

DEM 2110 SOURCES AND MEASURES OF DEMOGRAPHIC DATA

2020/2021





INTRODUCTION

- What is demography?
 - It is the scientific study of human population, including its size, distribution, composition, and the factors that determine changes in its size, distribution, and composition.
 - This definition shows a number of aspects of human population: *size; distribution; composition; population dynamics; and socio-economic determinants and consequences of population change.*
 - *In this course, we are interested in learning about the sources of data.*





INTRODUCTION

- Demographic data covers demographic processes and events such as *births, deaths, migration, marriage and divorce, etc.*
 - It also includes a wide range of information on population characteristics such as *age, sex, marital status, etc.*
- Socio-economic data includes *education level, housing, occupation, etc.*
 - *What other examples can you give of demographic data; socio-economic data?*





INTRODUCTION

- Adequate planning is a pre-requisite to efficient utilization of resources, which are limited amidst many human needs.
- Planning requires knowing the size, composition and distribution of the population as well as its characteristics.
- Population data also needs to be available and reliable.





INTRODUCTION

Questions

What are the main sources of demographic and socio-economic data?

- *What other sources can we obtain demographic and socio-economic data?*
 - a) What concepts and measures of demographic and socio-economic data do you know?
 - b) How do we present results required for purposes such as planning, research, business, etc.?





Main Sources of Demographic and Socio-economic Data

1. The Census





Learning objectives

- At the end of the lessons on the census, you should be able to demonstrate knowledge of:
 - population and housing census
 - essential features of a census
 - census methodological approaches
 - the elements and activities in census planning and organization
 - factors to consider when determining census topics
 - topics investigated in the census
 - uses of census data
 - advantages and disadvantages of census
 - cross-cutting and emerging issues in data
 - development indicators and data source





CENSUS

- Census simply refers to the official count of a population.
- Census is the primary source of data on the size, distribution, composition, social and economic characteristics of the entire population.
- Census is the single largest source of data for population all over the world.





Definition

- **Population census**
- Is the total process of collecting, compiling, evaluating, analyzing and publishing or otherwise disseminating demographic, economic and social data pertaining, at a specified time, to all persons in a country or delimited part of a country (UN, 2008).





Definition

- **Housing census**
- Is the total process of collecting, compiling, evaluating, analysing and publishing or otherwise disseminating statistical data relating to the number and condition of housing units and facilities as available to the households pertaining, at a specified time, to all living quarters and occupants thereof in a country or in a well delimited part of a country (UN, 2008).





Historical background

- Enumerations in the Bible - Exodus time in 1491 BC; order of King David in 1017 BC.
- Egypt in 3000 BC; at least 5800 years ago in Babylonia, China, Palestine and Rome.
- Rome - Citizens and their property inventoried every five years for taxation and military purposes.
- England - the Domesday inquest ordered by William I of England in 1086 covered household heads and their wealth, rather than of all people.





Historical background

- Purpose and population coverage of pre-modern census
 - To determine fiscal, labor, and military obligations
 - Were usually limited to heads of households, males of military age, taxpayers, or adult citizens
- These censuses seldom counted women and children





Historical background: modern census

- Modern census dates back to the 17th and 18th centuries in Europe.
 - But hard to say when first modern census was undertaken as these censuses were deficient in some important respects including conflicting definitions.
- Nouvelle France (later Quebec) and Acadia (later Nova Scotia) had enumerations between 1665 and 1754 respectively.
- Sweden's census of 1749 - sometimes regarded as the first, but those in some of the Italian principalities (Naples, Sicily, etc.) go back into the 17th century.





Historical background cont..

- Spain - first true census in 1798, United States (US) in 1790, with England and France in 1801.
- Russia attempted a census in 1802, but failed to establish a working system until 1897.
- Though Norway had been performing population counts since 1769, its first complete census was not conducted until 1815.
- Greece had a census in 1836, Switzerland in 1860, Italy in 1861 and 1881 in Australia.





Historical background: Summary

- Earlier household canvasses or population registration often had to continue for a long time but today, census enumeration can be conducted within a month.
- The combination of public confidence, administrative experience, and technology are able to produce counts that meet modern standards of completeness, accuracy, and simultaneity.
- Countries have also expanded and strengthened the capabilities of their statistical offices, including activities related to information on population.





Historical background: Summary

- The 19th century censuses changed their scope to meet other administrative needs as well as the needs of business, labour, education, and academic research.
- Most countries have started to undertake population censuses, as well as housing, agricultural censuses, etc.
- Definitions of subjects, methods of data collection and aggregation, even language can all present problems in interpretation and use of census data.
 - To address these shortcomings, the UN has set principles and recommendations for census undertaking and to enable international comparability.





Key terms

- The terms below will come up often in our lessons, therefore look up the definitions.
 - Household
 - Household head
 - Usual household member

Reference: CSO, 2010 Census of Population and Housing National Analytical Report

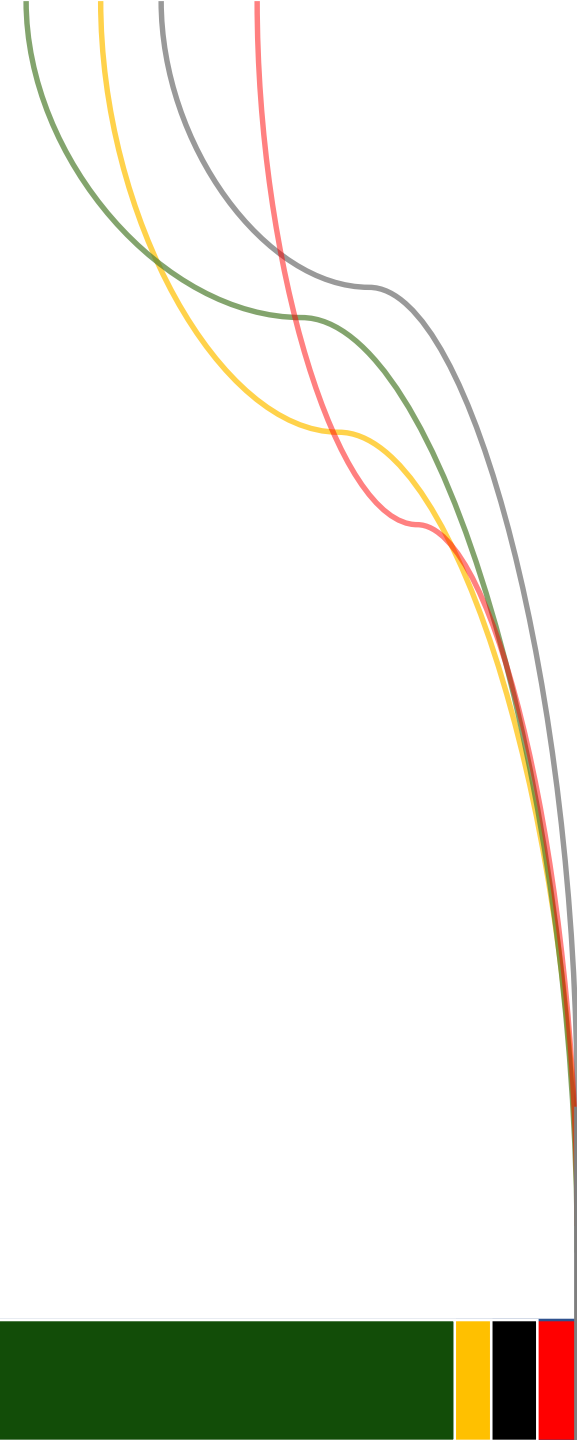
- Living quarters*





Essential features of census

- 1) Individual enumeration
- 2) Universality within a defined territory
- 3) Simultaneity
- 4) Defined periodicity
- 5) Capacity to produce small-area statistics





Individual Enumeration

- Each individual and each set of living quarters is enumerated separately and that the characteristics thereof are separately recorded.
- Only by this procedure can the data on the various characteristics be cross-classified.





