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## Livelihood-based Drought Response in Afar

Impact Assessment of Livestock Feeding Program Implemented in Amibara, Teru and Abala Districts by FARM Africa, SCUK and CARE



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## Acronyms

ETB	Ethiopian Birr
EWS	Early Warning System
FAO	Food and Agriculture Organization
FDRE	Federal Democratic Republic of Ethiopia
FGD	Focus Group Discussions
HRF	Humanitarian Response Fund
LEGS	Livestock Emergency Guideline and Standards
LINKS	Livestock Information Network and Knowledge System
MNB	Multi-Nutrient Block
NGOs	Non Government Organizations
OFDA	Office of US Foreign Disaster Assistance
PLI	Pastoralist Livelihoods Initiative
RATF	Regional Agricultural Task Force
SC-UK	Save the Children UK
SPSS	Statistical Package for Social Science
TMR	Total Mixed Ration
UNOCHA	UN Office for Coordination of Humanitarian Affairs
USAID	United States Agency for International Development
USD	US Dollar

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## **Executive Summary**

Under the Humanitarian Response Fund (HRF) programme in Ethiopia, the United Nations Office for Coordination of Humanitarian Affairs (UNOCHA) provided a grant to CARE Ethiopia, Save the Children United Kingdom (SCUK), FARM Africa and Food and Agriculture Organization of United Nations (FAO UN) to implement livestock supplementary feeding intervention in Afar region, with a view to preserving core breeding stock against drought in 2009/10 and promote post-drought recovery. CARE and SCUK did use additional fund from the USAID/OFDA supported Crisis Modifier component of the Pastoralist Livelihoods Initiative II Project to implement emergency livestock feeding in Gewane and Bidu districts respectively.

This report examines the impact of the livestock feeding program implemented by CARE Ethiopia, SCUK and FARM Africa on the livelihoods of the pastoralist communities that are living in seven districts of the Afar National Regional State. The report also explores the processes and procedures that have been followed during the implementation in light of the 'National Guideline for Livestock Relief Intervention in Pastoralist Areas' and the 'Livestock Emergency Guideline and Standard'.

The assessment was based on visits to Abala, Teru and Amibara districts in September 2010 and it was designed to collect retrospective evidence on specific impacts of the 2009 and 2010 drought on livestock resources and the impact of the livestock feeding intervention on livestock mortality. Both quantitative and qualitative methods were employed to measure the rate of mortality on both fed and unfed herds and to explore the perceptions, attitudes, and insights of the beneficiary communities on the intervention. Household questionnaires and Focus Group Discussions were used to collect the information and Statistical Package for Social Sciences (SPSS) has been used to analyse and interpret the information.

## **Main Findings**

1. The livestock feeding intervention in Abala and Teru have reduced cattle and small ruminant mortality that is associated with feed shortage problem.
2. In Teru district, cattle and small ruminants respectively were six and three times less likely to die if fed with feed distributed by CARE and SCUK. In addition, mortality was significantly lower in calves and kids that were fed compared with calves and kids that were not fed. The survival of calves and kid implies the continuity of milk production in the post-drought period, which directly relates to protecting core breeding stock and assisting post-drought recovery, as well as reducing prevalence of child malnutrition problem especially in the immediate post-drought period.
3. In Amibara district, an area received two consecutive rains between the inception and the closure of the livestock feeding programme, the use of supplementary feed was no more effective than using natural feed in terms of reduced mortality.
4. Although there was positive change in cow and goat milk production during the supplementary feeding period, these increments could not be attributed

- to the supplementary feed, and the increased milk production would almost certainly have occurred without the supplementary feed. As such, the difference between the treatment and control with regard to milk production is statistically insignificant in both fed and not fed study groups.
5. The overall finding of the assessment was that the emergency livestock survival and supplementary feeding programmes implemented in Teru and Abala assessment districts could be justified in terms of reduced livestock mortality mainly during the post-drought rain.
  6. Nevertheless, various external and internal factors have contributed to the delay in implementation of the intervention in all implementing agencies. For example, there was five-month interval between the submission of the budget proposal by implementing agencies and final approval by the donor. The staff recruitment and, inputs purchase and transportation activities had required additional two-month.
  7. As there is direct correlation between timeliness and the impact of emergency response, donors and implementing agencies should have to devise mechanisms in accelerating and ensuring early response. These include speeding-up the fund releasing and inputs procurement processes by donors and implementing agencies respectively.
  8. In addition, it is very essential that donors start appreciating realities on the ground flexibility is very essential in re-directing their funds to where in it can have maximum impacts on the livelihoods of drought-affected people. One of the important quality dimensions of any emergency response intervention is timeliness as it directly correlates with saving lives and livelihoods.
  9. The impact of issues outlined in point 5 above was captured in the benefit-cost analysis for the project.
  10. Finally, one of the most important findings from the study is the CARE Ethiopia's commitment of prioritizing the most drought-affected areas located outside of its normal time operational areas with the supplementary feeding intervention. Drought emergency intervention for livestock is a humanitarian activity, requiring prioritization of most affected areas.
  11. Concerning the government and aid agencies tradition of jointly responding to hazards affecting the life of people, it seems that the protection of pastoralists' livelihood has not been considered as humanitarian activity.
  12. Abala and Erebt districts in the north of the Afar Region where CARE implemented feed supplementation and slaughter de-stocking, characterized by marked under-development, frequent drought phenomenon and, absence of NGOs.

### **Main recommendations**

1. Whereas many NGOs and UN agencies are seen to implement livestock emergency programs mainly to preserve core stock of the drought-affected population, most of those interventions were limited to the implementing agencies normal time operational territories by and large. Therefore, the CARE Ethiopia's practice of implementing livestock emergency program in drought-affected areas located outside of its normal time operational territories is promising trend which needs to be promoted by all concerned bodies.
2. Aid organizations should be flexible in their procedures especially in procurement of inputs and services. In this regard, it would be advisable to

- have an adhoc committee to supervise and follow-up the smooth implementation of similar interventions. Donors should strengthen their mechanisms to monitor and supervise emergency-related activities so as to take timely corrective actions such as redirecting of the resources where it can bring maximum impact.
3. Given the longer time the fund securing and input procurement processes normally require, and the urgency of the drought emergency situations, it is essential that donors take in account of the performance of the next coming rains to redirect the money to where it can have maximum impacts in saving livelihoods in consultation with the grant recipient organization.
  4. As such, it is essential that all concerned agencies including donor and government bodies consult those guidelines and early warning systems in place while making-decisions related to livestock drought emergency responses.
  5. The livestock feed shortage problem of the Afar pastoralists are multi-faceted, which includes lack of rainfall, encroachment of invasive species, rangeland degradation, resource-based conflict, and land alienation due to various development programs. Accordingly, it needs concerted and collaborative efforts of the relevant stakeholders in tackling the underlying cause of the problem through development related activities like fodder production in river-basin areas, clearance of invasive species, and supporting local groups that are engaging with livestock feed production.
  6. Although some of the participants of this study were against the idea of using prosopis pod for cattle during drought, this could be one of the possible options that need to be considered by Afar pastoralists to protect their small ruminants against drought, as well as controlling of prosopis. This may require the government and NGOs to promote use of prosopis pod as small ruminant feed by way of supporting individuals and cooperatives involved in feed processing activity to enable them collect prosopis pod in bulk and add value locally.
  7. In addition, there has to be credit fund in place for pastoralists to be repaid within 2-3 months after drought. If NGOs assist PA and wordea administrations, there are many opportunities where such credit could be dispatched and collected back using the accepted argument that traditional leaders should be used to its highest value use “clan kin”.
  8. In the long run, it is useful that the Afar pastoralist shift from cattle to small ruminants and camels. The NGO side can play great roles in facilitating the commercial as well as slaughter de-stocking of cattle working together with the Kombolcha meat factory. In Abala, some beneficiaries of the supplementary feeding did sale their cattle initially contributed to the CARE feeding centre for 600 ETB per head to the slaughter de-stocking programme later.
  9. Finally, it is very useful that all emergency interventions are impact assessed so that lessons and best-practices could be shared.

