National Population and Housing Census 2021

Report on

Post Enumeration Survey (PES)

Government of Nepal
Office of the Prime Minister and Council of Ministers
National Statistics Office
Thapathali, Kathmandu

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MY CENSUS
MY PARTICIPATION

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Phone: +977-15365323, 5329406, 5345947

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Email: info@cbs.gov.np, population@cbs.gov.np

Conducted by:

Labour Studies Programme

Tribhuvan University (LSP-TU)

Kirtipur, Kathmandu

Government of Nepal
Office of the Prime Minister and Council of Ministers
National Statistics Office

Phone 5345946, 5345947, 5345948, 5345848, 5341801, 5329406

Fax 977-1-5327720
Post Box No: 11031
Thapathali, Kathmandu

Ref. No.

Foreword

Nepal started census taking from 1911 and the latest census conducted in November in 2021 was its 12th decennial series. The census is a massive undertaking, so it is universally not completely free from errors, let alone in countries with most advanced statistical system. There exist good practices for measuring inclusion, exclusion and duplication errors in reporting which ultimately results in undercounting or overcounting of the population, and Post Enumeration Survey (PES) is one of such methods. The PES helps to assess the quality and coverage of the census results.

Though census taking in Nepal dates back to 1911, the scientific assessment of errors through the PES started since 1981. Unlike in previous surveys, the PES 2022 has tried to measure both of the coverage and content errors in some selected characteristics. Therefore, I hope that the results of this survey will at least be useful to the users who are curious of the overall quality of the census as a whole. The results will be useful to us as well to have an insight on the census process and thereafter to find room for improvement in the future undertaking.

I would like to thank Prof. Dr. Keshab Prasad Adhikari who led the PES and his team as well as the personnel from my office who coordinated and facilitated this survey.

I encourage all the relevant stakeholder to use the report and request to them to provide us feedbacks and suggestions.

RPthpaliya

Ram Prasad Thapaliya

Chief Statistician
(Secretary- Government of Nepal)

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Foreword

The recently enacted Statistics Act 2022 upgraded the former Central Bureau of Statistics (CBS) to the National Statistics Office (NSO) and the NSO is now headed by the Chief Statistician at the Secretary level as mandated by the act. The new act replaced the 64-year-old Statistics Act 1958, which had established CBS under the leadership of the Director General at the Joint Secretary level.

Population and housing census for a country as a whole and for each administrative area within the country is one of the primary sources of data needed for formulating, implementing, and monitoring the effectiveness of policies and programmes aimed at inclusive and sustainable socioeconomic development.

CBS conducted the 12th National Population and Housing Census (NPHC) in 2021. It was originally scheduled to take place from June 8 to 22, 2021, but due to COVID-19, it was postponed for five months and finally, it was conducted from November 11 to 25, 2021, for a period of 15 days. The UNFPA's latest guidelines were followed during the census.

The UN system suggests setting quality standards for the conduction and evaluation of censuses in order to uphold the integrity, reliability, accuracy and value of the population and housing census results. Conducting Post Enumeration Survey (PES) is one of such recommendations which helps assess the quality standards of the census.

In line with the recommendations of the UN system to hold the PES by an independent organization, the former CBS collaborated with Labour Study Programme of Tribhuwan University (LSP-TU) for independently conducting the survey management and operation including from its inception to recruitment, training, field management, monitoring and supervision, data processing, analysis and report writing. I would like to thank the whole team of LSP-TU and especially the head Prof. Dr. Keshab Prasad

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Adhikari for successfully completing the assigned task. Similarly, I express my special appreciation to all those who coordinated and facilitated this survey on behalf of the office including from then CBS's Deputy Director General Dr. Hemraj Regmi (present deputy chief statistician of the NSO), Directors Mr. Dhundiraj Lamichhane and Mr. Keshab Kumar Gautam, Statistics Officers Mr. Dinanath Lamsal and Mr. Nirajan Sharma, Computer Officer Mr. Dol Narayan Shrestha and Statistics Assistant Mr. Bishnu Regmi for facilitating the survey.

I am fully confident that this report provides and independent assessment of census results notwithstanding some sampling and non-sampling errors. I urge all the relevant stakeholder to use the report and request to them to provide us suggestions for improvement.

Finally, I would like to thank all the respondents of the selected enumeration areas who once again, in an interval of about three months, provided us time to answer our questions.

Nebin Lal Shrestha

Deputy Chief Statistician
(Director General of former CBS)

Preface

Nepal has 110 years history of undertaking decennial population censuses starting from 1911. The recent Population and Housing Census conducted on 11-25 November 2021 is the 12th in series.

Nepal started to organize Post-Enumeration Survey (PES) from 1981 census. Purpose of the PES is to measure the accuracy of the census by independently surveying a sample of the population. To undertake independently management and conduction of PES based on 2021 population and housing census, Central Bureau of Statistics (CBS) bestowed the responsibility to the Labour Studies Programme, Tribhuvan University in January 2022. The survey estimated proportion of people and housing units potentially missed or counted erroneously in the 2021 census and identified levels of biases and variance in reporting of personal characteristics like age, sex, marital status, literacy, place of birth and the like.

The post enumeration survey 2022 divided country into eight analytical domains (Seven provinces as single domain and, three districts of Kathmandu Valley as the eighth domain). From each domain 10 enumeration areas were randomly selected as primary sampling units (PSUs). Complete census of the households and populations of all 80 selected EAs was undertaken for 15 days (from Chaitra 1st to 15th 2078) using concise format of household listing and household questionnaire. The completed survey forms were cross-matched with the corresponding household forms of the main census. This effort attempted to identify cases of matched, possible to match, unmatched and omission and erroneous inclusion or omission. Unresolved cases were cross-verified through extensive field reconciliation visits. The whole process gave realistic estimates of the gross rate of undercount, rate of double count and net rate of undercount of the 2021 census for each domain by urban rural disaggregation. Further it unveiled some level of response biases and response inconsistencies in individual characteristics of population.

The huge task of management and operation of PES became possible with the financial support and administrative cooperation of the CBS, the experts and members of survey team, field enumerators, desk matching operators, field reconciliation visitors' data entry operators and many more others. First and foremost, special thanks go to the CBS, the Director General Mr. Nebin Lal Shrestha, and Deputy Director General Dr. Hem Raj Regmi for forwarding hands to collaborate with us, and other personnel of the population section for supporting us in various phases of the survey.

I am also very much grateful to the technical support provided by the PES expert/consultant Mr. Bishnu Das Singh Dongol in the whole process.

The very painstaking assignment of data management and analysis to generate robust results of Dr. Dhanendra Veer Shakya, Associate Professor from Central Department of Population Studies (CDPS) and report preparation works of Associate Professor Dr. Padma Prasad Khatiwada and Lecturers Dr. Kamala Lamichhane and Ms. Laxmi Bashyal are worthwhile of appreciation. No words of appreciation be enough to commend their efforts. The support of account officers, Ms. Nirmala Maharjan and Mr. Om Nath Dahal from the financial and administrative management side are highly appreciable.

Finally, the hard work of PES enumerators, desk matching operators, reconciliation field visit workers are appreciable. Without their whole-hearted support, the work would not have been accomplished on time with the said level of quality output.

April 2023

Prof. Keshab Prasad Adhikari, PhD
Coordinator-LSP/TU
Team Leader- PES

नतिजाको सारांश

नेपालमा जनगणना सम्पन्न भए लगतै गणना जाँच सर्वेक्षण (Post Enumeration Survey–PES) गर्ने चलन वि.सं. २०३८ सालको जनगणना पछि सुरु भएको हो । पछिल्लो जनगणना २०७८ अगाडिका जनगणनामा केन्द्रीय तथ्याङ्क विभागले आफैं जनगणना जाँच सर्वेक्षण गर्दै आएको थियो । सैद्धान्तिक अवधारणा र संयुक्त राष्ट्र संघको सुझाव अनुसार यस्तो सर्वेक्षण स्वतन्त्र र सो क्षेत्रमा दक्षता प्राप्त निकायबाट गराउनु पर्ने अवधारणालाई ध्यानमा राखेर २०७८ सालको जनगणनाको पूर्णता र शुद्धता मापन गर्न केन्द्रीय तथ्याङ्क विभागले श्रम अध्ययन कार्यक्रम, त्रिभुवन विश्वविद्यालय, कीर्तिपुरलाई जिम्मा दिएको थियो । यो सर्वेक्षणको मुख्य उद्देश्यमा वैज्ञानिक तवरले भरपर्दो र विश्वसनिय विधि प्रकृया स्थापित गर्नु र ती विधि र प्रक्रियाका आधारमा जनगणनामा गणना हुनुपर्ने मानिस कोही छुटको, दोहोरिएको अथवा गलत गणना भएका विवरण पत्ता लगाउनु हो । यो कार्य २०७८ साल माघ महिनाको अन्तिम हप्ताबाट शुरु गरेर २०७९ सालको ज्येष्ठ मसान्त भित्रमा सम्पन्न गरिएको थियो भने स्थलगत गणनाको काम २०७८ साल चैत्र १ देखि १५ गते भित्र सम्पन्न गरिएको थियो ।

विधि र प्रक्रिया

जनगणना जाँच सर्वेक्षण २०७८ ले स्थलगत गणना कार्यको विधि र प्रक्रिया मूल जनगणनाको विधि प्रक्रियालाई नै अपनाएको छ । यस सर्वेक्षणमा नमुनाका रूपमा छानिएका गणना क्षेत्रको (Sampled Enumeration Areas, EAs), जनगणनामा जस्तै, पूर्ण गणना गरिएको थियो । जनगणना २०७८ का गणना क्षेत्रहरुलाई प्राथमिक छनोट एकाई मानेर यो सर्वेक्षणको नमुना गणना क्षेत्र छनोट गरिएको छ । गणना जाँच सर्वेक्षणको प्रयोजनका लागि देशलाई आठ बृहत विश्लेषण क्षेत्रमा (Analytical Domains) विभाजन गरी हरेक क्षेत्रबाट शहरी र ग्रामीण क्षेत्रको समुचित प्रतिनिधित्व हुने गरी १० गणना क्षेत्रका हिसाबले ८० वटा गणना क्षेत्र छानिएका थिए । आठ विश्लेषण क्षेत्रमा बागमती प्रदेशको काठमाडौं उपत्यकाका तीन जिल्ला बाहेकका सात प्रदेशलाई सात क्षेत्र र काठमाडौं उपत्यकाका तीन जिल्ला (काठमाण्डौ, ललितपुर र भक्तपुर) लाई आठौं क्षेत्र मानिएको छ । नमुनाको रूपमा छानिएका ८० गणना क्षेत्र मध्ये ५० शहरी क्षेत्रबाट छानिएका छन् भने ३० ग्रामीण क्षेत्रबाट छन् । साथै गणना क्षेत्रहरू हिमाली पहाडी र तराई क्षेत्रको उचित प्रतिनिधित्व हुने गरी छानिएका छन् ।

गणना जाँच सर्वेक्षणमा मूल जनगणनामा प्रयोग गरेको प्रश्नावलीको छोटकरी रूप तयार गरी अपनाइएको थियो । प्रश्नावलीमा मुख्यतः जनगणनाको समेटाइमा पूर्णता त्रुटी (Coverage error) र केही मात्रामा गणना भएका व्यक्तिका वैयक्तिक विशेषतामा विचलन त्रुटी (Content error) मापनलाई आवश्यक न्युनतम विषयवस्तु राखिएका थिए । स्थलगत गणना कार्य तोकिएको गणना क्षेत्रको नक्साका आधारमा पूर्ण घरपरिवार लगत तयार गरी सम्पूर्ण घरपरिवार र सदस्यको गणना गरिएको थियो । स्थलगत सर्वेक्षण पुरा भएपछि हरेक गणना क्षेत्रका जनगणनाले सङ्लन गरेका र PES ले सङ्लन गरेका घरपरिवार र

परिवारका सदस्यका विवरण मिलान अथवा रुजु गरी प्रत्येक परिवारलाई निम्नानुसार वर्गीकरण गरिएको थियो ।

घर परिवार	परिवार सदस्य
a. PES र जनगणनाको परिवार हुबहु मिलेको b. PES को एक परिवार जनगणनाको एक भन्दा बढी परिवारसँग मिलेको c. PES को एक भन्दा बढी परिवार जनगणनाको एक परिवारसँग मिलेको d. जोडा नमिलेको e. लागु नहुने	a. मिलेको b. मिलाउन सम्भव भएको c. नमिलेको d. बसाई सरी आएको e. जनगणना पछि जन्मेको

घरपरिवारको हकमा जोडा नमिलेको र परिवार सदस्यको हकमा मिलाउन सम्भव भएको र नमिलेकोको वास्तविक अवस्था बुझ्न र मिलान गर्न पुनः स्थलगत भ्रमण गरी अन्तिम निर्णयमा पुग्ने काम गरिएको थियो ।

नतिजा:

गणना जाँच सर्वेक्षणले जनगणनामा कुनै तोकिएको गणना क्षेत्र, घरपरिवार र परिवार सदस्यको गणनामा समेटिने दर अथवा पूर्णतामा भएको कमि कमजोरी (Coverage error) को दोहोरो प्रणाली मापन विधिका (Dual–system estimation method) आधारमा मापन गरी देशको वास्तविक जनसंख्या निर्धारण गरिएको छ । जस अनुसार २०७८ मंसिर ९ गतेको सन्दर्भ बिन्दुमा प्रकाशित कुल जनसंख्यामा ७ लाख ७१ हजार ९ सय ९८ जना छुटेको देखिन आएको छ । जस अनुसार शहरी क्षेत्रमा ५ लाख ८५ हजार ७ सय ८२ र ग्रामीण क्षेत्रमा १ लाख ८६ हजार २ सय १६ जना छुटेको अनुमान गरिएको छ । यसका लागि गणना जाँच सर्वेक्षणले जनगणनाको बेलामा र हाल सोही स्थानमा अक्सर बसोबास भएका घरपरिवार र परिवार सदस्यलाई मात्र समेटेको छ । सर्वेक्षणमा संस्थागत आवास जस्तैः विद्यालय छात्रावास, होटेल, वृद्धाश्रम, ब्यारेक आदिमा बसोबास गर्ने परिवारलाई समेटिएको छैन । घरपरिवार र परिवार सदस्यको जनगणनाको बेला र हालको अक्सर बसोबासको अवस्थाका आधारमा निम्नानुसार वर्गीकरण गरिएको छः

क) जनगणनाको समय र हाल पनि सोही ठाउँमा बसिरहेको;

ख) जनगणना पछि बाहिर गएको;

ग) जनगणना पछि बाहिरबाट आएको र

घ) जनगणना पछि जन्मिएको ।

गणना जाँच सर्वेक्षण ०७८ अनुसार निम्नानुसारको नतिजा पाइएको छ:

- राष्ट्रियस्तरमा ९६.२ प्रतिशत जनसंख्याको गणना जाँच सर्वेक्षण र मूल जनगणना दुवैमा हुबहु मिलान हुने गरी गणना भएको देखिन्छ । दुवैमा गणना भएकाहरूको हुबहु मिलान दर शहरी क्षेत्रमा केही कमि (९६.१%) देखिन्छ ।
- राष्ट्रियस्तरमा २.०९ प्रतिशत जनसंख्या गणना जाँच सर्वेक्षणमा गणना भएको तर मूल जनगणनामा गणना नभएको देखिन्छ भने यो दर शहरी क्षेत्रमा २.४४ प्रतिशत मापन गरीएको छ ।
- समग्र मुलुकको ०.३२ प्रतिशत र शहरी क्षेत्रको ०.३४ प्रतिशत जनसंख्या जनगणनामा गणना भएको तर गणना जाँच सर्वेक्षणमा नसमेटिएको देखिन्छ ।

जनगणनामा गणना हुनबाट छुटेकाको खुद छुट दर (Net Omission Rate)

गणना जाँच सर्वेक्षण २०७८ ले जनगणना २०७८ मा गणना हुनबाट खुद छुटेकाको संख्या प्रति १०० मा २.५८ जना भएको निर्क्योल गरेको छ (Net omission rate: 2.58%) । यो आंकडा शहरी क्षेत्रमा २.९५ प्रतिशत र ग्रामीण क्षेत्रमा १.८५ प्रतिशत मापन गरिएको छ । आठ क्षेत्र अनुसार गणनाको खुद छुटदर काठमाडौं उपत्यकामा सबै भन्दा बढी (४.४२%), त्यसपछि लुम्बिनी प्रदेशमा (२.९९%) देखिएको छ । सबै आठ विश्लेषण क्षेत्रमा जनगणनाको खुद छुट दर ग्रामीण भन्दा शहरी क्षेत्रमा उच्च पाइएको छ ।

जनसंख्याको उमेर अनुसार हेर्दा गणनामा खुद छुट दर ८० वर्ष वा सो भन्दा पाको उमेर समुहमा सबैभन्दा बढी (४.१%), त्यसपछि २० देखि २४ वर्षमा (३.९%) र २५ देखि २९ वर्षमा (३.८%) देखिएको छ । गणनामा खुद छुट दर महिलामा (२.३%) भन्दा पुरुषमा (२.९%) बढी देखिएको छ । साक्षरताका आधारमा हेर्दा गणनामा खुद छुट दर निरक्षर (२.६%) मा भन्दा साक्षरमा (२.९%) बढी देखिएको छ । वैवाहिक अवस्था अनुसार जनगणनामा गणना हुनबाट छुट्नेको खुद छुट दर विवाहितको (२.१%) भन्दा अविवाहितको (३.०%) बढी भएको देखिन्छ ।

दोहोरो गणना दर (Duplication Rate)

राष्ट्रिय जनगणना २०७८ मा समग्रमा प्रति १०० जनामा ०.१५ जनाको गणना एक भन्दा बढी ठाउँबाट भएको अनुमान गरिएको छ । दोहोरो गणनाको प्रवृत्ति पनि ग्रामीण भन्दा शहरी क्षेत्रमा निकै उच्च देखिएको छ भने यसको दर गण्डकी प्रदेश, काठमाडौं उपत्यका र सुदुरपश्चिम प्रदेशमा राष्ट्रिय औसत भन्दा धेरै र कोशी प्रदेशमा सबैभन्दा कम मापन गरिएको छ ।

गणनामा कुल त्रुटी वा छुटदर (Gross Omission Rate)

खुद छुट दर र दोहोरो गणना दरको योगफल कुल त्रुटी वा छुट दर मानिन्छ । राष्ट्रिय जनगणना २०७८ मा समग्रमा प्रति १०० जनामा २.७३ जनाको गणनामा कमि कमजोरी वा त्रुटी देखिएको छ । जसमा वास्तविक गणना हुनुपर्ने व्यक्ति त्रुटीपूर्ण तवरले छुटेकाको संख्या २.५८ प्रतिशत छ भने एक भन्दा बढी

ठाउँबाट दोहोरिएर गणना हुनेको संख्या ०.१५ प्रतिशत छ । कुल त्रुटीदर पनि ग्रामीणमा (१.९६%) भन्दा शहरी (३.१३%) क्षेत्रमा १.१७ प्रतिशतले बढी मापन हुन आएको छ । गणनामा कुल त्रुटीदर सबैभन्दा बढी काठमाडौं उपत्यकामा ४.६० प्रतिशत मापन गरिएको छ भने सबैभन्दा कम कोशी प्रदेशमा १.९८ प्रतिशत मापन भएको छ ।

उमेरमा शुद्धता (Age Accuracy)

जनगणनामा प्रत्येक व्यक्तिको पुरा भएको उमेर उत्तरदाताले बताए अनुसार टिपोट गर्ने चलन भएकोमा राष्ट्रिय जनगणना २०७८ मा उमेर साथै जन्म मिति पनि खुलाउनु पर्ने व्यवस्था अनुरुप उमेरको टिपाईमा अघिल्ला जनगणनाका तुलनामा र यस गणना जाँच सर्वेक्षणमा भन्दा पनि निकै सुधार भएको देखिएको छ । उमेरको शुद्धताको मापन प्रचलनमा भएका विधिहरू ह्विपल इन्डेक्स (Whipple's Index), मेयर्स ब्लेन्डेड इन्डेक्स (Myers' blended index) र युएन उमेर शुद्धता सूचक (UN Age Accuracy Index) का आधारमा गरिएको छ ।

समग्रमा यो गणना जाँच सर्वेक्षणले देशमा पहिलो पटक जन्मस्थान, उमेर, लिङ्ग, वैवाहिक अवस्था, साक्षरता जस्ता व्यक्तिका वैयक्तिक विशेषताको टिपोट वा गणनामा देखिएको फरक दर अथवा विसंगति दरलाई पनि मापन गरी प्रस्तुत गरेको छ । सबै सूचकमा यदि मापन गरिएको आंकडा २० भन्दा कम आएमा फरक दर वा विसंगति दर न्युन भएको मान्य हुने स्थापित मापदण्ड अनुसार उल्लेखित विषयमा विसंगति दर कम अर्थात नतिजा राम्रो देखिएको छ ।

Summary of Findings

Introduction

This report presents the findings of the Post Enumeration Survey (PES) carried out after the completion of the Population and Housing Census 2021 in Nepal. The Survey calculated under-count or over-count of (coverage error) census house/households or persons in population census occurred mainly due to the omission or the erroneous inclusion of the enumeration units during the census count. The Survey also analyzed content errors in the selected variables used in the census. The PES finally serves the important purpose of providing feedback regarding operational matters like concepts and procedures, which would help, to some extent, in improving the future census operations. In addition to the undercount rate at the national, rural, and urban level, the assessment of coverage at provinces level and in Kathmandu valley separately has been presented by designing the survey to produce domain level estimates.

The PES process first attempted to identify all persons in the sample household on the PES reference date, as well as any other persons in the household on the census reference date, and classify each person as either a non-mover, out-mover, or in-mover based on his/her household presence status on the census date. For assessing the coverage error in the census, two types of errors were studied in detail. They are errors in omission and inclusion of persons. The dual system of estimation is based on the capture-recapture method, in which a sample is collected from a population, tagged, released, and counted in a re-capture. Overall, five stages of the work were applied for undertaking the PES being household listing, administering schedule questionnaire, desk matching, field reconciliation and finalization.

Overall counting status both in PES and Census was found 96.2 percent which is slightly lower (96.1%) in the urban areas. Those counted in PES but not in census was found 2.09 percent which was quite higher (2.44%) in the urban area. Similarly, those counted in census but not in PES was identified as 0.32 percent with slightly higher figure (0.34%) for the urban areas.

Net Omission Rate

At the national level, the net omission rate is 2.58 percent enumerated in the 2021 census. This rate looks higher (2.95%) for urban areas against 1.85 percent in rural areas. By domains, Kathmandu Valley has the highest (4.42%) net omission rate followed by Lumbini (2.99%) and Sudurpashchim (2.95%). Whereas the urban areas of these domains have also higher (4.45%, 3.53% and 3.29%) net omission rates. Comparatively, both Koshi and Madhesh Provinces have lower (Koshi: 1.85% & Madhesh: 1.99%) net omission rates. These findings show a significant variation in the net omission rates at the national and provincial levels by place of residence.

The net omission rate was found highest in the age group 80+ (4.1%) followed by 3.9 percent in the age group 20-24 and 25-29 (3.8%). By gender, it shows higher omission among male (2.9%) compared to female (2.3%). By literacy status higher omission was found among those who can read and write (2.9%) compared to those who can read only (2.2%), and those who can't read and write (2.6%). And by marital status it shows higher omission among those who are unmarried (3%) compared to those who are married (2.1%).

Gross Omission Rate

The gross omission rate for Nepal is 2.73 percent which also is higher (3.13%) in urban areas against 1.96 percent in rural. By domains, Kathmandu Valley has the highest (4.60%) gross omission rate whereas Koshi has the lowest (1.98%) gross omission rate. The Lumbini and Sudurpashchim Provinces have about the same gross omission rates (3.12% and 3.10%). By urban-rural divide of residence, Kathmandu Valley urban has the highest (4.63%) gross omission rate which is followed by Lumbini urban (3.72%). These all findings show that there are no significant differences among the findings of the gross and net coverage in the 2021 population census.

Duplication Rate

The duplication rate of the Nepal's 2021 PHC is identified as 0.15 percent which is quite higher (0.18%) in urban areas compared to 0.11 percent in rural areas. By domains, Kathmandu Valley has 0.18 percent duplication rate whereas Sudurpashchim has the 0.15 percent duplication rate and Koshi has the 0.13%. Gandaki Province has the highest (0.19%) duplication rate.

Age Heaping

Although the Whipple's Index for all categories show 'rough' result for both the PES and Census data, decrease of approximately 49 points from 1971 to 2011 is taken as a significant improvement in the quality of age data. Similarly, Myers' blended index for censuses 1971 to 2021 shows that age reporting improves after the 1991 censuses and Myers' Index is reported at 15.6 in 2011 which decreases to 11.61 in 2021 with minimal differentiation between males and females. The overall age sex accuracy index calculated by this study shows improvement with the value of 32.53 for PES and 29.40 for census.

Difference Rates and Index of Inconsistency

The net difference rates (NDRs) are found to be negative in the age groups 10-44, 15-19, 20-24, 30-34, 35-39, 40-44, 45-49, and 60 and above years. This is pronounced more with negative value for urban areas compared to the rural ones showing a marginal under estimation in Census. In all other age groups NDRs are positive, showing marginal underestimation in PES.

Values of the gross difference rate (GDR) for the age group 0-4 and 60 plus look like more reliable in this study compared to those for the age group 10-14, 20-24, 25-29 and so on. The urban rural difference in this indicator is negligible. The index of inconsistency is found to be low in all age groups except those for 0-4 and 60 plus years for all three categories, that is, total, urban and rural areas.

All the values including urban and rural categories for the literate population in this study denoted by 'can read and write' and 'can read only' have been found positive and that illiterate denoted by 'can't read and write' is found with negative value for the net difference rate. Similarly, all the values for the gross difference rate for literacy status have been found positive which further justify the reliability of the census data. With regards to the index of inconsistency, all the values for inconsistency rate are closer to zero except for those who can read and write which fall between 2.46 for rural areas and 3.82 for urban areas.

The Net and Gross Difference Rates and Index of Inconsistency for persons enumerated by marital status and residence show the NDRs are negative in case of married, widowed and divorced for total and rural categories indicating there is an equal amount of misclassification in identifying the marital status category among various categories of ever married population. The measure of index of inconsistency is low in each category and in each location. This indicates the errors of classification could not affect conclusions drawn from the data.

The Net and Gross Difference Rates and Index of Inconsistency for persons enumerated by place of birth and residence show the NDRs are negative in case of different local levels in same district and different districts for all categories.

Agreement rate for all age group is closer to 100 for all categories, that is, total, urban and rural areas in this study indicating the high index. Net shift rate is in minus for the age groups 10-14, 20-24, 25-29, 45-49, 50-54 and 55-59 whereas the proportion of standard of differently reported is resulted in positive values for all the age groups indicating consistency among the ages groups between census and PES.

The aggregate index of inconsistency rates are below 15 percent. However, by age, the aggregate rate is higher (13.89%) whereas by other variables like literacy, marriage, and place of birth, this is below 1. The aggregate index of inconsistency is quite low (8.09%) in Bagmati except Kathmandu Valley whereas the highest (16.80%) was found in Madhesh.

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Acronyms and Abbreviation

$\bar{r}$	:	Proportion of Standard Differently Reported
AAI	:	UN Age Accuracy Index
CBS	:	Central Bureau of Statistics
COVID	:	Corona Virus Disease
EAs	:	Enumeration Areas
G	:	Gross Difference Rate
GIS	:	Geographic Information System
GPS	:	Global Positioning System
I	:	Index of Inconsistency
KTM	:	Kathmandu
LSP-TU	:	Labour Studies Prgoramme, of Tribhuvan University
NDR	:	Net Difference Rate
NPHC	:	National Population and Housing Census
NSR	:	Net Shift Rate
PES	:	Post Enumeration Survey
PPS	:	Probability proportionate to size
PSUs	:	Primary Sampling Units
SE	:	Standard Errors
TU	:	Tribhuvan University
UN	:	United Nations
VDC	:	Village Development Committee

Chapter I: Introduction

1.1 The Context

The population census is the most extensive and complex activity that takes place once in every ten years and it has been conducted in Nepal since 1911. The Population and Housing Census 2021 is the 12th conducted after 110 years. Population census data has been in use to delineate electoral constituencies, designate municipal areas/local levels, confirm the number of representatives in the House of Representatives, and National Assembly and mobilize resources from the federal government to provincial governments and local units. Population Census also becomes the basis to ensure inclusive representation, understand the population's social, economic, and demographic status, estimate the future population, and provide a sampling frame for demographic, health, economic, social, and cultural surveys.

These typical uses of the census data emphasize the need of an evaluation of the census result as an important step in completing a census operation. The data collected through any field inquiry is subjected to certain amount of error, that normally creeps in due to the error committed by the investigator or the respondent. As such, some amount of error is inevitable in a massive operation like the population census where a large number of enumerators and supervisors are engaged in the collection of data. In the population census, every household and individual residing in Nepal's territory must be counted without duplication during the specified duration. However, despite best efforts, a small number of people are always omitted, and even fewer are counted more than once. People can be missed for a variety of reasons. For example, they could have been traveling and were difficult to contact, the person filling out the form could have mistakenly assumed they should not be counted, or the residence was difficult to locate. There are several techniques for evaluating censuses, including demographic analysis, comparison of census findings with data from other sources, and matching census responses with responses from Post Enumeration Survey (PES) interviews. When different sources of population data are lacking, the PES is the primary instrument for assessing the census. This is true in many developing countries and Nepal is not an exception.

The purpose of the PES is to measure the accuracy of the census by independently surveying a sample of the population. The survey estimates how many people and housing units were missed or counted erroneously in the census.

PES is a sample survey conducted immediately after the census to assess the coverage and quality of the census enumeration. Many countries carry out a PES after the completion of the census to scientifically measure the degree of accuracy. The PES is a complete re-enumeration of a representative sample of a census population followed by matching everyone enumerated in

the PES with information from the census enumeration (UN, 2010). The results of the comparison are mainly used to measure coverage and content error in the context of the census. Some countries only confine the PES to evaluating coverage error. Coverage error refers to housing units and people missed in the census or those erroneously included (Whitford & Banda, J.P., 2001).

PES helps to evaluate the census operations and ascertain the degree of undercount as well as the accuracy of the data. The evaluation, therefore, allows for better interpretation of census results by presenting limitations to users by quantitatively evaluating the accuracy of census results with respect to coverage or/and quality of responses to questions on selected variables. Ideally the PES is carried out by a third party that is the independent agency which does not involve in census, so that the result obtained from the PES is free from bias. The aim of a PES is to assess the completeness in the census enumeration and quality of the answers given to the questions asked in the population census. PES is designed to measure census coverage and/or content error. It does not only calculate the net under-count or net over-count, but also the correctness of population counting, that is, how many people were counted correctly, how many were missed out, and how many were counted more than once, that is, duplication or counted erroneously.

Thus, the PES is a well-designed, independent, household-based sample survey that replicates a census. The survey and the census results are compared (matched) and the results of the comparison are used to measure the coverage and/or errors in the content of the census counts. Estimates of net coverage, the number of people omitted in the census, the number erroneously enumerated and content error rates for specific questions are typical products of a PES.

This report presents the findings of the PES which was carried out immediately after the completion of the Population and Housing Census 2021 in Nepal. The Survey assess the under-count or over-count (coverage error) of census house/households or persons in population census occurred mainly due to the omission or the erroneous inclusion of the enumeration units during the census count.

1.2 History of Censuses in Nepal

Nepal has been conducting population censuses almost decennially and the National Population and Housing Census 2021 (NPHC 2021) is the twelfth, marking hundred-ten years of census taking in Nepal. The first population census was conducted in 1911 A.D. (1968 B.S.). The main purpose of the first four censuses was to identify youth fit to be recruited in the army, to know the number of bonded laborers, slaves, etc., or to find out the number of persons retired but able to work, etc. The 1952-54 census was the first modern one conducted after the advent of democracy in Nepal. It is considered to be the first modern census of Nepal introducing internationally comparable concepts, definitions and classifications.

