

Local Poultry Value Chian Analysis in Somaliland

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Abstract

Poultry production has important economic, social and cultural benefits and plays a significant role in family nutrition in developing countries. In most tropical countries it is based mainly on scavenging production systems, which makes substantial contributions to household food security throughout the developing world. All over the developing world, these low-input and low-output poultry-husbandry systems are an integral component of the livelihoods of most rural, peri-urban, and some urban households and are likely to continue to meet this role for the foreseeable future. Although the contributions of chicken farming to household food security and income as well as its potential contribution to the income of rural communities are known, chicken production is practiced very little in Somaliland. Therefore, the purpose of this project was to carry out a baseline study on the potential of chicken production (eggs and meats) in Somaliland and its existing chain gaps in order to identify whether chicken production could be a successful income source for women and boost female economic activity in the project areas of Saaxil, MaroodiJeex and Togdheer. The result from this assessment showed that rural chicken production was a women-related activity that helped them to be the sole decision-makers and also users of the benefits regarding chicken and chicken products. The main purposes for keeping chicken were egg production for income generating, home consumption and meat provision. The major constraints for rural poultry keeping were the lack of extension and veterinary services, predators, poor housing, poor breeds, and lack of financial services among others. Women in all the selected villages made remarkable contributions to the local chicken production system. The result of the assessments showed that indigenous poultry value chain consisted of producers, collectors/retailers, shops and consumers/restaurants. However, the absence of

processors along the chain means that chickens are sold live and consequently cannot be retailed through formal channels like supermarkets leading to the exclusion of potential customers in the middle and high income categories who normally shop from supermarkets. Furthermore, as population and incomes grow, demand for indigenous chicken is likely to continue growing, especially among the high income groups who not only prefer it for its taste but also for health reasons due to its low fat content. Finally, although the value chain for indigenous chickens shows potential growth for all the players along the chain, there is a need to address the various constraints affecting the value chain for indigenous chickens in order to improve the operation of the chain hence leading to increased incomes for the value chain actors and at the same time ensuring cheap delivery of indigenous chicken in a more convenient form and in formal outlets.

Keywords

Analysis, Local, Poultry, Somaliland, Value Chain

1. Introduction

Livestock is the backbone of Somaliland's economy and provides livelihoods to a considerable proportion of the local population. Livestock production contributes 60% of the country's Gross Domestic Product (GDP) and about 85% of export earnings [1]. Somaliland's main exports are sheep, goats, camel and cattle to Saudi Arabia, Yemen, Oman and the United Arab Emirates (UAE), through the port of Berbera.

Poultry production has important economic, social and cultural benefits and plays a significant role in family nutrition in developing countries. The proportional contribution of poultry to the total animal protein production of the world by the year 2020 is believed to increase to 40%, the major increase being in the developing world [2]. It has been estimated that 80% of the poultry population in Africa is found in traditional scavenging systems [3]. In most tropical countries it is based mainly on scavenging production systems, which makes substantial contributions to household food security throughout the developing world [4]. Indigenous breeds still contribute meaningfully to poultry meat and egg production and consumption in developing countries, where they make up to 90% of the total poultry population. All over the developing world, these low-input and low-output poultry-husbandry systems are an integral component of the livelihoods of most rural, peri-urban, and some urban households and are likely to continue to meet this role for the foreseeable future.

The poultry sector can be characterized into three major production systems based on some selected parameters such as breed, flock size, housing, feed, health, technology, and bio-security. These are large commercial, small-scale commercial and village or backyard poultry production systems. These production systems

have their own specific chicken breeds, inputs and production properties. Each can sustainably coexist and contribute to solving the socio-economic problems of different target societies [5].

The third Somaliland programmatic National Development Plan (NDP III) recognizes the contribution of camels, cattle, sheep, goats, poultry and fisheries to livelihoods, food security, employment and the economy of the country.

Chicken meat and eggs are a relatively cheap and affordable source of protein for most consumers compared to other animal products such as meat from cattle, camel, goat and sheep. Moreover, rural households often cannot afford to slaughter a sheep or goat as the prices are usually more than 60 USD per head, whereas chicken costs less than 10 USD per head. Chickens are the only affordable species to be slaughtered by resource-poor farmers for home consumption, as the prices of other species are high, and have increased substantially in recent years.

Consumption of chicken products such as meat and eggs became more common in urban than in rural areas.

Most chickens in “Somaliland” are managed by women in smallholder farms but during the last years a couple of medium commercial farms were established around the large cities to provide the cities meat and eggs for affordable prices.

Chicken are important sources of eggs and meat in the villages and chicken products are among the few agricultural products directly accessible to women in rural areas and hence increased food production from chickens will improve household food security.

Although the contributions of chicken farming to household food security and income as well as its potential contribution to the income of rural communities is known, chicken production is practiced very little in Somaliland.

Objective of the Project

The purpose of the project is to carry out a baseline study on the potential of chicken production (eggs and meats) in Somaliland and its existing chain gaps in order to identify whether chicken production could be a successful income source for women and boost female economic activity in the project areas of Saaxil, Maroodijeex and Togdheer. The consultant will make recommendations for targeted support aimed at creating jobs and income sources for women and young people (under 29 years) in the above mentioned rural areas.

2. Methodology

2.1. Study Area

The geographical features of the study area represented three different agro-ecological zones namely Maroodijeex (agropastoral), Saaxil (Coastal) and Togdheer (Pastoralists).

Marodijeh is an administrative region in western Somaliland with the capital city of Hargeisa. It is the most populous region of the country. It is located at an elevation of 962 meters above sea level. Its coordinates are 9° 49'60"N and 44° 19'0"E.

Sahil is an administrative region in northern Somaliland with the port city of Berbera.

Located at an elevation of 1122 meters (3681.1 feet) above sea level, Togdheer has a Subtropical desert climate. The city's yearly temperature is 26.2°C (79.16°F) and it is –1.71% lower than Somalia's averages. Togdheer typically receives about 31.86 millimeters (1.25 inches) of precipitation and has 54.37 rainy days (14.9% of the time) annually.

