



# East Golis Frankincense, Goats and Fishing Livelihood Zone Baseline Report

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*Information for Better Livelihood*



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## TABLE OF CONTENTS

	<b>Acknowledgement</b>	<b>iii</b>
1.	Executive Summary	
<b>2.</b>	<b>INTRODUCTION</b>	<b>1</b>
2.1	Background Information	1
2.2	Baseline Analytical Approach	1
<b>3.</b>	<b>LIVELIHOOD ZONE OVERVIEW</b>	<b>2</b>
<b>4.</b>	<b>HISTORICAL TIMELINE AND SEASONALITY</b>	<b>2</b>
4.1	Historical Timeline and Reference Year	2
4.2	Seasonality	3
<b>5.</b>	<b>MARKET ANALYSIS</b>	<b>5</b>
5.1	Livestock Prices	6
5.2	Cereal Prices	6
5.3	Terms of trade	7
<b>6.</b>	<b>LIVELIHOOD ASSETS</b>	<b>7</b>
6.1	Natural Capital	7
6.2	Human Capital	7
6.3	Social Capital	8
6.4	Physical Capital	8
6.5	Financial Capital	9
<b>7.</b>	<b>WEALTH BREAKDOWN</b>	<b>10</b>
7.1	Frankincense production	11
7.2	Herd dynamics	11
<b>8.</b>	<b>LIVELIHOOD STRATEGIES</b>	<b>11</b>
8.1	Sources of Food	11
8.2	Sources of Income	12
8.3	Expenditure patterns	13
<b>9.</b>	<b>HAZARDS AND VULNERABILITY CONDITIONS</b>	<b>13</b>
<b>10.</b>	<b>CONCLUSION</b>	<b>14</b>
11.	Recommendations: ( Development priorities)	15
<b>12.</b>	<b>REFERENCES</b>	<b>16</b>

## LIST OF TABLES

Table 1:	The Integrated HEA and SLA Framework	1
Table 2:	Historical Timeline	2
Table 3:	Summary of Wealth Group Characteristics	11
Table 4:	Goat/Sheep Herd Dynamics	11
Table 5:	Coping Strategies in Response to Shock in East Golis	14
Table 6:	Key Parameters to Monitor in East Golis	14

## LIST OF FIGURES

Figure 1:	Estimated average rainfall (mm) East Golis	3
Figure 2:	Seasonal Calendar of Critical Activities and Events in East Golis Frankincense, Goats and Fishing Livelihood Zone 4	6
Figure 3:	Price Trend of Imported Red Rice	6
Figure 4:	Price Trend of Imported Red Rice	6
Figure 5:	Price Trend of Imported Red Rice	6
Figure 6:	Price Trend of Imported Red Rice	6
Figure 7:	Terms of Trade for Local Quality Goat to Imported Red Rice	7
Figure 8:	Wealth breakdown in East Golis Frankincense, Goats and Fishing livelihood zone	10
Figure 9:	Food sources by wealth group, East Golis Zone	11
Figure 10:	Cash Income Sources by Wealth Group, East Golis Zone	12
Figure 11:	Allocation of Expenditures by Wealth Group, East Golis Zone	13

## LIST OF MAPS

Map 1:	Location of East -Golis Frankincense, Goats and Fishing Livelihood zone	2
Map 2 :	Major Livestock Markets in Somalia Monitored by Fsnau/Fews Net	5



## 1. EXECUTIVE SUMMARY

In November 2012, the Food Security and Nutrition Analysis Unit (FSNAU) conducted a baseline assessment in the East-Golis-Frankincense, Goats and Fishing livelihood zone. The purpose of the exercise was to assess the main sources of food and income in East-Golis-Frankincense, Goats and Fishing livelihood zone during the reference year; and to measure the extent, depth, and the underlying causes of vulnerability to livelihoods and food insecurity in this livelihood zone, including the identification of indicators for early warning monitoring.

