



FURTHER EXPERIENCE WITH BACKYARD POULTRY PRODUCTION

SECOND MEETING OF THE MICRO-POULTRY WORKING GROUP

HARMONY HOTEL, ADDIS ABABA

7TH FEBRUARY 2017

The AKLDP project undertakes a set of structured learning and coordination activities based on policy and programming issues that have been prioritized with USAID and the Government of Ethiopia. Specifically, the AKLDP provides coordination and technical support to guide improvements in USAID agricultural programming and to support national development policies and strategies—particularly those geared towards assisting poorer households to benefit from agricultural and food security investment.

A key task of the AKLDP is the organization of regular meetings, field visits and information sharing events for collaborative learning groups, whilst ensuring the mainstreaming of these networks within government structures. The Micro-Poultry Group held its second meeting in February 2017. These proceedings provide summaries of four presentations that were made during the half-day meeting held at the Harmony Hotel and highlight the key outputs of the group discussions.

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Summary of the meeting

A. Meeting agenda

Adrian Cullis, AKLDP CoP, opened the meeting with a brief introduction to the purpose of Micro-Poultry Working Group and the importance of poultry in the lives and livelihoods of rural households in Ethiopia. He welcomed the participants and introduced the presenters that had come to present their interesting work. A list of the meeting participants is included at Annex 1. Four presentations were made covering: CARE's experience with the management of scavenging poultry in Ethiopia and elsewhere; the Kyeema Foundation's experience with village poultry production and NCD control in Mozambique; the research and community work of Haramaya University on micro-poultry production; and the experience of the ENGINE program in Ethiopia towards improving backyard chicken farming for nutrition. A question and answer session followed the presentations and a period of time allocated for group discussion. A copy of the agenda is at Annex 2.

B. Meeting background

In July 2016 the AKLDP provided support to the Ministry of Livestock and Fisheries (MoLF) for an action planning meeting to establish a collaborative learning group on poultry production – The Poultry Working Group. The draft action plan for the group, which will initially address issues related to the commercial poultry sector, was subsequently endorsed. In September, eight specialists from the Ethiopian Institute Agricultural Research Institute (EIAR) and MoLF were provided with training to undertake a technical capacity performance review of commercial poultry farms in Ethiopia. In early October a National Egg Day, *'Egg Matters: an egg a day - an affordable approach to address malnutrition'* took place.

In November a meeting was held to explore the need and opportunities to complement the Poultry Working Group with a Micro-Poultry Group that would focus specifically on household or micro-level production. The report of this first meeting, whose theme was 'Improving Backyard Poultry Production', is available on the AKLDP website at: <http://www.agri-learning-ethiopia.org/workshop-and-conference-proceedings/>

This report is based on the second meeting of the group, at which a number of organizations made presentations on their broader experiences and the challenges of supporting backyard poultry production.

C. Presentations

1. Experiences with the Management of Scavenging Poultry

Food Sufficiency for Farmers (FSF) initiative, CARE Ethiopia

The first presentation looked at the experience of CARE Ethiopia's Food Sufficiency for Farmers (FSF) initiative on the management of scavenging poultry. Scavenging poultry was defined as being chickens usually cared for by women and children, mostly kept unmanaged in small numbers, but sometimes given supplementary feed. The chickens feed by scavenging for insects, grubs, snails, seeds, fallen fruit, kitchen waste etc. The advantages of scavenging poultry are that the system does not produce significant emissions (significant for Ethiopia's Climate Resilient Green Economy); and they are important for women and children, both as a direct source of nutrition (egg and meat) and for improving women's purchasing power. In terms of numbers in Ethiopia, they are estimated at 53 million chickens (99% local breeds) with an average of 6 per household. They are a low input production system in terms of water, feed, shelter and medicines. Scavenging poultry's output and contribution is relatively low however—estimated output of 40-60 eggs/hen/year and small body weight—but they make up 95.9% of total national poultry meat and egg production (CSA, 2014). Per capita consumption is 9 eggs and 0.6 kg of meat.

