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Challenges and Opportunities of Village Poultry Production in Wolaita Sodo Town, Wolaita Zone, Southern Ethiopia

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Abstract
The survey was carried out to assess the challenges and opportunities of village poultry production from November 2018 to April 2019 in Wolaita Sodo town, Wolaita zone, Southern Ethiopia. Qualitative and quantitative data were collected by interviewing chicken rearing households using semi-structured questionnaires. Five kebeles were selected by simple random sampling technique and one hundred respondents were selected purposively based on their poultry farming experience irrespective of their sex, religion, culture, and economic status of population. Information about respondent's profile, purpose of chicken production, housing system, challenges and opportunities of poultry production were surveyed and the result analysed by SPSS statistical tool. The mean flock size of chicken in this study area was 7.32 chickens/household and 54% respondents keep their chicken with the family home with in the same room during in the night time. Disease (35%), predators and theft (28%), feed cost (26%) and lack of housing (11%) were reported as a major challenge of poultry production. Majority of respondents (56%) provided grain concentrates as a supplementary feed for their chickens. Most respondents (46%) reared chickens to generate cash, while 31% of respondents kept their chicken for home consumption. In this study, the main opportunities for village poultry production were availability of market access, extension service, feed availability and credit service. Therefore, to improve production and attain increased productivity, village poultry farmers and extension staff should get trainings focused on disease prevention, improved poultry housing, and appropriate control of predators.
Keywords: Chicken; Constraints; Opportunities; Questionnaire; Wolaita Sodo
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1. INTRODUCTION

Poultry production is an integral part of livestock production system; it plays an important socioeconomic role in developing countries such as Ethiopia. Ethiopia has about 60% of the total chicken population of East Africa, which includes local, exotic and hybrid chicken breeds (CSA, 2013). The country has 60.5 million estimated numbers of poultry which comprises 94.3% indigenous breeds and the rest 2.5% and 3.2% represents exotic and hybrid chickens respectively (CSA, 2016).

In Ethiopia, village chicken production systems is practiced in widespread and is usually kept under free range system and the major proportion of the feed is obtained through scavenging. (Muchadeyi et al., 2007) The major components of scavenging feed resource base are believed to be insects, worms, seeds and plant materials, with very small amounts of grain and table leftover supplements from the household. (Muchadeyi et al., 2007) This production system had been performed without proper health care, without appropriate housing, exposure to predators as well as shortage of feed (Bushura, 2012)

Critical constraints for village poultry production in Ethiopia were identified as: diseases and predators, lack of proper health care, feed source and poor marketing information. Among diseases, Newcastle Disease (NCD) (locally called "*fengil*") was identified as a major and economically important health constraint that hinders the expansion of village chicken production in the country (Ahmed, 2018). Those constraints were common in most African countries for instance the neighbour country Kenya, the finding of similar study performed in western Kenya indicates that disease and predators were major challenges for chicken production followed by high feed coast, theft, harsh climate and lack of production skill respectively. (Ochieng et al., 2013)

Identification and solving of major problems in village poultry production can improve the life standard of the farmers. In order to improve village chicken production; proper health care of chickens, provision of loans to the community, enhanced chicken house, appropriate type and amount of food and water as well as frequent extension service are commended (Feleke et al., 2015).

Although there are some studies conducted on characterization of challenges and possible opportunities of village poultry production in some parts of Ethiopia, there is lack of published information regarding to major constraints and possible opportunities of village poultry production in the Wolaita sodo. Hoping that the findings of the study will be sound enough in addressing the constraints and opportunities of poultry production in Wolaita sodo and it provides a base line data to complement the decision making process ultimately to improve future extension interventions. With this in mind, this research was conducted with the following objectives.

