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CONTRIBUTION OF INDIGENOUS CHICKEN PRODUCTION TO THE HOUSEHOLD INCOME AND IMPROVEMENT OF FOOD; A CASE OF SAME DISTRICT, TANZANIA

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ABSTRACT

Indigenous chicken production in particular plays an important socioeconomic roles in developing countries. Smallholder farming families, landless labourers and people with incomes below the poverty line are able to raise chicken with low inputs and harvest the benefits of eggs and meat through scavenging feed resources. This paper assessed the Contribution of Indigenous Chicken Production to the household income and improvement of food. A cross-sectional study was carried out to assess the contribution of indigenous chicken production to household income and improvement of food by using questionnaire survey, focus group discussion, field visits and documentary review. Four villages were randomly selected and a total of 110 households were participated during questionnaire survey.The study revealed that, indigenous chicken project could improve household income and food dietary at household through provision of meat and eggs. In addition, chickens are kept also for traditional values and social function issues. However, there are several challenges facing indigenous chicken production such as diseases outbreak e.g Newcastle diseases and lack of enough capital to facilitate chicken feeds, housing and vaccination. In order for indigenous chicken to contribute effectively to the household income and improvement of food, provision of capital, training on chicken diseases control and improve of chicken keeping system should be in palace

Keywords: Indigenous chicken, Income, Food Improvement

1. INTRODUCTION

Indigenous chicken have been increasingly recognized as one of the entry points to address the problems of malnutrition, food insecurity, low income and poverty as a whole (Mengesha, 2012). Indigenous chicken variety keeping is a profitable venture and eventually a tool for livelihood

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improvement and poverty alleviation (Gawande et al., 2007, Dolberg, 2007; Fasina et al., 2007; Sharma, 2007; Dei et al., 2009). According to Sonaiya (2007), indigenous chicken contributes substantially to peri-urban family incomes. This activity empowers farmers financially and improves the educational and nutritional status of children through the gained income and the intake of chicken and eggs. Furthermore, animal protein consumed in rural areas frequently comes from village chicken meat and eggs. (Tadelle et al, 2003). Chickens can also be sold or bartered to meet family needs such as medicines, clothes and school fees. In this way, they act as a ready source of cash for emergencies and small purchases. Village chickens provide manure and play a role in pest control. They are also important for special festivals or to meet social obligations and they are essential for many traditional ceremonies and methods of treating illnesses (Ahlers et al; 2009)

The proportional contribution of indigenous chicken (poultry) to the total animal protein production in the world by the year 2020 is believed to increase to 40%, the major increase being in the developing world (Delgado et al. 1999). According to Das et al. (2008) rural poultry production particularly indigenous chicken plays significant role in the socioeconomic development.

In developing countries, animal production particularly chicken production plays important socioeconomic roles (Alders 2004; Kondombo 2005). Kondombo (2005) observed that, smallholder farming families, landless labourers and people with incomes below the poverty line are able to raise indigenous chicken with low inputs and harvest the benefits of eggs and meat via scavenging feed resources. This sub-sector is very important for the livelihood and food security of most developing nations as it is mainly raised by the majority of the rural and peri-urban households (Lwelamira et al., 2008).

The traditional, indigenous chicken production in Tanzania and other African countries are mainly based on scavenging and indigenous chicken are found in almost all households in the peri-urban areas (Mengesha, 2012).

In Tanzania, majority of indigenous chicken production are based on free range system where by the chicken depends mostly on scavenge able feed resources with little supplement of grains and kitchen leftover especially in area with low rainfall where farmers opt to keep livestock rather than crop production. In this area, there are shortages of feed and scavenging is one of the adaption methods for indigenous chicken production. For is instance Same District, in Tanzania receives very low rainfall per year and majority of farmers are being forced to opt for indigenous chicken production as the alternative source of income (DED, 2012; Ahlers et al; 2009). This is because of the climatic condition which hinders sufficient production of livestock like cattle, pigs, goats and sheep due to unreliable pasture. The area is a semi-arid condition

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where it receives small amount of rainfall 500 – 800mm per annual especially on the Lowland Plateau Zone. However, little information in known (Bukwelles, 2015) about contribution of indigenous chicken to improve income and improvement of food in rural areas in Same District. This study intended to explore contribution of indigenous chicken production to household income and improvement of food at household level.