### Livelihood Zone Description:

The East Golis Frankincense, Goats and Fishing Zone covers an area which includes the districts of Calula, Iskushuban, Qandala and Bosasso in northern Bari region, and Las Qorey, Ceerigaabo and Ceel Afweyne districts in northern Sanaag region. The zone is characterized by rugged terrain as it contains the central and eastern sections of the Golis mountain range, a succession of barren mountain peaks incised by valleys and dry seasonal rivers and ravines. The topography gently slopes towards Calula, before flattening towards the Gulf of Aden. The zone is characterized by hills and mountain ridges with alluvial plains to the west of Bosasso and Qandala and deltas and coastal plains in Calula. The ecology of the zone is semi-desert and the basis of the economy is frankincense trade, livestock rearing and fishing. The total estimated population for the livelihood zone is 225,750 (UNFPA 2014). This livelihood is adjacent to Northern Inland Pastoral – Goat and Sheep livelihood zone in the South; the Indian Ocean and Coastal Deeh livelihood Zone in the North and East and West-Golis livelihood zone in the West.

The zone is characterized by rugged terrain and mountain ranges that are incised by dry seasonal rivers and ravines. The topography is mainly undulating with highly eroded hillsides, barren mountain peaks, shoulders, ridges, saddles and valleys. The slope in the livelihood zone is steep (90-160) in the area around Erigavo, generally moderate (50-90) to very steep (160-270) near the Golis mountains, gentle slopes towards Alula, before flattening towards the Gulf of Aden. The morphology is descriptive of hills and mountain foot ridges with alluvial plains to the west of Bossaso and Qandala while deltas and coastal plains occur in Alula.

The soils in the livelihood zone are mainly composed of four types: (a) Calcisols and Gypsisols (these soils have low moisture and low nutrient availability); (b) Leptosols, Regosols and Calcisols (which are characterized by stoniness, limited root depth and low moisture availability and are found around Bossaso); (c) Solonchak and Solonetz (these have excess salts, poor drainage and low nutrient availability and are predominant in northern Ceerigaabo; and (d) Luvisols, Nitisols, Cambisols and Regosols (found along the slopes of the Golis mountains). Natural springs are common in the mountainous regions where some impermeable rock outcrops intersect the groundwater tables. Sub-surface flows along the streams (toggas) and groundwater available in springs (mountainous areas) and in shallow and deep aquifers are an important source of water for human and livestock use.

### Main Findings

**Wealth breakdown:** Households in East Golis livelihood zone are categorized into: Poor (35%), Middle (50%) and Better-off (15%) on the basis of their access to livelihood assets, family structure and other survival options open to them. Production of frankincense and livestock rearing are the main means of livelihoods in the East Golis livelihood zone, although fishing is also practiced by a significant proportion of the population. All wealth groups are involved to varying degrees in frankincense production and livestock rearing. The Poor produce 280- 300kg of frankincense from one Kob plot of land, and own about 40-50 goat/sheep; the Middle wealth group produce about 350-500kg of frankincense from one Jaan plot of land and typically own 70-90 goat/Sheep and 3-4 camel, while the Better-off cultivate Jaan weyn plot of land to produce 500-600kg of frankincense and typically own 135-155 goat/sheep and 5-9 camels.

In the reference year, the number of goat/sheep increased by five percent across all wealth groups at the end of the reference year on average while camel herd size increased by 12 percent to 17 percent for the Middle and Better-off wealth groups, respectively.

**Seasonality:** The livelihood zone receives bimodal rainfall during Gu (April-June) and Deyr (October-December) seasons. Rainfall levels average 130-150 mm per year (although less in the coastal areas), divided into two rainy seasons, like is the case for the majority of the country. Both rainy seasons contribute significantly to the renovation of pasturelands, especially in the mountain areas. The Gu rains are most significant in April and May (see Figure 2), while September is usually the month with the highest deyr rainfall levels. The zone enjoys a more moderate climate compared to most Somali regions and features thick forests, especially on the steeper northern slope of the Golis mountain range, which receives considerable rainfall from the monsoon weather systems.

Between March and August, temperatures increase making the area hot. During the dry Hagaa (July-August) season, strong and dry winds blow across the livelihood zone. From September to February, temperatures drop making it a cooler period. Around December-February period, xays rains are received along the coast and around the Golis Mountains, where the highest peak reaches 2 270 m above sea level. Mean annual temperatures range between 24oC and 28oC in the areas around Bossaso and Alula, but reduces in the Golis mountains to between 20oC and 24oC. Relative humidity in the Bossaso-Alula area is higher than 65 percent and ranges between 55- 65 percent in Ceel Afweyne-Erigavo area.