The population census of 1961 is the first census conducted by the Central Bureau of Statistics. The census was more organized than previous ones as it followed international standards and census procedures. Village chiefs and land revenue collectors/agents were again involved in the task of census taking. Village chiefs and revenue agents acted as enumerators in some areas and assisted in the task of field supervisors in others. The supervisors were recruited from local communities in each district and were given a census sub-zone as responsibility. The supervisors' tasks were closely scrutinized by a section officer deputed to each census zone. There were 300 supervisors and 15,933 enumerators involved in the census taking in 1961. The 55 administrative districts of that time were divided into 18 census zones and 102 sub- zones consisting of 456 census areas and 28,400 villages (CBS, 2014). Villages were the smallest unit in each district from where data was collected.

The 1971 population census was the seventh in the history of census taking in Nepal and used computer for data processing. Seventeen training centers were established to train supervisors and enumerators. Zonal officers and their assistants were recruited and trained supervisors and enumerators. The zonal officers and their assistants were recruited and trained at the center. There were about 12,000 enumerators and 500 supervisors who were directly involved in the actual enumeration. The census applied international comparable concepts, definitions, and classifications. The census schedules were pre-tested in two village Panchayats and one urban area. The 1971 census provided data at the ward level. Data capturing and tabulation were done using a mainframe computer.

In 1981, census maps were used for the first time. The number of supervisors, assistant supervisors and enumerators were 150, 1500, and 15,000 respectively. The minimum educational qualification for the enumerators was just literacy. Each enumerator covered not more than three wards depending on the size of the population and the area of the ward. Enumerators were paid 20 paisa for per person enumerated.

The census 1991 was the fifth scientific census of the country conducted after the restoration of democracy in 1990. The census was also made mandatory in the constitution and the questionnaire, for the first time included questions on caste and ethnicity. The mode of payment for the field workers was different in 1991 as compared to 1981. Enumerators were given a fixed sum of money for the work.

The census 2001 introduced sampling in the census for the first time. Two types of questionnaires were prepared. The concept of short and long forms was introduced, with the long form consisting of an extended questionnaire to be administered in every eighth household. The census also included a question on caste/ethnicity. Standard classifications of industry and occupation-based ISIC and ISOC respectively were prepared for Nepal. In the census of 2001, details related to the economic and social activities of women were collected and published. In the recruitment of enumerators, 21 percent of female enumerators were involved by giving priority to female enumerators. Due to the political crisis and the state of conflict, the census

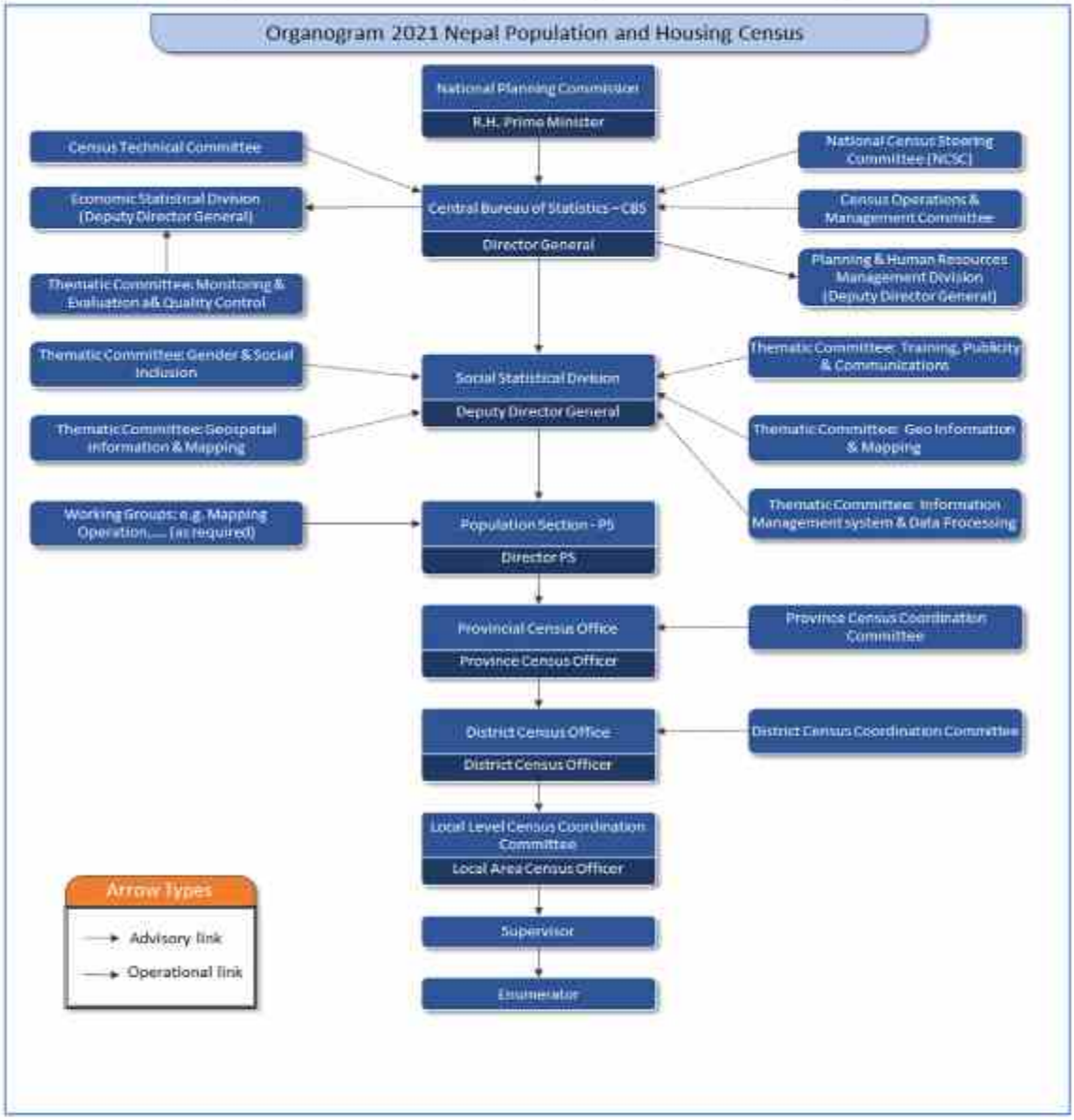
could not be completed in 957 wards of 12 districts. For the first time, Census Day was declared a national holiday and the work of coding, editing and entry of census data was contracted to the private sector.

The 2011 National Population and Housing Census marked hundred years of census taking in Nepal. The country was passing through a process of social, economic, demographic, and political changes. The census collected extensive data on housing and household facilities of Nepalese households. The census had prepared detailed EA maps for all municipalities and maps for all Village Development Committees. As like 2001 census, its coverage was comprehensive and continued to include features related to gender and social inclusion. This was the most inclusive census ever in terms of participation of female enumerators and representation of different castes and ethnicities. Over 40 percent engaged in the fieldwork were female enumerators. The census was successful in covering all villages, cities, and parts of the country. NPHC 2011 carries special features of having scientific questionnaires, detailed EA maps for urban and Village Development Committees (VDC) maps for rural areas, ever most inclusive field staff, extensive publicity, independent observance by civil society, and most economic operation based on domestic resources and most reliable data processing.

1.3 The 2021 NPHC: Organisation and Management

The NPHC 2021 is the 12th national census and the first in Nepal since the implementation of the federal structure. This was designed to generate, for the first time, significant statistics pertaining to the demographic, social, and economic aspects of the seven provinces, 753 local governments, and 6,473 wards. Organization structure (organogram) of the National Population and Housing Census 2021 showing advisory wings and operational wings is presented in Figure 1.1. The CBS is the authority for the management and organization of census and mainly carried out three activities in this connection. Firstly, pre-census activities; secondly, enumeration, and thirdly, post-enumeration activities. Pre-census activities accomplished include development of questionnaires and listing format, determination and mapping of the enumeration areas, development of field manual, hiring and training of master trainers, trainers, supervisors and enumerators and development of field supervision and monitoring plan. The post-census activities were mainly coding and editing of the forms, data entry, data processing, tabulation, validation, publication of results and dissemination.

Figure 1.1: Organizational Chart of Nepal Population and Housing Census, 2021



Source: https://censusnepal.cbs.gov.np/Home/Content/4400d4e2-5aeb-4b4f-8501-12d6f8028491/page/organizationalchart

1.3.1 Training of Census Human Resources

The CBS organized training at the federal, provincial, and local levels for the human resources involved in the census. National-level trainers were prepared from the federal-level training. They, in turn, trained the master trainers at the federal level who included teachers and

professors at local schools and colleges, federal and provincial civil service employees working at the local level, employees of local governments, and local census officers. They, in their turn, trained supervisors and enumerators at the district and local census offices. Training involved the following:

- Standardization in training manuals and training slides.
- Produced master trainers to reduce training levels.
- Training monitoring forms and evaluation forms have been provided.
- Human resources have been deployed from districts and centers to monitor the training.
- Training effectiveness was assessed by taking pre-training and post-training examinations.

1.3.2 Field operation

As the census is a huge operation, a schedule of its phases remains essential for its systematic conduct. Taking this into consideration, the Central Bureau of Statistics passed the schedule of the National Census 2078 from the National Census Steering Committee (NCSC) and proceeded accordingly.

Table 1.1: Original field operation schedule of NPHC, 2021

SN	Activities	Time duration 2078
1	Reached supervisor in the working area	24 – 25 Baisakha 2078
2	Household listing	24 Baisakha to 14 Jestha
3	Reached enumerators in the working area	24 Jestha
4	Census enumeration	25 Jestha to 6 Asar

The CBS was conducting the work as per the above schedule, it was postponed on 19th Baisakha 2078 (May 2, 2021) because of the nationwide lockdown announced at the same time due to the COVID-19 pandemic. On 6 September 2021, as the COVID-19 situation gradually improved, the Council of Ministers accepted a revised schedule presented by the CBS.

Table 1.2: Revised field operation schedule of NPHC, 2021

Activities	Time duration 2078 BS (2021)	Remarks
Household listing	From 30 Bhadra to 18 Aswin (15 Sep. -4 Oct. 2021)	20 Days
Main Census enumeration	From 25 Kartik to 9 Mangsir (11-25 November 2021)	15 Days

1.3.3 Data collection method

The National Population and Housing Census 2021 applied three alternative methods of data collection as paper questionnaires, tablets, and web applications in different places to collect information of families and individuals. The census operation was done in two phases. The first phase spanned during 15 September to 4 October 2021 and completed the listing of households and families. The second, complete enumeration phase (11-25 November 2021) collected detailed statistics through the main household questionnaire. In the second phase, details of the community regarding basic resources, institutions, capabilities, infrastructures, and disaster risks and prevention at every ward across the nation were collected through the community questionnaire.

Paper questionnaires: In the National Census 2021, the details of the census were collected using paper questionnaires in all places of the country except one metropolitan area (Kathmandu metropolis) and five municipalities of Kathmandu District *(Dakshinkali, Kirtipur, Chandragiri, Nagarjuna, and Tarkeshwar).*

Tablets: A digital device, TABLET, was used in six of 11 local levels of Kathmandu district. These are *Kathmandu Metropolitan City, and Dakshinkali, Kirtipur, Chandragiri, Nagarjuna and Tarkeshwor* Municipalities. In these local areas the device was used in both first and second phases. Listing of the households prepared in first phase was exported from tablets through a special application and printed and made available to the enumerators for the complete enumeration at the second phase.

E-census: For the first time in the history of Nepal's census, data was collected from 40 Nepali embassies, diplomatic missions, and consulates abroad. This e-census collected information of personnel working in Nepali foreign mission and their dependent family members living with them. For this, a data collection form/questionnaire was prepared using the internet-based web application and including the relevant questions of the main census questionnaire. One focal person of each mission has been trained for data collection.

1.3.4 Census enumeration and quality control:

For the overall quality management of the census, quality control measures were adopted in the pre-census preparations, census period works, and post-census works.

- In the pre-census activities, the pilot census was conducted, the questionnaire was prepared, pro-census advocacy and communication material were prepared, printing of those materials done on time, application of strict criteria and process in the selection and hiring of census human resources (supervisors and enumerators), timely transportation of materials and management of training.
    - ✓ Material management, data collection and supervision were completed during the census period.

- ✓ In the post-census activities, coding, editing, data entry, processing and publication of results were conducted.
- ✓ At the stage of formulation of the questionnaire, discussions were held with the stakeholders in all the provinces and attempt was made to adjust pertinent concerns in the questionnaire as much as possible.
- ✓ An arrangement was made to write appropriate coding by mentioning caste, language, religion, etc. in the questionnaire. This was an attempt to minimize coding errors
- ✓ For quality management under data entry, it was made mandatory for each operator to address the errors encountered after entry, using a separate consistency checking program.

1.3.5 Monitoring and Supervision of fieldwork

The census was conducted in two phases. In the first phase, the supervisor listed the houses and families, while in the second phase, the enumerators collected the family and personal details of the entire families using the main questionnaire. Similarly, four enumerators were assigned to one supervisor to monitor, supervise, and manage the fieldwork.

Supervisors provided the details of families listed in the enumerator's respective enumeration areas and facilitated to follow the enumeration area maps for data collection and other necessary assistance. In addition, the supervisor did the work of checking the completeness of the form filled by the enumerator, daily reporting of the details completed by her/himself and the enumerator, submitting the calculated report by filling the control form, etc. In this sense, the supervisors carefully supervised the work of the enumerator.

Monitoring/supervision from central office

- In both the phases of the census, the District and Local Census Officers, District Census Coordinating Committee officials, local-level officials and Census Ward Facilitation Committee officials monitored, supervised, and facilitated the work done by the supervisors and enumerators.
- Staff from the CBS were deployed in 64 districts to monitor the fieldwork.
- Three types of forms were used for monitoring and supervising the work done by the supervisor and enumerator.

Use of mobile app in fieldwork progress monitoring

Digital monitoring and supervision management system were developed for the purpose of obtaining daily reporting of work progress during the on-site census. Under this system, supervisors were able to send daily work progress through the mobile app. A web application was prepared to give necessary instructions based on the progress made, in which a special

instruction mechanism was developed to log in from the district and center and complete the work on time.

Provision of help desk for field quality monitoring and technical facilitation

A separate help desk was set up in the department to accommodate the designated staff from 8 am to 7 pm even on public holidays during both phases of the census. The help desk immediately resolved the technical and managerial problems in the field and gave necessary instructions. A telephone line (toll-free number 1178 and Ncell number) was provided for the operation of this desk.

The help desk staffs, and other staff were able to resolve any issues through their mobile phones at any time. In addition to the help desk set up in the department, the concerned district census offices had also set up separate contact points to facilitate the work of subordinate supervisors and enumerators.

Use of technology for field quality monitoring and technical facilitation

For field quality monitoring and technical facilitation, a separate Facebook Messenger Group was formed from the center and the district to solve the problem faced by the subordinate supervisors and enumerators. Some districts offer zoom online meetings, Viber services and group SMS, etc. also provided necessary instructions, problem-solving, and facilitation.

All the District Census Offices were facilitated by the Census Section of CBS through Zoom Online Meeting to provide all-important central level instructions at a time.

Provision of form-collecting desk for quality control of filled-up forms

- To collect the filled forms, it was made mandatory to have a form receiving desk in all the local census offices. This desk was instructed to receive forms only after checking all the forms brought by the enumerator and supervisor.
- To control the quality of the first step of filling the details, all the forms filled by the enumerators were required to be checked by the supervisor one by one, if left blank or obscure, it was required to be re-filled in the family and signed by the supervisor and enumerator. After checking all the details, it was decided that the enumerators and supervisors would jointly fill out the control form and submit it to the local census office.

1.4 Data Management

The data processing task is running strictly under the control of CBS. Manuals of coding, editing and key entry operation are prepared, and training and key entry operation are monitored and supervised by the core team of the CBS.

Despite limited resources, census officers actively carried out regular monitoring of the enumeration. This is believed to help to reduce possible errors in the enumeration.

1.5 Census Observation

Nepal's census operation efforts have utilized newer features with due course of time. Since 2011 census period, independent observation by a civil society group National Census Citizen Observation Group observed the census operation, particularly the field work. Similarly, this time too this group as well as UN agencies like UNFPA and bilateral agencies like DFID observed the census during field work which justifies the census undertaking process enhancing maximum use of human resources in census undertaking.

1.6 History of PES: Global and Nepal

The USA is possibly the first country to evaluate population census coverage and content in 1950 followed by Australia in 1966. However, Australia used the 1976 PES for population estimates (Australian Bureau of Statistics, 1995). France carried out a census evaluation with a PES in 1962 but it stopped conducting PES till 1990 (Coeffic, 1993). Canada measured gross under coverage in 1971 but net under coverage began to get available from 1991 census which marked the first comprehensive measure of over coverage based on an experimental study in 1986 (Statistics Canada, 1999). The UK first organised PES to measure the census quality in 1961 which has been regularly conducting immediately after every census (Office of Population Censuses and Surveys 1990). Nepal started conducting PES from 1981 onward. However, the results of the PES have not been adjusted so far. In other countries the introduction of a PES began later which corresponds with the date of the census undertaking. For example, in New Zealand the first census was conducted in 1996 and the PES was organised later.

Ideally, the results of the post enumeration surveys must be used to refine the census data. However, in practice, it is difficult to do so. PES results adjustment in main census needs quality data as well as skilled human resources. In Canada, UK and USA, heavier investments in the measurement of the census data quality were made (Coelho, Lisboa, & Casimiro, 2001).

PES results have significance if conducted independently, use of statistical tools and adjustment of the results are made in the main census. In Nepal, the PES reports in the past lacked independence and simply gave the coverage errors. None of them have been able to provide the content errors. This time for the 2021 census, the responsibility for the PES was given to the Labour Studies Programme at Tribhuvan University (TU) for setting objectives, designing research with sound methodology, conducting the field operations, and publishing the results. Although rigorous exercises have been done this time to do the in-depth study on it, a lot of unanswered questions remain regarding detail work on content error and based on them, adjustment in the main census data. This is a burning discourse which demands expertise of the human resources who have been involved in population data sets. So, this study proposes to

organise expert based consultations among academia and practitioners from the government sectors and find ways to smooth the census data through PES. Such collective efforts in bringing the PES results have been found useful in many countries. In Zambia, for example, the PES found that age reporting was more accurate than anticipated, and it helped analysts to notice at an early stage, the effects of the HIV/AIDS epidemic on age structure. Similarly, the main objective of Cambodia's PES was to provide national-level estimates of coverage and content errors in the census. The PES was conducted in March 1998, two weeks after the census. Mongolia conducted a limited PES to evaluate census coverage; lack of funds precluded a more elaborate survey. In some enumeration areas (EAs), the census and the PES were not independent operations, as evidenced by high agreement between census and PES results. Namibia faced some operational problems in its PES, including confusion over boundaries of EAs; failure to pre-list housing units or pre-test questionnaires; and lack of reconciliation procedures. In the United States of America, the use of laptops for the PES interviews and an automated software system for matching, improved the speed and quality of the work (Whitford, D.C. & Banda, J.P., 2001).

1.6.1 Main Theoretical Debate on PES

A quality population census has mainly four features: individual headcount, universality, simultaneity, and defined territory (UN, 2005). All these principles are connected to the issue of consistency and reliability of a census. Consistency and reliability of the census data is the major concern among policymakers and planners. In many ways, PES is the key method that attempts to identify the level of errors in terms of undercount, over-count, and duplication. Statistical adjustment in census data based on the PES is another burning issue coming up after 20th century (Wachter, 2008). The main purpose of the PES is to generate indices that identify tools and techniques for adjustment in census data or lessons to take for future census.

Statistics is a continuous effort of the practitioners, and the main purpose is to ensure the quality of the data collected, process and produced. For the data users, statistics is an important subject in the production of statistics. Data users tend to be increasingly demanding and critical about statistical data. For population and housing censuses, quality evaluation is carried out in various ways, one of them being the PES. Usually, when they exist, PES results are assumed to be the final quality indicators for these censuses. The PES, in this context, is a special survey designed to measure census coverage and/or content error. PES has been used effectively in a wide range of countries in recent decades. The end-product of the PES is to identify the level of errors in the main census and include an estimate of coverage error, together with a full indication of the methods used for evaluating the completeness of the data (United Nations, 1999).

PES counts mainly the errors identified in terms of census coverage and content. The word coverage refers to the accuracy of enumeration which occurs due to undercounting and overcounting during census. The miscounting of the population in their characteristics like age,

sex, marital status, level of education and so forth come under content error (Freedman and Wachter, 2003).

Nepal first started conducting PES in census 1981. Then after PES has been conducted regularly by CBS. From the very past, a realization felt by the concerned authorities is that conducting PES by CBS has not been so effective from the point of view of two major learnings. First, due to a short time span of a tight schedule, CBS personnel become busy in conducting the data analysis work of the census. There were around four to six months gap in PES data collection and census completion. These problems mainly in data matching, sample size determination, coverage of sampled area, data collection at individual level and household level and matching the records. Second, principally, the PES should be undertaken by a third party.

Table 1.3: Sample size and estimated under enumeration rates in Nepal National Population and Housing Censuses 2001 and 2011

Enumeration Domain	2001 Census			2011 Census		
	# of EAs/ wards Selected for PES	Total HHS selected in PES	Net Under count/ Omission rate (%)	# of EAs/ wards Selected for PES	Total HHS selected in PES	Net Under count/ Omission rate (%)
Urban	8	2,506		35	7,000	4.2
KTM Valley	4	1,370		20	4,000	
Other Urban	4	1,136		15	3,000	
Rural	46	5,287		15	3,000	3.5
Mountain & Hill	30	2,741		10	2,000	
Tarai	16	2,546		5	1,000	
Total	54	7,793	5.3	50	10,000	3.6

Source: Malla, U.N., 2014.

Despite these realization, past post enumeration surveys were conducted by CBS by hiring experts in the field due to which CBS encountered problems mainly because of the limited human resources and insufficient funding. Reports and findings of the past PES were also not made public in details. The PES of 2001 census reported only the coverage error at national level. While 2011 PES reported coverage error in disaggregated form for rural and urban areas. The comparative table of PES 2001 and 2011 results (Malla, U.N., 2014) are presented in Table 1.3.

However, the net omission rates in Nepal's population censuses are in decreasing trend. The PES 1991 had revealed that the under enumeration was as high as 11%, but its results were not accepted for several reasons including the timing of the survey (CBS, 1995) as it was delayed by six months. While the PES 2001 and 2011 respectively revealed net omission rate of 5.3%

and 3.6 %. Thus, it is important to examine the quality and limitations of 2021 census as well to understand the types and extent of inaccuracies.

1.7 Objectives of the PES

The primary objective of the PES is to measure the under-count (omission) or over-count (duplication) of census house/households or persons in population census. The PES is also designed to measure the level of erroneous or inconsistent reporting in some selected personal characteristics of persons in the census. Specific objectives of the survey to measure coverage and content errors are as following:

Coverage errors

- To estimate the level of gross undercount (omission) rate of the persons in 2021 population census
- To determine the level of over count (duplication) of persons
- To examine the level of persons counted erroneously in the 2021 census of Nepal
- To estimate the net-undercount or omission rate in 2021 Population and Housing Census of Nepal

For Content Error

- To estimate the rates of response biases and index of inconsistencies in reporting of age, sex, marital status, literacy, and place of birth of family members in census

The PES also serves the important purpose of providing feedback regarding operational matters like concepts and procedures, which would help, to some extent, in improving the future census operations.

The objective of this study is to prepare PES strategy that includes a sampling design, data collection methods and instruments; procedures for matching census and PES records reconciliation; data processing; and estimation procedure to quantify coverage and content errors for census 2021. Similarly, in addition to the undercount rate at the national, rural, and urban level, the assessment of coverage at provinces level and in Kathmandu valley has been conducted separately to produce domain level estimates.

1.8 Scope of the PES

The purpose of the PES is to measure the accuracy of the census by independently surveying a sample of the population. The scope of the PES is aligned to that of an actual census. Therefore, it covers the private households only and excludes the institutional households, homeless, diplomatic residences, as was the case in full census.

1.9 Limitations

i. Theoretically, PES is to be organized within three months after the finalization of census operation. The PHC 2021 was completed on 25 November 2021 and thus the PES fieldwork had to be organized by 25 February 2022. However, the fieldwork for the PES started on 15 March 2022.

ii. Since this PES is aligned to that of an actual census and thus it excludes the institutional households.

iii. The variables used for measuring the content errors are based only on the age, sex, marital status, literacy status and birthplace.

iv. Among the six indices[1] which are popular in estimating the content coverage as response bias and response variance, three indices, that is, Net Difference Rate, Gross Difference Rate and Index of Inconsistency have been included in this study.

[1] They are categorized under **Indices of Response Bias:** Net Difference Rate and Net Shift Rate, and under **Response Variance:** Gross Difference Rate, Index of Inconsistency, Aggregate Index of Inconsistency, and Proportion of Standard Differently Reported.

Chapter II: Methodology

2.1. Estimation Methodology

The PES process attempts to identify all persons in the sample household on the PES reference date, as well as any other persons in the household on the census reference date, and classify each person as either a non-mover, out-mover, or in-mover based on his/her household presence status on the census date. The goal is to match only those who were present on the census day, i.e., non-movers and out-movers, to the census data. The matching out-movers are approximated based on the matched in-movers.

A PES's primary technique is to collect individual information during the PES interview and match those records to population information obtained from the census. When assessing coverage error in a census, two types of errors must be studied in detail. They are errors in omission and inclusion of persons. The dual system of estimation is based on the capture-recapture method, in which a sample is collected from a population, tagged, released, and counted in a re-capture. This model assumes that complete matching of persons and units occurs between the census and the survey, that there are no duplicate observations of individuals in either source, and that the two sources are independent. When the PES can determine omissions and erroneous inclusions from the sampled PES households, it is possible to make an estimate of the true population, using following estimating formula:

Estimating formula of errors in census count

		Census		Total
		Yes	No	
PES	Yes	M	Persons counted only in PES but not in Census	Ns
	No	Persons counted only in Census but not in PES	Persons missed in both Census and PES	Not in PES
Total		NC	Not in Census	N

Where:

M = number of persons counted in both census and PES (i.e., matched cases)

Ns = number of persons counted in the PES

Nc = number of persons counted in the Census

N = Estimates of true population which is derived by the equation

$$N = (Nc * Ns)/M$$

The above relationship holds true only if the Census and PES activities are independent. The need for independence has direct implications for many PES operations, including the timing of PES data collection, the recruitment of field personnel who are not involved in census data collecting, sampling, and so on. The number of persons missed in two data collection systems is shown to be calculable if this assumption of independence holds.

This dual system estimation procedure has been applied in previous PES operations in Nepal. The PES 2022 evaluates the degree of coverage as well as some level of content errors based on selected individual characteristics like age, sex, caste-ethnicity, religion that are used for matching purposes.

2.2 Stages of work of the PES

Mainly five stages were followed for this undertaking.

- Household listing
- Administering schedule questionnaire
- Desk matching
- Field reconciliation
- Finalization

2.3 Sampling Design

2.3.1. Sampling procedure

The sampling design for the PES is probability in nature. A single stage cluster sampling design was implemented. The Primary Sampling Units (PSUs) were the wards which are the lowest administrative unit of the government. Further, in urban areas sub wards (prepared by the GIS section of CBS for the purpose of Census enumeration) were used as PSUs instead of wards. These are the Enumeration Areas (EAs). EAs are selected independently within each selected domain. Probability Proportional to Size (PPS) sampling technique was used to select the EAs. The measure of size is the number of households in each EA. Complete enumeration was done in all selected EAs including all residential households/population but not institutional households.

2.3.2. Sampling frame

The sampling frame used for the selection of PSUs were the EAs that were used for the Population Census 2021 enumeration.

2.3.3. Domain

Domain is a major segment of the population for which separate statistics are needed. In this PES domains were the seven provinces, Kathmandu Valley, and Urban-Rural areas at national level. With careful stratification, estimates of the urban-rural areas were obtained from the province's stratification by urban-rural areas. Hence for the sample size calculation purpose, the restricted number of domains is eight (7 provinces and KTM valley).

2.3.4. Sample size

For the sample size calculation, the trickiest part of the sampling design, it is necessary to ensure that an adequate sample size is allocated at domain level. Only probability sampling design can generalize the result obtained from the survey to entire population under study. Keeping this construct in mind, probability sampling design was utilized in this study. Another important task for the sample size calculation is the assumption on the parametric values of the components of sample size calculation formula. The sample size calculation formula for the proportion estimate is:

$$n = \frac{z^2 p(1-p)}{MoE^2 * Av.hh} x\ def * (1+r)$$

Where:

n = Sample size for a domain

Z = Critical value of the Normal distribution at α/2 level of confidence (at 95% confidence level, Z = 1.96)

p = Anticipated value of the census coverage error
(it is anticipated 3% so, p = 0.03). (Omission rate in 2001 = 5.3% (PES 2001), 2021 = 3.6% (PES 2021))

MoE = Margin of error

- * Since p is below 10% it is recommended to estimate relative MoE instead of absolute MoE (default 5%).
- * MoE = not more than 25% of p = 0.25*0.03 = 0.0075 (0.75%)

Deff = Design effect because of using cluster sampling design, * expected 3

r = Non-response proportion it is assumed to be 0.02 (MICS 2019)

Av. hh = Average household size
* to be applied if P is at individual level instead of household level.
* 4.3 (MICS 2019)

Under these conditions per domain sample size i.e., number of households, required is:

n = 1414.

This is the sample size (number of households) required for a single domain.

We have altogether 8 domains, hence minimum sample size = 8 x 1414 = 11312 households.

We also need to consider the average number of households per enumeration area EA = 150

=> Total number of EAs = 11312/150 ~ 76 (rounded)

=> EAs/Domain = 76/8 = 9.5 ~ 10 (rounded).

2.3.5. Stratification

Stratification was done to allocate sampling units within each domain where urban-rural area exists. This is based on proportionate allocation of urban and rural areas. Proper attention was given to ensure the minimum sample size required for the urban and rural areas in aggregate level i.e., at national level. That means, if proportionate allocation does not ensure the required number of sampling units in aggregate, then additional sampling units is allocated to respective urban or rural areas.

Under these circumstances, EAs distributed to each of the analytical domain disaggregated by urban/rural areas are described in Table 2. Allocation of EAs is based on percentage of the rural and urban population as of the Population Census 2021 in each stratum. The EAs within each stratum was ordered geo-administratively and then required number of EAs were selected using the PPS sampling technique.

