



Preliminary assessment on chicken performance: in case of ENGINE supported backyard improved chicken rearing by MVHs in selected woredas of Amhara, Oromia, SNNP and Tigray



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## Study Purpose and assessment focus area

This preliminary study was undertaken with the objective of understanding improved chicken breed performance at rural farming communities that ENGINE distributed for most vulnerable households (MVHHs) to aid the inclusion of egg in the targeted households' diet and income source. The ENGINE chicken supporting strategy has designed as a full package of housing, feeding, healthcare and improved chicken breed. Therefore, the chicken performance assessment focused on whether the chicken support provided for MVHHs fulfilled the recommended package or not, distributed chicken egg laying status, chicken survival and egg utilization trend. Eventually, recommendation will be made based on the findings of the preliminary assessment and ENGINE's own in-house learning from SNNPR ENGINE chicken support experience; since ENGINE chicken support pioneered in SNNPR and the experience has scaled-up to other regions.

## Study findings

### MVHHs received chicken support

Improved chicken supply constraint as well commercial chicken breed intensive management requirement which the poor farmers could not afford limit ENGINE effort to distribute more chicken for year-ii target groups as anticipated. As shown in table: 1 below, ENGINE managed to distribute, 1,444 head of chicken with a total cost of Birr 109,648, commercial chicken breeds (Lohman, Bovan brown and White leg horn) to 134 MVHHs in 12 kebeles of Tigray, Amhara, Oromia and SNNPR regions.

**Table 1: MVHHs engaged in chicken rearing receiving support from NGINE in Tigray, Amhara, SNNP and Oromia Regions**

Region	Zone	Woreda	Kebele	# of MVHHs rearing chicken
Tigray	South	E/Mehoni	Simiret	14
			Mekan	13
		R/alamata	Temuga	17
	<b>Sub-Total</b>	<b>2</b>	<b>3</b>	<b>44</b>
	West	K/Humera	Adebay	9
			Rawyan	8
		Walkait	Wefargif	13
<b>Sub-total</b>	<b>2</b>	<b>3</b>	<b>30</b>	
Oromia	West Shewa	Dendi	Warka Gara	10
SNNP	Gurage	Enemor	Gasawude	10
Amhara	W/Gojam	Wonberima	Wazingus	10
		Enemay	Dimma	10
	<b>Sub-total</b>	<b>2</b>	<b>2</b>	<b>20</b>
	E/Gojam	Dejene	Enajjima	10
			Sebeshengo	10
<b>Sub- Total</b>	<b>1</b>	<b>2</b>	<b>20</b>	
<b>Total</b>	<b>6</b>	<b>9</b>	<b>12</b>	<b>134</b>

Source: ENGINE own field data

## Chicken distribution and related support provided for MVHHs

The distributed chicken number and sex composition per household undertaken as recommended (10 female: 2 male) except Warka gara Kebele of Oromia. All the distributed chicken sourced from private chicken growers residing in the locality. The private chicken growers procured day-old chicken from public owned poultry multiplication centers and reared till marketing age as indicated in table below. Distributed chickens are commercial egg layers recently imported from various countries by regional poultry multiplication centers except White leg horn which has been reared for so long in Ethiopia and growers sourced from Haramaya University poultry farm. Age of chicken distributed for MVHHs range from 40 days to five months accompanied with housing material but no feed supply in Tigray as well inadequate feed supply in both Amhara and Oromia compared to 200 kilo grams of feed support in SNNPR; 100 kg growers feed while 100 kg of layers feed. Vaccination scheduled advised to be provided after handing over the chicken for MVHHs not provided except in Oromia and SNNPR. In Oromia and SNNPR, the chicken breed, vaccination, training and housing material support for chicken recipient were same but amount of feed provided for HHs is significantly different which potentially impact egg laying performance as indicated in Fig 4 below.