Generally, the rains in Somaliland are quite irregular from year to year, in addition, they usually occur in the form of short showers and thunderstorms.

2.2. Study Design

A cross-sectional, descriptive study was conducted in the project area from 16th of April to 19th May, 2022. Data collection was both qualitative and quantitative. Quantitative data was collected through a household survey, while qualitative data were collected through key informant interviews, focus group discussions and observations.

2.3. Study Population

The study population comprised of 15 villages in Maroodijeex, Saahil and Togdheer regions of Somaliland and 2 commercial farms (one in Marodijeh and one in Togdheer). The study respondents comprised of poultry producers and stakeholders in the poultry value chain—buyers, restaurants and relevant government officers.

2.4. Data Collection

Both qualitative and quantitative data were collected from primary and secondary sources. Three types of tools were used to collect and triangulate data namely; household semi-structured questionnaire, Key Informant Interviews and Focus Group Discussions.

2.5. Household Interviews

A structured pre-tested questionnaire was used to gather information from poultry production village producers using the Kobo toolbox. Households were selected according to their traditional ability to breed their own native chickens and their desire to participate in data collection. The sampled data included information about specific aspects of indigenous chicken, household profile, production systems, flock size, purposes of chicken keeping, management practices, major constraints facing indigenous chicken keeping, and decision-making for selling and consuming chicken products. In total 157 producers were interviewed. Due to the limited time and resources available for this research, it was concluded that a minimum of 10 and a maximum of 15 households to be interviewed from each village.

The below **Table 1** indicates the villages selected.

Table 1. Village names and number of interview.

No	Villages	Number of interviews	Percent
1	Abarso	14	8.9
2	Ali Hussein	10	6.4
3	Beer	10	6.4
4	Dararwayne	13	8.3
5	Darasalaam	16	10.2
6	Dhibiijo	2	1.3
7	Dubur	4	2.5
8	Elbahay	15	9.5
9	Jalelo	14	8.9
10	Koosaar	10	6.4
11	Qoyta	10	6.4
12	Sheikh	11	7.0
13	Suuqsade	10	6.4
14	Waabaha	9	5.7
15	Yarooowe	9	5.7
	Total	157	100

2.6. Key Informant Interviews (KIIs)

Key informants included village headmen, regional veterinary authorities, and traders. They were interviewed for relevant information in regard to the poultry value chain in their respective areas. In each village selected a total of 5 key informants were selected to be interviewed.

2.7. Focus Group Discussions (FGDs)

Group discussions were held with poultry value chain actors mainly women, to enable the collection of information regarding production aspects, gender issues, and group or association management. FGDs were guided by the use of semi-structured checklists. FGDs were held for a group of 10 individuals from each village, therefore, a total of 150 individuals were interviewed.

2.8. Data Analysis

The team used the most modern tools to collect data. Such tools included the use of Tablet technology to gather data from the field and submit it to a Central Server on a real-time basis using the Kobo toolbox platform independently. Quantitative and qualitative data collected from documents and key informants was also analyzed to assess indigenous chicken production. A descriptive-analytical narrative was used to present the findings from the study in order to have a compre-

hensive picture of the key issues concerning the value chain for indigenous chickens, particularly, in the Maroojeex, Saaxil and Toghdere regions.

3. Results and Discussion

3.1. Demographic Characteristics

157 producers were interviewed. The demographic details of the respondents are shown in the table below (2).

As **Table 2** depicts, the marital status of respondents was considered during data collection and it was found that 89.8% of the respondents were married while 5.7% were single and this shows that poultry farmers are almost all married.

According to the findings, 41% of the respondents were between the ages of 31 - 40 years, 30% were aged between 41 - 50 years, 19% were aged between 20 - 30 years, and 8% were older than 50 years, while the remaining 2% were younger than 20 years. These results indicate that most respondents in the study were aged between 31 - 40 years.

The study sought to establish the gender of the respondents who took part in the study. According to the findings, 91% of the respondents were female while the remaining 9% were male. These results imply that there were more female participants in the study compared to males.

This female majority shows that women in these villages may have their rights attached to gender issues and/or may be due to the comprehensive implementation programs done by developmental organizations which were encouraging and enhancing women for better life, welfare and provision of urgent family needs. Therefore, promotion of indigenous chicken production economically empowers the rural youth and women.

According to the results, 68.5% of the respondents were illiterate, 19.9% had attained primary, 6.4% had attained secondary level training, and 2.6% had attained university while the remaining 2.6% had informal education. These findings imply that most of the participants were illiterate.

According to the findings, the majority (42.7%) of the respondents had 2 to 5 years of experience, 24.9% had 6 to 10 years of experience with chicken production and 13.5% had 11 to 20 years of experience while 10% of the interviewed farmers had been keeping chicken for more than 20 years.

Over 66.2% of households kept less than 10 mixed hens and cocks, 26.2% had between 10 and 20 hens, 5.7% had between 21 and 30 hens while 1.3% and 0.6% had forty to fifty hens and over fifty hens respectively as shown in **Table 2**.

The numbers were generally low because of mortalities due to predators, absence of veterinary services, poor housing and recurrent droughts as FGD and KII mentioned and these could be the factors that discouraged farmers from investing much of their time and scarce resources in expanding flock sizes. It's also plausible that the lack of capital investments in chicken farming is responsible for the low flock sizes observed in some households.

Table 2. Demographic characteristics of the respondents.

Marital status	
Married	89.8%
Single	5.7%
Divorced	3.6%
Widowed	0.9%
Age	
<20	2%
20 - 30	18%
31 - 40	41%
41 - 50	31%
>50	8%
Gender	
Female	91%
Male	9%
Family Size	
2 members	1.9%
3 members	3.2%
4 members	3.8%
>5 members	91%
Level of education	
Illiterate	68.5%
Primary level	19.9%
Secondary Level	6.4%
University level	2.6%
Informal education	2.6%
Experience	
<2 years	8.9%
2 - 5 years	42.7%
6 - 10 years	24.9%
11 - 20 years	13.5%
>20 years	10%
Number of chickens owned per household	
<10	66.2%
10 - 20	26.2%
21 - 30	5.7%
40 - 50	1.3%
>50	0.6%

3.2. Source of Income for the Households

Chicken production plays the biggest role in income generation in the sampled households (75.16%). As indicated in **Figure 1**, the income from livestock farming accounts for 67.52% and the income from crop production is 30.57% while salary as a source of income is 17.83% of the respondents. Furthermore, other sources including remittance from family members in the diaspora, construction and tea shops contribute as a source of income to only 14.65% of the respondents. As the total percentage of the different activities exceeds 100%, it shows that some of the respondents have more than one source of income.