Table 2.1: Distribution of sample EAs in urban-rural areas of the eight analytical domains

Domain	Areas	Reported # of Households and Population in 2021 Population Census (Preliminary Result)		% Of Population within Domain	Allocated # of Sample EAS	# of HHs enumerated in the PES from the Sample HH	Total Population enumerated in PES
		Households	Populations				
Koshi Province	Total	1203930	4972021	100	10	1573	6135
	Urban	764976	3098429	59	6	979	7257
	Rural	438954	1873592	41	4	594	3938
Madhesh Province	Total	1190154	6126288	100	10	2154	11195
	Urban	872718	4464480	72	7	1442	7257
	Rural	317436	1661808	28	3	712	3938
Bagmati Province (ex. KTM Valley)	Total	787372	3567019	100	10	1983	6576
	Urban	441789	2107659	53	5	1057	3829
	Rural	345583	1459360	47	5	926	2747

Domain	Areas	Reported # of Households and Population in 2021 Population Census (Preliminary Result)		% Of Population within Domain	Allocated # of Sample EAS	# of HHs enumerated in the PES from the Sample HH	Total Population enumerated in PES
		Households	Populations				
Gandaki Province	Total	678176	2479745	100	10	1937	6732
	Urban	448063	1629455	61	6	1214	3848
	Rural	230113	850290	39	4	723	2884
Lumbini Province	Total	1155523	5124225	100	10	1754	7941
	Urban	653529	2820597	52	5	951	3753
	Rural	501994	2303728	48	5	803	4188
Karnali Province	Total	371125	1694889	100	10	2041	8581
	Urban	201392	882976	50	5	1261	5437
	Rural	169733	811913	50	5	780	3144
Sudur-pashchim Province	Total	587054	2711270	100	10	1605	7302
	Urban	372474	1688571	60	6	1049	4813
	Rural	214580	1022699	40	4	556	2489
KTM Valley*	Total	787725	2517023	100	10	1740	6513
	Urban	780871	1863456	99	9	1581	5897
	Rural	6854	633567	1	1	159	616
Nepal	Total	6761059	29192480	100	80	14787	60975
	Urban	4535812	19291031	63	50	9534	38645
	Rural	2225247	99014491	37	30	5253	22330

**The KTM Valley urban consists of all the urban municipalities of Kathmandu, Lalitpur and Bhaktapur districts while the rural consists of rural municipalities of Lalitpur district.*

After completion of the Census enumeration in 2021, updated data on the number of households in all EAs of Nepal, disaggregated by analytical domains and stratifications were used as Primary Sampling Units. The number of households in each EA is the measure of size.

2.3.6. Sample weight

Since the sampling design is not self-weighting, sample weights were generated at household and individual level to implement for the tabulation purpose. The first stage weight represents the inverse of the first stage selection probability i.e., probability of selection of EAs. The sample design required that EAs selection probabilities be proportional to household size. The first stage selection probability of the EAs is

$$Pr_{EA}^{i} = \frac{n * m^{i}}{\mathrm{M}}$$

Where n is the number of sampled EAs, mi is the measure of size for the i^{th} EA and

$$M = \sum_{i=1}^{n} mi$$

Where N is the total number of EAs in the stratum.

The first stage weight for the ith sampled EA is hence equal to

$$W_{EA}^{i} = \frac{\mathrm{M}}{\mathrm{n} * \mathrm{m}_i}$$

The second stage weight is 1 since all households and individuals within the selected EA were completely interviewed. Hence, final weight is equal to that of the first stage weight which is $\frac{\mathrm{M}}{\mathrm{n}*\mathrm{m}_i}$.

Final Estimation: After the sample has been weighted with correct raising factor, the estimation for each of the domain is computed as follows:

1. Estimation of the usual resident population is

$$\acute{\mathrm{N}} = \frac{\acute{\mathrm{N}}_{PES}\left(\acute{\mathrm{N}}_{Census} - \acute{\mathrm{N}}_{Error}\right)}{\acute{\mathrm{N}}_{Matched}}$$

Where:

$\acute{\mathrm{N}}_{PES}$= Estimation of PES population

$\acute{\mathrm{N}}_{Census}$ = Estimation of Census population

$\acute{\mathrm{N}}_{Error}$ = Estimation of erroneously included population in census

$\acute{\mathrm{N}}_{Matched}$ = Estimation of matched population

2. Estimation of the net coverage error in percentage is

$$NCE = \frac{\acute{\mathrm{N}} - \acute{\mathrm{N}}_{Census}}{\acute{\mathrm{N}}} X\ 100$$

2.4 Data Management and Organisation of the Survey

The two types of errors, namely omissions and erroneous inclusions, are inevitable in census operation. These errors are of special interest in the analytical framework that is used to quantify the coverage error in the census. Some of the major causes of omissions are faulty enumeration area maps, non-responses, wrong answers given by proxy respondents, mistakes made by enumerators, misunderstanding of usual place of residence concept, etc.

Similarly, the erroneous enumerations occur mainly due to including households or persons who should not have been enumerated like counting the out-of-scope persons; deliberatively inflating the population by respondents; and duplicate counting of households or persons due to overlapping of enumerators' assignment, counting the persons having multiple residences in all the places, etc.

The fundamental objective of PES is to find out carefully who lived in a particular housing unit on the day the census was officially taken and then to match the results from the PES to the corresponding census form. Hence, the basic procedure of PES is to collect person information at the time of the PES and match the person records to the population information obtained in the census.

2.4.1 Matching operations

Comparing the two sets of data (census and PES) for an EA is a crucial step in finding out match, possible match, and non-match. This process can be simplified by using computer assisted matching in the first round and then by clerical matching of the remaining non-matches and possible matches. In general, the basic process of matching involves comparing addresses, names and demographic characteristics between census and PES results. It is, therefore, an operation whereby households, housing units, and persons enumerated during a census and PES are compared for similarities.

A two-way matching is conducted between the PES records and the census records to identify omissions and erroneous inclusions. There are three basic procedures that can be used in PES to evaluate coverage in censuses. The procedures differ on how we treat movers. Movers are the people whose location at the time of the census differs from their locations at the time of the PES. The proposed PES questionnaire is designed to obtain a listing of all persons currently living at the sample address or location and all possible locations of the members of household on a census day including a listing of persons who belonged to the sample address on census day but were not resident at the time of the PES. This procedure minimizes matching difficulties and improves the estimation of movers.

2.4.2 Matching rules

To minimize the erroneous matching of the records, it is necessary to develop detailed matching rules. We come across many erroneous matches and erroneous non-matches' while record matching is performed and such possibility is to be considered when developing matching rules. Erroneous match occurs when a PES case is classified as matches but in fact the PES case was not actually enumerated in the census. Similarly, erroneous non-match occurs when a PES case is classified as non-matches but in fact the case does not correspond to a case enumerated in the census. It is worth noting that if exact agreement of characteristics is required to establish a match, there is bound to be an excessive number of erroneous non-matches.

For this, a separate matching, reconciliation, and data processing manual was developed. The matching manual was designed to put in place a system which minimizes net error. The objective of the matching procedure is to determine the number of matches. The estimate can be accurate if net matching error is equal or close to zero.

Matching rules specify the characteristics, such as age, sex, name etc. by which persons and households enumerated in the census and PES are matched. Tolerance ranges, which records, must agree with should be defined and specified. Such tolerance ranges allow for limited degree of misreporting within the census or PES. The ranges can vary according to characteristics. A good example is that no tolerance may be made for gender differences, but relatively large tolerances may be allowed for age, especially when most of the population has no birth certificates. However, very careful development of matching rules should be considered, because while net matching error might be minimized by flexibility of tolerance ranges, gross error, thus, erroneous matches plus erroneous no-matches might be large.

The best matching rules were finalized in consultation with the CBS during the implementation phase. The matching exercises were experimented with various mixes of characteristics and tolerances in pre-tests. Collection of sufficient matching information from respondents through a pre- test or a subsample of the PES is helpful in resolving questionable cases. If detailed information is collected from a subsample of the PES, the initial matching was confined to the subsample so that matching rules for the rest of the PES could be established.

2.4.3 Reconciliation process

Field reconciliation is an integral part of the PES Dual System Estimation Methodology. This is a follow-up process after the initial matching which helps definitively identify cases with insufficient matching information. Reconciliation visits minimize the net matching error (i.e. the difference between erroneous matches and erroneous non-matches). The cases in PES are first matched by strict and/or relaxed matching rules that will classify cases into obvious matches and possible matches. After the initial or preliminary match, field reconciliation was done to obtain additional information to help resolve suspicious cases. The results of the reconciliation processes were used to assign a definite match status to each pending case. For this, the Matching, Reconciliation and Data Processing manual developed by the study team in consultation with CBS was utilized. The manual clearly identified the process for reconciliation for deciding the cases requiring the reconciliation visits. For those unmatched cases, phone calls were made which were received from both the census and PES questionnaires. Those cases not matched or some of those counted out of the EA areas even after the phone calls were attempted to settle and cross-verify by making individual visits.

2.4.4 Dual system estimation

Since population census involves massive exercise, some amount of inaccuracies is natural which are best pronounced as coverage and content errors in statistical terms. Whereas coverage error occurs in the count of persons or housing units in the form of omissions, content error happens in recording characteristics of those persons that were enumerated because of erroneous or inconsistent reporting, and/or failure to obtain or record the required data accurately (Statistics South Africa, 2012). The PES is one of the methods used for measuring these types of errors in a census.

PES carries a major assumption that the census and the PES are independent and the estimate of the percentage missed by the PES but found by the census and the percentage missed by the census but found by the PES can be used to construct estimates of the percentage missed by both the PES and census. Even doing so, the likelihood of a person being missed in the PES may be related to whether they were missed in the census. This may result in a 'correlation bias' in the PES estimates. To minimise this bias, PES estimation takes into account the fact that different groups have a different likelihood of being missed (Statistics South Africa, 2012). Dual-system estimation is one of the best techniques to derive the true population of the country. The term 'dual system' means that two independent sources or 'systems' are used to arrive at the estimate of the true population: the census and the PES. The dual system provides an estimate of the cases included in one source (PES) and excluded from the other (census), and vice versa, as well as the count of those that were enumerated in both sources. It also allows for the computation of the number, as well as the rate, of persons missed by both the census and PES using the principle of independence and probability methods. Both estimates contribute to the dual-system estimate, which is more complete than either the census or the PES estimate alone. The true population is compared with the census-enumerated population and the difference is the net undercount (or overcount). Dual-system estimation has the following assumptions to apply:

- Closed population: migration between the census and PES is insignificant and the composition of the population remains relatively unchanged.
- There is independence between census and PES, i.e., the organisation of the census and PES, especially fieldwork operations, must be managed by different teams.
- There is absence of erroneous inclusions in either the census or PES.
- There are no incomplete matches. Any failure to match census and PES items should be due to actual omission and not the inability to match (Statistics South Africa, 2012).

Thus, PES consists of two parts: a sample of the population, known as the P sample and the second part a sample of the census enumerations known as the E sample. The dual-system model used to estimate the true population classifies each person as being either included or not in the Census enumeration, as well as being either included or not in the PES:

Enumerated status in

PES	Census		
	Enumerated	Omitted	Total
Enumerated	N_{11}	N_{12}	N1.
Omitted	N_{21}	N22	N2.
Total	$N_{.1}$	N.2	N..

In theory, all cells are observable, except those highlighted in gray (N22, $N_{2.}$ and $N_{.2}$). Under the assumption of statistical independence between the PES and Census, we can estimate the total population, N.. as:

$$N.. = (N_{1.} * N_{.1}) / N_{11}$$

To estimate the cells of the dual-system model, the PES conducted an independent listing of each sample block, an initial interview, an initial match to the census, a follow-up interview of problem cases, and a final match. The estimation steps included missing-data adjustment, weighting, and dual system estimation.

The dual-system estimation procedure is based on the case-by-case matching of two different and independent sources describing the same event. The estimation procedure was applied at the level of analytical domain by sex separately for rural and urban areas to estimate aggregate number of persons omitted, and in case of categories like literacy, marital status, age, etc. The net omission has been obtained by subtracting the number of persons who have been duplicated from the number of persons omitted. The net omission rate presented in this report gives the ratio of the number of omitted persons (net of duplication) per 100 persons enumerated in census.

In this study, the dual-system estimation procedure is based on the case-by-case matching of two different and independent sources describing the same event. The dual estimation procedure was applied separately for rural and urban areas for estimating aggregate number of persons omitted, and in case of categories like literacy, marital status, age, etc. The net omission has been obtained by subtracting the number of persons who have been duplicated from the number of persons omitted. The net omission rate presented in this report gives the ratio of the number of omitted persons (net of duplication) enumerated in census.

Those enumerated in census have been classified as:

1. Enumerated correctly: These persons are enumerated in the correct place only, i.e., in places where they were eligible for enumeration as per census instructions.
2. Enumerated only once but at wrong place: These persons have been enumerated at a place other than the place in which they were eligible for enumeration.
3. Duplicated: These persons were enumerated in more than one place.

The persons who were enumerated once but at wrong place were considered as enumerated in census for purposes of calculating the omission rates. Though at the national level this is correct, it can lead to distortion of results at the lower level. However, these distortions are unlikely to alter the results significantly in view of low proportion of population in this category. The standard errors (SE) of the omission rates have been estimated for total error.

Using the Dual System Estimation method, the following coverage indicators were obtained from PES.

a. The true population of Nepal
b. The number of persons omitted in the census
c. The census omission rate (the number of persons omitted in the census as a percentage of the true population)
d. The number of persons erroneously included in the census
e. The erroneous inclusions rate (the number of persons erroneously included in the census as a percentage of the true population)
f. The net coverage error (the true population minus the census population)
g. The net coverage error rate (the net coverage error as a percentage of the true population)
h. The gross coverage error (the sum of persons omitted and erroneously included in the census)
i. The gross coverage error rate (the net coverage error as a percentage of the census population)

2.4.5 Development of questionnaire

The post enumeration survey estimates how many people and housing units were missed or counted erroneously in the census. For this purpose, a questionnaire was prepared for PES data collection and corresponding matching and reconciliation forms precisely. In addition, questionnaire for the PES was designed based on the final census questionnaire to facilitate an objective evaluation of the census. The following points were kept in mind while developing the questionnaire:

a) Enable the collection of accurate data to meet the needs of potential data users in a timely manner.
b) Facilitate the work of data collection, data processing and tabulations.

2.5 Survey Administration and Quality Control

Steps taken to survey administration and quality control of the PES survey involved the following:

- Hiring and training of field enumerators
- Development of enumerator manual/guideline
- Field work monitoring, supervision, and spot checking
- Editing of completed survey in field, office editing and post coding if any, and
- Development of data entry system, taping entry errors, editing and reconciliation matching between census and PES schedules.

2.5.1 Hiring and training of field workers

Field level enumerators were hired on competence basis with prior working experiences in the census or large-scale household surveys. In hiring field investigators, priority was given to the master's level students of social science streams from TU such as Labour Studies and others and especially to those who are from the same sample districts. Steps were taken to maintain gender balance in hiring field investigators. Depending on the amount of work to be completed within short period of time (within 20 days of start of training); 80+10 enumerators (10 in reserve) were hired (Annex E).

After the finalisation of recruitment, a 3-days rigorous training with field practice was organized. The training included both thematic and practical aspects. Regarding thematic aspects, training was focused on content and its importance in the survey. It also included the technicality of how to fill up the questionnaire with skipping and consistencies. Some practical aspects cover how to approach to the households and respondents, creating friendly environment so that interview could go smoothly, and obtain information as much as valid and reliable.

2.5.2 Preparation of field manual

An interviewer field manual explaining aspects and process of each question in simple Nepali language was developed. The manual helped, to a greater extent, to remove all confusions that enumerators may encounter during field operation. This step was expected to enhance quality of responses and the collected information.

2.5.3 Field monitoring and supervision

Efficient strategy of monitoring and supervision is believed to augment the quality of collected information. Two levels of monitoring and supervision schemes have been utilised in this survey: within the teams of field investigators and monitoring/supervision of core professional team members along with CBS professionals/officials.

Field monitors were mobilised in the field with the field enumerators who supervised the work of each field worker in accordance with survey operation guideline, the way of conducting interviews and do spot checking of completed surveys. If found someone incompetent in

soliciting quality information, despite efforts placed to correct, the were assigned authority to withdraw him/her from the field.

Core professional team and CBS professional/officials also joined the monitoring and supervision of field operation for two weeks. The central level monitoring and supervision team performed spot checking of one to two percent work of each field investigator and gave corrective guidance if found errors in the work. The CBS team provided the field operation plan/schedule of each field work domain with contact number of field enumerators. This facilitated the CBS's supervision teams in the monitoring and supervision work at their own or in close coordination with the core team of the survey.

2.5.4 Field editing, office editing and post coding

Field investigator/enumerators were requested to re-visit a completed survey as immediately she/he completes it without leaving the house. The core team on behalf of CBS and Labour Studies Progrramme, TU were made responsible to maintain smoothness in the work of enumerators, and quality of data collection through close monitoring and supervision. The team, with the help of assistants hired for the same work also edited the questionnaire filled up by enumerators. The administered questionnaire was rigorously edited and crossed matched before entering computer. Any of open-ended responses were post coded during this phase.

2.5.5 Data management plan

To a large part, the data management scheme determines the quality of a survey output. Good designs of data entry system with enter and entra-variable consistency check, process adopted to minimize entry errors and taping it are likely to minimize entry errors in data. In addition, the approach adopted to perform variable-wise cross matching and reconciliation is believed to augment the quality of data to yield high level of validity and reliability. The following procedures were adopted for the data management:

- A latest version of Census and Survey Processing System (CSPro) software developed by US Bureau of Census was used to develop data entry and editing system.
- To control the quality of data, range check, intra-record and inter-record consistency check was strictly performed. This is the system that can be developed in CSPro for data cleaning and editing.
- Well-trained and experienced data entry operators were employed in data entry process.
- The entry errors were taped and corrected by cross-matching of each variable. Detected errors were corrected re-visiting the field questionnaire. A third set of cleaned and reconciled data file was prepared and used for analysis and report writing.

2.6 Determination of Content Error

Content error calculation involves calculation of response bias and response variance. The *response bias* of a statistics for an area is that part of the response error, which would not tend to average out over the work of many interviewers who might be assigned to the area or the many conceivable responses of the respondents in the area. It may and often will differ between types of areas or between one survey or one census and the next, although it may tend to be consistent in direction and to a considerable degree in amount.

The *response variance* of a statistic arises from factors that would tend to average out through compensating errors in a large number of repetitions of the experience, but that may in a particular limited set of measurements have a significant effect on the accuracy of the result. For example, census figures for very small areas or for very detailed tabulation cells for large areas may be much more significantly affected by enumerator's errors, than will be summary figures for large areas such as state or national figures. The enumeration in a particular tabulation area may reflect the work of only a few enumerators. Each enumerator may introduce certain types of more or less consistent or correlated errors within his work. Such errors generally may tend to balance out over a large number of enumerators but may have a substantial effect of the statistics for small areas or small tabulation cells. The differences in performance among enumerators are in many cases an important component of response variance. This is particularly important in the census, as data collection is completely in the hands of enumerators.

Six indices have been estimated to measure response bias and response variance, two relating to response bias and the other four to response variance. These indices are as below:

Indices of Response bias:

(i) Net Difference Rate

(ii) Net Shift Rate

Response variance:

(i) Gross Difference Rate

(ii) Index of Inconsistency

(iii) Aggregate Index of Inconsistency

(iv) Proportion of Standard Differently Reported

The significance of response bias and variance can be explained, by way of an example, with reference to the literacy category. In the PES it was determined whether a person was literate or not. The PES results relating to this characteristic can be compared with those of the Census in relation to the same characteristic and the classificatory differences can be considered on the following basis:

Classification of literate and non-literate population in PES and Census

Number of persons classified in			
PES as	**Census as**		
	Literate	**Non-literate**	**Total**
Literate	a	b	a+ b
Non-literate	c	d	c+ d
Total	a+ c	b+ d	n=a +b +c +d

b and c, in this example represent the classificatory difference between the PES and the Census. The indices of response bias and response variance referred to above have been developed on this basis and are explained further.

2.6.1 Calculation of Difference Rate, Shift Rate and Index of Inconsistency

Net Difference Rate (NDR)

If PES is regarded as an improvement over the census and as standard by which to judge the census results, then the difference between the two sets of, for example, literacy figures (a+b) and (a+c) is net difference. The Net Difference Rate (NDR) is calculated as follows:

NDR = (a+c)-(a+b)/n*100=c-b/n*100

If the sign of this index is positive, it would mean that a larger number of persons have been classified as literate in the census than is really the case. If the sign is negative, it would mean that there has been an under estimation of the literate in the census.

Net Shift Rate (NSR)

This shows the net difference as a percentage of persons classified in PES in a group. While in net difference rate the total population 'n' is the denominator, in net shift rate, the number of persons classified in PES as in a group (i.e., a +b) forms the denominator. The formula for index of net shift is

NSR = (a+c)-(a+b)/(a+b)*100 = (c-b)/(a+b)*100

Gross Difference Rate (g)

It is the percentage of the persons for whom the classification differs in the census and PES, i.e.

g=b+c/n*100

$g/2$ is an estimate of simple response variance 'g' is an extremely useful index. It provides a useful measure of the consistency or reliability of measurement process. If both the PES and

census enumerators classify a person in the same manner then 'g' will be zero. Values of g farther away from 'zero' indicate that the measurement of the characteristic is less reliable.

Index of Inconsistency (I)

p=(a+c)/n will be the proportion of persons classified as unit in a census. The variance of this proportion is *p(1-p)*. The ratio of simple response variance $g/2$ to the variance *p(1-p)* is defined as the *Index of Inconsistency*.

$$I = (g/2)/p(1-p)$$

The farther the value of 1 from zero, the less reliable is the measurement of the characteristics.

Proportion of Standard Differently Reported ($\bar{r}$)

This is the proportion of cases in PES, which were differently reported in census. Symbolically, $\bar{r}$ = b/(a+b) this provides an index of the stability of the response relative to the standard. This gives an idea of the proportion PES group that was differently classified in census and the proportion that was identically classified.

2.6.2 Calculation of Age Heaping and Digit Preference

Age heaping and digit preference were measured by calculating Whipple's index and Myers' blended index. UN Age Accuracy Index (AAI) was also calculated in this exercise. Whipple's index detects a preference for ages ending in 0, 5, or both. Whipple's index is constructed for the age group of 23–62 years using the following formula:

$$\text{Whipple's index for the 5-year range} = \sum(P25 + P30 + P35 + \ldots + P60) \times 1001/5 \sum(P23 + P24 + P25 + \ldots + P62)$$

$$\text{Whipple's index for the 10-year range} = \sum(P30 + P40 + P35 + \ldots + P60) \times 1001/10 \sum(P23 + P24 + P25 + \ldots + P62)$$

Whipple's index varies from 0 to 500. A value of 0 indicates that digits '0' and '5' are not reported, 100 means there is no preference for '0' or '5', and a maximum of 500 is seen when only the digits '0' and '5' are reported in the age data. The inference about age distribution based on this index is as follows: <105 = highly accurate; 105–109.9 = fairly accurate; 110–124.9 = approximate; 125–174.9 = rough; ≥175 = very rough.

Myer's blended index is calculated for the age above 10 years and shows the excess or deficit of people in ages ending in any of the 10 digits expressed as percentages. It is based on the assumption that the population is equally distributed among the different ages. The steps in the calculation of Myers' blended index are as follows:

1. Sum of populations ending in each digit over the whole range starting with the lower limit of the range (e.g., 10, 20, 30, 40,….; 11, 21, 31,….)
2. Ascertain sum excluding the first population combined in step 1 (e.g., 20, 30, 40,….; 21, 31, 41,….)
3. Weight the sums in steps 1 and 2 and add the results to obtain a blended population (e.g., weights 1 and 9 for 0 digit, weights 2 and 8 for 1, etc.)
4. Convert distribution in step 3 into percentages.
5. Take the deviation of each percentage in step 4 from 10.0, which is the expected value for each percentage.
6. A summary index of preference for all terminal digits is derived as one half of the sum of the deviations from 10.0%, each without regard to signs.

CHAPTER III: COVERAGE ERROR

This chapter deals with the results of the Post Enumeration Survey (PES) on Population on the coverage error. It first, present different attributes of the population according to enumeration status in census 2021 and PES 2022. Secondly it determines the size of true population as of the PES 2022 according to analytical domain of the country. Thirdly, it estimates the *net omission rates, gross omission rates and duplication rates* based on dual system estimation methodology. Indicators of omission rates, duplication rates and erroneously counted persons are presented for eight analytical domains and urban/rural residence.

3.1 Attributes of Enumeration Status

Overall, 96.2 percent population counted in both PES and Census. It is slightly lower (96.1%) in the urban areas and the figure for rural is 97.3 percent. Those counted in PES but not in census was found 2.09 percent which was quite higher (2.44%) in the urban area. Similarly, those counted in census but not in PES was identified as 0.32 percent with slightly higher figure (0.34%) for the urban areas (Table 3.1; clarified further by Figure 3.1 and 3.2).

Table 3.1: Enumeration status in PES 2022 and census

Nepal	Urban	Rural	Total
	%	%	%
Counted both in PES & census	96.1	97.3	96.2
Counted in PES but not in census	2.44	1.48	2.09
Counted in census but not in PES	0.34	0.29	0.32
Double counted in census	0.18	0.11	0.15
Absentees counted in census	0.44	0.31	0.39
Absentee returnees in PES	0.35	0.32	0.34
Born after census	0.20	0.24	0.21
Total	100.0	100.0	100.00

Source: PES- 2022

Negligible difference was found on double counted in census, absentees counted in census and born after census. The sub-national level data for these categories are presented in Annex-A (A1).

Figure 3.1: Enumeration status in PES 2022 and census, Nepal

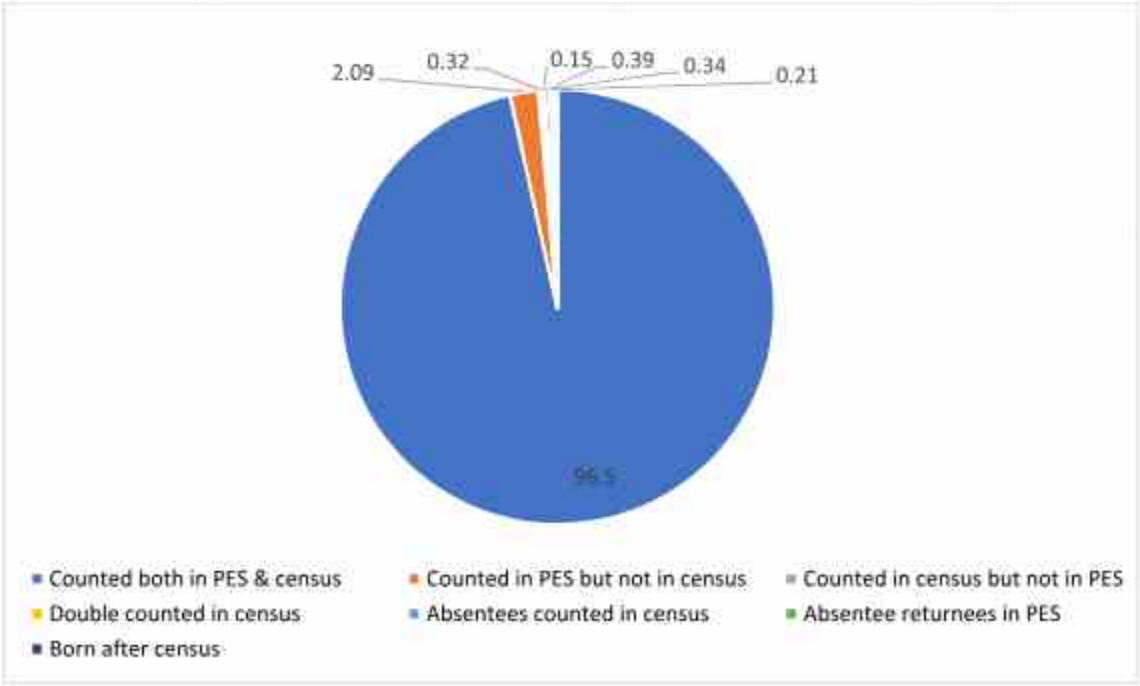
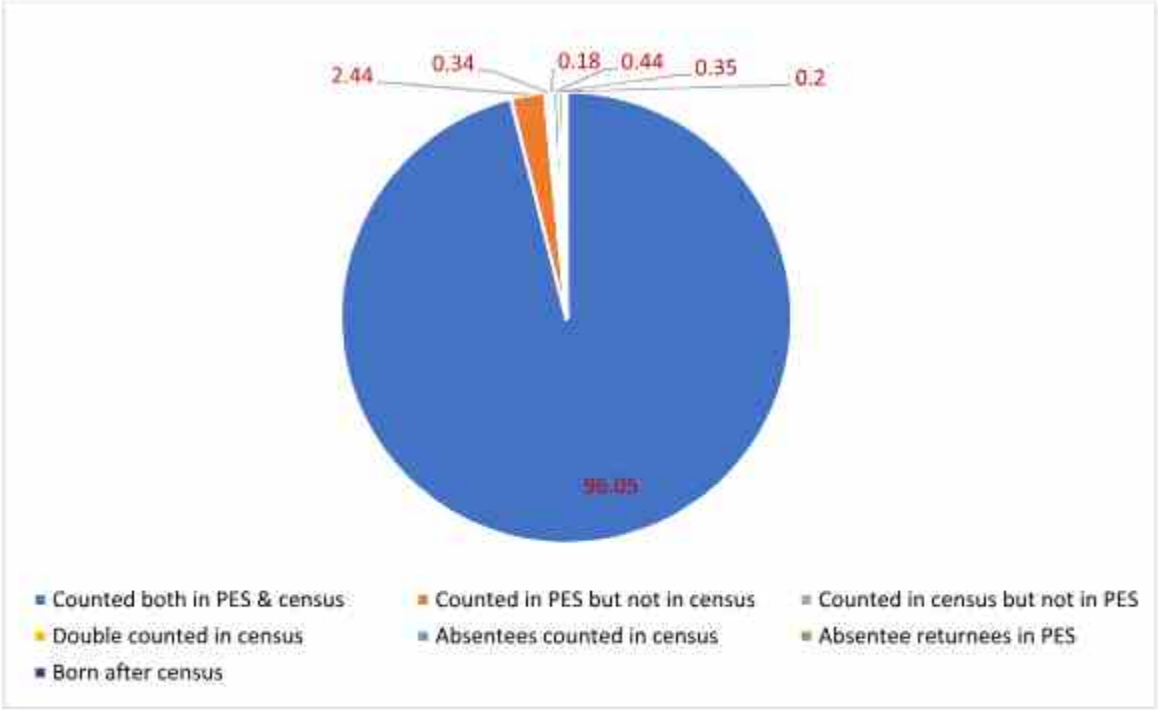


Figure 3.2: Enumeration status in PES 2022 and census, Urban



3.2 Estimation of True Population

The survey estimated 29.93 million national true population. Its size is highest in Bagmati Province followed by Madhesh and Lumbini Province (Table 3.2).

Table 3.2: Estimated true population (weighted) by analytical domain

Analytical Domain	Estimated true population		
	Urban	Rural	Total
Koshi	3163402	1891272	5054674
Madhesh	4558445	1680473	6238918
Bagmati	4927143	1404346	6331489
Bagmati (Excluding KTM Valley)	1790575	1375590	3166165
Kathmandu Valley	3136568	28756	3165324
Gandaki	1659381	862669	2522050
Lumbini	2930041	2349664	5279705
Karnali	904372	828679	1733051
Sudurpashchim	1739786	1036903	2776689
Total	19882570	10054006	29936576

3.3 Estimations of the Components of Coverage Errors

Three component indices of coverage errors considered and determined here are 'net omission rate' 'duplication rate' and 'gross omission rates. Gross omission is the sum of net omission rate and duplication rate. Duplication signifies persons counted in census from multiple places. Net omission rate is obtained when duplication rate is deducted from gross omission rate.