The presentation described CARE's management experience with scavenging poultry in Mozambique. Working with 134 households, each with 7 chickens on average, the provision of Newcastle Disease (NCD) vaccinations increased the average of 7 chickens to 20 within 6 months. This led to improvements in household purchasing power, increased home consumption of chicken products, greater decision-making power for women, and a higher capacity to survive droughts. CARE's experience in Bangladesh was also introduced. The initiative in Ethiopia has included preparation of the Scavenging Poultry Management Note and the development of a Manual with the Ministry of Livestock and Fisheries (MoLF), which has been distributed to *woredas* and Development Agents. The initiative is promoting the potential of scavenging/household-level poultry production through training and the execution of an action plan. The Manual covers poultry needs in terms of water, feed, housing, use of local breeds, selection, medicament (for NCD), hygiene, etc. At least 550 households have been provided with a full package, which covers both the manual and vaccinations. Following a vaccination campaign, the number of eggs has increased from 40-60 to 100-120/hen/year, whilst the average number of chickens per HH has increased from 6 to 20 in 6 months.

The major challenge facing scavenging poultry production is NCD, with outbreaks in Ethiopia happening twice a year on average and killing 70-80% of the chickens affected. The virus can be controlled with the use of vaccines (produced at a factory in Bishoftu). Available at *woreda* veterinary clinics, the FSF initiative has used its VSLAs as the entry point for the provision of the vaccine. Controlling the incidences of NCD alone has contributed to food security through incremental income increase. It also improves nutrition status and empowers women. Progress to date has seen about 126,000 chickens vaccinated in West Hararge, with 6,343 and 8,905 HHs benefitting in FSF and Non-FSF intervention areas; plus 4,900 chickens vaccinated in South Gondar. The full package has been started, with supplementary feed provision and housing so chickens do not go far and are not exposed to predators. The ratio of cock to hen is being kept at 1:6 so as to have a greater number of laying chickens. Farmers have now started to demand the NCD vaccination, and the Government is going to give vaccinations through the development group approach. Bahir Dar University has also started some research work research. The death rate has been reduced, with the non-vaccinated being shown to have died due to NCD. Production and productivity has increased, with people preferring to purchase vaccinated chickens.