- To determine major constraints and opportunities of village poultry production in Wolaita Sodo town.
- To assess the managemental practice of scavenging chicken production in the Wolaita Sodo town

2. MATERIALS AND METHODS

Study Area

The study was conducted in Wolaita Sodo town. Wolaita Sodo town is located 390 km Southwest of Addis Ababa (latitude and longitude of 6°54′N 37°45′E) with an elevation between 1,600 and 2,100 metres above sea level. The highest mountain is known as Damota, 2500 m above sea level, which is located near Sodo town. The area experiences a mean annual temperature of about 20°C. The mean maximum temperature is 26.2°C and the average monthly minimum temperature is 11.4°C.The rainfall regimes over much of the area are typically bimodal with the big rainy season extending from June to September and a small rainy season occurring from February to April. The mean annual rain fall of the area ranges from 450-1446 mm with the lowest being in low land and highest in high land **(**WSADO, 2015).

Target Population

Target population were scavenging chicken farming households who were living in Wolaita Sodo town who have 2 or more chickens in their house.

Study Design

A cross section survey study design was used for this study, information focusing on opportunities and constraints regarding to scavenging chicken production, managemental practices such as housing system, supplementary feedings and health care mechanism.

Sampling Method

Wolaita sodo town has 11 kebeles; village chicken production is commonly practiced in all kebeles. Among those kebeles, 5 kebeles were selected by simple random sampling technique. From each kebeles 20 respondents were selected purposively based on their poultry farming experience and intensity of poultry production that obtained from the kebeles bureau of agriculture as information. Totally One hundred respondents were selected irrespective of their sex, religion, culture, and economic status of population.

Data Collection Method

Primary data for the study was collected by interviewing the selected respondents using semi-structured questionnaire. Information about respondent's profile, purpose of chicken production, housing system, challenges and opportunities of poultry production were included in the questionnaire format (Annex1). Accordingly, all necessary data were collected from a total of 100 selected respondents.

Data Management and Analysis

The collected data was entered, coded and managed in Microsoft excel spread sheet and all data were analysed by using Statistical Package for Social Sciences (SPSS) version 20. (SPSS 20, 2011) Survey results were reported using descriptive statistics such as percentage and presented in the form of text, tables and charts.

3. RESULTS and DESSCUSSION

3.1. Demographic Characteristics of Respondents

Among the surveyed respondents, the majority (67 %) were females. This result is nearly similar to the study reported by (Desalew, 2012) who indicated that 67.7% of respondents were female. Higher proportion of female respondents than males reflected to the fact that village poultry rearing is mainly managed by females. As indicated in Table (1), most of the respondents (86%) were between 18 and 56 years age. This result is in agreement with the report of (Abera and Hussen, 2016) whose survey result was (80%) respondents' aged between 15 and 50 years, and the lowest (20%) were above 50 years. Most of the surveyed respondents were college graduated (44%). This could be due to the presence of higher education institutions in the study area. The study was conducted in the town where a number colleges and universities were present. Education is an important factor in the poultry production in which educated farmer can easily understand poultry management and adapt to a new technology than illiterate farmer. This result is different from the study reported by (Meseret, 2010) who indicated that Majority respondents (50.6%) of poultry producers were attended education from grade 1 to grade 8. Among surveyed respondents majority of them were found government workers (42%). Table (1)

Table 1. Summary of respondents' demographic characteristics.

Characteristics of respondents		Frequency	Percent
Sex	Male	33	33%
	Female	67	67%
Age	18-30	27	27%
	31-43	32	32%
	44-56	27	27%
	57-69	14	14%
Level of education	Collage	44	44%
	Secondary	17	19%
	Primary	13	13%
	Read and write	7	7%
	Illiterate	19	17%
Employment Status	Daily labourer	8	8%
	Farmer	20	20%
	Government worker	42	42%
	House wife	20	20%
	Merchant	10	10%

3.2. Purpose, Source and Flock Size of Chickens

Out of the surveyed respondents, 45% had 6-10 chickens; the remaining 35% and 20% had less than 5 chickens and 11-15 chickens respectively. The mean flock size in the surveyed households was 7.3 chickens/ household. In contrast, the mean flock size recorded in this study was nearly similar to the mean flock size of 7.9 chicken/ household reported by (Feleke et al., 2015) for Arbegona woreda in Southern Ethiopia. The flock size variation and lower flock size in rural areas has been attributing to the farming systems practiced and prevalence of local factors such as diseases and predators (Kuit et al., 1986).