3.3.1 Net Omission Rate

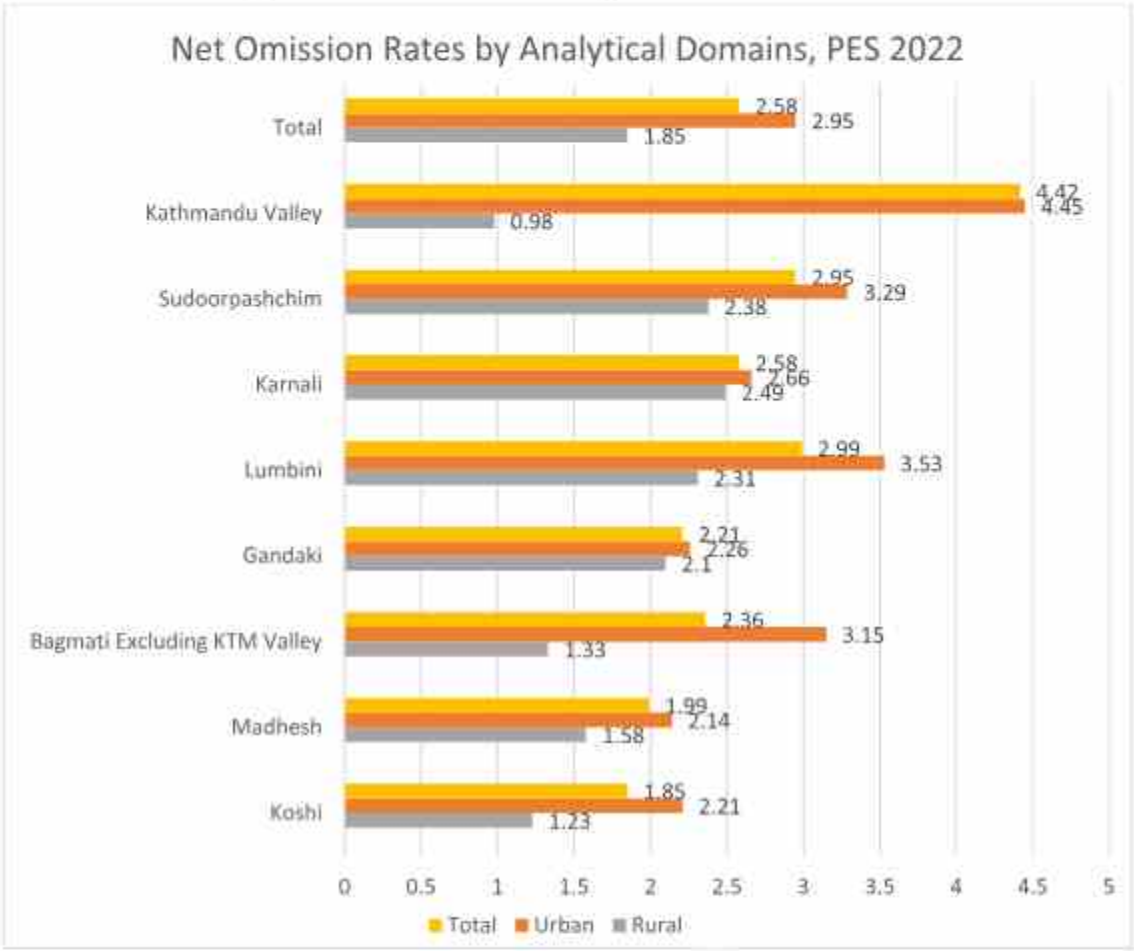
The net omission rates have been calculated as the ratio of the number of omitted persons net of duplication to hundred enumerated persons in the census. Net omission rates at national and provincial levels are given in Table 3.3.

At the national level, the net omission rate is 2.58 percent enumerated in the 2021 census. This rate looks higher (2.95%) for urban areas against 1.85 percent in rural areas. By domains, Kathmandu Valley has the highest (4.42%) net omission rate followed by Lumbini (2.99%). Whereas the urban areas of both domains have higher (Kathmandu valley: 4.45% and Lumbini 3.53%) net omission rates, those of the rural areas remain lower, that is, 0.98 percent for Kathmandu Valley and 2.31 percent in Lumbini. The net omission rate for Sudurpashchim also looks higher (total: 2.95%, urban: 3.29%, rural: 2.38%). Comparatively, both Koshi and Madhesh Provinces have lower (Koshi: 1.85% & Madhesh: 1.99%) net omission rates (Table 3.3). These findings show a significant variation in the net omission rates at the national and provincial levels by place of residence.

Table 3.3: Rates of gross omission, duplication and net omission by residence and domains, Nepal

Provinces and Urban/Rural areas	Gross Omission (%)	Duplication (%)	Net Omission (%)
Nepal	2.73	0.15	2.58
Urban	3.13	0.18	2.95
Rural	1.96	0.11	1.85
Koshi	1.98	0.13	1.85
Urban	2.34	0.13	2.21
Rural	1.36	0.13	1.23
Madhesh	2.12	0.13	1.99
Urban	2.31	0.17	2.14
Rural	1.66	0.08	1.58
Bagmati (except KTM. valley)	2.51	0.15	2.36
Urban	3.34	0.19	3.15
Rural	1.44	0.11	1.33
Gandaki	2.4	0.19	2.21
Urban	2.49	0.23	2.26
Rural	2.24	0.14	2.1
Lumbini	3.12	0.13	2.99
Urban	3.72	0.19	3.53
Rural	2.38	0.07	2.31
Karnali	2.75	0.17	2.58
Urban	2.83	0.17	2.66
Rural	2.65	0.16	2.49
Sudurpashchim	3.1	0.15	2.95
Urban	3.46	0.17	3.29
Rural	2.5	0.12	2.38
KTM. Valley	4.6	0.18	4.42
Urban	4.63	0.18	4.45
Rural	1.14	0.16	0.98

Figure 3.3: Net omission rate by urban rural difference



Source: Table 3.3

Net omission rates of Nepal for the three censuses are compared with the corresponding values of some developed and developing countries for different periods in Table 3.4. From the Table, we can see very high net omission rates in South Africa for the year 2011. The net omission rate of Nepal Census 2021 is nearly matching that of India's of 2011 census. Compared to developed countries like America and Australia, the figure of net omission rate of Nepal 2021 census is substantially high, however, it seems improved one than that of Puerto Rico (2020), Bulgaria (2021), and Brazil and Bangladesh (until 2011).

Table 3.4: Net Omission Rate by Countries (per 100)

Country	Year of Estimation	Net Omission Rate (coverage Error)	Urban	Rural
Nepal[a]	2001	5.3	-	-
	2011	3.6	4.2	3.5
	2021	2.65	3.05	1.96
India[b]	2011	2.3	2.9	2.0
South Africa[c]	2011	14.6	14.7	14.5
United States[d]	2020	-0.24	-	-
Puerto Rico[e]	2020	5.7	Overcount was high	
Bulgaria[f]	2021	9.2	Only not enumerated	
Australia[g]	2021	0.7	-	-
Brazil[h]	1970-2010	4.3-7.3	-	-
Bangladesh[i]	2011	3.971	5.256	3.799

Sources:

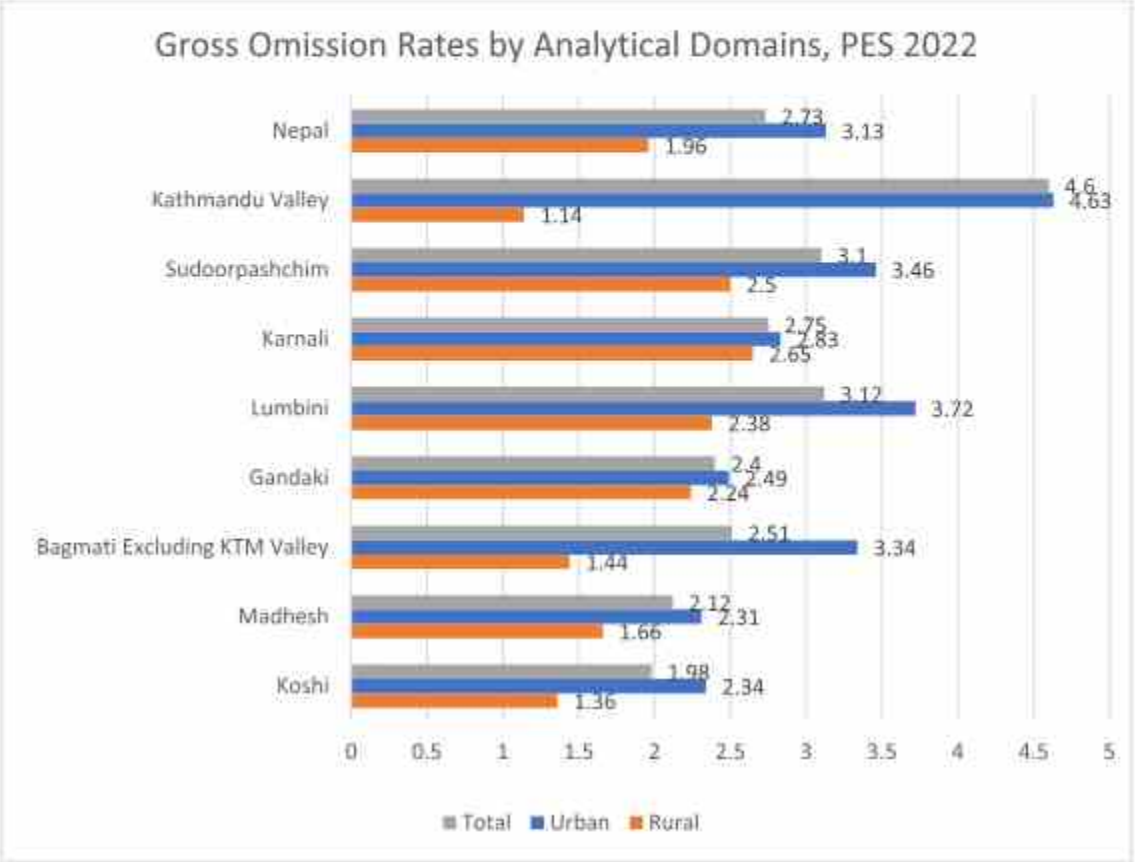
a. Malla, U.N., 2014; PES, 2022
b. PES India Report (2011),
c. Statistics South Africa. (2012), www.statssa.gov.za
d. Hill C., et al., (2022).
e. Heim, K. & Hong, J. (2022).
f. Republic of Bulgaria, National Statistical Institute (2021)
g. Australia Bureau of Statistics (2021).
h. da Silva, A.D, et al., (2015).
i. Bangladesh Institute of Development Studies (BIDS). (2012).

3.3.2 Gross Omission Rate

Whereas net coverage error is the difference between over- counts and under- counts, the gross omission rate represents the sum of three components of coverage error namely, duplication, erroneous inclusions, and omissions. In other words, the gross census coverage error consists of: All persons omitted + all erroneous enumerations (UN, 2010).

The gross omission rate for Nepal is 2.73 percent which also is higher (3.13%) in urban areas against 1.96 percent in rural. By domains, Kathmandu Valley has the highest (4.60%) gross omission rate whereas Koshi has the lowest (1.98%) gross omission rate. The Lumbini and Sudurpashchim Provinces have more or less the same gross omission rates of 3.12% and 3.1% respectively. By place of residence too, Kathmandu Valley has the highest (4.83%) gross omission rate which is followed by Sudurpashchim (3.57%) (Table 3.3). These all findings show that there are no significant differences among the findings of the gross and net coverage in the 2021 population census.

Figure 3.4 Gross omission rate by urban rural difference



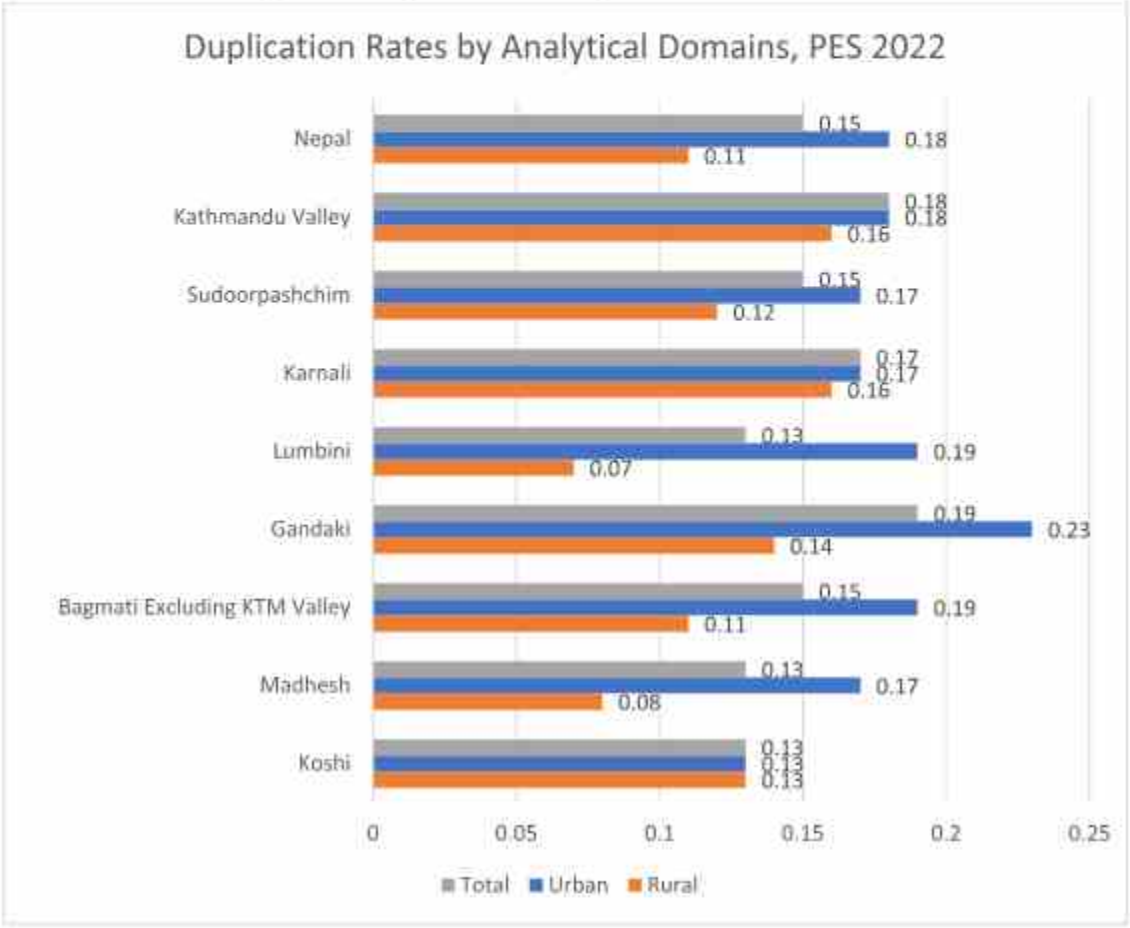
Source: Table 3.3

3.3.3 Duplication Rate

In any census or surveys, chances of duplication is inevitable which occur when persons, households or housing units are enumerated more than once. This chance may occur owing to enumerators overlapping of assignments which may be the errors done during pre-census listing and EA delineation including failure by enumerators to clearly identify boundaries of EAs on the ground. The number of omissions usually exceeds the number of duplications (UN, 2010).

The duplication rate of the Nepal's 2021 PHC is identified as 0.15 percent which is quite higher (0.18%) in urban areas compared to 0.11 percent in rural areas. By domains, Kathmandu Valley has 0.18 percent duplication rate whereas Sudurpashchim has the 0.15 percent duplication rate and Koshi has the 0.13%. Gandaki Province has the highest (0.19%) duplication rate (Table 3.3).

Figure 3.5 Duplication rate by urban rural difference



Source: Table 3.3

3.4 Omission and Duplication level by Personal Attributes of Population

This section examined the PES count data (*E- samples*) against the census count populations (*P-Samples*) by age, sex, ability to read and write and marital status and determined the rates of omission, duplication, erroneously inclusion, gross omission, and net omission. Since it was imperative to identify sub-groups of population with high possibility of omission, duplication, erroneously inclusion in count by age, sex, literacy/education, and marital status. So that successive censuses can make strategies to eliminate such errors.

3.4.1 Omission by age and residence

The net omission rate was found highest in the age group 80+ (4.1%) followed by 3.9 percent in the age group 20-24 and 25-29 (3.8%). The net omission rate in the urban area is found higher compared to the rural areas (Table 3.4). Almost similar pattern is found on the indicators like omission rate, duplication rate and gross omission rate. The status of omission by age, residence and analytical domains is presented in the Annex Table A2-1.

Table 3.4: Omission rate by age group, Nepal

Age group	Urban/ Rural Residence	Omission (%)	Duplication (%)	Erroneously inclusion (%)	Gross omission (%)	Net omission (%)
0-4	Urban	3.2	0.2	0.6	3.8	3.6
	Rural	1.7	0.0	0.4	2.1	2.1
	Total	2.6	0.2	0.6	3.1	3.0
5-9	Urban	1.6	0.2	1.8	3.5	3.3
	Rural	1.7	0.1	0.8	2.5	2.4
	Total	1.7	0.2	1.4	3.1	2.9
10-14	Urban	1.8	0.1	0.4	2.3	2.2
	Rural	1.3	0.0	0.2	1.5	1.5
	Total	1.6	0.0	0.3	1.9	1.9
15-19	Urban	2.7	0.2	0.9	3.5	3.3
	Rural	1.3	0.1	1.0	2.4	2.2
	Total	2.2	0.2	0.9	3.1	2.9
20-24	Urban	3.6	0.6	1.1	4.8	4.2
	Rural	2.5	0.2	0.9	3.4	3.2
	Total	3.2	0.4	1.1	4.3	3.9
25-29	Urban	3.7	0.2	0.9	4.6	4.4
	Rural	2.1	0.2	0.7	2.8	2.6
	Total	3.2	0.2	0.8	4.0	3.8
30-34	Urban	2.1	0.1	0.6	2.7	2.6
	Rural	1.2	0.1	0.7	1.8	1.8
	Total	1.8	0.1	0.6	2.4	2.3
35-39	Urban	2.3	0.2	0.6	2.9	2.7
	Rural	0.9	0.1	0.6	1.5	1.4
	Total	1.8	0.2	0.6	2.4	2.3
40-44	Urban	1.7	0.1	0.5	2.2	2.1
	Rural	1.0	0.1	1.0	1.9	1.9
	Total	1.5	0.1	0.7	2.1	2.0

Age group	Urban/ Rural Residence	Omission (%)	Duplication (%)	Erroneously inclusion (%)	Gross omission (%)	Net omission (%)
45-49	Urban	1.6	0.2	0.2	1.8	1.6
	Rural	0.7	0.0	0.8	1.5	1.5
	Total	1.3	0.2	0.4	1.7	1.5
50-54	Urban	1.8	0.1	0.3	2.1	2.1
	Rural	1.0	0.3	0.4	1.4	1.1
	Total	1.5	0.1	0.3	1.8	1.7
55-59	Urban	2.1	0.1	0.5	2.6	2.4
	Rural	1.4	0.0	0.2	1.6	1.6
	Total	1.8	0.1	0.4	2.2	2.1
60-64	Urban	1.5	0.0	0.4	1.9	1.9
	Rural	1.3	0.6	0.1	1.5	0.9
	Total	1.4	0.2	0.3	1.7	1.5
65-69	Urban	2.5	0.3	0.5	3.0	2.7
	Rural	1.1	0.3	0.2	1.2	0.9
	Total	1.9	0.3	0.4	2.3	2.0
70-74	Urban	2.7	0.2	0.8	3.5	3.3
	Rural	2.0	0.2	0.5	2.4	2.3
	Total	2.4	0.2	0.7	3.1	2.9
75-79	Urban	2.5	0.7	0.9	3.4	2.7
	Rural	1.2	0.0	0.0	1.2	1.2
	Total	2.0	0.4	0.5	2.5	2.1
80+	Urban	3.4	0.0	2.1	5.5	5.5
	Rural	1.9	0.7	0.7	2.6	1.9
	Total	2.8	0.3	1.6	4.4	4.1
Total	Urban	2.4	0.2	0.8	3.1	3.0
	Rural	1.5	0.1	0.6	2.0	1.9
	Total	2.1	0.1	0.7	2.7	2.6

Source: PES- 2022

3.4.2 Omission by sex and residence

Net omission rate by sex shows higher omission among males (2.9%) compared to female (2.3%) (Table 3.5). Almost similar pattern holds true for other indicators like omission rates (2.3% for male and 1.8% for female) and gross omission rate (3.1% for male and 2.5% for female). The status omission by sex and residence according to by domains is presented in the Annex Table A2-2.

Table 3.5: Omission rate by sex, Nepal

Gender	Residence	Omission (%)	Duplication (%)	Erroneously inclusion (%)	Gross omission (%)	Net omission (%)
Male	Urban	2.7	0.2	0.8	3.5	3.3
	Rural	1.6	0.1	0.8	2.3	2.2
	Total	2.3	0.2	0.8	3.1	2.9
Female	Urban	2.1	0.2	0.7	2.9	2.7
	Rural	1.4	0.2	0.4	1.8	1.7
	Total	1.8	0.2	0.6	2.5	2.3
Total	Urban	2.4	0.2	0.8	3.1	3.0
	Rural	1.5	0.1	0.6	2.0	1.9
	Total	2.1	0.1	0.7	2.7	2.6

Source: PES- 2022

3.4.3 Omission by Literacy

Net omission rate by literacy status of persons aged five years and above shows higher omission among those who can read and write (2.9%) compared to those who can read only (2.2%), and those who can't read and write (2.6%) (Table 3.6). Almost similar pattern holds true for other indicators like omission rates (2.2% for those who can read and write and 2% for those who can't read and write) and gross omission rate (3% for those who can read and write and 2.7% for those who can't read and write). The status by domains is presented in the Annex Table A2-3.

Table 3.6: Omission rate by literacy, Nepal

Literacy status	Residence	Omission (%)	Duplication (%)	Erroneously inclusion (%)	Gross omission (%)	Net omission (%)
Can read & write	Urban	2.5	0.2	0.8	3.4	3.2
	Rural	1.6	0.1	0.8	2.4	2.3
	Total	2.2	0.2	0.8	3.0	2.9
Can read only	Urban	2.1	0.4	1.4	3.5	3.1
	Rural	0.0	0.0	0.9	0.9	0.9
	Total	1.2	0.2	1.2	2.5	2.2
Can't read & write	Urban	1.9	0.2	0.5	2.4	2.2
	Rural	1.2	0.2	0.3	1.5	1.2
	Total	2.0	0.2	0.7	2.7	2.6
Total population aged 5+	Urban	2.4	0.2	0.8	3.1	2.9
	Rural	1.4	0.2	0.6	2.1	1.9
	Total	2.0	0.2	0.7	2.7	2.6

Source: PES- 2022

3.4.4 Omission by Marital Status

Net omission rate by marital status of persons aged 10 and above shows higher omission among those who are unmarried (3%) compared to those who are married (2.1%) (Table 3.7). Almost similar pattern holds true for other indicators like omission rates (2.3% for those who are unmarried and 1.8% for those who are married) and gross omission rate (3.2% for those who are unmarried and 2.3% for those who are married). The status by domains is presented in the Annex Table A2-4.

Table 3.7: Omission rate by marital status, Nepal

Marital status	Urban/ Rural Residence	Omission (%)	Duplication (%)	Erroneously inclusion (%)	Gross omission (%)	Net omission (%)
Unmarried	Urban	2.7	0.2	0.9	3.6	3.4
	Rural	1.6	0.1	0.8	2.4	2.3
	Total	2.3	0.2	0.9	3.2	3.0
Married	Urban	2.2	0.2	0.5	2.7	2.4
	Rural	1.2	0.2	0.5	1.7	1.5
	Total	1.8	0.2	0.5	2.3	2.1
Widowed/divorced /separated	Urban	3.5	0.2	1.1	4.6	4.4
	Rural	2.7	0.3	0.6	3.3	3.0
	Total	2.1	0.2	0.6	2.7	2.5
Total population aged 10+	Urban	2.4	0.2	0.7	3.1	2.9
	Rural	1.4	0.2	0.6	2.0	1.8
	Total	2.1	0.2	0.6	2.7	2.5

Source: PES- 2022

3.5 Enumerator's Experience and Reporting on Census Completeness

Pre-enumeration publicity activities of census was high, people were listening radio and television messages and jingles, mobile ringtone messages and numbers of pamphlets and posters regarding census and aware of participation in census. However, in PES, due to lack of such prior information dissemination activities, most respondents were unaware of it and hesitant or reluctant to participate in the enumeration. Problems to approach persons in household were seasonal migration, families leaving home for the harvesting of crops (wheat), houses were empty. In Urban areas most of the families leaving in rent were left due to house owners careless. Other problems were the erase out of the census house numbers, so not finding it.

Ability of enumerators to speak and understand local languages in Tarai/Madheshi and Muslim communities is most. Age reporting is a problematic task in most of the communities. From slum areas of urban, omission of households in census count was reported. Households were captured in listing but not visited for complete enumeration. Help of police and boarder security persons was commendable to complete the enumeration of PES and even that of census in boarder areas of Kapilbastu and Mahottari. Both census and PES monitoring works from central level augmented the quality of the coverage of enumeration works.

CHAPTER IV: CONTENT ERROR

Content error has been estimated only for matched persons and for selected variables. One of the objectives of the Post Enumeration Survey (PES) is an assessment of the quality of the particulars recorded in the census for the individuals who were enumerated.

4.1 Variables Used for Measuring Content Error

The following questions were canvassed in the PES for assessing the quality of the particulars collected in census.

1. Household head
2. Sex
3. Age
4. Marital status
5. Literacy status
6. Birthplace

The data collection for assessing the extent of content error in census was done through questionnaire section 3.1-3.4. The desk matching and the field reconciliation visit were also done simultaneously along with those of this section. The indices of *response bias* and *response variance* were estimated based on the data collected using the methodology discussed in Chapter II.

4.2 Error Reporting

The Table 4.1 illustrates error reporting on sex which shows 0.13% of error on sex, that is, 76 cases were identified with error. By age group, 0-4 and 15-19 age group had the highest number of errors (0.19%).

Table 4.1: Error Reporting on Sex

Age Groups	PERCENT		
	Not Error Reporting on Sex	Error Reporting on Sex	Total
00-04	99.77	0.23	100
05-09	99.91	0.09	100
10-14	99.90	0.10	100
15-19	99.81	0.19	100
20-24	99.88	0.12	100

Age Groups	PERCENT		
	Not Error Reporting on Sex	Error Reporting on Sex	Total
25-29	99.96	0.04	100
30-34	99.81	0.19	100
35-39	99.95	0.05	100
40-44	99.79	0.21	100
45-49	99.90	0.10	100
50-54	99.82	0.18	100
55-59	99.73	0.27	100
60+	99.94	0.06	100
Total	**99.87**	**0.13**	**100**

Source: PES- 2022

By urban rural difference, the error reporting on sex in urban areas was higher (0.15%) than the rural areas (0.1%). By age group, 0-4 years had the highest (0.25%) error reporting against 50-59 years by 0.47 percent in the rural areas (Table 4.2 and Annex B1).

Error reporting on age shows almost one quarter (26.89%) of error which was highest (33.94%) in the age group 40-44.

Table 4.2: Error Reporting on Age

Age Groups	PERCENT		
	Not Error Reporting on age	Error Reporting on age	Total
00-04	90.68	9.32	100
05-09	81.71	18.29	100
10-14	75.36	24.64	100
15-19	76.07	23.93	100
20-24	70.99	29.01	100
25-29	68.71	31.29	100
30-34	66.79	33.21	100
35-39	66.99	33.01	100
40-44	66.06	33.94	100
45-49	68.89	31.11	100
50-54	67.35	32.65	100
55-59	68.97	31.03	100
60+	70.39	29.61	100
Total	73.11	26.89	100

Source: PES- 2022

Error reporting on age by sex shows that age group 40-44 had the highest (33.55%) error of reporting for male and 30-34 years had the highest error of reporting (32.73%) for females (Table 4.2, Annex B2).

4.3 Age Heaping

As discussed in Chapter II, age heaping and digit preference were measured by calculating Whipple's index, Myers' blended index and UN Age Accuracy Index (AAI). Whipple's index varies from 0 to 500. A value of 0 indicates that digits '0' and '5' are not reported, 100 means there is no preference for '0' or '5', and a maximum of 500 is seen when only the digits '0' and '5' are reported in the age data. The inference about age distribution based on this index is as follows: <105 = highly accurate; 105–109.9 = fairly accurate; 110–124.9 = approximate; 125–174.9 = rough; ≥175 = very rough. The Whipple's Index for all categories show 'rough' result for both the PES and Census data. Whipple's Index has been used in censuses from 1971 to 2011. The use of Whipple's Index in all censuses indicates a high level of digit preference and that the quality of age data reporting is very rough, however the trend is improving. A decrease of approximately 49 points from 1971 to 2011 is a significant improvement in the quality of age data. In the population censuses, a proxy respondent is accepted who might not have all the information for other family members including age or date of birth (Adhikary, U, 2014).

Table 4.3: Whipple Index from PES and CENSUS

S.N.	Description	PES-2022*			Census 2021*			Census 2011**		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
1	Whipple Index for terminal digit '0' or '5'	170.6	166.7	173.9	156.6	154.2	158.6	191.0	186.0	189.0
2	Whipple Index for terminal digit '0'	177.0	175.2	178.6	159.8	159.9	159.8			
3	Whipple Index for terminal digit '5'	164.3	158.2	169.2	153.4	148.5	157.4			

*Source: * PES 2022; ** Adhikary, 2014*

Myer's blended index is calculated for the age above 10 years and shows the excess or deficit of people in ages ending in any of the 10 digits expressed as percentages. It is based on the assumption that the population is equally distributed among the different ages.

Table 4.4: Myer's Index from PES and CENSUS

S.No.	Description	2021*			2011**		
		Total	Male	Female	Total	Male	Female
1	PES	13.45	12.62	14.16			
2	Census	11.61	11.15	12.00	15.70	15.60	15.60

*Source: * PES 2022; ** Adhikary, 2014*

Myers' blended index for censuses 1971 to 2021 shows that age reporting improves after the 1991 censuses and Myers' Index is reported at 15.6 in 2011 which decreases to 11.61 in 2021 with minimal differentiation between males and females.

Table 4.5: UN-Age Sex Accuracy Index

Description	PES	Census
Age Accuracy Index	32.53	29.40

Source: PES 2022

Census data collected in different census years show that there is a sharp decline in UN age-sex accuracy index in 2001. However, it was slightly higher in 2011 compared to 2001. The figure also reveals that the age sex distribution of the population from 1971 to 1991 is rated highly inaccurate, with indices values greater than 40. However, indices decline sharply from 2001 to 2011 compared to previous censuses. In the census of 2011, the UN Age Sex Accuracy Index is higher at 23.2 compared to 21.2 in the 2001 census, indicating that there is an emerging trend toward greater accuracy and reliability. The Census 2021 result has shown even higher results for both the PES (32.53) and census (29.40).

4.4 Net Difference Rate

If PES is regarded as an improvement over the census and as standard by which to judge the census results, then the difference between the two sets of figures (a+b) and (a+c) is net difference. NDRs are found to be negative in the age groups 10-44, 15-19, 20-24, 30-34, 35-39, 400-44, 45-49, and 60 and above years (Table 4.6 and Annex B3). The difference rate is pronounced more with negative value for urban areas compared to the rural ones. This shows a marginal under estimation in Census. In all other age groups NDRs are positive, showing marginal underestimation in PES.

