

## Experience in the 2021 International Comparison Program Implementation



### I. Administrative Set-Up

Nepal has participated in the ICP since 2005. The implementation of the ICP in Nepal falls under the jurisdiction of the National Statistics Office (NSO), formerly known as the Central Bureau of Statistics. In line with the Statistical Act enacted in 2022, the bureau was elevated to the secretary level (chief statistician) and rebranded as the NSO, operating under the Office of the Prime Minister and Council of Ministers. The NSO is organized into four divisions: Economic Statistics, Social Statistics, Planning and Human Resource Management, and National Account Statistics Division. A deputy chief statistician supervises each division. The Price Statistics Section—housed within the National Account Statistics Division—oversees ICP activities in Nepal.

The Price Statistics Section (PSS) comprised a team of professionals, including two directors, four statistics officers, one computer officer, and two statistics assistants. The two directors held pivotal roles as the national coordinator and deputy national coordinator in the 2021 ICP round. The 2021 ICP team included all members of the PSS and was supplemented by a statistics officer from the National Account Statistics Section specializing in GDP disaggregation for ICP purposes. Staff members from district statistics offices also participated in various price surveys for the 2021 ICP.

The 2021 ICP round was conducted amid unprecedented circumstances from the global pandemic and subsequent lockdown measures. Furthermore, 2021 marked a census year for the NSO, with the National Population and Housing Census and National Agriculture Census being part of the regular decennial program. Despite these challenges, the NSO successfully managed human resources for the ICP, ensuring the timely completion of surveys through the strategic implementation of multi-modal data collection approaches.

Considering the geographic diversity and price homogeneity observed in the 2017 ICP, 23 market centers were initially selected for the 2021 ICP round. One market center—Birgunj in Parsa district—was excluded due to the coronavirus disease (COVID-19) pandemic and the mandatory implementation of activities related to the 2021 Population and Housing Census and the 2021 National Agriculture Sample Census. Nevertheless, Nepal completed the household consumption (HHC) and other specialized data collection activities within the recommended timeframe for 2021, despite the challenges posed by the pandemic.

### II. Use of Existing Infrastructure in Collecting International Comparison Program Data

The consumer price index (CPI) in Nepal is compiled by the Central Bank of Nepal (Nepal Rastra Bank), an independent government entity separate from the NSO. Because of the lack of an effective mechanism to coordinate CPI and ICP activities, the PSS of the NSO collected all price data for the 2021 ICP round through ICP surveys.

The PSS of the NSO is primarily responsible for compiling quarterly producer price indexes and the index of industrial production as part of its regular duties. Consequently, ICP activities represented an additional responsibility and workload for the section. All ICP activities were implemented by deploying regular district- and central-level staff.

The inclusion of the ICP in the government's annual program occurs after receiving approval from the government to participate in each round of the ICP. Funding for implementing surveys in the 2021 ICP round was sourced from the Asian Development Bank (ADB) seed fund and government funds. However, integrating ICP activities with the CPI may become feasible if the NSO assumes responsibility for compiling the CPI from the central bank.

## Experience in the 2021 International Comparison Program Implementation



The NSO conducts its survey operations through its 33 statistics offices, covering all 77 districts. Recently, the government consolidated the number of district offices to 18, renaming them as the Statistics Coordination Office.

For the 2021 ICP, about 22 market centers were chosen for price collection under the HHC survey. Staff from 21 statistics offices and the NSO were involved in collecting prices from these selected market centers. The heads of the statistics offices—alongside the directors and officers—oversaw the data collection activities to ensure the selection of appropriate items per the structured product descriptions (SPDs) and to uphold the desired quality of the collected price data.

Paper-based questionnaires were utilized for price data collection, with a separate questionnaire generated for each outlet from the ICP Asia Pacific Software Suite (ICP APSS). This facilitated the systematic collection of price quotations.

SPDs for items and services in the catalogue were translated into Nepali, enabling price collectors to accurately identify appropriate items and services for pricing. This translated catalogue aided price collectors in understanding the essential price-determinant specifications of items and services and helped limit the choice of inappropriate items.

Price collection for machinery and equipment and construction items was carried out by NSO staff in consultation with relevant experts to ensure accurate product identification in line with the SPD guidelines. The housing rental survey was conducted in selected urban areas with the assistance of price collectors from districts and the central office. Secondary data from various surveys and the analysis of micro-data sets from different surveys and censuses were the primary sources of data for housing indicators, including the 2010–2011 Nepal Living Standards Survey, the 2011 National Population and Housing Census, the 2016 and 2021 Nepal Demographic Surveys, and the 2014 Multiple Indicator Cluster Survey. For government compensation survey, the Financial Comptroller General Office (FCGO) was the source agency for government compensation data for specific occupations.