## **I. Introduction**

This impact assessment aimed to measure the impact of an emergency livestock feed supplementation program implemented by FARM Africa, Save the Children-UK (SCUK) and CARE Ethiopia in Amibara, Teru and Abala districts in Afar Region. The assessed feed supplementation program was designed mainly in response to the low performance of both *Sugum* (short rain March-April) and *Kerma* (long rains July through to September) rains in 2009. Specifically, the rapid drought situation assessments conducted in November 2009 by the multi-agency team (led by DRMFS) and the joint CARE/ team which revealed critical shortage of pasture and water in many parts of the region and low terms of trade. It also confirmed the facts that pasture and water shortages have forced lactating cows to dry up and browsers (goats and camels) to produce much less, which in turn has compromised the nutritional status of the households, particularly children and pregnant or lactating mothers.

Based upon an emergency model designed to assist poor vulnerable households cope with, and recover from the impact of drought, the feed supplementation program has been carried out in seven selected districts as follows:

- CARE Ethiopia: Abala and Erebti with fund used from UNOCHA and Gewane with fund used from Crisis Modifier Project of PLI II, USAID/OFDA.
- SCUK: Teru with funds used from UNOCHA and Bidu with fund used from Crisis Modifier Project of PLI II, USAID/OFDA.
- FARM Africa: Semurobi and Amibara with funds used from UNOCHA

The program had two main objectives viz. humanitarian livelihoods asset protection and immediate milk food access for drought affected households. The actual implementation of the emergency program started in the second-half of June 2010 and focused on addressing the critical feed shortage problem and on increasing cow and goat milk production. The major activities carried out under the program were:

1. Supplementary feeding of milking animals
2. Slaughter de-stocking
3. Animal health interventions including refresher training of community animal health workers
4. Provision of water for livestock and people

### **I.1 Overall assessment approach**

With a view to further capturing and documenting the learning benefits of the program, CARE Ethiopia, SCUK and FARM Africa hired the PRE (participatory Research and evaluation) Consultancy Company to conduct an impact assessment of the drought response program in Afar region. On the 22<sup>nd</sup> of August 2010, a team of three consultants from PRE Consultancy Company and senior experts from CARE Ethiopia, SCUK and FARM Africa met in Addis Ababa at Tufts University office to discuss the methodology suggested for conducting impact assessment of the drought response program by the consultants. During this planning meeting two major factors were considered that would determine the scope of the consultancy work, and define the impact assessment approach. The first factor was that the impact assessments should ideally be completed by mid September 2010. The second factor

was that the assessment should be conducted focusing on the main objective of the drought response.

As a consequence, the impact assessment was designed to answer the following key research questions:

1. How has the supplementary feeding drought response affected livestock mortality due to starvation factor?
2. How have livestock herders reacted to the particular drought in 2009 in each of the 3 assessment locations?
3. How has the intervention approach and period affected the benefit-cost of the supplementary feeding program?
4. What key lessons have we learned from the supplementary feeding program intervened in Afar?

## **1.2 Selection of assessment interventions**

The assessment was designed through the planning meeting conducted at Tufts University meeting hall on 22<sup>nd</sup> of August 2010 together with representatives of implementing agencies (CARE Ethiopia, FARM Africa and SCUK) and technical advisors from Tufts University<sup>1</sup>.

Participants agreed that the assessment should be limited to a sub- sample of the program interventions and geographical project areas. What was proposed was that three project activities would be selected for three separate discreet (and light) impact assessments. During these discussions, CARE Ethiopia, SCUK and FARM Africa proposed the following priority themes (project activities) to be considered for the impact assessment.

1. Supplementary feeding of livestock
2. Slaughter de-stocking
3. Animal health interventions
4. Water for livestock

Excluding the slaughter de-stocking, animal health and water supply interventions eventually narrowed this list down. This selection was largely based on a combination of two criteria; firstly, the perceived potential learning benefits for each intervention, and secondly the relative importance of that intervention in terms of the main objective of the drought response.

For example, the slaughter de-stocking program although interesting and worthy of being assessed, often forms the last option. The animal health component was largely rejected, as the findings from impact assessment of this intervention is likely to be similar to findings obtained from previous studies conducted in other areas including Afar. The water supply component was rejected, as it only represents a small number of the beneficiary population. Therefore, the feed supplementation component was selected based on the fact that this is a major project component. Firstly, it is a good example of an intervention designed to support livelihoods asset

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<sup>1</sup> The planning process was facilitated by Tufts research director Dr. Andy Catley who invented some of the tools as well as standardized methods applied for conducting participatory impact assessment of interventions widely.

recovery with each household receiving supplementary feed for 3 cows or 7 small ruminants. Secondly, findings obtained from previous assessments suggest that massive livestock mortality to be the main livelihood related impact of drought. The impact assessment, therefore, aimed to investigate the reduction of drought-factored livestock mortality.

### 1.3 Selection of assessment locations

The assessment was designed to produce a quantitative and qualitative analysis of the feeding programs using cattle and small ruminant mortality as the main indicator of impact on the livelihoods of the targeted beneficiaries. Under a livelihoods approach, this relates to the objective of protecting key assets and assisting post-drought recovery. As such, the main purpose of the PIA study is to draw-lessons that inform policy about the livelihood impact of livestock supplementary feeding programs and guide future planning of the particular intervention.

Although the participants of the planning meeting indicated earlier were convinced technically that this purpose requires the consultants to conduct detail assessment in one of the three intervention districts, the consultants recognised the different implementing and funding agencies expectations from the PIA work. Therefore, the assessment was conducted in three districts<sup>2</sup>.

The following shows the final selection of intervention locations for the impact study:

<b>Implementing agency</b>	<b>Intervention district</b>	<b>Assessment district</b>	<b>Key reason for inclusion</b>
CARE	Gewane, Abala and Erebti	Abala	Intensity of drought
FARM Africa	Amibara and Samurobi	Amibara	Accessibility
SCUK	Bidu and Teru	Teru	Accessibility

### 1.4 Objectives of the assessment

The specific objectives of the impact assessment were as follows:

- To assess the impact of the 2009/10 drought on livestock resources.
- To assess the impact of the survival and supplementary feeding intervention on livestock mortality.
- To analyze the effective application of the National Guideline and Livestock Emergency Guideline and Standards (LEGS) by implementing organizations
- To draw lessons to inform future decision-making and planning for emergency feed interventions.

<sup>2</sup> In each assessment district, herds and households were randomly sampled.

