

# Rwanda - Integrated Household Living Conditions Survey 2005-2006

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## Overview

### Identification

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**ID NUMBER**

RWA\_2005-2006\_EICV\_v01\_M\_ILO

### Version

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**VERSION DESCRIPTION**

Version 01

### Overview

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**ABSTRACT**

The Household Living Conditions Survey, also known as Enquête Intégrale sur les Conditions de Vie des Ménages (EICV) in French, was conducted by the Statistics Department of the Ministry of Finance and Economic Planning. The survey was primarily intended to provide policy planners and decision-makers with basic data on household living standards in Rwanda. The objectives of the EICV 2005 are to provide information on poverty and living conditions in Rwanda and to monitor changes over time as part of the ongoing monitoring of the Poverty Reduction Strategy and other Government policies.

The results of the EICV 2005 will be compared with the results of the EICV 2001 and the content of the questionnaire will be broadly similar to that of the previous survey. In addition the survey will provide data on household income and expenditures which can be used for updating the weights and market basket for the Consumer Price Index (CPI) and components of the national accounts. Survey data on agricultural activities have also proved to be important for national accounts and will complement information provided by future agricultural and rural sector surveys.

**KIND OF DATA**

Sample survey data [ssd]

**UNITS OF ANALYSIS**

- Household
- Individual
- Commodity (for GDP computation)

### Scope

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**NOTES**

The information gathered during the survey will be used primarily to provide information on assorted household and personal level characteristics which can be analyzed vis a vis the household's consumption. The primary household and person characteristics that are gathered in this survey in order to provide relevant indicators are:

- School attendance and literacy. This includes information to compute net and gross enrollment rates
- Health and fertility. Some indicators such as maternal mortality are outside the scope of the survey. In this case, a more appropriate survey like the DHS may be recommended
- Migration
- Employment and economic activity.
- Land ownership and other agricultural based indicators.

The survey is also designed to provide important information for the computation of National Accounts and rebasing the Consumer Price Index.

**TOPICS**

Topic	Vocabulary	URI
Economic Policy	ILO	
Education	ILO	
Environment	ILO	
Health	ILO	
Household Income	ILO	
Employment	ILO	
Unemployment	ILO	
Informal Work	ILO	
Other Work Activities	ILO	
Gender	ILO	
Migration & Remittances	ILO	
Agriculture & Rural Development	ILO	
Land (policy, resource management)	ILO	

**Coverage****GEOGRAPHIC COVERAGE**

Complete national coverage which included all 11 former provinces (now 5 major provinces) and the City of Kigali.

**GEOGRAPHIC UNIT**

cell level

**UNIVERSE**

Household members (institutional and itinerant populations excluded).

**Producers and Sponsors****PRIMARY INVESTIGATOR(S)**

Name	Affiliation
National Institute of Statistics of Rwanda	Government of Rwanda

**FUNDING**

Name	Abbreviation	Role
Department for International Development	DfID	Bilateral funding assistance
World Bank	WB	Financial assistance
United Nations for the Children	UNICEF	Financial assistance
United Nations for Development Program	UNDP	Financial assistance
ADB	ADB	Financial assistance

**OTHER ACKNOWLEDGEMENTS**

Name	Affiliation	Role
Oxford Policy Management	DFID	International Technical Assistance
MINECOFIN	Government of Rwanda	Primary user of data (EDPRS)

## Metadata Production

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**METADATA PRODUCED BY**

<b>Name</b>	<b>Abbreviation</b>	<b>Affiliation</b>	<b>Role</b>
Department of Statistics	ILO	International Labour Organization	Producer of DDI

**DATE OF METADATA PRODUCTION**

2017-10-19

**DDI DOCUMENT ID**

DDI\_RWA\_2005-2006\_EICV\_v01\_M\_ILO

# Sampling

## Sampling Procedure

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The sampling frame for the EICV1 was based on the data and cartographic materials from the 1991 Rwanda Census of Population and Housing, while the EICV2 was based on the 2002 Rwanda Census frame. There were significant changes in the areas considered urban between the two censuses, but these geographic changes are taken into account in the comparative analysis between the EICV1 and EICV2 data. The sample design for EICV1 is described in the report on *Enquête Intégrale sur les Conditions de Vie des Ménages (Avec Volet Budget - Consommation) - Plan de Sondage*" (Scott, July 1997). A detailed description of the EICV2 sample design is found in the report on *Recommendations on Sample Design and Estimation Methodology for the Rwanda Enquête Intégrale sur les Conditions de Vie des Ménages 2005*. (Megill, June 2004).

