

Challenges Faced by (Quasi-) Landless Villagers in the Mountainous Region of Kivu, DRC

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Abstract

The living conditions of small-scale farmers in the South Kivu uplands, DRC, were evaluated. A detailed questionnaire was sent out randomly in two chiefdoms, with a sample of 290 households in 10 administrative Divisions. In addition, 120 households were interviewed in focus groups. The results show that the majority of households earn their living from agriculture. The poorest are day laborers (9%). The sale of alcoholic beverages, sweets or water, handicrafts, and livestock breeding represent secondary sources of income (7%), with the remainder represented by street vendors and artisanal miners. The monthly income is often less than \$50 (43%) or between \$50 - 100 (37%) and rarely beyond \$200 (3%). Households with less than 2 meals have very low monthly incomes (<\$50) and small acreages below 0.5 ha. When the monthly income declared by the household is less than \$50, thatched huts and mud house dwellings predominate. As for the number of meals, there are typically 1 - 2 meals. Starving children are found in 3% of households. Out-of-school children are found in 24% of households, typically in the family size classes of 1 - 3 and 9 - > 14, twice as many as in households with fewer than 9 people.

Keywords

Landless Villagers, Mountainous Region, Kivu, DRC

1. Introduction

Several authors highlighted the difficulties faced by small-scale farmers in accessing land and resources (Abegunde et al., 2019; Mgaya, 2018; Mokoena et al., 2023; Msipa et al., 2025; Rakhmanto, 2025; Smidt & Jokonya, 2021). These difficulties are caused by various factors and contribute to the vulnerability of small-scale

farmers and their inability to achieve sustainable livelihoods. In the case of the inhabitants of Chile's *aldeas*, they have always been farmers, but they have become landless or unemployed, and often both. The Chilean government's economic policies affecting agricultural development are at the root of the problem (Nunez, 1976). Boutry et al. (2017) reported that agriculture is the engine of Myanmar's economy, employing more than two-thirds of the population and accounting for one-third of the GDP. However, almost half of Myanmar's rural population is said to be landless, the highest rate of landlessness being in the Mekong region. Landlessness rates are 80% of households headed by people under 30 in the Ayeyarwady Delta region. In contrast, only 40% of households headed by people over 60 are landless in the same region. This age-based disparity underscores how younger generations face increasing barriers to land access, often due to inheritance fragmentation, rising land prices, and limited land redistribution mechanisms. Farming landless (23%) have access to temporary land use rights through tenancy contracts. Wilson (2021) also postulated that China's rapid urbanization has generated a substantial population of "landless peasants," villagers whose farmland has been fully expropriated. The fate of these "landless peasants" has varied greatly between regions. In many cities, they have become wealthy urban landlords; in others, they have been pushed aside in the urbanization process. Radhika (2013) indicated that landlessness is the best indicator of rural poverty in India, better than caste or illiteracy. Approximately 10 per cent of rural households in Andhra Pradesh are absolutely landless and another 36 per cent own less than half an acre of land. Ensuring access to land for landless agricultural workers, women, tribals, and other vulnerable groups is crucial for their food security (Sinha, 2012).

The determinants of the landless status are various, depending on the geographic location and socio-political context. In Brazil, Ishimaru et al. (2014) found that a significant portion of arable land is concentrated in the hands of large landowners, leaving smallholders and landless peasants with limited access to land for agricultural production. This inequality is a major driver of land occupation movements, where landless peasants settle on uncultivated or abandoned lands. In China, Han et al. (2017) mentioned that rapid urbanization and city expansion lead to the expropriation of agricultural land for infrastructure and property development. This displaces farmers, leaving them landless and forcing them to migrate to cities in search of work. The lack of adequate government support and resettlement policies exacerbates this issue (Xu et al., 2021). In Poland, the modernization and restructuring of farms have led to a reduction in the agricultural workforce, contributing to the growth of the landless population (Kołodziejczak, 2018).

In South Africa, Mokgomo et al. (2022) examined the impact of government support programs on small-scale farmers' livelihoods and food security, but did not specify the proportion of farmers who are landless. Access to land, water, and other resources is a major constraint (Mkuna & Wale, 2023; Munyoka et al., 2025;

Abegunde et al., 2019). Adoption of improved technologies is often limited by resource constraints (Munyoka et al., 2025; Abegunde et al., 2019; Mokoena et al., 2023; Zulu et al., 2023).

Some authors suggested that well-designed and implemented land reforms can reduce landlessness. For example, the study on Taiwan Region's land reform highlights its success in turning tenant farmers into landowners (Chu, 2024). Similarly, research on land reform in Georgia indicates that equitable land distribution can reduce income inequality among farm households, implying a reduction in landlessness (Kimhi, 2023). However, the success of land reform depends heavily on its implementation and the broader political and economic context (Zhou, 2023).

Conversely, poorly designed or implemented land reforms can exacerbate landlessness. Studies on land reform in Nepal (Ollieuz, 2011) and Zimbabwe (Chipenda, 2023) highlight the challenges of implementing equitable land distribution due to entrenched power structures and vested interests. In South Africa, the evaluation of a land reform initiative reveals that while many farms had the potential to be commercially viable, only a small percentage performed well, suggesting that land redistribution alone is insufficient to address landlessness (Verschoor et al., 2023). The impact of land reform in Zimbabwe on tobacco exports also highlights the need for complementary policies to ensure successful land redistribution (Chikowore & Chawarika, 2024).

The absence of land reform policies or inadequate attention to land tenure security can be a major driver of landlessness. This is evident in several papers discussing the challenges faced by small-scale farmers in accessing land and resources across various regions (Adofu et al., 2024).

Policies that favor large-scale commercial agriculture can displace small-scale farmers and contribute to landlessness. This is discussed in the context of large-scale land acquisition in the Mekong region (Diepart & Castellanet, 2015) and the impact of corporate agricultural land ownership on local governments (Boles & Rupnow, 1979). The shift towards market-oriented agricultural policies can disadvantage small-scale farmers who lack access to credit, technology, and markets, making them more vulnerable to landlessness (Dijk, 2022; Kambali & Panakaje, 2022).

Rapid urbanization and land conversion for non-agricultural purposes can reduce the amount of land available for small-scale farming, contributing to landlessness (Bhagia & Bose, 2023; Darius & Hastuti, 2024; Lei et al., 2022; Sun et al., 2023; Wang et al., 2022; Xia et al., 2024; Xiong et al., 2023). Conservation policies, while crucial for environmental protection, can sometimes lead to conflicts with local communities and restrict access to land and resources, potentially exacerbating landlessness (Achiso, 2020).

The focus of the current study is the mountainous Kivu region, perched between 1460 - 2500 m a.s.l. within the Mitumba range in eastern DRC. Although it enjoys a tropical high-altitude climate, with rainfall > 1300 mm and an average pleasant temperature of around 20°C, erosion is intense on this deforested land.

Arable land is limited to a few plateaus. Roads in poor condition exacerbate the isolation. Historically, the best lands were allocated to commercial colonial coffee, tea, and cinchona plantations until independence from Belgium in 1960. Since then, the peasants around these plantations have been farm workers, daily laborers paid in bottles of palm oil and cooking salt. In 1975, Mobutu's dictatorial regime carried out an economically ruinous reform, confiscating these plantations from the former colonists and assigning them to his friends in the single party. They simply hoarded the land without investing in it. No agrarian reform took place, and the farm workers no longer received the land, the palm oil and salt, or the daily payments in peanuts. Other vast tracts of land were allocated to national reserves, thus negatively affecting the living conditions of landless peasants. Claessens et al. (2014) commented that, in terms of farming, the conditions of access to land are so tough that the plots farmed by households are generally small in upland South Kivu. This leads to soil degradation. Wilondja (2021) points out the impacts of land colonization, and in particular expropriation (Kalambay, 1970) for the benefit of European settlers and the Kahuzi-Biega National Park (Busane, 2004), as well as the effects of migration and its corollary, demographic pressure, on land use. Mudinga (2021) indicated power dynamics and resistance in areas like Mumoshu, where local communities confront elite land appropriation, and land access vulnerabilities in private and religious concessions, especially in Irhambi-Katana and Kalehe. Akilimali (2022) explored the socio-political and land tenure dynamics affecting agricultural workers in South Kivu, Democratic Republic of the Congo. He critically examined how land policies and elite capture have shaped the conditions of rural laborers—often caught between exploitative plantation systems and limited access to land.

Demographic growth occurs in a context where the average household comprises 8 people, most of them children, who contribute little to farm labor. The customary mode of inheritance, in which the family land is split for the benefit of sons, accelerates the fragmentation of land, massively creating landless peasants. Average landholdings have rapidly fallen below <0.5 ha. In much of this region, rural land is gradually being taken over by reselling portions of these colonial concessions to urban or political elites, who invest very little in them. Indeed, the "land ownership processes" in the DRC have proved their limitations. On the one hand, these limitations can be seen in the bureaucratic capture of land by the elites, and on the other, in the impossibility for this land tenure system to bring about a genuine redistribution of the natural resources looted from the people during colonization. Small portions of these concessions were simply sharecropped to local peasants in exchange for chore farm labor and an annual tribute in kind on the larger part of the estate. It is well known that peasant farm workers generally belong to the poorest groups, and that their lives are hard.