2. MATERIALS AND METHODS

2.1 Study area

The cross-sectional study was conducted in Same District in Tanzania whereby four villages namely; Bangalala, Kirinjiko, Vumari and Masandare. The rationales for selecting this district were, first it is among the areas with very low productivity of on-farm activities, secondly, the district is situated to the Lee-windward side (Pare Mountains) whereby there is little rainfall and farmers adopt the situation by involving with other farming activities such as indigenous chicken production. Same District situated as far as 105 km form Kilimanjaro regional headquarters between 4S – 4.45S and 37.5E – 38.5E (South – Eastern).

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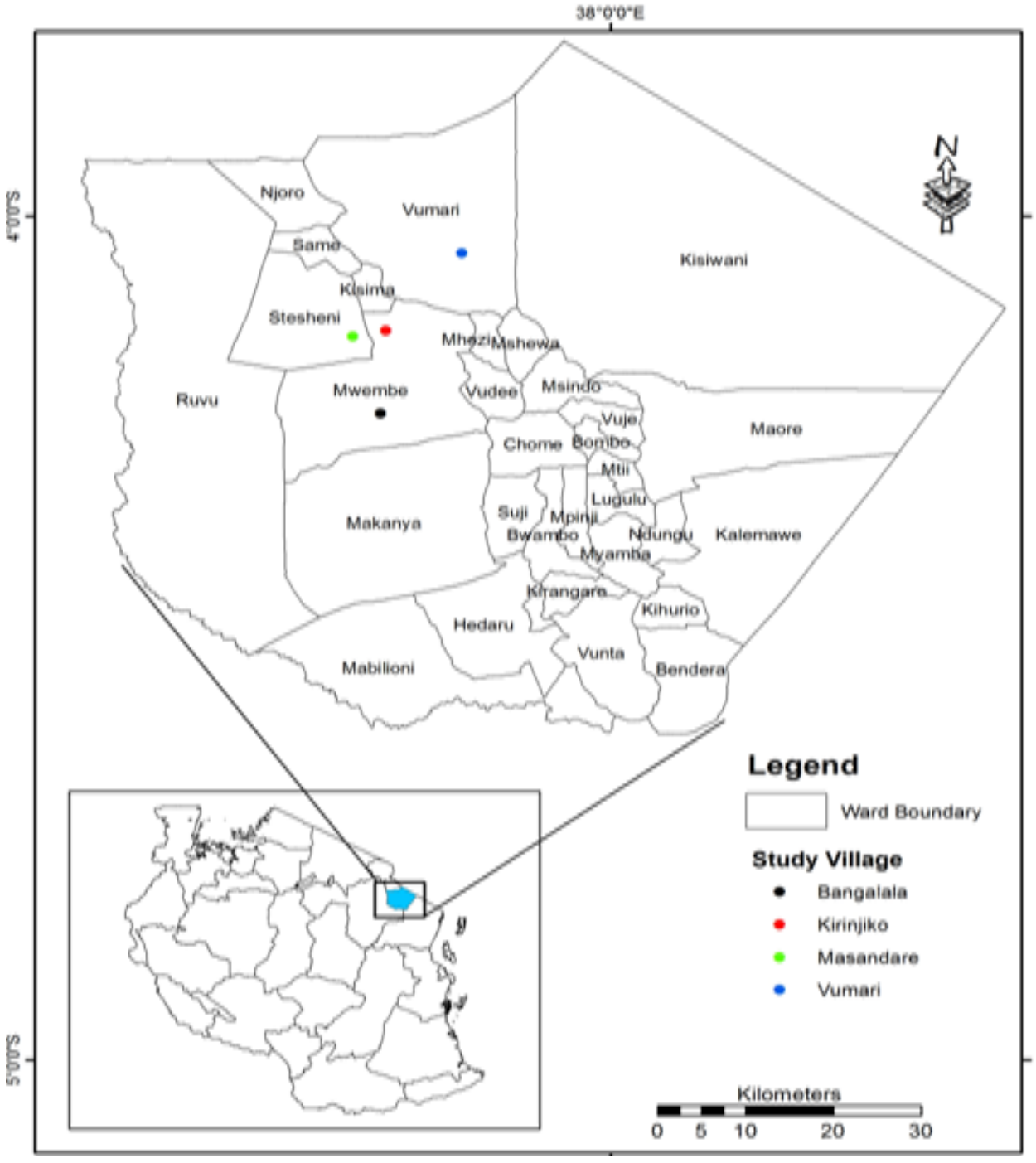