**Table 2: ENGINE distributed chicken to MVHHs and the support profile by Region**

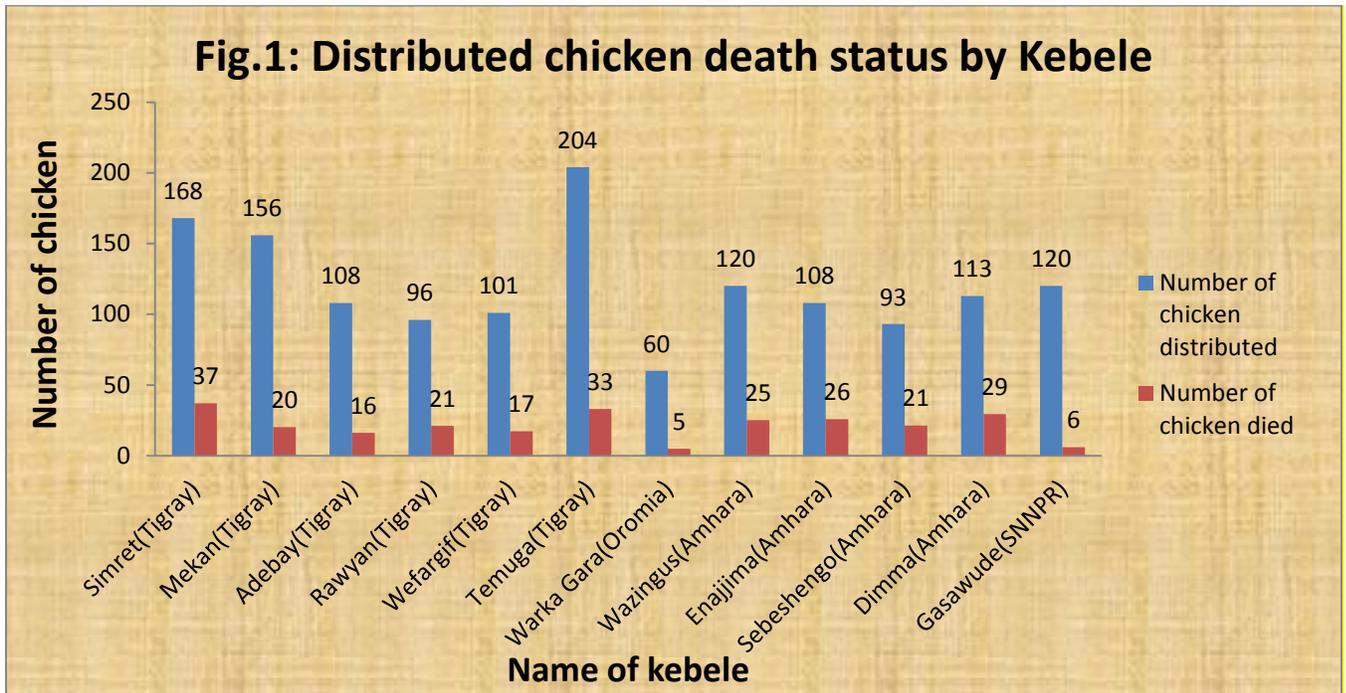
Region	# of chicken distributed	Chicken source	Breed	Chicken age at distribution	Chicken age to-date	Training	Feed/HH	Industrial by product for housing	Vaccination after dispatch
Tigray	830(2 Male:10 Female per HH)	Private	Bovan brown	45 days	5½ months	3 days	0	Received	Not vaccinated
Oromia	60(1Male:5 Female per HH)	Private	White leg horn	5 months	9 months	3 days	10 kg	Received	Vaccinated
SNNPR	120 (2 male:10 Female)	Public	White leg horn	40 days	11 months	2 days	200 kg	Received	Vaccinated
Amhara	434 (2 Male:10 Female per HH)	Private	Lohmann	60 days	7 months	2 days	45	Received	Not vaccinated

Source: ENGINE own field data

## Distributed chicken survival status

As indicated in Fig.1 below distributed chicken mortality range 8% (5 died from 60 chicken distributed) in Warka gara Kebele of Oromia Region to 26% (29 died from 113) in Dimma Kebele of Amhara Region. The death of chicken within kebeles ranges from 13% - 22% in Tigray while that of Amhara are in the range 21% - 26%. The chicken mortality rate encountered in all chicken distribution areas indicated in Fig.1 below when compared among the regions, which is ENGINE's own experience, in SNNPR was 5% (6 died from the 120 chicken distributed) which is

