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Ownerships of Land and Livestock Improve Household Food Security

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ABSTRACT

Does the ownership productive assets such as of land and livestock play a role in addressing household food security challenge in Nepal?

These questions are important in a subsistence-based economy of Nepal where agriculture is the mainstay of a large majority of households. While about two-thirds of households relied in agriculture for livelihoods, overall, slightly over one-half (52%) of them were food insecure (20 percent of households mildly food-insecure, 22 percent moderately food-insecure, and 10 percent severely food-insecure) in 2016. Using the nationally representative 2016 Nepal Demographic Health Survey (NDHS) data, this research and policy brief provides empirical evidence of the salience of the ownership of productive assets in reducing food insecurity problem. Evidence shows that the ownership of both land and livestock are significantly and positively associated with household food security. These results imply any policy designed to secure the ownership of productive assets such as land and livestock to the households will lessen the food insecurity problem in the country.

BOX 1: WHAT IS IN NEPAL'S CONSTITUTION?

The Right to Food is a fundamental right of people as provisioned in the Nepal's Constitution 2015 (Article 36 (2)).

Keywords: assets, food security, land, livestock, ownership, sustainable

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FOOD SECURITY

Food security is a global challenge. Globally, one-in-four people (1.9 billion) are moderately or severely food insecure (Roser and Ritchie 2019). According to the World Bank (2021), the year 2020 marked the most severe increase in global food insecurity. As COVID-19 is evolving, it will have further detrimental effect on food security impacting vulnerable households in almost every country. Food insecurity can worsen diet quality and increase the risk of various forms of malnutrition, potentially leading to undernutrition as well as overweight and obesity (Ribeiro-Silva et al. 2021).

Nepal is not an exception and is one among the most food insecure countries in the world. Based on the Global Food Security Index (GFSI), in 2021, Nepal ranked 79 out of 113 countries with a global food security index (GFSI) of 53.7 (Economics Impact 2021). However, Nepal's Global Hunger Index (GHI) is improving and was at 19.1 in 2021 as compared to 22 reported in 2017 (von Grebmer et al. 2021).

The most recent Nepal Demographic and Health Survey (NDHS) (Ministry of Health, Nepal; New ERA; and ICF 2017) reported that 52.8 percent of the households were food insecure (Figure 1). Among them nearly one-in-ten households were severely food insecure. These numbers suggest that Nepal continues to struggle from food insecurity.

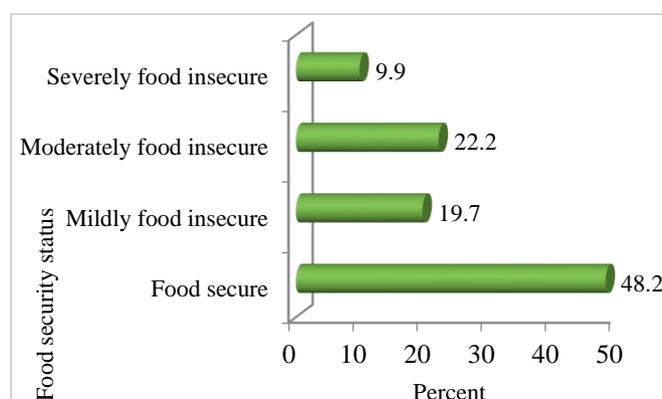


Figure 1. Households (percent) by food insecurity, Nepal.
Source: Ministry of Health, Nepal; New ERA; and ICF 2017.

The Constitution of Nepal (2015) has recognized “*the right to food as a fundamental right*” of its citizens (Article 36 (2)). The Government of Nepal (GoN) aims to eradicate poverty, end hunger and all forms of malnutrition by ensuring access to safe, nutritious and sufficient food all year round for all people by 2030 through its sustainable development goals (SDGs) programs (GoN 2015). To meet the challenge of food insecurity problem, Nepal requires serious attention and concerted efforts.

BOX 2: FOOD SECURITY

Globally, **ONE-in-FOUR** people are moderately or severely food insecure.

Nepal: 38 out of **75** districts as food insecure.

79 out of **113** most food insecure countries.

52% households are food insecure.

THE OWNERSHIP OF LAND AND LIVESTOCK IN NEPAL

Nepal is an agricultural country. Farmers have been commonly practicing age-old traditional mixed farming systems. Farmers grow a number of crops such as cereals, vegetables, fruits and fodders. In addition, as an integral activity, households keep animals such as cattle, buffalo, goats, sheep, pigs, and poultry for food (meat, milk, egg, and other food products), draft power, manure, and cash earning. Nearly two-third households make their livelihood from agriculture, which absorbs about 60 percent of the labor force for employment. According to the 2016 NDHS, agriculture provides jobs for 70 percent of women and 33 percent of men.

