

Part One

Introduction

NEPAL

LEGEND

- International Boundary
- Highway
- - - Zonal Boundary
- - - District Boundary
- Secondary Road
- - - Seasonal Road
- River
- ★ Capital
- ● Regional, Zonal, District Headquarters

CHINA
(Tibet)

INDIA



Base Map: Topographical Zonal Map (1:250,000),
Department of Survey, 1988
Digital Elevation Model: MENRIS

0 15 30 60 90 120
Kilometres

Introduction

The packaging of census data into indicators is one way of simplifying the complex and detailed information contained within tabulated statistics and making it more accessible to those who wish to understand the implications of the findings and use the information to guide planning. Indicators help decision makers to set precise goals for future actions and enable us to know the current situation and monitor progress with respect to desired goals. Census indicators serve as a socioeconomic expression of the state of a country, and there is a growing recognition that such indicators are needed together with other related data for development planning. The advent of new tools based on GIS (geographic information system) and related technologies means that indicators can now be presented relatively easily in the form of thematic maps, allowing a rapid and visual grasp of the implications in terms of country (or other area) geographic distribution and differences. Maps of this sort have become an effective tool for policy planning, and can help the making of sound decisions that will have a lasting and positive impact on people's lives. The census data from the most recent population census held in Nepal, in June 2001, was published in tabular form by the Central Bureau of Statistics of Nepal (CBS) (in collaboration with UNFPA) in June 2002, with maps showing the distribution of four important indicators. The need for a more comprehensive atlas of census indicators, with an accompanying analysis of trends, has long been felt in Nepal, but this publication is the first to attempt to produce a more comprehensive atlas of indicators from census data.

The present volume on '**Mapping Nepal Census Indicators 2001 and Trends**' is the outcome of a collaboration between CBS and the International Centre for Integrated Mountain Development (ICIMOD). In this volume an attempt has been made to abstract different socioeconomic indicators at the district level from the data gathered in the Population Census 2001, supplemented by other relevant sources, and to provide a trend analysis based on the current and past census data using common indicator variables. The indicators and trends are grouped under thematic headings. The primary objective of the initiative was to present the latest socioeconomic information on Nepal in the form of an atlas showing the district-wise distribution of selected indicators, together with trends over time, to aid policy makers, development practitioners, researchers, and the public at large. The specific objectives were

- to prepare population, social, and economic indicators at the district level based on the 2001 Population Census results;
- to prepare a trend analysis of common socioeconomic indicators based on data from the 1971, 1981, 1991, and 2001 population censuses; and
- to prepare a printed atlas of the maps complemented by an interactive multimedia CD-ROM containing all the indicators described above in the form of maps together with simple GIS functionalities that allow the user to browse and query, and with the flexibility to add customised indicators.

Data Sources

A digitised district level map of Nepal from ICIMOD based on a zonal map from the Department of Survey, 1988, at a scale of 1:250,000 was used as the base map to present the indicators at the district level. The majority of population, social, and economic indicators were derived from digital files of the data collected during the Population Census 2001 (16, 26) and for the trends from previously published census data (1–15). Additional secondary data obtained from the Ministry of Agriculture and Cooperatives (19), Department of Health Services (18), Department of Education (17), and Statistical Year Books and other literature published by CBS (20–25), were used to derive other indicators. The main details of the census are provided below. Additional details are available in the various census publications cited in the references.

Areas of Nepal

Administratively, Nepal is divided into seventy-five districts, within fourteen zones, grouped into five development regions (see map at end of this section and transparent overlay in back pocket). The districts are further divided into village development committees (VDCs) and municipalities. Currently, there are 3,915 VDCs and 58 municipalities in the country. Each VDC is composed of 9 wards; municipalities may have 9 or more wards, the maximum at present being 35. Geographically, the country can be divided into three regions – a high mountain region, a hill region, and a plains region (the Terai) – which run paralld from east to west with the high mountains along the northern border and the Terai to the south. An overview of the country is presented in Annex 1.

The Nepal Population Census

Population census data provide an inventory of human resources showing their number, growth characteristics, occupational status, and distribution according to various social and economic aspects. The main objective of a population census is to count the population of the country.