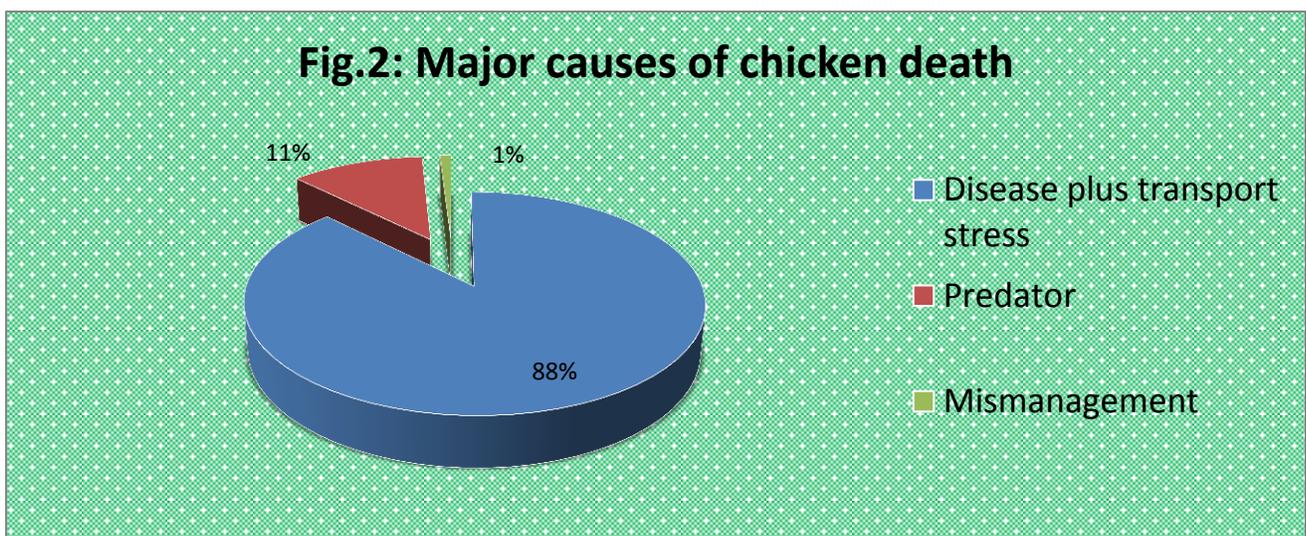
far below that of Tigray and Amhara . The mortality rate discrepancy; skewed to the maximum from SNNPR is a clear indication of full package provision and sustained vaccination service; most importantly feed support based on growth and production status; grower feed for young aged while layers feed for egg laying hen.