Chickens in the majority (44%) of households were kept for income generation. This shows that the village chicken production in the study area is mainly used to generate cash. Most chicken owners in the study area raise chickens by aiming that chicken production is a good means of cash income in short period of time by selling eggs and marketable chickens. This result is in line with a report by (Hika *et al.,* 2018) who reported that majority indigenous village chickens owner sell their chicken to obtain cash income. Majority (49%) of the surveyed individuals responded that different enterprises were the main source of chickens. Those enterprises were organized by educated, unemployed and small-scale entrepreneurs. This enterprises were provide 45 day SASSO breed and Bovans brown breed chickens, while others get their chicken most probably (local breed) from market, local farmer and government (Figure 1).

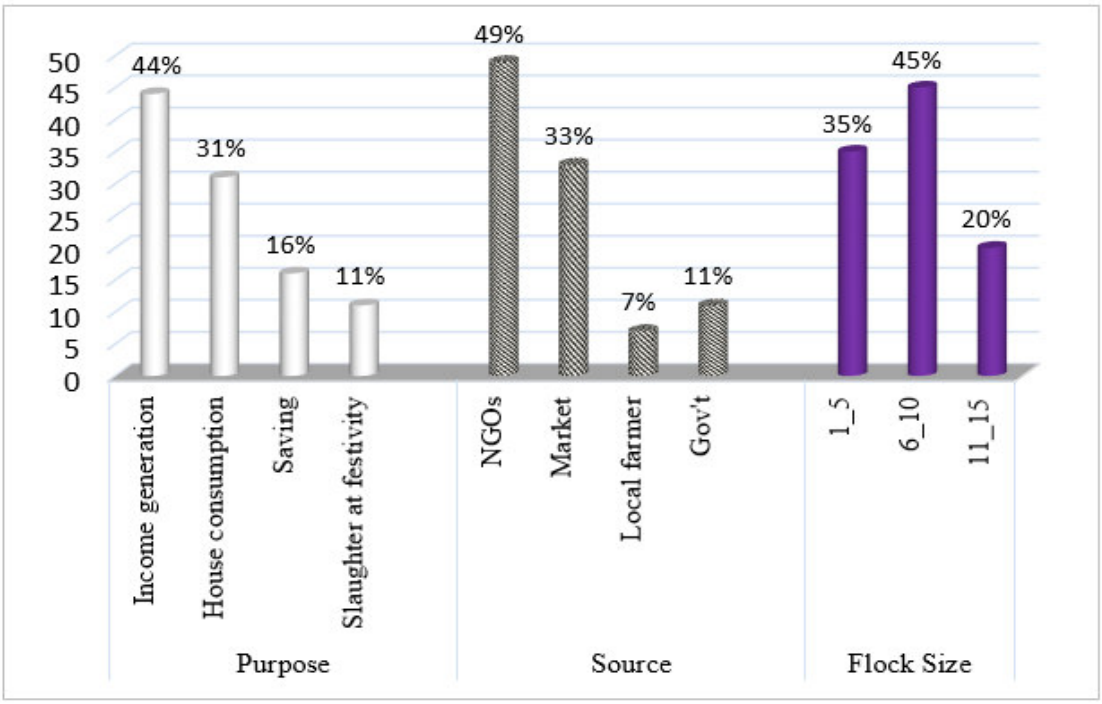

Figure 1. Purpose, source and flock size of chickens in the study area.