## **2. Methodology**

### **2.1 Study design**

The design of the study is mainly based on making comparative analysis of mortality of cattle and small ruminants that have been depending on natural feed within the herds and those fed using feed supplied by FARM Africa, SCUK and CARE Ethiopia. Therefore, the two main groups of cattle and small ruminants which were considered were as follows:

- Unfed cattle and small ruminants, being cattle and small ruminants kept on natural feed.
- Cattle and small ruminants fed using feed supplied by FARM Africa, SCUK and CARE Ethiopia.

Given the main objective of livestock feeding intervention is to protect key assets, the study focused on measuring and comparing mortality in these two groups.

### **2.2 Study areas**

Figure 1 presents Map of the Afar National Regional State showing the three districts covered by this assessment. Amibara, Teru and Abala districts are found in zones 3, 4 and 2 administrative divisions of the Afar National Regional State respectively. The people in the rural areas of the three study districts are Afar pastoralists who make their livelihoods largely from livestock rearing. They mainly tend cattle, camels, and small ruminants through seasonal movements between the wet and dry seasons grazing areas. Cattle and small ruminant supplementary feeding programs were implemented by FARM Africa, SCUK and CARE Ethiopia and, although vary across organizations; the intervention was conducted between May 15<sup>th</sup> and August 31<sup>st</sup>, 2010<sup>3</sup>.

### **2.3 Data collection**

Both qualitative and quantitative research instruments were used to assess the impact of the intervention. The research instruments were designed in consultation with Tuft University's policy advisors and senior program personnel of the implementing agencies who were additionally involved in the design and implementation of the cattle and small ruminant supplementary feeding programmes.

The participatory impact assessment was conducted between 30<sup>th</sup> August and 12<sup>th</sup> September 2010 by a team of three researchers. Information was collected from a total of 98 individual informants and three key informant groups using participatory techniques and tools as follows:

*Individual informants* – the sampling frame for all the assessment districts were derived using the beneficiary list obtained from the implementing agencies and random sampling method was applied for the selection of households. These

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<sup>3</sup> The intervention period is varying among implementing agencies. FARM Africa was implementing the program from mid June to end of August 2010 while in the operational areas of CARE Ethiopia it runs from mid May to mid August 2010. In SCUK areas, the program has been running from mid June to mid September 2010.

individual informants provided quantitative data for measuring the impact of the FARM Africa, SCUUK and CARE Ethiopia livestock feeding programs in terms of cattle and small ruminant survival, and milk yield<sup>4</sup> particularly in Amibara and Teru.

Specifically, these informants explained:

- Changes in herd size at the beginning of the intervention and end (August 2010) of the emergency livestock feeding programs assessed.
- The number of cattle and small ruminant receiving feed supplied by FARM Africa, SCUUK and CARE Ethiopia.
- The mortality in cattle and small ruminant fed using feed supplied by FARM Africa, SCUUK and CARE Ethiopia and unfed cattle and small ruminant.

*Key informant groups* – the main purpose of the focus group discussion conducted together with these groups is to gather the perception of the community on the cause and effects of the 2009/10 drought and the general impact of the livestock feeding programs on their livelihoods. In each assessment district, an informant group was formed of 8-10 persons.

A checklist was developed using information obtained from the progress reports and the FARM Africa, SCUUK and CARE Ethiopia experts consulted in Amibara, Teru and Abala respectively. The checklist required each group to:

- Identify the most recent best year in terms of patterns and volume of rainfalls<sup>5</sup>, and define the rainfall period for the *Kerma* and *Sugum* season rains.
- Describe the variations in the timing of rainfall in the 2009 and 2010 as compared to the normal year.
- Describe major drought-associated events in 2009/10 including internal and external responses in their chronological orders.
- Comment on emergency cattle and small ruminant supplementary feeding programs and suggest improvements or better options.

Table 1: Type of feed provided by implementing agencies and feeding mechanism

<b>Organization</b>	<b>Species</b>	<b>Type of feed provided</b>	<b>Feeding method</b>
CARE	Cattle	Grass hay and Total Mixed Ration (TMR)	Modified feeding centre
FARM Africa	Shoat	Total Mixed Ration (TMR)	Home-based <sup>6</sup>
	Cattle	Grass hay and wheat bran	
SCUUK	Shoat	Wheat bran	Home-based
	Cattle	Grass hay and wheat bran/ Multi-Nutrient Block	
	Shoat	Wheat bran/MNB	

<sup>4</sup> In this study, it was not possible to accurately measure the milk production impact of the supplementary feeding programmes due to a number of reasons such as overlaps between the feeding period and rains. As considerable proportion of the feeds received from the agencies have not been fed to the animals, it was difficult to accurately estimate amount of milk coming from the supplementary feeds. Similarly, it was not possible to see impact related to calf/kid survival due to absence of secondary data showing the number benefited from the program impact assessed.

<sup>5</sup> Interestingly, it appeared that 2010 is the most recent normal year.

<sup>6</sup> FARM Africa started with the modified central feeding method initially, but participants found it being less practical.

## 2.4 Sampling method and sample sizes

Individual informants – FARM Africa, SCUK and CARE Ethiopia had conducted cattle and small ruminant supplementary feeding programs in Amibara and Semu-Robi districts in zone 5 and 3, Teru and Bidu districts in zone 4 and 1, and Abala and Erebtu districts in zone 2 of the Afar National Regional States respectively. The assessment was conducted in three districts viz. Amibara, Teru and Abala.

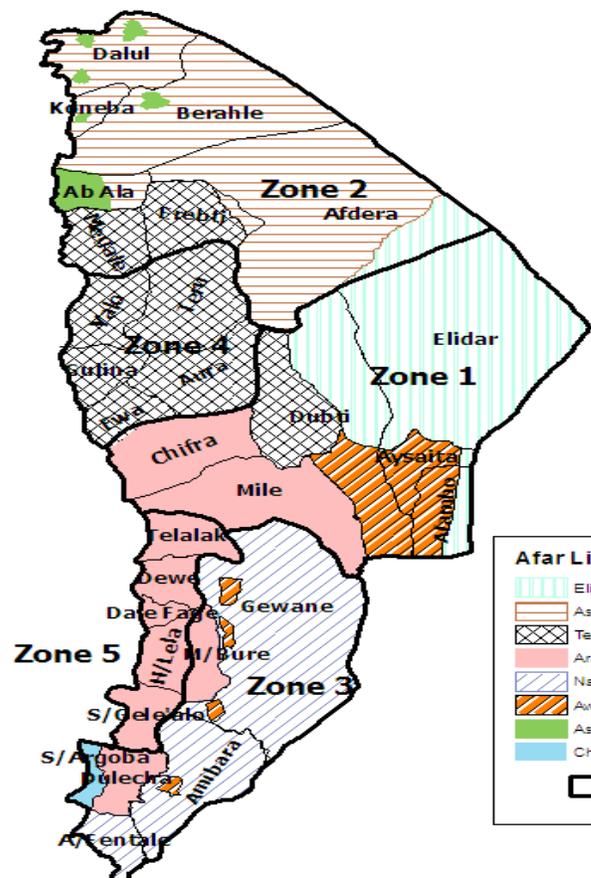
In Amibara, 45 individual informants (of which 17 are female) were randomly selected from a list of 1,275 households provided by FARM Africa.

In Teru, the assessment was conducted in one of the twelve kebeles benefited from the program together with 30 (22 men and 8 women headed households) identified out of 150 participants through random sampling method.