Table 4.6: Gross difference rate, net difference rate and index of inconsistency in age reporting between Nepal National census 2021 and PES 2022

Age Groups	Gross Difference Rate			Net Difference Rate (%)			Index of Inconsistency		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
0-04	0.91	0.82	1.09	0.39	0.35	0.46	5.96	5.64	6.43
05-09	2.04	1.82	2.46	0.15	0.15	0.15	11.53	10.78	12.78
10-14	2.50	0.82	2.75	-0.30	-0.27	-0.36	13.80	13.70	13.98
15-19	2.47	2.46	2.48	0.05	0.13	-0.10	13.95	13.90	14.06
20-24	2.50	2.39	2.69	-0.26	-0.35	-0.09	16.25	15.15	18.54
25-29	2.51	2.40	2.74	-0.03	0.03	-0.14	17.00	15.63	19.90
30-34	2.50	2.51	2.47	0.03	-0.07	0.21	18.45	17.75	19.97
35-39	2.46	2.48	2.41	0.05	0.14	-0.11	18.39	17.63	20.15
40-44	2.05	2.14	1.87	0.01	0.02	-0.01	18.70	18.68	18.81
45-49	1.79	1.85	1.69	-0.03	-0.04	-0.01	18.25	17.73	19.52
50-54	1.68	1.64	1.76	-0.06	-0.06	-0.05	18.14	17.24	19.99
55-59	1.47	1.46	1.50	0.07	0.07	0.07	19.66	19.38	20.18
60+	0.59	0.57	0.62	-0.07	-0.10	-0.02	2.95	3.02	2.86

Source: PES 2022

Note:
Index of Inconsistency:

- less than 20 = Low
- between 20 and 50 = Moderate
- greater than 50 = High

4.5 Gross Difference Rate

Gross difference rate denoted by g is the percentage of the persons for whom the classification differs in the census and PES. $g/2$ an estimate of simple response variance 'g' is an extremely useful index. It provides a useful measure of the consistency or reliability of measurement process. If both the PES and census enumerators classify a person in the same manner, then 'g' will be zero. Values of g farther away from 'zero' indicate that the measurement of the characteristic is less reliable. Since the values for the age group 0-4 and 60 plus look like more reliable in this study compared to those for the age group 10-14, 20-24, 25-29 and so on (Table 4.4). The urban rural difference in this indicator is negligible.

4.6 Index of Inconsistency

p=(a+c)/n will be the proportion of persons classified as unit in a census. The variance of this proportion is *p(1-p)*. The ratio of simple response variance $g/2$ to the variance *p(1-p)* is defined as the *Index of Inconsistency*. The farther the value of 1 from zero, the less reliable is the measurement of the characteristics. In this sense, the index of inconsistency is found to be low in all age groups except those for 0-4 and 60 plus years for all three categories, that is total, urban, and rural areas.

4.7 Difference Rate and Inconsistency Rate

For the Net Difference Rate (NDR), if PES is regarded as an improvement over the census and as standard by which to judge the census results then the difference between the two sets of literacy figures (a+b) and (a+c) is net difference. If the sign of this index is positive, it would mean that a larger number of persons have been classified as omission in the census, than is really the case. If the sign is negative, it would mean that there has been an under estimation of the literate in the census. All the values including urban and rural categories for the literate population in this study denoted by can read and write and can read only have been found positive. Those illiterates denoted by 'can't read and write' is found with negative value.

Table 4.7: Gross difference rate, net difference rate and index of inconsistency based on PES by literacy status, Nepal

Literacy Status	Gross Difference Rate (%)			Net Difference Rate (%)			Index of Inconsistency (%)		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
Can read and write	0.31	0.30	0.31	0.08	0.06	0.12	0.75	0.79	0.69
Can read Only	0.10	0.12	0.06	0.03	0.02	0.04	3.41	3.82	2.46
Can't read and write	0.29	0.28	0.32	-0.11	-0.08	-0.16	0.73	0.75	0.72

Source: PES 2022

All the values for the gross difference rate for literacy status have been found positive which further justify the reliability of the census data. With regards to the index of inconsistency, all the values for inconsistency rate are closer to zero except for those who can read and write which fall between 2.46 for rural areas and 3.82 for urban areas.

Table 4.8: Gross difference rate, net difference rate and index of inconsistency based on PES by marital status, Nepal

Marital Status	Gross Difference Rate			Net Difference Rate (%)			Index of Inconsistency		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
Nevel Married	0.14	0.16	0.10	0.07	0.07	0.07	0.33	0.37	0.24
Married	0.16	0.17	0.14	-0.05	-0.07	-0.02	0.35	0.36	0.31
Widowed	0.06	0.06	0.06	-0.01	0.01	-0.03	0.50	0.49	0.51
Divorced	0.01	0.01	0.01	-0.01	-0.01	-0.01	1.30	1.11	1.72
Separated	0.00	0.00	0.01	0.00	0.00	-0.01	0.30	0.09	0.99

The Net and Gross Difference Rates and Index of Inconsistency for persons enumerated by marital status and residence show the NDRs are negative in case of married, widowed and divorced for total and rural categories. This shows that, there is an equal amount of misclassification in identifying the marital status category among various categories of ever married population. The measure of index of inconsistency is low in each category and in each location. This indicates the errors of classification could not affect conclusions drawn from the data.

Table 4.9: Gross difference rate, net difference rate and index of inconsistency based on PES by place of birth, Nepal

Place of Birth Status	Gross Difference Rate			Net Difference Rate (%)			Index of Inconsistency		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
Same Local Level	0.342	0.409	0.216	0.040	0.021	0.078	0.805	0.876	0.717
Different Local Level in same District	0.198	0.219	0.160	-0.021	-0.003	-0.054	1.365	1.515	1.087
Different District	0.193	0.246	0.094	-0.024	-0.018	-0.034	0.604	0.630	0.668
Other Country	0.015	0.018	0.010	0.004	0.001	0.010	0.283	0.337	0.183

Source: PES 2022

The Net and Gross Difference Rates and Index of Inconsistency for persons enumerated by place of birth and residence show the NDRs are negative in case of different local levels in same district and different districts for all categories. The figures obtained by domains are presented in Annex B4.

4.8 Agreement Rate, Net Shift Rate and Proportion of Standard of Differently Reported

Some more indicators for measuring the consistency between census and PES are the agreement rate, net shift rate and proportion of standard of differently reported. If the agreement rate is less than 20, the response variance is considered low (L), if it falls between 20 and 50 the index is Moderate (M) and if it is greater than 50 the index is High (H).

Agreement rate for all age group is closer to 100 for all categories, that is, total, urban and rural areas in this study indicating the high index. Net shift rate is in minus for the age groups 10-14, 20-24, 25-29, 45-49, 50-54 and 55-59 whereas the proportion of standard of differently reported is resulted in positive values for all the age groups (Table 4.10) indicating consistency among the age groups between census and PES. The figures obtained by domains are presented in Annex B5.

Table 4.10: Agreement rate, net-shift rate, and proportion of standard of differently reported by urban rural areas Nepal

Age Groups	Agreement Rate%			Net Shift Rate%			Proportion of Standard of Differently Reported		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
0-04	99.09	99.18	98.91	4.915	4.705	5.209	0.033	0.031	0.035
05-09	97.96	98.18	97.54	1.542	1.602	1.440	0.098	0.091	0.108
10-14	97.50	99.18	97.25	-2.928	-2.784	-3.164	0.135	0.134	0.136
15-19	97.53	97.54	97.52	0.544	1.394	-1.028	0.124	0.120	0.131
20-24	97.50	97.61	97.31	-3.019	-3.908	-1.125	0.159	0.153	0.174
25-29	97.49	97.60	97.26	-0.395	0.320	-1.882	0.158	0.142	0.190
30-34	97.50	97.49	97.53	0.389	-0.847	3.202	0.170	0.167	0.176
35-39	97.54	97.52	97.59	0.723	1.808	-1.642	0.168	0.157	0.194
40-44	97.95	97.86	98.13	0.143	0.332	-0.267	0.176	0.174	0.179
45-49	98.21	98.15	98.31	-0.507	0.332	-0.172	0.175	0.170	0.187
50-54	98.32	98.36	98.24	-1.153	0.320	-0.988	0.176	0.168	0.194
55-59	98.53	98.54	98.50	-1.153	-1.233	5.209	0.183	0.181	0.189
60+	99.41	99.43	99.38	-0.621	-0.899	-0.170	0.029	0.031	0.026

Source: PES 2022

4.9 Aggregate Index of Inconsistency Rate

Aggregate Index of Inconsistency is the relative number of cases, the categories of the characteristics taken as a whole, for which the response varied between the census and the PES.

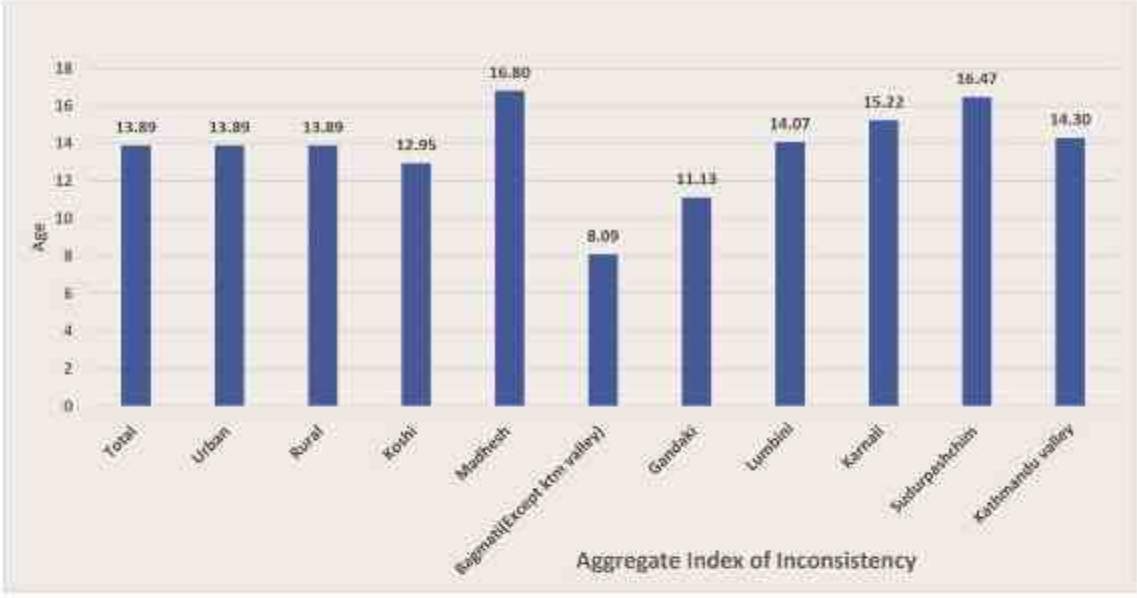
Table 4.11: Aggregate index of inconsistency by age, literacy status, marital status and place of birth, Nepal

Characteristics of Measurement	Aggregate Index of Inconsistency		
	Total	Urban	Rural
Age	13.89	13.89	13.89
Literacy status	0.83	0.89	0.76
Marital Status	0.36	0.38	0.31
Place of Birth	0.79	0.85	0.74

Source: PES 2022

The aggregate index of inconsistency rates are below 15 percent. However, by age, the aggregate rate is higher (13.89%) whereas by other variables like literacy, marriage, and place of birth, this is below 1 (Table 4.11).

Figure 4.1: Aggregate index of inconsistency by age



Source: PES 2022

The aggregate index of inconsistency is quite low (8.09%) in Bagmati (except Kathmandu Valley) whereas the highest (16.80%) was found in Madhesh (Figure 4.1).

Chapter V: Conclusion and Recommendations

5.1 Conclusion

The main purpose of the post enumeration survey (PES) was to identify under- count or over-count of the 2021 PHC. Overall counting status both in PES and Census was found 96.2 percent which is slightly lower (96.1%) in the urban areas. The Survey also analysed some level of content errors in the selected variables used in the census. The survey identified that Nepal's net omission rate is 2.58 percent enumerated in the 2021 census. This rate is lower than the 2011 PES which was calculated as 3.6 percent. This survey for the first time in the history of Nepal's PES has calculated the PES results in the sub-national levels too. The overall findings show that Kathmandu Valley has the highest (4.42%) net omission rate followed by Lumbini (2.99%). Whereas the urban areas of both domains have higher (4.45% and 3.53%) net omission rates, those of the rural areas remain lower, that is, 0.98 percent for Kathmandu Valley and 2.31 percent in Lumbini.

This PES has also calculated gross omission rate for Nepal for the first time which is 2.73 percent. The rate also looks higher (3.13%) in urban areas against 1.96 percent in rural. By domains, Kathmandu Valley has the highest (4.60%) gross omission rate whereas Koshi has the lowest (1.98%) gross omission rate.

With regards to the duplication rate, Nepal's 2021 PHC duplication rate is identified as 0.15 percent which is quite higher (0.18%) in urban areas compared to 0.11 percent in rural areas. Overall, Gandaki Province has the highest (0.19%) duplication rate whereas Koshi, Madhesh and Lumbini has the lowest duplication rate of 0.13 percent each.

The net omission rate was found highest in the age group 80+ (4.1%) followed by 3.9 percent in the age group 20-24 and 25-29 (3.8%). By gender, it shows higher omission among male (2.9%) compared to female (2.3%). By literacy status higher omission was found among those who can read and write (2.9%) compared to those who can read only (2.2%), and those who can't read and write (2.6%). And by marital status it shows higher omission among those who are unmarried (3%) compared to those who are married (2.1%).

Although the Whipple's Index for all categories show 'rough' result for both the PES and Census data, decrease of approximately 49 points from 1971 to 2011 is taken as a significant improvement in the quality of age data. Similarly, Myers' blended index for censuses 1971 to 2021 shows that age reporting improves after the 1991 censuses and Myers' Index is reported at 15.6 in 2011 which decreases to 11.61 in 2021 with minimal differentiation between males and females. The overall age sex accuracy index calculated by this study shows improvement with the value of 32.53 for PES and 29.40 for census.

The net difference rates (NDRs) are found to be negative in the age groups 10-44, 15-19, 20-24, 30-34, 35-39, 400-44, 45-49, and 60 and above years. Values of the gross difference rate (GDR) for the age group 0-4 and 60 plus look like more reliable in this study compared to those for the age group 10-14, 20-24, 25-29 and so on.

All the values including urban and rural categories for the literate population in this study denoted by can read and write and can read only have been found positive and those illiterate denoted by 'can't read and write' is found with negative value for the net difference rate. The Net and Gross Difference Rates and Index of Inconsistency for persons enumerated by marital status and residence show the NDRs are negative in case of married, widowed and divorced for total and rural categories.

The Net and Gross Difference Rates and Index of Inconsistency for persons enumerated by place of birth and residence show the NDRs are negative in case of different local levels in same district and different districts for all categories indicating there is an equal amount of misclassification in identifying the marital status category among various categories of ever married population.

Agreement rate for all age group is closer to 100 for all categories, that is, total, urban and rural areas in this study indicating the high index. The aggregate index of inconsistency rates are below 15 percent. However, by age, the aggregate rate is higher (13.89%) whereas by other variables like literacy, marriage and place of birth, this is below 1. The aggregate index of inconsistency is quite low (8.09%) in Bagmati (except Kathmandu Valley) whereas the highest (16.80%) was found in Madhesh.

5.2 Recommendations

1. GIS/GPS based exact digitization of enumeration area is advised for the exact mapping which reduces the chances of overlapping out of EA while conducting field work.
2. Further rigorous exercise through consultations among the experts is advisable if census results are to be adjusted in case of major coverage errors.
3. Necessary preparation be in place so that the PES can be administered immediately after the completion of field work of census enumeration.

Annex A: Status of the coverage of population in PES and Census

Annex A1: Enumeration status in PES and census, 2022

Province	Urban (%)	Rural (%)	Total (%)
Koshi			
Counted both in PES & census	96. 5	98.2	97.1
Counted in PES but not in census	2.0	1.0	1.6
Counted in census but not in PES	0.1	0.1	0.1
Double counted in census	0.1	0.1	0.1
Absentees counted in census	0.3	0.4	0.3
Absentee returnees in PES	0.8	0.1	0.6
Born after census	0.2	0.2	0.2
Total	100.0	100.0	100.0
Madhesh			
Counted both in PES & census	97.2	97.3	97.2
Counted in PES but not in census	2.0	1.3	1.7
Counted in census but not in PES	0.3	0.2	0.2
Double counted in census	0.2	0.1	0.1
Absentees counted in census	0.1	0.3	0.2
Absentee returnees in PES	0.1	0.3	0.2
Born after census	0.2	0.6	0.3
Total	100.0	100.0	100.0
Bagmati			
Counted both in PES & census	95.9	98.4	96.9
Counted in PES but not in census	2.4	0.7	1.7
Counted in census but not in PES	0.4	0.1	0.3
Double counted in census	0.2	0.1	0.2
Absentees counted in census	0.6	0.6	0.6
Absentee returnees in PES	0.3	0.0	0.2
Born after census	0.2	0.0	0.1
Total	100.0	100.0	100.0
Gandaki			
Counted both in PES & census	96.8	96.8	96.8

Province	Urban (%)	Rural (%)	Total (%)
Counted in PES but not in census	1.3	1.4	1.3
Counted in census but not in PES	0.3	0.7	0.5
Double counted in census	0.2	0.1	0.2
Absentees counted in census	1.0	0.2	0.7
Absentee returnees in PES	0.2	0.6	0.4
Born after census	0.2	0.2	0.2
Total	100.0	100.0	100.0
Lumbini			
Counted both in PES & census	94.8	97.2	96.1
Counted in PES but not in census	2.5	2.1	2.3
Counted in census but not in PES	0.7	0.1	0.4
Double counted in census	0.2	0.1	0.1
Absentees counted in census	0.7	0.2	0.4
Absentee returnees in PES	0.8	0.1	0.4
Born after census	0.3	0.2	0.3
Total	100.0	100.0	100.0
Karnali			
Counted both in PES & census	96.5	96.5	96.5
Counted in PES but not in census	2.2	2.1	2.1
Counted in census but not in PES	0.5	0.5	0.5
Double counted in census	0.2	0.2	0.2
Absentees counted in census	0.2	0.2	0.2
Absentee returnees in PES	0.1	0.5	0.3
Born after census	0.3	0.1	0.2
Total	100.0	100.0	100.0
SudurPashchim			
Counted both in PES & census	95.9	96.4	96.1
Counted in PES but not in census	2.5	1.7	2.2
Counted in census but not in PES	0.4	0.4	0.4
Double counted in census	0.2	0.1	0.2
Absentees counted in census	0.7	0.5	0.6
Absentee returnees in PES	0.2	0.8	0.4
Born after census	0.2	0.1	0.2
Total	100.0	100.0	100.0

Province	Urban (%)	Rural (%)	Total (%)
Kathmandu Valley			
Counted both in PES & census	94.4	98.5	94.8
Counted in PES but not in census	4.4	1.0	4.1
Counted in census but not in PES	0.1	0.2	0.1
Double counted in census	0.2	0.2	0.2
Absentees counted in census	0.3	0.0	0.2
Absentee returnees in PES	0.5	0.0	0.4
Born after census	0.1	0.2	0.1
Total	100.0	100.0	100.0

Annex A2: Coverage Errors (Omission Rates) by Population Characteristics

Table A2-1: Omission rate by age group

Analytical Domain	Urban/ Rural Residence	Omission (%)†	Duplication (%)	Erroneously inclusion (%)‡	Gross omission (%)	Net omission (%)
Koshi						
0-4	Urban	2.9	0.4	1.1	4.0	3.7
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	1.7	0.2	0.6	2.4	2.1
5-9	Urban	1.7	0.0	0.6	2.3	2.3
	Rural	1.3	0.0	0.0	1.3	1.3
	Total	1.6	0.0	0.3	1.9	1.9
10-14	Urban	1.7	0.0	0.3	2.0	2.0
	Rural	1.3	0.0	0.9	2.1	2.1
	Total	1.6	0.0	0.5	2.1	2.1
15-19	Urban	1.8	0.3	0.3	2.1	1.8
	Rural	1.2	0.0	0.0	1.2	1.2
	Total	1.6	0.2	0.2	1.7	1.6
20-24	Urban	2.3	0.7	1.3	3.6	2.9
	Rural	0.6	0.0	0.0	0.6	0.6
	Total	1.7	0.4	0.8	2.5	2.1
25-29	Urban	2.5	0.0	0.3	2.8	2.8
	Rural	0.6	0.0	0.6	1.1	1.1
	Total	1.8	0.0	0.4	2.2	2.2
30-34	Urban	0.3	0.0	0.3	0.7	0.7
	Rural	1.5	0.0	0.8	2.3	2.3

† counted in PES but not in census

‡ Sum of counted in census but not in PES and absentees counted in Census

Analytical Domain	Urban/ Rural Residence	Omission (%)†	Duplication (%)	Erroneously inclusion (%)‡	Gross omission (%)	Net omission (%)
	Total	0.7	0.0	0.5	1.2	1.2
35-39	Urban	2.1	0.4	0.4	2.5	2.1
	Rural	0.6	0.0	0.0	0.6	0.6
	Total	1.6	0.2	0.2	1.8	1.6
40-44	Urban	0.8	0.0	0.0	0.8	0.8
	Rural	0.8	0.0	1.6	2.4	2.4
	Total	0.8	0.0	0.5	1.3	1.3
45-49	Urban	1.7	0.4	0.0	1.7	1.3
	Rural	0.0	0.0	0.8	0.8	0.8
	Total	1.1	0.3	0.3	1.4	1.1
50-54	Urban	2.7	0.0	0.0	2.7	2.7
	Rural	1.8	0.0	0.9	2.7	2.7
	Total	2.4	0.0	0.3	2.7	2.7
55-59	Urban	4.0	0.0	0.0	4.0	4.0
	Rural	0.0	0.0	1.3	1.3	1.3
	Total	2.6	0.0	0.4	3.1	3.1
60-64	Urban	0.0	0.0	0.0	0.0	0.0
	Rural	1.8	0.9	0.0	1.8	0.9
	Total	0.8	0.4	0.0	0.8	0.4
65-69	Urban	0.9	0.0	0.9	1.8	1.8
	Rural	0.0	1.3	0.0	0.0	-1.3
	Total	0.5	0.5	0.5	1.0	0.5
70-74	Urban	2.0	0.0	0.0	2.0	2.0
	Rural	2.6	0.0	1.3	3.9	3.9
	Total	2.3	0.0	0.6	2.9	2.9
75-79	Urban	2.2	0.0	2.2	4.3	4.3
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	1.0	0.0	1.0	2.1	2.1
80+	Urban	7.5	0.0	1.9	9.4	9.4
	Rural	4.0	4.0	0.0	4.0	0.0
	Total	6.4	1.3	1.3	7.7	6.4
Total	Urban	1.9	0.1	0.4	2.3	2.2
	Rural	0.9	0.1	0.4	1.4	1.2
	Total	1.6	0.1	0.4	2.0	1.9
Madhesh						
0-4	Urban	3.4	0.1	0.6	4.0	3.9
	Rural	1.7	0.0	0.2	1.9	1.9
	Total	2.7	0.1	0.5	3.2	3.1
5-9	Urban	1.0	0.2	0.1	1.2	0.9

Analytical Domain	Urban/ Rural Residence	Omission (%)†	Duplication (%)	Erroneously inclusion (%)‡	Gross omission (%)	Net omission (%)
	Rural	0.8	0.2	0.6	1.3	1.1
	Total	0.9	0.2	0.3	1.2	1.0
10-14	Urban	1.0	0.0	0.3	1.4	1.4
	Rural	2.5	0.0	0.0	2.5	2.5
	Total	1.6	0.0	0.2	1.8	1.8
15-19	Urban	1.7	0.0	0.5	2.3	2.3
	Rural	1.2	0.0	0.2	1.5	1.5
	Total	1.6	0.0	0.4	2.0	2.0
20-24	Urban	2.1	0.5	0.3	2.4	2.0
	Rural	1.9	0.0	0.8	2.7	2.7
	Total	2.0	0.3	0.5	2.5	2.2
25-29	Urban	3.8	0.4	0.4	4.2	3.8
	Rural	1.2	0.4	0.0	1.2	0.8
	Total	3.0	0.4	0.3	3.2	2.8
30-34	Urban	1.6	0.0	0.4	2.0	2.0
	Rural	0.0	0.0	0.9	0.9	0.9
	Total	1.1	0.0	0.6	1.7	1.7
35-39	Urban	2.0	0.2	0.2	2.2	2.0
	Rural	0.9	0.0	0.4	1.3	1.3
	Total	1.6	0.1	0.3	1.9	1.8
40-44	Urban	0.8	0.0	0.0	0.8	0.8
	Rural	0.5	0.0	0.5	1.1	1.1
	Total	0.7	0.0	0.2	0.9	0.9
45-49	Urban	0.6	0.0	0.0	0.6	0.6
	Rural	0.0	0.0	2.1	2.1	2.1
	Total	0.4	0.0	0.6	1.1	1.1
50-54	Urban	1.8	0.0	0.0	1.8	1.8
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	1.2	0.0	0.0	1.2	1.2
55-59	Urban	2.3	0.5	0.0	2.3	1.9
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	1.5	0.3	0.0	1.5	1.2
60-64	Urban	2.0	0.0	1.0	3.0	3.0
	Rural	1.2	1.2	0.0	1.2	0.0
	Total	1.7	0.3	0.7	2.4	2.1
65-69	Urban	2.5	0.0	0.5	3.0	3.0
	Rural	2.5	0.0	0.0	2.5	2.5
	Total	2.5	0.0	0.4	2.9	2.9
70-74	Urban	3.9	1.3	1.3	5.2	3.9

Analytical Domain	Urban/ Rural Residence	Omission (%)†	Duplication (%)	Erroneously inclusion (%)‡	Gross omission (%)	Net omission (%)
	Rural	4.8	0.0	1.2	6.0	6.0
	Total	4.2	0.8	1.3	5.5	4.6
75-79	Urban	0.0	1.7	1.7	1.7	0.0
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	0.0	1.0	1.0	1.0	0.0
80+	Urban	4.1	0.0	0.0	4.1	4.1
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	2.5	0.0	0.0	2.5	2.5
Total	Urban	1.9	0.2	0.4	2.3	2.1
	Rural	1.3	0.1	0.4	1.7	1.6
	Total	1.7	0.1	0.4	2.0	2.0
Bagmati (Except Ktm. Valley)						
0-4	Urban	2.1	0.4	1.3	3.4	2.9
	Rural	0.8	0.0	0.0	0.8	0.8
	Total	1.7	0.3	0.8	2.5	2.2
5-9	Urban	0.7	0.4	4.3	5.0	4.6
	Rural	0.6	0.0	1.7	2.3	2.3
	Total	0.7	0.2	3.3	3.9	3.7
10-14	Urban	0.9	0.0	0.6	1.5	1.5
	Rural	0.4	0.0	0.8	1.2	1.2
	Total	0.7	0.0	0.7	1.4	1.4
15-19	Urban	2.2	0.3	1.2	3.4	3.1
	Rural	0.8	0.0	2.5	3.4	3.4
	Total	1.6	0.2	1.8	3.4	3.2
20-24	Urban	3.5	0.6	1.7	5.2	4.6
	Rural	1.1	0.0	0.0	1.1	1.1
	Total	2.7	0.4	1.2	3.8	3.5
25-29	Urban	2.9	0.3	1.3	4.1	3.8
	Rural	0.5	0.0	0.5	1.0	1.0
	Total	1.9	0.2	1.0	2.9	2.7
30-34	Urban	0.8	0.0	0.4	1.1	1.1
	Rural	0.9	0.0	0.9	1.7	1.7
	Total	0.8	0.0	0.6	1.4	1.4
35-39	Urban	2.4	0.4	0.8	3.1	2.8
	Rural	1.3	0.4	0.9	2.2	1.8
	Total	1.9	0.4	0.8	2.7	2.3
40-44	Urban	2.3	0.0	0.5	2.8	2.8
	Rural	0.0	0.5	2.2	2.2	1.6
	Total	1.3	0.3	1.3	2.5	2.3

Analytical Domain	Urban/ Rural Residence	Omission (%)†	Duplication (%)	Erroneously inclusion (%)‡	Gross omission (%)	Net omission (%)
45-49	Urban	3.7	0.0	0.0	3.7	3.7
	Rural	0.0	0.0	0.7	0.7	0.7
	Total	2.3	0.0	0.3	2.6	2.6
50-54	Urban	1.8	0.0	0.0	1.8	1.8
	Rural	0.0	0.6	0.0	0.0	-0.6
	Total	1.0	0.3	0.0	1.0	0.8
55-59	Urban	2.8	0.0	0.0	2.8	2.8
	Rural	2.1	0.0	0.7	2.9	2.9
	Total	2.5	0.0	0.3	2.8	2.8
60-64	Urban	1.8	0.0	0.0	1.8	1.8
	Rural	0.6	0.0	0.0	0.6	0.6
	Total	1.2	0.0	0.0	1.2	1.2
65-69	Urban	5.1	0.0	0.0	5.1	5.1
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	2.4	0.0	0.0	2.4	2.4
70-74	Urban	4.5	0.0	0.9	5.4	5.4
	Rural	0.0	1.0	0.0	0.0	-1.0
	Total	2.3	0.5	0.5	2.8	2.3
75-79	Urban	4.1	0.0	0.0	4.1	4.1
	Rural	2.2	0.0	0.0	2.2	2.2
	Total	3.4	0.0	0.0	3.4	3.4
80+	Urban	5.2	0.0	2.6	7.8	7.8
	Rural	1.9	1.9	0.0	1.9	0.0
	Total	3.9	0.8	1.6	5.4	4.7
Total	Urban	2.4	0.2	1.0	3.3	3.1
	Rural	0.7	0.1	0.8	1.4	1.3
	Total	1.7	0.1	0.9	2.5	2.4
Gandaki						
0-4	Urban	2.2	0.0	1.3	3.5	3.5
	Rural	0.5	0.0	0.5	1.0	1.0
	Total	1.4	0.0	0.9	2.3	2.3
5-9	Urban	0.0	0.0	6.1	6.1	6.1
	Rural	1.9	0.0	1.9	3.9	3.9
	Total	1.0	0.0	3.9	4.9	4.9
10-14	Urban	0.6	0.0	0.3	0.9	0.9
	Rural	1.3	0.0	0.0	1.3	1.3
	Total	0.9	0.0	0.2	1.1	1.1
15-19	Urban	1.9	0.8	1.3	3.2	2.4
	Rural	2.6	0.0	3.9	6.5	6.5

Analytical Domain	Urban/ Rural Residence	Omission (%)†	Duplication (%)	Erroneously inclusion (%)‡	Gross omission (%)	Net omission (%)
	Total	2.1	0.5	2.3	4.4	3.9
20-24	Urban	2.3	1.1	0.8	3.1	2.0
	Rural	3.1	0.4	2.2	5.3	4.8
	Total	2.6	0.9	1.4	4.0	3.1
25-29	Urban	1.4	0.9	1.2	2.6	1.7
	Rural	1.3	0.4	0.9	2.2	1.8
	Total	1.4	0.7	1.1	2.5	1.8
30-34	Urban	1.4	0.3	0.3	1.7	1.4
	Rural	0.0	0.0	0.5	0.5	0.5
	Total	0.8	0.2	0.4	1.2	1.0
35-39	Urban	1.0	0.0	0.3	1.3	1.3
	Rural	0.0	0.0	1.1	1.1	1.1
	Total	0.6	0.0	0.6	1.2	1.2
40-44	Urban	0.8	0.0	0.8	1.6	1.6
	Rural	2.0	0.0	0.0	2.0	2.0
	Total	1.2	0.0	0.5	1.7	1.7
45-49	Urban	0.9	0.0	0.0	0.9	0.9
	Rural	1.5	0.0	0.7	2.2	2.2
	Total	1.1	0.0	0.3	1.4	1.4
50-54	Urban	0.0	0.0	0.0	0.0	0.0
	Rural	0.7	0.7	0.0	0.7	0.0
	Total	0.3	0.3	0.0	0.3	0.0
55-59	Urban	0.6	0.0	2.8	3.4	3.4
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	0.3	0.0	1.7	2.0	2.0
60-64	Urban	2.6	0.0	0.7	3.3	3.3
	Rural	0.9	0.9	0.0	0.9	0.0
	Total	1.9	0.4	0.4	2.2	1.9
65-69	Urban	4.9	0.0	1.0	5.9	5.9
	Rural	1.0	0.0	0.0	1.0	1.0
	Total	3.0	0.0	0.5	3.5	3.5
70-74	Urban	0.0	0.0	0.0	0.0	0.0
	Rural	2.2	0.0	0.0	2.2	2.2
	Total	1.2	0.0	0.0	1.2	1.2
75-79	Urban	0.0	0.0	2.2	2.2	2.2
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	1.0	1.0	1.0
80+	Urban	1.6	0.0	4.9	6.6	6.6
	Rural	3.3	0.0	0.0	3.3	3.3