A stratified two-stage sample design was used for both the EICV1 and EICV2. The primary sampling units (PSUs) were the enumeration areas or zones de dénombrement (ZDs) defined for the census. The sample of ZDs in each stratum was selected with probability proportional to size, where the measure of size was based on the number of households from the census frame. A new listing of households was conducted in each ZD, and a sample of households was selected at the second sampling stage. The units of analysis are the households and the individual members of the household. One of the objectives of EICV1 and EICV2 was to provide reliable estimates of household consumption and other characteristics at the level of the 12 old provinces, as well as at the national level, City of Kigali, other urban and rural. Later the country was divided into five new provinces; given the larger size of the new provinces, the corresponding estimates will have better precision than those at the old provincial level.

### Stratification

The stratification of the sampling frame for both EICV1 and EICV2 was designed to improve the efficiency of the sample design and ensure a sufficient sample size for the major geographic domains of analysis. The sampling frame for these surveys was stratified by the 12 old provinces, as well as by urban and rural areas. At the national level three residential strata were defined: (1) City of Kigali, (2) other urban, and (3) rural. In the case of EICV1, the ZDs in the urban and rural strata for each province were ordered geographically to provide a corresponding implicit stratification.

In the case of the City of Kigali, there is a higher variability in socioeconomic characteristics compared to the other domains. Therefore a socioeconomic stratification was defined for the ZDs in the EICV2 sampling frame for the City of Kigali, using an indicator of bien-être (well-being) based on housing characteristics in the 2002 Rwanda Census data. The ZDs were coded by four socioeconomic quartiles, and this was used as a sorting variable to provide a corresponding implicit stratification. A new stratification code for "semi-rural" was introduced into the sampling frame for EICV2 to identify urban ZDs with at least 70 percent of households with agricultural operations (based on the 2002 Rwanda Census data). This "semi-rural" code was used as one of the sorting criteria for the sampling frame of the City of Kigali and the other urban stratum in each province. Within each stratum, the ZDs in the sampling frame were further sorted geographically to provide an additional level of implicit stratification.

Given that the rural economy is primarily agricultural, the socioeconomic characteristics of the rural households are generally correlated with the crop and livestock activities found in the different bio-climatic zones. Therefore the EICV2 sampling frame for rural strata was sorted by the ten bio-climatic zones as well as geographic codes to provide an effective implicit stratification.

### Sample size and allocation

The sample size for EICV1 and EICV2 was determined by the precision required for the survey estimates for each domain, as well as by the resource and operational constraints. The total sample size for EICV1 was 570 ZDs and 6,450 households. For EICV2 this sample size was increased to 620 ZDs and 6,900 households, in order to provide a larger sample for the urban strata. One reason for increasing the urban sample for EICV2 was because of the expansion of urban areas following the 2002 Rwanda Census. The effective sample size for EICV1 was actually 6,420 households, since 30 non-interviews were not replaced for this survey. Given that one of the objectives of these surveys was to produce reliable estimates for each of the 12 old provinces, a total of 40 sample rural ZDs was allocated to each province. A larger sample was allocated to the City of Kigali because of the larger variability of socioeconomic characteristics; 80 sample ZDs were selected in this domain for EICV1 and 100 ZDs for EICV2. In the case of the other urban strata, a sample of 50 ZDs for EICV1 and 80 ZDs for EICV2 were allocated to the 11 other provinces proportionately to their urban population.

Table A.1 presents the distribution of the sample for EICV1, and Table A.2 shows the corresponding distribution for EICV2.

For EICV1 the number of households selected per sample ZD was 9 for the City of Kigali and the other urban stratum, and 12 for the rural stratum. This was an effective sampling strategy given that the urban strata generally have more variability between ZDs and homogeneity of households within ZDs. This approach also provided a reasonable workload for the

enumerators in the urban and rural ZDs based on the data collection procedures each cycle. Therefore this same sampling strategy was used for EICV2.