Universality within a Defined Territory

- The census should cover a precisely defined territory, such as the entire country or a well-delimited part of it.
- The population census should include every person present and/or residing within its scope, depending upon the type of population count required, i.e. *de facto* or *de jure* population count.





De facto and de jure population

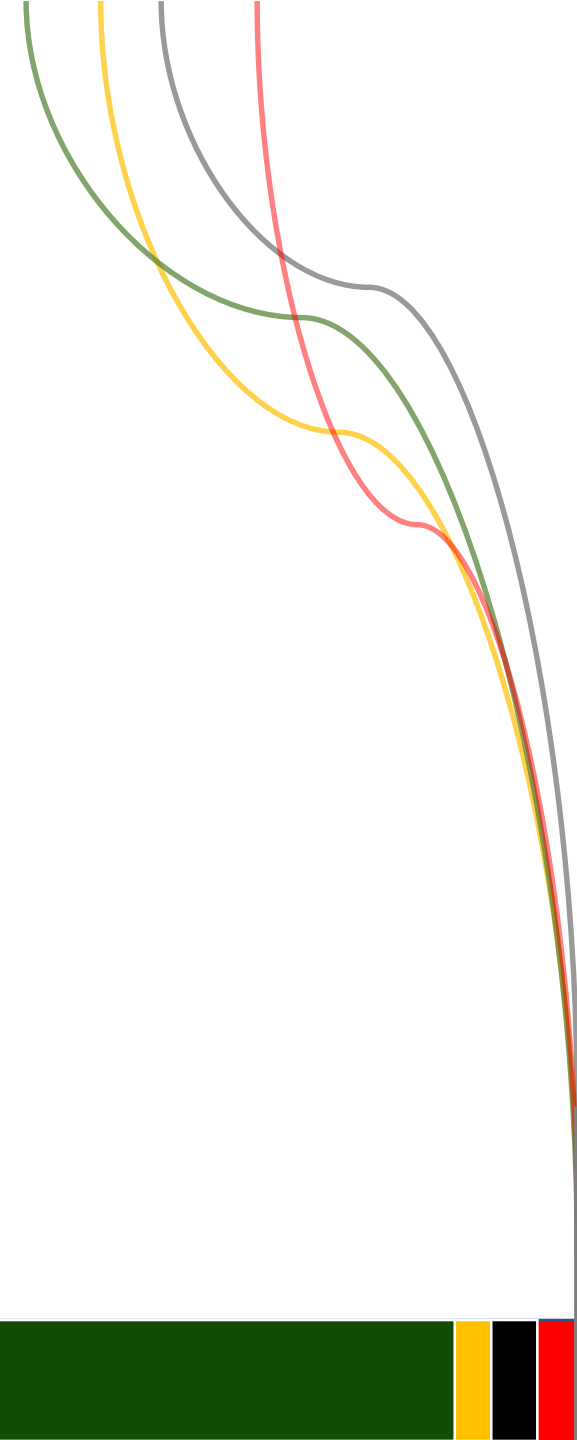
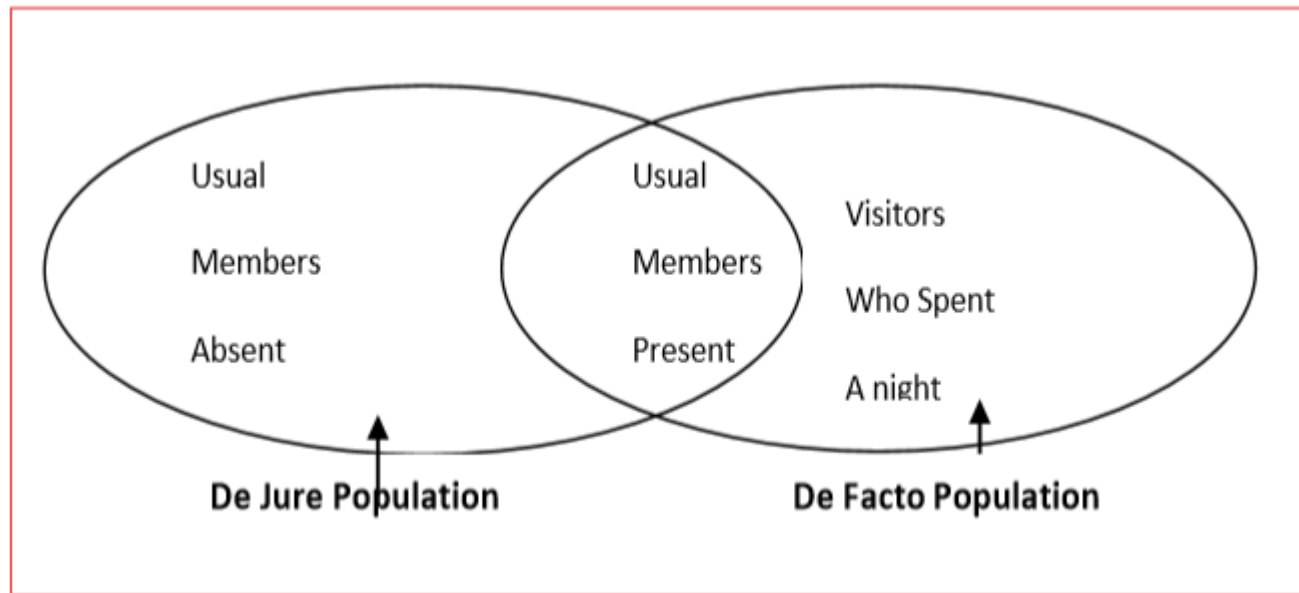
- **De facto population:** refers to household members and visitors who spent the census day/night at a household.
- **De jure population:** refers to usual household members present and usual household members temporarily absent at the time of the census.

• *Source: CSO, 2010 Census of Population and Housing*





De jure and de facto populations





Simultaneity

- Each person and each set of living quarters/household *should be enumerated as of the same well-defined point in time* and the data collected should refer to a well-defined reference period.
- Worthing note is that, the *time-reference period* need *not* be *identical* for *all of the data collected*. This means that
 - *Some of the data will refer to the census day while*
 - *for other data it may be a period prior to the census day (e.g. 7 days, 12 months)*
 - *Examples?*





Defined Periodicity

- Censuses should be taken at regular intervals so that comparable information is made available in a fixed sequence.
- It is recommended that a national census be taken at least every 10 years.
- *A series of censuses makes it possible to appraise the past, accurately describe the present and estimate the future.*





Capacity to produce small-area statistics

- Census should produce data on the number and characteristics of the population and housing units down to the lowest appropriate geographic level.
- Protecting confidentiality of personal information on each individual is very important.