In Abala, the assessment covered two out of the eleven kebeles benefited from feed distributed by CARE together with 33 individuals (23 men and 10 women) identified out of 97 project participants through random sampling method.

**Limitations of the assessment:** In Teru and Abala, the assessment was limited to few villages located around woreda and kebele stations while majority of the project participant kebeles were dropped particularly due to heavy kerma season rains that made them inaccessible.

Figure 1: Map of Afar Region showing study districts and livelihood zones



## 2.5 Data analysis

As informants were able to provide absolute numbers of cattle and small ruminant fed and number of deaths, statistical comparison of mortality in cattle and small ruminant fed and not fed was conducted using chi-square. The analysis was repeated for each of the three assessment districts, as the severity of drought and feeding method differed in the districts. Statistical Program for Social Science Version 18 (PASW Statistics 18) was used to convert results of proportional piling scorings conducted by individual informants on changes in milk production at the start and end of the supplementary feeding program into figures.

## 3. Results

### 3.1 Local perception of the 2009 and 2010 *Kerma* and *Sugum* rains

The Afar Region has long been among the pastoral areas of Ethiopia that are most frequently affected by drought. The emergency livestock feeding programs implemented by FARM Africa, SCUK and CARE Ethiopia was designed in response to the failures of *Sugum* and *Kerma* season rains in March and July 2009 respectively. In addition, the 2010 *Sugum* season rains were poor in Abala and Teru districts.

Local perceptions of the timing of the 2009 and 2010 *Kerma* and *Sugum* season rains are presented in Table 2, and timelines for the three assessment sites are summarized in Table 3.

The assessment showed that:

- Amibara area – there was an unexpected *deda* season rain received between November and December 2009<sup>7</sup> while the *Sugum* and *Kerma* season rains<sup>8</sup> started in February and June 2010 respectively.
- Teru area – in 2009, the *Sugum* and *Kerma* season rains were much below normal. In 2010, although the *Sugum* season rains was below normal, flood water from *belg* season rain received in adjacent highland areas improved pasture availability but it did not last enough long partly due to influx livestock population from adjacent districts. In 2010, the *Kerma* season rain that normally begins toward end of July did start earlier in the second-half of June 2010.
- Abala area – in 2009, the *Sugum* and *Kerma* season rains were nearly absent while that of *Sugum* 2010 was much below normal. However, the *Kerma* season rains started early July 2010. Overall, 2010 was considered second best year to 1998 both in terms of the duration and amount of rain received until the time of this assessment in the first-half of September 2010.

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<sup>7</sup> The November and December 2009 Monthly Food Security update indicated that the *deda* rain improved browse availability

<sup>8</sup> In ideal normal year, the timing of the *Sugum* and *Kerma* seasons rains is said to be March to May and July to September respectively.

Table 2: Timing and performance of seasonal rains in 2009 and 2010 years

Area and season	Year and performance of rains			
	2009	Performance	2010	Performance
Amibara: <i>Sugum</i> (Apr – May)	April	Below normal	Feb – May	Much above normal
<i>Kerma</i> (July – Sep)	July	Much below normal	June on ward	Much above normal
<i>Deda</i> (bonus)	Nov – Dec	Abnormal		
Teru: <i>Sugum</i> (Apr – May)	Too short and low amount of rain		March	Below normal
<i>Kerma</i> (July – Sep)	As for <i>Sugum</i>		June on ward	Much above normal
Abala: <i>Sugum</i> (Apr – May)	Nearly nil		March	Much below normal
<i>Kerma</i> (July – Sep)	As for <i>Sugum</i>		June on ward	Much above normal

Table 3: Chronology of key events related to rainfalls in 2009 and 2010

Time	Key event	Remark
Nov 2009	<ul style="list-style-type: none"> <li>Unexpected <i>Deda</i> rain started and continued until 1<sup>st</sup> half of December</li> </ul>	<ul style="list-style-type: none"> <li>Browse availability and browsers body condition improved</li> </ul>
Dec 2009	<ul style="list-style-type: none"> <li>Application for grants on livestock emergency intervention submitted</li> </ul>	<ul style="list-style-type: none"> <li>Terms of trade stabilised</li> </ul>
Jan 2010	<ul style="list-style-type: none"> <li>Final application submitted</li> </ul>	<ul style="list-style-type: none"> <li>Donor recommended budget amendment</li> </ul>
Feb 2010	<ul style="list-style-type: none"> <li><i>Sugum</i> rain started and continued until April in Amibara area. However, in Teru and Abala areas, the amount was below normal</li> </ul>	<ul style="list-style-type: none"> <li>Browse and pasture availability, and livestock prices further improved</li> </ul>
Mar 2010	<ul style="list-style-type: none"> <li>Launching workshop organised on 3<sup>rd</sup> of March at Semera</li> <li>District and kebele emergency response committee established</li> <li>Staff recruited and deployed</li> </ul>	<ul style="list-style-type: none"> <li>Implementation approach defined</li> <li>Beneficiaries selection criteria defined together with the committee</li> </ul>
April 2010	<ul style="list-style-type: none"> <li>Training conducted on the implementation related subjects</li> </ul>	<ul style="list-style-type: none"> <li>Implementers trained on ration formulation</li> </ul>
May 2010	<ul style="list-style-type: none"> <li>Feed inputs procurement and transportation process started</li> <li>Unexpected rain received in most part of the region</li> </ul>	<ul style="list-style-type: none"> <li>The rain affected feed transportation process in some area</li> </ul>
June 2010 <sup>9</sup>	<ul style="list-style-type: none"> <li>The unexpected rain increased in its intensity and area coverage</li> <li>Feed transportation and distribution process continued</li> </ul>	<ul style="list-style-type: none"> <li>Feeding interrupted due to rain and flood in some places e.g. Hangalele in Amibara</li> </ul>
July 2010	<ul style="list-style-type: none"> <li><i>Kerma</i> rain started<sup>10</sup></li> </ul>	<ul style="list-style-type: none"> <li>Flood problem resulted</li> </ul>

<sup>9</sup> In Abala, cattle and small ruminant were fed with TMR for 63 and 51 days from 13th May to 23rd of August, and from 8th of July to 28th of August 2010 respectively.

Aug 2010	<ul style="list-style-type: none"> <li>• Feed transportation and distribution process continued</li> <li>• <i>Kerma</i> rain increased in its intensity</li> </ul>	<ul style="list-style-type: none"> <li>• affecting almost all parts of the region</li> <li>• Livestock feeding program officially closed end of August</li> </ul>
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Source: PIA and Monthly Food Security Update 2009 and 2010