Figure 1: Map of Same district showing chicken production areas

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2.2 Sampling Procedures

The respondents were selected from the whole population basing on non-probability sampling. Purposive sampling was used in order to select the household with indigenous chicken project. Therefore, Snowball technique sampling was employed. Snow ball sampling is used "in those rare cases when the population of interest cannot be identified other than by someone who knows that a certain person has the necessary experience or characteristics to be included" (MacNealy, 1999). Therefore the study applied snowball technique hence the households with local projects were not known. The researcher, therefore, gets information from the first identified household and then directed to the next household with local chicken project. Another non-probability sampling design employed was purposive sampling to select key informants such as Agriculture and livestock officers, veterinary officers, community public health officers, non-governmental organization (NGOs) officials, villages and wards executive officers.

2.3 Data collection Methods

Primary data were done through questionnaires survey using structured questionnaires, focused group discussion and key informants interview.

Semi -structured questionnaires were administered to the household with local chicken projects. Through household questionnaires survey, demographic information of the respondents was captured and importance of local chicken at household level, income and food status etc. According to Berg, (2009) Focus Group Discussion (FGD) is the method that provides in-depth qualitative insights gathered from a relatively small group of people. Different information were captured such as kind of livestock under preference, contribution of local chicken to household income, improvement of food and social related issue, contribution of local chicken to household improvement of food, challenges in local chicken production and other benefits of local chicken. FGD were comprised 8-12 farmers from both villages. Two focus groups were conducted in each village which make total of 8 FGD. This approach was used to provide room for effective interaction of all members.

Moreover, key informant interview was used to get insight views and opinion about local chicken project in the study area. Secondary data were collected through review of various reports, books, journals and other publications related to the study. Data captured through use of survey method were sorted for clarity and then entered into SPSS software (20 versions) for analysis. Moreover, Content Analysis (CA) was used to analyze data collected through Focus Group Discussion (FGD) and Key Informant interviews.

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3. RESULTS AND DISCUSSION

3.1 Sex, age and education of the respondents

Majority (75%) of the respondents were females while less than half (25%) were males. This finding complies with the study by FAO (2008) which observed that, the activities of keeping and management of indigenous chicken in rural areas are mainly done by women.

Moreover, more than half (53.6%) of respondents were above 56 years old while 1.8% were youth (Table 1). This implies that, aged people are preferred keeping local chicken project than youth. Furthermore, in most cases in Tanzania, aged people are left in rural areas while the youth have migrated to urban areas. Therefore, keeping local chicken is the better options for aged people as it requires less labor.

Table 1: Distribution of age of the respondents

Age of the respondents	Frequency	Percent
15-35	**2**	**1.8**
36-55	**49**	**44.5**
56-+	**59**	**53.6**
Total	**110**	**100**

The majority of the respondents (85.5%) had primary school education (Fig 2).This finding relates to Sayda *et al;* (2012) who observed that, large number of farmers involved in indigenous chicken production had primary school education.