#### Sample Selection Procedures

For both EICV1 and EICV2 the ZDs within each stratum were selected systematically with probability proportional to size, where the measure of size was based on the number of households in the ZD from the corresponding census frame (1991 for EICV1 and 2002 for EICV2). Following a new listing of households in the sample ZDs, at the second stage 9 sample households were selected systematically in each sample urban ZD and 12 sample households were selected in each rural ZD. This sampling strategy provided an approximately self-weighting sample (that is, the sampling weights were similar) within each stratum. A sample of possible replacement households was also selected systematically within each sample ZD. Whenever an original sample household

## Deviations from Sample Design

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As indicated, any household that was not interviewed as per the original listing and selection was replaced with a reserve household. Each EA had 4 households on reserve. A total of 522 households were replaced over the course of the survey. In addition, several EAs were swapped from their scheduled cyclic visit due to seasonal accessibility problems.

#### Cluster From To

337.....Cycle 6.....Cycle 2  
 364.....Cycle 8.....Cycle 2  
 131.....Cycle 6.....Cycle 3  
 269.....Cycle 5.....Cycle 3  
 270.....Cycle 5.....Cycle 3  
 264.....Cycle 3.....Cycle 5  
 271.....Cycle 3.....Cycle 5  
 132.....Cycle 3.....Cycle 6  
 327.....Cycle 2.....Cycle 6  
 362.....Cycle 2.....Cycle 8

## Response Rate

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Out of the 6900 household sample, 92.4% responded. All 7.6% of households that were not interviewed (for the reasons provided below) were replaced.

Reason for non-response.....	HHolds.....	percent
Yes.....	6378.....	92.4%
No, address not found or uninhabited dwelling.....	254.....	3.7%
No, change of residence.....	139.....	2.0%
No, sick or deceased.....	29.....	0.4%
No, refused.....	27.....	0.4%
No, other.....	73.....	1.1%
Total.....	6900.....	100.0%

The City of Kigali and the old province of Butare had the highest refusal rates with about 14% of the original selected households being replaced. The primary reason given for replacement was the inability to positively identify the dwelling (or the selected dwelling was found uninhabited).

## Weighting

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In order for the estimates from each survey to be representative at the national level, it is necessary to apply sampling weights to the survey data. The weights for the sample households were calculated as the inverse of the overall probability of selection, taking into account each sampling stage. Given the nature of the sample design and the new listing of households, the weights vary by sample ZD. An Excel spreadsheet with all the sampling frame information for the sample ZDs was used for calculating the weights, which were then attached to the corresponding records in the survey data files.

# Questionnaires

## Overview

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The questionnaires that were used for the survey were largely adapted from the EICV-1. However there were some substantial changes in structure particularly for the employment section. The questionnaire was subject to revision through a series of consultative meetings held in October 2004. The questionnaires remain predominantly structured with pre-coded responses. It should be noted that some of the response categories have changed between the EICV-1 and EICV-2 requiring a series of recodes for comparability.

The questionnaires were piloted in August 2005 and printed locally. Part A was color coded with a green cover and Part B was color coded with a pink cover. Questionnaire Contents (see external resource entitled: Questionnaires). The following are the primary sections of the questionnaire and associated data file in parentheses:

### PART A: General

-Section 0: Introductory Section (eng\_eicv2\_s0\_id): Contains introductory observations and records the response rate and replacement households as well as dates of the interview.

-Section 1: Demographics (eng\_eicv2\_s1\_demo): Contains general demographic information of the persons present at the household during the survey and makes a determination on who is a household member based on the appropriate selection criteria (see the variable description for household member for more information).

-Section 2: Education (eng\_eicv2\_s2\_education): All household members 6 years and over. Contains information on school attendance (current and past), expenditures, literacy etc.

-Section 3: Health (eng\_eicv2\_s3\_health): Contains 3 sub sections:

- a. general section for all household members including health expenditures
- b. fertility section for all female household members between the ages of 12-49
- c. vaccination section for all children 5 and under

- Section 4: Migration (eng\_eicv2\_s4\_migration): All household members 15 and over. This section identifies those persons who have moved into the district and provides information on mobility

- Section 5: Household characteristic (eng\_eicv2\_s5\_housing): All households responding to various questions on:

- a. ownership status
- b. household amenities
- c. rental payments and other household expenditures

- Section 5E: Access to services (eng\_eicv2\_s5e\_services): All households responding to nine sequentially ordered services.