Table 4: Steps and activities undertaken toward the livestock feeding

Time	Event
Nov 16 – 20, 2009	<ul style="list-style-type: none"> <li>• Afar rapid assessment undertaken</li> </ul>
Dec 8, 2009	<ul style="list-style-type: none"> <li>• Afar Rapid Assessment Report released</li> </ul>
Dec 24, 2009	<ul style="list-style-type: none"> <li>• Draft proposal submitted to the OCHA HRF</li> </ul>
Jan 20, 2010	<ul style="list-style-type: none"> <li>• UN Humanitarian Coordinator endorses HRF board's decision to fund the Joint Project Proposal HRF confirmation</li> </ul>
Jan 22, 2010	<ul style="list-style-type: none"> <li>• Budget costs finalized with HRF</li> </ul>
Feb 15, 2010	<ul style="list-style-type: none"> <li>• Contract cleared by Geneva</li> </ul>
Mar 3, 2010	<ul style="list-style-type: none"> <li>• CARE signed an agreement with the regional government and joint inception workshop carried out among stakeholders</li> </ul>
Mar 9, 2010	<ul style="list-style-type: none"> <li>• Contract signed by both FARM-Africa Eth and HRF Ethiopia Representatives</li> </ul>
April 1, 2010	<ul style="list-style-type: none"> <li>• CARE and FARM Africa recruited staffs</li> </ul>
April 4, 2010	<ul style="list-style-type: none"> <li>• CARE procured inputs (feed)</li> </ul>
Apr 8, 2010	<ul style="list-style-type: none"> <li>• Realignment of the budget submitted and requested from the HRF</li> </ul>
Apr 22, 2010	<ul style="list-style-type: none"> <li>• Final budget realignment submitted and approved by the HRF</li> </ul>
May 2010	<ul style="list-style-type: none"> <li>• recruited staff and organizations began purchasing of feeds</li> </ul>
Mid May 2010	<ul style="list-style-type: none"> <li>• CARE transported inputs to the program area</li> </ul>
Mid May 2010	<ul style="list-style-type: none"> <li>• CARE started livestock feeding</li> </ul>
June 2010	<ul style="list-style-type: none"> <li>• FARM Africa and SC/US transported inputs to field area from highland areas</li> </ul>

### 3.2 Pastoralists' internal response to the drought

In response to the failure of *Sugum* and *Kerma* seasons rains in 2009, pastoralists moved their herds to relatively better grazing areas as follows:

- Amibara study district<sup>11</sup> - herds migrated to different directions such as Awash Fantale and grazing areas around Awash River where they stayed until the onset of the *Sugum* season rain in March 2010. While these movement patterns are normal during long dry season, cattle herds from the generally resource poor kebeles covered by this study such as Andido and Sisellaburu did stay until the onset of the *Kerma* season rains and that of supplementary feeding program in the second week of June 2010.

<sup>10</sup> There was 146 mm rainfall recorded from the *deda* and *Sugum* rains in 2010 on average.

<sup>11</sup> In Amibara, migrated herds were still away from their villages targeted with supplementary feed at time of beneficiaries' selection process in May and start of the feeding programme in mid June 2010.

- Teru study district – herds moved to dry season grazing fields over flooded with three rivers viz. Megale, Awra, and Gulina<sup>12</sup>. However, there was influx from Abala and Erebti districts and the pasture was not sufficient to support such a large population throughout. Therefore, the local population had joined herds from Abala and Erebti that migrated to grazing areas located around Deraitu and Hiru Rivers.
- Abala study district – cattle tending always requires seasonal movements between Abala and the neighbouring districts such as Teru and Tigray'. In 2010, pastoralists returned herds migrated to Teru and Tigray areas in response to the poor performance of both *Sugum* and *kerma* seasons in 2009 and that of *sugum* season in 2010 immediately following the arrival of the first batch of the CARE supplementary feed. As a consequence, many herders who returned herds earlier than the normal time had lost their cattle while some of them attempted to force the CARE supervisors to admit animals that were not part of the populations targeted with supplementary feeds. The key lesson is that agencies need avoid such wrong expectations through organizing consultation meetings at settlement sites as well as locations of migrated herds.

### 3.3 The FARM Africa, SCUK and CARE livestock feeding

Although the FARM Africa, SCUK and CARE Ethiopia livestock feeding programs implemented in 2010 were designed following the failures of the *Sugum* and *Kerma* season rains in 2009, the actual feeding period was 15<sup>th</sup> May to mid September 2010.

In Amibara where the unexpected *deda* season rain was received between November and December 2009, the *sugum* season rain started earlier than the normal time in February and continued falling until May 2010. In addition, there was complete overlap between the start of the livestock feeding program and onset of the *Kerma* season rain that affected the feed transportation and distribution processes in some locations<sup>13</sup>.

The approach used by FARM Africa was to direct the supplementary feed to five kebeles viz. Andido, Allaidege, Sissalabur, Angelelee and Gonitabirka out of 18 kebeles under the Amibara woreda administrative division. Those five kebeles were chosen by the woreda and kebele emergency and selection committees mainly due to high livestock population density encountered during the site selection visit in May and June 2010. Being located away from Awash River, those kebeles are used as wet season grazing areas by all kebeles under the Amibara woreda normally.

In Teru, the emergency livestock feeding was implemented in all the 12 kebeles under the woreda administrative division by SCUK<sup>14</sup>. Similarly, CARE targeted all the

<sup>12</sup> Philpot et al (2005). Livelihoods/Emergency Assessment in Afar Region. Oxfam International

<sup>13</sup> In the year 2009/10 drought, an emergency situation was declared in December 2009 by Afar DPFSB “see Nov.- Dec., 2009 Save the Children-UK, Monthly Food Security and Early Warning Update, Afar Region”.

<sup>14</sup> In Teru, the beneficiaries transported the feed from distribution centres to their villages using their camels and donkeys.

11 kebeles that are administered under the Abala district<sup>15</sup>. In Abala and Teru, the *Kerma* season rains started in the third week of June 2010, and the feeding program was launched in the second half of May and June 2010 respectively.

In theory, individual beneficiaries were selected based on their wealth status and poor households such as widows were prioritized in all the three assessment districts. The type and number of cattle and/or small ruminants intended to be fed per herd varied among the three organizations. In FARM Africa where the quota for the number of livestock to be fed was fixed at kebele levels, project report indicated that the feed was targeted to a total of 5,100 livestock owned by 1,275 households. Therefore, the number of animals intended to be fed was calculated at 4 livestock per herd. In both SCUK and CARE programs, the initial plan was to feed a mix of 3 cows and 5 goats per herd.

However, the assessment showed that in Amibara the feed was fed to around 11 cattle or 10 small ruminants on average. There were 9 cattle and 5.5 small ruminants fed per herd in Teru study herds on average. In Abala, there were around 4 cattle and 7 goats fed per herd on average.

### **3.4 Impact of emergency livestock feeding on livestock mortality**

Generally, the livestock feeding programs were launched just before the onset of the *Kerma* season rains. As such, the impact of the supplementary feed on livestock mortality that was perceived particularly in Teru and Abala assessment areas was limited to the period between the onset of the *Kerma* rain and availability of adequate browse and pasture resources which requires a maximum of 30 days period normally. The impact of this livestock feeding intervention on cattle and small ruminant mortality is shown in Tables 5 and 6.

The assessment showed that:

- In both Teru and Abala, the mortality in cattle and small ruminant which were fed using feed was significantly lower than mortality in cattle and small ruminant depending on natural feed.
- In Teru, majority of cattle and small ruminant mortality events that happened after the onset of the post-drought rain was associated to extremely heavy rains and floods, disease and toxic grass locally known as 'dodobto' and wild carnivores' related problems.
- In Teru where the feed was fed both to milking cows and goats and their calves and kids, mortality was significantly lower in calves (chi-square = 68.5,  $p < 0.001$ ) and kids (chi-square = 54.5,  $p < 0.001$ ) fed with feed received from SCUK compared with calves and kids not fed. Mortality in the fed calves and kid was calculated at 7.8% (6/77) and 3.2% (4/124) respectively. Mortality in

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<sup>15</sup> There was high mis-match between the demand and supply of livestock feed in Abala. Thus, some pastoralists had forced the staff supervising the livestock feeding program with gun to have shared the feed quota allocated for the initially registered cattle for few days until the woreda administration deployed police to counter act.

the non fed calves and kids was calculated at 73.1% (57/78) and 38.9% ((87/218) respectively.