2. Village poultry farming and Newcastle Disease Control in Mozambique

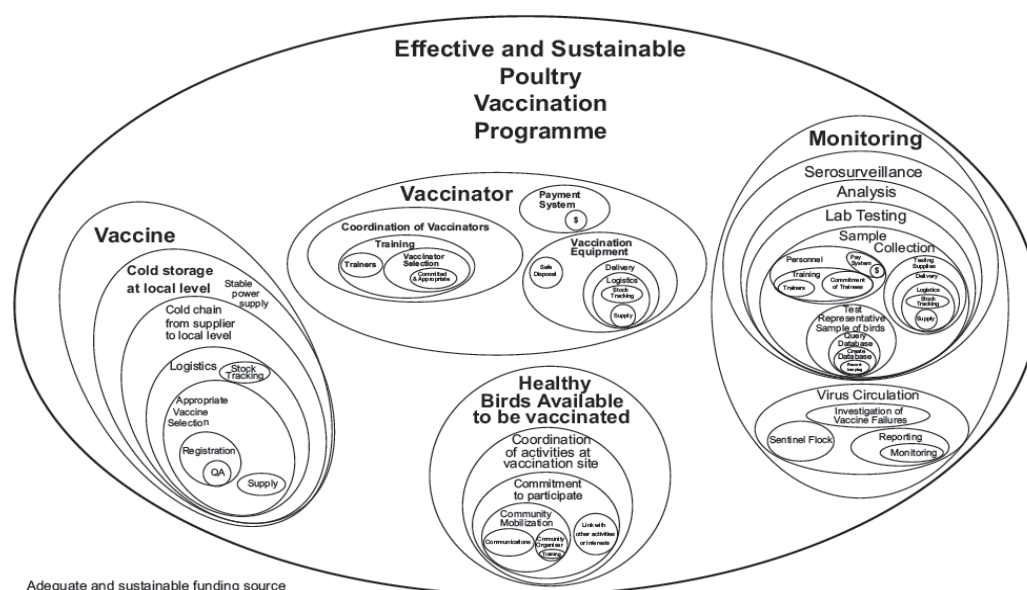
Dr. Rosa Costa, Kyeema Foundation

The second presentation was based on the household level poultry production work being carried out by the Kyeema Foundation in Mozambique. The agriculture sector in Mozambique was introduced as: mainly constituted by the family sector/subsistence agriculture; accounting for about 99% of agro-livestock units; and occupying more than 95% of the country's cultivated area. 71% of the rural population raises chickens, with village chicken production dominant in all regions of the country. This contrasts with the dualist structure of other countries.

The presenter described the poultry production systems in Mozambique:

- **Large Scale Capital Intensive Poultry Production** for the frozen urban meat market
Total domestic broiler production: >15 Million birds/annum. 50% of commercial frozen broilers imported from Brazil & South Africa (=15 Million). Around 10 commercial feed millers in entire country (6 Maputo, 1 Chimoio, 3 Nampula). Vertical integration is common (e.g. Parent stock, hatchery, feed mill, broiler production, slaughter facility). 90% of all soybean imported from Argentina & South Africa (>30,000 tons).
- **Small-Scale Commercial Poultry Producers** (500-2,000 birds) for the live peri-urban market.
- **Free ranging rural domestic poultry.** Total domestic informal Poultry Stock > 22 Million in Mozambique. Scavenging/ free ranging & no use of commercial feed. Local indigenous land races. Mainly for domestic consumption or live bird sale in local markets. Major production threat is Newcastle Disease.

Reasons to invest in village poultry farming were given as being an opportunity to promote a growing strategy in favor of the poor. It is also the largest system of poultry production, a critical source of income and nutrition for poor households, plus the involvement and unique role of women in poultry production should not be ignored. The main promotion activities for village poultry cover: Health - NCD vaccinations, anti-parasitic treatments; Housing - using locally available materials; Feeding strategies for different age groups; and Breeding.



The work of the Kyeema Foundation has focused on vaccine distribution and vaccination campaigns, by training and equipping community vaccinators. Gender sensitive training and extension materials that are adequate for veterinarians, extensionists, community vaccinators and farmers have been produced; including a Field manual, Training manual, Laboratory manual, Posters, Flip charts, Radio and Theatre programs. Farmers have been taught how to build chicken houses using locally available materials and marketing. The coordination of activities with all stakeholders has been important (Farmers, Community vaccinators, Extension and livestock staff, the Private sector, Veterinarians, Anthropologists and NGOs).

The presenter provided data on the comparison of the average flock size in the households that vaccinated against Newcastle disease, households that vaccinated and supplemented, and a control group as indicated in the table below:

Vaccinated	Vaccinated + Feed supplemented	Control
14.4 (\pm 1.2 SE)	16.9 (\pm 1.2 SE)	8.7 (\pm 1.5) (P=0.0001)

The results of the 2013 impact assessment study by the Australian Centre for Agricultural Research were also given, with a benefit to cost ratio of \$60 community benefit for every \$1 invested. Benefits for controlling NCD in Malaysia, Vietnam, and the Philippines have been estimated at \$211 million.