Soils are mostly red ferritic types, not amended with manure due to the lack of livestock, with neither fallow nor rotational crops, and are impacted by erosion on these steep slopes, with no soil protection, agroforestry, or contour farming,

aggravating soil loss. The gold, coltan, and cassiterite mining boom began in 1980 when the government liberalized the mineral trade. Many young people abandoned their families to settle 100 km from home in the mining quarries. Many found only depravity and alcoholism. The luckier ones, more mine buyers than diggers, left their villages to settle in town, while continuing their rural mining supply. Rarely was there any reinvestment in the original villages, apart from a small uninhabited house surrounded by no productive farm or the purchase of small reserves of residual arable land. Community lands managed by customary chiefs have been the most fragmented in favor of urban elites, in this region deficient in technical schools. The sale of marshlands to private individuals by customary chiefs is another example of the loss of land by small-scale farmers. This has given rise to many conflicts and has been at the root of the loss of land for many farmers, including those who had no titles and therefore only depended on the customary chief or his representatives.

Customary practices play a significant role in land management. “The overlapping of two land tenure systems (customary and statutory) in a context of legal pluralism and administrative and judicial dysfunction can only lead to more conflict, community tension, and violent confrontation. In the mountainous Kivu region, the Bashi communities possess customary land rights that are unequalled anywhere in the country. This “feudal” system is a handicap to public policies for rural development. In Indonesia, [Andi Pitono et al. \(2024\)](#) found that customary land has been used as a clientelism commodity by an incumbent village head to receive political support in a village election ([Kurosaki, Paul, & Witoelar, 2021](#)). [Camille Reyniers et al. \(2014\)](#) have shown that, while “landless peasants” were known only in the Amazon basin and appeared through the appropriation of large areas by private companies, they were observed even in the Batéké Plateau in the DRC, despite its vastness and apparent low population density. Christian Bouquet contradicted the long-held belief that African peasant farmers had so much arable land at their disposal that they could easily practice shifting cultivation, and that there was no need to question their collective management of the fields.

Women are particularly affected, and make up the majority of the landless. On the one hand, they are the first to be affected by the loss of family land; on the other, they are often disenfranchised by patriarchal inheritance systems that do not recognize women’s right to land. Young people have retreated to the fertile marshlands to make clay bricks, which are baked at the cost of deforestation and sold in town.

In 1996, war compounded the tragedy. Livestock was plundered and the rural exodus intensified. Bukavu, the provincial capital, received without return all that remained of the rural elite and its workforce. The main traditional chiefs moved to the city. This trend persists. In China, for example, the rural exodus also occurred for other reasons. Claude Aubert points out that, as a result of the many cuts made to other sectors of the economy, the peasantry is still relatively poor and often aspires to move to the city in search of better-paying jobs.

As a result, household living conditions in South Kivu are poor, with poverty affecting more than eight out of ten households and an urban unemployment rate higher than the national average. The majority of the people work in the informal sector, particularly in agriculture, but earn an insignificant income. A landless farmer is an individual engaged in agriculture who does not own the land they cultivate. They may work under various arrangements such as sharecropping, tenant farming, or as agricultural laborers. Sharecroppers farm land in exchange for a portion of their crops, while tenant farmers rent land for a fixed period. Agricultural laborers work on others' land for wages without any land ownership. A quasi-landless farmer is an individual who owns a very small plot of land (here, less than 0.5 hectares), insufficient to sustain their livelihood. Despite having some land, they often need to supplement their income by working on others' land or engaging in other economic activities.

2. Methodology

2.1. Study Environment

The surveys took place in the Ngweshe and Kabare chiefdoms (**Figure 1**), belonging to the same Bashi cultural group. They share common features, notably a high population density and a largely agricultural economy. Lake Kivu grants Kabare a more diversified economy, thanks to fishing and the cultivation of coffee and tea, which are important cash resources. Ngweshe, on the other hand, is still

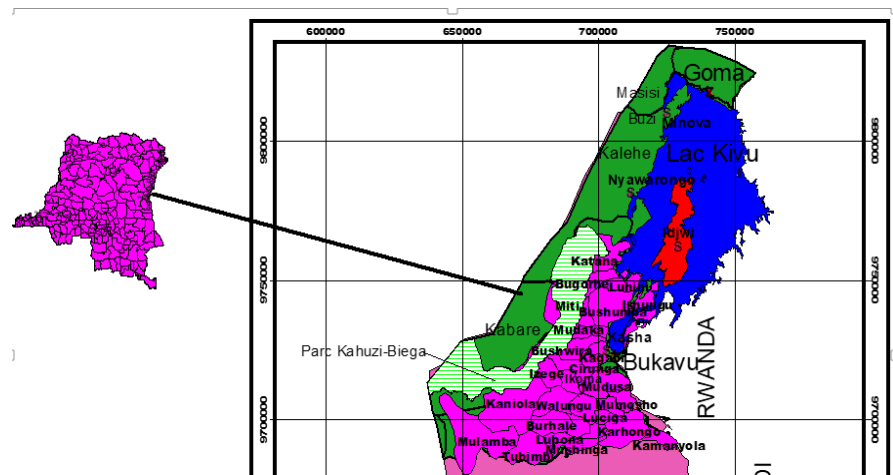


Figure 1. Location map of the study area (inset in the DRC map).

largely focused on subsistence farming for families. The Kabare chiefdom has a population of over 500,000, with a density varying between 430 and 570 inhabitants per sqkm. The Ngweshe chiefdom is home to a dense population estimated at 600,000.

Both chiefdoms face common challenges. In most of these rural areas, i.e., access to basic services such as education, healthcare, and drinking water remains difficult. Population density in both chiefdoms forces communities to compete

for available land, generating tensions and sometimes open conflict. In addition, the over-exploitation of agricultural land and pressure on natural resources, particularly in the Lake Kivu region, raise questions of long-term sustainability. In these regions, daily life, punctuated by work in the fields, local markets, and craft activities, demonstrates the resilience of communities which adapt to a constantly changing environment.

2.2. Data Collection Tools

The detailed questionnaire contains the following groups of study variables:

- a) Family and social situation: Age group, Gender, Marital status, Type of marriage, Education level, Field of training, Religion, Household size;
- b) Housing quality;
- c) Land ownership status;
- d) Access to education and healthcare;
- e) Food and sources of income;

2.3. Data Collection Procedures

Simple sampling was used, taking care of the geographic representation of the administrative Divisions in the west, the center, and the east of the study area, choosing non-interconnected Divisions and villages. The detailed questionnaire was submitted randomly in both chiefdoms, with a sample of 290 households: 30 people in each of the 5 selected Divisions in the Kabare chiefdom (Mudusa, Kagabi, Lugendo, Bugorhe, and Irhambi-Katana) and 28 people in each of the 5 selected clusters in the Ngweshe chiefdom (Kamanyola, Karhongo, Walungu Centre, Kaniola, and Mulamba). We used Kobo collect software for data collection.

Scores were created to facilitate quantitative analysis of several very important qualitative variables: age, gender, marital status, level of education, religion, income, and household size.

2.4. Sample Characteristics

The sample included 196 men (67.6%) and 94 women (32.4%). Married people dominated the sample: 201 (69.3%), 60 single (20.7%), 27 widowed (14%), and 2 divorced (1%). The 18 - 25 age group accounted for 23% of the sample; the 26 - 35 age group, 35%, followed by the 36 - 45 age group (18%); the 36 - 45 age group (18%), the 46 - 55 age group (14%), the 56 - 60 age group (7%), and the 61 - 70 age group (2%). Those with incomplete or complete secondary education accounted for 54%, primary school level (26%), university graduates (10%), and illiterates (10%).

2.5. Data Archiving and Analysis

The following software packages were used for data analysis: SPSS, Past, N'Vivo, Jamovi, and Jasp. SPSS enabled us to compute descriptive statistics, such as means, medians, modes, and standard deviations. Comparisons of means (Kruskal-Wal-

lis) and chi-square tests were run on Jamovi. N'Vivo was used for qualitative data analysis, producing clouds of the most frequent words and syntax. Multivariate analysis was performed using Past 4.11 software and Jasp for principal component analysis.

3. Results

3.1. Household Size, Economic Level, Housing Quality, Food Security, and Health

The majority of households survive on agriculture, sometimes on wages (15%). The poorest are day laborers (9%). The sale of alcoholic beverages, sweetened beverages or water (15%), handicrafts (4%), and livestock breeding represent secondary sources of income (7%), while others are represented by street sellers and small-scale mine diggers. Household sizes of 1 - 3 people represent 25% of the sample, 4 - 6 (34%), 7 - 8 (26%), 9 to 12 (12%), and >12 (3%). The more populous households are headed by 36 - 70-year-old men, in contrast to the younger heads of household, aged 18 - 35. The respondents estimate their monthly income (**Figure 2**) to be less than US\$50 (42%), often between \$50 - 100 (37%), and in a few cases \$100 - 200 (17%). Incomes beyond \$200 are rare (3%).