CENSUS METHODOLOGICAL APPROACHES

- **The traditional census approach**
- Involves collecting information from individuals and households on a range of topics at a specified time.
- Members of the public are required to respond to a census questionnaire either by **self-enumeration** or **canvasser method**.
 - Respondent is usually the head of the household; in the absence of such a person, any knowledgeable adult household member is interviewed.
 - Respondent provides separate information for each individual in the household.
 - Enumeration is usually in a short period of time- to meet universality and simultaneity features





The traditional census approach

- Can make use of a single long form or a combination of the short and long form.
 - **Short form:** All persons within the defined territory who meet the coverage rules are enumerated.
 - **Long form:** Households and persons are sampled and surveyed on detailed questions on a particular topic in addition to covering complex topics.
- Both forms are utilized during the same time frame of the census.





The traditional census approach

- **Advantages:** providing a snapshot of the characteristics of the entire population at a specified period;
 - the availability of data for small geographic domains.
- **Disadvantages:** most elaborate, complex and costly data collection activity;
 - usually mounted only once every 5 or 10 years, hence census data are often several years out of date.





The Register-based approach

- Concept emerged in the 2000 round of censuses, but has been debated and tested since the 1970s, was used by some countries in the 1990 round of censuses.
- Approach takes advantage of existing administrative sources, i.e. different kinds of registers, but of primary importance are households, dwellings and individuals.
- These are linked at the individual level with information on business, tax, education, employment and other relevant registers.





Essential Preconditions

- 1) A country should have an established central population register of high quality and good coverage linked with a system of continuous updating;
 - 2) Harmonized concepts and definitions when linking registers;
 - 3) Existence of a unique identification number for each individual, household and dwelling to allow more effective and reliable linking of records from different registers;
 - 4) Legal environment that permits sharing of information from registers.
- *If these conditions are not met, a country should rely on the population census as the primary source of data.*





The Register-based approach

- **Advantages:** reduced cost, reduced response burden and greater frequency of data.
- **Disadvantages:** establishing and conducting administrative registers involve higher costs than the census;
 - can only produce characteristics of the population based on variables that are available in the registers;
 - registers in some countries are legally restricted to use for another purpose, such as making statistics.





Rolling census approach

- A “rolling census” is a continuous cumulative survey covering the whole country over a long period of time (e.g. years) rather than on a particular day or short period of enumeration.
- It is possible to build a sample framework in order to produce;
 - 1) national results with one annual survey,
 - 2) regional results by cumulating three annual surveys, and
 - 3) small area results by cumulating data over five years
- Annual surveys may be conducted over the full course of the year or in a particular month or other shorter time frame.





The traditional enumeration with yearly updates of characteristics

- Focuses on counting the population and collecting only the basic demographic data in the census year.
- It comprises **full field enumeration** every ten years using a **short form**, combined with a large **household sample survey** conducted on an annual basis using a **long form**.
- This survey collects and tabulates detailed demographic, social, economic, and housing data every year throughout the decade from a sample of the population.





Exercise

- 1) A man has three wives, two of whom stay on their own.
 - How many household heads are to be interviewed?
 - Give reasons for your answer

- 2) What are the advantages and disadvantages of each type of population count?
 - What determines the choice of population count to use?

- 3) State ways in which confidentiality of personal information could be violated when it comes to production of statistics?
 - In what ways can confidentiality of personal information be protected?





Census Planning and Organization

- A census is one of the most expensive data collection exercises undertaken by a country as it includes training, printing materials, remuneration, etc.
- There is need to take precautions so as not to waste the limited resources.
- To ensure success of the census operation, careful planning and organisation is needed.
- Some census activities are done several years before actual enumeration dates.





Census Planning and Organization

- Censuses do not follow the same pattern among different countries, but they have certain major common elements that need to be taken into account.
- These elements are;
 - 1) *Preparatory work*
 - 2) *Enumeration*
 - 3) *Data processing*
 - 4) *Dissemination of the results*
 - 5) *Building of databases*
 - 6) *Evaluation of the coverage and data quality*
 - 7) *Analysis of the results*





1) PREPARATORY WORK

- Preparatory work for census is long and involves many activities.
- These activities (shown below) may be interrelated or overlap.

1. *Legal basis*
2. *Finances and budget*
3. *Census calendar*
4. *Administrative organization*
5. *Communication and publicity*
6. *Quality assurance plans and improvement*
7. *Mapping*
8. *Small-area identification*
9. *Household listing*
10. *Tabulation programme and database design*
11. *Questionnaire preparation*
12. *Census pre-test*
13. *Plan of enumeration*
14. *Plans for data processing*
15. *Plans for census outputs and results dissemination*
16. *Staff recruitment and training*
17. *Avoiding gender biases and biases affecting data on minority populations*





Legal Basis

- Legal authority is required to conduct a census and ensures;
 - fixing administrative responsibility,
 - obtaining the necessary funds,
 - determining the general scope and timing of the census,
 - placing a legal obligation upon:
 - ✓ *the public to cooperate and give truthful answers, and*
 - ✓ *an enumerator to record the responses as accurately as reported, and guarantees confidentiality*





Finances and Budget

- Censuses are costly; may be postponed, cancelled or compromise on quality of the census operations owing to funding constraints.
- Need to draft a detailed list of all census activities and budget should correspond to each of these activities, taking into account inflation.
- Adequate funds should be mobilized timely; national statistical agency should present the census plan and budget to their government with adequate time.
 - Stakeholders such as international donors and the private sector play a vital role in census funding.





Census Calendar

- Indicates the sequence and estimated dates and duration of each of the activities of the census.
 - It serves as a guide for measuring the progress of each stage of the census operation.
- Any modifications in the census calendar, should take into consideration all operations in order to avoid disruptions in the whole census programme.
- Census calendar should show pre-enumeration, enumeration and post-enumeration operations.
 - Give examples of activities under each of these operations





Administrative Organization

- Refers to the various executive and advisory organs that need to be in place.
- Committees maybe composed of representatives of governmental and non-governmental agencies (i.e. users of the census data).
- The advisory and promotional functions should be clearly defined but the responsibility for planning and execution of the census is with the executive agency.
 - Give examples of committees and their functions





Communication and Publicity

- A comprehensive programme of communications for a census covers three distinct audiences:
 - 1) *major users of census data;*
 - 2) *persons and institutions participating in the census; and*
 - 3) *the general public.*
- Good communications and publicity campaign messages should among others:
 - ✓ *make people aware of the census;*
 - ✓ *tell people about the benefits of the census (to them & to the country);*
 - ✓ *remind people about their legal obligation and duty to take part in the census if they persistently refuse to do so;*





Quality Assurance Plans and Improvement Programme

- A different set of persons are employed on a temporary basis for each of the census operations, thus quality of work is likely to vary from person to person, from one area to another, etc.
- Therefore, quality assurance and improvement system should be established at all phases of the census operations.
 - This helps to detect errors so that remedial actions can be taken even as the census operations continue.
- If data are of poor quality, decisions based on them can be costly and the credibility of the entire census may be questionable.
- Aspects of data quality include: relevance, accuracy, timeliness, accessibility, interpretability, coherence.