Source: ENGINE own field data

### Major causes of chicken mortality

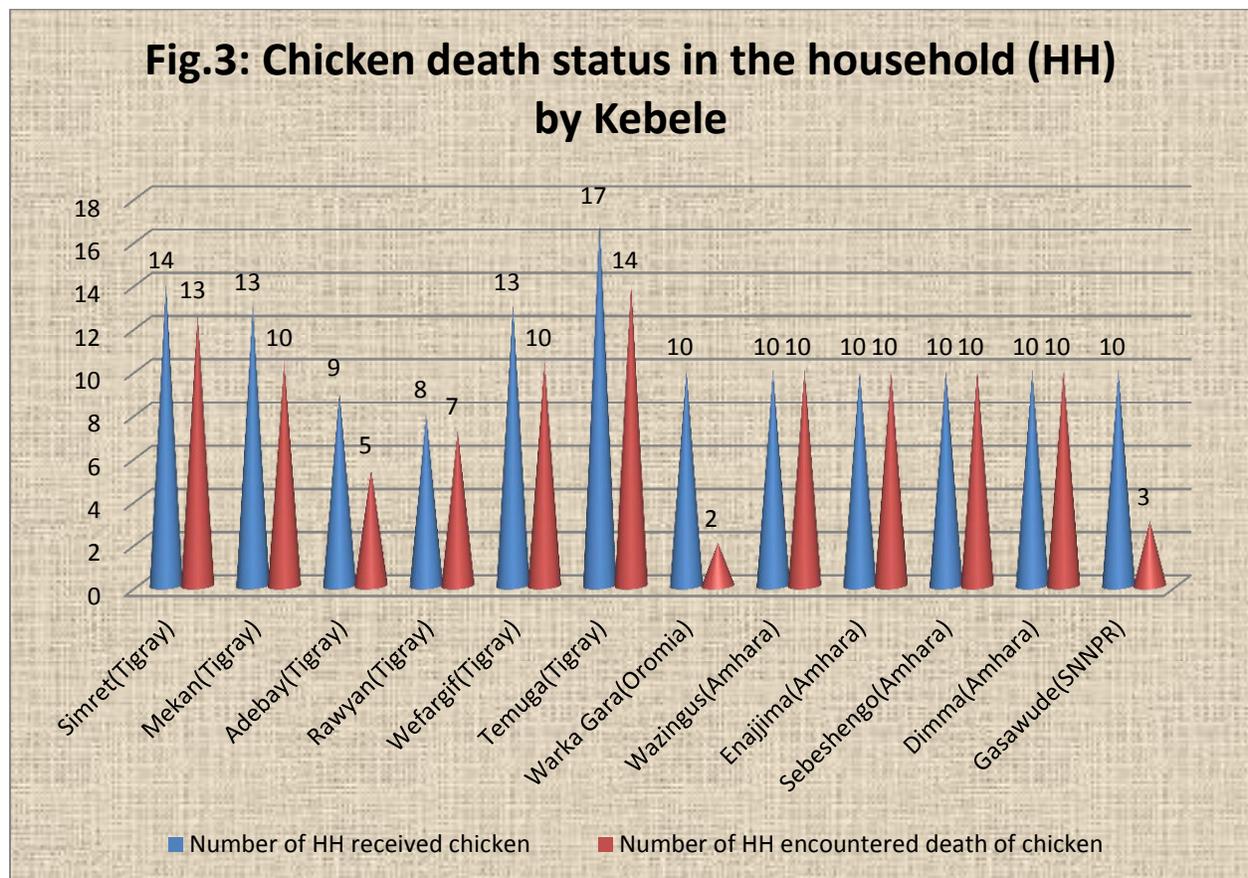
As shown in Fig.2 below, Most of the death in the distributed chicken happened due to transport stress and stress-induced diseases (88%) seconded by predators (11%). But the death of chicken due to mismanagement at the hands of households is very minimal (1%).



Source: ENGINE own field data

Transport related disease and stress as primary cause of chicken death further verified as the death encountered in all chicken recipients in chicken distributed kebeles of Amhara and with the majority of HHs in kebeles of Tigray as indicated in Fig.3 below. But in Warka gara of Oromia Region, only two of the 10 chicken recipients encountered death of chicken while in SNNPR three of the 10 HHs encountered chicken death. The White leg horn breed adaptability, feed support coupled with the vaccination service is a plausible reason for better survival in Oromia and SNNPR.

Around 180 chickens (140 in Tigray and 40 in Amhara) were reported dead on transportation prior to handing over to the targeted MVHHs. Chickens have to be transported with appropriate facilities and with due care.