The movement of the Inter Tropical Convergence Zone (ITCZ) in a southward direction influences the winds to blow from the north east, carrying with it moisture from the Indian Ocean. This influences the onset of the Gu and Deyr seasons. Moreover, the proximity of the livelihood zone to the Indian Ocean also influences the onset and cessation of rainfall, which in turn has implications for water and pasture availability.

In the reference year, the Gu (April-June) rains started in April and peaked in May. However, unlike other parts of Somalia, the Deyr rains commenced in September (earlier than normal), peaked in October and ceased in November. As a consequence, medium to high pasture conditions peaked in May-July and September-December, while water was available almost throughout the reference year, except in February-March (Jilaal) and August (Hagaa) where low water availability was experienced.

## Livelihood Strategies

**Food Sources:** Almost all Poor households obtain their food through market purchases, with insignificant portion coming from own livestock products. The amount of cereals purchased annually is 756kg (rice, wheat flour and pasta). Cereal staples meet 50 percent of the total calorie needs among Poor households. Non-staple food including sugar (7.5 bags of 50kg), vegetable oil (24 tins – of 3 liters each) and 40kg of purchased dates also contribute to a significant portion (38%) of their basic energy needs. Poor households obtain some additional energy (5%) from own milk/meat consumption and food aid (5%). As a result, Poor households experienced a slim deficit (3%) in terms of meeting their minimum energy dietary requirement during the reference year. This slim deficit could have been covered by unquantified food sources including fish.

The Middle and Better-off households also rely heavily on market purchase for food and non-food items. They do not have difficulty in meeting their minimum energy requirements. They were able to obtain 104 % and 113%, respectively, of their energy requirement during the reference year. This is derived from the consumption of 1 286 kg of cereals and non-cereal foods for Middle, whereas the Better-off managed to obtain 1320kg of cereals and 746kg of non-cereals.. These represent 96 percent and 104 percent, respectively, of the minimum energy requirement for their household members, respectively from these sources. Fresh milk/meat consumption contributed 11 percent for Middle and 13 percent for Better-off households in terms of their minimum energy requirement.

**Sources of Income:** The primary income for all wealth groups in East Golis livelihood zone is frankincense, followed by livestock and livestock product sales. In addition, fishing is also a main source of income for communities living close to Red Sea and the Indian Ocean. Annual income for the Poor households amounted to approximately Shs 44,000,000. Frankincense products contributed about 72 percent of the total, (including income earned from labor related to frankincense activities. Livestock/livestock product sales contributed about 21 percent and, additional income from loans in cash, gifts from relatives and traders amounted to 7 percent of total household income for Poor households in the reference year. Both middle and Better-off wealth groups acquire more income (61% and 57%, respectively) from frankincense, followed by income from livestock/livestock product sales (35% and 43%, respectively). The Middle and Better-off households have further access to cash loan/credit, which contribute an additional 4 percent to their total annual income.

**Expenditure patterns:** The Poor wealth group spends most of annual income on food and non-food purchase. About 70 percent of the Poor households' annual income is spent on food (39% on staple and 31% on non-staple food). This leaves only a limited portion of their income to be spent on other essential items that are vital for their livelihood sustainability and protection. The Middle and Better-off spent a relatively smaller portion of their income (62% and 60%, respectively) on food respectively, and they spend more on water and inputs compared to the Poor. The proportion of total income spent on staple food purchases decreases across the wealth groups (representing 39 %, 33% and 33%, respectively, of total household expenditure for the Poor, Middle and Better-off wealth groups).