Analytical Domain	Urban/ Rural Residence	Omission (%)†	Duplication (%)	Erroneously inclusion (%)‡	Gross omission (%)	Net omission (%)
	Total	2.5	0.0	2.5	4.9	4.9
Total	Urban	1.3	0.2	1.3	2.5	2.3
	Rural	1.4	0.1	0.9	2.2	2.1
	Total	1.3	0.2	1.1	2.4	2.2
Lumbini						
0-4	Urban	3.4	0.4	0.8	4.2	3.8
	Rural	2.7	0.0	0.2	3.0	3.0
	Total	3.0	0.1	0.4	3.4	3.3
5-9	Urban	2.7	0.0	4.3	7.0	7.0
	Rural	2.6	0.0	0.0	2.6	2.6
	Total	2.6	0.0	1.7	4.3	4.3
10-14	Urban	1.9	0.0	1.2	3.1	3.1
	Rural	1.3	0.0	0.0	1.3	1.3
	Total	1.5	0.0	0.5	2.1	2.1
15-19	Urban	3.8	0.0	2.0	5.9	5.9
	Rural	1.2	0.2	0.2	1.4	1.2
	Total	2.5	0.1	1.1	3.6	3.4
20-24	Urban	2.9	0.5	1.6	4.5	4.0
	Rural	1.3	0.5	0.5	1.9	1.3
	Total	2.1	0.5	1.1	3.2	2.7
25-29	Urban	5.5	0.3	1.4	6.9	6.6
	Rural	4.7	0.3	0.5	5.2	5.0
	Total	5.1	0.3	1.0	6.0	5.8
30-34	Urban	2.5	0.0	0.9	3.4	3.4
	Rural	3.2	0.0	0.4	3.6	3.6
	Total	2.8	0.0	0.7	3.5	3.5
35-39	Urban	2.2	0.7	1.4	3.6	2.9
	Rural	1.9	0.0	1.1	3.0	3.0
	Total	2.0	0.4	1.3	3.3	3.0
40-44	Urban	1.9	0.5	0.5	2.3	1.9
	Rural	1.0	0.0	0.0	1.0	1.0
	Total	1.4	0.2	0.2	1.7	1.4
45-49	Urban	2.5	0.0	0.0	2.5	2.5
	Rural	1.1	0.0	0.6	1.7	1.7
	Total	1.8	0.0	0.3	2.1	2.1
50-54	Urban	0.5	0.0	0.5	1.1	1.1
	Rural	1.1	0.0	1.6	2.7	2.7
	Total	0.8	0.0	1.1	1.9	1.9
55-59	Urban	1.3	0.0	0.6	1.9	1.9

Analytical Domain	Urban/ Rural Residence	Omission (%)†	Duplication (%)	Erroneously inclusion (%)‡	Gross omission (%)	Net omission (%)
	Rural	2.0	0.0	0.0	2.0	2.0
	Total	1.6	0.0	0.3	2.0	2.0
60-64	Urban	0.0	0.0	1.9	1.9	1.9
	Rural	1.6	0.8	0.8	2.4	1.6
	Total	0.9	0.4	1.3	2.2	1.7
65-69	Urban	0.9	0.0	0.0	0.9	0.9
	Rural	3.2	0.0	1.1	4.3	4.3
	Total	2.0	0.0	0.5	2.5	2.5
70-74	Urban	2.2	0.0	0.0	2.2	2.2
	Rural	1.0	0.0	0.0	1.0	1.0
	Total	1.6	0.0	0.0	1.6	1.6
75-79	Urban	4.3	0.0	0.0	4.3	4.3
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	1.9	0.0	0.0	1.9	1.9
80+	Urban	0.0	0.0	0.0	0.0	0.0
	Rural	1.9	0.0	0.0	1.9	1.9
	Total	1.3	0.0	0.0	1.3	1.3
Total	Urban	2.7	0.2	1.3	3.7	3.5
	Rural	2.1	0.1	0.4	2.4	2.3
	Total	2.3	0.1	0.8	3.1	3.0
Karnali						
0-4	Urban	2.0	0.0	0.2	2.2	2.2
	Rural	2.5	0.4	0.4	2.8	2.5
	Total	2.2	0.1	0.3	2.4	2.3
5-9	Urban	1.6	0.4	1.6	3.2	2.8
	Rural	3.1	0.0	1.5	4.6	4.6
	Total	2.1	0.2	1.6	3.7	3.5
10-14	Urban	1.6	0.1	0.6	2.1	2.0
	Rural	0.9	0.0	0.0	0.9	0.9
	Total	1.4	0.1	0.4	1.7	1.6
15-19	Urban	2.8	0.0	0.7	3.5	3.5
	Rural	2.3	0.3	1.0	3.3	2.9
	Total	2.6	0.1	0.8	3.4	3.3
20-24	Urban	3.3	0.2	1.2	4.5	4.3
	Rural	4.5	0.4	0.7	5.2	4.9
	Total	3.7	0.3	1.0	4.7	4.5
25-29	Urban	1.3	0.0	1.0	2.3	2.3
	Rural	3.0	0.4	1.5	4.5	4.1
	Total	2.0	0.2	1.2	3.2	3.1

Analytical Domain	Urban/ Rural Residence	Omission (%)†	Duplication (%)	Erroneously inclusion (%)‡	Gross omission (%)	Net omission (%)
30-34	Urban	2.0	0.6	1.4	3.4	2.8
	Rural	0.9	0.4	0.4	1.3	0.9
	Total	1.5	0.5	1.0	2.6	2.0
35-39	Urban	1.5	0.0	0.6	2.1	2.1
	Rural	0.5	0.0	0.5	0.9	0.9
	Total	1.1	0.0	0.5	1.6	1.6
40-44	Urban	3.2	0.0	0.0	3.2	3.2
	Rural	1.4	0.0	0.7	2.2	2.2
	Total	2.7	0.0	0.2	2.9	2.9
45-49	Urban	0.8	1.2	0.0	0.8	-0.4
	Rural	1.6	0.0	0.0	1.6	1.6
	Total	1.1	0.8	0.0	1.1	0.3
50-54	Urban	2.4	0.0	0.4	2.8	2.8
	Rural	2.1	0.0	0.0	2.1	2.1
	Total	2.3	0.0	0.3	2.6	2.6
55-59	Urban	1.1	0.6	0.0	1.1	0.6
	Rural	3.8	0.0	0.0	3.8	3.8
	Total	2.3	0.3	0.0	2.3	1.9
60-64	Urban	1.3	0.0	0.0	1.3	1.3
	Rural	1.9	0.0	0.0	1.9	1.9
	Total	1.5	0.0	0.0	1.5	1.5
65-69	Urban	0.8	0.0	0.0	0.8	0.8
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	0.5	0.0	0.0	0.5	0.5
70-74	Urban	1.9	0.0	0.9	2.8	2.8
	Rural	1.5	0.0	1.5	3.0	3.0
	Total	1.7	0.0	1.1	2.9	2.9
75-79	Urban	3.9	2.0	0.0	3.9	2.0
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	2.4	1.2	0.0	2.4	1.2
80+	Urban	0.0	0.0	2.6	2.6	2.6
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	1.9	1.9	1.9
Total	Urban	2.0	0.2	0.7	2.8	2.7
	Rural	2.1	0.2	0.6	2.7	2.5
	Total	2.0	0.2	0.7	2.8	2.6
SudurPashchim						
0-4	Urban	4.7	0.5	0.5	5.3	4.7
	Rural	1.6	0.0	1.6	3.1	3.1

Analytical Domain	Urban/ Rural Residence	Omission (%)†	Duplication (%)	Erroneously inclusion (%)‡	Gross omission (%)	Net omission (%)
	Total	3.5	0.3	0.9	4.4	4.1
5-9	Urban	1.7	0.2	0.7	2.4	2.1
	Rural	1.4	0.7	0.7	2.1	1.4
	Total	1.5	0.4	0.7	2.2	1.8
10-14	Urban	2.9	0.0	0.2	3.0	3.0
	Rural	0.5	0.0	0.0	0.5	0.5
	Total	1.8	0.0	0.1	2.0	2.0
15-19	Urban	1.9	0.2	0.9	2.8	2.6
	Rural	0.4	0.4	0.7	1.1	0.7
	Total	1.4	0.2	0.9	2.2	2.0
20-24	Urban	3.6	0.4	2.4	6.1	5.7
	Rural	5.2	0.0	2.9	8.0	8.0
	Total	4.0	0.3	2.5	6.6	6.3
25-29	Urban	2.4	0.0	1.2	3.6	3.6
	Rural	1.7	0.0	0.9	2.6	2.6
	Total	2.3	0.0	1.1	3.4	3.4
30-34	Urban	2.7	0.0	0.6	3.3	3.3
	Rural	1.9	0.0	1.9	3.9	3.9
	Total	2.5	0.0	0.9	3.5	3.5
35-39	Urban	4.2	0.0	1.0	5.1	5.1
	Rural	0.8	0.8	0.0	0.8	0.0
	Total	3.2	0.2	0.7	3.9	3.6
40-44	Urban	0.0	0.0	2.4	2.4	2.4
	Rural	1.7	0.0	2.5	4.2	4.2
	Total	0.5	0.0	2.5	3.0	3.0
45-49	Urban	0.5	0.0	1.5	1.9	1.9
	Rural	1.0	0.0	1.0	2.0	2.0
	Total	0.7	0.0	1.3	2.0	2.0
50-54	Urban	2.0	0.0	1.5	3.5	3.5
	Rural	1.9	0.9	0.0	1.9	0.9
	Total	1.9	0.3	1.0	2.9	2.6
55-59	Urban	0.7	0.0	0.0	0.7	0.7
	Rural	1.2	0.0	0.0	1.2	1.2
	Total	0.9	0.0	0.0	0.9	0.9
60-64	Urban	0.8	0.0	0.0	0.8	0.8
	Rural	2.3	1.2	0.0	2.3	1.2
	Total	1.4	0.5	0.0	1.4	0.9
65-69	Urban	2.6	2.6	0.0	2.6	0.0
	Rural	0.0	0.0	0.0	0.0	0.0

Analytical Domain	Urban/ Rural Residence	Omission (%)†	Duplication (%)	Erroneously inclusion (%)‡	Gross omission (%)	Net omission (%)
	Total	1.7	1.7	0.0	1.7	0.0
70-74	Urban	1.9	0.0	2.9	4.8	4.8
	Rural	2.6	0.0	0.0	2.6	2.6
	Total	2.2	0.0	1.6	3.8	3.8
75-79	Urban	0.0	2.2	0.0	0.0	-2.2
	Rural	7.5	0.0	0.0	7.5	7.5
	Total	3.5	1.2	0.0	3.5	2.3
80+	Urban	0.0	0.0	3.0	3.0	3.0
	Rural	0.0	0.0	7.1	7.1	7.1
	Total	0.0	0.0	4.2	4.2	4.2
Total	Urban	2.4	0.2	1.1	3.5	3.3
	Rural	1.5	0.1	0.9	2.5	2.4
	Total	2.1	0.1	1.0	3.1	3.0
Kathmandu Valley						
0-4	Urban	4.0	0.3	0.0	4.0	3.7
	Rural	2.2	0.0	2.2	4.3	4.3
	Total	3.8	0.3	0.3	4.1	3.8
5-9	Urban	4.0	0.0	1.5	5.5	5.5
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	3.5	0.0	1.3	4.8	4.8
10-14	Urban	4.0	0.2	0.2	4.2	4.0
	Rural	3.4	0.0	0.0	3.4	3.4
	Total	3.9	0.2	0.2	4.1	3.9
15-19	Urban	5.5	0.2	0.2	5.7	5.5
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	4.9	0.2	0.2	5.1	4.9
20-24	Urban	7.6	0.7	0.3	8.0	7.3
	Rural	4.1	0.0	0.0	4.1	4.1
	Total	7.4	0.6	0.3	7.7	7.0
25-29	Urban	7.5	0.0	0.5	8.0	8.0
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	7.0	0.0	0.5	7.5	7.5
30-34	Urban	4.1	0.2	0.4	4.5	4.3
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	3.8	0.2	0.3	4.1	3.9
35-39	Urban	3.0	0.0	0.4	3.4	3.4
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	2.8	0.0	0.4	3.2	3.2
40-44	Urban	3.4	0.3	0.3	3.6	3.4

Analytical Domain	Urban/ Rural Residence	Omission (%)†	Duplication (%)	Erroneously inclusion (%)‡	Gross omission (%)	Net omission (%)
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	3.1	0.2	0.2	3.4	3.1
45-49	Urban	2.2	0.3	0.3	2.5	2.2
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	2.0	0.3	0.3	2.3	2.0
50-54	Urban	2.5	0.3	0.3	2.8	2.5
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	2.3	0.3	0.3	2.6	2.3
55-59	Urban	3.5	0.0	0.4	3.9	3.9
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	3.0	0.0	0.4	3.4	3.4
60-64	Urban	2.1	0.0	0.0	2.1	2.1
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	1.9	0.0	0.0	1.9	1.9
65-69	Urban	2.1	0.0	1.4	3.5	3.5
	Rural	3.1	3.1	0.0	3.1	0.0
	Total	2.3	0.6	1.1	3.4	2.8
70-74	Urban	3.7	0.0	0.0	3.7	3.7
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	3.2	0.0	0.0	3.2	3.2
75-79	Urban	4.2	0.0	1.4	5.6	5.6
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	3.8	0.0	1.3	5.0	5.0
80+	Urban	5.9	0.0	0.0	5.9	5.9
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	5.3	0.0	0.0	5.3	5.3
Total	Urban	4.4	0.2	0.4	4.6	4.4
	Rural	1.0	0.2	0.2	1.1	1.0
	Total	4.1	0.2	0.4	4.6	4.4
Nepal						
0-4	Urban	3.2	0.2	0.6	3.8	3.6
	Rural	1.7	0.0	0.4	2.1	2.1
	Total	2.6	0.2	0.6	3.1	3.0
5-9	Urban	1.6	0.2	1.8	3.5	3.3
	Rural	1.7	0.1	0.8	2.5	2.4
	Total	1.7	0.2	1.4	3.1	2.9
10-14	Urban	1.8	0.1	0.4	2.3	2.2
	Rural	1.3	0.0	0.2	1.5	1.5
	Total	1.6	0.0	0.3	1.9	1.9

Analytical Domain	Urban/ Rural Residence	Omission (%)†	Duplication (%)	Erroneously inclusion (%)‡	Gross omission (%)	Net omission (%)
15-19	Urban	2.7	0.2	0.9	3.5	3.3
	Rural	1.3	0.1	1.0	2.4	2.2
	Total	2.2	0.2	0.9	3.1	2.9
20-24	Urban	3.6	0.6	1.1	4.8	4.2
	Rural	2.5	0.2	0.9	3.4	3.2
	Total	3.2	0.4	1.1	4.3	3.9
25-29	Urban	3.7	0.2	0.9	4.6	4.4
	Rural	2.1	0.2	0.7	2.8	2.6
	Total	3.2	0.2	0.8	4.0	3.8
30-34	Urban	2.1	0.1	0.6	2.7	2.6
	Rural	1.2	0.1	0.7	1.8	1.8
	Total	1.8	0.1	0.6	2.4	2.3
35-39	Urban	2.3	0.2	0.6	2.9	2.7
	Rural	0.9	0.1	0.6	1.5	1.4
	Total	1.8	0.2	0.6	2.4	2.3
40-44	Urban	1.7	0.1	0.5	2.2	2.1
	Rural	1.0	0.1	1.0	1.9	1.9
	Total	1.5	0.1	0.7	2.1	2.0
45-49	Urban	1.6	0.2	0.2	1.8	1.6
	Rural	0.7	0.0	0.8	1.5	1.5
	Total	1.3	0.2	0.4	1.7	1.5
50-54	Urban	1.8	0.1	0.3	2.1	2.1
	Rural	1.0	0.3	0.4	1.4	1.1
	Total	1.5	0.1	0.3	1.8	1.7
55-59	Urban	2.1	0.1	0.5	2.6	2.4
	Rural	1.4	0.0	0.2	1.6	1.6
	Total	1.8	0.1	0.4	2.2	2.1
60-64	Urban	1.5	0.0	0.4	1.9	1.9
	Rural	1.3	0.6	0.1	1.5	0.9
	Total	1.4	0.2	0.3	1.7	1.5
65-69	Urban	2.5	0.3	0.5	3.0	2.7
	Rural	1.1	0.3	0.2	1.2	0.9
	Total	1.9	0.3	0.4	2.3	2.0
70-74	Urban	2.7	0.2	0.8	3.5	3.3
	Rural	2.0	0.2	0.5	2.4	2.3
	Total	2.4	0.2	0.7	3.1	2.9

Analytical Domain	Urban/ Rural Residence	Omission (%)†	Duplication (%)	Erroneously inclusion (%)‡	Gross omission (%)	Net omission (%)
75-79	Urban	2.5	0.7	0.9	3.4	2.7
	Rural	1.2	0.0	0.0	1.2	1.2
	Total	2.0	0.4	0.5	2.5	2.1
80+	Urban	3.4	0.0	2.1	5.5	5.5
	Rural	1.9	0.7	0.7	2.6	1.9
	Total	2.8	0.3	1.6	4.4	4.1
Total	Urban	2.4	0.2	0.8	3.1	3.0
	Rural	1.5	0.1	0.6	2.0	1.9
	Total	2.1	0.1	0.7	2.7	2.6

Annex Table A2-2: Omission rate by Sex

Analytical Domains	Urban/ Rural Residence	Omission (%)	Duplication (%)	Erroneously inclusion (%)	Gross omission (%)	Net omission (%)
Koshi						
Male	Urban	2.1	0.1	0.5	2.6	2.6
	Rural	0.8	0.0	0.7	1.4	1.4
	Total	1.6	0.0	0.6	2.2	2.2
Female	Urban	1.8	0.3	0.4	2.2	1.9
	Rural	1.1	0.2	0.2	1.3	1.1
	Total	1.5	0.2	0.3	1.8	1.6
Total	Urban	1.9	0.1	0.4	2.3	2.2
	Rural	0.9	0.1	0.4	1.4	1.2
	Total	1.6	0.1	0.4	2.0	1.9
Madhesh						
Male	Urban	2.1	0.2	0.3	2.4	2.2
	Rural	1.2	0.0	0.5	1.7	1.7
	Total	1.8	0.1	0.4	2.2	2.0
Female	Urban	1.8	0.1	0.4	2.2	2.0
	Rural	1.3	0.1	0.3	1.7	1.5
	Total	1.6	0.1	0.4	2.0	1.9
Total	Urban	1.9	0.2	0.4	2.3	2.1
	Rural	1.3	0.1	0.4	1.7	1.6
	Total	1.7	0.1	0.4	2.0	2.0
Bagmati						
Male	Urban	2.5	0.2	1.1	3.6	3.4
	Rural	0.9	0.1	1.2	2.1	2.0
	Total	1.8	0.2	1.1	2.9	2.8

Analytical Domains	Urban/ Rural Residence	Omission (%)	Duplication (%)	Erroneously inclusion (%)	Gross omission (%)	Net omission (%)
Female	Urban	2.3	0.2	1.0	3.3	3.1
	Rural	0.5	0.3	0.4	1.0	0.7
	Total	1.6	0.2	0.7	2.3	2.1
Total	Urban	2.4	0.2	1.0	3.3	3.1
	Rural	0.7	0.1	0.8	1.4	1.3
	Total	1.7	0.1	0.9	2.5	2.4
Gandaki						
Male	Urban	1.5	0.3	1.2	2.7	2.4
	Rural	1.5	0.1	1.1	2.6	2.5
	Total	1.5	0.2	1.2	2.7	2.4
Female	Urban	1.1	0.3	1.3	2.4	2.1
	Rural	1.3	0.2	0.8	2.0	1.9
	Total	1.1	0.2	1.1	2.2	2.0
Total	Urban	1.3	0.2	1.3	2.5	2.3
	Rural	1.4	0.1	0.9	2.2	2.1
	Total	1.3	0.2	1.1	2.4	2.2
Lumbini						
Male	Urban	2.9	0.2	1.5	4.5	4.2
	Rural	2.2	0.2	0.6	2.8	2.6
	Total	2.5	0.2	1.0	3.6	3.4
Female	Urban	2.4	0.2	1.2	3.6	3.4
	Rural	2.0	0.0	0.2	2.1	2.1
	Total	2.2	0.1	0.6	2.8	2.7
Total	Urban	2.7	0.2	1.3	3.7	3.5
	Rural	2.1	0.1	0.4	2.4	2.3
	Total	2.3	0.1	0.8	3.1	3.0
Karnali						
Male	Urban	2.7	0.4	0.7	3.4	3.1
	Rural	2.1	0.2	0.8	2.9	2.7
	Total	2.5	0.3	0.8	3.2	2.9
Female	Urban	1.3	0.1	0.7	2.0	1.9
	Rural	2.1	0.1	0.4	2.6	2.5
	Total	1.6	0.1	0.6	2.2	2.1
Total	Urban	2.0	0.2	0.7	2.8	2.7
	Rural	2.1	0.2	0.6	2.7	2.5
	Total	2.0	0.2	0.7	2.8	2.6
SudurPashchim						
Male	Urban	2.9	0.2	1.2	4.1	3.9
	Rural	2.1	0.3	1.0	3.1	2.8

Analytical Domains	Urban/ Rural Residence	Omission (%)	Duplication (%)	Erroneously inclusion (%)	Gross omission (%)	Net omission (%)
	Total	2.6	0.2	1.1	3.7	3.5
Female	Urban	1.9	0.2	1.0	2.9	2.6
	Rural	1.1	0.2	0.8	1.9	1.7
	Total	1.6	0.2	0.9	2.5	2.3
Total	Urban	2.4	0.2	1.1	3.5	3.3
	Rural	1.5	0.1	0.9	2.5	2.4
	Total	2.1	0.1	1.0	3.1	3.0
Kathmandu Valley						
Male	Urban	4.7	0.2	0.4	5.1	4.9
	Rural	1.3	0.0	0.0	1.3	1.3
	Total	4.4	0.2	0.4	4.8	4.6
Female	Urban	4.2	0.2	0.4	4.6	4.4
	Rural	0.7	0.3	0.3	1.0	0.7
	Total	3.8	0.2	0.4	4.2	4.0
Total	Urban	4.4	0.2	0.4	4.6	4.4
	Rural	1.0	0.2	0.2	1.1	1.0
	Total	4.1	0.2	0.4	4.6	4.4
Nepal						
Male	Urban	2.7	0.2	0.8	3.5	3.3
	Rural	1.6	0.1	0.8	2.3	2.2
	Total	2.3	0.2	0.8	3.1	2.9
Female	Urban	2.1	0.2	0.7	2.9	2.7
	Rural	1.4	0.2	0.4	1.8	1.7
	Total	1.8	0.2	0.6	2.5	2.3
Total	Urban	2.4	0.2	0.8	3.1	3.0
	Rural	1.5	0.1	0.6	2.0	1.9
	Total	2.1	0.1	0.7	2.7	2.6

Annex Table A2-3: Omission rate by literacy

Analytical Domains	Urban/Rural Residence	Omission (%)	Duplication (%)	Erroneously inclusion (%)	Gross omission (%)	Net omission (%)
Koshi						
Can read & write	Urban	1.8	0.1	0.4	2.2	2.1
	Rural	0.9	0.0	0.5	1.4	1.4
	Total	1.5	0.1	0.4	1.9	1.9
Can read only	Urban	5.1	0.0	0.0	5.1	5.1
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	4.0	0.0	0.0	4.0	4.0
Can't read & write	Urban	1.9	0.3	0.3	2.2	1.9
	Rural	1.3	0.5	0.5	1.8	1.3
	Total	1.6	0.1	0.4	2.0	1.8
Total aged 5+	Urban	1.9	0.1	0.4	2.3	2.1
	Rural	1.0	0.1	0.5	1.5	1.4
	Total	1.6	0.1	0.4	2.0	1.8
Madhesh						
Can read & write	Urban	2.1	0.1	0.3	2.4	2.3
	Rural	1.1	0.0	0.5	1.7	1.7
	Total	1.8	0.1	0.4	2.2	2.1
Can read only	Urban	1.8	0.0	1.8	3.6	3.6
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	1.6	0.0	1.6	3.1	3.1
Can't read & write	Urban	1.3	0.3	0.3	1.6	1.3
	Rural	1.3	0.2	0.3	1.6	1.4
	Total	1.6	0.2	0.4	1.9	1.8
Total aged 5+	Urban	1.8	0.2	0.3	2.1	1.9
	Rural	1.2	0.1	0.4	1.6	1.6
	Total	1.6	0.2	0.4	1.9	1.8
Bagmati						
Can read & write	Urban	1.8	0.2	1.2	3.0	2.8
	Rural	0.7	0.1	1.0	1.7	1.6
	Total	1.4	0.2	1.2	2.5	2.4
Can read only	Urban	0.0	0.0	0.0	0.0	0.0
	Rural	0.0	0.0	9.7	9.7	9.7
	Total	0.0	0.0	5.2	5.2	5.2

Analytical Domains	Urban/Rural Residence	Omission (%)	Duplication (%)	Erroneously inclusion (%)	Gross omission (%)	Net omission (%)
Can't read & write	Urban	4.6	0.0	0.3	4.8	4.8
	Rural	0.7	0.4	0.2	0.9	0.5
	Total	1.7	0.2	0.9	2.6	2.4
Total aged 5+	Urban	2.4	0.2	1.0	3.4	3.3
	Rural	0.7	0.2	0.8	1.5	1.3
	Total	1.7	0.2	0.9	2.6	2.4
Gandaki						
Can read & write	Urban	1.1	0.4	1.3	2.5	2.1
	Rural	1.6	0.1	1.3	2.9	2.8
	Total	1.3	0.3	1.3	2.7	2.4
Can read only	Urban	1.1	0.0	1.1	2.2	2.2
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	0.5	0.0	0.5	1.1	1.1
Can't read & write	Urban	1.6	0.0	1.0	2.6	2.6
	Rural	0.9	0.3	0.0	0.9	0.5
	Total	1.3	0.2	1.1	2.4	2.2
Total aged 5+	Urban	1.2	0.3	1.2	2.5	2.2
	Rural	1.4	0.1	1.0	2.4	2.2
	Total	1.3	0.2	1.1	2.4	2.2
Lumbini						
Can read & write	Urban	2.9	0.2	1.6	4.5	4.3
	Rural	2.4	0.1	0.5	2.9	2.8
	Total	2.6	0.2	1.0	3.7	3.5
Can read only	Urban	3.4	0.8	4.2	7.6	6.8
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	2.6	0.6	3.2	5.8	5.1
Can't read & write	Urban	1.7	0.0	0.3	2.1	2.1
	Rural	1.1	0.1	0.1	1.2	1.1
	Total	2.3	0.2	0.9	3.2	3.0
Total aged 5+	Urban	2.6	0.2	1.4	4.0	3.8
	Rural	2.0	0.1	0.4	2.4	2.3
	Total	2.3	0.2	0.9	3.2	3.0
Karnali						
Can read &	Urban	2.2	0.1	0.9	3.1	2.9

Analytical Domains	Urban/Rural Residence	Omission (%)	Duplication (%)	Erroneously inclusion (%)	Gross omission (%)	Net omission (%)
write	Rural	2.5	0.2	0.7	3.2	3.0
	Total	2.3	0.2	0.8	3.1	3.0
Can read only	Urban	0.0	4.2	0.0	0.0	-4.2
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	0.0	1.0	0.0	0.0	-1.0
Can't read & write	Urban	1.4	0.4	0.5	1.9	1.6
	Rural	1.4	0.0	0.5	1.8	1.8
	Total	2.0	0.2	0.7	2.7	2.5
Total aged 5+	Urban	2.0	0.2	0.8	2.7	2.5
	Rural	2.1	0.1	0.6	2.7	2.6
	Total	2.0	0.2	0.7	2.7	2.5
SudurPashchim						
Can read & write	Urban	2.5	0.2	1.1	3.6	3.4
	Rural	1.6	0.4	1.0	2.6	2.2
	Total	2.2	0.2	1.1	3.3	3.1
Can read only	Urban	0.0	0.0	0.0	0.0	0.0
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0
Can't read & write	Urban	1.3	0.2	1.2	2.5	2.3
	Rural	1.4	0.1	0.6	2.0	1.9
	Total	2.0	0.2	1.0	3.0	2.8
Total aged 5+	Urban	2.2	0.2	1.1	3.3	3.1
	Rural	1.5	0.3	0.8	2.4	2.1
	Total	2.0	0.2	1.0	3.0	2.8
Kathmandu Valley						
Can read & write	Urban	4.7	0.2	0.4	5.1	4.9
	Rural	1.1	0.0	0.0	1.1	1.1
	Total	4.4	0.2	0.4	4.8	4.6
Can read only	Urban	1.5	0.0	0.0	1.5	1.5
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	1.0	0.0	0.0	1.0	1.0
Can't read & write	Urban	3.0	0.0	0.8	3.8	3.8
	Rural	0.7	0.7	0.0	0.7	0.0
	Total	4.1	0.2	0.4	4.5	4.3

Analytical Domains	Urban/Rural Residence	Omission (%)	Duplication (%)	Erroneously inclusion (%)	Gross omission (%)	Net omission (%)
Total aged 5+	Urban	4.5	0.2	0.4	4.9	4.7
	Rural	0.9	0.2	0.0	0.9	0.7
	Total	4.1	0.2	0.4	4.5	4.3
Nepal						
Can read & write	Urban	2.5	0.2	0.8	3.4	3.2
	Rural	1.6	0.1	0.8	2.4	2.3
	Total	2.2	0.2	0.8	3.0	2.9
Can read only	Urban	2.1	0.4	1.4	3.5	3.1
	Rural	0.0	0.0	0.9	0.9	0.9
	Total	1.2	0.2	1.2	2.5	2.2
Can't read & write	Urban	1.9	0.2	0.5	2.4	2.2
	Rural	1.2	0.2	0.3	1.5	1.2
	Total	2.0	0.2	0.7	2.7	2.6
Total aged 5+	Urban	2.4	0.2	0.8	3.1	2.9
	Rural	1.4	0.2	0.6	2.1	1.9
	Total	2.0	0.2	0.7	2.7	2.6

Annex Table A2-4: Omission rate by marital status

Analytical Domains	Urban/Rural Residence	Omission (%)	Duplication (%)	Erroneously inclusion (%)	Gross omission (%)	Net omission (%)
Koshi						
Unmarried	Urban	1.7	0.1	0.7	2.4	2.3
	Rural	1.0	0.2	0.5	1.4	1.3
	Total	1.4	0.1	0.6	2.0	1.9
Married	Urban	1.6	0.2	0.2	1.8	1.6
	Rural	1.0	0.1	0.5	1.5	1.4
	Total	1.4	0.2	0.3	1.7	1.5
Widowed/ divorced/ separated	Urban	5.2	0.0	0.9	6.0	6.0
	Rural	1.4	0.7	0.7	2.1	1.4
	Total	1.6	0.2	0.4	2.0	1.8
Total population aged 10+	Urban	1.9	0.2	0.4	2.3	2.1
	Rural	1.0	0.2	0.5	1.5	1.4
	Total	1.6	0.2	0.4	2.0	1.8
Madhesh						
Unmarried	Urban	1.8	0.1	0.5	2.3	2.2