The second place given to livestock production as a source of income generation may be due to the low turnover of livestock species and long generation intervals compared to poultry.

During focus group discussions, it was explained that poultry production plays a great role in the household's income source in study areas and particularly in poor and marginalized societies. Many of the farmers explained, particularly women that they prefer poultry production to small ruminants. They said that they prefer poultry because they give eggs every day or every other day for family consumption and for sale to get immediate cash. Other importance of poultry production as mentioned by households include highly nutritious food for children and exchange or barter with food items from shops in the village or the main town like Burao.

3.3. Chicken Ownership

The result of this study revealed that, although chickens belong to the family at large, specific ownership patterns were observed. The study found out that household poultry flocks were owned by different family members such as wife, husband and children etc (**Figure 2**). Interviewed households reported that 93.6% of the household poultry flock was owned by wives, 5.1% was owned by husbands and 3.2% was owned by children.

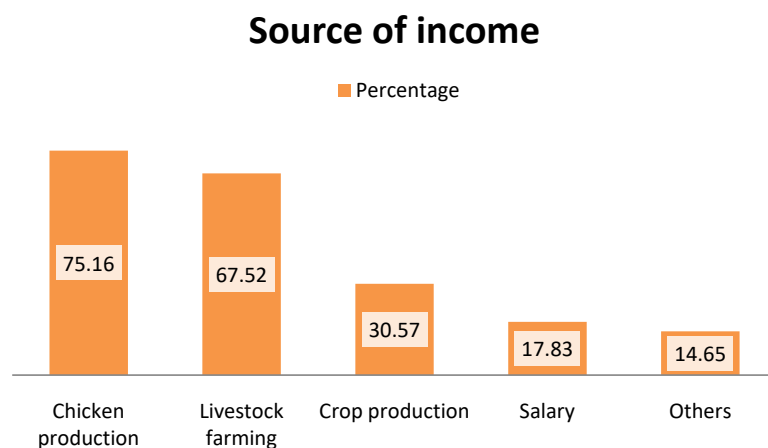


Figure 1. Source of income.

Chicken ownership

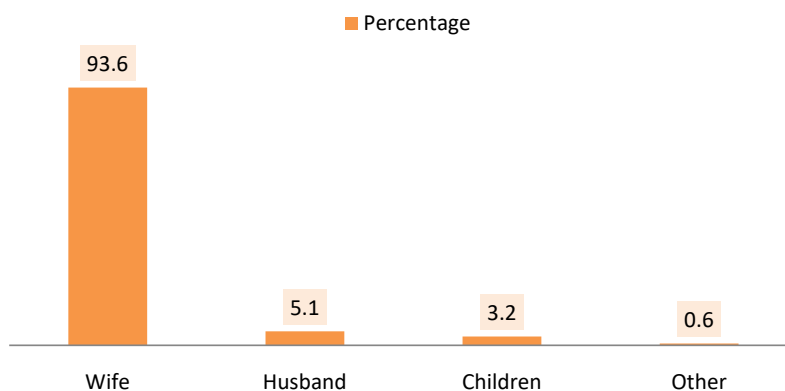


Figure 2. Chicken ownership.

The patterns of chicken ownership can be linked to women's productive and reproductive roles within the family. As they performed their reproductive roles by having an interest in children, they carried out subsistence farming. Rural poultry by its proximity to a homestead is an obvious enterprise for women. Further, Chickens were mostly housed around kitchens. It is here where a woman's family's role rotated to provide food and kitchen waste provided supplementation of scavenged feed. These are reasons poultry management was more a woman's affair and this could be a reason why indigenous chicken production is always used for economically empowering rural women and youth.

3.4. Poultry Production and Reasons for Poultry Production

Although village chicken production is a viable and promising alternative source of income for rural households its contribution to the household cash income is generally difficult to assess.

The results from this study showed (**Figure 3**) that the sale of eggs for cash income is the first important function of rearing chicken which accounts for 91% of the interviewed farmers. Following egg production importance is home consumption (77%) and keeping chicken for meat accounts for 14.7% while selling live chicken was the least reason for poultry production (12.1%) in the study areas.

Cash income and food purposes were the primary goals of indigenous chicken keeping and this indicates the important role village chicken production plays in supporting food security and financial contribution to the household needs.

3.5. Chicken Breed Kept by Rural Farmers

The study revealed that 99% of households (**Figure 4**) across the study areas rear indigenous domestic fowl (*Gallus domestic*) which is the dominant species in Africa (FAO, 1998) that is used in extensive production systems which could be described as the most suitable low input-low output system.

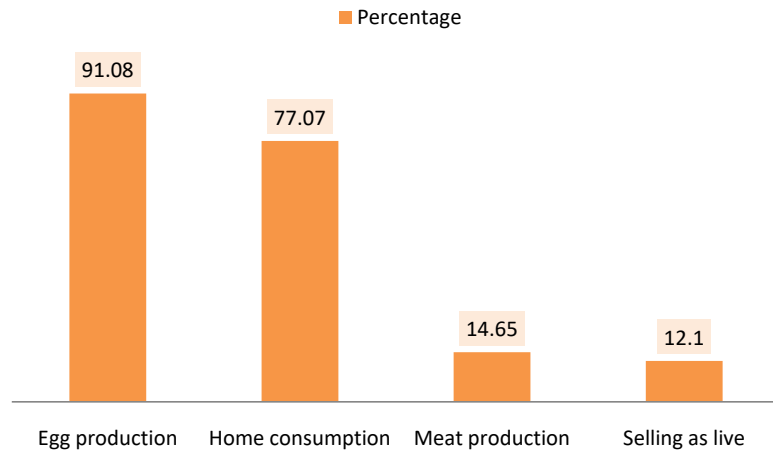


Figure 3. Reason for chicken production.