- In Amibara, an area received unexpected deda rains, and sugum season rains earlier than the normal time; the use of supplementary feed was no more effective than using natural feed in terms of reduced mortality. In addition, the feed was not fully utilised and there was some livestock mortality that have resulted from overfeeding of the supplementary feed particularly wheat bran (frushka). Individual informants associated mortality in the non-supplementary fed cattle and small ruminant to disease problems by and large.
- In Teru, affected by moderate drought, cattle and small ruminants respectively were six and three times less likely to die if fed with feed distributed by SCUK.
- In Abala, affected by severe drought, cattle and small ruminants both were two times less likely to die if fed with feed distributed by CARE on average.
- Mortality in Teru study herds was significantly lower than mortality in Abala study herds both in cattle and small ruminants that are fed and not.
- From the focus group discussions it was evident that livestock migrated to Teru from Abala. This finding could reflect the severity of the drought situation in Abala.
- From the focus group discussions, it was evident that livestock were migrated to Teru from Abala and Erebti. This finding could reflect the severity of the drought situation in Abala and Erebti.
- In Abala, the participants of the focus group discussion conducted together with Haramule village members confirmed that majority of the supplementary fed animals to have died during the first 30 days of the feeding period. During this period, the drought-affected animals used to visit a feeding centre established in Abala town located four kilometres away from their villages twice per day, and they were served grass hay alone. Furthermore, 21.5% (28/130) of the total 23.8% (31/130) mortality resulted in cattle supplementary fed using feed distributed by CARE was due to around 41.2% (28/68) mortality resulted in seven herds where the feed quota allocated for three cattle was fed to around 10 cattle on average.

Therefore, the comparatively higher mortality perceived in Abala could be explained:

- In terms of severity of the drought situation;
- Stress conditions created to the drought-affected animals due to the demanding migration between the feeding centres and home areas;
- Incomplete and inadequate amount of feed served. In Abala, cattle were 8.6 times less likely to die if the feed distributed by CARE was fed to three cattle per herd on average.

Table 5: Comparison of Teru and Abala study herds for drought factored mortality

Comparison	Chi-square	Livestock mortality per location	
		Teru	Abala
Teru vs. Abala:			
Cattle fed	26.3, p<0.001	3.7% (6/164)	23.8% (31/130)
Small ruminant fed	20.2, p<0.001	3.3% (9/272)	18.2% (12/66)
Cattle not fed	26.3, p<0.001	22.3% (105/471)	41.5% (86/207)
Small ruminant not fed	98.5, p<0.001	10.2% (87/852)	42.6% (58/136)

Table 6: Statistical analysis of mortality

Comparison	Chi-square	Percentage of animals died	
		Fed	Not fed
Amibara district – least affected by drought:			
Cattle ( n = 35 herds):			
Animals supplementary fed vs. not	5.5, ns	4.7% (18/379)	2.2% (16/731)
Small ruminants ( n: 11 flocks):			
Animals supplementary fed vs. not	0.9, ns	5.3% (7/131)	3.4% (9/265)
Teru district – affected by moderate drought:			
Cattle ( n = 30 herds):			
Animals supplementary fed vs. not	29.3, p<0.001	3.7% (6/164)	22.3% (105/471)
Small ruminants ( n: 30 flocks):			
Animals supplementary fed vs. not	12.6, p<0.001	3.3% (9/272)	10.2% (87/852)
Abala district – affected by severe drought:			
Cattle ( n = 33 herds):			
Animals supplementary fed vs. not	11.0, p<0.002	23.8% (31/130)	41.5% (86/207)
Small ruminants ( n = 7 flocks):			
Animals supplementary fed vs. not	11.7, p<0.002	18.2% (12/66)	42.6% (58/136)

ns: not significant

### 3.5 Impact of emergency livestock feeding on milk production

The result of proportional piling scorings conducted using 10 objects on impact of livestock feeding on cow and goat milk production in Amibara and Teru areas is illustrated in Figures 2 and 3. The graphs show that there was significant increment in cows and goat milk production overtime both in milking animals fed and not in both assessment areas. Evidence from this conclusion includes the fact the milking animals were using their natural green feeds along with the supplementary feeds, and, the significant milk production increment perceived in cows and goats which were not fed with the supplementary feeds, too.

### 3.6 Benefit-cost analysis of the impact assessed feeding programs

The result of proportional piling scorings conducted by individual informants to compare changes in cow and goat milk production at the start and end of the

supplementary feeding programmes indicated that the increased milk production would almost certainly have occurred without the supplementary feed. Therefore, a benefit-cost analysis was based on reduced cattle and small ruminant mortality alone, and based on the number of animals registered by each organization to be fed. A benefit-cost analysis was conducted for each of the three feeding programmes covered by the assessment, and results are shown in Tables 7, 8 and 9.

The assumptions in the benefit-cost calculations were the market value of reduced cattle and small ruminants mortality could be derived from a comparison of mortality in unfed and SCUK, CARE and FARM Africa- fed cattle and small ruminants, and an average market value of adult cows and small ruminants in the local markets in June 2010 was ETB 1,875 and 434 respectively (Gezu Bekele and Yacob Aklilu, 2010). Total Cost of Feeding Program =  $\{(\text{supplementary feeding intervention cost} \div \text{total emergency program cost}) \times (\text{total operational cost})\} + \text{supplementary feeding intervention cost}$ . This formula calculates a 0.24 overall benefit-cost ratio of the cattle and small ruminant supplementary feeding programs implemented in Teru, Abala and Amibara districts in Afar region in 2010.

Table 7: Benefit-cost analysis of supplementary feeding in Teru district

Item	Amount (USD)
<b>Costs</b>	
Cost of cattle and small ruminant supplementary feeding intervention	403,900
Operational cost of the supplementary feeding = $\{(\text{supplementary feeding intervention cost} \div \text{total emergency program cost}) \times (\text{total operational cost})\}$	126,565.7
Total cost of cattle and small ruminant supplementary feeding intervention	170,465.7
<b>Benefits</b>	
Value of cattle losses prevented in the feeding programme = $\{(3.7\% \times 6,000 \text{ cows}) - (22.3\% \times 6,000 \text{ cows})\} \times \text{USD } 144.23$	160,961.4
Value of small ruminant losses prevented in the feeding programme = $\{(3.3\% \times 10,000 \text{ small ruminants}) - (10.2\% \times 10,000 \text{ small ruminants})\} \times \text{USD } 33.38$	23,035.38
Total benefits	183,996.8
<b>Benefit-cost ratio</b>	<b>1.5</b>