3.3. Supplementary Feed and Water Source

In this study, all respondents manage their chickens by scavenging system with a supplementary feed. Accordingly, 56% of respondents provided grains such as maiz, wheat, barley as supplementary feed for their chickens and 21 % of respondents provide food left for their chickens as a supplementary feed for them. This result is nearly similar with study performed in Gonder Zuria Woreda, Ethiopia by (Melkamu and Wube, 2013) who indicated that 50.67% of respondents were dependent on supplementing grains and 21.33 % of respondents were provide food left over for their chickens. The higher percentage of respondents providing grains as a supplementary feed to chickens in present study could be due to easy access to purchase concentrated grains from market and around Wolaita sodo town crops such as maize wheat and barley is commonly cultivated. The result of the study reveals that the highest proportion (70%) of the respondents used pipeline water for their chickens. This could be due to easy access of water infrastructures in the study area (Table, 2). This result is quite different to the study reported by Abera *et al* who was done his study in Mareko woreda and reported that majority of the respondents (60%) use ground water for their chickens whereas only 20% use the pipeline water.

Table 2. Sources of supplementary feed and water for chickens.

Feed and water source		Frequency	Percentage	Cumulative frequency
Supplementary feed	Food left	21	21%	21
	Grains	56	56%	77
	Kitchen waste	23	23%	100
Source of water	Pipeline water	70	70%	70
	River water	30	30%	100

3.4. Housing System of Village Chickens

The results of this study shows that, during the day time all households kept their chickens outside their house and the highest proportion of respondents (54%) kept their chickens during the night time in the same room with the family. But, 20 % of respondents kept their chickens with separated house to the family during night (Figure 2). This result is in line with the report of (Mulugeta and Tebkew, 2013) who indicated that 67.7% of households keep their chickens in the main house and only about 23.77% household reported that they were keep their chickens in separate sheds, while purpose-made for chickens. This could be due to lack of enough space to construct poultry house in the study area. The study area is located in the urban area where there is lack of enough space to construct a poultry house.

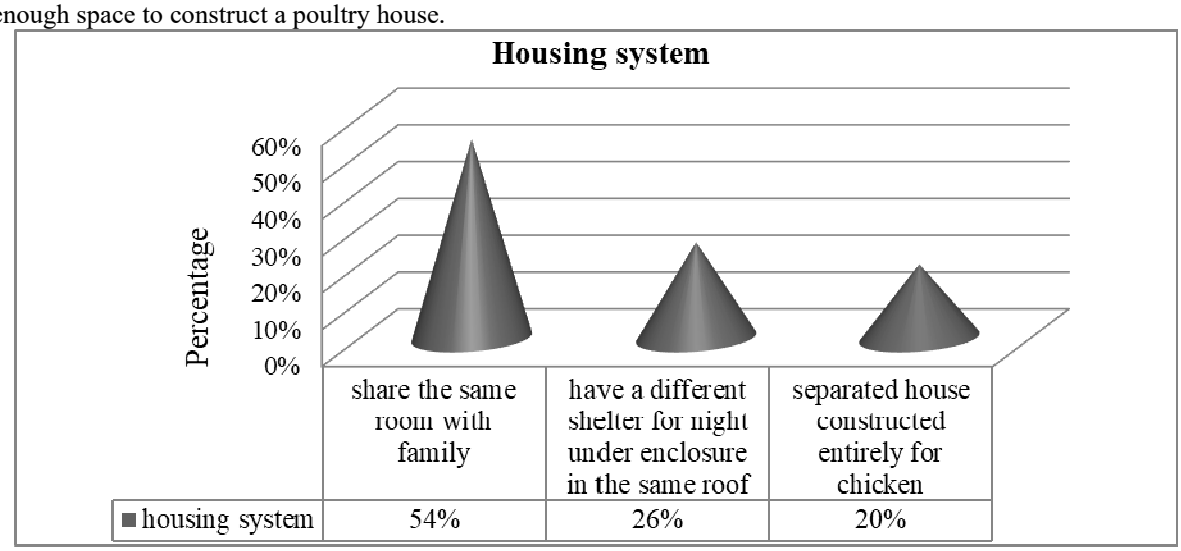

Figure 2. Housing system in the study area

The present study revealed that 40% respondents thought that constructing poultry house is difficult for them. Most of respondents indicated that lack of enough space to build chicken house and high cost of materials as well as high cost of house to rent were the major difficulties to construct chicken house in the study area, on another side, only 11% respondents thought as poultry house construction is an easy task for them (Table 3).