Analytical Domains	Urban/Rural Residence	Omission (%)	Duplication (%)	Erroneously inclusion (%)	Gross omission (%)	Net omission (%)
	Rural	2.0	0.0	0.5	2.6	2.6
	Total	1.9	0.0	0.5	2.4	2.3
Married	Urban	1.7	0.2	0.2	1.9	1.7
	Rural	0.5	0.1	0.3	0.8	0.7
	Total	1.3	0.2	0.2	1.5	1.3
Widowed/ divorced/ separated	Urban	3.9	0.3	1.5	5.4	5.1
	Rural	8.0	0.0	0.9	8.8	8.8
	Total	1.7	0.1	0.4	2.1	1.9
Total population aged 10+	Urban	1.9	0.2	0.4	2.2	2.1
	Rural	1.3	0.1	0.4	1.7	1.6
	Total	1.7	0.1	0.4	2.1	1.9
Bagmati						
Unmarried	Urban	2.2	0.2	0.9	3.1	2.9
	Rural	0.9	0.0	1.6	2.6	2.6
	Total	1.7	0.1	1.2	2.9	2.8
Married	Urban	2.6	0.1	0.5	3.1	3.0
	Rural	0.5	0.3	0.6	1.0	0.7
	Total	1.6	0.2	0.6	2.1	1.9
Widowed/ divorced/ separated	Urban	4.3	0.0	1.3	5.5	5.5
	Rural	2.7	0.0	0.0	2.7	2.7
	Total	1.8	0.2	0.7	2.5	2.3
Total population aged 10+	Urban	2.6	0.2	0.7	3.3	3.1
	Rural	0.7	0.2	0.8	1.5	1.3
	Total	1.8	0.2	0.7	2.5	2.3
Gandaki						
Unmarried	Urban	1.5	0.6	1.3	2.7	2.1
	Rural	1.7	0.0	2.0	3.7	3.7
	Total	1.6	0.3	1.6	3.1	2.8
Married	Urban	1.1	0.2	0.6	1.7	1.4
	Rural	1.0	0.2	0.4	1.3	1.1
	Total	1.0	0.2	0.5	1.5	1.3
Widowed/ divorced/ separated	Urban	2.8	0.0	1.1	3.9	3.9
	Rural	2.5	0.5	0.0	2.5	2.0
	Total	1.3	0.3	0.8	2.2	1.9
Total population aged 10+	Urban	1.3	0.3	0.8	2.2	1.8
	Rural	1.4	0.2	0.8	2.2	2.0
	Total	1.3	0.3	0.8	2.2	1.9
Lumbini						
Unmarried	Urban	3.4	0.1	2.1	5.4	5.3

Analytical Domains	Urban/Rural Residence	Omission (%)	Duplication (%)	Erroneously inclusion (%)	Gross omission (%)	Net omission (%)
	Rural	1.8	0.3	0.3	2.2	1.9
	Total	2.5	0.2	1.1	3.7	3.5
Married	Urban	2.3	0.2	0.7	3.0	2.8
	Rural	1.9	0.1	0.5	2.5	2.4
	Total	2.1	0.2	0.6	2.7	2.6
Widowed/ divorced/ separated	Urban	2.0	0.4	0.4	2.5	2.0
	Rural	2.3	0.0	0.5	2.7	2.7
	Total	2.2	0.2	0.8	3.0	2.9
Total population aged 10+	Urban	2.6	0.2	1.1	3.7	3.5
	Rural	1.9	0.2	0.5	2.4	2.2
	Total	2.2	0.2	0.8	3.0	2.9
Karnali						
Unmarried	Urban	2.5	0.1	0.8	3.3	3.2
	Rural	1.3	0.3	0.7	2.0	1.7
	Total	2.1	0.2	0.7	2.9	2.7
Married	Urban	1.7	0.3	0.6	2.2	2.0
	Rural	2.2	0.1	0.4	2.6	2.4
	Total	1.9	0.2	0.5	2.4	2.1
Widowed/ divorced/ separated	Urban	2.9	0.0	0.7	3.6	3.6
	Rural	2.5	0.0	1.3	3.8	3.8
	Total	2.0	0.2	0.6	2.6	2.4
Total population aged 10+	Urban	2.0	0.2	0.6	2.7	2.5
	Rural	2.0	0.2	0.5	2.5	2.3
	Total	2.0	0.2	0.6	2.6	2.4
SudurPashchim						
Unmarried	Urban	2.9	0.1	1.1	4.0	3.9
	Rural	1.6	0.1	0.5	2.2	2.0
	Total	2.5	0.1	0.9	3.4	3.2
Married	Urban	1.8	0.2	1.0	2.8	2.7
	Rural	1.6	0.2	1.0	2.6	2.4
	Total	1.8	0.2	1.0	2.8	2.6
Widowed/ divorced/ separated	Urban	2.0	0.4	2.8	4.8	4.4
	Rural	0.8	0.8	1.6	2.3	1.6
	Total	2.0	0.2	1.1	3.1	2.9
Total	Urban	2.2	0.2	1.2	3.4	3.2

Analytical Domains	Urban/Rural Residence	Omission (%)	Duplication (%)	Erroneously inclusion (%)	Gross omission (%)	Net omission (%)
population aged 10+	Rural	1.6	0.2	0.8	2.4	2.2
	Total	2.0	0.2	1.1	3.1	2.9
Kathmandu Valley						
Unmarried	Urban	5.3	0.3	0.4	5.7	5.4
	Rural	2.8	0.0	0.0	2.8	2.8
	Total	5.1	0.2	0.3	5.4	5.2
Married	Urban	4.1	0.2	0.4	4.4	4.3
	Rural	0.0	0.0	0.0	0.0	0.0
	Total	3.7	0.1	0.3	4.0	3.9
Widowed/ divorced/ separated	Urban	4.5	0.3	0.3	4.8	4.5
	Rural	2.3	2.3	0.0	2.3	0.0
	Total	4.2	0.2	0.3	4.5	4.3
Total population aged 10+	Urban	4.5	0.2	0.4	4.8	4.6
	Rural	1.0	0.2	0.0	1.0	0.8
	Total	4.2	0.2	0.3	4.5	4.3
Nepal						
Unmarried	Urban	2.7	0.2	0.9	3.6	3.4
	Rural	1.6	0.1	0.8	2.4	2.3
	Total	2.3	0.2	0.9	3.2	3.0
Married	Urban	2.2	0.2	0.5	2.7	2.4
	Rural	1.2	0.2	0.5	1.7	1.5
	Total	1.8	0.2	0.5	2.3	2.1
Widowed/ divorced/ separated	Urban	3.5	0.2	1.1	4.6	4.4
	Rural	2.7	0.3	0.6	3.3	3.0
	Total	2.1	0.2	0.6	2.7	2.5
Total population aged 10+	Urban	2.4	0.2	0.7	3.1	2.9
	Rural	1.4	0.2	0.6	2.0	1.8
	Total	2.1	0.2	0.6	2.7	2.5

Annex B: Content Errors at Disaggregated Levels

Annex B1: Error reporting on age by sex

Age Groups	MALE			FEMALE		
	Not Error Reporting on age	Error Reporting on age	Total	Not Error Reporting on age	Error Reporting on age	Total
00-04	90.79	9.21	100	90.55	9.45	100
05-09	81.90	18.10	100	81.50	18.50	100
10-14	75.45	24.55	100	75.25	24.75	100
15-19	76.26	23.74	100	75.88	24.12	100
20-24	72.77	27.23	100	69.70	30.30	100
25-29	70.68	29.32	100	67.27	32.73	100
30-34	67.56	32.44	100	66.24	33.76	100
35-39	69.32	30.68	100	65.28	34.72	100
40-44	66.45	33.55	100	65.70	34.30	100
45-49	70.38	29.62	100	67.59	32.41	100
50-54	68.59	31.41	100	66.25	33.75	100
55-59	69.00	31.00	100	68.94	31.06	100
60+	70.91	29.09	100	69.88	30.12	100
Total	74.28	25.72	100	72.04	27.96	100

Annex B2: Error Reporting on age by sex by urban rural areas

Age Groups	MALE			FEMALE		
	Not Error Reporting on age	Error Reporting on age	Total	Not Error Reporting on age	Error Reporting on age	Total
URBAN						
00-04	91.09	8.91	100	89.68	10.32	100
05-09	83.57	16.43	100	83.16	16.84	100
10-14	75.92	24.08	100	76.77	23.23	100
15-19	76.83	23.17	100	76.89	23.11	100
20-24	73.06	26.94	100	71.83	28.17	100
25-29	71.24	28.76	100	68.44	31.56	100
30-34	66.78	33.22	100	67.89	32.11	100
35-39	69.61	30.39	100	65.88	34.12	100
40-44	64.83	35.17	100	66.29	33.71	100
45-49	69.01	30.99	100	68.85	31.15	100
50-54	69.73	30.27	100	66.42	33.58	100
55-59	70.24	29.76	100	68.20	31.80	100
60+	70.37	29.63	100	70.08	29.92	100
Total	74.27	25.73	100	72.72	27.28	100
RURAL						
00-04	90.36	9.64	100	91.81	8.19	100
05-09	79.35	20.65	100	79.25	20.75	100
10-14	74.72	25.28	100	73.10	26.90	100
15-19	75.25	24.75	100	74.22	25.78	100
20-24	72.16	27.84	100	65.76	34.24	100
25-29	69.54	30.46	100	65.24	34.76	100
30-34	69.06	30.94	100	63.02	36.98	100
35-39	68.72	31.28	100	64.16	35.84	100
40-44	69.77	30.23	100	64.57	35.43	100
45-49	73.30	26.70	100	65.10	34.90	100
50-54	66.37	33.63	100	65.95	34.05	100
55-59	66.91	33.09	100	70.14	29.86	100
60+	71.69	28.31	100	69.59	30.41	100
Total	74.30	25.70	100	70.92	29.08	100

Annex B3: Error reporting on literacy status by sex

Age Groups	MALE			FEMALE		
	Not Error Reporting on Literacy Status	Error Reporting on Literacy Status	Total	Not Error Reporting on Literacy Status	Error Reporting on Literacy Status	Total
00-04	93.03	6.97	100	92.85	7.15	100
05-09	99.91	0.09	100	99.80	0.20	100
10-14	99.89	0.11	100	99.86	0.14	100
15-19	99.86	0.14	100	99.80	0.20	100
20-24	99.69	0.31	100	99.81	0.19	100
25-29	99.49	0.51	100	99.59	0.41	100
30-34	99.42	0.58	100	99.41	0.59	100
35-39	99.75	0.25	100	99.60	0.40	100
40-44	99.42	0.58	100	99.31	0.69	100
45-49	99.55	0.45	100	99.60	0.40	100
50-54	99.73	0.27	100	99.29	0.71	100
55-59	99.32	0.68	100	99.51	0.49	100
60+	98.88	1.12	100	98.98	1.02	100

Annex B4: Error reporting on literacy status by sex and urban/rural residence

Age Groups	MALE			FEMALE		
	Not Error Reporting on Literacy Status	Error Reporting on Literacy Status	Total	Not Error Reporting on Literacy Status	Error Reporting on Literacy Status	Total
URBAN						
00-04	93.05	6.95	100	93.6	6.4	100
05-09	99.90	0.10	100	99.89	0.11	100
10-14	99.89	0.11	100	99.94	0.06	100
15-19	100.00	0.00	100	99.79	0.21	100
20-24	99.62	0.38	100	99.77	0.23	100
25-29	99.48	0.52	100	99.50	0.50	100
30-34	99.48	0.52	100	99.28	0.72	100

Age Groups	MALE			FEMALE		
	Not Error Reporting on Literacy Status	Error Reporting on Literacy Status	Total	Not Error Reporting on Literacy Status	Error Reporting on Literacy Status	Total
35-39	99.72	0.28	100	99.66	0.34	100
40-44	99.47	0.53	100	99.43	0.57	100
45-49	99.43	0.57	100	99.37	0.63	100
50-54	99.57	0.43	100	99.57	0.43	100
55-59	99.37	0.63	100	99.43	0.57	100
60+	98.93	1.07	100	99.09	0.91	100
RURAL						
00-04	93.00	7.00	100	91.84	8.16	100
05-09	99.92	0.08	100	99.68	0.32	100
10-14	99.90	0.10	100	99.72	0.28	100
15-19	99.57	0.43	100	99.81	0.19	100
20-24	99.85	0.15	100	99.90	0.10	100
25-29	99.50	0.50	100	99.76	0.24	100
30-34	99.30	0.70	100	99.64	0.36	100
35-39	99.81	0.19	100	99.50	0.50	100
40-44	99.32	0.68	100	99.06	0.94	100
45-49	99.78	0.22	100	100.00	0.00	100
50-54	100.00	0.00	100	98.84	1.16	100
55-59	99.24	0.76	100	99.62	0.38	100
60+	98.79	1.21	100	98.80	1.20	100

Annex B5: Gross difference rate, net difference rate, index of inconsistency and agreement rate by domains

Koshi

Age Groups	Gross Difference Rate			Net Difference Rate(%)			Index of Inconsistency			Agreement Rate%		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
0-04	0.89	0.87	0.92	0.42	-2.88	5.76	6.15	6.48	5.70	99.11	99.13	99.08
05-09	1.96	2.02	1.88	0.15	1.74	1.36	11.28	11.69	10.64	98.04	97.98	98.12
10-14	2.38	2.59	2.06	-0.20	-1.48	-3.06	14.14	15.73	11.72	97.62	97.41	97.94
15-19	2.18	2.40	1.84	0.00	-1.23	1.65	12.68	15.02	9.57	97.82	97.60	98.16
20-24	2.08	2.02	2.19	-0.30	-3.47	-4.82	15.34	14.40	17.00	97.92	97.98	97.81
25-29	2.20	2.18	2.23	-0.05	2.68	-6.18	15.04	14.26	16.47	97.80	97.82	97.77
30-34	2.23	2.48	1.84	0.05	-3.19	9.16	17.19	18.01	15.67	97.77	97.52	98.16
35-39	2.25	2.40	2.01	-0.23	-2.88	-3.85	17.16	17.59	16.41	97.75	97.60	97.99
40-44	1.88	2.15	1.44	0.17	3.64	0.79	15.63	16.59	13.76	98.12	97.85	98.56
45-49	1.78	2.21	1.09	0.10	3.07	-0.84	15.97	18.41	11.17	98.22	97.79	98.91
50-54	1.75	1.99	1.36	0.03	0.47	0.91	16.93	18.11	14.68	98.25	98.01	98.64
55-59	1.49	1.58	1.36	-0.08	-4.20	1.28	21.38	21.99	20.32	98.51	98.42	98.64
60+	0.65	0.68	0.61	-0.05	-0.69	0.00	2.90	3.27	2.43	99.35	99.32	99.39

Madhesh

Age Groups	Gross Difference Rate			Net Difference Rate(%)			Index of Inconsistency			Aggreement Rate%		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
0-04	1.23	0.95	1.96	0.44	0.36	0.65	5.95	4.86	8.43	98.77	99.05	98.04
05-09	2.57	2.02	4.06	-0.05	-0.11	0.13	11.80	9.61	16.98	97.43	97.98	95.94
10-14	2.97	2.57	4.03	-0.35	-0.30	-0.47	14.32	12.44	19.29	97.03	97.43	95.97
15-19	2.92	2.65	3.67	0.14	0.23	-0.10	15.65	14.06	20.04	97.08	97.35	96.33
20-24	3.10	2.76	4.01	-0.20	-0.23	-0.13	19.88	18.31	23.64	96.90	97.24	95.99
25-29	3.05	2.79	3.75	0.18	0.14	0.29	23.02	20.87	28.99	96.95	97.21	96.25
30-34	3.10	3.06	3.22	-0.22	-0.30	-0.03	26.34	25.06	30.31	96.90	96.94	96.78
35-39	3.09	3.03	3.25	0.24	0.33	0.00	23.82	22.16	29.40	96.91	96.97	96.75
40-44	2.59	2.60	2.54	-0.04	0.21	-0.71	27.00	25.39	32.82	97.41	97.40	97.46
45-49	2.10	2.15	1.99	0.02	0.01	0.05	25.30	24.65	27.42	97.90	97.85	98.01
50-54	1.70	1.61	1.94	-0.31	-0.50	0.21	25.57	24.47	28.41	98.30	98.39	98.06
55-59	1.53	1.45	1.75	0.33	0.37	0.24	23.83	22.55	27.29	98.47	98.55	98.25
60+	0.65	0.58	0.81	-0.19	-0.21	-0.13	4.09	3.63	5.43	99.35	99.42	99.19

Bagmati (except Ktm Valley)

Age Groups	Gross Difference Rate			Net Difference Rate(%)			Index of Inconsistency			Aggreement Rate%		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
0-04	0.28	0.30	0.26	0.06	0.19	-0.11	2.76	2.52	3.20	99.72	99.70	99.74
05-09	0.78	0.88	0.66	0.19	0.22	0.15	5.81	6.15	5.33	99.22	99.12	99.34
10-14	1.20	1.38	0.99	-0.16	-0.39	0.11	7.61	8.93	6.10	98.80	98.62	99.01
15-19	1.37	1.69	0.99	-0.01	0.25	-0.33	8.79	10.49	6.59	98.63	98.31	99.01
20-24	1.28	1.60	0.88	-0.03	-0.11	0.07	8.86	9.86	7.29	98.72	98.40	99.12
25-29	1.26	1.58	0.88	-0.23	-0.36	-0.07	8.86	10.82	6.36	98.74	98.42	99.12
30-34	1.40	1.83	0.88	0.28	0.33	0.22	9.47	13.03	5.61	98.60	98.17	99.12
35-39	1.43	1.80	0.99	-0.19	-0.14	-0.26	10.66	14.34	6.82	98.57	98.20	99.01
40-44	1.41	1.83	0.91	0.23	0.28	0.18	11.77	16.25	7.07	98.59	98.17	99.09
45-49	1.32	1.71	0.84	-0.32	-0.55	-0.04	12.35	15.60	8.16	98.68	98.29	99.16
50-54	1.30	1.69	0.84	0.21	0.47	-0.11	11.20	13.94	7.59	98.70	98.31	99.16
55-59	1.22	1.66	0.70	-0.01	-0.17	0.18	12.98	18.62	6.92	98.78	98.34	99.30
60+	0.51	0.69	0.29	-0.02	-0.03	0.00	1.89	2.81	0.98	99.49	99.31	99.71

Gandaki

Age Groups	Gross Difference Rate			Net Difference Rate(%)			Index of Inconsistency			Aggreement Rate%		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
0-04	0.73	0.51	1.15	0.32	0.19	0.58	6.09	4.59	8.47	99.27	99.49	98.85
05-09	1.81	1.28	2.85	0.29	0.43	0.04	11.33	8.97	14.81	98.19	98.72	97.15
10-14	2.06	1.73	2.70	-0.31	-0.19	-0.54	12.53	11.50	14.18	97.94	98.27	97.30
15-19	1.99	2.00	1.98	0.05	0.03	0.11	11.96	11.22	13.81	98.01	98.00	98.02
20-24	2.05	2.00	2.16	-0.32	-0.45	-0.07	13.57	12.67	15.59	97.95	98.00	97.84
25-29	1.96	1.65	2.56	-0.02	-0.05	0.04	12.57	10.24	17.60	98.04	98.35	97.44
30-34	1.98	1.63	2.67	0.14	0.13	0.14	13.81	11.22	18.98	98.02	98.37	97.33
35-39	2.19	1.87	2.81	0.07	0.11	0.00	15.51	12.13	24.30	97.81	98.13	97.19
40-44	1.73	1.47	2.23	-0.20	-0.03	-0.22	15.05	11.87	22.86	98.27	98.53	97.77
45-49	1.44	1.20	1.91	-0.09	-0.08	-0.11	13.93	10.77	21.70	98.56	98.80	98.09
50-54	1.67	1.31	2.38	0.18	0.24	0.07	15.04	11.30	23.26	98.33	98.69	97.62
55-59	1.43	1.25	1.77	-0.08	-0.13	0.04	16.68	14.40	21.34	98.57	98.75	98.23
60+	0.49	0.45	0.58	-0.04	-0.03	-0.07	2.26	2.25	2.28	99.51	99.55	99.42

Lumbini

Age Groups	Gross Difference Rate			Net Difference Rate(%)			Index of Inconsistency			Aggreement Rate%		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
0-04	0.98	0.74	1.27	0.50	0.34	0.69	6.40	5.70	7.02	99.02	99.26	98.73
05-09	2.26	1.84	2.75	0.22	0.48	-0.10	12.87	11.70	14.01	97.74	98.16	97.25
10-14	2.78	2.41	3.21	-0.44	-0.54	-0.32	16.30	15.92	16.72	97.22	97.59	96.79
15-19	2.76	2.38	3.21	2.76	0.34	-0.22	14.91	12.53	17.88	97.24	97.62	96.79
20-24	2.86	2.29	3.53	-0.30	-0.59	0.05	17.09	13.54	21.40	97.14	97.71	96.47
25-29	2.84	2.21	3.58	-0.10	0.11	-0.34	17.71	13.52	22.87	97.16	97.79	96.42
30-34	2.58	2.04	3.21	-0.12	-0.45	0.27	18.29	13.44	25.12	97.42	97.96	96.79
35-39	2.15	1.56	2.84	0.34	0.54	0.10	15.92	10.46	24.09	97.85	98.44	97.16
40-44	1.63	1.25	2.08	-0.10	-0.28	0.12	16.29	11.94	21.93	98.37	98.75	97.92
45-49	1.58	1.13	2.11	-0.11	0.00	-0.25	17.12	10.91	26.85	98.42	98.87	97.89
50-54	1.57	1.08	2.16	0.28	0.51	0.00	16.23	10.17	25.04	98.43	98.92	97.84
55-59	1.37	1.08	1.72	-0.25	-0.45	0.00	18.96	14.43	24.70	98.63	98.92	98.28
60+	0.46	0.40	0.54	0.00	0.00	0.00	2.50	2.12	2.95	99.54	99.60	99.46

Karnali

Age Groups	Gross Difference Rate			Net Difference Rate(%)			Index of Inconsistency			Aggreement Rate%		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
0-04	0.56	0.70	0.41	0.21	0.16	0.03	3.29	4.14	2.38	99.44	99.30	99.59
05-09	1.51	1.77	1.22	0.12	0.29	-0.07	7.90	9.16	6.49	98.49	98.23	98.78
10-14	2.57	3.13	1.97	-0.20	-0.45	0.07	12.24	14.10	9.97	97.43	96.87	98.03
15-19	2.91	3.19	2.61	-0.04	0.51	-0.64	16.01	16.36	15.59	97.09	96.81	97.39
20-24	2.87	2.51	3.26	-0.27	-0.84	0.34	18.29	16.23	20.46	97.13	97.49	96.74
25-29	3.03	2.67	3.42	0.09	0.02	0.17	20.75	20.25	21.23	96.97	97.33	96.58
30-34	2.96	2.63	3.32	2.96	0.45	-0.20	22.26	20.48	24.07	97.04	97.37	96.68
35-39	2.81	2.86	2.75	-0.06	0.10	-0.24	22.77	23.67	21.82	97.19	97.14	97.25
40-44	2.42	2.84	1.97	0.11	-0.04	0.27	24.13	26.51	21.17	97.58	97.16	98.03
45-49	2.06	2.24	1.87	0.19	0.02	0.37	22.88	24.36	21.20	97.94	97.76	98.13
50-54	1.86	1.79	1.93	-0.22	-0.08	-0.37	22.07	20.85	23.45	98.14	98.21	98.07
55-59	1.61	0.78	1.56	0.09	0.18	0.00	21.38	23.71	19.21	98.39	99.22	98.44
60+	0.68	0.78	0.58	-0.15	-0.31	0.03	4.06	4.93	3.22	99.32	99.22	99.42

Sudurpachhim

Age Groups	Gross Difference Rate			Net Difference Rate(%)			Index of Inconsistency			Aggreement Rate%		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
0-04	1.15	1.10	1.22	0.45	0.44	0.46	7.11	7.64	6.48	98.85	98.90	98.78
05-09	2.73	2.29	3.46	0.39	-0.04	1.10	14.50	14.00	15.21	97.27	97.71	96.54
10-14	3.48	3.15	4.00	-0.48	-0.02	-1.22	14.97	15.23	14.79	96.52	96.85	96.00
15-19	3.00	3.31	2.49	-0.08	-0.26	0.21	15.12	16.71	12.53	97.00	96.69	97.51
20-24	2.63	2.95	2.11	-0.21	-0.09	-0.42	16.74	16.34	18.02	97.37	97.05	97.89
25-29	2.74	2.98	2.36	-0.30	-0.33	-0.25	21.57	19.57	27.90	97.26	97.02	97.64
30-34	2.72	3.06	2.15	0.53	0.73	0.21	22.53	21.41	26.12	97.28	96.94	97.85
35-39	2.81	3.20	2.19	-0.06	0.07	-0.25	25.04	25.96	23.19	97.19	96.80	97.81
40-44	2.32	2.47	2.06	-0.07	-0.35	0.38	21.76	22.44	20.53	97.68	97.53	97.94
45-49	2.09	1.98	2.28	0.16	0.04	0.34	24.52	23.21	26.66	97.91	98.02	97.72
50-54	2.02	2.07	1.94	-0.47	-0.44	-0.51	27.09	27.93	25.74	97.98	97.93	98.06
55-59	1.62	1.52	1.77	0.15	0.29	-0.08	24.28	22.90	26.53	98.38	98.48	98.23
60+	0.71	0.51	1.05	0.00	-0.02	0.04	3.72	2.81	4.98	99.29	99.49	98.95

Kathmandu Valley

Age Groups	Gross Difference Rate			Net Difference Rate(%)			Index of Inconsistency			Aggreement Rate%		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
0-04	1.00	1.01	0.00	0.55	0.55	0.00	8.81	8.92	0.00	99.00	98.99	100.00
05-09	1.88	1.90	0.00	0.08	0.08	0.00	14.31	14.50	0.00	98.12	98.10	100.00
10-14	2.05	2.07	0.00	-0.21	-0.21	0.00	15.08	15.27	0.00	97.95	97.93	100.00
15-19	2.28	2.30	0.17	0.17	0.17	0.17	14.79	14.94	1.02	97.72	97.70	99.83
20-24	2.64	2.66	0.50	-0.49	-0.49	-0.17	16.27	16.39	3.53	97.36	97.34	99.50
25-29	2.68	2.70	0.50	0.04	0.04	0.17	14.74	14.82	3.76	97.32	97.30	99.50
30-34	2.70	2.72	0.50	-0.10	-0.10	-0.50	16.02	16.12	3.76	97.30	97.28	99.50
35-39	2.85	2.87	0.33	0.06	0.06	0.33	17.35	17.47	2.62	97.15	97.13	99.67
40-44	2.41	2.44	0.17	-0.04	-0.04	0.17	18.86	18.99	1.87	97.59	97.56	99.83
45-49	1.90	1.92	0.17	-0.13	-0.13	-0.17	15.80	15.92	1.65	98.10	98.08	99.83
50-54	1.73	1.75	0.17	-0.30	-0.30	0.17	16.84	17.01	1.52	98.27	98.25	99.83
55-59	1.58	1.60	0.17	0.45	0.46	-0.17	17.91	18.12	1.56	98.42	98.40	99.83
60+	0.56	0.57	0.00	-0.08	-0.08	0.00	3.03	3.07	0.00	99.44	99.43	100.00

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Annex C: Survey Tools and Questionnaires

PES-Form A: Household Listing

केन्द्रीय तथ्याङ्क विभागका लागि

श्रम अध्ययन कार्यक्रम, त्रिभुवन विश्वविद्यालयद्वारा सञ्चालित

गणना जाँच सर्वेक्षण २०७८, नेपाल

(Post Enumeration Survey 2022, Nepal)

नमस्कार/अभिवादन । म .... हुँ । म यहाँ केन्द्रीय तथ्याङ्क विभागका लागि त्रिभुवन विश्वविद्यालय श्रम अध्ययन कार्यक्रम, कीर्तिपुर काठमाडौंबाट उपस्थित भएको छु । यहाँलाई अवगत नै छ, केन्द्रीय तथ्याङ्क विभागको आयोजनामा हालै जनगणना २०७८ सम्पन्न भएको छ । जनगणना के कस्तो रह्यो, कोही छुटेको वा दोहोरिएको छ की भने बारेमा म यहाँलाई केही प्रश्नहरु सोध्नेछु । यस प्रश्नावलीमा संकलन गरिने विवरण राष्ट्रिय जनगणना २०७८ को गुणस्तर परिक्षण गर्न सञ्चालन हुने गणना जाँच सर्वेक्षणको लागि तय गरिएका हुन् । उत्तरदाताबाट प्राप्त हुने विवरण तथ्याङ्क ऐन, २०१५ बमोजिम गोप्य राखिनेछ । तथ्याङ्क संकलनको लागि सही विवरण उपलब्ध गराई सहयोग गर्नुहुन केन्द्रीय तथ्याङ्क विभाग सम्बन्धित सबैमा अनुरोध गरे अनुसार म यहाँ उपस्थित भएको छु ।

भौगोलिक क्षेत्र पहिचान

06. प्रदेश: _____ ☐ 07. जिल्ला: _____ ☐☐

08. गाउँपालिका/नगरपालिका: _____

09. वडा नं.: ..... ☐☐ 10. गणना क्षेत्र (EA) नं.: .....

11. गाउँ/वस्ती/टोल: _____

गणना क्षेत्र पहिचान

01. PSU नम्बर: .....

गणना जाँच घर तथा परिवार सूचीकरण फाराम (PES House and Household Listing Form)

गणना जाँच सर्वेक्षण (PES)			परिवारमूलीको नाम र थर	तपाईंको परिवारको बसोबास जनगणनाको समयमा पनि यही घरमा थियो ?	जनगणना र हालको परिवारमूली उही व्यक्ति हो ?	जनगणनाको समयको परिवारबाट छुट्टिएर नयाँ परिवार बनेको छ ?	नयाँ बनेको परिवार हाल कहाँ बसोबास गर्दछ ?	यस घर वा परिवारबाट नयाँ बनेको परिवारको सम्पर्क नम्बर लेख्ने	जनगणनाको विवरण (प्रत्येक घरको लागि अनिवार्यरूपमा भर्ने)			
घर क्रम संख्या	हाल बस्ने परिवार संख्या (शून्य "०" भएमा → महल 10)	परिवार क्रम संख्या		थियो.....1 छैन.....2 → महल 10	हो.....1 होइन.....2 थाहा छैन.....3 गणना नभएको...4	छ.....1 छैन.....2 → महल 10	यही गणना क्षेत्रमा.....1 अर्को गणना क्षेत्रमा.....2 (कम्तिमा एक परिवार यही गणना क्षेत्रमा बसेको भए कोड 1 लेख्ने)		जम्मा परिवार संख्या (शून्य "०" भएमा → अर्को घर)	घर क्रम संख्या	परिवार क्र. सं. -देखि	परिवार क्र.सं. - सम्म
										(घर क्र.सं. र परिवार क्र.सं. घरको भित्तामा हेरी लेख्ने)		
1	2	3	4	5	6	7	8	9	10	11	12	

गणना जाँच सर्वेक्षण २०७८

(केन्द्रीय तथ्याङ्क विभागका लागि श्रम अध्ययन कार्यक्रम, त्रिभुवन विश्वविद्यालयद्वारा सञ्चालित)

नमस्कार/अभिवादन। मेरो नाम ..... हो। म यहाँ केन्द्रीय तथ्याङ्क विभागका लागि त्रिभुवन विश्वविद्यालय श्रम अध्ययन कार्यक्रम, कीर्तिपुर, काठमाडौंबाट गणना जाँच सर्वेक्षण (Post Enumeration Survey-PES) को स्थलगत कार्य गर्न उपस्थित भएको छु। यहाँलाई अवगत नै छ, केन्द्रीय तथ्याङ्क विभागको आयोजनामा हालै जनगणना २०७८ सम्पन्न भएको छ।जनगणना के कस्तो रहयो, कोही छुटेको वा दोहोरिएको छ की भन्ने बारेमा म यहाँलाई केही प्रश्नहरु सोध्नेछु।यस प्रश्नावलीमा संकलन गरिने विवरण राष्ट्रिय जनगणना २०७८ को गुणस्तर परिक्षण गर्न सञ्चालन हुने गणना जाँच सर्वेक्षणको लागि तथ गरिएका हुन् ।उत्तरदाताबाट प्राप्त हुने विवरण तथ्याङ्क ऐन, २०१५ बमोजिम गोप्य राखिनेछ।तथ्याङ्क संकलनको लागि सही विवरण उपलब्ध गराई सहयोग गर्नुहुन केन्द्रीय तथ्याङ्क विभाग र श्रम अध्ययन कार्यक्रमको तर्फबाट हार्दिक अनुरोध गर्दछु।

कार्यालय प्रयोजन (जोडा मिलाउने कार्य) को लागि मात्र

1. जोडा मिलाउनेको स्थिति

   PES र जनगणनाको परिवार हुबहु मिलेको 1
   PES को एक परिवार जनगणनाको एक भन्दा बढी परिवारसँग मिलेको 2
   PES को एक भन्दा बढी परिवार जनगणनाको एक परिवारसँग मिलेको ..... 3 ☐
   जोडा नमिलेको 4
   लागु नहुने 5

2. प्रश्न नं. 1 मा 2 वा 3 कोड आएमा जनगणनाको परिवार क्रमसंख्या: ☐☐☐

3. रुजु गर्न जानको लागि भ्रमण आवश्यक पर्छ ?