Details were given on the Phase 3 Newcastle disease control project implemented from June 2012 - June 2016 by the IRPC/KYEEMA Foundation, in collaboration with the Pan-African Veterinary Vaccine Centre of the African Union (AU-PANVAC). The overall project goal was to lay the foundation for a larger NCD control project to be implemented in collaboration with AU-PANVAC and AU-IBAR. Key outcomes include:

- *Strengthened collaboration between regional institutions and national Ministries* (The project worked closely with the AU, AU-RECs, and national ministries. Where appropriate, the project liaised with the FAO, OIE and other food security programs);
- *Enhancement of resources* (The project created a critical mass of local experts to ensure continuity of progressive NCD control and has attracted the support of several African MS in the subsector);
- *Empowerment of women*: The project encouraged gender balance in project activities in line with the KYEEMA, DFAT and AU gender policies.

Further cooperation and avenues for building greater ties and stronger relationships were given as:

- Pre-testing, peer review and accreditation of the NCD control master trainer curricula.
- Finalization and circulation of the revised field and training manuals.
- To continue looking for funding for an expanded, multi-year NCD control project proposal (Signed MOU with ILRI in 2016).
- To continue to pursue private sector collaboration for impact investing in NCD control.

The presentation concluded by stating that:

- Village poultry production should be considered in any strategy aimed at improving rural livelihoods.
- There is ample evidence that well designed and participatory development programs that enhance livestock (poultry) production can overcome poverty and enhance significant economic and social benefits among rural population.
- Small-scale/backyard poultry production systems need not be fully transformed – rather, they need to be strengthened.

3. The Micro-poultry production work of Haramaya University

Dr Negassi Ameha, Associate Professor

Following the presentation given at the first meeting of the Micro-Poultry Working Group, Dr Negassi reiterated that the Haramaya University's mandate covers teaching, research and community engagement. He introduced his presentation by stating that agricultural growth is critical for hunger reduction, and that 70% of people in developing countries are living in rural areas and depending on agriculture for their livelihoods, either directly or indirectly. In terms of its contribution to agricultural growth, poultry is highly significant. The market and production context of poultry production has been changing rapidly over the last two decades: Rapid economic growth and urbanization in developing countries has resulted in fast expansion of industrial, large-scale, vertically integrated, poultry production systems. However, the contribution of the village poultry production system remains vital for the wellbeing of the majority of rural people.

Further details were provided on the situation in Ethiopia. In recent years there has been growing recognition among the development community of the role of small-scale commercial poultry production in accelerating the pace of poverty reduction and reaching out to the poorest of the poor. Poultry farming is not only in the interests of new commercial producers in Ethiopia, but is also in the national interest, with the Ethiopian government now giving attention to the sector. Ethiopia is endowed with favorable climatic conditions for poultry and rich experience of local people in breeding birds, especially in the production of eggs for consumption. Poultry is considered one of the easiest and most accessible activities. Having 100 indigenous chickens is becoming common in Eastern Ethiopia. Commercial breeds are also becoming common in the rural Eastern part of Ethiopia, as is integrated poultry-vegetable production.

HU's research undertaken on chickens has covered:

- Studying the production system and characterization of different breeds
- Evaluation of different types of conventional and non-conventional feed resources and their effects
- Evaluation of different breeds of birds
- Animal health research
- Vaccine development
- Study of the value-chain and quality products

Specific on-Station research has looked at

- Evaluation of the four dual-purpose tropical breeds provided by African Chicken Genetic Gain (ACGG) Project
- Evaluation of the cross between the tropically adapted Fayomi breed with the temperate White Leg Horn breed (There is a co-dominance effect especially on color and production is also good)

The Community Development work has covered:

- Poultry management technical training
- Distributing improved poultry breeds and movable poultry houses
- Material support like medicine, feed, watering and feeding equipment

The presentation concluded by highlighting the need for a common platform, and the organization of a series of meetings and workshops to sensitize decision makers, politicians, bureaucrats, technocrats, policy makers and planners of pro-poor programs about poultry production, basing the sensitization on hard data.