The 2011/12 national sample census of agriculture reported 3,831,000 holdings (85% of the total) with some land (Central Bureau of Statistics 2013). Ninety five percent of the holdings owned less than 2 hectares of land while 58 percent of the holdings owned less than 0.5 hectares).

The 2011/12 census also reported 3,354,000 holdings with some types of livestock. Among these holdings, 68 percent owned cattle, 50 percent had buffalo, 70 percent had goat, 3 percent of them had sheep, and 13 percent of them had pig. Animals are important source of financial, economic and social capitals in times of need and therefore, are important elements of food security assets.

BOX 3: LAND AND LIVESTOCK OWNERSHIP: NEPAL

85% of the holdings owned at least some land.

95% of the holdings operated by small and marginal farmers.

68% holdings owned cattle.

50% holdings owned buffalo.

70% holdings owned goat.

13% holdings owned pig.

THE NEXUS BETWEEN LAND AND LIVESTOCK OWNERSHIP AND FOOD SECURITY

Studies show that the ownership of land and livestock are among the key factors associated with food security in Nepal (FAO 2011).

According to Subedi and Dhital (2007), small holdings, marginal land for agricultural production, weather-dependent cultivation, and poor technology/technical know-how of farmers are some of the key factors influencing food insecurity in the country. Similarly, Maharjan and Khatri-Chhetri (2006) reported that the food secure households have significantly higher amount of total land and have higher percentage of irrigated land as compared to food insecure households. Studies also show that the households with large livestock size are less vulnerable to food insecurity, especially in times of drought when crops fail (FAO 2011). Previous research has found a positive correlation between household food security and the number of total livestock holdings (Bhandari, Karki and Rasali 2020; Maharjan and Khatri-Chhetri, 2006).

Using the nationally representative 2016 NDHS data, this brief empirically investigates: *To what extent do ownerships of land and livestock relate to household food security in Nepal?* This investigation is important because a large majority of households, mostly near landless, small and marginal, still rely on agriculture to meet food demand and the relationships between food security and the studies to examine the relationships between the ownership of productive capitals such as land and livestock and household food security are limited. This brief offers this by using the sustainable livelihood (SL) framework (e.g., Bebbington 1999; DFID 1999), which has been widely used to assess the factors influencing various livelihood outcomes including food security.

DATA, MEASURES AND ANALYSIS

Food security is a multidimensional and complex concept. This brief uses the *Household Food Insecurity Access Scale (HFIAS)* developed by Food and Nutrition Technical Assistance (FANTA) of USAID (Coates et al. 2006). The measurement instrument consists of nine items that measure occurrence and frequency of food access. The HFIA scale is calculated as the sum of the frequency of occurrence of items during the past reference period¹.

¹Recall period may vary – “in the past 30 days” or “in the past 12 months” depending upon the context.

The summated scale ranges from 0-27. The higher number in the scale refers to a greater level of food insecurity and *vice versa*.

The HFIAS includes three domains of food insecurity: (a) anxiety and uncertainty about household food supply, (b) insufficient quality that includes variety and preferences of food types), and (c) insufficient food intake². In order to estimate a household’s food (in)security scale, first, a food insecurity index was calculated which is the sum of the frequency of occurrence during the past 12 months. As each of these items is measured in a scale of 0-3 (0=never, 1=rarely, 2=sometimes and 3=often), the summated index or the scale ranged from 0-27.

BOX 4: DATA & MEASURES

DATA: Nepal Demographic Health Survey 2016

- 7 provinces
- 75 districts
- 217 municipalities
- 383 wards
- 11,490 households
 - 5,520 from urban areas
 - 5,970 from rural areas

MEASURES

- HFIAS (range 0-27)
- Anxiety and uncertainty about household food supply (0, 1)
- Insufficient quality (0, 1)
- Insufficient food intake (0, 1)
- Land ownership (0,1)
- Ownership of animals (0, 1)

Next, the three domains as presented earlier were also separately created. The response was dichotomized as ‘0’ if a household did not experience vs. ‘1’ if a household experienced the item as rarely, sometimes, or often in the past 12 months for: (a) anxiety and uncertainty about household food supply, (b) insufficient quality that includes variety and preferences of food types, and (c) insufficient food intake.

Land ownership - the measure of a household’s access to and ownership of land at the time of survey - was measured as whether a household owned any land (coded 1) or not (coded 0).

²The NDHS (2016) included nine items to measure food security. Each item was measured whether a household experienced that item in the past 12 months or not using four response categories: ‘never, rarely, sometimes, and often’.

Similarly, the ownership of *livestock* was separately measured as the ownership of cattle/buffalo, cow/bulls, goats, chicken and pigs each coded as yes (=1) or no (=0). In addition, a number of theoretically known factors that influence food security are also controlled in the multivariate analysis.