Mapping

- Maps enable the boundaries of areas to be clearly defined.
 - ✓ *Guide enumerators to households and other places where people are likely to be during the enumeration period and ensure full and unduplicated coverage of geographic areas.*
 - ✓ *Should be provided to every level of field staff depending on where they will be deployed to.*
- The quality of maps used has a major influence on the quality and reliability of census data.
- Maps can either be produced as hand-drawn maps of enumeration area, or digital such as aerial photography, Satellite images and Global Positioning Systems (GPS) and Geographic Information Systems (GISs).





Small Area Identification

- Plan for the lowest level of census geographic tabulations.
 - ✓ This has to take into account the data needs of the public and private sector.
- Lowest level of enumeration is called an enumeration area (EA).
- The size of EA varies between rural and urban areas (e.g. range from 80-120 households and 150-200 households respectively) but is big enough for an interviewer to handle during the period of enumeration.





Household Listing

- There is need for a list of living quarters, structures containing living quarters or households that are available at the start of the census.
- The uses of such as list include:
 - ✓ *determining the EAs;*
 - ✓ *aids in the control of the enumeration, particularly in the absence of adequate and updated maps;*
 - ✓ *estimating the number of enumerators and other census materials needed in an area; and*
 - ✓ *estimating the time required for the enumeration.*





Tabulation Programme and Database Design

- Data users should be consulted on the specific cross tabulations required and the relative priority for their production.
- Publication time and costs, and the data-processing resources available, will determine the number and complexity of the tabulations that can be produced within a reasonable time.
- Once the census database has been produced by recording, editing and correcting the raw data, tabulation software packages can be introduced.





Questionnaire Preparation

- Designing the questionnaire should consider:
 - ✓ *method of enumeration*
 - ✓ *type of questionnaire*
 - ✓ *arrangement of the questions*
 - ✓ *the processing techniques to be employed*
 - ✓ *the data to be collected*
- Questions should be free from ambiguity and not offensive
- There is need to translate the questionnaire into the main local languages used in the country





Census Pre-test

- Is the testing of the various census procedures prior to actual enumeration.
- Questionnaire tests - this tests the suitability of intended census questions, their formulation and the instructions provided.
 - ✓ Also helps in estimating the time requirements in enumeration.
- Pre-test should as closely as possible test all the stages of the census, i.e. preparatory, enumeration and processing stages.
 - ✓ This is to ensure that it tests the adequacy of the entire census plan and of the census organization.
- A comprehensive test of all census procedures is often called a “pilot census”.





Plan of Enumeration

- Complete enumeration plan should be prepared before the enumeration begins. Plan includes:
 - ✓ *determination of the enumeration method;*
 - ✓ *basic procedures to be followed in collection of data;*
 - ✓ *Estimation of the number of enumerators and supervisors needed;*
- Decision of the method of enumeration to be employed should be made at an early stage,
 - because it affects the budget, training programme, questionnaire design and, to some extent, the kind of data that can be collected.





Plans for Data Processing

- Data processing is the transformation of collected raw data into meaningful information for it to be useful.
- Plan for data processing need to be formulated in the preparatory stages of the census and at an early stage in the planning.
 - It should incorporate *equipment, computer software, staff*.
- It includes plans for compilation of *preliminary results, preparation of tabulations, evaluation of census results, etc.*





Plans for evaluation of census results

- The quality of census data is very important for many reasons.
- The purpose of census evaluation is to provide users with a level of confidence when utilizing the data, and to explain errors in the census result.
- A census is not perfect and that errors can and do occur at all stages of the census operation. Thus, the need to evaluate the quality of the census results.
- Errors in the census results can be classified into two general categories, called?
- Methods used to evaluate census results include: demographic methods; post enumeration surveys; and comparison of census data with results of existing household surveys and previous census results.
- A census evaluation programme should be planned and developed in the planning phase of the census.





Plans for Census Outputs and Dissemination

- Census is only complete when results are made available to potential users.
- Plan for census outputs should be guided by early user consultations to ensure data and information meets with user needs and demands.
- Printed publications are the most used mode for dissemination.





Staff Recruitment and Training

- ✓ Need early recruitment of staff.
- ✓ Recruit and train more staff than is required to cater for attrition.
- ✓ Training includes both theoretical and practical instruction, with emphasis on the latter through role-playing exercises.
 - ✓ Training should be carried out daily for a fixed period.
- ✓ Trainers should have relevant qualifications and experience.





Avoiding gender biases and biases affecting data on minority populations

- Gender-based stereotypes can introduce serious biases in census data and the conclusions drawn from these data.
- Preparatory stages of the census can help to minimize gender-based biases.
 1. **Census content** - what information is sought and how, definitions and classifications used, and the manner in which databases and tabulations are specified.
 2. **Census operations** - in selection, training and supervision of the field staff - recruit both male and female staff.





Avoiding gender biases and biases affecting data on minority populations

- There is also a possibility of stereotypes and biases affecting data on minority population groups (e.g. ethnic, racial and religious minorities, etc.).
- Representatives of these minority groups have to be consulted when planning the census to provide important information and insights relevant to both census content and operations.
- For minority populations living in isolated settlements, consultations are critical for minimizing underenumeration among these populations.





2) ENUMERATION

- There are two methods of enumeration.

1) **Householder method**

- In a housing unit being enumerated, the head of the household is given the responsibility of entering information in the census questionnaire.
- Information is provided for each individual
- Questionnaires are distributed (either by post or dropped by enumerators) and checked by census officials.
- Internet or postal distribution of the census questionnaire can be used exclusively, or combined with checking by a census official.





1) Householder method cont..

Advantages: Used in countries where literacy is almost universal and educational attainment relatively high.

- ✓ Allows for consultations among family members when they complete the census form, at no extra cost to the census organisations.
- ✓ Considerably lower costs, particularly when the mail-out/mail-back procedure of distribution is used extensively.

Disadvantages: Most effective only if a high percentage of the population is literate.

- ✓ Postal services may be used only when a comprehensive and up-to-date list of addresses is available.





2) Canvasser method

- Census officials are recruited and go round the assigned EA to collect and enter information in the census questionnaire for each individual and for each household.
 - ✓ The head of the household responds on behalf of household members

Advantages: Enumerators are thoroughly trained in census procedures and instructions, thus may increase the quality and consistency of the data

- ✓ Used in largely illiterate populations that may be unable to complete the census forms by themselves

Disadvantages: It is very expensive

- ✓ Misapplication of the rules by one enumerator can lead to misreporting in an entire EA, i.e. enumerator-induced bias





2) ENUMERATION CONT..

■ Place of enumeration

- ✓ De jure
- ✓ De facto

■ Timing and length of enumeration

- Time of the year to conduct the census depends on a number of factors:
 - ✓ Weather pattern (accessibility)
 - ✓ Period when people are most likely to be home
 - ✓ Peak agricultural seasons
 - ✓ Traditional festivals
 - ✓ It is desirable to keep the enumeration period short





3) DATA PROCESSING

- Collected data needs to be properly processed for it to be useful.
- Data is first checked for completeness, then it is coded.
- Data capturing is next, which involves converting information to a format to be interpreted by a computer.
- With advancement in technology, most national statistical offices no longer have to manually do data capturing from completed census questionnaires (paper). They make use of:
 - *Optical Mark Reading (OMR) technology - where the census form contains only tick-box responses;*
 - *Intelligent Character Recognition (ICR) technology- where responses are written-in.*
- Data is then edited, followed by tabulation and statistical software are used.