4. ENGINE - Experience in improved chicken supply chain and backyard improved chicken production

Kebede Tafesse, Save the Children International

The fourth presentation focused on the poultry related work in the Empowering New Generations to Improve Nutrition and Economic opportunities (ENGINE) program, being led by Save the Children. Poultry assistance is provided as part of the nutrition sensitive livelihood support. The presentation explained how the ENGINE approach to improved chicken distribution is based on experience shared from other agencies:

- Institutional learning from agencies (GO and NGO)
- On field observation of improved chicken performance and farmer's management
- Seeking advice from research and poultry farms

And on lessons gained from looking at other agencies' work:

- The successes of commercial chicken and farmer management were limited
- Chicken distributions were not as a package
- Inadequately developed private chicken supply (self-replacing breed)
- Knowledge and skill gap on improved chicken management, and care required improvement.

The design focus and guidelines for ENGINE were therefore:

- Development of a private chicken supply model
- Decision to work on dual-purpose chicken breed over commercial type
- Designed full package for backyard improved chicken distribution.

The process for the development of a Private Improved Chicken Supply Chain included:

- Debre Zeit Agricultural Research Center as the source of parent stock supply as well as in-house and on-field technical support
- A private mini-chicken multiplication unit to manage hatchery and parent stock and as the source of day old chicken supplies
- Private Chicken Out Growers to rear day old chickens and be the source of 2-3 month old chicken supply

The private chicken suppliers co-funded by the program:

- Selected 2 chicken multipliers and 6 out growers through a competitive process
- Received 5 days in-house training and on site technical support from DZARC
- Provided Parent stock of 175 pullets and 35 cocks
- Provided incubator-hatchery combined machine with a total capacity of 1152
- Covered production and administrative cost of raising parent stock (DZARC)

The presentation provided key lessons learnt from the implementation of the private chicken supply model using proxy indicators for success. The Chicken Multiplication Unit (CMU) indicators were:

- 85-90 percent hatchability
- 63 percent egg laying (Maximum as reported by DZARC)
- Able to vaccinate day old chicken and on 'farm gate' supply to out growers
- Able to hatch 288 eggs every other 6 days
- Able to manage hatchery and parent stock as advised
- Prepared replacement stock (BD reached in 3 generations)
- Business enlargement (BD CMU purchased additional machine with a capacity of 19,000)

The private chicken out growers' proxy indicators for success covered:

- 'Farm gate' purchase of day-old chicken and reared for a period of 2 months before selling to ENGINE target HHs through office of agriculture
- Able to get chicken vaccinated, standard vaccines required up to the age of 2 months (NVI)
- Maintained grower mortality below 1 percent except for a one-time outbreak reported in one of the grower's farms.

The presentation also highlighted the major challenges with the private chicken supply model – the CMU and out growers. The Chicken Multiplication Unit had inadequate access to critical inputs and technical support; the business partnership with chicken out growers got cracked; it suffered from price competitiveness with subsidized public farms /large scale private farms; and was restricted by limited financial literacy. The chicken out growers in turn had a limited marketing plan or strategy; found the sale of male chicken in excess of breeding to be a challenge; had limited market access to farmers; and had limited record keeping skills. Nonetheless the chicken distribution coverage by implementation year was presented as:

Region	Year 2		Year 3		Year 4		Total	
	# of HH	# of Chicken	# of HH	# of Chicken	# of HH	# of Chicken	# of HH	# of Chicken
Amhara	40	480	198	3366	233	3961	471 (25%)	7807
SNNP	10	120			171	2052	181	2172
West Oromia	10	60			185	2220	195 (56%)	2280
East Oromia					72	1013	72	1013
Tigray	74	888			88	1056	162	1944
Total	134	1548	198	3366	749	10302	1081	15216

The presentation concluded with a number of ideas for the way forward at the policy level covering: chicken healthcare and the drugs supply chain; a chicken breeding program and strategy; a pro-poor chicken production package (standardized); private small scale chicken enterprise market competitiveness; and an exotic disease control strategy. At the farmers' level there is a need for: recognition of the asset value of chickens and backyard improved chicken production as a business; extension services for chickens; vertical and horizontal linkages for critical input and output market access; and access to improved chickens that reflect farmers' preferences.