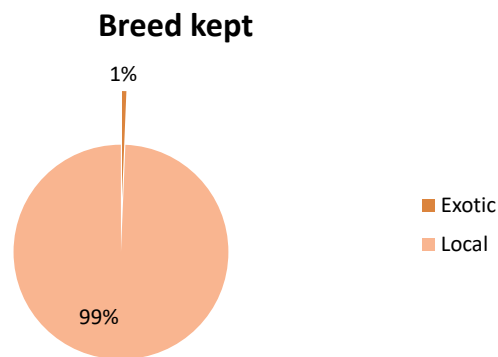


Figure 4. Types of chicken breed kept by farmers.

Village poultry and domestic poultry production in all surveyed households were dominated by traditional production practices, and indigenous breeds represent 99% of the poultry flock (**Figure 4**). None of the sampled households had exotic breeds. The exotic breeds are only kept under modern intensive poultry farms in the urban centres of Somaliland like Burao and Hargeisa and belong to business people who want to target the high demand for poultry production in the market.

Due to their tropical adaptability, disease resistance, minimal care and less input requirements indigenous chicken breeds are dominantly common in rural areas in Somaliland; however, have low productivity compared to the exotic breeds that are mainly in the hands of the commercial farms in the major urban centres in Somaliland.

3.6. Type of Poultry Housing

As shown in **Figure 5**, 98% of rural poultry farmers use traditional housing and only 2% which were exotic breeds were kept in deep litter type of housing while there was no cage housing in the studied areas and this is due to the dominance of indigenous chicken breeds reared in rural villages.

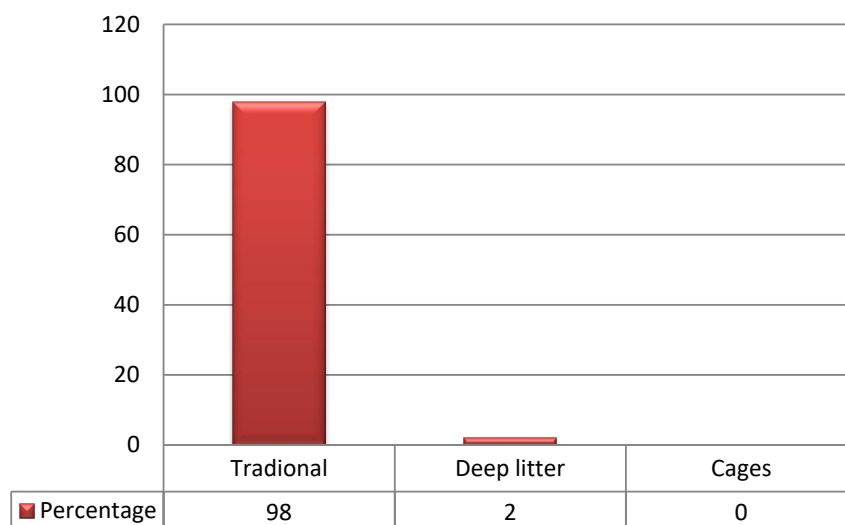


Figure 5. Poultry housing.

Indigenous chickens were also housed in traditionally built houses made of local materials such as stone, wood, old tires and iron sheets. These houses were constructed with very small sizes and short roofs and were closed with either a door made up of local materials or with flat stones at night. All groups of poultry were housed together in the same room during the night while there were separate shades for the pullets during the day. From the focus group discussion and personal observations, poultry was housed at night in the prepared house but allowed scavenging during the daytime in the scavenging production system. In addition to that, in a few households, poultry was over-crowded and exposed to pests and predators under the traditional production systems.

3.7. Egg Production and Storage

This study found that plastic container is the main storage facility for eggs (82%) as shown in **Figure 6** followed by Baskets (12%) for egg storage while cartoons, refrigerators and plastic bags contribute almost 5% for egg storage combined. This is due to the availability of plastic containers in all villages that made it the most feasible item for storing eggs, refrigerators could be the most ideal way of egg storing but due to the absence or difficulty of electricity in villages, they are rare to use.

The study indicated that the period from April to July (summer) was when egg production was at the peak while egg production from November to January (winter) was the least. According to farmers' responses, the main reason for this variation might be due to the susceptibility of chickens to the cold climate in winter while the warmness of the summer favors the chicken. Moreover, the availability of feed resources like grasses and worms in the summer which is always after the main rainy season of the year (Gu') may contribute to the increased egg production in the summer.

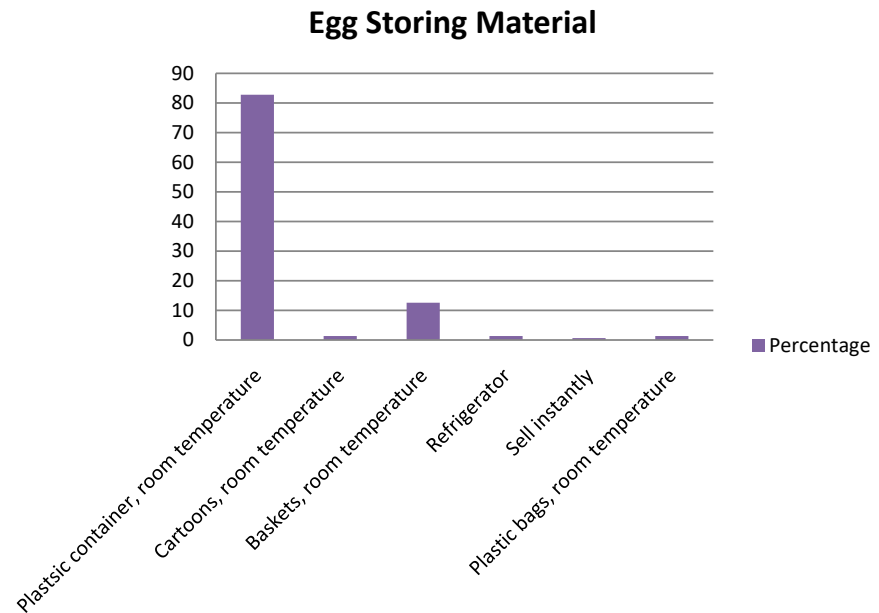


Figure 6. Egg storage.