The NSO primarily utilized its infrastructure for compiling price data in the 2021 ICP round. The statistics offices and the NSO utilized available computers, laptops, and printers to input collected data and print questionnaires for ICP-related surveys. The central office predominantly used its computers and laptops to verify and validate ICP data. Data entry experienced slight delays in some quarters due to the pandemic, concurrent obligations to conduct population and agriculture censuses, and other district activities.

### III. Survey Framework

For the HHC survey, the NSO ICP team employed a two-stage purposive sampling approach. Initially, 22 market centers were chosen based on specific criteria, including (i) CPI market centers, (ii) provincial representation, (iii) geographical location, (iv) administrative division, (v) market centers from previous ICP rounds, (vi) coverage of statistics offices, and (vii) district population size. Because of a government decision to redefine municipal categories, all previously selected market centers were reclassified as urban municipalities. This reclassification was prompted to include specific rural markets from the 2017 round in the 2021 ICP round that had been redesignated as urban municipalities under the updated government classification.



In the second stage, the district team purposefully selected outlets from various market centers, considering criteria such as:

- (i) representativeness of the market center,
- (ii) diversity in outlet types,
- (iii) availability of items, and
- (iv) popularity of the outlets.

The number of outlets chosen varied depending on the availability of items within each market center. Three price quotations were obtained for each item from outlets within every market center. In total, 99,754 quotations for 629 items were collected from 2,507 outlets through the HHC survey.

The frequency of data collection was determined based on factors such as the nature of items, price volatility, and the frequency of data collection in the CPI. Prices of goods and services were collected monthly for items in the food and non-alcoholic beverages category, quarterly for clothing and footwear, annually for communication and education, and semi-annually for the remaining categories.

Prices of construction and machinery and equipment items were exclusively sourced from the capital city under the assumption that most transactions for this component occurred there and prices remained relatively consistent across other market centers. Outlets were purposefully selected based on item availability and popularity. Throughout the survey, suppliers and experts in machinery and equipment were consulted to identify items that met the required specifications and to gather corresponding pricing data.

A housing rental survey was conducted across 15 market centers, with two centers selected from each of six provinces and three market centers from Bagmati Province using purposive sampling. Each provincial capital and another market center with a significant number of rented households were chosen. Rental data were collected from five dwellings within each market center for each dwelling type, whenever possible.

Data on government occupations and related indicators were obtained from the FCGO for government compensation purposes.

The NSO compiled pertinent housing indicators required for housing volume survey from various existing surveys, including the 2010–2011 Nepal Living Standards Survey, the 2011 National Population and Housing Census, the 2016 and 2021 Nepal Demographic Surveys, and the 2014 Multiple Indicator Cluster Survey.

#### **IV. Gross Domestic Product Expenditure Values**

Disaggregated GDP expenditure values were accessible for most basic categories. However, certain categories—such as passenger transport by railways and passenger transport by sea and inland waterway—did not apply to the economy. Additionally, a few categories had negligible GDP value estimates.

The primary data sources for household consumption expenditure included the 2010–2011 Nepal Living Standard Survey, the 2016–2017 Annual Household Survey, and the 2014–2015 Household Budget Survey. The GDP expenditure value estimate for net purchases abroad was not calculated separately.

Weights from the 2008–2009 nonprofit institutions serving households survey were utilized to disaggregate individual consumption expenditure by nonprofit institutions serving households.



For the individual consumption expenditure by the government, the expenditure sheet from the FCGO followed the classification of the functions of government. Most categories were directly estimated using the 2021 Government Financial Statistics Report, while ratios from the 2016/2017 report were applied to split the basic headings. However, certain categories within the health benefits and reimbursements group were split using shares from the annual household survey.

Estimates for machinery and equipment were derived from import data from the Department of Customs, while construction expenditure was determined using the classification of the functions of government expenditure data from the FCGO report, published gross value added of the construction component, and national accounts published supply and use table ratios.

Acquisitions less disposal of valuables were estimated using the Nepal Living Standard Survey and included in the change in inventory. Statistical discrepancies and other errors were also included in this item since inventories were derived residually during annual estimates.

The balance of exports and imports was estimated using customs data and balance of payment statistics from the Central Bank of Nepal.

These estimates were initially based on the fiscal year, beginning mid-July of the previous year, and needed to be converted to calendar year estimates for 2021 to meet ICP data requirements. This conversion involved summing portions of estimates of the prior year and the current year using the number of days as weights, which were then aggregated to achieve higher-level estimates until the GDP for the calendar year 2021 was derived.