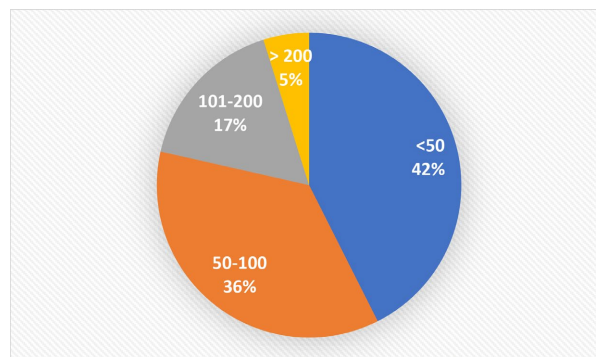


Figure 2. Distribution of monthly income.

This shows that the farmers' income is very low. These results, coupled with the type of dwelling and the agricultural land, show that the people of these two chiefdoms (Ngweshe and Kabare) live in extreme poverty. Starving children are found in 3% of the households. Where malnourished children are present, they number 1 - 4 in 95% of cases (2.22 ± 1.353); in rare cases 4 - 6. As for the number of meals, we typically find 1 - 2 meals (1.9 ± 0.51). Their staple foods are maize, banana, cassava, and sweet potato, which they accompany mainly with vegetables, beans, and sometimes fish and meat. Households treat themselves mainly by self-medication and herbalists (7%) or in health centers (57%); others are rarely sick (2%). Households with fewer than 2 meals have very low monthly incomes (less than \$50) and narrow landholdings of less than 0.5 ha, regardless of religion. Out-of-school-age children occur in 24% of households. These cases of out-of-school children reach an average of 1.0 ± 1.78 ; $n = 280$, thus ranging from 1 - 3 out-of-school per household in large families (9- > 14), as opposed to average households of 7 -

8 (average = 0.5 ± 0.76), i.e., twice as few, and even better in small households of 1 - 6 (2 parents and 4 children), seven times fewer. Access to education decreases proportionally with household size.

Overall, starving children are found in 36% of households with \geq to 1 meal a day. This proportion rises to 16% of households with more than or equal to 1 meal a day, and 4% of households with less than 1 meal a day. The number of meals alone accounts for 43% of malnutrition. Households mainly treat themselves by self-medication and through herbalists (7%) or health centers (57%). However, 2% rarely fall ill.

The type of house (**Figure 3** & **Figure 4**) varies from the thatched hut (2%) to the mud house with thatched roofing (9%), followed by the mud house with corrugated iron sheet roofing (39%), then the semi-permanent (44%), and finally the brick house with or without pavement or ceiling (6%). The traditional hut is becoming increasingly rare as a main dwelling.

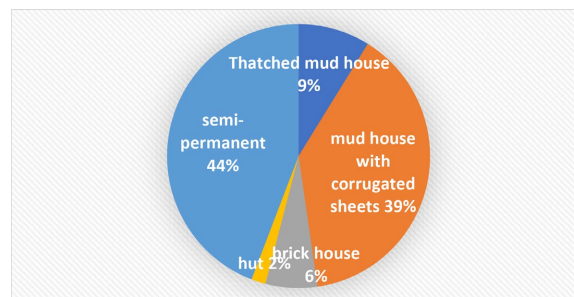


Figure 3. Distribution of house types.



Figure 4. Images of house types.

Households with 3 meals have a higher or equal monthly income, with highly variable land areas. Households with less than 2 meals have very low monthly incomes (less than \$50) and narrow landholdings of less than 0.5 ha, regardless of religion. When the monthly income declared by the head of household is less than \$50, hut dwellings predominate, with thatched mud houses accounting for 19% and mud houses with corrugated sheets (17%).

3.2. Land Ownership Situation

The majority of respondents farm on an acreage of less than 0.5 ha (53%), 0.5 - 0.7 ha (26%), and those who farm an acreage beyond 1 ha represent 13% (**Figure 5**). Thus, we are dealing with landless and quasi-landless farmers in the majority of surveyed households. With the system of inheritance, where family land is shared out in small pieces to male descendants, it will not be long before the category owning 0.5 - 0.7 ha rapidly swells to that of landless peasants (≤ 0.5 ha). Land situation in the area is very bleak when compared with the average rural household in Western Europe, which owns 30 ha for a household size close to 3. The fragmentation of land with each inheritance is a challenge for our land decision-makers. Young households of size 1 - 6 are concentrated in the <0.5 ha category (57%).

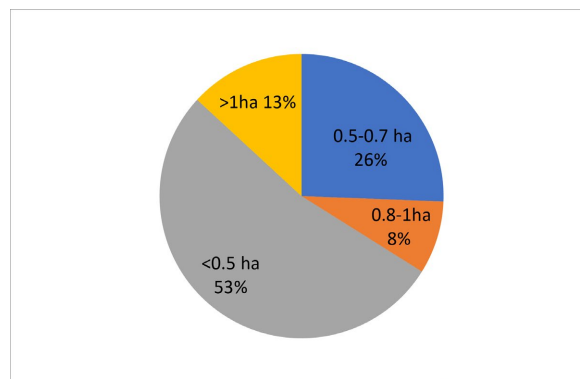


Figure 5. Distribution of farmland acreage.

These lands are mainly of the purchase (40%) and donation with tribute (34%) types. Land tenants account for only 20%. It is true that a landowner can practice rental on marshland. Generally speaking, these households have no land titles, and when they do exist, it is in the form of a deed of sale (46%) and more rarely in the form of a customary land title (10%) or a certificate of ownership (4%), which may attest to insecurity of tenure (48%) (**Figure 6**). Rarely do they rent their homes; they own them (83%). House tenants are either in commercial or family mode, and sometimes stay with friends (17%).

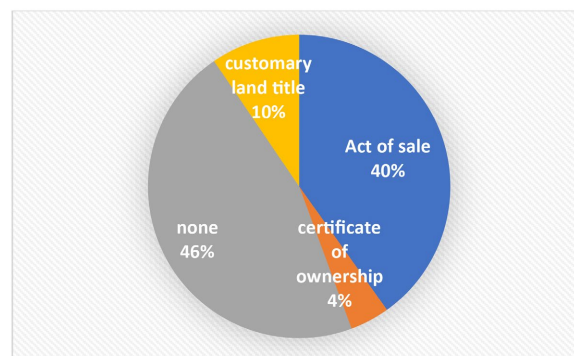


Figure 6. Distribution of land titles.

Land tenure in the Bushi region is influenced by a number of historical, cultural, and legal factors. The majority of land in Bushi is governed by customary rights. These rights are generally based on ancestral traditions and are often handed down from generation to generation. Land is often considered a collective asset belonging to clans or extended families. Access to land is generally determined by kinship and community ties. Decisions on land use are taken collectively by traditional chiefs or local councils.

Although the majority of land is under customary tenure, there are also cases of individual ownership where individuals may own land. These properties are often the result of purchase, gift, or inheritance.

Individual owners may be fewer in number, but their land may be farmed more intensively.

Some land is held by the state or public entities, notably for infrastructure projects or public services.

The municipal land is often reserved for specific uses such as roads, schools, and other infrastructure.

Access to these lands generally requires official authorization and can sometimes be a source of conflict with local communities.

With the increase in foreign investment and farming operations, some land may be acquired by companies. These acquisitions can sometimes lead to tensions with communities that claim customary rights to the land. Relations between investors and local communities are often marked by issues of profit-sharing and respect for traditional land rights. Tensions surrounding land issues are frequent, particularly due to the superposition of customary and modern law systems. Conflicts may arise between customary owners and investors, or between different communities. Land conflicts are often exacerbated by poverty, population growth, and pressure on natural resources.

The Bushi land tenure system is complex and requires a good understanding of cultural, legal, and social dynamics. Customary rights remain dominant, but economic development and socio-political changes pose challenges in terms of managing and securing land rights. Initiatives to formalize land rights and resolve conflicts are essential to ensure sustainable land use in the region.

Land is becoming increasingly scarce as it is fragmented from generation to generation.

It is important to note that the land tenure system in the DRC is often marked by conflict and ambiguity, especially in the Kivu uplands, and recognition of land rights can vary from one region to another. Customary practices play a significant role in land management. For specific questions, it is advisable to consult a local legal professional or land expert.

3.3. Interactions between Well-Being Factors

Figure 7 illustrates the interactions between well-being factors. Monthly income, number of meals, and type of house: these three variables are positively correlated

in the RC3 component representing well-being. This reflects a synergy between income level, food security, and housing conditions. Out-of-school children and household size: these variables are correlated and associated in the RC2 component, which reflects access to education and demographic load. Thus, as household size increases, the ability to send children to school decreases.

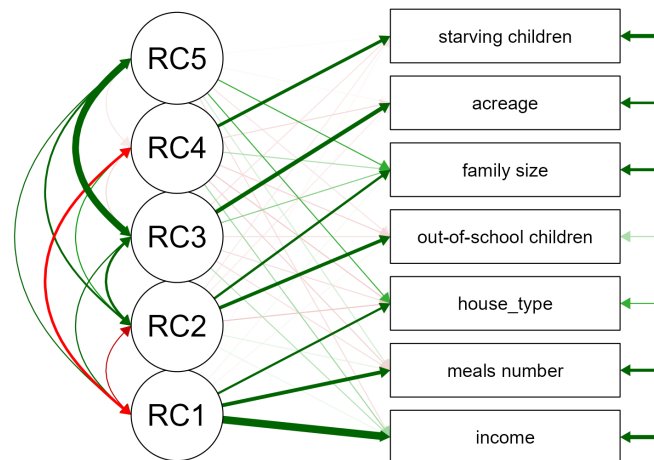


Figure 7. Principal components of well-being factors and acreage.