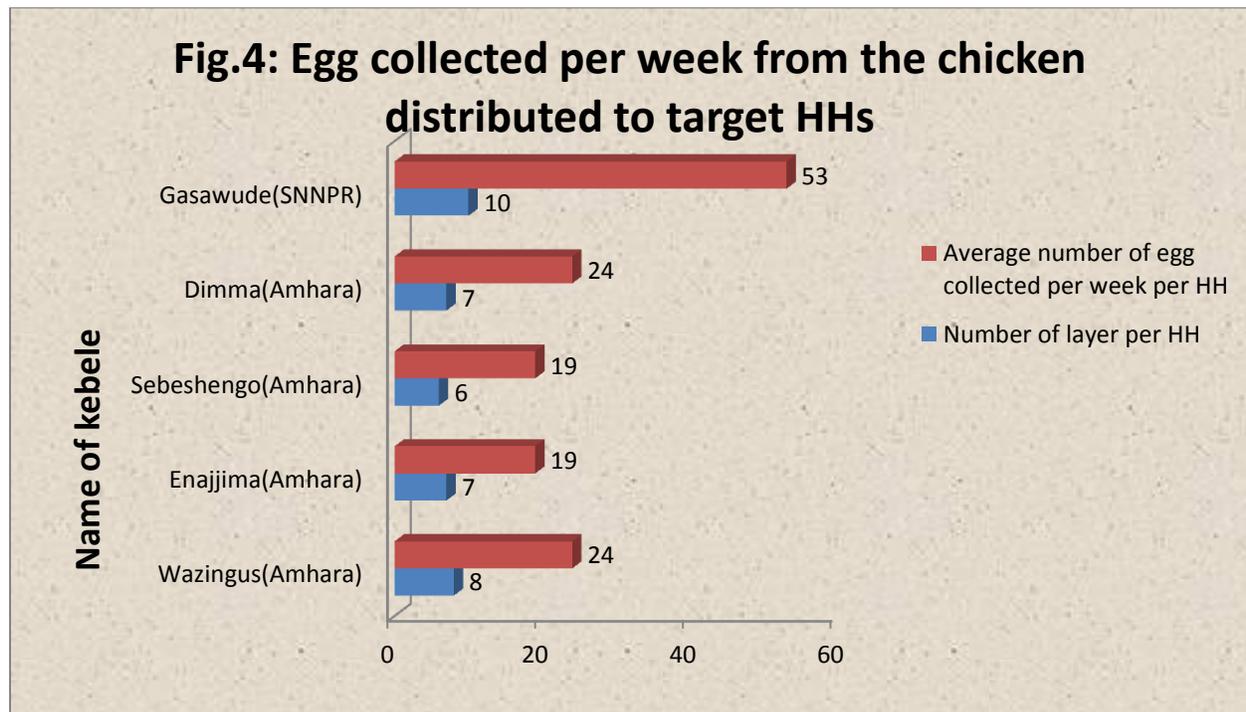


Source: ENGINE own field data

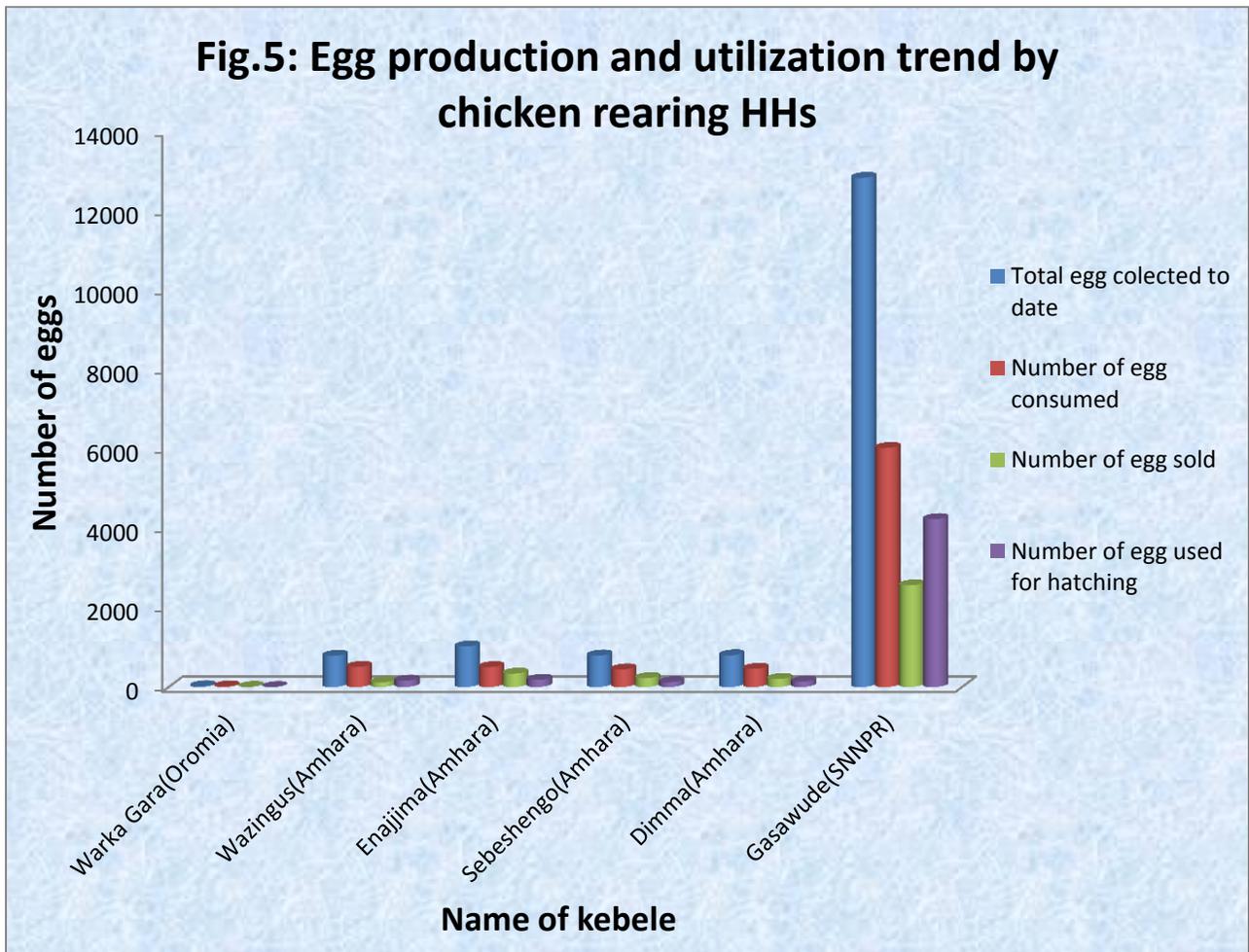
The finding above indicates that most of the death causes are preventable through availing proper transport facilities and linking chicken recipients with nearby veterinary service providers to get timely vaccination and treatment service.