- Section 6ABC: Employment Parts A,B,C (eng\_eicv2\_s6abc\_employment): All household members six years and over.

- a. Contains general filter questions to help determine employment status and sector of work
- b. employment search
- c. household chores.

- Section 6D: Employment listing (eng\_eicv2\_s6d\_employ\_roster): All household members six and over that are economically active. This is a listing of all occupations and time estimations dedicated to each occupation throughout the year in the last seven days.

- Section 6E: Salaried employment (eng\_eicv2\_s6e\_employ\_wages): All occupations in a household that are salaried. This section provides income and benefit information for all salaried employment.

- Section 6F: Non-remunerated work (eng\_eicv2\_s6f\_noremuner): All employments listed that are classified as non-remunerated work.

- Section 7: Non-farm Enterprise (eng\_eicv2\_s7\_enterprise): All non-farm independent occupations that are conducted by the household

### PART B: Agriculture and Expenditure

-Section 8A1: Livestock ownership (eng\_eicv2\_s8a1\_livestock): Contains household ownership of 8 sequentially ordered kinds of livestock -

-Section 8A2: Livestock products (eng\_eicv2\_s8a2\_livestock\_products): Contains household ownership of 7 sequentially ordered kinds of livestock products.

- Section 8A3: Expenditures related to livestock ownership (eng\_eicv2\_s8a3\_livestock\_expenditures): Contains household ownership of 9 sequentially ordered kinds of products related to livestock ownership.
- Section 8B: Assets related to agriculture activity (eng\_eicv2\_s8b\_ag\_assets): Contains household ownership of 13 sequentially ordered assets used to facilitate agricultural production.
- Section 8C: Individual plots of land (eng\_eicv2\_s8c\_ag\_plots): Contains information at the individual declared plot level related to size of holding and crop production
- Section 8D: Large scale or bulk agricultural production (eng\_eicv2\_s8d\_ag\_production1): Contains information regarding the harvest, sale, processing and own-consumption of crops harvested in bulk quantities. Products are listed as they are applicable and not pre-coded.
- Section 8E: Small scale or piecemeal agricultural production (eng\_eicv2\_s8e\_ag\_production2): This file contain information regarding the harvest, sale, processing and own-consumption of crops harvested in piecemeal fashion. Products are listed as they are applicable and not pre-coded.
  
- Section 8F: Other agricultural products (eng\_eicv2\_s8f\_ag\_other) Contains household ownership of 8 sequentially ordered items (like honey and wood foraging) defined as miscellaneous agricultural production.
- Section 8G: Inputs related to agricultural production (eng\_eicv2\_s8g\_ag\_expense): Contains household expenditure 14 sequentially ordered items primary agricultural inputs.
- Section 8H: Agricultural processing (eng\_eicv2\_s8h\_ag\_process): Contains information on the processing of various processed items. Products are listed by the household and not pre-coded.
- Section 9A1: Annual (infrequent) non food expenditure (eng\_eicv2\_s9a1\_nfood\_annual): This section contains annual expenditure information at the product code level of 68 sequential products.
- Section 9A2: Monthly (infrequent) non food expenditure (eng\_eicv2\_s9a2\_nfood\_month): This file contains monthly expenditure information at the product code level of 31 sequential products.
- Section 9A3: Frequent non food expenditure (eng\_eicv2\_s9a3\_nfood\_freq): This section contains information on 44 frequent non-food item purchases as reported during the time between enumerator visits. The periodicity of the visits varies between urban and rural areas with:
- Section 9B: Frequent food expenditure (eng\_eicv2\_s9b\_food): This section contains information on 144 frequent food item purchases as reported during the time between enumerator visits. The periodicity of the visits varies between urban and rural iwth:
- Section 9C: Availability of key items (eng\_eicv2\_s9c\_availability): This section contains information on the availability of 20 items considered as staples or critical for the household.
- Section 9D: Own consumption (eng\_eicv2\_s9d\_ex\_owncons):
- Section 10A: Transfers out of the household (eng\_eicv2\_s10a\_transfer\_out): This section contains a listing of individual transfers made by household members in the last 12 months.
- Section 10B: Transfers into the household (eng\_eicv2\_s10b\_transfer\_in) This section contains a listing of individual transfers received by household members in the last 12 months.
- Section 10C: Miscellaneous income and expenditure (eng\_eicv2\_s10c\_misc) : This file contains a combined listing of 24 sequential income and expenditure items made over the last 12 months. There are 14 revenue items and 11 expenditure items.
- Section 11A: Household Credit (eng\_eicv2\_s11a\_credit): This section contains a listing of individual loans received by household members in the last 12 months.
- Section 11B: Durable good ownership (eng\_eicv2\_s11b\_durables): This section contains information on the availability of 27 household durable goods.
- Section 11C: Household Savings (eng\_eicv2\_s11c\_savings): This section contains a listing of individual savings held by household members in the last 12 months.