The RC1 component represents land capital and family burden, as well as the consumption of alcoholic and non-alcoholic beverages. Household size, type of beverage consumed, and land area are included in this component. Household size alone contributes 62.4% to the land capital component, and children's access to school education. Out-of-school children account for 29%, the very embodiment of poor access to education. Household size and land area are also partially and negatively related to alcohol consumption. The path diagram shows that landless farmers consume a lot of alcoholic beverages. The links between this group and household size are further explained by the fact that younger heads of households with smaller households (1 - 3 people) consume more alcoholic beverages than medium-sized households (4 - 8 people). These younger households have a higher proportion of alcohol consumers (18% explained), and these younger households have a smaller land area (23% explained). The very fact of drinking strong beverages already explains 20% of the "Alcohol consumption" component, which includes several factors such as comments, beverages consumed, % ethanol, quantities consumed per day, interval between drinks, meals consumed, weight, and state of health. High alcohol content negatively affects well-being. Land size positively influences access to education.

There is a link between the "access to education and demographic load" component and the "land capital and family load as well as the intake of highly alcoholic beverages" component on the one hand, and between the "access to education and demographic load" component and the "well-being" component on the other.

In the case of households with monthly incomes ranging from over \$50 to over \$200, semi-durable housing predominates (64%), while the proportion of permanent homes is 11%, compared with 23% for semi-permanent houses with iron sheet roofs. It is clear that monthly income influences the quality of housing, which is a priority for heads of household. Monthly income obviously determines housing quality. In the lower income classes (under \$50), we find the least comfortable dwellings, while semi-durables and hard-built houses characterize the \$100 - 200 income class (75%), and 9% are hard-built houses.

Households residing in thatched cabins and huts benefited from less formal education and trades (86% earning under \$50 and 14% earning \$50 - 100). Among these poorly housed households, a few high school or university graduates are found in the <\$50 category at a lower frequency (56%), and 31% are in the \$50 - 100 category. Households in more comfortable housing (semi-durable and brick houses) who have bought their land (purchase) belong mainly to the \$50-200 income category; here we find 14% with incomes over \$200, compared with 2% in the other categories (rental and donation with tribute tenancy). Donation with tribute has become less prestigious than purchase.

In terms of housing type, most households live in semi-permanent houses (banda) with iron sheets (37%); there are also a few thatched with thatch (9%), semi-durable (45%), durable (5%), and huts (4%). The majority of households live in semi-durable houses, followed closely by banda with sheet metal. Banda with thatch are less frequent, but slightly more numerous than durable houses (%).

The number of daily meals is related to monthly income and land tenure status. In households with higher incomes (\$100–over \$200), the average was 2.3 ± 0.50 meals, $n = 62$, and gradually increased to 2.0 ± 0.29 ; $n = 104$ between \$50 and \$100, compared with 1.6 ± 0.49 meals; $n = 124$ in households with incomes under \$50. Life is becoming commercialized in rural areas. You have to buy your food. Thus, there is a 44.7% increase in the chance of having one more meal when income rises from \$50 - 150.

Income, food, and housing quality are negatively correlated with heavy drinking. The more hard liquor consumed, the less income, food, and a comfortable, durable main house. Thus, the more hard liquor consumed, the less agricultural space and the less access to education for children ($r = -0.27$).

Housing type accounted for 18.5% of the variance in factor 1, “Income, food and comfort.” The variance in monthly income is strongly explained by the “Income, food and comfort” factor. It is a very significant element in this factor. Out-of-school children account for 29.2% of factor 2, “Land capital and education.” Household size accounts for 17.6% of factor 2, “land capital and expenses.” Land area also contributes 23% to this group. The type of beverage alone contributes 2% to this group, not to mention various other aspects, such as quantity, meals, and frequency.

The results show three main components: 1) access to income, food, and housing comfort; 2) land capital; 3) alcohol consumption. These three components ac-

count for 50% of households' experience with strong drinks, and this level of information is not negligible. Access to cash, food, and comfort, as well as housing and land capital, are both negatively correlated with hard-drink habits (respectively, $r = -0.58$ and $r = -0.27$). The consumption of strong alcohol is a real handicap to socio-economic development. This is often asserted but rarely demonstrated in our rural and urban environments.

Access to money accounts for 19% of the decision to build a hut, a semi-permanent, or a permanent house, and is directly linked to access to food and housing comfort. In the case of households with monthly incomes ranging from over \$50 to over \$200, semi-durable housing predominates (64%), while the proportion of permanent homes is 11%, compared with 23% for log cabins. It is clear that monthly income influences housing quality, which is a priority for heads of household. Monthly income obviously determines housing quality. In the lower income classes (under \$50), we find the least comfortable dwellings, while semi-durables and hard-built houses characterize the \$100 - 200 income class (75%), and 9% of hard-built houses.

Households in thatched cabins and huts benefited from less education and trades (86% earning under \$50 and 14% earning \$50 - 100). Among these poorly housed households, a few high school or university graduates are found in the < \$50 category at a lower frequency (56%), and 31% in the \$50 - 100 category. Households in more comfortable housing (semi-durable and hard) who have bought their land (Purchase) belong mainly to the \$50 - 200 income category; here we find 14% with incomes over \$200, compared with 2% in the other categories (annual rental and donation with tribute land tenants). Donation with tribute has become less prestigious than purchase.

In terms of housing type, most households live in semi-durable houses or banda with sheet metal (37%); there are also a few banda with thatch (9%), semi-durable (45%), durable (5%), and huts (4%). The majority of households live in semi-durable houses, followed closely by banda with sheet metal. Banda with thatch are less frequent, but slightly more numerous than durable houses (%).

The number of daily meals is related to monthly income and land tenure status. In higher-income households (\$100 - \$200+), the average was 2.3 ± 0.50 meals, $n = 62$, gradually rising to 2.0 ± 0.29 ; $n = 104$ between \$50 - 100, compared with 1.6 ± 0.49 meals; $n = 124$ in households with less than \$50. Life is becoming commercialized in rural areas. You have to buy your food. Thus, there is a 44.7% increase in the chance of having one more meal when income rises from \$50 - 150.

Income, food, and housing quality are negatively correlated with hard alcohol consumption. The more hard liquor is consumed, the less income, food, and a comfortable and durable main house there are. Thus, the more hard liquor consumed, the less agricultural space and the less access to education for children ($r = -0.27$).

Housing type accounted for 18.5% of the variance in factor 1, "Income, food and comfort." The variance in monthly income is strongly explained by the "In-

come, food and comfort” factor. It is a very significant element in this factor. Out-of-school children account for 29.2% of factor 2, “Land capital and education.” Household size accounts for 17.6% of factor 2, “land capital and expenses.” Land area accounts for 23%. The type of beverage alone contributes 2% to this group, not to mention various other aspects, such as quantity, meals, and frequency.

The results show three main components: 1) access to income, food, and housing comfort; 2) land capital; 3) alcohol consumption. These three components account for 50% of households’ experience with strong drinks, and this level of information is not negligible. Access to cash, food and comfort, housing, and land capital are both negatively correlated with hard-drink habits (respectively, $r = -0.58$ and $r = -0.27$). Drinking strong alcoholic beverages is a real handicap to socio-economic development. This is often asserted but rarely demonstrated in our rural and urban environments.

Access to money accounts for 19% of the decision to build an adobe, semi-sustainable, or sustainable house, and is directly linked to access to food and housing comfort. **Figure 8** completes the picture. Monthly income, number of meals, and type of housing: these variables are strongly correlated. This illustrates that a higher income is associated with a better diet (more meals) and a better type of housing.

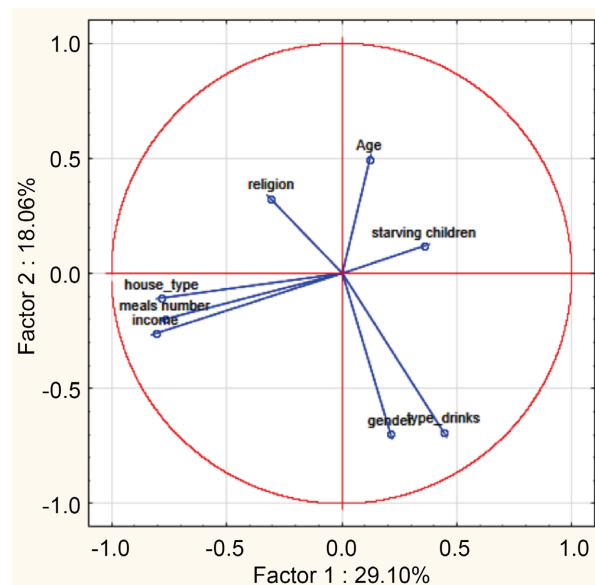


Figure 8. PCA of income and living conditions parameters.

The occurrence of malnourished children is negatively correlated with this group of factors. In fact, a higher income and a greater number of meals contrast with the occurrence of malnutrition in households. A strong correlation is observed between gender and type of drink. Several of our analyses have actually shown that women drink fewer alcoholic beverages than men. As a result, beverage types vary with gender.

