

Agricultural Statistics in Nepal: Data Access, Institutional Gaps, and Policy Use in the Context of Federal Governance¹

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Abstract

Agriculture continues to play a vital role in Nepal's economy, contributing roughly one-quarter of gross domestic product and employing more than half of the country's workforce. With the transition to a federal governance system and growing responsibilities at provincial and local levels, the demand for reliable, timely, and disaggregated agricultural statistics has increased substantially. However, the agricultural statistical system has not fully adapted to the new federal structure, resulting in inconsistencies, data gaps, and limited comparability across levels of government. The absence of a well-coordinated and methodologically harmonized framework has constrained the effective use of data for evidence-based planning and policy formulation. This paper examines the current state of agricultural statistics in Nepal, with particular attention to data coverage, accessibility, institutional coordination, and policy utilization.

The study draws on evidence from the National Sample Census of Agriculture 2022, specialized surveys conducted by the National Statistics Office, and annual production statistics compiled by the Ministry of Agriculture and Livestock Development. A mixed-methods approach is applied to assess the scope, quality, and practical use of available data within the federal statistical framework.

The findings indicate that the 2022 census has significantly enhanced the availability of local-level data, supporting decentralized planning across 753 municipalities. Nevertheless, important gaps remain in areas such as agricultural labour, post-harvest losses, value chain information, and emerging high-value commodities. Differences between benchmark census data and current administrative estimates, limited methodological transparency, and capacity constraints at sub-national levels continue to affect consistency and policy uptake. Strengthening coordination, improving data dissemination, and investing in provincial and local capacity are essential to promote evidence-based agricultural planning and sustainable sectoral development.

Keywords: agriculture statistics, data access, data gaps, policy use

1. Introduction

Agriculture remains a backbone of the economy and rural livelihoods, contributing approximately 25.2% (Fiscal Year 2024/25) of gross domestic product (GDP) and providing

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employments to a substantial proportion, over half of the workforce of Nepal (NSO, 2023). Beyond its economic contribution, the sector still plays a pivotal role in food security, poverty reduction, and social stability as well. In this context, overall planning, effective policy design implementation, and monitoring of the programmes demand for a reliable, timely and disaggregated agricultural statistics covering key dimensions such as land use, crop and livestock production, inputs, , agricultural labour market access etc.

Despite significant progress over the last two decades, Nepal’s agricultural statistics system continues to face multiple challenges. Data gaps still exist in areas such as crop and livestock productivity, input supply and demand, post-harvest practices, and labour participation. Data wherever available are often fragmented and inconsistent across institutions or not sufficiently presented in user friendly formats. Such gaps naturally weaken the usability for policymakers to design targeted interventions and also to respond emerging challenges, including climate variability, market volatility, and structural transformation of the sector.

With the federalization of the polity of Nepal in 2015 provincial and local governments have greater responsibility of planning and implementing agricultural programmes and that has further increased the demand for the granular/sub-national data. requiring access to high-quality statistics at the local level. But the technical capacity at the sub-national level is often limited, and the coordination mechanism between central and local authorities is not strengthened yet.

This paper assesses the current status of agricultural statistics in Nepal focusing on data coverage, accessibility, institutional coordination, and policy use. Drawing evidences from the Seventh National Sample Census of Agriculture (NSCA 2022), specialized surveys conducted by the NSO in recent years and current statistics produced by the Ministry of Agriculture and Livestock Development (MoALD), the study has laid efforts to evaluate various aspects of data supply and their usability. The findings of the study is expected to address the current challenges and bring out good practices of the existing agricultural data systems of Nepal.

2. Analytical Framework

The study uses a four-dimensional analytical framework:

1. Data coverage and disaggregation: Examine the comprehensiveness of agricultural statistics across crops, livestock, inputs, labour, irrigation, and market variablest and assess the availability of data at national, provincial, and local levels.
2. Data accessibility and dissemination: Evaluate the formats, metadata, and channels through which agricultural statistics are made available to policymakers, researchers, and civil society.
3. Institutional coordination: Review mandates, data production responsibilities, and collaboration between NSO and MoALD, including methodological harmonization and quality assurance.
4. Policy use: Investigate the integration of agricultural statistics into national and sub-national policies, development plans, and monitoring mechanisms.