#### PART C: Community Questionnaire

- Section 0: Introduction (eng\_eicv2\_com0\_intro): This section contains the date of the interview.
- Section 1: Migration patterns (eng\_eicv2\_com1\_migration): This section contains information on migration patterns into and out of the community (cluster).
- Section 2: Economic activity (eng\_eicv2\_com2\_econactivity): This section contains information on the cluster's predominant livelihood. It also contains information on community services and access to these services: roads, utilities, public transport etc.
- Section 3: Access to school (eng\_eicv2\_com3\_education): This section contains information on the cluster's access to school and other educational institutions. It also provides some data on school facilities.
- Section 4: Health (eng\_eicv2\_com4\_health): This section contains information on community health problems, services and access to services.
- Section 5: Agriculture (eng\_eicv2\_com5\_agri) (eng\_eicv2\_com6\_ivestock) (eng\_eicv2\_com7\_ag\_extension) : This section contains information on coded products and agriculture activity related to the community, livestock and access to agricultural community services.
- Section 6: Community Services (eng\_eicv2\_com8\_comm\_service): This section contains information of the existence of community services such as: churches, mosques, markets, health centers etc.

-Section 9: Market survey (eng\_eicv2\_com9\_market) This section contains price and product information as collected (and available) at the local market.

NOTE: All codes are sequential for all the precoded sections. There is not standard coding schem provided.

## Data Collection

### Data Collection Dates

Start	End	Cycle
2005	2006	N/A

### Time Periods

Start	End	Cycle
2005-10-12	2006-10-03	N/A

### Data Collection Mode

Face-to-face [f2f]

### Data Collection Notes

- A listing of households was undertaken of the selected EAs in the sample. This exercise began in June 2005. Three months were required to list the households in the EAs.
- Vehicles were provided by DFID. They were transferred from another DFID project for use on the EICV.
- A four week training of enumerators was held in Ruhengeri. Of 114 applicants 94 were selected. This included the 16 controllers and 78 enumerators.
- Controllers were provided with a list of replacement households in the event of non-response. Four replacements were drawn for each cluster. These are identifiable in the data set as the end in multiples of 4. Households 4-8-12-16 indicate replacement households.

### Questionnaires

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## Data Collectors

Name	Abbreviation	Affiliation
National Institute of Statistics, Rwanda	NISR	Government of Rwanda

## Supervision

Urban and rural teams were organized. The allocation of teams were as follows:

Rural Areas: One rural team was set up for each of the 11 rural provinces. Each team consisted of one controller and 5 enumerators. A driver and vehicle was also assigned to each team.

Urban: 4 teams were set up for urban areas (Kigali and "other urban"). These consisted of a controller and 4 enumerators.

Monthly supervisory trips were conducted by central NISR staff to maintain control of the process. The field coordination was managed by one assigned and dedicated survey manager (Mr. Innocent Niyonsaba).

