

# INTRODUCTION

---

## 1.1 GEOGRAPHY AND ECONOMY

Zimbabwe lies just north of the Tropic of Capricorn between the Limpopo and Zambezi rivers. The country is landlocked, bordered by Mozambique on the east, South Africa on the south, Botswana on the west, and Zambia on the north and northwest. It is part of a great plateau, which constitutes the major feature of the geology of southern Africa. Almost the entire surface area of Zimbabwe is more than 300 metres above sea level, with nearly 80 percent of the land lying more than 900 metres above sea level and about 5 percent lying more than 1,500 metres above sea level.

About 70 percent of the surface rock in Zimbabwe is granite, schist, or igneous, and it is rich in mineral wealth. Soil types range from clay or sandy loam in the high veldt to Kalahari sands in the hot and dry western part of the country. The climate of Zimbabwe is a blend of cool, dry, sunny winters and warm, wet summers. Average annual precipitation totals increase with increasing altitude; however, temperature drops with increasing altitude. The Eastern Highlands of the country are therefore associated with cool and wet conditions, while the Sabi, Limpopo, and Zambezi valleys are hot and dry. Mining and agriculture are the backbone of the country's economy, even though the country is richly endowed with some of the world's most impressive manmade and natural tourist attractions, such as the Great Zimbabwe Ruins and Victoria Falls.

Zimbabwe has abundant natural resources, including 8.6 million hectares of potentially arable land and more than 5 million hectares of forests, national parks, and wildlife estates. There are adequate supplies of surface and ground water that could be harnessed for generation of electric power, irrigation of crops, and domestic and industrial use. Mineral resources are varied and extensive, including platinum, gold, asbestos, coal, nickel, iron, copper, lithium, and precious stones such as emeralds.

The economy is diversified but biased toward agriculture and mining, which are by far the country's major foreign-currency earning sectors. Besides mineral processing, major industries include food processing, construction, chemicals, textiles, wood and furniture, and production transport equipment.

The main agricultural export products are tobacco, maize, cotton, sugar, and groundnuts. The agriculture sector has well-developed commercial and communal farming systems. The communal sector's contribution towards the production of industrial raw materials and food products has increased substantially since 1980, despite its poor physical and socioeconomic infrastructure.

In 1996-2000, the government of Zimbabwe implemented a five-year economic development programme, the Zimbabwe Programme for Economic and Social Transformation (ZIMPREST). It was envisaged that the government of Zimbabwe would implement ZIMPREST with financial support from the World Bank, the International Monetary Fund, and other international organisations. However, the financial aid was not received in a timely manner. ZIMPREST advocated for adequate and sustainable economic growth and social development to reduce poverty and create a basis for all of Zimbabwe's citizens to provide a better life for themselves and their children.

## 1.2 POPULATION

In the 2002 census, the population of Zimbabwe was 11.6 million. Estimates, rather than actual counts, of the total population are available from the beginning of the century through 1951, when the census began to include non-Africans. Table 1.1 presents population growth rates for several years compiled from the population censuses. The average annual growth in the population reached a peak of 3.5 percent in 1951 and 1961, and then dropped to 3 percent between 1982 and 1992. The annual population growth rate between 1992 and 2002 was 1.1 percent.

Table 1.2 shows that the population of people of African descent was 99 percent in 2002. The population of European, Asian, and Coloured descendants made up the remaining 1 percent in 2002. The 2002 census estimated the crude birth rate (CBR) and the crude death rate (CDR) to be about 30 births per thousand population and 17 deaths per thousand population, respectively. Forty-one percent of the population of Zimbabwe was below 15 years of age, 55 percent was between the ages of 15 and 64 years, and a very small proportion (4 percent) was 65 years of age or more.

**Table 1.1 Population size and growth rate**

Population size and annual rate of increase in the population, Zimbabwe 1901-2002

Year	Population ('000)	Annual growth rate (percent)
1901	713	-
1911	907	2.4
1921	1,147	2.4
1931	1,464	2.5
1941	2,006	3.2
1951	2,829	3.5
1961	3,969	3.5
1969	5,134	3.3
1982	7,608	3.0
1992	10,412	3.1
2002	11,632	1.1