This framework aligns with international guidelines, such as the FAO World Programme for the Census of Agriculture 2020 (FAO, 2017) and the Global Strategy to Improve Agricultural and Rural Statistics, which emphasize that agricultural statistics should be comprehensive, coherent, timely, and user-focused (FAO, 2017).

3. Institutional Landscape of Agricultural Statistics in Nepal

Agricultural statistics in Nepal are produced mainly by two institutions:

(i) National Statistics Office (NSO): NSO is responsible for benchmark statistics via the decennial National Sample Census of Agriculture (NSCA) and specialized surveys, such as the National Commercial Vegetable Survey, Commercial Livestock Integrated Survey, Poultry Survey, Fisheries Survey, and Commercial Tea and Coffee Surveys.

(ii) Ministry of Agriculture and Livestock Development (MoALD): The ministry produces current annual statistics based on crop-cutting surveys and production estimates at local level. Recently, the MoALD is implementing a National Agriculture Survey with the technical assistance of FAO with a purpose to modernize current data collection system.

While the mandates are complementary, coordination between NSO and MoALD needs to be extended in order to mitigate the differences in definitions, estimation methods, and reference and reporting periods that are causing discrepancies between benchmark and current statistics. In addition, strengthening the capacity of the provinces and local governments is equally important for the adherence to the national standards.

The constitutional mandate of managing agricultural responsibilities across federal, provincial, and local levels has created both opportunities and challenges for statistical activities. Though local governments are closer to farmers and agricultural practices, they often lack trained statistical personnel, standardized reporting formats, and digital infrastructure. This has led to inconsistencies and other deficiencies in administrative data reporting and uneven data quality across provinces. A clearly defined statistical coordination mechanism within the federal structure is, therefore, critical for ensuring comparability and coherence.

Moreover, statistics does not get adequate priority as a realistic decision making tool.

4. Data Sources and Methods

The study relies on:

- a. NSCA 2022: Detailed information on land holdings, irrigation, number of livestock and poultry by type and breeds, types of land and use, land tenure, inputs, and access to services, disaggregated to the local level.
- b. Specialized NSO surveys: Covering commercial crops, livestock, fisheries, and inputs.
- c. MoALD current statistics: Crop estimates, livestock numbers, and input distribution data.

- d. Policy and programme documents: National and provincial plans, food security strategies, and sectoral policies.

The study adopts a mixed-methods approach, combining descriptive analysis of statistical coverage, quality, and timeliness with reviews of policy documents to assess the use of statistics. The approach allows for triangulation and provides robust insights into systemic strengths and weaknesses.

5. Status of Agricultural Statistics in Nepal

5.1 Coverage and Disaggregation

The NSCA 2022 marks a significant advancement in the scope and granularity of agricultural statistics in Nepal. It provides comprehensive data on:

- Land holdings and tenure
- Crop types (temporary and permanent) and area cultivated
- Irrigation and input use (fertilizers, pesticides, machinery)
- Livestock and poultry populations
- Access to credit and market facilities

Disaggregation is available down to the local level (753 local municipalities), enabling provinces and municipalities to make informed planning decisions. However, data gaps remain in:

- Agricultural labour, including gender-disaggregated employment and seasonal migration
- Horticultural crops in recent decades across hill and tarai is thought to be underestimated e.g. vegetables, fruits and also livestock products e.g. milk and meat.
- data on minor crops and emerging high-value commodities
- Post-harvest and value chain indicators
- Input supply and effective utilization
- imports and exports of agricultural commodities

Current statistics from MoALD focus primarily on aggregate production estimates, often lacking transparency in methodology or documentation.

In addition, emerging policy priorities such as climate-resilient agriculture, organic farming, agricultural mechanization, and youth engagement in agriculture require new statistical indicators that are not yet systematically captured. Data on farm-level profitability, cost of production, value addition, and supply chain efficiency remain limited, constraining evidence-based interventions aimed at increasing competitiveness and reducing import dependency.