#### **V. Data Validation and Quality Control**

Data validations were executed according to the prescribed procedures at the district and central levels. A four-layer validation process was implemented to ensure data quality. Heads of the statistics offices conducted the first validation before submitting the data to the NSO. District directors or statistical officers (officers-in-charge) of the statistics offices meticulously reviewed the collected prices based on the coefficient of variation and minimum-to-maximum ratio.

The second validation occurred at the central level after receiving data from all 21 statistics offices. The data submitted by district offices underwent rigorous verification by scrutinizing the prices of each item across different market centers and comparing prices from subsequent months or quarters within the same market center.

The PSS HHC team closely monitored price collection activities to ensure the meticulous selection of items in line with the SPD guidelines of the ICP. At the beginning of the calendar year 2021, a comprehensive training session was conducted for enumerators (price collectors) and supervisors to acquaint them with ICP concepts, SPDs of items, and the utilization of the ICP APSS, thereby enhancing the quality of collected price data.

The third validation occurred during intraeconomy data validation workshops before submitting the data to the Asian Development Bank (ADB). Intraeconomy validation workshops were convened to perform quality checks on the data, addressing issues such as the higher coefficient of variation and the lower minimum-to-maximum ratio, and exploring the underlying reasons. Feedback and insights from regional workshops and experts from ADB were considered during these intraeconomy validation sessions. Responses from respective offices were duly reported to ADB. The final validation was performed after receiving feedback from ADB during and after the intereconomy validation workshop.

## Experience in the 2021 International Comparison Program Implementation



Experiences shared by economies during regional workshops played a crucial role in resolving challenges related to price data. Virtual and physical validation workshops facilitated by ADB were instrumental in identifying specific issues, particularly those concerning household consumption, machinery and equipment, construction, and rapidly evolving electronic items.

### VI. International Comparison Program Price Collection Tools

The ICP APSS was highly user-friendly and effective for data entry and validation across various surveys, including household consumption, machinery and equipment, construction, housing rental, and government compensation. The validation tool within the ICP APSS was essential for identifying abnormalities in price data. It features a range of reporting capabilities that simplify the drafting of ICP data metadata. Enhancements have further facilitated database consolidation, validation, editing, and data sharing.

Despite initial challenges—such as the ICP APSS crashing and displaying black screens—prompt assistance from the ADB ICP team and organized virtual meetings enabled efficient issue resolution. Overall, the price collection tools provided by the ICP APSS streamlined data entry, validation, price analysis, and report generation for specialized surveys like machinery and equipment, construction, housing rental, and government compensation.

ADB could explore the development of Android or iOS versions of the application to facilitate computer-assisted personal interviewing-based data collection, possibly incorporating built-in web-scraping tools. This would further enhance the accessibility and functionality of the ICP APSS for data collection purposes.

### VII. Challenges in the International Comparison Program Implementation

In 2021, amid the third wave of the COVID-19 pandemic, Nepal—like many other economies—implemented localized lockdown measures. While not nationally extended for prolonged periods, these restrictions were selectively enforced in specific regions and for varying durations throughout the year. In response to the challenges posed by the pandemic, rigorous preventive measures such as mask mandates and sanitation protocols were enforced during training sessions, workshops, and face-to-face interviews. Despite these challenges, data collection efforts for the 2021 ICP remained resilient because of the implementation of a strategically designed approach.

During lockdowns, price collectors adapted by conducting activity during designated shopping hours when restrictions were eased. District offices resorted to telephone interviews in areas with strict all-day lockdowns to gather data from the outlets. Prices of certain items were sourced from online markets and cross-verified with vendors to account for any additional charges, potentially reducing the number of outlets and quotations during the lockdown period. To ensure data accuracy, prices of certain goods from previous months or quarters were cross-verified during subsequent data collection periods. Some districts faced delays in data entry because of staff involvement in activities related to the 2021 National Population and Housing Census, though these delays did not significantly impact the overall timeline of the ICP survey.

During the 2021 ICP survey, one district office encountered staffing challenges, primarily because of the concurrent COVID-19 pandemic and ongoing population and housing census activities. Consequently, one of the 23 designated market centers was excluded from participating in the 2021 ICP round, reducing the total participating districts to 22. However, this adjustment did not significantly affect the survey's national representativeness, as alternative similar market centers were available.



## Experience in the 2021 International Comparison Program Implementation



Nepal also had difficulty integrating the ICP and the CPI. Compiling the CPI by the central bank creates challenges in aligning the CPI and ICP datasets. This mismatch makes it hard to coordinate field activities and hinders the sharing of CPI experiences with the ICP.

Significant challenges in price collection arise in accurately identifying goods and services specified in the SPD. Limited knowledge and experience in certain items—particularly machinery and equipment items, various types of medicines, health services, and medical supplies—posed substantial challenges in obtaining exact prices. Specifications outlined in the SPDs are often hard to match, specifically for machinery, equipment, vehicles, or branded products, including some items relating to food, garments, and furniture.