4) BUILDING DATABASES

- This is necessary to expand the usability of data.
- Building of databases involves the storage of data in computer form so as to satisfy internal and external users.





5) EVALUATION OF RESULTS

- The evaluation of census results is frequently cited as a requirement of a good census.
- Evaluation is a measure of census error and identification of the sources of error.
 - Its purpose is to provide users with an acceptable level of accuracy and confidence when utilizing the data, and to explain errors in the census result.
- Census errors may occur at any of the various stages of enumeration and processing.





5) EVALUATION OF RESULTS cont..

- **Coverage errors:** are the errors that arise due to omissions or duplications of persons or households in the census enumeration.
- Sources include:
 - ✓ Incomplete or inaccurate maps or lists of EAs
 - ✓ Failure on the part of enumerators to canvass all the units in the EAs
 - ✓ Duplicate counting
 - ✓ Persons refusing to be enumerated





5) EVALUATION OF RESULTS cont..

- **Content errors:** are errors in the characteristics of the persons enumerated in the census.
- Sources include:
 - ✓ incorrect reporting or recording
 - ✓ Enumerator errors in phrasing questions
 - ✓ Misunderstanding of questions by the respondent
 - ✓ Deliberate misreporting
 - ✓ Coding or data entry mistakes





5) EVALUATION OF RESULTS cont....

- The methods of evaluation of census results include:
- **Post-enumeration survey** - is the complete enumeration of a sample of the census population.
 - It employs for instance case-by-case matching of the census and the survey data to evaluate coverage and content errors.
- **Demographic analysis** - applies demographic techniques to census data. These include the UN Age-Sex Accuracy Index, Myers' Index, Whipples' Index.
 - Applying population balancing equation to data from administrative records to develop population estimates for comparison with the census results, checking for conformity and consistency.





6) DISSEMINATION OF RESULTS

- Dissemination of results to potential users is what makes a census complete.
- Dissemination of results maybe in the form of printed reports, electronic such as CD-ROM and other high-capacity media, and also the Internet.





7) ANALYSIS OF RESULTS

- This is the comprehensive examination of census data by government authorities, researchers, etc. through analytical studies.
- Maybe descriptive summaries, policy oriented, detailed analyses, detailed analytical studies of one or more demographic or social aspect.
- In these studies, the data of the current census should be examined not only by themselves but also as complemented by relevant data from earlier censuses and from other sources.
 - This will enable to obtain a broader context, improve the estimates and establish trends.





Exercise

- Read and write notes on population and housing censuses conducted in Zambia, before and after independence.
- Explain the relationship between the population census and the housing census.





TOPICS FOR POPULATION AND HOUSING CENSUSES

- **Factors determining the selection of topics**
- There are various topics covered by population and housing censuses.
- The choice of topics is dependent on a number of factors such as;
 - 1) Priority of national needs
 - 2) Importance of international comparability
 - 3) Suitability of topics
 - 4) Resources available
 - 5) Alternative sources





Priority of national needs

- Consider national uses (e.g. policy, planning, research) and national users (e.g. national and local government agencies, the private sector, academic and other researchers).
- Consider how urgently the data are needed and whether the information could be equally well or better obtained from other sources.
- Global and regional census recommendations can help in providing information about standard census topics and related definitions and concepts.





Importance of international comparability

- Consider if, by the use of international recommendations, it is possible to compare the data with those of other countries on the basis of consistent concepts, definitions and classifications.
- Should any discrepancy exist among national needs, regional and global recommendations, national needs should take precedence.
- Efforts should be made to explain departures from international standards in the census publications.





Suitability of topics

- Respondents should be willing and able to provide adequate information on topics being investigated.
- Avoid topics likely to arouse fear, superstition, and questions too complicated and difficult for the respondent to answer.
- Enumerators should have technical competence in obtaining information on the topics.
 - For instance, during the housing census, information to be obtained through direct observation by the enumerator should be within his or her technical competence.





Resources available

- The selection of topics should carefully consider the total resources available for the census.
- An efficient collection of accurate data for a limited number of topics, followed by prompt tabulation and publication, is more useful **than**
- the collection of data for a lot of topics, which cannot be adequately investigated, processed and disseminated in a timely, reliable and cost-effective manner.





Alternative sources

- Every question is a cost; selection of census topics should check whether data are available from other sources - taking into account the advantages and limitations of the alternative sources.
- Those topics for which no alternative sources exist should be given higher priority while those topics for which alternative sources are readily available should be accorded lower priority.
- What topics are not investigated in a population census?





Population census topics

Geographical and Internal Migration Characteristics

- Place of usual residence
- Place where present at time of census
- Place of birth
- Duration of residence
- Place of previous residence
- Place of residence at a specified date in the past
- Urban and rural
- Total population*

**core topics, derived - for example, "Total population", is derived from a count of the persons entered in the questionnaires as persons present or resident in each geographical unit.*





Population census topics

International Migration Characteristics

- Country of birth
- Country of citizenship
- Year or period of arrival

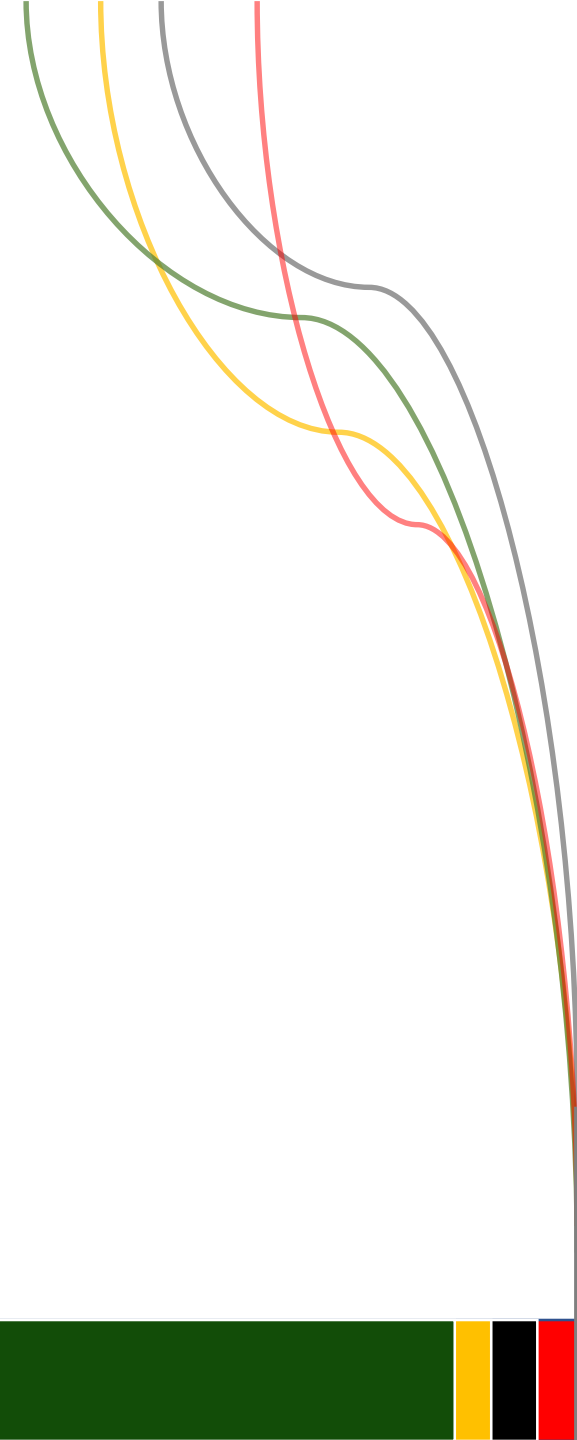
Household and Family Characteristics

- Relationship to the household head or other reference person
- Household and family composition*