Karki BK (2017) has listed data gaps in agriculture such as information on the impact of global warming in agriculture sector, post-harvest losses, seasonal variation on agriculture product, geo-referencing of agriculture data and seasonal variation on agriculture product.

Furthermore, underscored are unavailability of data on Local Level statistics for agriculture related all commodities and an agriculture master sampling frame for future surveys.

Despite the fact that the MoALD is made responsible for the production of estimates of area under and production of major crops, gap still exists. (NSO, 2025).

The constitution of Nepal has mandated the Federal Government, 7 Provincial Government and 753 Local government are independent to produce statistics of various sectors. Karki BK and Regmi R (2022) argue that this sort of decentralization is likely to create confusion over the published statistics in regard to standards and comparability.

The Sixteenth Plan (2024/25–2028/29) reiterates the importance of evidence-based policymaking and planning through the development and expansion of an integrated statistical system supported by digitalization. Recognizing the growing demand for data and the persistent data gaps across federal, provincial, and local governments, the Plan emphasizes the need to develop adequate statistical infrastructure. It also highlights the importance of ensuring the quality of data and promoting the adoption of international standards, classifications, and concepts.

5.2 Timeliness and Quality

a) Benchmark statistics (NSCA) are comprehensive but produced every ten years only.
b) Current statistics (MoALD) are more frequent and timely but methodologically less transparent based more on judgement. The previous reporting chain of MoALD, i.e., hundreds of Agriculture Service Centers throughout the countries has been dismissed and 753 Local Levels are assigned the responsibility. The priority and technical capacities of Local Levels have significantly undermined the upward estimates /flow of agriculture statistics in the recent decades.

c) Discrepancies between NSO and MoALD estimates are common, undermining user confidence. Such discrepancies appear both in area, number and production.

d) Digital tools, such as Computer-Assisted Personal Interviewing (CAPI), have improved data collection but still require ongoing investment in capacity building and supervision.

e) Actual area under agricultural use is questioned since unplanned urbanization has transformed plain lands into residential houses and urbanization every year.

6. Data Accessibility and Policy Use

6.1 Accessibility

Online platforms maintained by NSO and MoALD provide access to census reports, tables, and selected survey outputs. Microdata access protocols exist but are underutilized. Common challenges include:

- Limited availability of machine-readable datasets
- Inadequate metadata documentation

- Technical complexity and dominance of statistical reports. Analytical reports are quite few.
- Insufficient technical knowledge of decision makers to use agriculture statistics
- Access to real time data is limited. Some examples are plantation, harvesting, harvest loss, supplies of agriculture inputs and produces.

These issues constrain use particularly at provincial and local levels.

Furthermore, data portals often prioritizes static PDF publications over interactive dashboards or dynamic databases. The absence of integrated agricultural data platforms limits cross-sectoral analysis, such as linking agricultural production data with trade statistics, climate data, or poverty indicators. Strengthening interoperability between statistical systems would significantly enhance analytical use.

6.2 Policy Use

National policy documents, such as the Agriculture Development Strategy 2015–2035, frequently reference aggregate indicators (production, area under cultivation, growth rates). The Provincial Periodic Plans are also gradually based on data specifically from the NSO and MoALD to the extent available. Capacity constraints at the provincial and local level reduce the effective use of available statistics.

Successful examples of evidence-based interventions include:

- Identification of priority crops for commercialization
- Targeted irrigation development in underserved regions
- Livestock programme planning using survey-based data
- Core agricultural zones should be formally declared and effectively implemented.

These cases illustrate the potential value of robust and accessible statistics when capacity and coordination exist.

However, policy formulation at provincial and local levels frequently relies on budget ceilings and political priorities rather than statistical diagnostics. The absence of mandatory data citation in planning documents reduces accountability for evidence-based policymaking. Institutionalizing a requirement that agricultural plans reference official statistics could strengthen the culture of data use.