D. Q&A session on presentations

Presentation 1: The management of scavenging poultry

Q1: Has CARE linked its poultry work in Bangladesh and Ethiopia in order to share lessons learned between the respective offices on poultry

No – this is not something that we've yet tried, but we certainly could make the links.

Q2: How has CARE supported the scaling-up of the lessons learned?

This has been done through the development of a manual with the Ministry of Livestock and Fisheries (MoLF) and distribution to *woredas* and Development Agents, and generally promoting the potential of scavenging/ household-level poultry production.

Discussion: there was a general discussion on whether CARE should claim attribution for the progress made, when the Amhara Bureau of Agriculture had a long history of work in the poultry sector and there was a strong probability that CARE was 're-inventing the wheel'. It was, however, widely recognized within the group that the Bureau had been active but was less so today, and that recent implementation had been below expectations. As a result it was agreed that CARE had played a useful role in promoting scavenging/household poultry production and that the credit should at least be shared with the Bureau.

Q3: You mention that production can be increased from the current 40 to 60 eggs per laying hen per year to 100-120 eggs/laying hen/year with appropriate management and feed. Is this really possible?

This level of achievement is really possible with the right management – housing, proper brooding (e.g. using hay box brooder), health care and feeding (strategic supplementation). With improved genetics, as seen with the Horraro breed, the number of eggs can even be increased to 160 per year.

It is interesting that good progress can be made on the health side, specifically Newcastle Disease, simply through an awareness campaign – some communities aren't even very aware about the disease despite losing chickens each year to the disease.

We have not carried out a detailed impact assessment and this is something that we could do to strengthen the evidence-base. We have however carried out informal surveys and households with 6 chickens have reported that they are financially viable.

Q4: How did you calculate the feed supplementation requirement for scavenging chickens?

We used a figure of 30% of their daily feed requirements or 30 grams of feed/hen/day.

Discussion: there was a general discussion on feed supplementation and that the amount would vary from region to region and season to season, and therefore that a 'blanket' approach might not be appropriate and meet specific needs. It was also agreed that as the local feed supplementation requirements increase that the profitability of semi-scavenging might be compromised, as feed is the most expensive input.

Q5: How much work has your organization done on marketing, and what are the marketing constraints and challenges?

I agree that little has been done on marketing and more work needs to be done in this area to ensure sustainability.

Presentation 2: Foundation village poultry farming in Mozambique

Q1: How often should chickens be vaccinated against Newcastle disease?

Studies on anti-body levels in vaccinated poultry confirm that chickens should be vaccinated every 4 months (3 times a year) as after 5 months anti-body levels drop to critical levels and chickens are again susceptible. It is also important to vaccinate every 4 months because it protects chicks that are hatched in this period and they are particularly vulnerable.

Studies also confirm that Newcastle disease outbreaks typically occur in the same season of the year and therefore that vaccinations should be timed to ensure maximum protection for the 'at risk' period.

Q2: Are there gender empowerment issues in the care of chickens?

Yes there are. Chickens are typically managed by women and children, so we have targeted women in our programs in Mozambique. We start by training women – including female-headed households – and build their skills and knowledge. We then start them with a package of 8-10 chickens. Many are successful and go on to establish flocks of up to 300.

Studies in Tanzania suggest that after a chicken flock has been vaccinated 3 or 4 times, and remains economically viable for about a year, the men seem to take over.

Q3: Can you tell us more about the incentives paid to vaccinators?

As I mentioned, we feel that if sustainability issues are to be addressed and the vaccination program is to remain viable there needs to be in-built incentives for the community vaccinators. In order that the payment is made to the right people, we ask communities to select their own people to be trained as vaccinators using the criteria – hard working, honest, reliable, motivated, literate, respected and willing to work with others. These community members are trained and then equipped including with a bicycle. The training is high quality and when they graduate they are given a reference manual.