4. Discussion

4.1. Education as a Factor Influencing Land Access

Some authors suggest that education level can indirectly influence land access. Farmers with higher education levels may be better equipped to navigate the complexities of land ownership, secure land titles, or engage in more effective advocacy for land rights. This is not a direct causal link, but rather a correlation where higher education might improve a farmer's ability to acquire and maintain land. This is implied, but not explicitly stated, in several papers. For example, the study on land tenure security in Kenya (Mbudzya et al., 2022) shows that household heads with land title deeds were more educated than those without. Higher education levels might lead small-scale farmers to pursue alternative livelihoods outside of agriculture, reducing their dependence on land ownership for income. Higher education levels can improve access to information, resources, and support systems that might help farmers secure land or improve their farming practices on existing land. This is implied in many studies that show a positive correlation between education and access to credit, technology, and extension services. For example, the study on the adoption of improved rice varieties in Zambia (Musbaba & Muyendekwa, 2022) likely implies that education would improve access to information about improved varieties.

4.2. Land Availability and Family Size Preferences

One study focuses on family size preferences among rural small-scale women farmers in Nigeria (Okafor et al., 2021). It finds that economic independence and the need for children as a source of labor are positively correlated with a desire for larger families. While not directly about landlessness, this suggests that if land is scarce and farming is the primary source of income, larger families might be seen as necessary for labor on the limited available land. Conversely, if land is plentiful, the need for a large family workforce might be reduced.

4.3. The Correlates of Acreage

Our results show that monthly income, number of meals, and type of house are positively correlated, meaning a synergy between income levels, food security, and housing conditions. Access to education and family are negatively correlated. Thus, as household size increases, the ability to send children to school decreases. Household size alone is correlated with land acreage and children's access to school education (62.4%). The proportion of out-of-school children is the very embodiment of poor access to education. Household size and land acreage are also partially and negatively related to alcohol consumption. The path diagram shows that landless farmers consume a lot of alcoholic beverages. This group's relationship with household size is further explained by the fact that younger heads of households with smaller households (1 - 3 people) consume more alcoholic beverages than medium-sized households (4 - 8 people). These younger households

have a higher proportion of alcohol consumers, and these younger households have a smaller land acreage. Land acreage has a positive influence on access to education.

There is a link between the “access to education and demographic load” component and the “land capital and family load as well as the intake of highly alcoholic beverages” component on the one hand, and between the “access to education and demographic load” component and the “well-being” component on the other. Monthly income influences housing quality, which is a priority for heads of household. Households in thatched huts, the poorest accommodation, benefited from less education. A study conducted by [Tshimanga Mbuyi in 2019](#) shows that the Congolese standard of living is very low when considering the HDI compared with neighboring countries: “Analysis of performance based on the rate of increase in the HDI between 1980 and 2016 places it in penultimate position (32.1%) ahead of the Central African Republic (21.5%). The best performance is achieved by Burundi (81.3%), followed by Uganda (81.1%) and then Rwanda (75.3%)”. Since landless peasants are disproportionately affected by poverty, it is reasonable to assume their children have lower access to education compared to children from more economically secure backgrounds ([Teshome & Nana, 2014](#)).

The number of daily meals is related to monthly income and land tenure status. Higher-income households (\$100 - \$200+) averaged 2.3 compared with 1.6 for those with less than \$50. Life is becoming merchandized in rural areas. People have to buy their food. Thus, there is a 44.7% increase in the chance of having one more meal when income rises from \$50 to 150. One study, focusing on South Kivu in the Democratic Republic of Congo, reveals that even among farming households, income from agriculture is very low ([Angélique et al., 2022](#)). Income, food, and housing quality are negatively correlated with heavy drinking. The more hard liquor consumed, the less income, food, and a comfortable, durable main house. Thus, the more hard liquor consumed, the less agricultural space and the less access to education for children.

Farm income increases in monetary terms as the size of farms increases; it is also clear that, for the same surface area, the owner-manager has a higher income than the non-owner-manager. Households with less than 0.5 ha account for 39%, and 32.5% have 0.5 - 0.7 ha, and only 17% have an acreage > 1 ha. This situation can be compared with the Grobogan District of Central Java Province, Indonesia, where [Andi Pitono et al. \(2024\)](#) found that farmers are mostly landless, planting food crops using subsistence systems. In 2018, about 83 percent of the farmers on the island had cropland less than 0.5 hectares, 13 percent had between half and one hectare, and only 6 percent had more than one hectare (BPS, 2019). [Angélique et al. \(2022\)](#) found that only 15% of farming households lived in permanent houses, and 3% in partially permanent houses; 21% lived in mud houses. With the inheritance system, where family land is fragmented into small pieces to male descendants, in the short term the proportion of landless peasants will swell. [Wilondja \(2021\)](#) points out that the area required by each family, taking into ac-

count fallow land and banana plantations, should be around 1.20 ha. Land inheritance practices often lead to land fragmentation as it is divided among family members. In situations where land is already scarce, this division can exacerbate landlessness, particularly for younger generations who may not receive a sufficient share to support themselves.

4.4. Landlessness, Economic Pressure, and Family Size

A study in Algeria found that an increase in household size increased the probability of a household being poor (Larbi Cherif et al., 2024). The additional dependents would increase the demand for food, shelter, and other necessities, potentially leading to a decline in the overall quality of life.

Landless farmers often face significant economic hardship. In such circumstances, larger families might increase the economic burden on the household, making it harder to escape poverty and potentially leading to further landlessness or hindering the ability to acquire land.

4.5. Links between Landlessness among Small-Scale Farmers and Gender

Unequal land ownership and inheritance practices disproportionately disadvantage women. Customary laws and cultural norms in many societies prioritize male inheritance, leaving women with limited or no land rights even after inheriting land from their parents (Alano, 2015; Hasunga et al., 2022; Motwani, 2024; Singh et al., 2023). This is further exacerbated by the fact that women often lack the legal knowledge or resources to challenge these practices (Singh et al., 2023). Studies in various countries, including India, Tanzania, and Zimbabwe, demonstrate this pattern (Alano, 2015; Hasunga et al., 2022; Motwani, 2024; Singh et al., 2023).

Even when women have some land rights, they often face significant barriers in accessing credit, agricultural inputs, and other resources necessary for successful farming (Ajadi et al., 2015; Mkuna & Wale, 2023; Singh et al., 2023). This can be due to discriminatory lending practices, limited access to information, or cultural norms that restrict women's economic autonomy (Ajadi et al., 2015; Mkuna & Wale, 2023; Singh et al., 2023). This unequal access to resources can lead to lower productivity and ultimately contribute to landlessness or inability to maintain land ownership.

Traditional gender roles often assign women a greater share of domestic responsibilities, leaving them with less time and energy to dedicate to farming activities (Motwani, 2024). This can limit their ability to effectively manage land and increase their vulnerability to landlessness, especially in situations of economic hardship or environmental stress (Motwani, 2024).

Studies consistently show that women often have limited decision-making power within their households, even regarding land use and agricultural practices (Hasunga et al., 2022; Motwani, 2024). This lack of control over resources and

decision-making processes further increases their vulnerability to landlessness.

In some contexts, large-scale land acquisitions for development projects disproportionately affect women, leading to displacement and landlessness (Ahmed & Eklund, 2024; Alano, 2015). Women may be less likely to have the legal representation or social networks to protect their land rights during such processes (Ahmed & Eklund, 2024; Alano, 2015).

4.6. Impact of Land Ownership on Income, Food Security, and Education

In the study area, the staple foods are corn, banana, cassava, and sweet potato, which they mainly accompany with vegetables, beans, and sometimes fish and meat. Households that achieve three meals have a monthly income \geq \$200, with highly variable land areas. Households with fewer than two meals have very low monthly incomes (\leq \$50) and narrow terroirs of less than 0.5 ha. The majority of the population has less than two meals a day, which vary in quality and quantity. School-age children not attending school in the area are present in 24% of households, ranging from 1 - 3 out-of-school children per household in large families (9->14). Landlessness is often closely linked to poverty, creating a cycle of deprivation where lack of land limits income-generating opportunities. The transition from landowning peasants to farm laborers or other low-wage jobs can push individuals and families into poverty traps (Dumasari et al., 2020). In Brazil (Lower Amazon), the households of landless peasants who have migrated to occupy uncultivated land comprise 3.9 persons (Ishimaru et al., 2014) vs 4.8 persons on average in Bangladesh, which is higher than the national average of 4.4 persons; 48% of these households did not have any cultivable land (Mondal et al., 2020). But in **India**, in Jaunpur district of Uttar Pradesh, the mean household size was 7.5 persons (Singh, 1987)

In Bangladesh, 9.04% of farmers were landless (with up to 0.04 acres), and a significant portion (22.29%) were marginal farmers (0.05 - 0.49 acres). The study also examines land tenancy practices, where landless and marginal farmers lease, sharecrop, or mortgage land from other farmers. The total acreage involved in tenancy is not explicitly stated; landless farmers owned 0.11 acres, marginal farmers 11.56 acres, small farmers 105.84 acres, and medium farmers 82.36 acres. The study highlights that a significant portion of land (26.37%) was tenanted in and tenanted out (19.44%) (Mondal et al., 2020).