Table 8: Benefit-cost analysis of supplementary feeding in Abala district

Item	Amount (USD)
<b>Costs</b>	
Cost of cattle and small ruminant supplementary feeding intervention	389,025
Operational cost of the supplementary feeding = $\{(\text{supplementary feeding intervention cost} \div \text{total emergency program cost}) \times (\text{total operational cost})\}$	167,755.8
Total cost of cattle and small ruminant supplementary feeding intervention	556,780.8
<b>Benefits</b>	
Value of cattle losses prevented in the feeding programme = $\{(23.8\% \times 3,600 \text{ cows}) - (41.5\% \times 3,600 \text{ cows})\} \times \text{USD } 144.23$	91,903.36
Value of small ruminant losses prevented in the feeding programme = $\{(18.2\% \times 6,000 \text{ small ruminants}) - (42.6\% \times 6,000 \text{ small ruminants})\} \times \text{USD } 33.38$	48,868.32
Total benefits	140,771.7
<b>Benefit-cost ratio</b>	<b>0.3</b>

Table 9: Benefit-cost analysis of supplementary feeding in Amibara district

Item	Amount (USD)
<b>Costs</b>	
Cost of cattle and small ruminant supplementary feeding intervention	513,218
Operational cost of the supplementary feeding = {(supplementary feeding intervention cost ÷ total emergency program cost) × (total operational cost)}	96,654.02
Total cost of cattle and small ruminant supplementary feeding intervention	609,872.02
<b>Losses</b>	
Value of cattle losses incurred due to the feeding programme = {(2.2% × 1,275 cows) – (4.7% × 1,275 cows)} × USD 144.23	4,597.33
Value of small ruminant losses incurred due to the feeding programme = {(3.4% × 1,275 small ruminants) – (5.3% × 1,275 small ruminants)} × USD 33.38	808.63
Total losses	5,405.96

Figure 2: Cow and goat milk production in Amibara

### Comparison of Milk Production Before and During Feeding Period

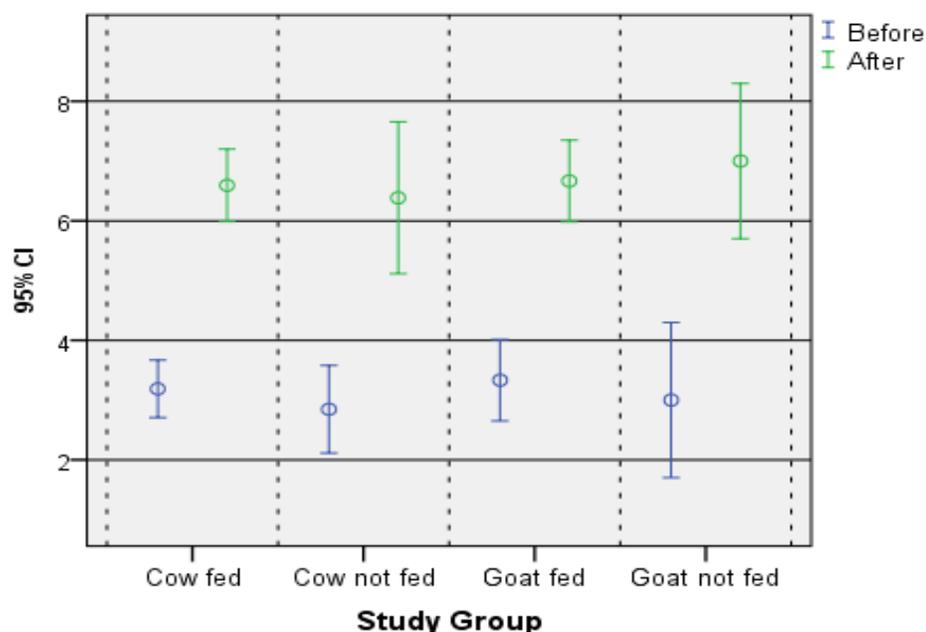
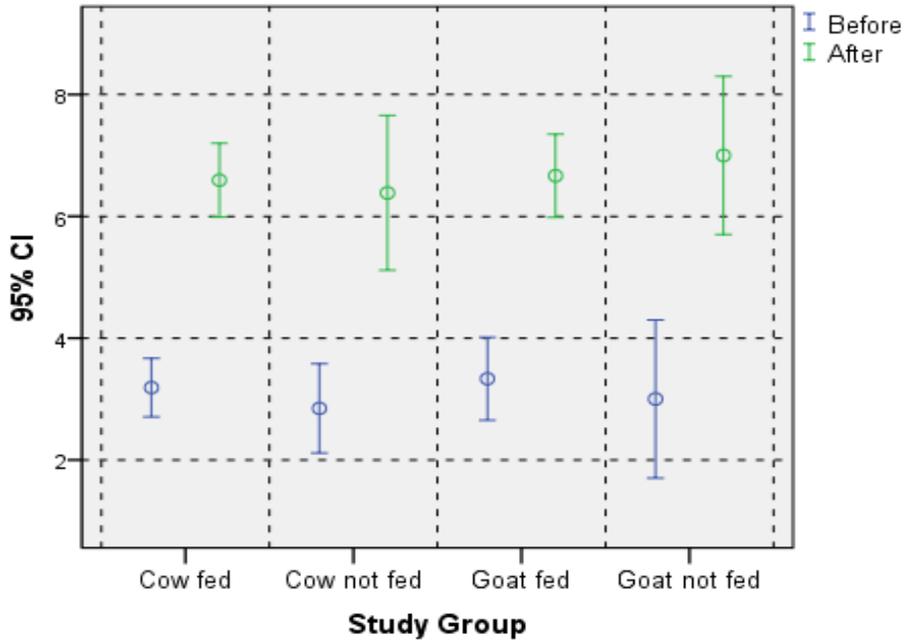


Figure 3: Cow and goat milk production in Teru

### Comparison of Milk Production Before and During Feeding Period



#### 4. Discussion

Afar has always been among the most frequently drought-affected pastoral areas in Ethiopia. The livestock supplementary feeding programs intervened by SCUK, CARE, and FARM Africa in collaboration with the Afar regional government in 2010 are planned in response to the failures of the *Sugum* and *Kerma* season rains in 2009 and the sub-sequent 2010 humanitarian appeal document. Whereas the performance of the *Sugum* season rains varied from zone to zone depending on the geographic locations of the zones, the *Kerma* season rains are much above normal in most parts of the regions in 2010. The *Kerma* season rains that started falling in June 2010, which is one month earlier than the normal time, did overlap with the start time of the supplementary feeding programs in Amibara and Teru.

In Abala and Teru districts where the *Sugum* season rains had performed poor in 2010, the overall finding of the assessment was that the emergency livestock supplementary feeding programs could be justified in terms of reduced livestock mortality mainly during the post-drought rain. This is also corroborated by a study conducted on feed supplementation program intervened in Borana in response to the 2008 drought by CARE Ethiopia in which around 17.1% of total starvation factored cattle mortality resulted in the non-supplementary fed herds had occurred after the onset of the post-drought *Genna* season rains (Bekele, G.). Therefore, the reduced mortality perceived in the supplementary fed cattle and small ruminants in Afar in 2010 is attributable to the feed supplementation programs intervened by SCUK and CARE Ethiopia in Teru and Abala respectively.

In Teru where the supplementary feed was fed both to milking cows and goats and their calves and kids by owners, mortality was significantly lower in calves fed with

feed received from SCUk compared with calves and kids not fed. The survival of calves and kid implies the continuity of milk production in the post-drought period. Under a livelihoods approach, dam and calf survival and the associated milk production impacts of supplementary feeding programs relate to dual objectives of protecting core breeding stock and assisting post-drought recovery, and reducing prevalence of child malnutrition problem in the immediate post-drought period respectively.