The community vaccinators work for a week at a time, 3 times a year and they receive between US\$60-100 from the community members for the vaccination work they do.

Participants offered examples of work they are involved with in Ethiopia that is supported by paid-for-services.

Presentation 3: Micro-poultry production

Q1: How stable are the new breeds of chickens that are being developed in Ethiopia, such as Kokok?

It seems the Kokok breed is stable and we've reached 15 generations - 5 in the research station and 10 with farmers. Farmers seem to like this variety much more than Fyomi, which appears lazy and is easily attacked by birds of prey.

The farmers like the Kokok breed because they fit with low input/ low output farming system while also being more productive than the traditional breeds. Neighboring farmers are so interested that they are buying Kokok eggs and using their own traditional breeds as broody hens to hatch.

Numbers are increasing rapidly. Other farmers are buying females. Few farmers however buy males for crossing. Unfortunately the breeding program is not supported by a health program, and there are lots of losses.

Haramaya in collaboration with African Chicken Genetic Gain (ACGG) is also testing other improved breeds – Kroiler, Horrora etc – but it's still too early to state clearly what the findings are, in

particular at the farmer-level, after distribution. Early indications are however that Kroiler is achieving good growth rates and laying well. However Horrora has lower mortality rates at this point.

Presentation 4: ENGINE experience in improved chicken supply chain and backyard improved chicken production

Q1: **What impact is ENGINE's work having on household nutrition?**

ENGINE has a range of nutrition specific - often health-related interventions - and nutrition sensitive interventions - including gardens and poultry supported by the MoA. They are implemented together so it is difficult to say which intervention is bringing about the benefits. What we can say however, from the base, mid and end-line studies, is that chickens are supporting improved dietary diversity and therefore we feel that chickens are making a contribution to improved nutrition outcomes.

E. Plenary Discussion:

In the plenary discussion, the following issues were discussed and agreed:

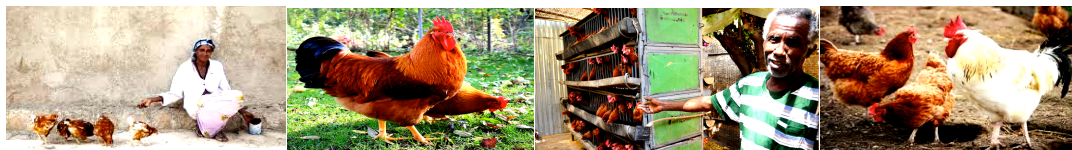
- ***Benefit/ cost analysis:*** it would be helpful to undertake BCA studies to better understand the benefits and costs of micro-poultry to household income and nutrition.
- ***Manuals:*** informed by BCA studies it would be useful to develop an evidence-based manual that would bring together the best of the available manuals and to have this endorsed by the Ministry of Livestock and Fisheries.
- ***Exchange visits:*** it would be good to support exchange visits, including of farmers groups, in order that good practice is shared. It would also be useful for the Group to organize project visits, perhaps starting in Hararghe.

Annexes

Annex 1. Participants List

No	Name	Project/Organization	Email
1	Jemal Yousuf	Haramaya University	Jemaly2001@yahoo.com
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Annex 2. Meeting Agenda



Micro- Poultry Meeting Harmony Hotel – 7th February, 2017 AGENDA		
TIME	SESSION	LEAD
09 : 30	Welcome	AKLDP
09 : 35	Introductions	AKLDP
09:45	Presentation 1: Foundation Village Poultry Farming in Mozambique	Dr. Rosa Costa (KYEEMA Foundation)
10:05	Presentation 2: Scavenging Poultry Managment	Mebratu Kifle(CARE)
10 :25	Presentation 3:	Ofer Kahani (MASHAV)
10 :45	Tea break	
11 :15	Presentation 4:	Kebede Tafesse (SCI)
11 :35	Presentation 5:	Dr Negassi Ameha (Haremaya University)
11 :55	Way forward	AKLDP
01 :00	Lunch	