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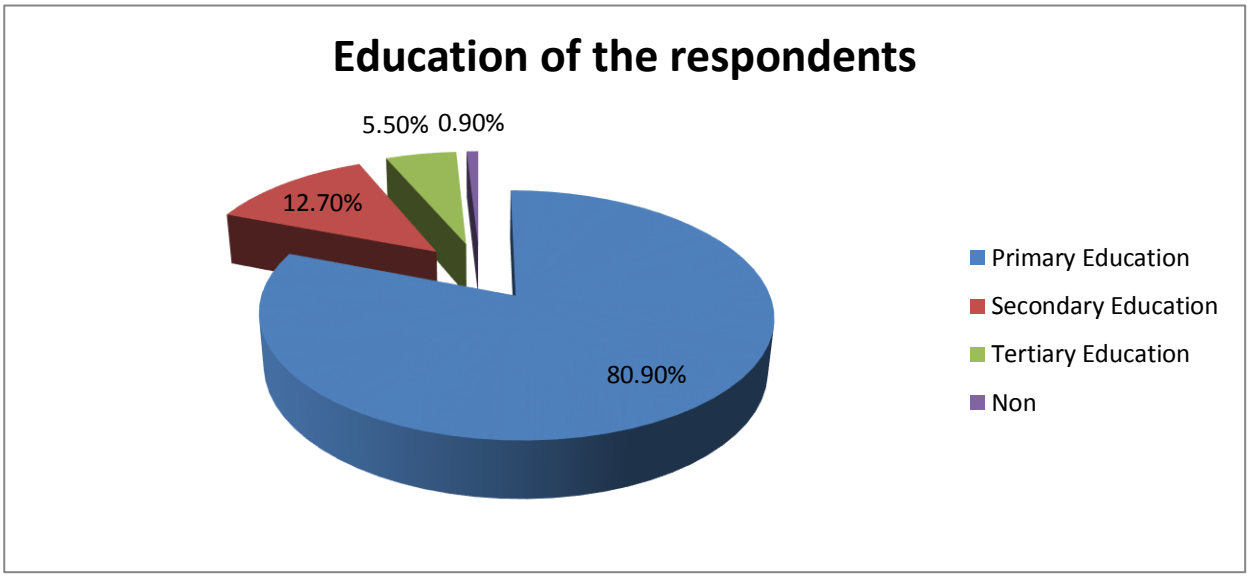

Figure 1: Education level of the respondents

3.2 Contribution of Indigenous chicken to household income and improvement of food

3.2.1 Source of household income

Indigenous chicken are contributing in improvement of income at household level by more than 38% (Table 2) through selling of eggs and chickens. During household survey, it revealed that indigenous chicken's meat and eggs have a very high market compared to exotic type. This finding is similar to Ssewanyama et al (2001) who reported that, indigenous chickens are preferred by consumer due to their pigmentation, taste, leanness and suitable for dishes. The demand in most cases is high than supply. In the study area, most of the chickens and eggs are sold at different places such as at home, local markets and open spaces (Table 3). In most cases, petty traders usual buy chicken and eggs at different places and transport to the urban. During focus group discussion, it revealed that, chickens and eggs are transported and sold in Same town and others in commercial cities such as Dar es Salaam. The findings comply with Okot (1990) who revealed that, indigenous chickens are sold at local markets to hawkers or middlemen who transport them to urban traders.

It showed that more than 38% of the farmer's income was coming from indigenous chicken projects followed by other livestock (cattle, goat, sheep) while only 33% was contributed from crop production. (Table 2).This is due to the prevailing situation of the study areas which is semi-arid and it does not favor crop production activities while indigenous chickens fit to some extent in the semi-arid areas.