The long-term consequences of landlessness often include persistent poverty and limited social mobility. Many landless peasants have incomes below the poverty line or less than the minimum wage. Low income translates into inadequate food security. Access to basic amenities like electricity and clean water can also be limited. The inability to save money or accumulate assets indicates a precarious economic situation. (Ishimaru et al., 2014). Many landless peasants face expenses exceeding their income, forcing them to rely on borrowing, selling assets, or reducing consumption (including starvation). Many landless peasants struggle to

find suitable employment due to a lack of skills, age, or low education levels. Even when employed, they often work in low-paying, temporary, or informal jobs. (Yang, 2021).

The most straightforward link is that landless farmers generally have significantly lower incomes than those who own land. This is implied across numerous studies. For example, the study on the impact of government agricultural development support in South Africa (Mokgomo et al., 2022) highlights that access to land is crucial for improving agricultural income and food security. Similarly, studies examining the determinants of farm income (Sibiya et al., 2024), the impact of credit accessibility and ICT on income (Zulu et al., 2024), and the influence of socioeconomic factors on household food security (Antara et al., 2023) all implicitly or explicitly demonstrate that land ownership is a major factor influencing income levels. The study on maize yields in Tanzania (Utonga, 2022) directly shows that farm size (a proxy for land ownership) is a significant determinant of maize yields, which directly impacts income.

Survey results show that the majority of households live from agriculture and rarely on wages. The poorest are day laborers, while the sale of alcoholic beverages, sugar or water, handicrafts, and livestock represent secondary sources of income. The average family size is 8. Most monthly incomes are within the range of 50 - 100\$ US (80%). In our study area, Angélique et al. (2022) found that while agriculture was the primary source of income for households, many also had other occupations such as workers, ranchers, or drivers to supplement their income. In Lesotho, a study found that many people derive a significant portion of their income from non-farm activities. These activities include a wide range of occupations such as tailoring, weaving, carpet making, blacksmithing, carpentry, and many others. These non-farm incomes often supplement agricultural income, but in some cases, they are the primary source of livelihood. Remittances from migrant laborers working in South Africa play a significant role in supporting rural households in Lesotho (Rantšo, 2016). In Bangladesh, landless peasants facing riverine flood disasters employ a range of coping strategies, categorized as ex-post strategies (post-disaster recovery). These include borrowing money (from formal and informal sources), selling assets (livestock, household items, savings), reducing consumption (including starvation), temporary migration, and seeking grants from external sources. The choice of strategy depends on the severity of the flood's impact and the availability of social networks (Mondal et al., 2020). The income sources for landless peasants in Sub-Saharan Africa are primarily limited to low agricultural wages. Landless peasants often work as hired agricultural laborers, receiving low wages for their labor. This is a primary, but often insufficient, source of income. Seasonal job shortages further exacerbate their economic vulnerability (Obioha, 2012). The wages are often insufficient to meet basic needs, let alone provide a food surplus (Angélique et al., 2022). Examples of non-farming activities could include brick making, beer brewing, construction, or other forms of casual labor (Rantšo, 2016). In some cases, landless peasants may receive remittances

from family members working in urban areas or abroad. However, this is not a guaranteed or consistent source of income (Rantšo, 2016). The reliance on remittances can also create a form of dependency (De Haas, 2005).

Beyond agricultural labor, women in landless peasant households also contribute to household management, childcare, and other domestic tasks (Obioha, 2012). Landless farmers often rely on alternative income sources, which may be less lucrative and more precarious than farming. The study on income diversity and food security in Indonesia (Antara et al., 2023) touches upon this, showing that income diversification strategies are often necessary for food security, implying that primary reliance on agriculture (which is impossible without land) leads to higher income. The study on the impact of credit accessibility and ICT on income (Zulu et al., 2024) shows that non-farm income can have a negative impact on farm income, suggesting that landless farmers may be forced into less profitable non-farm activities.

Land ownership often facilitates access to credit, inputs (seeds, fertilizers), and other resources crucial for agricultural productivity and income generation. The study on the adoption of improved rice varieties in Zambia (Musaba & Muyendekwa, 2022) implies that access to resources is crucial for improving productivity and income. The study on the impact of government agricultural development support in South Africa (Mokgomo et al., 2022) also shows that government support programs are more effective in improving income for farmers who have access to land and resources. The study on microfinance and small-scale farmer income (Bhandari, 2024) demonstrates that access to credit (often linked to land ownership) significantly improves income.

Landless farmers are often more vulnerable to economic shocks and environmental changes, leading to further income reduction. The study on climate migration willingness (Kalantari et al., 2024) shows that farmers are more likely to migrate if their land becomes unproductive, leading to landlessness and income loss. The study on the impact of agricultural technology adoption (Habanyama & Chibomba, 2025) highlights that access to technology and resources is crucial for improving productivity and income, and landless farmers often lack access to these resources.

Promoting non-agricultural employment opportunities is vital to reduce dependence on low agricultural wages. This could involve supporting the development of small-scale businesses, providing vocational training, and improving access to credit and markets. Providing access to microfinance and other financial services can empower landless peasants to start small businesses or invest in income-generating activities. Improving rural infrastructure, including roads, transportation, electricity, and water supply, is essential for enhancing access to markets, services, and opportunities.

5. Conclusion

The socio-economic analysis of households in Ngweshe and Kabare chiefdoms

reveals a multidimensional poverty landscape marked by landlessness, low income, food insecurity, substandard housing, and limited access to education and healthcare. The majority of households subsist on agriculture with minimal diversification, and over 79% report monthly incomes below \$100. These economic constraints are compounded by small landholdings—often less than 0.5 ha—resulting from generational fragmentation and customary inheritance systems. Housing quality is closely tied to income levels, with semi-durable structures predominating among middle-income households, while poorer families reside in rudimentary dwellings.

Food insecurity is pervasive, with most households consuming only 1 - 2 meals daily, and malnutrition affecting children in both low- and middle-income groups. Access to education is inversely proportional to household size, with larger families exhibiting higher rates of out-of-school children. The prevalence of alcohol consumption, particularly among younger and landless households, emerges as a significant negative correlate of income, food security, and educational access.

Land tenure insecurity, driven by the coexistence of customary and statutory systems, further exacerbates socio-economic vulnerability. The lack of formal land titles and the predominance of informal arrangements, such as donation with tribute or rental, contribute to tenure ambiguity and conflict potential. These findings underscore the urgent need for integrated policy interventions that address structural inequalities and promote sustainable livelihoods.

Land Tenure Security should be strengthened by formalizing customary land rights and promoting equitable inheritance reforms to mitigate land fragmentation and ensure sustainable land use across generations. Land hoarding must be discouraged. Decentralized land governance bodies should be established, including local land tribunals, to mediate disputes and harmonize customary and formal land systems. Livelihoods and Income Diversification need to be enhanced. Given the heavy reliance on subsistence agriculture and low income levels, there should be more support for agricultural intensification through access to improved inputs, extension services, and climate-resilient practices. Non-farm income opportunities need to be facilitated, such as vocational training in handicrafts, small-scale trade, and agro-processing. Access to microfinance and cooperative models should be facilitated to empower smallholder farmers and informal entrepreneurs.

Improving Food Security and Nutritional Outcomes is imperative to combat malnutrition and food insecurity. This would involve the implementation of community-based nutrition programs, focusing on maternal and child health, dietary diversity, and food preparation education; and the introduction of school feeding schemes to enhance child nutrition and incentivize school attendance. Rural food markets and distribution systems should be developed to stabilize food prices and improve access to staples. Educational Access needs to be expanded, and Demographic Pressure reduced. In light of the correlation between household size and out-of-school children, investment in educational infrastructure is required. Fortunately, the schooling tuition fees have been removed by the government, though

uniforms and materials remain. The integration of reproductive health and family planning services into community outreach is useful to manage household size and improve child welfare. Conditional cash transfers should be introduced to support school enrollment among low-income families.