#### **4.1 Assessment of the design of feeding program**

In 2008, the Ministry of Agriculture and Rural Development of the FDRE developed a national guideline “to promote best practice in the design, implementation and assessment of emergency livestock interventions in response to natural disasters in pastoral areas of Ethiopia”. The guide line evolved from experiences and best-practices/lessons of government agencies, Non Governmental Organizations (NGOs) and research institutes in the country. On May 2009, another international guideline, the Livestock Emergency Guidelines and Standards (LEGS) was launched. Both the national and LEGS guidelines do have a focus on provision of timely assistance to crisis affected communities so that they could protect and re-build key livestock-related assets.

These guidelines comprises of common and specific standards for different types of livelihood interventions. The common standards are participation, initial assessment, response and coordination, targeting, monitoring and evaluation, technical support/agency’s competence, contingency planning, and advocacy and policy. Accordingly, the mode of operation of the assessed livestock feeding interventions has been analyzed against the standards of LEGS and the National guideline as follows:

**Initial assessment:** the intervention design was based on the Early Warning assessment that was conducted in 32 districts of the region, which has led to the identification of hotspot districts at the regional Agricultural Task Force meeting. However, the EW reports and minutes of RATF meetings indicated the fact that browse and livestock market prices improved following the unexpected deda season rain in November and December 2009. The deda rain was received in most part of the region especially Geberiso (zone 3) including Awash Arba, one of the areas where the assessed supplementary feeding program was implemented. Also there was no livestock mortality reported in the EW reports and minutes of RATF meetings referred to have resulted due to starvation throughout.

**Targeting:** similar mechanisms and criteria have been followed by all organization in selection of operational areas and individual beneficiaries. In all the three organizations, emergency and selection committees were established at district and kebele level. The kebele level committees comprise of clan leaders, kebele chair persons, elders and women representatives. These committees have been involved with targeting of beneficiaries and the involvement of the project was to follow up the beneficiary selection process so as to ensure fair and transparent process. In theory, the main criteria for beneficiary selection were prioritizing poor women headed household, level of vulnerability, and family size. These selection criteria and

involvement of women in the committee would enable the implementing agencies to prioritize women headed household during beneficiary selection.

The SCUUK had used the existing district structure to select beneficiaries of the Productive Safety Net Program. This structure comprises of the elders, local administration and representatives of youth and women. Thus, this committee did decide on the number of beneficiaries from each selected PA and finally conferred with the Kushet (the lowest government administrative division) to select the number of beneficiary. The criteria used for selection of PSNP beneficiaries include vulnerability, female headed households, and households with many children, and disabled/marginalized community members. In reality, the feed was shared on clan basis and there was no major compliant related to selection criteria in all areas.

**Response and Coordination:** although the intervention in all three organizations was designed in December 2009, activities have been started in May 2010 at Abala and June 2010 in Teru and Amibara. This clearly indicates that the feeding was started very late to have reduced impact of the intervention, which the implementing agencies have attributed to different factors such as slow project start-up, high transportation cost (that leads to re-tendering processes), elongated internal procurement process, and accessibility problems in some operational areas. In all assessed areas, program implementation follows regional signing of agreement, launching of workshop, program orientation, and training on implementation modalities.

Regarding coordination, it is clearly exhibited that there have been close coordination with the respective regional and zonal offices in undertaking these activities. At regional level, there is a monthly agricultural taskforce meeting, in which all the relevant stakeholders participate to discuss on progresses, challenges, and way forward of the implementation. In addition, there have been a fortnight meeting among consortium members/implementing agencies (i.e. CARE, FAO, FARM Africa, and SCUUK). The purpose of this platform is to exchange information on the achievements and the challenges so that donors and the respective government bodies could take corrective actions timely. The minutes of the Regional Agricultural Task Force (RATF) meetings clearly indicated that the FAO emergency unit in Addis Ababa was responsible for coordinating the supplementary feeding programmes implemented with the HRF fund used from UNOCHA.

#### **4.2 Assessment of the implementation of feeding programme**

Both the national guidelines as well as LEGS do have standards for specific livestock emergency interventions. The specific interventions for emergency livestock feeding are feeding levels, feed safety, and sources and distribution. Hence, the review of the implementation of the intervention by the three organizations is discussed as follows:

**Intervention approach:** FARM Africa and SCUUK followed a home-based feeding approach while CARE applied modified feeding centre method. The advantage of the modified feeding centre approach is reduction high cost of running a central feeding centre. However, this approach works very well under normal situation where animals intended to be fed are required to use their natural feeds along with the supplementary feeds. On the one hand, it requires establishment of feeding centres in each village.

Similarly, the home-based approach does have limitation related to problem of ensuring provision of the appropriate level of feed for the intended animals despite its advantage of minimal overhead cost to implement the intervention. In addition, this approach requires availability of adequate water for the animals to be home-fed and strong training on supplementary feeding method to the owners. Accordingly, both the modified feeding centre and the home-based approaches may not be feasible during severe drought situations especially in areas where there is critical water shortage problem. Thus, the consulting team suggests that implementing agencies need to stick to the normal feeding centre-based method of supplementary feeding in the future.

**Technical support and agency competencies:** the assessment revealed that all organizations do have organizational competence in implementing the livestock feeding activity as they have been involved previously with different livestock-based emergency programs. All the three organizations had provided training on feed management, feeding practices, and modalities of other livestock emergency interventions for the grass-root level staff, community members, and relevant line office experts. However, there are elongated procurement processes in all organizations that caused a delay in making timely response.

**Monitoring and Evaluation:** all organizations have developed a sound monitoring system to supervise the activities timely. CAHWs and Development Agents were trained by the projects to orient the community members and supervise the feeding process, and to collect milk and body weight data.

The assessment team recognizes and highly acknowledges huge efforts made by the implementing agencies to collect such data throughout the supplementary feeding period. On the other hand, the team takes account of the implementing agencies failure to collect data on mortality of animals supplementary fed despite the fact that the primary objective of the supplementary feeding programme was to reduce mortality.

**Advocacy and Policy:** It is believed that the findings will contribute to the wider policy forum discussions on livelihood-based emergency activities. Therefore, the assessment team highly acknowledges the commitment of FARM Africa, CARE Ethiopia and SCUK to conduct participatory impact assessment of their programs. It has to be noted that this assessment was limited to programs implemented by the three NGOs despite FAO implemented the supplementary feeding programs in five districts out of the ten covered with the HRF fund used from UNOCHA in 2010.

## 5. Conclusions

The overall finding of the assessment was that the emergency livestock survival and supplementary feeding programmes implemented in Teru and Abala assessment districts could be justified in terms of reduced livestock mortality mainly during the post-drought rain. Both in Teru and Abala, mortality in fed cows and goats was significantly low comparing to the cows and goats that were not fed. This has contributed not only in protecting key breeding stock and associated post recovery

but also continuity of milk production in the post drought period. However, in Amibara area, the impact of the supplementary feeding intervention on mortality of livestock was nil purely due to factors which are outside the control of the implementing agency. These include delay of project start-up and good *Sugum* rain.

Although the agencies were effective in implementing the livestock feed intervention as required, various problems that are related to timing and implementation approaches related problems remain to be addressed. These include non-flexible fund releasing and procurement procedures of donors and NGOs respectively.

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