Table 3. Respondents thought to construct poultry house.

Challenge to construct poultry house	frequency	Percent	Cumulative frequency
Difficult	40	40 %	40
Easy	11	11%	51
Medium	36	36%	87
Don't know	13	13%	100
Total	100	100%	

3.5. Health Care Mechanism of Chicken

Government pharmacies were most frequently preferred by majority (66.2%) of respondents to purchase drug. The survey result of present study shows that, disease is the major cause of chicken mortality. About 60% of respondents indicated disease as the major cause of mortality of chickens. It is also shown in Table (4) that accidental death is a rare cause of chicken mortality.

Table 4. Source of drugs and cause of chicken mortality in the study area.

Source of drugs and cause of mortality		Frequency	%	Cumulative frequency
Source	Private pharmacy	24	33.8	33.8
	Gov't pharmacy	47	66.2	100
Cause of mortality	Disease	60	60	60
	Predators	36	36	96
	Accidental	4	4	100

Gov't = Government; % = Percentage

The result of this study also showed that majority (71%) respondents consult veterinarian; while only 1% of respondents sell chicken as a measurement for sick chickens (Figure 3). This result is quite different from the study reported by (Hunduma, 2010) who reported that majority respondents (44.4%) used traditional medicine. This difference could be due to presence of many private and governmental veterinary clinics in the study area.