Population census topics



Demographic and Social Characteristics

- Sex
- Age
- Marital status
- Religion
- Language
- Ethnicity
- Disability status

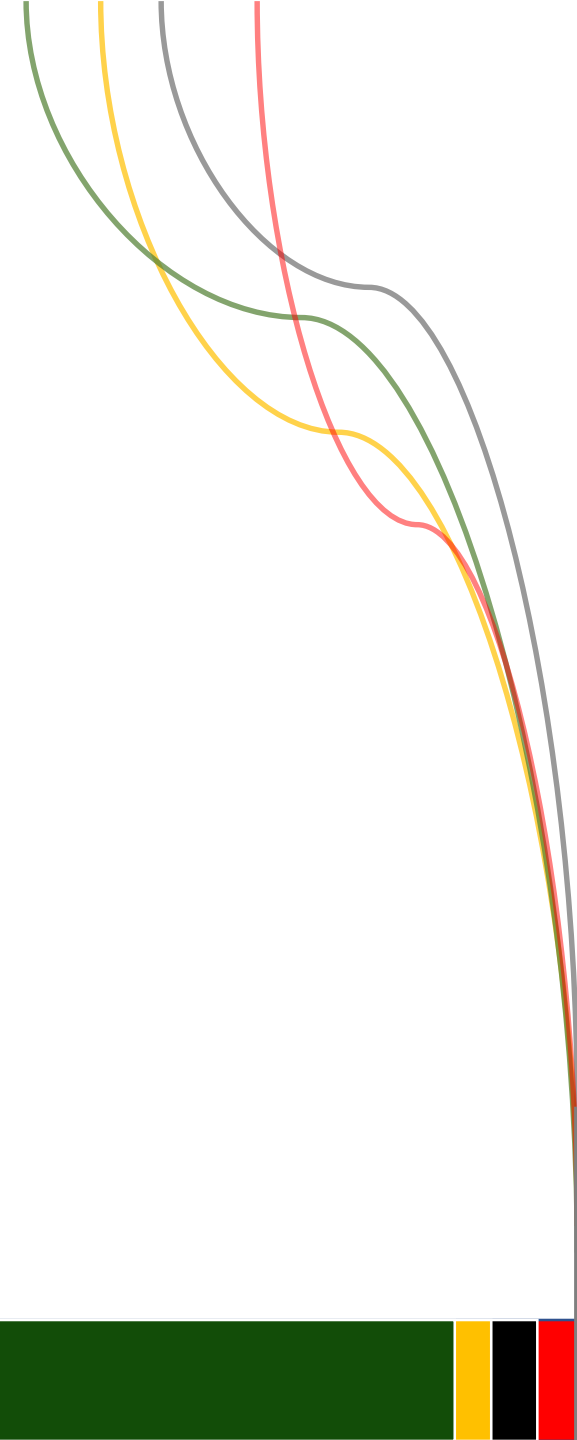




Population census topics

Fertility and Mortality

- Children ever born alive
- Children living
- Date of birth of last child born alive
- Births in the past 12 months
- Deaths among children born in the past 12 months
- Age, date or duration of first marriage
- Age of mother at birth of first child alive
- Household deaths in the past 12 months
- Maternal or paternal orphanhood*

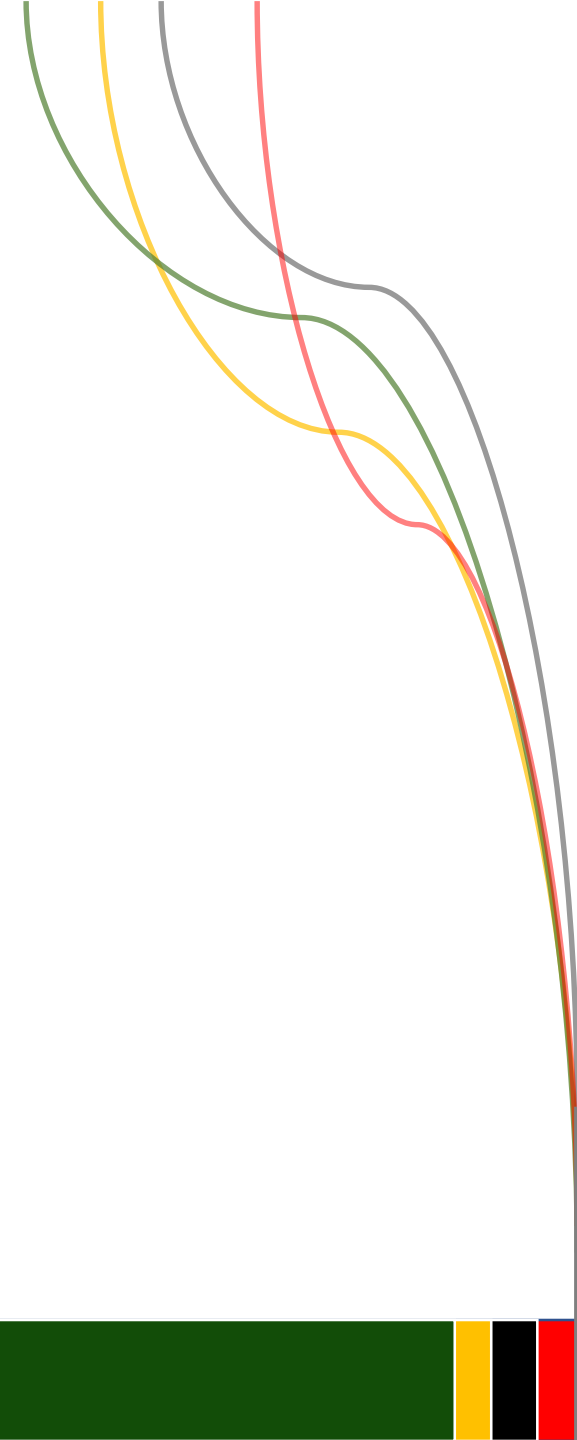




Population census topics

Educational Characteristics

- Literacy
- School attendance
- Educational attainment
- Field of education
- Educational qualifications





Population census topics

Economic Characteristics

- Labour force status
- Status in employment
- Occupation
- Industry
- Place of work
- Institutional sector of employment

Agriculture

- Own-account agriculture production
- Characteristics of all agricultural jobs during the last year





Housing census topics

- The units of enumeration for housing censuses mainly include
 - 1) The **building**: the information concerning the building (building type, material of construction, etc.) is required to describe properly the living quarters located within the building and for the formulation of housing programmes.
 - 2) **Households** occupying living quarters: information collected include characteristics of the head or reference person, tenure and other relevant characteristics.
 - 3) **Occupants (individuals or members)** of household. Characteristics of each individual are collected in a population census.