RESULTS

FOOD SECURITY

- The average household level food insecurity scale (score) is 3.79 that ranged from 0-27 (0 being food secure and 27 being highly food insecure).
- Nearly one-half of the households (41% with 0 score) reported that they were food secure.
- Only nine percent households expressed anxiety and uncertainty about food supply.
- Slightly over half (53%) of the households reported that they were worried about insufficient quality of food supply due to a lack of resources.
- 22 percent of them reported insufficient food intake (quantity) due to a lack of resources.

LAND AND LIVESTOCK OWNERSHIP

- 80 percent of the households reported that they owned some farm land.
- 31 percent households owned cattle/buffalo.
- 45 percent owned cow/bulls.
- 52 percent owned sheep/goats.
- 39 percent owned chicken.
- Only 9 percent owned pigs.

EMPIRICAL EVIDENCE ON THE OWNERSHIP AND FOOD SECURITY NEXUS

Households that owned land had significantly lower HFIAS score as compared to the households that did not own any land controlling for all other factors.

The results for specific domains also support this finding. The households that owned land had significantly lower odds of experiencing anxiety and uncertainty about food supply in the past 12 months as compared to the households that did not own any land, adjusting for all other factors.

- The results are similar and as expected for insufficient food quality and insufficient food intake domains.

- The ownership of animals in general reduced the household food insecurity as compared to those households that did not own animals.
- Specifically, the ownership of cattle/buffalo, cow/bulls, goats and chicken significantly reduced household food insecurity whereas the ownership of pigs was statistically not significant, adjusting for all other factors.
- Overall, these results provide evidence that the ownership of productive assets such as land and livestock is associated with the food insecurity problem in Nepal.

- Similarly, policies must be designed to provide access to and ownership of livestock to needy households in order to improve their food security situation.
- Further policies should be designed in such a way that even the landless, small and marginal farmers can secure the access and the ownership of productive assets by using their own available resources (an example provided in the box – previous page).
- Nevertheless, policy makers should seriously consider the multidimensionality of food insecurity while designing policies. For instance, while the ownership of land and livestock may improve household food security, these are not the sufficient conditions to address the challenge. Other potential factors such as household size, education, gender of the household head, gender disaggregated ownership of productive assets, caste/ethnicity, household wealth, income and geographical location of a household should be carefully considered while designing food security policies.

DISCUSSION AND POLICY IMPLICATIONS

Food (in)security is one of the major challenges in Nepal. While the country is seriously planning, at least in documents, to curb the problem, many households particularly those from the disadvantaged communities such as indigenous and Dalit communities still lack the ownership of productive assets such as land and livestock. Considering the situation, even the Constitution of Nepal spells out the provision of land to Dalit (Article 40 (5), Constitution of Nepal). In addition, it is reported that there about 1.5 million families representing a quarter of Nepal’s households, who are still landless or have land issues (Giri 2022). These families either lack formal land rights documentation where they have been living and farming or they have no land at all. Without the proper ownership of productive assets such as land, these households can neither secure any loan for income generation nor invest any resources for income generation.

BOX 5: EMPIRICAL EVIDENCE

Overall, empirical evidence shows that the ownership of productive assets such as land and livestock is important to lessen food insecurity problem.

This will further worsen their livelihoods requiring a serious attention from a policy perspective in order to solve the problem of food in(security) in the country.

- The already existing policy to provide access to and the ownership of productive assets such as land to small and marginal farmers should be emphasized/expedited.

BOX 6: PROVISIONING ACCESS TO PRODUCTIVE ASSETS TO SMALL AND MARGINAL FARMERS: AN EVOLVING STORY OF NADC, SALYAN

The National Agriculture Development Company (NADC) established by youth entrepreneurs in Ranikot, Salyan district of Nepal is one of the prime examples of provisioning access to various livelihood assets to landless, small and marginal farmers. This is a cooperative that has started goat farming using their own SWAR model – Start With Available Resources – a participatory model. A number of small and marginal farmers have joined hands and shared through pulling their available resources such as land, capital, labor, and animals (goat) – to establish a goat resource center. Landless farmers have access to the farm through their labor while farmers with resources may share their land, capital or labor. SWAR model has been very successful which provides access to various livelihood assets - natural, human, economic, physical and social (as envisaged by the Sustainable Livelihood Framework). This model of livestock development has been well recognized by the local government and the Karnali provincial government. More youths are interested to continue similar ventures in the district.

For information about NADC visit **Agri-Connection**: <https://www.napaamericas.org/downloads/ac-newsletter/agri-connection-vol-6-issue-4-december-2021.pdf>



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