Africa. Botswana ranks among the hardest hit with an HIV prevalence of 35.4 percent among women aged 15-49 years. (Republic of Botswana, 2003)

It is estimated that almost 28,000 adults and children had developed AIDS by the end of 2002 and the total number of registered orphans was 37, 850 (Republic of Botswana, 2003). Around 50-70 percent of hospital bed occupancy rates are due to HIV related illnesses. A situation that is overburdening the already stretched health and social services and leaving patients to be discharged on home based care has emerged. Sero-prevalence rates of particular concern are in young people aged between 15-24 years where twice as many young women are infected by young men.

The epidemic has had a gender bias. Lack of women's empowerment against prejudicial, cultural and traditional practices and in decision making in sexual and reproductive health issues have been identified as factors contributing to women's vulnerability to HIV infection. Increasing poverty amongst single female headed households and increase in the incidences of violence including rape are other contributing factors. Intergenerational transmission from older men to younger women who then transmit the virus to their peer leads to acceleration of the epidemic. This is a critical point where interventions should be targeted so as to break the transmission cycle.

HIV/AIDS has serious impacts on the socio-economic and political development in Botswana. These impacts are broadly categorized in four groups i.e. demographic, economic, social and developmental.

The immediate impact of HIV/AIDS is through increased morbidity. The increasing death rate is likely to slow the population growth rate and affect the age structural transition. AIDS related deaths among the young economically active age group will lead to a loss of manpower, tipping those households living below poverty datum line into abject poverty. Further, in a recent study on industrial firms, Kgosidialwa (2003) found that absenteeism is the major cost occasioned by HIV/AIDS to firms in Botswana. The study also found a positive relation between rising morbidity and mortality from HIV/AIDS and the financial burdens on the firms. HIV/AIDS reduces the effective labour supply in both quality and quantity resulting in reduced output. Depletion of skilled labour will also increase the cost of training and replacement. Increased expenditure and care of infected and affected persons will affect savings and investments such that the overall economy is adversely affected.

Education and Health sectors are of major concern to Botswana in relation to the depletion of skilled labour force. This will certainly affect the quality of education and health care services.

The social impacts resulting from illness and death of individuals and the consequent effects on the family are great. The critical question is who falls sick in terms of their role in the family and community. Death of a mother results in children being orphaned, loss of quality care and even female children being taken out of school to assume the role of motherhood and care giving.

The Government in partnership with UNDP has initiated a series of strategic impact studies to determine the extent, trends, patterns and the magnitude of the impacts on society and the economy.

At the policy level the government has established the National AIDS Council (NAC) that is currently chaired by the President. It is the highest national policy making institution after parliament and cabinet on issues of HIV/AIDS policy and implementation guidelines. The membership of the council is drawn from all sectors including government ministries, House of Chiefs, private sector, NGOs/CBOs and representatives of people living with HIV/AIDS. NAC has also established various technical multisectoral sub-committees.

The National Assembly has formed a Parliamentary Select Committee on HIV/AIDS. The committee aims to ensure that HIV/AIDS remains as a priority on the political and economic agenda of the country. In addition, the Committee hopes to sustain political interest and commitment at national level.

With regard to implementation mechanism, the National AIDS Control Programme was started in 1987 as part of the epidemiology unit, Ministry of Health. In 1992, the Programme was established as a separate unit i.e. AIDS/STD unit. Based on the lessons learnt between 1992 and 1999, and given the expanded multisectoral approach the Government established the National AIDS Coordinating Agency (NACA) in August 2000. NACA has the overall responsibility to coordinate the implementation of the multisectoral national response in addition to providing policy guidance to other sectors.

At the district level, District and Village Multisectoral AIDS Committees have been established. At the District level, the committees are chaired by the District Commissioners and deputized by Council Secretary. These are the two senior most Government Chief Executives at district level representing central and local government respectively.

Private sector has formed a coalition – “Botswana Business Coalition on AIDS” to facilitate the coordination of their intervention. Civil society organization have formed several networks that support and promote coordination, networking and collaboration among them. These include Botswana Network of AIDS Service Organisations, Botswana Network of People Living with HIV/AIDS, Botswana Network of Law and Ethics, and Botswana Christian AIDS Intervention Programme.

Botswana started responding to HIV/AIDS as early as 1987, when the government developed the Short Term Plan of Action, two years after the first case of HIV/AIDS related illness was diagnosed. This was followed by a Medium Term Plan I (1989-93). In 1993, a national policy on HIV/AIDS was developed, followed by Medium Term Plan II (1997 – 2002). MTP II was different from MTP I because of its multisectoral and participatory approach. MTP II has also facilitated the shifting of

HIV/AIDS from being considered a health problem towards the recognition of social, economic and cultural dimensions of the epidemic. The national policy was developed in 1993 and reviewed in 1998 to incorporate home based care as major component in the management of the epidemic. The first sentinel surveillance was conducted as early as 1992. Since then it has been repeated annually in 14 sites across the country. Two of the sites, Gaborone and Francistown are permanent sites while the others alternate annually.

While interventions in almost all sectors have primarily focused on prevention and care, they are also addressing sectoral productivity and the quality of human capital. In the public sector, Government ministries have formed ministerial AIDS committees that are in most cases chaired by Permanent Secretaries. HIV/AIDS Focal point persons have also been identified to coordinate the activities of different departments at Under Secretary level. Operational plans have been developed or are in the process of being developed based on situation analysis reports. Sectors are also identifying priority areas for research to inform and guide sectoral policy formation.

In the private sector, HIV/AIDS coordinators have been appointed and workplace programmes developed. The private sector also provides support and care to people living with HIV/AIDS. Some of the services being provided include preventive and supportive counselling, education and awareness on HIV/AIDS, support for treatment through medical aid subscriptions that enable PLWA to purchase drugs.