Personnel Required for the survey

Technical Project Manager 1 24 months

Technical Deputy Managers 2 24 months

Accountant 1 18 months

Secretary 1 24 months

Provincial Officers 12 24 months

Supervisors 16 17 months

Interviewers 98 14 months

Data Entry Operators 17 14 months

Drivers 22 14 months (includes central supervision)

Data Entry Supervisor 1 18 months

Data Editors 6 15 months

Archivist 1 15 months

Vehicles, maintenance and fuel

Vehicles 23 4WD

Vehicle Rental for Listing 7 90 day

Other equipment

Core Team Desktops 5

Core Team Laptops 2  
Core Team printers 2  
Data Entry Computers 17  
Verifiers and Editors Computers 6  
Photocopier 1  
Fax machine 1  
Survey material (boots, umbrellas, etc.) 120  
Cell Phones 15

## Data Processing

### Data Editing

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Data Editing (see external resource entitled: Final Data Processing Report) Questionnaires were reviewed by the controller in the field before they were dispatched for data entry. A control sheet was provided to the controllers to assist in the process of manually editing the questionnaires. Questionnaire structures were verified when the questionnaires were checked in prior to data entry. Three contracted persons reviewed the questionnaire and filled in a form that served as a primary data control sheet. Automated data editing was largely done during the data entry phase (see "Other Data Processing" for details). Some batch edit programs were used to identify inconsistent data.

#### Data Imputation

Data imputation was largely done during the analysis phase by analysts. However, a "structural" imputation on the microdata was required for the own consumption data. This was done to adjust for erroneous pricing when the unit for measuring own consumption was buckets. For more information, please refer to the SPSS su=yntax files or the data processing report.

#### Primary Data Issues

Coding of products was based on sequential codes for each section. Sequential coding was used to correlate the indexed position of the item for locating the record in the data processing system with the actual row number or sequence. For the poverty study, a recode was done to expenditures to the EICV-1 codes. The recodes are available in the syntax files. However a general recode to standardize commodities to a standard (such as COICOP) was not done.

### Other Processing

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Data Entry (see external resource entitled: Final Data Processing Report) New systems and techniques were used to capture and edit the data for the EICV-2. Many improvements were implemented to the data entry system for the EICV-2. The EICV-1 used the DOS based software called IMPS for both data entry and data editing (CENTRY and CONCOR modules respectively). In addition, EICV-1 used various short term and intermittent consultant inputs for the design and implementation of the data processing system.

The first five months of the data entry process during the EICV-1 suffered greatly from a lack of quality control. This lack of cohesive support during both the design phase and initiation of the data processing system likely impacted the quality of the data despite attempts made to correct the system during mid-survey. For the EICV-2, long-term and continuous technical support was provided by the OPM consulting firm and better trained and more committed local supervisors followed through in implementing and maintaining the system. In addition and more importantly, the EICV-2 data processing activities followed quickly behind the processing of the DHS (Demographic and Health Survey). It was clearly advantageous to simply adapt the DHS data processing system for the EICV-2.

The DHS data processing system is a broadly used and dynamic system designed for use with the data processing software CSPro (Census and Survey Processing System). In fact, CSPro is designed with the DHS as its model survey. Furthermore, this system of managing the data processing activities is also being used by UNICEF to process the MICS. Applying a robust system and modifying it for use during the EICV-2 saved a great deal of time and effort in training and development. The staff was already familiar with the DHS data processing and editing system and porting the system to the EICV-2 over the long term and through the extent of the survey proved very useful. Some of the specifications that are used by the DHS, MICS and the EICV are:

- a. An integrated sample design control sheet used to check in questionnaires.
- b. A data entry system designed as "system control". A system controlled application is a very tight control system where the path of data entry cannot be circumvented by the data entry clerk. The path is fully programmed and must include: skips and pre-defined keys for: missing, other or incoherent data.
- c. Full double-entry for independent verification.
- d. A systematic control of data files from: primary-verified-raw-edit-final data files.
- e. Full reconstruction of the consolidated data file with the primary cluster file.
- f. All corrections done on the lowest ASCII cluster level.

The data entry was done centrally in the NISR headquarters. Activity was initiated in the old Census building in Remera on October 20. On December 16, 2006, the NISR consolidated its offices and moved the Census activities to its current location in the old MINIPLAN building. The move required the establishment of the new data entry operations in the new building and the transfer of all machinery to the building. This operation did not adversely affect the keying operations. The remainder of the survey was keyed in the MINIPLAN building. All computers were set up in a LAN with data being copied and written to the supervisor machines and backed up

daily.