Housing census topics

- A number of topics are investigated in the housing census and these include:
 - Number of rooms
 - Number of bedrooms
 - Main source of drinking water
 - Type of toilet
 - Bathing facilities
 - Availability of kitchen
 - Fuel used for cooking
 - Type of lighting and/or electricity
 - Main type of solid waste disposal





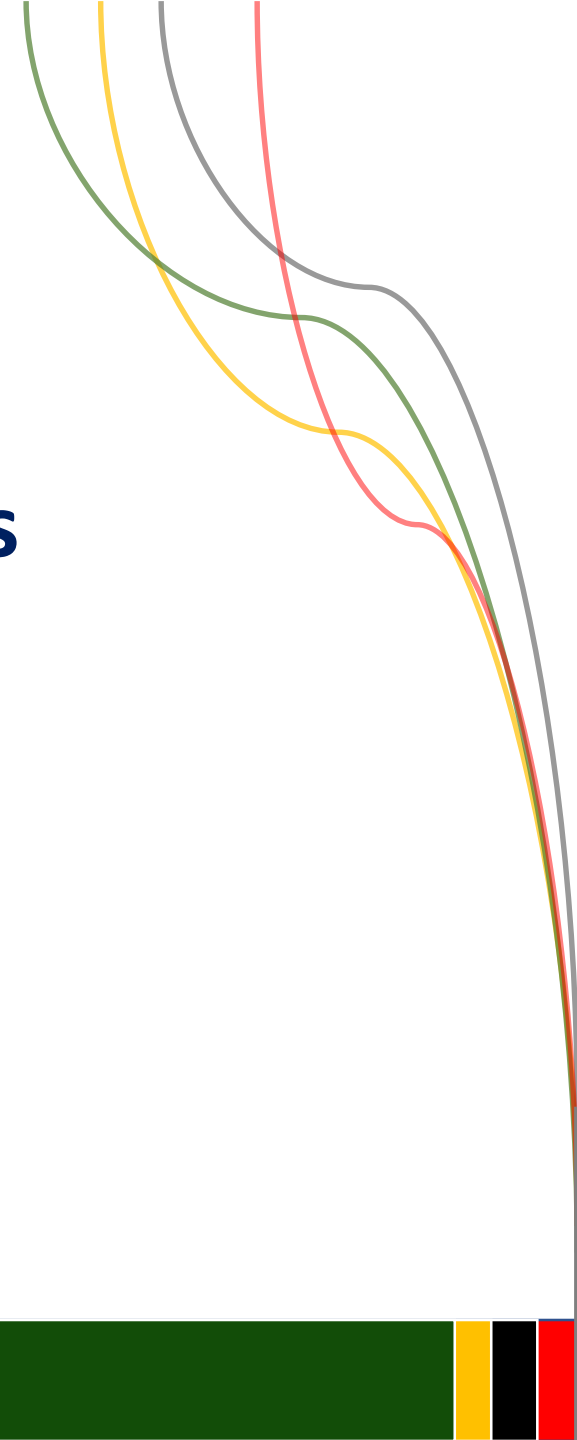
Housing census topics

- Construction material of outside walls
- Construction material of floors
- Construction material of roof
- Age and sex of household head
- Occupancy by one or more households
- Type of ownership
- Tenure
- Availability of information and communication technology (ICT) devices— e.g. radio, TV, cell phone, etc.
- Availability of durable household appliances - depending on national circumstances





Advantages and disadvantages of census





Advantages of census

- 1) Census is a good source of information about the population since it covers various topics
- 2) Census data can be tabulated for many local geographical areas
- 3) Because of its universality feature, detailed cross-tabulations are not subject to sampling errors
- 4) Census simultaneously obtains information related to enumerated events and the population at risk





Disadvantages of census

- **Immediacy:** Censuses are unable to produce more frequent and timely statistics
 - Processing time further delays the release of first census results and final census publications may take one or two years to complete
- **Geographical barriers:** Coverage errors are inevitable since some segments of the population live in areas that are hard to reach or inaccessible, example?
 - Some segments of the population still have reluctance of participating in giving their details and that of household members > underenumeration





Disadvantages

- **Coverage:** Questions are limited to topics that can be readily answered
 - Lacks detail on subject matter covered
 - Content is limited by considerations of respondent's privacy and laws prohibit intrusive questioning
- **Funds:** For census taking tends to be a challenge for developing countries to achieve and undertake a census within a defined period of time
- **Censuses are easily politicised:** How?





Prospects/opportunities to address gaps in census

- 1) National sample surveys are a more efficient and economical means of collecting information on more specialised topics as well as topics for which data are not required for small areas.
- 2) National sample surveys provide population data during the intercensal period and give detail on subject matter unlike the census.
- 3) There is need to advocate for improvement in civil registration system and other data sources.
- 4) For current information on topics such as employment and unemployment, monthly or quarterly surveys remain essential.





CENSUS DATA UTILISATION

- What uses do you know?





Uses of population censuses

- 1) **Policy-making, planning and administrative purposes**
 - **Policy-making:** Information on the size, distribution and characteristics of a population is essential for describing and assessing its economic, social and demographic circumstances for policy development and programmes
 - **Planning:** Census data serve many planning needs such as social and economic
 - **Administrative purposes:** Geographical distribution of the population is used in the creation or demarcation of new territorial divisions, for political or administrative reasons





Uses of population censuses

2) Research purposes

- For example, the changing patterns of urban/rural concentration, the mortality and fertility differentials for various population groups, etc., are questions of scientific interest that are of importance both to pure research and for solving practical problems.





Uses of population censuses

3) Uses for business, industry and labour

- Estimating consumer demand for a variety of goods and services is dependent on accurate information on the size and distribution of the population.
 - Why?
 - Characteristics of the population heavily influence the demand for housing, food, medical supplies, and so forth.
- Census data can also be used to generate statistics on the size and characteristics of the supply of labour needed for the production and distribution of commodities and services.





Uses of population censuses

4) Use as a sampling frame for surveys

- Population censuses constitute the principal source of records for use as a sampling frame for surveys during the intercensal years, on such topics as the labour force, fertility, health, etc.

5) Use for electoral boundary delimitation

- Census data is used in the redrawing of electoral constituency boundaries in the country.





Uses of housing census

- **Development of benchmark housing statistics**
 - on the current housing situation and is vital for developing national housing and human settlements programmes
- **Formulation of housing policy and programmes**
 - ✓ Data from previous housing conditions are used to indicate the changes in the housing situation;
 - ✓ housing deficit and future housing requirements are estimated and compared with the rates of dwelling production being attained;
 - ✓ the characteristics of the households in need of housing are considered.
 - ✓ All this data form part of the development plans for the formulation of national housing policy and programmes.