Source: Central Statistical Office, 2002

## 1.3 OBJECTIVES OF THE SURVEY

The 2005-2006 Zimbabwe Demographic and Health Survey (2005-06 ZDHS) is one of a series of surveys undertaken by the Central Statistical Office (CSO) as part of the Zimbabwe National Household Survey Capability Programme (ZNHSCP) and the worldwide MEASURE DHS programme. The Ministry of Health and Child Welfare (MOH&CW), Zimbabwe National Family Planning Council (ZNFPC), and the Musasa Project contributed significantly to the design, implementation, and analysis of the 2005-06 ZDHS results. Financial support for the 2005-06 ZDHS was provided by the government of Zimbabwe, the United States Agency for International Development (USAID), the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), the United Kingdom Department for International Development (DFID), the United Nations Population Fund (UNFPA), the United Nations Children's Fund (UNICEF), and the Centres for Disease Control and Prevention (CDC). The Demographic and Health Research Division of Macro International Inc. (Macro) provided technical assistance during all phases of the survey.

While significantly expanded in content, the 2005-06 ZDHS is a follow-on to the 1988, 1994, and 1999 ZDHS and provides updated estimates of basic demographic and health indicators covered in the earlier surveys. In addition, data on malaria prevention and treatment, domestic violence, anaemia, and HIV/AIDS were also collected in the 2005-06 ZDHS.

**Table 1.2 Demographic indicators**

Selected demographic indicators, Zimbabwe 1992 and 2002

Indicator	1992 Census	2002 Census
Total population (thousands)	10,412	11,632
<b>Distribution by ethnic group (percent)</b>		
African	98.8	99.3
European	0.8	0.4
Coloured	0.3	0.2
Asian	0.1	0.1
<b>Distribution by age group (percent)</b>		
0-14	45.1	40.6
15-64	51.3	55.0
65+	3.3	4.0
Not stated	0.3	0.4
Crude birth rate (CBR) Births per 1,000 population	34.5	30.3
Crude death rate (CDR) Deaths per 1,000 population	9.5	17.2
Number of males per 100 females in the total population	95	94
Life expectancy at birth	61.0	45.0

Source: Central Statistical Office, 2002

The primary objectives of the 2005-06 ZDHS project are to provide up-to-date information on fertility levels; nuptiality; sexual activity; fertility preferences; awareness and use of family planning methods; breastfeeding practices; nutritional status of mothers and young children; early childhood mortality and maternal mortality; maternal and child health; and awareness, behaviour, and prevalence regarding HIV/AIDS and other sexually transmitted infections (STIs).

## **1.4 ORGANISATION OF THE SURVEY**

### **1.4.1 Sample**

The sample for the 2005-06 ZDHS was designed to provide population and health indicator estimates at the national and provincial levels. The sample design allowed for specific indicators, such as contraceptive use, to be calculated for each of the 10 provinces (Manicaland, Mashonaland Central, Mashonaland East, Mashonaland West, Matabeleland North, Matabeleland South, Midlands, Masvingo, Harare, and Bulawayo). The sampling frame used for the 2005-06 ZDHS was the 2002 Zimbabwe Master Sample (ZMS02) developed by CSO after the 2002 population census. With the exception of Harare and Bulawayo, each of the other eight provinces was stratified into four strata according to land use: communal lands, large-scale commercial farming areas (LSCFA), urban and semi-urban areas, small-scale commercial farming areas (SSCFA), and resettlement areas. Only one urban stratum was formed each for Harare and Bulawayo, providing a total of 34 strata.

A representative probability sample of 10,800 households was selected for the 2005-06 ZDHS. The sample was selected in two stages with enumeration areas (EAs) as the first stage and households as the second stage sampling units. In total 1,200 EAs were selected with probability proportional to size (PPS), the size being the number of households enumerated in the 2002 census. The selection of the EAs was a systematic, one-stage operation carried out independently for each of the 34 strata. The 1,200 ZMS02 EAs were divided into three replicates of 400 EAs each. One of the replicates consisting of 400 EAs was used for the 2005-06 ZDHS. In the second stage, a complete listing of households and mapping exercise was carried out for each cluster in January 2005. The list of households obtained was used as the frame for the second stage random selection of households. The listing excluded people living in institutional households (army barracks, hospitals, police camps, boarding schools, etc.). CSO provincial supervisors also trained provincial CSO officers to use global positioning system (GPS) receivers to take the coordinates of the 2005-06 ZDHS sample clusters.

All women age 15-49 and all men age 15-54 who were either permanent residents of the households in the 2005-06 ZDHS sample or visitors present in the household on the night before the survey were eligible to be interviewed. Anaemia and HIV testing was performed in each household among eligible women and men who consented to either or both tests. With the parent's or guardian's consent, children age 6-59 months were tested for anaemia in each household. In addition, a sub-sample of one eligible woman in each household was randomly selected to be asked additional questions about domestic violence.