This study found that 97.5% of rural poultry farmers keep chicken for egg production, 5.1% for meat production and 2.6% keep their chicken for both egg and meat. This great difference between egg and meat could be attributed to the tradition of the rural villages and the richness of other species of livestock in studied areas that the meat of other livestock is preferable to chicken. As FGDs stated, another reason for preferring egg production to meat is eggs are more profitable in terms of market demand and ease of production than meat. It was noted that on average each household produced 27 eggs per week of which 4 of them were consumed at home while the rest (85%) was sold to either collectors or directly to shops and restaurants. This way of preferring to sell most eggs (85%) and overlooking home nutrition could lead to children's malnutrition in the long term.

3.8. Decision Making on Chicken Produce

Women play a major role in contributing to all households' chickens' activities including decision-making on chicken-related issues throughout the studied areas. This fact could be explained with regard to the traditions of job projects in rural societies of Somaliland, where men usually devote themselves to hard tasks such as camel keeping, agriculture, building houses and other community reconciliation affairs; leaving women to take many responsibilities towards chickens keeping activities. Due to this fact women control mostly the decisions regarding chicken and chicken products making 93.6% of those decisions while men and children contribute less than 7% regarding decision-making of chicken and chicken products. The result is shown in **Figure 7**.

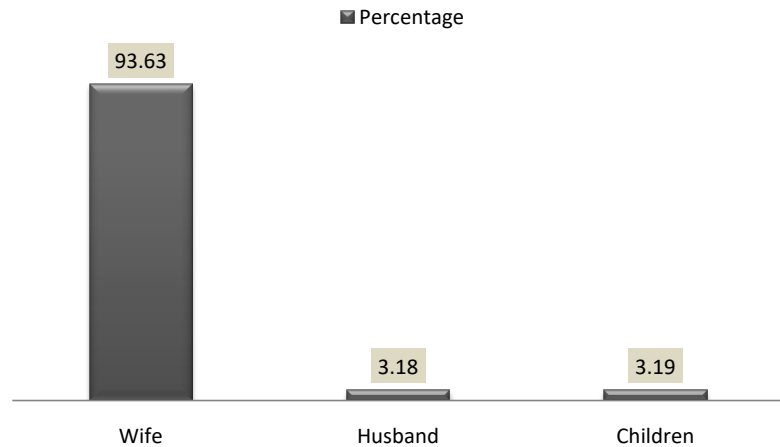


Figure 7. Who decides to sell the products of the chicken.

3.9. Keeping Roasters with the Hens

The study showed 86.6% of the respondents keep rooster with the laying hens and more than 82% of the interviewed poultry farmers indicated that hens cannot produce without the roaster, while the remaining 18% believe that hens can produce without the male and this believe might be the reason behind keeping rosters with the hens and another reason could be for breeding the flocks. Those who believe that hens cannot produce without the male also believe that eggs from non-fertilizer females have low nutritional value and this implies the little knowledge of poultry production and management by the village farmers. It was also observed that all farmers (100%) didn't control mating and this indiscriminate mating could distort the rich and diverse indigenous poultry genetic resources and the level of production. **Figure 8** indicates the percentage that keeps the roasters with the hens.

3.10. Value Chain Mapping of Poultry Production

Value chain mapping is the graphic representation of input supply, production functions, processing, trading and consumption within value chain actors. So, poultry value chain mapping is done to identify the core process, value chain actors and their activities at each stage. It was also performed to understand the characteristics of the chain actors and the relationships among them in the chain; the flow of goods through the chain; employment features; and the destination and volumes of domestic sales. The value chain map (**Figure 9**) shows the flow of poultry in the chain, and activities carried out at each stage of the value chain. It's worth mentioning that the restaurants in towns like Buroa and Hargeisa purchase from commercial farms, while the shops get their eggs from small-scale producers or collectors of local eggs. On the other hand, the commercial farms had transport vehicles, hence distributing the eggs by themselves which means the employment opportunity of the commercial farms is not significant.

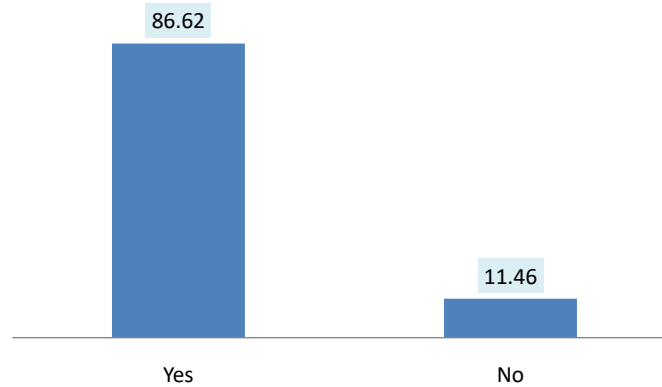


Figure 8. Keeping roaster with the hens.