Uses of housing census

- **Assessment of the quality of housing**
 - The materials used for the construction of housing units are a significant pointer to the quality of life in different parts of a country.
 - For example, trends on type of housing materials can show improvements in the welfare of the citizenry, as the percentage of poor quality or slum-like housing facilities is decreased.
- **Sampling frame for surveys**
 - Housing census is also valuable for providing the **sampling frame** for special housing and related surveys during the intercensal years.





Uses of small area data

- Census data are typically aggregations of data for many individual small areas.
- Small areas are subnational areas for which area-specific samples from national surveys are too small to provide meaningful estimates (Rao, 1999).
- Census data have been traditionally aggregated by various types of administrative units.
- There have also been increasing demands for small area data that cut across the local administrative boundaries.





Uses of small area data

- Increase knowledge
 - Data for small areas enable the data users to have an understanding of demographic and socio-economic variations (, e.g. fertility or employment differentials, etc.) among small areas of the country
 - Primary purpose of these studies is to enlarge the body of knowledge available to scholars, policy makers, and other analysts.





Uses of small area data

- Inform public policy and programmes
 - Small area data essential for drawing political and electoral boundaries, allocating government funds, determining eligibility for public programmes, and monitoring programme effectiveness.
- Since implementation of various national social and economic development programmes is a function of the lower levels of government in many countries;
 - results of censuses are useful for planning and monitoring development at the small area.





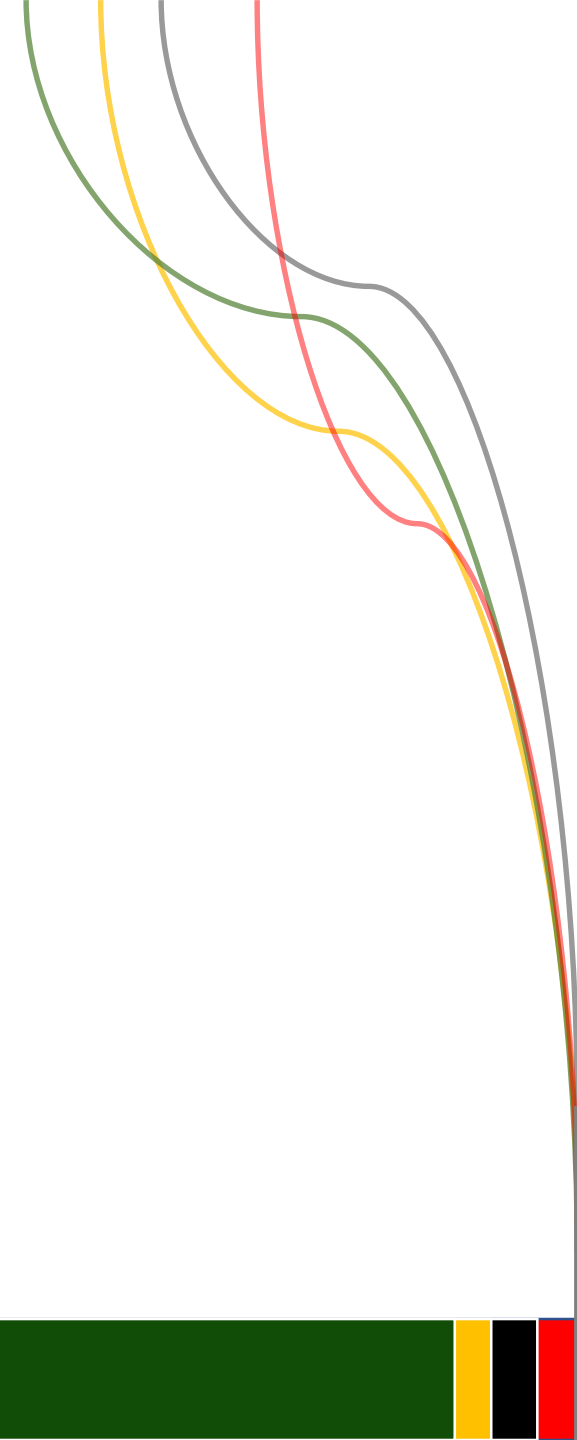
Uses of small area data

- **Support business decision making**
 - Small area data are also important for private businesses in developing their distribution and marketing strategies.
 - For example, information on size and distribution of the population by socio-economic characteristics helps in business decision making such as site selection, sales forecasting, consumer profiles, etc.
- **Note:** Analysing information for small areas is limited only by issues of confidentiality and collection design when cell entries in cross-tabulations become very small





- **INTEGRATION OF CROSS-CUTTING AND EMERGING ISSUES**
- **DEVELOPMENT INDICATORS**





Integration of Cross-cutting and Emerging Issues

- Between 1990 and 1996, the UN convened for a series of global conferences on women, children, education, human rights, population, etc.
- Cross-cutting and emerging issues were identified: the need for statistics on **gender, children and youth**, the **elderly**, the **disabled**, and **ethno-cultural** characteristics.
- Also recognized the importance of adequate information in formulating policy and monitoring progress in the achievement of goals.
- Thus, countries and international organizations were called on to develop and improve the required statistics and indicators to monitor progress.





Integration of Cross-cutting and Emerging Issues

- The population and housing census is the main comprehensive national data source to meeting the need for these statistics.
- A country should identify data requirements concerning these population groups when planning the census and use consistent definitions and classification as those in use for the entire population.
- The census tabulation plan should also ensure the inclusion of all relevant details of these population groups and a range of cross-classifications required for each group.





Development Indicators

- What are indicators?
- They are clues, signs or markers that measure one aspect of say a program and show how close a program is to its desired path and outcomes.
 - *Indicators are required to track the progress of various developmental goals.*
- Thus, efforts must be made by national statistical offices to produce relevant indicators to meet this need.
- The type of indicators required to meet international and national reporting requirements need to be taken into account early in the planning phase of the census or surveys.





Development Indicators

- Both global and national reporting and monitoring require reliable and comparable national data for the compilation of indicators.
- Therefore, it is important that countries have the statistical capacity to produce, analyse and disseminate the required data for these indicators.
- The availability of reliable statistics and the capacity of the governments to systematically measure and monitor indicators is a critical success factor for the achievement of the development goals.





Development Indicators

- Various sources of data are required to fulfil the data requirements for development indicators such as those for the Sustainable Development Goals (SDGs).
- The SDGs has 17 goals, 169 targets with about 240 indicators that all UN Member States have agreed to try to achieve by the year 2030.
- Some indicators can be computed from data that are collected through population and housing censuses, but others require data from either household sample surveys or vital statistics.





Indicate the source of data for each indicator

Indicator	Source
Literacy rate of 15-24 years, by sex	
Under-five mortality rate	
Infant mortality rate	
Prevalence of stunting (height for age) among children under 5 years of age	
Prevalence of underweight (weight for age) among children under 5 years of age	
Unemployment rate of young people age 15-24, each sex and total	
Prevalence of anemia among children under age 5	
Proportion of ever-partnered women and girls age 15 and older subjected to physical, sexual or psychological violence by a current or former intimate partner in the previous 12 months	
Proportion of women age 15-49 who make their own informed decisions regarding sexual relations, contraceptive use and reproductive health care	





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