### **1.4.2 Questionnaires**

Three questionnaires were used for the 2005-06 ZDHS: a Household Questionnaire, a Women's Questionnaire, and a Men's Questionnaire. These questionnaires were adapted to reflect the population and health issues relevant to Zimbabwe at a series of meetings with various stakeholders from government ministries and agencies, nongovernmental organizations, and international donors. Three language versions of the questionnaires were produced: Shona, Ndebele, and English.

The Household Questionnaire was used to list all the usual members and visitors of selected households. Some basic information was collected on the characteristics of each person listed, including his or her age, sex, education, and relationship to the head of the household. For children under age 18,

survival status of the parents was determined. If a child in the household had a parent who was sick for more than three consecutive months in the 12 months preceding the survey or a parent who had died, additional questions related to support for orphans and vulnerable children were asked. Additionally, if an adult in the household was sick for more than three consecutive months in the 12 months preceding the survey or an adult in the household died, questions were asked related to support for sick people or people who have died. The Household Questionnaire was also used to identify women and men who were eligible for the individual interview. Additionally, the Household Questionnaire collected information on characteristics of the household's dwelling unit, such as the source of water, type of toilet facilities, materials used for the floor of the house, ownership of various durable goods, and ownership and use of mosquito nets. The Household Questionnaire was also used to record height, weight, and haemoglobin measurements for children age 6-59 months.

The Women's Questionnaire was used to collect information from all women age 15-49. These women were asked questions on the following topics:

- Background characteristics (education, residential history, media exposure, etc.)
- Birth history and childhood mortality
- Knowledge and use of family planning methods
- Fertility preferences
- Antenatal, delivery and postnatal care
- Breastfeeding and infant feeding practices
- Vaccinations and childhood illnesses
- Marriage and sexual activity
- Women's work and husband's background characteristics
- Women's and children's nutritional status
- Domestic violence
- Awareness and behaviour regarding AIDS and other sexually transmitted infections (STIs)
- Adult mortality including maternal mortality.

As in the 1999 ZDHS, a "calendar" was used in the 2005-06 ZDHS to collect information on the respondent's reproductive history since January 2000 concerning contraceptive method use, sources of contraception, reasons for contraceptive discontinuation, and marital unions. In addition, interviewing teams measured the height and weight of all children under the age of five years and of all women age 15-49.

The Men's Questionnaire was administered to all men age 15-54 in each household in the 2005-06 ZDHS sample. The Men's Questionnaire collected much of the same information found in the Women's Questionnaire but was shorter because it did not contain a detailed reproductive history or questions on maternal and child health or nutrition.

### **1.4.3 Anaemia and HIV Testing Protocol**

In each household selected for the 2005-06 ZDHS, women age 15-49, men age 15-54, and children age 6-59 months were tested for anaemia. In addition, all eligible women and men were tested for HIV. Anaemia and HIV testing were only carried out if consent was provided by the respondents and, in the case of an unmarried minor age 15-17, by the parent or guardian. Additionally, respondents were asked if they would consent to anonymous storage of their dried blood spot (DBS) sample to be used for further research at a later date. Consent for HIV, anaemia, and additional testing were obtained separately. The protocol for haemoglobin and HIV testing was approved by the Medical Research Council of Zimbabwe in Harare, Zimbabwe; the ORC Macro Institutional Review Board in Calverton, Maryland, USA; and the CDC in Atlanta, Georgia, USA.

## Anaemia Testing

Haemoglobin testing is the primary method of anaemia diagnosis. In the 2005-06 ZDHS, testing was performed using the HemoCue system. A consent statement was read to the eligible woman and to the parent or responsible adult of young children and unmarried women and men age 15-17. This statement explained the purpose of the test, informed prospective subjects tested and/or their caretakers that the results would be made available as soon as the test was completed, and requested permission for the test to be carried out. The statement also requested consent to refer respondents to a local health facility if their haemoglobin level indicated severe anaemia. The MOH&CW provided anaemia tablets to the health facilities serving the clusters included in the 2005-06 ZDHS sample.