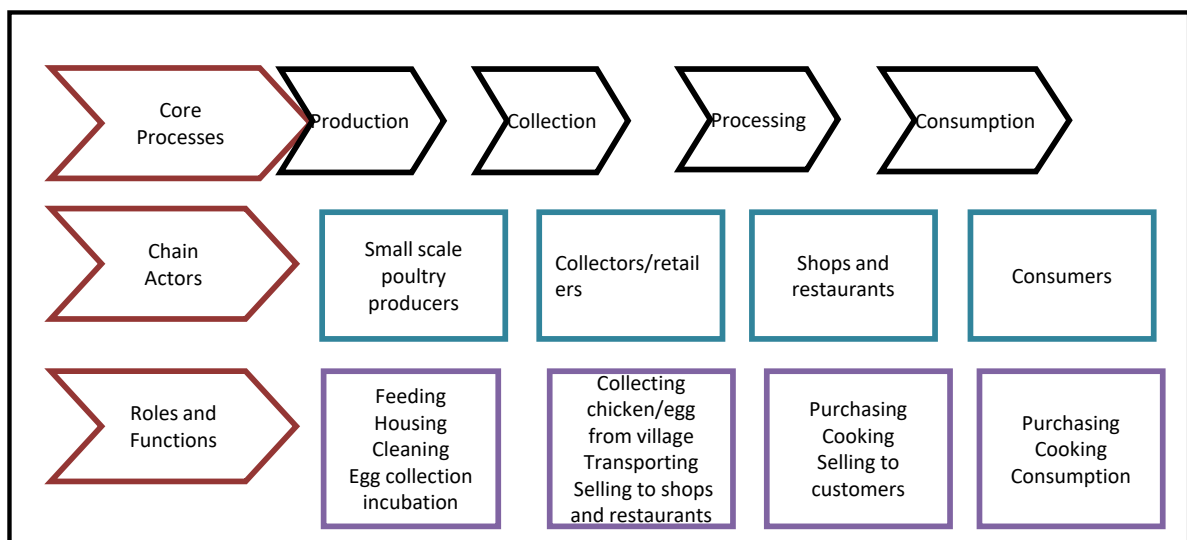


Figure 9. Village poultry production Value chain Map (source: own source).

3.11. Village Poultry Marketing

Marketing is the interaction between different traders and producers in the market. Poultry and eggs were marketed by market actors such as producers, and collectors in the study area. All poultry producers found in the study area were a participant in the poultry supply to the nearby main town like Burao. However, only 25% supplied chicken and eggs to the market outside their villages and regional markets. Most of the farmers sell their eggs or chicken directly to consumers or collectors/traders. Eggs are sold daily depending on the availability of eggs to consumers or intermittently to collectors who come to the village. Chicken on the other hand is sold mainly depending on the demand for example when there is increased demand from consumers in the urban centres, they come to villages to buy chicken. In addition to that, once in a while, there are Islamic missionaries from Pakistan and Indian who visit the villages and they specifically buy live chicken from the respective villages where they had their mission. Furthermore, at other times women poultry producers transport eggs and

chicken to the main towns like Sheikh, Burao and Hargeisa using public transport.

The poultry marketing system found in the study area was not organized and traditionally implemented. Poultry products are often sold at the farm gate or taken to the nearest market using traditional materials such as baskets, cartoons and plastic bags. Sometimes village poultry producers who are mainly women sell their products to collectors who are always women from other villages or main urban centres, however, this is not regular and the relationship between producers and collectors happens partially through spot market relationships.

3.11.1. Poultry Marketing Functions and Actors

1) Producers

These are the first actors in the village's small-scale poultry value chain and participants in the poultry market. These are farmers who participated in reproducing and managing chicken for different purposes such as for cash and household consumption. Poultry producers sell their products to different market actors such as village consumers, collectors, retailers such as shops in the villages or the nearby towns and consumers.

2) Collectors

Collectors play a great role in village poultry marketing. The function of these actors was to collect chickens and eggs from villages and deliver them to towns like Hargeisa, Burao and Sheikh. They either consume eggs and chicken or sell to different shops, restaurants and consumers in their town or neighborhood.

3) Retailers

Retailers in the chicken and egg marketing chain are those actors who perform the last marketing function by connecting consumers with producers. In the village poultry production system, there are mainly small shops and kiosks in the villages or shops in the urban centres that either buy the eggs from the producers or exchange egg with products such as food. The number of these retailers varies according to the town, demand and supply conditions.

4) Consumers:

Consumers including restaurants are the final end points and are the ultimate goal of the production and marketing process. Consumer demand is the key to producing and trading chickens and eggs. Poultry consumption is common among the visited sites in the study area. Consumers get the poultry product through different channels based on their location and preference.

3.11.2. Relationship among Value Actors Including Market Actors

Relationship among actors was informally practiced in the study area. Relationship among the other poultry marketing actors was absent and this indicated that poultry value chain in the study area was weak and more traditional. In some cases, there was spot market relationship among marketing actors where collectors come and meet producers in villages based on demand.

3.11.3. Poultry Marketing Channels

Poultry produced in the study areas was channeled to consumers through different channels. The most common channel is farmers directly selling eggs and chicken to consumers (*i.e.* village neighbors, village shops, restaurants) at the farm gate or bartering/exchange of eggs with food in the village or regional shops. Figure (Figure 10) gives a detailed explanation of different market channels and links. Households sold the majority of their products directly to village consumers and directly to urban consumers in the near regional capitals and markets.

3.12. Egg Marketing

All the respondents in the selected villages have experience in egg marketing though it is informal and poorly developed. Similar to chicken marketing, eggs are marketed through local markets (50%), and villages (30%) while the remaining percentage is sold through retailers as shown in Figure 11 below.

Most consumers in the study villages prefer to buy local eggs directly from producers as they are considered to be fresh, tasty, nutritious and healthy as focus groups stated.

The egg marketing channel is more or less similar to that of chicken. Eggs are sold at the farm gate to egg collectors, as there are no specific markets to consumers and to retail shops and restaurants in towns. Eggs pass through a relatively longer chain to reach the consumers than chicken. The main actors in egg marketing are producers, collectors, shops and restaurants. Urban markets followed by the nearest local market and farm gate are, in order of importance, the preferred outlets for egg marketing by producers. The demand for eggs is generally low during the fasting month of Ramadan.

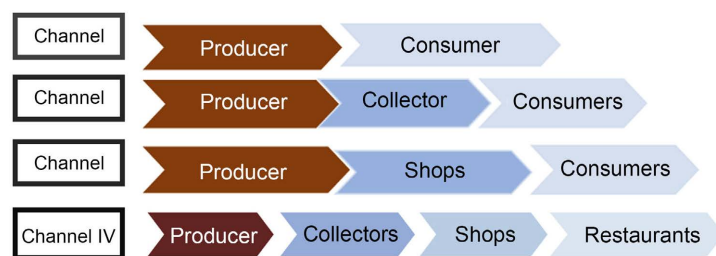


Figure 10. Poultry marketing channel.