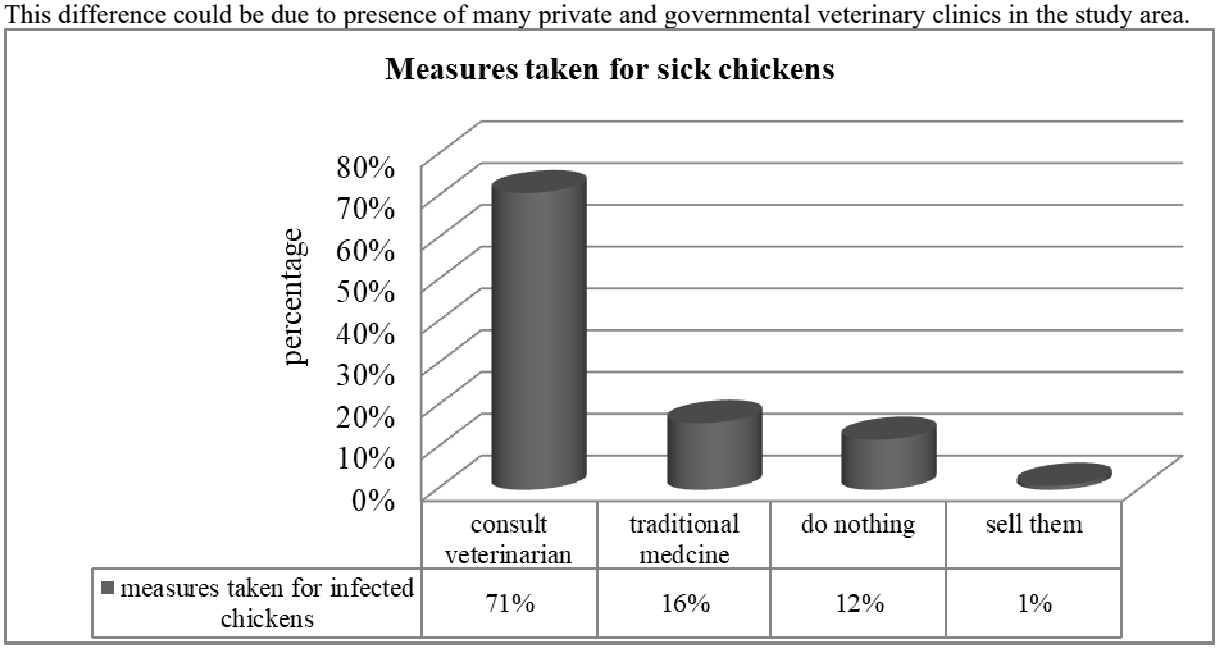

Figure 3 measures taken for infected chickens

3.6. Constraints of Village Poultry Production

The survey result revealed that disease is the major constraint of poultry production in the study area. Among 100 respondents 35 of them indicated that poultry disease is their main constraint for chicken production. According to information taken from Wolaita sodo agricultural office, Newcastle disease, fowl pox, Coccidiosis and salmonellosis were the main causes of chicken mortality in the study area (Figure 4). Although 71% of respondents consult veterinarian for the measurement of sick chicken, they don't get vaccination periodically for their chicken due to shortage of vaccines in the study area. This reason is exposed them for the seasonal outbreaks of chicken diseases. Besides chicken diseases, predator and thefts (28%) was perceived as main challenge for the majority of interviewees. This result is agreed with the study reported by (Goitom et al., 2017) who indicated that Disease and predators were the most important constraints in the production and marketing of village poultry product. (Dwinger et al., 2003) had also reported that a large proportion of village poultry

mortality accounted due to nocturnal predators because of lack of proper housing. The higher proportion of diseases and predation recorded in the present study might be attributed to lack of disease prevention and control measures such as biosecurity and vaccination contributed to higher prevalence of diseases in the study area. The higher predation could also be related to the presence of high number of stray dogs, cats, and scavenging feeding system of chickens in the study area.

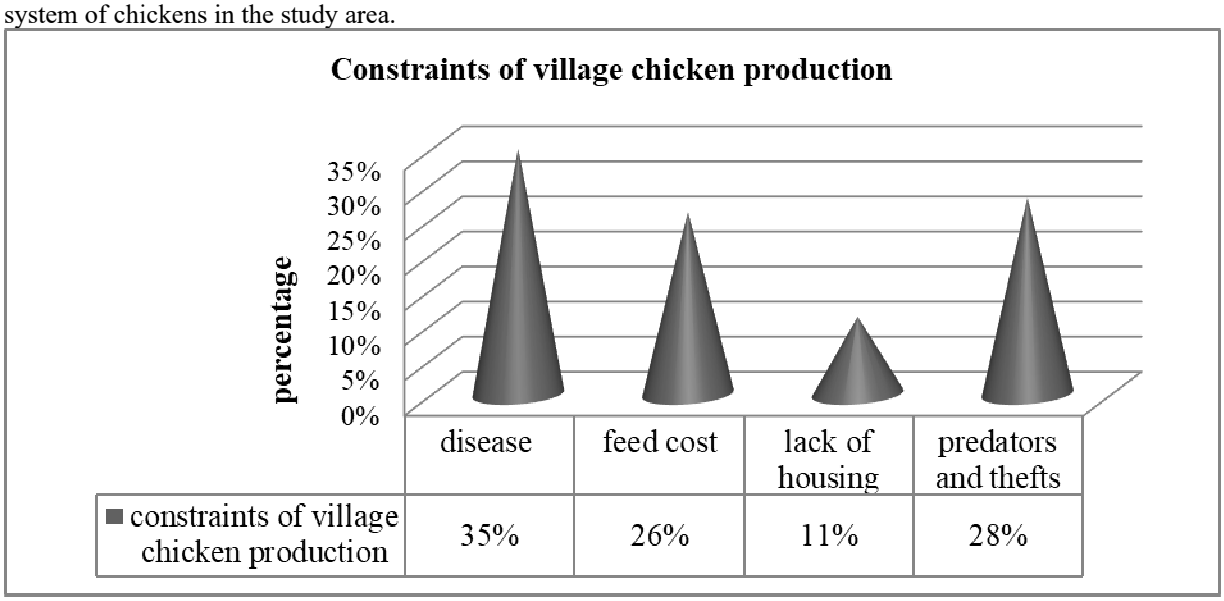

Figure 4, Major constraints of village chicken production.