Before the blood was taken, the finger was wiped with an alcohol prep pad and allowed to air dry. Then the finger was punctured with a sterile, nonreusable, self-retractable lancet and a drop of blood was collected on a HemoCue microcuvette and placed in a HemoCue photometer which displayed the result. The microcuvette is a plastic disposable unit that serves as both a reagent vessel and a measuring device. It contains a reagent (sodium azide) in dry form. The microcuvette is designed to draw up the exact amount of blood needed for the test. The HemoCue photometer measures light absorption and presents the results on a display. The HemoCue analyzer has an internal electronic “SELFTEST.” Every time the analyzer is turned on, it automatically verifies the performance of the optronic unit. For children 6-11 months who were particularly undernourished or thin, a heel puncture was performed to draw a drop of blood. For children 6-59 months of age, the results were recorded in the Household Questionnaire. For adult women age 15-49 years and men age 15-54 years, the results were recorded in the Women’s and Men’s Questionnaire, respectively. For each person whose haemoglobin level was severe and who agreed to have the condition reported, a referral was given to the respondent to be taken to a health facility.

## HIV Testing

Eligible women and men selected for HIV testing who were interviewed were asked to voluntarily provide five drops of blood for HIV testing. The protocol for the blood specimen collection and analysis was based on the anonymous linked protocol developed for MEASURE DHS. The protocol allows for the merging of the HIV results to the sociodemographic data collected in the individual questionnaires, provided that information that could potentially identify an individual is destroyed before the linking takes place.

Interviewers explained the procedure, the confidentiality of the data, and the fact that the test results would not be made available to the subject. They also explained the option of DBS storage for use in additional testing. If a respondent consented to the HIV testing, five blood spots from the finger prick were collected on a filter paper card to which a bar code label unique to the respondent was affixed. If the respondent did not consent to additional testing using their sample, the words “no further testing” were written on the filter paper card. Each household, whether individuals consented to HIV testing or not, was given an information brochure on HIV/AIDS and a list of fixed sites, grouped by province, providing voluntary counselling and testing (VCT) services.

Each DBS sample was given a bar code label, and a duplicate label was attached to the Individual Questionnaire. A third copy of the same bar code was affixed to the Blood Sample Transmittal Form to track the blood samples from the field to the laboratory. DBS samples were dried overnight and packaged for storage the following morning. Samples were periodically collected in the field along with the completed questionnaires and transported to CSO in Harare to be logged in, checked, and transported to the National Microbiology Reference Laboratory (NMRL) for testing.

The processing of DBS samples for HIV testing at NMRL was handled by two laboratory scientists. The DBS samples were logged into the Census and Survey Processing System (CSPro) HIV Test Tracking System (CHTTS) database, each given a laboratory number, and stored at -20°C until tested. All samples were tested on the first assay test, an enzyme-linked immunosorbent assay (ELISA), Vironostika® HIV Uni-Form II Plus O, bioMerieux. A negative result was considered negative. All positives were subjected to a second ELISA test by AniLab Systems, Finland, compatible with ELISYS 2 (a fully automated ELISA analyzer manufactured by Human of Germany). Positive samples on the second test were considered positive. If the first and second tests were discrepant, the sample was retested with tests 1 and 2. If on repeat of tests 1 and 2 both were negative, the sample was rendered negative. If both were positive, the sample was rendered positive. If there was still a discrepancy in the results after repeating tests 1 and 2, a third confirmatory test, Genetic Systems New LAV Blot I (a Western Blot by Bio-Rad France), was administered. The final result was rendered positive if the tests showed inconsistent results on the repeat ELISAs. The final result was also rendered positive if the Western Blot confirmed the result to be positive, and rendered negative if the Western Blot confirmed it to be negative. If the results were still discordant, the sample was rendered indeterminate.

The HIV test results for the 2005-06 ZDHS were entered into a spreadsheet with a barcode as the unique identifier to the result.

#### **1.4.4 Training and Fieldwork**

CSO staff and a variety of experts from government ministries, nongovernmental organizations (NGOs), and donor organizations participated in a three-day training of trainers (TOT) conducted in April 2005. Immediately following the TOT, the pretest training and fieldwork took place in April and May 2005. The pretest fieldwork was conducted in Gweru and surrounding areas, where both Shona and Ndebele households could easily be identified. For two weeks, 16 qualified nurses and Advanced-Level graduates were trained to administer the questionnaires, take anthropometric measurements, and collect blood samples for anaemia and HIV testing. Representatives from the NMRL and CDC/Zimbabwe assisted in training participants on the finger prick for blood collection, and proper handling and storage of the DBS samples for HIV testing. The pretest fieldwork was conducted in two separate six-day phases, covering approximately 200 households. Debriefing sessions were held with the pretest field staff, and modifications to the questionnaires were made based on lessons drawn from the exercise. Pretest interviewers were retained to serve as field editors and team supervisors during the main survey.