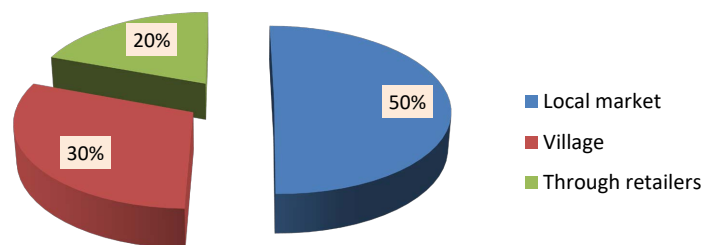


Figure 11. Selling areas of chicken and chicken products.

3.13. Source of Replacers

42.7% of rural poultry farmers source their replacements from their farm, 28% from their respective local markets while 43.9% get from other sources such as family friend or relatives and 1.3% which keeps exotic breeds imports their replacements from Ethiopia and Türkiye while vaccinated as shown in **Figure 12** below.

3.14. Prices of Chicken and Eggs

The price of eggs in the study area varied within the different channels. The maximum and minimum selling prices of eggs at the farm gate were 1500 SH and 1000 SH respectively with an equivalent to 0.17 USD. Nevertheless, the price is higher when eggs are taken to the next actor of the value chain which is either retailers or shops and is sold a minimum of equivalent to 0.23 USD.

The price of live chicken in the study area also varied with the type of chicken, the price of cocks ranged from 9 to 15 USD with an average of 12 USD while hens are not usually sold.

3.15. Challenges Facing the Village Poultry Sector

To utilize the village poultry sector, identifying the existing constraints and searching for solutions is of paramount importance. The major constraints that existed in poultry production in the study area have been identified through individual interviews of producers, focus group discussions and discussions with key Informants. As a result, prioritization of the problems was made to identify the most important constraints that hinder the development of the poultry sub-sector in the study area. Based on the result of this study, producers suffered from several difficulties and challenges that are antagonistic to sustaining chick and egg production and marketing. Poultry production problems can affect the chick and egg marketing situations.

1) Feed shortages and lack of balanced feed

The common feed used for chicken reared under the backyard poultry production system was only through scavenging. Poultry producers did not consider that chickens need different feeds with different nutritional contents. In the

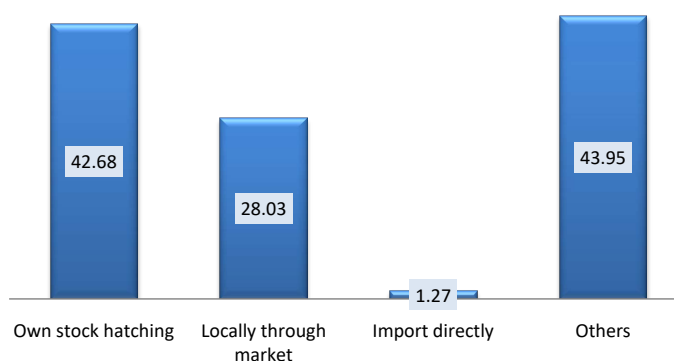


Figure 12. Source of replacers.

village backyard poultry production system in study areas, chickens get their feed by scratching on the ground and small supplement with cereals mainly sorghum at home. The main reasons for poor nutritional status were lack of know-how, lack of capital and attitude of the producers. In addition, shortage of feed in drought seasons and high prices were indicated as the reasons for not considering different feed formulations for chicken.

2) Lack of knowledge

The producers indicated that they lack knowledge of handling their chicken properly. Though producers had long experience in keeping poultry, they did not know the proper poultry management aspects such as disease prevention and treatment mechanisms, types of feeds they need, feeding systems, housing and egg handling systems. When asked if poultry producers or anyone from the households ever attended or received training in poultry husbandry, the overwhelming response was no.

3) Absence of extension service

There is rarely any extension service provided by the regional and district veterinary and agricultural offices or NGOs working in livestock development and food security. For this reason, all households were not getting the extension service required such as the provision of services, treatment and vaccination and technical training.

4) Diseases

The disease is among the most important constraints in the production and marketing of village poultry products. The disease is ranked as one of the first important constraints by poultry producers. According to the key informants, the disease is the most important constraint in the subsector. Although farmers were not able to specifically identify disease names, they mentioned common symptoms and signs of common poultry diseases such as new case diseases, coccidiosis, Salmonellosis, and fowl pox and leg and skeletal problems. Due to the lack of functional extension service, farmers were not able to access veterinary drugs for chickens as well as animal health services for their sick chickens. However, most of the farmers have used traditional treatments to tackle diseases in the poultry sector.

5) Absence of genetic improvement

All of the sampled farmers in the rural area had only local chickens with no one having exotic chicken. Although local chickens adapted to the local conditions and are resistant to diseases, they are less productive than exotic ones. Furthermore, there is no genetic improvement program for local chickens and sometimes good chickens with superior traits might be removed from the flock for immediate cash or taken by predators because of poor housing. Local chickens have slow growth, low body weight, small egg size, and low yield. Nevertheless, community breeding and generic improvement programs or cross-breeding with superior hens might improve the genetics of local breeds and hence the productivity of the flock.

6) Lack of proper housing

Absence and lack of proper housing were other problems in the study area. Farmers had enough local materials and space to construct poultry houses according to their size and age whereas; they gave very little emphasis on poultry housing. The study identified that there was no separate housing for the different groups and poultry were housed in houses made of local materials and they were not safe. Those houses didn't provide chickens with enough floor space and overcrowding and suffocation were faced by chickens and resulting in chick mortality and poor poultry productivity. All houses complained about poor housing for their chicken which resulted in predators eating chicken regularly.