### Chicken egg laying performance and household egg utilization trend

The chicken distributed in Warka gara kebele of Oromia are delayed in egg laying start; not started at their age of seven months when compared to SNNPR of same chicken breed type which started at five and half months. Chicken distributed in kebeles of Tigray region are at their age of five and half months and not started laying eggs this is too early to make conclusion on laying performance but it suggest the inclusion of feed to initiate egg laying. As indicated in Fig.4 below kebeles of Amhara Region, some of the distributed chicken started egg laying at five and half months of age. As per the report, hens have been laying eggs for a month and on average each HHs started to collect 22 eggs per week from survived egg laying hens of average seven layers per HH in Amhara while the six months of aggregated egg laying performance in SNNPR per household reaches 53 eggs per week. This laying history show three eggs per day from seven hens per HH in Amhara which means 43% of egg production but in SNNPR eight eggs per week from 10 hens which indicates 80% of egg production. Though the egg production performance at laying start is acceptable in Amhara it need close monitoring so that feed and feeding can be reconsidered.



The HH egg utilization history needs to be seen with cautions as the reliability of the data is questionable any way as indicated in Fig.5 below signify quit good proportion of eggs collected used for consumption while the eggs remaining from consumption used for sell and hatching. The reported egg utilization trend is very promising to have positive nutrition outcome but it necessitates a coordinated effort from the communication and behavioral change section to have more synergistic and log lasting outcome.



## Conclusion

The lesson generated from the preliminary assessment indicated that ENGINE distributed chicken performance as a measure of egg laying start and survival is quite promising. The reported egg utilization trend in the households who received chicken showed good number of produced eggs are used for household consumption seconded by selling and hatch for replacement that could potentially contribute to address under-nutrition and sustained income source respectively, though the data needs further triangulation. The generic output of this assessment is reflecting the need to focus on the full package (feed, housing, technical skill and healthcare) provision and employing maximum effort to avoid transport stress by using transporting facilities and healthcare to avoid stress induced death challenges. Based on the conclusion made earlier the below steps need to be considered for future chicken distribution:

## Next step

- Capacitating chicken recipient on preparing home-made chicken feed from locally available materials is required as per the advised feed formulation and prior to chicken provision feed preparation need to be checked; HHs prepared feed should receive chicken
- In a situation when home-made feed preparation before provision is not happening, formulated feed should be purchased and provided along with the chicken. But a clear schedule should be set to replace purchased feed by home-made feed prepared by the chicken recipient; if need be locally unavailable ingredients can be supported by ENGINE
- Chicken transport from the supplier to the recipients need to be well organized ahead of time via availing transport facilities and providing required health services like stress-win and others as technically advised
- The vaccination and treatment service provision after handing-over the chicken to the recipient is often forgotten. But, this is one of the important commitment ENGINE want to have from the respective Woreda livestock agency. Therefore, prior to distributing chicken to the recipient, woreda livestock agency should avail the required vaccines and technical personnel to deliver vaccination as per the program. ENGINE will be considering capacity building of Woreda staff whenever technical shortcomings are observed
- The delayed egg laying observed in this assessment necessitate an immediate feed support and later initiate supported HHs to prepare home-made feed using egg selling income once their hen started laying egg
- Construction of chicken housing should be as per the ENGINE design