Training of field staff for the main survey was conducted during a four-week period in July 2005. Permanent CSO staff, as well as staff of MOH&CW, ZNFPC, the Musasa Project, and Macro International Inc. trained 130 interviewer trainees, most of whom were trained nurses or Advanced-Level graduates. The training course consisted of instruction regarding interviewing techniques and field procedures, a detailed review of items on the questionnaires, instruction and practice in weighing and measuring children, collecting blood samples for anaemia and HIV testing, mock interviews between participants in the classroom, and practice interviews with real respondents in areas outside the 2005-06 ZDHS sample points. Trainees who performed satisfactorily in the training programme were selected as interviewers, while the remainder were retained to assist in office operations. During this period, field editors and team supervisors were provided with additional training in methods of field editing, data quality control procedures, and fieldwork coordination.

Fourteen interviewing teams carried out the fieldwork for the 2005-06 ZDHS. Each team consisted of one team supervisor, one field editor, three or four female interviewers, two or three male interviewers, and one driver. In total, there were 14 team supervisors, 14 field editors, 44 female interviewers, 43 male interviewers, 24 data capture clerks, and 14 drivers. Nine permanent senior CSO staff coordinated and supervised fieldwork activities. Data collection took place over a seven-month period, from August 2005 to February 2006.

### 1.4.5 Data Processing

All questionnaires for the 2005-06 ZDHS were returned to the CSO for data processing, which consisted of office editing, coding of open-ended questions, data entry, and secondary editing of computer-identified errors. The secondary editing involved checking and, if necessary, resolving inconsistencies in the data identified by the editing program. The data were processed in two shifts by a team of 24 data entry clerks, 2 data editors, 2 data entry supervisors, and administrators to receive and check the blood samples from the field. Data entry and editing was accomplished using the software package CSPro.

Fourteen microcomputers were used for data processing. These were networked via a local area network connection to allow greater control by supervisors over the data entry process and to increase the security of the data. This also facilitated updating data entry software from a single location without interrupting data entry, and the ability to perform automatic daily backups of the data files. Twelve computers were used for data entry, while the other two computers were reserved for supervisory duties. Supervisor computers were used for the allocation of batches to operators, secondary editing, and scanning of DBS barcodes.

Data processing commenced in September 2005 and, after data collection was completed in February 2006, a second shift comprising 12 operators and 2 supervisors (drawn from field interviewers/editors with computer experience) was introduced to speed up data entry. There was 100 percent verification (re-entry) of all questionnaires so as to maximize the quality of the data and to reduce the secondary editing process. Secondary editing was completed in March 2006. The final data cleaning was performed for two weeks in May 2006, after which the tables for preliminary results were generated from the imputed raw data.

### 1.4.6 Response Rates

Table 1.3 shows response rates for the 2005-06 ZDHS. A total of 10,752 households were selected for the sample, of which 9,778 were currently occupied. The shortfall was largely due to some households no longer existing in the sampled clusters at the time of the interview. Of the 9,778 existing households, 9,285 were successfully interviewed, yielding a household response rate of 95 percent.

In the interviewed households, 9,870 eligible women were identified and, of these, 8,907 were interviewed, yielding a response rate of 90 percent. Of the 8,761 eligible men identified, 7,175 were successfully interviewed (82 percent response rate). The principal reason for nonresponse among both eligible men and women was the failure to find them at home despite repeated visits to the households. The lower response rate among men than among women was due to the more frequent and longer absences of men from the households.

Table 1.3 Results of the household and individual interviews

Number of households, number of interviews, and response rates, according to residence, Zimbabwe 2005-2006

Result	Residence		Total
	Urban	Rural	
<b>Household interviews</b>			
Households selected	3,455	7,297	10,752
Households occupied	3,248	6,530	9,778
Households interviewed	3,056	6,229	9,285
Household response rate	94.1	95.4	95.0
<b>Interviews with women</b>			
Number of eligible women	3,763	6,107	9,870
Number of eligible women interviewed	3,203	5,704	8,907
Eligible women response rate	85.1	93.4	90.2
<b>Interviews with men</b>			
Number of eligible men	3,421	5,340	8,761
Number of eligible men interviewed	2,459	4,716	7,175
Eligible men response rate	71.9	88.3	81.9