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Table 2: Comparison of earning from Indigenous chickens and other income generating activities

Activities	Frequency	Percent
Crop production (maize, wheat, beans, vegetable e.t.c)	**19**	**18**
Livestock (cattle, goats and sheep)	**35**	**33**
Indigenous chickens (eggs, chickens and cocks)	**41**	**38**
Exotic chicken (eggs and chickens)	**2**	**2**
Petty business	**10**	**9**

Table 3: Places for chickens and eggs markets

Place for Marketing	Frequency	Percentage
Local markets	**56**	**51**
Open	**18**	**16**
Home	**36**	**33**

The price of chicken varies according to weight of chicken and season. During focus group discussion, it revealed that, the price of chicken is very high during festivals and demand is always higher than supply. The prices were also depending on weight of the chicken as indicated in Table 4.

Table 4: Price distribution of chicken in Tanzanian shillings

Weight of the chicken	Price	Frequency	Percent
1.2-1.5 Kg	**8,000 to 12,000tsh**	**48**	**44**
1.5- 2 Kg	**12,000 to 15,000tsh**	**29**	**26**
2-3 Kg	**15,000- 20,000tsh**	**33**	**30**

It showed that, the majority of farmers (44%) sold their chickens at the weight of 1.2-1.5 kg (Table 4) According to respondents; the average weight of chicken was ranging from 1.2 – 3kg.

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In addition, the results from FGD revealed that, the price of eggs ranged from 400 – 500 Tanzanian shillings and the demand is high than supply.

3.2.2 Source of animal protein

Indigenous chickens at household level perform a major function in improving the nutritional status (Table 5). Majority of the respondents from all villages under the study revealed that, indigenous chicken contributed large part of animal protein at household level. In most cases, eggs are mostly used by children under 5 year as sources of animal protein because are locally available and doesn't need money to buy .The consumption is mainly through boiled or fried eggs. These findings comply with Kingori et al., (2010) who noted that, keeping indigenous chicken is crucial to improve nutritional status at household level. The results from FGD revealed that, children (1-5 years old); eat 2-4 eggs per week. Other source of protein mentioned was chicken meat especially during ceremony, festival, used to honor the household guests and in some cases used as normal meal.

Table 5: Comparison of indigenous chickens and other sources of protein at household level

Source of animal Protein	Frequency	Percent
Indigenous chicken's eggs and meat	**55**	**50**
Beef	**22**	**20**
Fish	**25**	**23**
Others (goat and sheep meat)	**8**	**7**

3.2.3 Traditional values

Result showed that, indigenous chickens were also used for traditional values. Respondents explained that chickens were used as ritual sacrifice and traditional healing. These findings are also supported by Sonaiya (2000); Tadelle and Ogle (2001); Gueye (2003) who observed that, some indigenous chickens are kept in order to be used as a priority animal for holy day and religious sacrifices (Table 6).

3.4.3 Social function

Indigenous chickens are also kept deliberately for social function (Table 6). This is through the provisional of special food during ceremonies as well as to honor guests. These findings are in

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line with Aklilu (2007) who reported that, local chickens are used socio-culturally for mystical functions such as hospitality and exchange of gifts to strengthen social relations. These findings are also supported by Guèye (1998) who observed that, indigenous chickens are used as gifts to strengthen social relationships.

Table 6: Contribution indigenous Chicken at household level*

Variable	Bangalala (n= 25)	Kirinjiko (n= 30)	Vumari (n= 25)	Masandare (n= 30)
Source of animal protein	**30**	**32**	**32**	**30**
Traditional value	**20**	**21**	**19**	**22**
Income	**40**	**38**	**37**	**37**
Social funtion	**13**	**11**	**14**	**13**
Other (source of manure for garden)	**7**	**8**	**8**	**8**

***Multiple responses**

4. CHALLENGES FACING HOUSEHOLDS IN LOCAL CHICKEN KEEPING

4.1 Lack of capital

Results showed that, all four villages surveyed, capital was mentioned as major challenge facing indigenous chicken production. This leads to majority of farmers (87 %) practiced free range systems (Table 7). During FGD, it revealed that, majority of farmers prefers free range system due to low capital thereby chicken depends mostly on scavenge able feed resource's and few supplement. The finding complies with Moges and Dessie (2010) whore reported that, free range system is preferred my majority of farmers because of initial input than other system of keeping chicken. It also revealed that, some of the farmers used herbs to treat chicken diseases due to lack of money to buy drugs.