The questionnaires were received and checked into a central repository. Data was entered by the cluster (9 urban questionnaires or 12 rural questionnaires). Two archivists managed the check-in and distribution of questionnaires to the data entry supervisors. A sample of the check-in forms is provided in Annex 1. Once the questionnaires were received and logged on a control sheet, the control sheet was entered in an automated control system by the data entry supervisors prior to being assigned to the data entry clerk. This system maintained by the supervisors assured that the sample design was strictly adhered to and that the coding and tracking of the questionnaires was properly initiated and followed. This system was built on the DHS control system and used CPro to manage the flow and assignment of the questionnaires. There was a 100% full independent double data entry of the questionnaires. This assured virtual certainty that inconsistencies found in the data were mostly due to errors and misreported items from the field. Average data processing time to process all three questionnaires related to a cluster was 21.3 days.

## Data Appraisal

### Estimates of Sampling Error

Given that the survey estimates are subject to sampling variability, it is important to calculate the sampling errors for the most important estimates from each survey. The sampling error is measured by the standard error, or square root of the variance of the estimate. The CENVAR software, a component of the Integrated Microcomputer Processing System (IMPS) developed by the U.S. Census Bureau, was used for tabulating the standard errors and other measures of precision, taking into account the stratification and clustering in the sample design. The CENVAR output tables show the value of the estimates, standard errors, coefficients of variation, 95 percent confidence intervals, design effects and number of observations. Given that the confidence intervals provide a user-friendly interpretation of the sampling variability, an annex was produced with tables showing the 95 percent confidence intervals for the most important estimates from the EICV1 and EICV2 data appearing in the preliminary report.

These tables provide a quick conservative test to determine whether any difference between the EICV1 and EICV2 estimates is statistically significant. The INSR was also provided with tables showing the full CENVAR results. The design effect is defined as the variance of an estimate based on the actual sample design divided by the corresponding variance based on a simple random sample of the same size; it is a measure of the relative efficiency of the sample design. In comparing the CENVAR results from EICV1 and EICV2, it was found that the design effects are generally lower for EICV2, indicating that the stratification used for this survey was very effective. Given that the EICV1 was based on an older sampling frame from the 1991 Rwanda Census, this also contributed to the higher design effects for the EICV1 estimates.



## Related Materials

### Questionnaires

#### Questionnaire

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Title Questionnaire  
 Author(s) National Institute of Statistics of Rwanda (NISR)  
 Date 2005-01-01  
 Country Rwanda  
 Language English  
 Filename RWA\_2005-2006\_EICV\_Questionnaire.pdf

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#### Questionnaire Communautaire

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Title Questionnaire Communautaire  
 Author(s) National Institute of Statistics of Rwanda  
 Date 2005-01-01  
 Country Rwanda  
 Language English  
 Filename RWA\_2005-2006\_EICV\_Questionnaire Communautaire.pdf

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### Reports

#### Report

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Title Report  
 Author(s) National Institute of Statistics of Rwanda (NISR)  
 Date 2006-12-01  
 Country Rwanda  
 Language English  
 Filename RWA\_2005-2006\_EICV\_Report.pdf

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#### Data Processing Report

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Title Data Processing Report  
 Author(s) National Institute of Statistics of Rwanda  
 Date 2007-03-01  
 Country Rwanda  
 Language English  
 Filename RWA\_2005-2006\_EICV\_Data Processing Report.pdf

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#### Review Mission Report

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Title Review Mission Report  
 Author(s) National Institute of Statistics of Rwanda  
 Date 2006-02-01

Country Rwanda  
Language English  
Filename RWA\_2005-2006\_EICV\_Review Mission Report.pdf

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## Technical documents

### Technical Note

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Title Technical Note  
Author(s) National Institute of Statistics of Rwanda (NISR)  
Date 2007-02-20  
Country Rwanda  
Language English  
Filename RWA\_2005-2006\_EICV\_Technical Note.pdf

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### Supervision de la saisie des donnees

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Title Supervision de la saisie des donnees  
Author(s) National Institute of Statistics of Rwanda  
Country Rwanda  
Language English  
Filename RWA\_2005-2006\_EICV\_Supervision de la saisie des donnees.pdf

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