With ICP duties added to the ongoing responsibilities of the core team and field staff, executing the ICP program within existing staffing constraints is challenging. Budgetary constraints further complicate matters, as the government's low budget ceiling for the price section necessitates budget management from within existing resources. Dependency on seed funds provided by ADB for implementing ICP activities in Nepal has introduced delays in work schedules when funds are not promptly released. Discrepancies in reporting activities—such as GDP, population, and exchange rates—arise from differing fiscal years followed by Nepal and the ICP.

### VIII. Lessons Learned and Future Directions

The execution of the 2021 ICP in Nepal occurred amid the unprecedented challenges posed by the global pandemic, coinciding with the National Population and Housing Census. This unique scenario demanded adept management of human resources to navigate simultaneous tasks, even amid restrictive lockdown measures. Notable adaptations included virtual workshops, telephone interviews, and online marketing strategies, underscoring the multifaceted approach adopted during the 2021 ICP operation.

The ICP initiative presented a valuable learning opportunity for the Nepal team, fostering confidence and expertise in discerning suitable goods and services aligned with SPD parameters prevailing in the local market. The program played a pivotal role in honing the skills of newly recruited price collectors and equipping them with the capability to identify relevant outlets and products following SPD guidelines. Enhanced by the updated ICP APSS, which offers improved user-friendliness for data validation and outlier tracking, the data entry and analysis process has been significantly streamlined with additional integrated functionalities.

As a result, this program has enhanced the confidence and capabilities of personnel engaged in ICP activities, facilitating the collection of comprehensive price data and ensuring robust validation procedures. This, in turn, contributes to enhancing the quality of overall price statistics in Nepal. At an individual level, participation in the ICP has proven highly beneficial in understanding the significance of PPPs and their implications. It has also shed light on the substantial impact of price data quality from each economy on PPP compilation. Leveraging insights from the ICP experience and developing validation sheets for routine price data validation has commenced, bolstering ongoing efforts to ensure data quality assurance.

The ICP is a valuable platform for participating economies to exchange insights, enhancing the quality of price data. Recognizing the benefits of consolidating CPI and ICP activities within the same organizational framework, integration becomes crucial to optimize resource allocation and streamline operations in price statistics. Although virtual workshops predominated during the 2021 ICP cycle, regional validation workshops were vital for enhancing data quality, particularly in the GDP and machinery and equipment and construction sectors. Sessions led by international experts were instrumental in addressing the complexities surrounding price data and GDP disaggregation.

## Experience in the 2021 International Comparison Program Implementation



Implementing agencies must navigate government financial regulations and ADB disbursement guidelines when executing ICP activities. However, lengthy procedures and challenges in liquidating seed funds have occasionally hindered program execution. Given staffing limitations, simplifying financial procedures is essential to ensure the program's seamless operation. Alternatively, leveraging support from ADB resident offices could help manage financial concerns locally.

Drawing on past ICP experiences, the NSO acknowledges the potential integration of ICP activities into the annual work plan, contingent on government consent. As the NSO undergoes restructuring within the federal system, computing subnational PPP offers promising prospects for enhancing the nation's statistical landscape.

*Prepared by National Statistics Office (Gyanendra Bajracharya and Arun Gautam); edited by the ADB ICP team and Melanie Kelleher.*



**Annex 2: List of Members of Core International Comparison Program Team  
(National Statistics Office)**

Name	Title	Responsibility
Gyanendra Bajracharya	Director	National Coordinator
Arun Gautam	Director	Deputy National Coordinator
Ganga Ram Bhattarai	Statistics Officer	National Accounts (Gross Domestic Product)
Sanjay Kumar Chaudhary	Statistics Officer	Household Consumption, Construction
Kamal Raj Gautam	Statistics Assistant	Household Consumption, Machinery and Equipment, Construction
Sumant Kumar Gupta	Statistics Officer	Household Consumption, Machinery and Equipment
Girish Jha	Computer Officer	ICP Asia Pacific Software Suite
Nara Bahadur Kunwar	Statistics Officer	Household Consumption, Machinery and Equipment
Purna Bahadur Gharti Magar	Statistics Officer	Household Consumption
Kabita Pokhrel	Computer Officer	Household Consumption, ICP Asia Pacific Software Suite
Tulsiram Pokhrel	Statistics Officer	Household Consumption, Housing Volume, Government Compensation
Urmila Shahi	Statistics Officer	Household Consumption, Government Compensation
Sabitri Sharma	Statistics Assistant	Household Consumption, Housing Rental
Awadesh Shukla	Statistics Officer	National Accounts (Gross Domestic Product)