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Table 7: Indigenous local chicken keeping system

Keeping System	Frequency	Percentage (%)
Free range	**90.8**	**87**
Semi-Intensive	**18.2**	**23**
Indoor	**1**	**2**

4.2 Chicken diseases

Chicken disease is also among the major challenges mentioned by indigenous chicken keepers (Table 8). Frequently occurrence of Newcastle disease outbreaks and other bacterial diseases were mentioned to be among the major diseases problems. Inadequate knowledge among chicken keepers on how to provide vaccination before and after the occurrence of diseases and poor institutional support were explained to be contributing to the situation. These findings comply with Moreki (2006) and MOA (2012) who observed that, most problem associated with the keeping of indigenous chickens are diseases. During interview with extension officers, it revealed that, Agricultural extension services do not reach all households due to inadequate number of officers and poor infrastructure such as poor roads.

4.3 Feed shortage

It also revealed that chicken keepers faced the problem of feed shortage. Farmers failed to provide supplement feed to their chickens such that they were left scavenge for food during daytime. This affected production as chickens did not get enough nutrients. Shortage of feed also causes low weight of chicken which affect market price. Thus leads to majority of chickens range from 1.2-1.5kg. The problem is severe in all villages surveyed due to poor agricultural production caused by prolongs shortage of rainfall. These findings are in line with Masuku (2011) who noted that, indigenous chickens in Africa are left to search for food through scavenging or free range systems.

4.4 Other challenges (predators, theft, and housing)

It also revealed that, there are other challenges such lack of house and poor construction of indigenous chickens, predators and theft. Predators such as sparrow, eagle, crow and snakes were explained among the problems affecting chicken keepers in the study area. This was because of free range system which is also subjected chickens to thieves. These findings are in line with MOA (2012) who pointed out that, the traditional ways of keeping indigenous chicken do not

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encourage the provision of houses hence they are exposed to problems like predators, thieves, stress and adverse weather conditions.

Table 8: Challenges facing local chicken production

Variable	Bangalala (n= 25)	Kirinjiko (n= 30)	Vumari (n= 25)	Masandare (n= 30)
Capital	**30**	**32**	**32**	**33**
Chicken diseases	**40**	**36**	**37**	**36**
Feed shortage	**20**	**23**	**21**	**23**
Poor extension services	**12**	**10**	**10**	**11**
Other (predators, theft, poor chicken house)	**8**	**7**	**7**	**7**

5. STRATEGIES FOR OVERCOMING THE INDIGENOUS CHALLENGES IN CHICKEN PRODUCTION

5.1 Provision of capital

Farmers suggested the establishment of micro credit schemes in the community living in the study areas. This can be done through banks which can be established by the government or private sectors. They suggested also forming Savings and Credit Cooperatives. These will be helpful because members will access loans for the purpose of investing in indigenous chicken production.

Management trainings on diseases control

There is a need of provision of management training to the community who are involved in keeping indigenous chickens. This could enable to improve indigenous chicken production. Farmers suggested the government to provide subsides for chicken vaccination and also Agriculture extension officers should provide training on how to provide vaccination to chickens (i.e when, how and amount).

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CONCLUSION

Based on the findings, it concluded that, indigenous chicken project could help farmers to improve income as well as improvement of food at household level. However, the indigenous chicken production at the study area faces several constraints such as diseases outbreak, low capital and inadequate supply of feeds, which explains the increase in free range system of keeping chicken. In addition, the free range system practiced by farmers accelerates problems such as predators and thieves. The challenges can be overcome through provision of loans to the farmers. The loans can be accessed through banks and other financial institutional to increase the capital. This will help farmers to improve husbandry practices such as feeds and also to change from free range system of keeping chicken to semi-free range or indoor system and improve production. In addition, training from Agriculture extension Officer on chicken diseases control should be crucial to reduce the diseases outbreak.

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