The first population census of Nepal was taken in 1911 AD and since then censuses have been held approximately every ten years. The first four censuses held in 1911, 1920, 1930 and 1941 were essentially simple head counts. The 1952/54 census was the first to follow internationally recommended standard norms, and since then there has been continuous improvement and broadening of the information gathered. The census is a massive undertaking and requires a huge amount of resources; but the resources are limited and they must be used more effectively to fulfil increased information demands. To address this issue, a sampling procedure was introduced for the first time in 2001 to gather detailed information from sample households on a range of additional topics.

In the absence of regular representative national population and household surveys, and an up-to-date registration system, the ten-year censuses conducted by CBS remain the major source of information on population and related statistics in Nepal.

The Nepal Population Census 2001

The tenth National Population Census was conducted in June 2001. In this census, special attention was paid to gender issues, mass media, and census awareness, with a greater focus on women, children, and the disabled. The census data are available at the level of the lowest administrative unit, the VDC.

Main features

The 2001 Census covered a wide range of subject areas, more than in any previous census, including such extended topics as household facilities, female ownership of land, and extended economic activity. The major features of the census were as follow.

- As in the past, the main topic was a complete head count.
- The census focused on gender related issues: additional information was collected on women and women's empowerment and a gender awareness programme was run as part of the census.
- Two questionnaires were used: one for census enumeration (complete 100% count), and the other for sample enumeration of selected households.
- There were more questions than in the previous census.
- The classification used for occupation and industry was revised.
- An enumeration map was used in some cases, particularly in urban areas.
- There was extensive media exposure.
- 'Extended economic activity' was included under 'economic activity' (see below).

The questionnaires

Two separate questionnaires were used, one for complete enumeration and another for sample enumeration. Both forms contained questions on both household and individual information. An English translation of the questionnaires is provided in reference (16).

- Form 1 household information included: the type of house occupied by the household; type of ownership of the house/housing unit; agricultural landholdings; livestock and poultry raised for agriculture; female ownership of house, land, and livestock; engagement in small-scale non-agricultural economic activities; and details of persons absent from the household and living in another country.
- Form1 individual information included: name, sex, age, caste/ethnicity, relationship to head of household, religion, mother tongue, second language, citizenship, and type of disability if any.

- Form 2 household information included: major source of drinking water, main type of cooking fuel, main source of lighting energy, type of toilet, type of facilities possessed, and deaths in the past 12 months in the household (with details of deceased).
- Form 2 individual information included: place of birth, duration of stay at current place (if born elsewhere), main reason for staying in current place (if born elsewhere), residence five years previously, literacy, educational attainment level, whether currently attending school, marital status, age at first marriage, children ever born, live births in past 12 months, type of economic and non-economic activities performed in the past 12 months, duration of economic and non-economic activities performed in the past 12 months, usual occupation and industry (type), employment status, main reasons for usually not working in the past 12 months, and living arrangement of children below 16 years of age.

Concepts and definitions

Some of the specific concepts and definitions used in the questionnaire are outlined below together with some of the potential limitations associated with them. Understanding these definitions is important for interpreting the information presented in this publication. Detailed information on how to interpret the questions, and the definitions of different words, was provided in the Questionnaire Manual (in Nepali) (27) and explained to enumerators during the preparative training sessions. Further details of the conceptual definitions used in the census can be found in the CBS publications listed in the references.

Usual place of residence

All the decennial censuses of the population of Nepal since 1952/54, including the census 2001, have been taken on a modified de-jure basis, in other words every person was enumerated as being at their 'usual place of residence'. Temporary visitors, tourists, resident foreign diplomats, and refugees were excluded from the enumeration. Those temporarily absent from the country for more than six months were also excluded from the overall population count although they were recorded as 'absentees'.

In the Census 2001, the definition of usual place of residence was revised to mean the place where a person mostly or usually lives or intends to live for a long period like their family home, place of work or business, and place where studying. The inmates of prisons, students in hostels, and the armed forces in their barracks were counted as residents of the places where they were found. Homeless people such as sages, beggars, hermits, and vagrants, i.e. persons without any fixed household, were enumerated where they were found on census day.