7) Predation

Predation was also a very critical problem that affected village poultry production in all sampled households. Predators such as hawks, skunks and cats regularly attack chicken particularly at night and sometimes kills the whole flock. Because of the poor housing, predators easily get access to the poultry houses by digging ground below the door and sometimes removing the stones put in the entrance of the poultry houses. Therefore, predation threatens the sustainability of poultry production and marketing.

8) Financial constraints

Financial services were described as inadequate as mentioned by focus groups and key informants. It was reported that actors need financial services to acquire capital for investment in improved technologies. The main sources of financial capital for poultry subsector actors include their own savings, relatives, and microfinance institutions. Limitations of financial capital are an outcry of many during the consultations. Inadequate capital can be attributed to lack of financial institutions in the study areas.

4. Conclusion and Recommendation

The extensive production system was the only chicken-raising system adopted by households in the rural areas of Somaliland and it is considered a part-time activity with no farmers that keep indigenous poultry on a commercial basis except urban-based farms that keep exotic breeds. Rural chicken production was a women-related activity that helps them to be the sole decision-makers and also users of the benefits regarding chicken and chicken products. The main purposes for keeping chicken were egg production for income generating, home consumption and meat provision. The major constraints for rural poultry keeping were the lack of extension and veterinary services, predators, poor housing, poor breeds, and lack of financial services among others. Women in all the selected villages made remarkable contributions to the local chicken production system.

The indigenous poultry value chains were found to consist of producers, collectors/retailers, shops and consumers/restaurants. However, the absence of processors along the chain means that chickens are sold live and consequently cannot be retailed through formal channels like supermarkets leading to the exclu-

sion of potential customers in the middle and high income categories who normally shop from supermarkets. Furthermore, as population and incomes grow, demand for indigenous chicken is likely to continue growing, especially among the high income groups who not only prefer it for its taste but also for health reasons due to its low fat content. Finally, although the value chain for indigenous chickens shows potential growth for all the players along the chain, there is a need to address the various constraints affecting the value chain for indigenous chickens in order to improve the operation of the chain hence leading to increased incomes for the value chain actors and at the same time ensuring cheap delivery of indigenous chicken in a more convenient form and in formal outlets.

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Recommendations/Intervention

Area/segment	Constraint	A short term proposed solutions/interventions	A medium and long term proposed solutions/interventions	Potential partner/ organizations
Health Service	<ul style="list-style-type: none"> Absence of health services provision 	<ul style="list-style-type: none"> Establish health and medication service/vaccination in the areas by assuring effectiveness and timely service provision by public and private providers Enhance public animal health service delivery, better service incentive and accountability development Promote recognized private animal health service providers such as veterinarians and CAHWs (refreshment training and recognition of service) 	<ul style="list-style-type: none"> Integrate poultry health service in the existing CAHWs systems and government disease control programs. Improving the coverage of government veterinary campaigns by the inclusion of poultry production where appropriate. Vaccination services – working through and in partnership with Livestock Officers and farmer associations. 	<ul style="list-style-type: none"> Regional livestock Authorities Trained private service providers such as CAHWs and agro vets.
Breed Improvement	<ul style="list-style-type: none"> Absence of genetic improvement 	<ul style="list-style-type: none"> Genetic improvement program for traditional poultry breeds such as community-based breeding schemes Enhance the day-old chicken supply system and make it more organized and efficient. Enhance the capacity of women and youth pullet suppliers: by selecting more ready women groups for raising day-old chicken to 45 days to 5 months old pullet to be sold to eggs and chicken producers. Provide appropriate practical training and link them with old-day chicken suppliers. 	<ul style="list-style-type: none"> Cross-breeding of local breeds with exotic ones. Supply of improved breeds to the community Engage well trained and experienced women and youth groups in hatching and other inputs supply business 	<ul style="list-style-type: none"> Livestock office and private sector Day old chicken suppliers Government NGOs
Financial Services	Limited financial service	<ul style="list-style-type: none"> Promote saving and credit groups to mobilize starting capital for better scale poultry production at farmers level. Work with financial service providers for start-up flock, growers, feed suppliers, women Groups and medium scale commercial poultry production. 	<ul style="list-style-type: none"> Establishment of Villages saving and credit group (VSLA) to help women increase income from poultry production and consumable goods trading activities. Supporting the already existing women groups in some study villages. 	<ul style="list-style-type: none"> Credit and Saving Cooperatives; Credit and Saving women groups and Commercial banks

Continued

Production	<ul style="list-style-type: none"> • Traditional management 	<ul style="list-style-type: none"> • Women friendly practical training approach (time, content and approach): simple training material preparation and delivery with the consultation of women to decide the training place, time and duration of training to make it more convenient for them. • Training packages on animal Husbandry tailored to poultry production. 	<ul style="list-style-type: none"> • Contextualized housing and sheltering technologies promotion and inputs access: by engaging local workshops fabrication and supply of average household poultry sheltering with affordable prices. • Champion integrated farmer field school (IFFS) approach to tackle problems facing poultry owners through participatory demonstration approaches. • Improve housing of the poultry with the use of affordable materials. • Entrepreneurship training on how to insert or build poultry houses tailored to village production. 	<ul style="list-style-type: none"> • Traders, NGOs, Farmer cooperatives, Livestock Agency at a different level. • TVET schools and universities.
Market Linkage	<ul style="list-style-type: none"> • Absence of linkages between Value Chain actors 	<ul style="list-style-type: none"> • Encourage better market linkages, collection and distribution arrangements with peri-urban dwellers, nearby towns and restaurant owners. • Awareness creation and encouragement of egg and poultry meat consumption at the household level to improve the nutritional status • Create linkage workshops with agro vets and village owners. This would strengthen relationships both vertically and horizontally along the value chain to address financial and technical constraints. • It is needed to encourage group cooperation in Developing poultry farming. 	<ul style="list-style-type: none"> • Marketing of inputs such as drugs through open days organised in collaboration with informal breeders. • Establish village poultry farmer associations and cooperatives. 	<ul style="list-style-type: none"> • Farmer cooperatives, NGOs, Government, local regional and district authorities, agrovets and consumers.

Conflicts of Interest

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

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