Housing and rural infrastructure need to be upgraded. Incremental housing improvements through subsidized materials and technical assistance for semi-durable and permanent structures should be supported. Investment in rural infrastructure should be boosted, including roads, water supply, and electrification, to stimulate local economies and enhance service delivery. Community-led housing cooperatives should be promoted to pool resources and improve shelter quality. To address the interlinked nature of poverty, land tenure, education, and health, a holistic development strategy that coordinates interventions across agriculture, education, health, and land governance should be adopted. Local stakeholders should be engaged, including traditional leaders, civil society, and youth groups, in policy design and implementation to ensure contextual relevance and sustainability.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- Abegunde, V. O., Sibanda, M., & Obi, A. (2019). The Dynamics of Climate Change Adaptation in Sub-Saharan Africa: A Review of Climate-Smart Agriculture among Small-Scale Farmers. *Climate*, 7, Article 132. <https://doi.org/10.3390/cli7110132>
- Achiso, Z. (2020). Biodiversity and Human Livelihoods in Protected Areas: Worldwide Perspective—A Review. *SSR Institute of International Journal of Life Sciences*, 6, 2565-2578. <https://doi.org/10.21276/ssr-ijls.2020.6.3.6>
- Adofu, I., Okwanya, I., Adofu, S. O., & Eraye, C. (2024). Land Tenure Insecurity and Agricultural Recovery: Evidence from Displaced Farmers in North-Central Nigeria. *Futurity Economics & Law*, 4, 118-138. <https://doi.org/10.57125/fel.2024.09.25.08>
- Ahmed, S., & Eklund, E. M. (2024). Who Owns the Land? Socio-Cultural and Economic Drivers of Unequal Agrarian Land Ownership in Climate-Vulnerable Coastal Bangladesh. *Third World Quarterly*, 45, 1219-1237. <https://doi.org/10.1080/01436597.2024.2316268>
- Ajadi, A. A., Oladele, O. I., Ikegami, K., & Tsuruta, T. (2015). Rural Women's Farmers Access to Productive Resources: The Moderating Effect of Culture among Nupe and Yoruba in Nigeria. *Agriculture & Food Security*, 4, Article No. 26. <https://doi.org/10.1186/s40066-015-0048-y>
- Akilimali, J. B. (2022). *Ouvriers agricoles, esclaves modernes ou paysans sans terre? Plantations au Sud-Kivu entre limites du régime domanial et perspective vers un «commun» libéré de la capture néopatrimonialiste.*
- Alano, M. L. (2015). *Gendered Dynamics of Land Property Relations within a Large-Scale Sugarcane Investment in Isabela, Philippines.* Chiang Mai University.
- Angélique, N. C., Stany, V., Lebailly, P., & Azadi, H. (2022). Agricultural Development in the Fight against Poverty: The Case of South Kivu, DR Congo. *Land*, 11, Article 472.

- <https://doi.org/10.3390/land11040472>
- Antara, M., Lamusa, A., Effendy,, Laksmayani, M. K., Tangkesalu, D., Jems, et al. (2023). Income Diversity and Other Socioeconomic Factors That Influence the Household Food Security of Small-Scale Lowland Rice Farmers in Indonesia. *International Journal of Sustainable Development and Planning*, 18, 971-976.
<https://doi.org/10.18280/ijstdp.180333>
- Bhagia, M., & Bose, M. (2023). Who Owns the City? Neoliberal Urbanism and Land Purchases in Gurgaon, India. *Urban Studies*, 61, 445-461.
<https://doi.org/10.1177/00420980231184784>
- Bhandari, B. P. (2024). Assessing the Impact of Microfinance on the Income Level of Small-Scale Farmers. *Janapriya Journal of Interdisciplinary Studies*, 13, 152-164.
<https://doi.org/10.3126/jjis.v13i1.75576>
- Boles, D. E., & Rupnow, G. L. (1979). Local Governmental Functions Affected by the Growth of Corporate Agricultural Land Ownership: A Bibliographic Review. *Western Political Quarterly*, 32, 467-478. <https://doi.org/10.1177/106591297903200409>
- Boutry, M., Allaverdian, C., Mellac, M., Huard, S. et al. (2017). *Land Tenure in Rural Lowland Myanmar: From Historical Perspectives to Contemporary Realities in the Dry Zone and the Delta*. *Of Lives of Land Myanmar Research Series*. GRET.
- Busane, W. (2004), *La gestion des aires protégées au Sud-Kivu: Pratiques et conflictualité. Recherche sur l'impact de la domanialité publique sur les activités socio-économiques des terroirs villageois au Sud-Kivu, UCB/LEAD, RDC*.
- Chikowore, A., & Chawarika, A. (2024). Impact of Land Reform Policy on Tobacco Export Performance: Case of Zimbabwe. *Cogent Economics & Finance*, 12, Article 2399960.
<https://doi.org/10.1080/23322039.2024.2399960>
- Chipenda, C. (2023). Revisiting Enduring Labour Questions and Social Reproduction Dynamics in Rural Zimbabwe's Post Land Reform Context: Implications on Citizen Welfare and Wellbeing. *International Journal of Community Well-Being*, 7, 87-119.
<https://doi.org/10.1007/s42413-023-00202-z>
- Chu, L. (2024). *Plants, People, Planet*, 6, 1104-1110. <https://doi.org/10.1002/ppp3.10511>
- Claessens, K., Emery, M., Ansoms, A. et al. (2014). Competition over Soil & Subsoil: Land Grabbing by Local Elites in South Kivu (DRC). In *Losing Your Land: Dispossession in the Great Lakes* (pp. 82-102). James Currey.
- Darius, A. M. D. P., & Hastuti, D. R. D. (2024). Analisis Kontribusi Sektor Pertanian Terhadap Perekonomian Serta Permasalahan Dalam Pengembangannya Di Kabupaten Gowa. *Jurnal Aplikasi Manajemen, Ekonomi Dan Bisnis*, 9, 88-98.
- de Haas, H. (2005). International Migration, Remittances and Development: Myths and Facts. *Third World Quarterly*, 26, 1269-1284.
<https://doi.org/10.1080/01436590500336757>
- Diepart, J. C., & Castellanet, C. (2015). The Neoliberal Agricultural Modernization Model: A Fundamental Cause for Large-Scale Land Acquisition and Counter Land Reform Policies in the Mekong Region. In *Conference: Land Grabbing, Conflict and Agrarian Environmental Transformations: Perspectives from East and Southeast Asia*.
- Dijk, M. P. (2022). Crop Insurance, a Frugal Innovation in Tanzania, Helps Small Maize Farmers and Contributes to an Emerging Land Market. *Land*, 11, Article 954.
- Dumasari, D., Darmawan, W., Bogor, S., & Santosa, I. (2020). The Process of the Transition from Landowning Peasants to Agricultural Laborers and Its Impact on Poverty Dynamics. *Journal of Asian Finance, Economics and Business*, 7, 901-911.
<https://doi.org/10.13106/jafeb.2020.vol7.no10.901>

- Habanyama, M., & Chibomba, K. (2025). Examining the Effects of Agricultural Technology Adoption for Agricultural Productivity and Household Income on Small Scale Farmers: A Study of Mkushi District. *Journal of Arts, Humanities and Social Science*, 2, 74-85. <https://doi.org/10.69739/jahss.v2i1.304>
- Han, J., Wang, J., & Chen, L. (2017). Urbanization, Land Appropriation, and Social Conflict in China. *China Agricultural Economic Review*, 9, 178-194.
- Hasunga, F., Mohamed, F., & Awinia, C. (2022). The Extent of Women's Access to Customary Land Titles in Mbozi District, in Songwe Region, Tanzania. *Business Excellence and Management*, 12, 94-110. <https://doi.org/10.24818/beman/2022.12.4-07>
- Ishimaru, Y., Kudo, M., & Takeda, M. (2014). The Effects of Agricultural Land Improvement Drainage on Phosphorus Loading in a Downstream Basin. *Paddy and Water Environment*, 12, 223-229.
- Kalambay, L. G. (1970). L'expropriation pour cause d'utilité publique en République Démocratique du Congo. *Revue Juridique et Politique: Indépendance et Coopération*, 24, 4.
- Kalantari, R., Pakravan-Charvadeh, M. R., & Rahimian, M. (2024). Multi-Level Factors Influencing Climate Migration Willingness among Small-Scale Farmers. *Frontiers in Environmental Science*, 12, Article 1434708. <https://doi.org/10.3389/fenvs.2024.1434708>
- Kambali, U., & Panakaje, N. (2022). A Review on Access to Agriculture Finance by Farmers and Its Impact on Their Income. *International Journal of Case Studies in Business, IT, and Education*, 6, 302-327. <https://doi.org/10.47992/ijcsbe.2581.6942.0166>
- Kimhi, A. (2023). Land Reform and Its Effect on Farm Household Income Inequality: Evidence from Georgia. *Economies*, 11, Article 258. <https://doi.org/10.3390/economies11100258>
- Kurosaki, T., Paul, S., & Witoelar, F. (2021). Land Tenure and Agricultural Investments: Evidence from a Titling Program in Rural Uganda. *World Development*, 147, Article 105650.
- Lei, H., Koch, J., Shi, H., & Snapp, S. (2022). How Can Macro-Scale Land-Use Policies Be Integrated with Local-Scale Urban Growth? Exploring Trade-Offs for Sustainable Urbanization in Xi'an, China. *Land*, 11, Article 1678. <https://doi.org/10.3390/land11101678>
- Mbudzya, J. J., Gido, E. O., & Owuor, G. (2022). Effect of Land Tenure Security on Agricultural Productivity among Small Scale Farmers in Kenya: A Conditional Mixed Processes Analysis. *Cogent Food & Agriculture*, 8, Article 2139805. <https://doi.org/10.1080/23311932.2022.2139805>
- Mgaya, E. S. (2018). At the Mid of Polarity: Rethinking Medium Farms as Solution to Vulnerability for Small-Scale Farmers in Sub-Saharan Africa. *Alanya Akademik Bakis*, 2, 1-8. <https://doi.org/10.29023/alanyaakademik.327771>
- Mkuna, E., & Wale, E. (2023). Gender Differentials among Small Scale Irrigation Farmers' Income: Empirical Evidence from Cabbage Farmers in Kwazulu-Natal, South Africa. *Frontiers in Sustainable Food Systems*, 7, Article 1155756. <https://doi.org/10.3389/fsufs.2023.1155756>
- Mokgomo, M. N., Chagwiza, C., & Tshilowa, P. F. (2022). The Impact of Government Agricultural Development Support on Agricultural Income, Production and Food Security of Beneficiary Small-Scale Farmers in South Africa. *Agriculture*, 12, Article 1760. <https://doi.org/10.3390/agriculture12111760>
- Mokoena, O. P., Ntuli, T. S., Ramarumo, T., & Seeletse, S. M. (2023). Sustainability of Rural Small-Scale Farmers Using a Thematic Content-Fed Analytic Hierarchy Process. *Sus-*