   पर्छ 1
   पर्दैन ..... 2 ☐

4. भ्रमणको कारण:

   जोडा मिल्ने सम्भावना भएको 1
   जनगणनामा गणना भएको तर PES मा नभएको ..... 2 ☐

5. रुजु पछिको पुनरावलोकन: _____

6. जोडा मिलाउने सुपरिवेक्षकको नाम थर: _____

   जोडा मिलाउने सुपरिवेक्षकको थप टिप्पणी: _____

कामको निगरानी

	महिना			गते			महिना			गते	
7. प्रथम पटक सम्पादन गरेको मिति:			-			12. दोस्रो सम्पादकको नाम:					
8. सम्पादकको नाम;						13. पुनरावलोकन गरेको मिति:			-		
9. रुजु गर्ने गणको मिति:			-			14. पुनरावलोकनकर्ताको नाम:					
10. रुजु गर्ने गणकको नाम:						15. डाटा इन्ट्री गरेको मिति:			-		
11. दोस्रो पटक सम्पादन गरेको मिति:			-			16. डाटा इन्ट्री गर्नेको नाम:					

खण्ड १: परिचयात्मक विवरण

गणना क्षेत्र पहिचान

1.1 PSU नम्बर: .....

1.2 PES घर क्र.स.: .....

1.3 PES परिवार क्र.सं.: .....

1.4 जनगणना घर क्र.स.: .....

1.5 जनगणना परिवार क्र.स.: .....

[illegible]

भौगोलिक क्षेत्र पहिचान

1.6 प्रदेश: _____ ☐

1.7 जिल्ला: _____

1.8 गाउँपालिका/नगरपालिका: _____

1.9 वडा नं.: ..... ☐☐

1.10 गणना क्षेत्र (EA) नं.: .....

1.11 गाउँ/बस्ती/टोल: _____

खण्ड २ : पारिवारिक विवरण

2.1 परिवारमूलीको नाम थर: _____

2.2 ज्येष्ठ व्यक्तिको नाम थर: _____

2.3 परिवारमूलीको सम्पर्क नम्बर: _____

2.4 हाल परिवारमा अक्सर बसोबास गर्ने सदस्य संख्या (महिला वा पुरुष मध्ये कोही नभएमा "00" लेख्ने):

जम्मा ..... ☐☐ पुरुष ..... ☐☐ महिला ..... ☐☐

2.5 हाल परिवारमा अनुपस्थित (अक्सर विदेशमा बसोबास गर्ने मात्र) सदस्य संख्या (कोही नभएमा "00" लेख्ने):

जम्मा ..... ☐☐ पुरुष ..... ☐☐ महिला ..... ☐☐

2.6 तपाईको परिवार जनगणनाको समय (वि.सं. २०७८ कार्तिक २५ देखि मंसिर ९ गते सम्म) मा पनि यही ठाउँ (गणना क्षेत्र) मा थियो? *(PES को लागि छनोट भएके स्थानमा)*

थियो ..... 1 **→Q 2.8** ☐

थिएन 2

2.7 जनगणनाको समयमा तपाईको परिवारको बसोबास कहाँ थियो?

नेपालकै अन्य क्षेत्रमा	1	
विदेशमा	2	→ व्यक्तिगत खण्ड

2.8 तपाईको परिवारको जनगणना भएको थियो?

थियो	1
थिएन	2
थाहा भएन	3

2.9 जनगणनाको समय (वि.सं. २०७८ कार्तिक २५ देखि मंसिर ९ गते सम्म) मा परिवारमा अक्सर बसोबास गरेका व्यक्ति संख्या:

खण्ड ३: व्यक्तिगत खण्ड

3.1 हाल परिवारमा अक्सर बसोबास गर्ने सदस्यहरूको विवरण (Characteristics of members of the household)

क्र.सं.	परिवारमा अक्सर बसोबास गर्ने व्यक्तिको नाम र थर (सबै भन्दा पहिले परिवारमूलीको नाम र थर लेखी अरू सदस्यहरूको क्रमैसँग लेख्नुपर्दछ)	(..नाम...) परिवारमूलीको के नाता पर्नुहुन्छ ? परिवारमूली.....01 श्रीमान्/श्रीमती.....02 छोरा/छोरी.....03 बुहारी/ज्वाई.....04 बाबु/आमा.....05 सासु/ससुरा.....06 दाजुभाई/दिदीबहिनी.....07 नाति/नाति नी.....08 अन्य नातेदार.....09 गैरनातेदार.....10 थाहा नभएको.....11	(..नाम..) को लिङ्ग कुन हो ? पुरुष.....1 महिला....2	(..नाम...) को पूरा उमेर कति हो ? (पूरा भएको उमेर अङ्कमा लेख्नुपर्दछ, एक वर्ष उमेर पुरा नभएकालाई "00" लेख्ने)	५ वर्ष वा सो भन्दा माथि उमेरका लागि मात्र (शैक्षिक अवस्था) (..नाम...) ले पढ्न लेख्न जान्नुहुन्छ? पढ्न लेख्न जानेको..1 पढ्न मात्र जानेको...2 पढ्न लेख्न नजानेको.....3	१० वर्ष वा सो भन्दा माथि उमेरका लागि मात्र (वैवाहिक स्थिति) (..नाम...) को वैवाहिक स्थिति के हो ? अविवाहित..... 1 विवाहित ..... 2 विधुर/विधवा..... 3 पाएपानुके ..... 4 छुट्टिएको 5	(..नाम...) को जन्मस्थान कहाँ हो ? यही गा.पा./न.पा. ..... 1 यही जिल्लाको अर्को गा.पा./न.पा ..... 2 अर्को जिल्ला ..... 3 विदेश 4	जनगणनाको समयमा (..नाम...) को बसोबास कहाँ थियो ? यही परिवारमा बसेको..... जन्मनाम यही जन्मेको..... विदेशमा बसेको..... →2 वा 3 भएमा अर्को घरधनाई सोध्ने अन्यत्र बसेको (परिवार वा छाडी)	*(महल 3.1.9 मा 1 वा 4 भएकाको लागि मात्र)* (..नाम...) को जनगणनामा अन्यत्र कहाँ पनि गणना भएको थियो ? यही ..... भारत ..... थाहा छैन.....	कार्यालय प्रयोजनको लागि मिलाउँदाको स्थिति मिलेको ..... मिलाउन सम्भव भएको ..... नमिलेको..... बसाई सरी आएको..... जन्मनाम यही जन्मेको .....
3.1.1	3.1.2	3.1.3	3.1.4	3.1.5	3.1.6	3.1.7	3.1.8	3.1.9	3.1.10	3.1.11
01										
02										
03										
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10										
11										
12										

3.2 जनगणनाको समय (वि.सं. २०७८ कार्तिक २५ देखि मंसिर ९ गते सम्म) मा यस परिवारमा अक्सर बसोबास गरेका तर हाल (PES को समयमा) परिवारमा अक्सर बसोबास नगरेका/छाडेका वा मृत्यु भएका कोही छन् ?

यदि छन् भने ☐☐

छन् 1

छैनन् ..... 2 → समाप्त ☐

3.3 जनगणनाको समयमा यस परिवारमा अक्सर बसोबास गरेका तर हाल (PES को समयमा) परिवारमा अक्सर बसोबास नगरेका/छाडेका वा मृत्यु भएकाहरुको विवरण (Characteristics out movers)

क्र.स.	जनगणनाको समयमा अक्सर बसोबास गरेका तर हाल (PES को समयमा) परिवारमा अक्सर बसोबास नगरेका/छाडेका वा मृत्यु भएका व्यक्तिको नाम र थर	(..नाम...) परिवारमा अनुपस्थित हुनुको कारण के थियो? परिवारमा अक्सर बसोबास नगरेको/छाडेको.....1 मृत्यु भएको.....2	(..नाम...) परिवारमूलीको के नाता पर्नुहुन्छ ? परिवारमूली .....01 श्रीमान/श्रीमती .....02 छोरा/बुहारी .....03 छोरी/ज्वाई .....04 बाबु/आमा .....05 ससुरा/सासु.....06 दाजुभाई/दिदीबहिनी.....07 नाती/नातिनी .....08 अन्य नातेदार.....09 घरेलु कामदार .....10 नाता नपर्ने.....11	(..नाम...) को लिङ्ग कुन हो ? पुरुष .....1 महिला 2	(..नाम...) को उमेर कति थियो ? (पुरा भएको उमेर अङ्कमा लेख्नुपर्दछ, एक वर्ष उमेर पुरा नभएकालाई "00" लेख्ने)	५ वर्ष वा सो भन्दा माथि उमेरका लागि मात्र (शैक्षिक अवस्था) (..नाम...) ले पढ्न लेख्न जानुहुन्थ्यो ? पढ्न लेख्न जानेको... 1 पढ्न मात्र जानेको .... 2 पढ्न लेख्न नजानेको . 3	१० वर्ष वा सो भन्दा माथि उमेरका लागि मात्र **(वैवाहिक स्थिति)** (..नाम...) को वैवाहिक स्थिति के थियो ? अविवाहित.....1 विवाहित .....2 विधुर/विधवा .....3 पारपानुके .....4 सुचिएको.....5	(..नाम...) को जन्मस्थान कहाँ हो ? यही गा.पा./न.पा. ..... यही जिल्लाको अर्को गा.पा./न.पा ..... अर्को जिल्ला ..... विदेश 4	**कार्यालय प्रयोजनको लागि** डोडा मिलाउँदाको स्थिति मिलेको.....1 मिलाउन सम्भव भएको ....2 नमिलेको 3
3.3.1	3.3.2	3.3.3	3.3.4	3.3.5	3.3.6	3.3.7	3.3.8	3.3.9	3.3.10
01									
01									
02									
02									
03									
03									
04									
04									

खण्ड ४: रुजु (RECONCILIATION)

रुजु गर्न जाने बेला मात्र प्रयोग गर्ने (Only to be used for the RECONCILIATION)

4.1 जनगणनामा भएको तर हाल (PES को समयमा) परिवारमा नभएका व्यक्तिहरु (Persons enumerated in the Census but not in the Post Enumeration Survey)

क्र.सं.	जनगणनाको समयमा गणना भएको तर PES मा गणना नभएको व्यक्तिको नाम र घर	(..नाम...) परिवारमूलीको के नाता पर्नुहुन्छ ? परिवारमूली .....01 श्रीमान/श्रीमती .....02 छोरा/बुहारी .....03 छोरी/ज्वाई.....04 बाबु/आमा.....05 सासु/ससुरा .....06 दाजुभाई/दिदीबहिनी .....07 नाति/नातिनी.....08 अन्य नातेदार .....09 घरेलु कामदार.....10 नाता नपर्ने 11	(..नाम...) को लिङ्ग कुन हो ? पुरुष.....1 महिला 2	(..नाम...) को उमेर कति हो ? (पुरा भएको उमेर अङ्कमा लेख्नुपर्दछ, एक वर्ष उमेर पुरा नभएकालाई "00" लेख्ने)	५ वर्ष वा सो भन्दा माथि उमेरका लागि मात्र (शैक्षिक अवस्था) (..नाम...) ले पढ्न लेख्न जान्नुहुन्छ? पढ्न लेख्न जानेको.....1 पढ्न मात्र जानेको.....2 पढ्न लेख्न नजानेको...3	१० वर्ष वा सो भन्दा माथि उमेरका लागि मात्र (वैवाहिक स्थिति) (..नाम...) को वैवाहिक स्थिति के हो ? अविवाहित.....1 विवाहित.....2 विधुर/विधवा .....3 पारपाचुके .....4 सुटिएको 5	(..नाम...) जनगणनाको समयमा अक्सर यहि परिवारमा बसोबास गर्नुहुन्थ्यो ? गर्नुहुन्थ्यो .....1 गर्नुहुँदैनथ्यो 2	(..नाम...) हाल यस परिवारमा अक्सर बसोबास गर्नुहुन्छ ? गर्नुहुन्छ .....1 गर्नुहुन्न.....2	कार्यालय प्रयोजनको लागि बसाईको अवस्था (Moving status) हाल बसोबास गरिरहेको.....1 यसलाई मरी गएको.....2 मृत्यु भएको.....3 जनगणना पछि जन्मेको 4	जनगणनामा गणनाको स्थिति ठीक गणना भएको 1 त्रुटिपूर्ण गणना भएको (Fabrication) 2 दोहोरिएको (Duplication) 3 लागु नहुने 4
4.1.1	4.1.2	4.1.3	4.1.4	4.1.5	4.1.6	4.1.7	4.1.8	4.1.9	4.1.10	4.1.11
01										
02										
03										
04										
05										
06										
07										
08										
09										

रुजु गर्न जाँदाको लागि मात्र (Only to be used for the RECONCILIATION visit)

रुजु भ्रमणको लागि निर्देशन (Instruction for the RECONCILIATION visit)

4.2 रुजु गर्न जानु पर्नाको कारण

जोडा मिल्ने सम्भावना देखिएकोले 1

जनगणनामा भएको तर PES मा नभएकोले ..... 2 ☐

4.3 गणना क्षेत्रमा रुजु गर्न जानेलाई थप जानकारी

समस्याको प्रकृति उल्लेख गर्ने र आवश्यकता अनुसार उदाहरणहरु दिने ।

जोडा मिल्ने सम्भावना देखिने व्यक्तिहरूको सन्दर्भमा अन्तिम निर्णय गर्नु भन्दा अघि तलका प्रश्नहरू सोध्नुहोस ।

4.4 जनगणनामा गणना भएको व्यक्ति र PES मा गणना भएको व्यक्ति उही हो ?

हो, मिलेको (Match) ..... 1 ☐

होईन, नमिलेको (Non-Match) 2

गणकको मन्तव्य:

4.5 जोडा मिल्ने/नमिल्ने सम्बन्धी अन्तिम निर्णय लिन सजिलो हुने थप विवरण भएमा उल्लेख गर्ने ।

उत्तरदाताको नाम र थर: गणकको नाम र थर:

सम्पर्क नं.: हस्ताक्षर:

अन्तर्वार्ताको अवस्था:

अन्तर्वार्ताको विवरण	महिना			गते	
प्रश्नावली भरेको मिति:			-		
गणकको नाम:					
सुपरिवेक्षण गरेको मिति:			-		
सुपरिवेक्षकको नाम:					
जम्मा पटक गएको सङ्ख्या:					
अन्तरवार्ताको स्थिति:					

पुरा भएको ..... 1 ☐

पुरा नभएको 2

समाप्त

हामी सबैलाई राम्रो सँग थाहा छ यहि वर्षको कार्तिक २५ गते देखि मंसिर ९ गते सम्म देश भर एकै पटक जनगणनामा खटिएका कर्मचारीहरूले हाम्रो घरदैलोमा आई हरेक व्यक्ति, घर, परिवार र गाउँटोलका विवरण सङ्कलन गरेका थिए । सो जनगणनाको काम पुर्ण होस, कहि कोहि गणनामा नछुटुन् र आफ्नो गणना गर्न र गराउन हामी सबैलाई आफै सजग र चनाखो बनाउन त्यस जनगणना अवधि भर देशभरका राष्ट्रिय देखि स्थानीय तहबाट प्रसारण हुने रेडियो, टेलिभिजन आदिले छिन छिनमा सबैलाई जनगणनामा सहभागी हुन प्रचार प्रसार गरि रहे । त्यसै गरी मोवाइल र टेलिफोनका रिङटोनमा "मेरो गणना, मेरो सहभागीता, जनगणनामा कोहि नछुटौ कोहि नदोहोरियौ" जस्ता जानकारी बजिरहे । यसरी जनगणनामा व्यापक जनसहभागिता बढाउन सरकारी, गैर सरकारी, सामुदायिक संघ संस्था, नीजि क्षेत्र र सबै प्रकारका सञ्चार माध्यमले आ-आफ्नो ठाउँबाट ठूलो योगदान गरे । फलस्वरूप कोरोना-१९ महामारीको विषम परिस्थितिमा यहि वर्ष गर्नु पर्ने जनगणना धेरै मुलुकले तयारी पनि गर्न नसकिरहेको अवस्थामा नेपालमा केहि महिना ढिला भए पनि केन्द्रीय तथ्याङ्क विभागले सफलता पूर्वक सम्पन्न गर्न सक्यो । केन्द्रीय तथ्याङ्क विभागले मुल जनगणना सकिएको दुई महिना र चार दिनका दिन १३ माघ २०७८ मा जनगणनाको प्रारम्भिक नतिजा सार्वजनिक गर्‍यो, जुन अगाडिका जनगणनामा यति चाँडो कहिल्यै भएको थिएन । सो नतिजा अनुसार देशमा हाल अक्सर बसोबास गर्ने मानिसको संख्या २,९१,९२,४८० देखियो भने जनसंख्याको वार्षिक वृद्धिदर प्रति एक सयमा ०.९३ प्रतिशतमा झरेको पाइयो, जुन वृद्धिदर २०६८ सालको जनगणनामा १.३५ प्रतिशत थियो । देशका ३२ वटा हिमाली र पहाडी भेगका जिल्लामा अघिल्लो जनगणनामा भन्दा हाल बसोबास गर्ने मानिसको संख्या घटेको देखियो ।

अन्तर्राष्ट्रिय तथा राष्ट्रिय विधि, प्रक्रिया, मापदण्ड र अभ्यासको आधारमा गणना हुनुपर्ने मान्यता अनुसार गणनामा कति मानिस छुटे, कतिका विवरणको भराइ तलमाथि भएको रहेछ भनेर जाँच गर्न यो गणना जाँच सर्वेक्षण स्वतन्त्र रूपले श्रम अध्ययन कार्यक्रम, त्रिभुवन विश्वविद्यालय, कीर्तिपुर, काठमाडौंले यहि २०७८ साल चैत्र १ गते देखि १५ गते भित्र सञ्चालन गर्दैछ ।

यो सर्वेक्षणका लागि देशका प्रत्येक सात प्रदेशबाट दश दश वटा र काठमाडौं उपत्याकाका तीन जिल्लाबाट थप १० गरी ४३ जिल्लाका जम्मा ८० वटा गणना क्षेत्र नमुनाको रूपमा छानिएका छन् । ती गणना क्षेत्र मध्ये ५० देशका शहरी क्षेत्रबाट छानिएका छन् भने ३० ग्रामीण क्षेत्रबाट, हिमाली पहाडी र मधेश तराई क्षेत्रको उचित प्रतिनिधित्व हुने गरी छानिएका छन् । यस गणना जाँच सर्वेक्षण अन्तर्गत ८० जना भन्दा बढी विश्व विद्यालयमा अध्ययनरत विद्यार्थी तथा अन्य गणकहरू एकै पटक छानिएका सबै गणना क्षेत्रका करिब १५ हजार भन्दा बढी परिवारमा गएर घर तथा परिवार सूचीकरण गरी संक्षिप्त मुख्य प्रश्नावली भर्न खटिएका छन् । ती विवरणको सो गणना क्षेत्रका परिवारको मूल जनगणना फारामसँग रुजु गरेर जनगणनामा वास्तविक गणना हुनबाट छुटेको वा दोहोरो गणना भएको आँकलन गरिन्छ । यो सर्वेक्षणबाट प्राप्त विवरणको जाँचको आँकलनका आधारमा मुल गणनाको परिणामको विश्वसनीयता हेरिन्छ । यस राष्ट्रिय महत्वको गणना जाँच सर्वेक्षणको लागि यहाँको गाउँ बस्ति र परिवार वैज्ञानिक विधिका आधारमा छानिएको छ । ती छानिएका वडा वा गणना क्षेत्रमा गणकले कुनै पनि घर तथा परिवार नछोडिकन गणना गर्ने छन् । गणना जाँच सर्वेक्षणमा खटिने गणकहरुलाई माया र स्नेह दिई पुर्ण र शुद्ध गणनामा आवश्यक सहयोगका लागि हार्दिक अपिल गर्दछौं ।

Annex D: Steering, Management and Technical Working Committees

A. Steering Committee

To provide direction and facilitate the work of PES survey team of LSP-TU, a seven membered steering committee chaired by the Director General of the Central Bureau of Statistics. The committee consisted as following:

1. Mr. Nebin Lal Shrestha, Director General of CBS, Chair
2. Dr. Hem Raj Regmi, Deputy Director General, CBS, Member
3. Prof. Dr. Shankar Khanal, Central Department of Statistics, TU, Member
4. Prof. Dr. Yogendra B. Gurung, CDPS, TU, Member
5. Prof. Dr. Keshab Prasad Adhikari, LSP-TU, Survey Coordinator, Member
6. Mr. Dhundi Raj Lamichhane, Director, CBS, Member
7. Mr. Keshab Kumar Gautam, Director, CBS, Member Secretary

B. Management Committee

In accordance with the TU educational development and research management and operation regulation policy 2072 (BS), PES Management Committee is formed by a meeting of the standing committee the Subject committee of Labour Studies programme, chaired by Dean of Faculty of Humanities and Social Sciences, Prof. Dr. Kushum Shakya on 4 February 2022. The management committee is formed as following:

1. Prof. Dr. Khadga KC, coordinator
2. Prof. Umesh Chandra Upadhyaya, Member
3. Dr. Padam Prasad Khatiwada, Member
4. Dr. Kamala Devi Lamichhane, Member
5. Prof. Dr. Keshab Prasad Adhikari, Member Secretary

Special Invitees alternatively in 20 Meetings (three in one meeting)

1. Prof. Dr. Shiva Lal Bhusal, Rector, Tribhuvan University
2. Prof. Dr. Kushum Shakya, Dean, Faculty of Humanities and Social Sciences
3. Prof. Dilli Ram Upreti, Former Registrar of TU
4. Prof. Dr. Dhruba K. Gautam, Executive Director, Planning Directorate, TU
5. Prof. Dr. Umash Kumar Mandal, Executive Director, Research Division, TU
6. Prof. Tara Prasad Bhusal, Assistant Dean, FoHSS, TU
7. Prof. Dr. Dubi Nanda Dhakal, Assistant Dean, FoHSS, TU
8. Dr. Govind Prasad Sharma, Assistant Dean, FoHSS, TU
9. Mr. Binod Joshi, Director, International Relation Centre, TU

10. Dr. Yuba Raj Luintel, Head, Central Department of Sociology
11. Dr. Dambar Dhoj Chemjong, Head, Central Department of Anthropology

c. Technical Working Committee

To take decisions of all technical matters of the survey management and operation a technical committee chaired by survey team expert from LSP-TU is formed as following.

1. Dr. Padam Prasad Khatiwada, Chair
2. Mr. Dhundi Raj Lamichhane, Director, CBS, Member
3. Mr. Dol Narayan Shrestha, Computer Officer, CBS, Member
4. Mr. Deenanath Lamsal, Statistical Officer, CBS, Member
5. Mr. Nirajan Sharma, Statistical Officer, CBS, Member
6. Mr. Bishnu Regmi, CBS, Member
7. Dr. Dhanendra Veer Shakya, Member Secretary

Annex E: Name of mobilized human resources in different responsibilities, PES, 2022

Annex E1: Name of Field Enumerators

S.N.	Name of Enumerators by Domain	District Name	Name of Gaupalika, Municipality, Sub-metro, and Metropolitan areas	Ward No.	EA No.
	Koshi				
1	Gita Karki	Dhankuta	Pakhribas Municipality	5	3
2	Ankita Lamichhane	Jhapa	Damak Municipality	7	7
3	Arjun Tripathi		Jhapa Gaunpalika	7	1
4	Babita Lamichhane		Kankai Municipality	3	4
5	Vinod Neopane	Khotang	Kapilasgadhi Gaunpalika	1	3
6	Vishan Phuyal	Morang	Kanepokhari Gaunpalika	7	6
7	Pratima Pokharel		Ratuwamai Municipality	3	3
8	Sesahang Rai	Okhaldhunga	Manebhanjyang Gaunpalika	9	3
9	Sushila Pahadi	Sunsari	Dharan Sub-Metro. City	6	3
10	Bishwa Gautam		Itahari Sub-Metropolitian City	12	6
	Madhesh Pradesh				
11	Sandesh Neupane	Bara	Jitpur Simara Sub-Metro. City	14	5
12	Bipin Karki	Dhanusha	Bateshwor Gaunpalika	5	1
13	Bibek Karki		Bideha Municipality	1	2
14	Prabin Bogati	Mahottari	Manara Shisawa Municipality	9	1
15	Samjhana Dahal	Rautahat	Chandrapur Municipality	5	4
16	Abhigya Subedi		Dewahi Gonahi Municipality	7	3
17	Shyam Sundar Ram		Yamunamai Gaunpalika	4	6
18	Saraswati Basyal	Sarlahi	Barahthawa Municipality	7	1
19	Khem Nath Dahal	Siraha	Bishnupur Gaunpalika	5	2
20	Durga Bhattarai		Siraha Municipality	5	2
	Bagmati Pradesh				
21	Shanti Bartaula	Chitwan	Bhar atpur Metropolitian City	10	25
22	Lok Prasad Dhakal		Rapti Municipality	5	3
23	Dibya Neupane			8	5
24	Padam Kanta Niraula	Dhading	Tripuasundari Gaunpalika	1	2

S.N.	Name of Enumerators by Domain	District Name	Name of Gaupalika, Municipality, Sub-metro, and Metropolitan areas	Ward No.	EA No.
25	Ishwari Basnet	Dolakha	Kalinchowk Gaunpalika	2	6
26	Unnati KC		Melung Gaunpalika	6	2
27	Sabitri Udas	Kavrepalanchok	Mandan Deupur Municipality	9	1
28	Uma Thapaliya	Makwanpur	Raksirang Gaunpalika	1	1
29	Rajesh Khanal	Ramechhap	Doramba Gaunpalika	4	3
30	Salikram Sapkota		Manthali Municipality	12	2
	Kathmandu Valley				
71	Santoshi Paudel	Bhaktapur	Chagunarayan Municipality	8	1
72	Kamala Acharya		Madhyapur Thimi Municipality	7	1
73	Neha Puri	Kathmandu	Gokharneshwor Municipality	5	10
74	Roshani KC		Kathmandu Metropolitian City	2	12
75	Manju Sharma			9	9
76	Ruska Basel			18	3
77	Binod Pandey			26	37
78	Bhola Thapa	Lalitpur	Bagmati Gaunpalika	5	1
79	Kopila Prasai		Godawori Municipality	5	2
80	Sangita Dhakal		Lalitpur Metropolitian City	27	3
	Gandaki Pradesh				
31	Jenny Limbu	Baglung	Badigadh Gaunpalika	7	3
32	Astha Adhikari		Dhorpatan Municipality	9	4
33	Biswas Pandey	Kaski	Pokhara Metropolitian City	2	11
34	Raju KC			15	13
35	Ganesh Godar		Rupa Gaunpalika	6	4
36	Sabita Sijali	Myagdi	Mangala Gaunpalika	1	2
37	Tara Shrestha	Nawalparasi (East)	Gaidakot Municipality	2	3
38	Tika Ram Devkota	Parbat	Phalebas Municiaplity	2	1
39	Sarita Gaihre	Syangja	Chapakot Municipality	8	3
40	Anisha Sadashankar	Tanahu	Bandipur Gaunpalika	4	4
	Lumbini Pradesh				
41	Bhima Kumari Chaudhari	Bardiya	Bansgadhi Municipality	4	8
42	Krishna Adhikari		Madhuwan Municipality	4	5
43	Narayan Sharma	Dang	Ghorahi Sub-Metro. City	2	4

S.N.	Name of Enumerators by Domain	District Name	Name of Gaupalika, Municipality, Sub-metro, and Metropolitan areas	Ward No.	EA No.
44	Bhanu Prasad Yadav		Rajpur Gaunpalika	2	4
45	Bimala Kumari Budha	Gulmi	Resunga Municipality	11	3
46	Shisir Lamichhane	Kapilvastu	Mayadevi Gaunpalika	4	3
47	Seema Chaudhary	Nawalparasi (West)	Susta Gaunpalika	2	4
48	Asmita Sigdel	Palpa	Rambha Gaunpalika	1	5
49	Shailaja Awasthi	Rupandehi	Tilottama Municipality	4	13
50	Devi Raut			7	13
	Karnali Pradesh				
51	Sajan Bartaula	Dailekh	Aathabis Municipality	1	2
52	Shreyas Sapkota		Dullu Municipality	6	1
53	Bibek Bhetawal		Narayan Municipality	7	3
54	Khageshor KC		Naumule Gaunpalika	8	3
55	Ashim Sigdel	Jumla	Kanaka Sundari Gaunpalika	1	1
56	Ananta aryal		Patarasi Gaunpalika	7	2
57	Shreeram Paudel	Salyan	Bangad Kupinde Municipality	10	2
58	Sarmila Bastakoti		Tribeni Gaunpalika	1	3
59	Sagar Aryal	Surkhet	Birendranagar Municipality	2	1
60	Krishna Adhikari				5
	Sudurpashchim Pradesh				
61	Laxman Saud	Achham	Ramaroshan Gaunpalika	1	3
62	Mukesh Joshi	Bajhang	Khaptad Chhanna Gaunpalika	3	1
63	Dill Kumar Bista		Thalara Gaunpalika	3	1
64	Binod Koirala	Bajura	Khaptad Chhededaha Gaunpalika	2	2
65	Arjun Raj Sedai		Tribeni Municipality	6	1
66	Asha Budhathoki			8	1
67	Priyanka KC	Kailali	Gowadhari Municipality	12	2
68	Yasoda Sapkota		Dhangadi Sub-Metropolitian City	2	3
69	Bimala Sapkota			5	10
70	Yadav Dulal		Gauriganga Municipality	8	5

Annex E2: Name of Matching and Data Entry operators

Matching Operators		Data Entry Operators	
SN	Name	SN	Name
1	Asmita Adikari	1	Kumud Khatiwada
2	Ruska Basel	2	Sarmila Koirala
3	Samjhana Dahal	3	Kopila Prasain
4	Saurav Adhikari	4	Asmita Adikari
5	Mukesh Joshi	5	Ruska Basel
6	Govind Khanal	6	Saurav Adhikari
7	Archana Regmi	7	Mukesh Joshi
8	Laxman Saud	8	Govind Khanal
9	Shriram Paudel	9	Archana Regmi
10	Padam Kant Niraula	10	Shriram Paudel
11	Tika Ram Devkota	11	Tika Ram Devkota

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Tel: 5365323, 5341801, 5328406, 5345946 (47, 48) Fax No.: 977-1-5327720

E-mail: info@cbs.gov.np, Website: www.nsonepal.gov.np

E-mail: population@cbs.gov.np, Website: www.censusnepal.cbs.gov.np