Household

The census was based on the concept of 'household', with information about individuals collected on one form per household. The present census defined a household as socioeconomic unit consisting of an individual or individuals who live together, related or unrelated or both, usually sharing a common kitchen. A household can be a single person or a group of two or more people.

Urban area

A number of indicators are differentiated on the basis of 'urban' versus 'rural' areas. In Nepal, 'urban areas' are taken as those areas included within the administrative units 'municipalities' and 'metropolitan areas'. (This means that in practice some parts of 'urban areas' have very little housing). Forty-three of Nepal's 75 districts contain 58 urban areas; the remaining 32 districts have no designated urban areas.

Economically active population

The 1952/54 census was the first to collect information about the economically active population, and the practice has continued in every census since then. However, the concepts and definitions used have changed slightly from one census to another.

In the censuses of 1961, 1971, and 1981, economically active persons were defined as those who had worked at a single stretch or at intervals for at least eight months during the year preceding the day of the census enumeration, for pay, profit, or remuneration in cash or in kind. In the 1991 census, economically active persons were defined as those who had worked for any length of time during the twelve months preceding the census date.

In the 2001 census, the questions on economic activity were refined by adding the duration of work as a new question. This improvement was intended to make the census results compatible with the results of previous censuses as well as with revised international standard norms. The definition, concept, and questions relating to economic activity were also improved as per the revised international standard and norms. 'Usually economically active' persons were defined as those persons who had worked, and/or had actively sought work, at a single stretch or at intervals, for at least six months during the year preceding the day of the census enumeration. 'Work' included for pay, profit, or remuneration in cash or kind, employed and self-employed, and including 'extended economic activity' (see below). It thus included subsistence agricultural activities among others. 'Extended economic activity', as defined in the 1993 National System of Accounts (SNA) concept, was included as an additional question partly to better include activities by women that contribute to the overall economic situation of a household. Extended economic activities cover such things as the production of goods consumed within a household, including collection of firewood and fetching of water.

Small-scale non-agricultural economic activity

Small-scale non-agricultural economic activity was defined as those activities operated by a household which are conducive to the household's economic benefit but are not registered with any government or non-government institution (investing cash or materials, and or employing household members but not regular hired labour). The product produced by this small-scale economic activity may be either for sale or home use; however, if the product is service oriented, it should be sold and not retained for home use.

Housing Unit

A residential or housing unit was defined as a structurally separate and independent place of residence with four walls and a roof of any material with one or more rooms, stories, and/or flats, which is intended for habitation by one or more households. Three categories of housing unit type were defined depending upon the materials used to construct the walls and roof: pakki or permanent – both walls and roof built of permanent materials; ardh pakki or semi-permanent – either the walls or the roof built of permanent materials; and kachi or temporary/impermanent – both walls and roof built of non-lasting materials. Houses not belonging to any of the three aforementioned categories were categorised as 'other'; these included, for example, houses made of plastic, straw, bamboo strips, and tents.

The census operations

The census was carried out in two phases. A preliminary 'household listing' operation was carried out from May 14-28, 2001, followed by the census enumeration itself from June 10-26, 2001. The reference date for the census – 'census day' – at which the population was counted was June 22, 2001. Homeless people were counted on the day before census day.

The main questionnaire (Form 1) was completed by every household; a sample of households also completed the sample questionnaire (Form 2). The sample design was prepared before the census enumeration. A sample frame was created for each enumeration area during the initial listing operation and a sample selection of 1 in 8 housing units prepared; institutional households were not included in the sample. Complete enumeration was done in 6 districts and 52 municipalities with small populations. The ratio estimation method was used to make estimates from the sample.

More details of how estimates were made from the samples and of data processing and tabulation are given in (16).

Limitations of the census data

Disturbances

The implementation of the census was disturbed in two ways. The tragic incident that happened in the Royal Palace on 1st June 2001 resulted in a short delay in the recruitment and training of field staff and ultimately affected the actual field programme, causing a four-day delay in the enumeration. In addition, political disturbances hampered the census enumeration work in 12 districts including most areas of Kalikot and Salyan and parts of Bajura, Dolakha, Dolpa, Jhapa, Jumla, Mugu, Sindhuli, Sindhupalchok, Siraha, and Surkhet. In all, enumeration was completely disturbed in 83 VDCs, and partially in some others, that is in a total of 955 rural wards and 2 urban wards.