7. Lessons for Nepal

Nepal’s own institutional and operational experiences over the past decade provide important lessons for strengthening agricultural statistics within a federal governance structure. The transition to federalism, expansion of survey programmes, and growing demand for local-level data offer practical insights for reform.

1. Institutional coordination is critical – Clear mandates and harmonized methodologies should be established for MoALD, NSO, Provincial Governments, and Local Governments to ensure greater consistency.
2. Digital tools enhance timeliness and quality but require investment in capacity.
3. User-oriented dissemination ensures that data are accessible and actionable.
4. Sub-national capacity building is essential in federal systems for effective evidence-based planning.
5. Sustained technical support can accelerate methodological improvements and provide technical guidance.
6. Agricultural statistics should also be promoted in collaboration with the Agriculture and Forestry University (AFU), Nepal.
7. Harmonization of questionnaires across the agricultural census and other periodic surveys can help address data gaps and maximize the efficient use of available resources.

These lessons are directly applicable to Nepal, given its federal context and ongoing statistical reforms.

8. Policy Implications and Recommendations

1. **Strengthen NSO–MoALD coordination**
 - Establish formal mechanisms for methodological harmonization
 - Reconciling benchmark and current statistics to reduce discrepancies
2. **Strengthen NSO-AFU collaboration**
 - The NSO and AFU are encouraged to collaborate closely to ensure the optimal use of agricultural statistics.
 - An internship programme should be introduced for Master’s and PhD students.
3. **Enhance data accessibility**
 - Provide machine-readable datasets with comprehensive metadata
 - Produce analytical policy briefs tailored for provincial and local policymakers
4. **Invest in sub-national capacity**
 - Training in data analysis, interpretation, and use
 - Integrate data use into routine planning and monitoring
5. **Conduct adequate literacy programmes for data providers**

- Most agricultural holdings do not maintain formal records of their investments (inputs, labour, capital, fertilizers, and management) or returns (sales, consumption, stock, and/or capital formation). To build a strong agricultural statistical infrastructure, data providers need to be made aware of the importance of maintaining records throughout a crop cycle. This also applies to livestock and poultry.
- Data providers should be adequately informed and convinced of the need for, and the medium- and long-term implications of, high-quality agricultural statistics.

Implement National Strategy for the Development of Statistics NSDSII and annual agriculture statistics programme.

6. Establish a federal agricultural statistics coordination committee

A permanent intergovernmental coordination mechanism should be established involving NSO, MoALD, Provincial Ministries of Agriculture, selected Local Governments and representatives of data users' group. The committee should oversee methodological harmonization, metadata standards, data reconciliation, and reporting calendars. This mechanism would support vertical and horizontal integration of agricultural statistics within Nepal's federal system.

7. Institutionalize user engagement

- Regular consultations with policymakers, researchers, and statistics users' group
- Feedback mechanisms to guide future data collection
- Awareness-raising programmes should be conducted for lead farmers and farmers' cooperatives to highlight the importance of high-quality statistics on crops, livestock, and poultry.

8. Leverage digital technology

- Expand CAPI and other electronic tools
- Ensure continuous supervision, validation, and capacity building

9. Conclusion

Nepal has been making gradual progress in expanding the coverage and quality of agricultural statistics. The NSCA 2022, specialized surveys, and MoALD current statistics provide a foundation for evidence-based policymaking. Also, MoALD has been undertaking annual programmes to strengthen current statistics at the local level. Nevertheless, gaps in coverage, inconsistent methodologies, limited accessibility, and sub-national capacity constraints pose challenges in effective use of data.

Nepal's recent efforts towards statistical reforms demonstrate institutional commitment to strengthening agricultural data systems. However, sustained coordination, methodological harmonization, digital innovation, and capacity development at provincial and local levels

remain essential to fully realize the benefits of these reforms. Strengthening agricultural statistics within Nepal's federal structure will enhance policy relevance, planning efficiency, monitoring effectiveness, food security, poverty reduction, and sustainable agricultural transformation.

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