3.7. Opportunities of Village Poultry Production

From the study, as indicated in Figure (5) market (42%) was the major opportunity for poultry production in the study area which is followed by extension service and credit service. This report is in agreement with the findings of previous studies (Feleke et al, 2015) who reported market as good opportunity for poultry production in Arbegona woreda. The availability of market could be due to the presence of high demand of egg and chicken meat around the study area. Usually the demand of market is seasonal and it is increase during New Year celebration and holydays. This result agrees with the study of (Hika et al., 2018) and (Yonas et al., 2019). In Wolaita Sodo town there is a large market; known as *Merkato* and many small markets on which chickens and eggs are sold along with other food items.

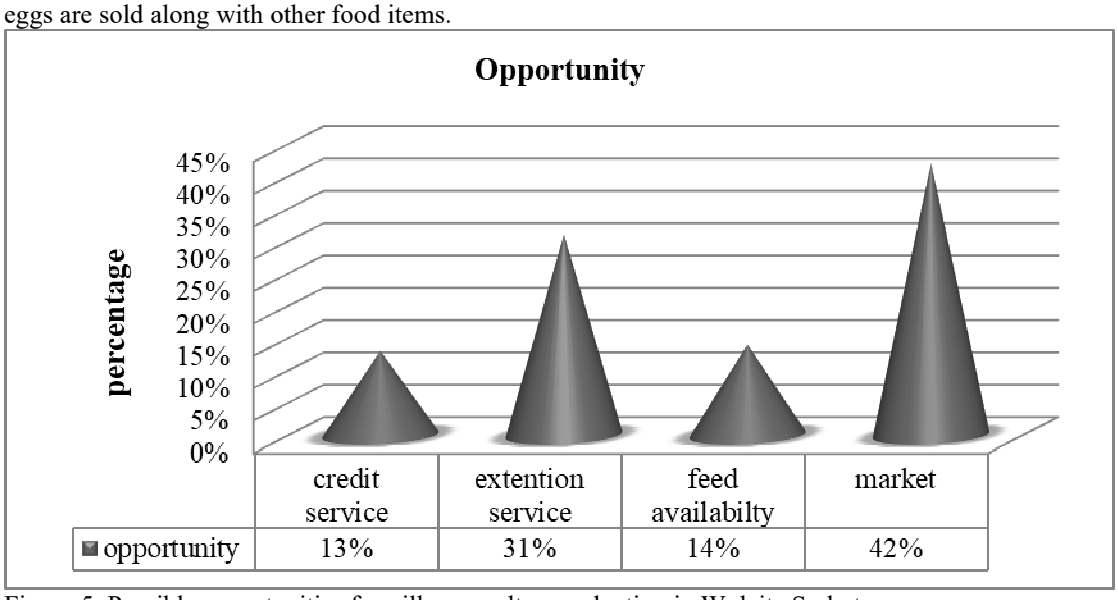

Figure 5. Possible opportunities for village poultry production in Wolaita Sodo town.

4. CONCLUSION AND RECOMMENDATION

In this study, village chickens are raised under extensive production system practice with many constraints such as disease, feed cost, lack of housing, predators and theft. Although these challenges were reported by respondents of the study, there were also good opportunities such as market access, extension service, feed

availability and credit services for village chicken production in the study area. Income generation, home consumption, saving and keep chicken for slaughtering during festivity were among the purposes of poultry production in the study area. It was also recorded that majority of kept their chicken with in the same room together with family, other respondents had separate shelter for night under enclosure in the same roof and a few had separately constructed poultry house. In this study, disease and predator are reported as a main cause of chicken mortality.

Based on above conclusions the following recommendations were forwarded:

- Increasing the awareness of village poultry producers and extension staff about disease prevention, control and appropriate control of predators.
- The poultry farmers should be supported with modern chicken houses so that help many chickens can be managed in small space.
- Provide regular support and regarding to market information, adoption of technologies and innovations in chicken farming.

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