The results of the census have attempted to incorporate the population in these disturbed areas by using the population figures (male, female, and total) obtained from the household listing. However, other detailed information for these census-disturbed areas is not available. In some areas even household listing could not be done, and the population for such areas was estimated on the basis of the observed growth between 1991 and 2001 based on available data. The estimated population of Nepal on June 22, 2001, including the population estimates from disturbed wards and VDCs, was 23,151,423 in a total of 4,253,220 households. However, the statistical tables on detailed characteristics of households and population are only given for the 4,174,374 households and 22,736,934 people actually enumerated in the census.

Administrative boundary changes

Census results presented for any geographical area refer to the area at the time the census was held. Many changes have been made in the boundaries and areas of the different administrative units at various times since 1952/54, particularly to the boundaries of districts, VDCs, and municipalities (until 1990 termed village panchayats and town panchayats). Such boundary changes affect the direct comparability of data related to the newly-defined and previously-defined unit, and should be taken into account when assessing trends data.

Presentation of the Census (and other) Data as Indicators in Map Form

Methodology

A GIS application software – the ArcGIS platform from the Environmental System Research Institute (ESRI) – was used to map the indicators generated through statistical computation and analysis of the census and other data, using the spatial data source from ICIMOD as a base.

The indicators were calculated at the national as well as district level as per their respective definitions and formulae. They were grouped thematically under the headings: population, economic activity, infrastructure, health and environment, education, children, gender, and agriculture. Where particular indicators related to more than one theme, they were allocated to the theme considered to be of most relevance. For easy reference and visualisation, separate colour schemes were selected for the maps in each theme. Where appropriate, graphics (bar and pie charts) were used to illustrate the proportional values of multiple indicators within a single map.

Limitations

The data used in the study were taken mainly from census data supplemented by other sources as described above. Although considerable efforts were made to standardise the data and check for inconsistencies, the census data by its nature has certain limitations, the more important of which are discussed briefly above. In addition, there were certain problems involved in using the additional data from other sources, in particular the Department of Education data which refer to the year 2000 and not the year 2001. The presentation of trends was complicated by the fact that the data from different censuses are not always directly comparable as a result of changes in administrative boundaries and changes in the definition of parameters. Again this has been mentioned where pertinent.

A selected set of representative statistics was chosen for graphical presentation, preparation of a full graphical display of all the information collected by the census would have been prohibitive. However, users interested in displaying material not selected here in graphical form will be able to use the interactive features of the companion CD-Rom to input their chosen data sets.

Utmost care has been taken to check the indicators, the district-wise data, the minima and maxima, the national values, and associated data for any erroneous representation in the form of maps or otherwise. The study team hope that through feedback from the users, further improvements can be made to future editions of this volume.

Presentation

The publication is divided into three parts. This first section describes the background and limitations of the data sets and shows the base-line maps with the basic GIS layers.

The second part contains the bulk of the maps illustrating the geographical distribution of the values of the indicators derived from the 2001 Census and other sources, under the eight themes: population, economic activity, infrastructure, health and environment, education, children, gender, and agriculture. Each indicator is presented in the form of a map accompanied by a table showing the actual district-wise values of the data and a brief text describing the definition of the indicator and the major findings.

The third part of the volume displays the trends apparent from the data of the last four censuses (1971, 1981, 1991 and 2001) under four major themes: population, economic activity, infrastructure, and education. The trend analysis is presented in the form of maps, generally four, portraying district-wise census data from 1971, 1981, 1991, and 2001 (or two or three maps where data was not available from earlier censuses), together with a graph showing the trend at national level, and a table of values.

A multi-media CD-Rom is being prepared as a companion to this volume. It will contain the data sets and maps presented here together with additional data sets and will offer functionalities for viewing the data interactively in a spatial context and provide the flexibility to display different graphical representations, select specific areas, and use customised indicators, among others.

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