- tainability*, 15, Article 11983. <https://doi.org/10.3390/su151511983>
- Mondal, M. A., Hossain, E., & Jabbar, M. A. (2020). Land Tenure System and Its Effect on Productivity, Profitability and Efficiency of Boro Rice Production in Northern Part of Bangladesh. *Turkish Journal of Agriculture—Food Science and Technology*, 8, 2433-2440.
- Motwani, A. (2024). Women Peasants in India: Farmers or ‘Farmers’ Wives’? *Journal of Gender, Culture and Society*, 4, 8-19. <https://doi.org/10.32996/jgcs.2024.4.1.2>
- Msipha, A. M., Lombard, A., Aucamp, I., & Baade, J. (2025). Land Degradation’s Influence on Livelihoods of Small-Scale Farmers and Land Care Workers in Ladybrand, South Africa. *Land Degradation & Development*, 36, 1952-1961. <https://doi.org/10.1002/ldr.5474>
- Mudinga, E. M. (2021). *L'accapement des terres dans la province du Sud-Kivu: Expériences paysannes*. Angaza Institute, Bukavu.
- Munyoka, W., Mashau, N. L., & Kanyane, M. (2025). A Framework for Fourth Industrial Revolution Adoption by Small-Scale Rural Farmers in Sub-Saharan Africa: A Systematic Literature Review. *The Thinker*, 101, 89-99. <https://doi.org/10.36615/dg5zbd55>
- Musaba, E., & Muyendekwa, B. (2022). Factors Affecting Adoption of Improved Rice Varieties among Small Scale Farmers in Mongu District, Western Province, Zambia. *IOSR Journal of Agriculture and Veterinary Science*, 15, 61-68.
- Nunez, M. (1976). *Rural Development Planning and Labour Absorption: O'Higgins and Colchagua Provinces, Central Chile*. Master's Thesis, McMaster University.
- Obioha, E. E. (2012). Economic Survival Strategies of Female-Headed Households in Rural Communities of Orlu, Imo State, Nigeria. *Journal of Human Ecology*, 38, 231-240.
- Okafor, S., Onu, J. C., & Nwaeze, V. C. (2021). Rural Small-Scale Women Farmers and Preference for Family Size in South-East Nigeria. *Comparative Population Studies*, 46, 35-68. <https://doi.org/10.12765/cpos-2021-02>
- Ollieuz, A. (2011). The Political History of Indagru Vdc. *New Angle: Nepal Journal of Social Science and Public Policy*, 1, 32-48. <https://doi.org/10.53037/na.v1i1.40>
- Pitono, A., Sutiyo, & Baidhowah, A. R. (2024). Customary Land Tenure and Landless Farmers in Java, Indonesia: The Challenges and Prospects for Sustainable Development. *Revista de Gestão Social e Ambiental*, 18, e8063. <https://doi.org/10.24857/rgsa.v18n7-163>
- Radhika, R. Ch. (2013). *Empowerment of the Landless: An Analysis of Land Distribution and Land Purchase Programmes of Andhra Pradesh*. Research Reports Series-99, National Institute of Rural Development (Ministry of Rural Development, Government of India), Hyderabad.
- Rakhmanto, B. (2025). PKI and BTT's Strategy for Gaining Farmers' Sympathy through Land Reform (1960-1963). *Journal of Indonesian History*, 12, 80-92. <https://doi.org/10.15294/jih.v12i2.18992>
- Rantšo, T. A. (2016). The Role of the Non-Farm Sector in Rural Development in Lesotho. *The Journal of Modern African Studies*, 54, 317-338. <https://doi.org/10.1017/s0022278x16000197>
- Reyniers, C. (2014). L'approche interactionniste pour l'analyse d'un projet d'agroforesterie villageoise sur le plateau des Batéké (République démocratique du Congo). *VertigO*, 14.
- Sibiya, C. B., Maesela, L. M., Ramashala, M. A., & Senyolo, G. M. (2024). Determinants of Farm Income during Lockdown Restrictions Amongst Small-Scale Farmers in the Gauteng Province, South Africa. *South African Journal of Agricultural Extension*, 52, 136-

150. <https://doi.org/10.17159/2413-3221/2024/v52n5a16705>
- Singh, R. P. B. (1987). The Morphological Structure of a Traditional City: A Case Study of Jaunpur, India. *GeoJournal*, 15, 191-197.
- Singh, V., Patel, S., & Singh, R. (2023). Analyzing Gender Disparities in Land Ownership and Wage Rates in Indian Agriculture: An Empirical Study. *Asian Journal of Agricultural Extension, Economics & Sociology*, 41, 652-660. <https://doi.org/10.9734/ajaees/2023/v41i92087>
- Sinha, R. K. (2012). Participatory Watershed Management: A Strategy for Climate Resilience in India. *Journal of Environmental Protection*, 3, 1316-1324.
- Smidt, H. J., & Jokonya, O. (2021). Factors Affecting Digital Technology Adoption by Small-Scale Farmers in Agriculture Value Chains (AVCs) in South Africa. *Information Technology for Development*, 28, 558-584. <https://doi.org/10.1080/02681102.2021.1975256>
- Sun, Y., Li, J., Ren, Z., & Yang, F. (2023). Ecosystem Service Trade-Offs and Spatial Pattern Optimisation under Different Land Use Scenarios: A Case Study in Guanzhong Region, China. *Land*, 12, Article 236. <https://doi.org/10.3390/land12010236>
- Teshome, A., & Nana, Q. (2014). Causes of Poverty in Sub-Saharan Africa: A Layered Theory Approach to Understanding Significant Factors. *Journal of Economics and International Finance*, 6, 112-124. <https://doi.org/10.5897/jeif2013.0564>
- Utonga, D. (2022). Determinants of Maize Yields among Small-Scale Farmers in Mbinga District, Tanzania. *Asian Journal of Economics, Business and Accounting*, 22, 49-58. <https://doi.org/10.9734/ajeba/2022/v22i730578>
- Verschoor, A. J., Gandidzanwa, C., Newby, T., Collett, A., & Venter, S. (2023). Proposing a Farm Assessment Toolkit: Evaluating a South African Land Reform Case Study. *Agrekon*, 62, 215-227. <https://doi.org/10.1080/03031853.2023.2279159>
- Wang, L., Hu, Q., Liu, L., & Yuan, C. (2022). Land Use Multifunctions in Metropolis Fringe: Spatiotemporal Identification and Trade-Off Analysis. *Land*, 12, Article 87. <https://doi.org/10.3390/land12010087>
- Wilondja, I. B. (2021). *Efficacité et pertinence des innovations promues par les acteurs non étatiques dans la sécurisation foncière au Sud-Kivu, à l'est de la RDC*. Master's Thesis, Université Senghor.
- Wilson, S. (2021). The Sequencing of Property Rights and Planning Powers: Implications for Urban Redevelopment in China and the U.S. *Urban Planning International*, 183, 83-90.
- Xia, S., Han, J., Li, A., Ye, P., & Zhang, H. (2024). Impact of Free Trade (Pilot) Zone Establishment on Urban Land Use Efficiency—Empirical Evidence from Cities in China. *Land*, 13, Article 969. <https://doi.org/10.3390/land13070969>
- Xiong, M., Li, F., Liu, X., Liu, J., Luo, X., Xing, L. et al. (2023). Characterization of Ecosystem Services and Their Trade-Off and Synergistic Relationships under Different Land-Use Scenarios on the Loess Plateau. *Land*, 12, Article 2087. <https://doi.org/10.3390/land12122087>
- Xu, D., Yong, Z., Deng, X., Zhuang, L., & Qing, C. (2021). Rural-Urban Migration and Its Effect on Land Transfer in Rural China. *Land*, 9, Article 81. <https://doi.org/10.3390/land9030081>
- Yang, Y., de Sherbinin, A., & Liu, Y. (2021). China's Poverty Alleviation Resettlement: Progress, Problems and Solutions. *Habitat International*, 118, Article 102454. <https://doi.org/10.1016/j.habitatint.2021.102454>
- Zhou, S. (2023). How Different Degrees of Land Reform Affect Economic Development:

Comparative Analysis Based on China and India after 1950s. *Highlights in Business, Economics and Management*, 21, 881-885. <https://doi.org/10.54097/hbem.v21i.14792>

Zulu, N. S., Hlatshwayo, S. I., Ojo, T. O., Slotow, R., Cele, T., & Ngidi, M. S. C. (2024). The Impact of Credit Accessibility and Information Communication Technology on the Income of Small-Scale Sugarcane Farmers in Ndwedwe Local Municipality, Kwazulu-Natal Province, South Africa. *Frontiers in Sustainable Food Systems*, 8, Article 1392647. <https://doi.org/10.3389/fsufs.2024.1392647>