In addition, the private sector has established their own HIV/AIDS related policies that include provisions for non-discrimination and equal opportunities. Private sector is also expanding their social and corporate responsibilities by providing financial support to community based interventions.

Interventions at the district level are coordinated through the District Multisectoral AIDS Committees, while similar committees exist at the village or community levels. Their operations are guided by the National Strategic Plan MTP II.

Community Home Based Care is now considered as a cornerstone in the continuum of care of HIV/AIDS and other terminal illness. The resources are being used to address

strategic needs in home based care such as transport, material support (food basket), human resources, skills training, support to NGOs, CBOs, Community Support Groups and volunteers as a strategy to expand and improve the quality of care. Financial and material support is also being provided to orphans and potential orphans. One of the core supports to orphans is to ensure that their education is not affected by the impact of HIV/AIDS when their parents die. Women constitute the majority of home based care service providers. There are incidences where the girl child has also assumed the role of a caregiver denying them the opportunity to attend school and normal growth and development like other children.

The experience of Botswana is that the challenges of containing HIV/AIDS cannot be met without a new era of heightened cooperation and partnership between the government, the private sector, civil society organizations and the community at large. This partnerships can only work if the leadership at all levels from management, staff association, individual staff and clients is strengthened and have clear understanding of their roles and responsibilities. The lessons learnt in the past is that it is not money or technology that will make the difference in the fight against AIDS, but the willingness of the people to arrest the spread of epidemic at individual level. A social evolution is called for in this regard.

The main challenges facing the national response to HIV/AIDS include the following:-

- i. How to ensure that increasing awareness on HIV/AIDS also translates into desirable behaviour change especially among the youth
- ii. Mainstreaming of HIV/AIDS in all aspects of corporate functions from policy, decision making, planning, resource allocation to implementation of programmes whether in public or private sector or with NGOs and CBOs
- iii. Overcoming stigmatisation and denial
- iv. Continued respect for human rights
- v. Full implementation of programmes for the care and support of orphans
- vi. The provision and management of anti retroviral drugs

- vii. Sustainability of skilled human capita required to for continued economic growth

A recent survey conducted in Botswana shows that 94 percent of pregnant women believe that all pregnant women should be tested for HIV which implies that pregnant women are ready for “routine” HIV test as mandated by the President. Most pregnant women are aware of the important fact regarding Prevention of Mother to Child Transmission (PMTCT). A crucial finding is that only 26 percent of women reported that their partners are tested (Mmegi, 2004).

Let us now closely look into the effects of HIV/AIDS on the age structural transition in Botswana. HIV/AIDS deaths affect mainly infants, children and adults below 45 years . The levels of IMR are now higher than the levels experienced in mid-1980s. Also, the under five mortality has increased. The impact of this on the proportion of young population is same as reduced birth rate. So, the steep reduction of 0-14 population in 2001 compared to 1981, i.e. 23 percent, is partly explained by HIV/AIDS deaths among children. One may seriously look into the fact that the proportion of 65+ population is stagnated in Botswana since 1971. Given the socio-economic and demographic conditions prevailing, one would have expected an increase in the proportion. We may also recall that the life expectancy has declined in Botswana in recent years. This can well be explained by the high prevalence of HIV/AIDS . The increase in the proportion of economically active population may be partly the residual effect i.e. decreasing the proportion of young population and a static old age structure.

5. Summary and Conclusion

An attempt is made in this paper to examine the possible role of HIV/AIDS on the age structure of Botswana despite the demographic achievements in the country. The population of Botswana as on 2001 was 1,680,683, compared to 1,326,796 in 1991 (CSO, 2001). This implies an average annual population growth rate of 2.4 percent during 1991-2001. During 1981-1991 and 1971-1981, the growth rates were 3.5 and 4.5 respectively. Although there has been a notable decline in the total fertility rate (TFR) from 6.6 in 1981 to 3.3 in 2001, there is evidence of increasing mortality rates

in the recent times. The population of Botswana has a young age structure with 37 percent of the total population below 15 years while the 65+ population is only 5 percent .

From age 30 onwards, men experience relatively higher mortality than women. These gender differences at ages above 30 can be explained by unusually high incidence of tuberculosis among men and high rates of road accidents. The high incidence of tuberculosis among men in Botswana is not a new phenomenon.; the HIV/AIDS epidemic has made the situation worse (R. J. Majelantle, 2003).

The median age has increased from 15.7 years to 20.1 years during 1971 and 2001. The proportion of 0-14 age group now stands at 37 percent while that of the economically active age group at 58 percent which is likely to increase to 59.6 percent in 2011 and 62.1 percent in 2021. The high quality of human capital in terms of education, a stable and vibrant democratic political system, scope for infrastructure development and the assured flow of economic capital present an encouraging picture for Botswana to fruitfully utilise the “window of opportunity” invoked by the demographic transition.

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Transmission (PMTCT). A crucial finding is that only 26 percent of women reported that their partners are tested.

The Government of Botswana is committed to achieve its objective that by the year 2016, the spread of HIV will have stopped. It may be noted that Botswana is the only country in Africa which has launched the anti-retroviral treatment (ARV) free on a national scale. However, a lot remains to be done for the optimum utilization of the Government services.

The steep reduction of 0-14 population in 2001 compared to 1981, i.e. 23 percent, is partly explained by HIV/AIDS deaths among children. Given the socio-economic and demographic conditions prevailing, one would have expected an increase in the proportion of old population (65+). But it was not so. We may also recall that the life expectancy has declined in Botswana in recent years. This can well be explained by the high prevalence of HIV/AIDS .

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