The main hazards and constraints that affect the local economy of the East Golis livelihood zone are listed below:

- **Drought/weather shocks:** Mainly affects frankincense production and aggravates livestock conditions and value. Drought effects also include increase in water trucking, migration and family split as households endeavor to cope and save their livestock assets.
- **Storms and strong winds:** these sometimes lead frankincense trees to fall and dry up.
- Termites and other parasites, which affect tree health, thus reducing productivity and incomes.
- Overexploitation of the trees due to over tapping and not respecting the intervals between harvests. This significantly reduces the yield of the Frankincense.
- **Livestock diseases:** animal disease outbreaks follow drought in negatively impacting livelihoods and are frequent especially during the dry season. The most common diseases in this area are endo-ectoparasites, Contagious Caprine Pleuropneumonia (CCPP) and Peste des Petits Ruminants (PPR) that affects goats. Livestock diseases usually result in movement bans being imposed and this further affects household incomes from sale of livestock. The 2000 – 2009 livestock ban to contain the spread of livestock diseases into the Gulf States is a case in point.
- Insecurity as a result of conflict among different clans within the livelihood zone as well as the added threat of terrorist groups arriving from the south of the country.



**Livelihood Assets:** Among the five livelihood capitals, livestock (Goats/Sheep), natural resources, as well as social support are the main assets that support livelihood strategies for all wealth groups in East Golis livelihood zone. Goats and sheep are the predominant species reared and are the second most important assets of wealth after the frankincense. The Poor households own 40 - 50 goat/sheep, while Middle and Better-off wealth groups have 70- 90 and 130-150 goat/sheep, respectively. These important assets can be readily liquidated to meet daily household needs, and provide own milk/meat consumption to meet dietary needs.

In General, vegetation is scarce and less diversified in East Golis livelihood zone. It consists of evergreen trees, shrubs, and acacia trees found along the banks of dry streams. Frankincense grows widely in the zone, in the steep slopes along the escarpments and cliffs. Permanent water sources are available mainly along the coastal belt of red sea and springs in some parts of mountainous areas. However, berkads and ephemeral seasonal catchments are common sources in many parts of the area. In bad years (i.e. years of drought or poor rainfall), most livestock species migrate to Sool and coastal areas.

During the beginning of the reference year, the nutrition status of the population was Critical (Global Acute Malnutrition-GAM rate of 15.2 %); with an estimated 13 000 people (15 % of the population) classified as being in acute food security Crisis (IPC Phases 3). This figure reduced to 6 000 people (or 7% of the population) following improvement of the food security situation. Education and health services are limited and even worse than in the neighboring Northern Inland Pastoral –Goats and Sheep livelihood. Road condition and trade traffics are more difficult than other areas, due to its mountainous and nature of terrain system, which have negative implications on commodity supply and prices. However, communication system in most pastoral zones has been improving. Mobile phones are widely used for getting information in various aspects. Social support including religious gifts (Zakat & Sadaqa) is a form of asset flow from the relatives and better-off wealth groups to the poor households.

**Key indicators to Monitor:** A Seasonal Rainfall performance is one of the key determining factors of this livelihood system. Hence key indicators to monitor are:

- Frankincense production(Maydi and Beeyo) and Frankincense price)
- Availability of labor from frankincense and the related wage rates
- Goat/sheep supply( number of saleable animals) and goat /sheep prices
- Milk availability and price
- Market demand for both Maydi and Beeyo varieties of Frankincense
- Availability of imported foods (rice/flour, sugar, oil etc.) and the related prices

## CONCLUSION

On the basis of the assessment findings, Frankincense and livestock are the back bone of the economy of this livelihood. However, livestock holding decreases as you move towards the eastern side of the zone, while Frankincense production conversely increases. In the reference year, the average herd growth (goat/Sheep) across the wealth groups has shown slight increase of 5%, due to increased(40%) kidding/lamping rates that compensated the maximum off-take(25%) level experienced during the reference year. Annual income for the Poor households is estimated at Sosh 43,775,000 (contributed by: Frankincense 56%, Goats/Sheep 19%, and casual labor 16 ). Additional incomes of 3 percent from loans and 4 percent from gifts respectively. About two-third of this total cash income is spent on food (39% staple food and 31% non-staple). This makes poor households vulnerable to severe food insecurity when market related shocks occur leading to sharp increases in prices of food items. The Middle and Better-off spent a significant portion of their income on food (62% and 60% respectively, which a smaller proportion compared to the Poor, but spent more cash water and inputs for livestock and frankincense production.

Food sources for all wealth groups are market purchases, and some milk/meat from their goats for most of the households. This gives an amount of energy, equivalent to 97 percent for poor, 109 percent and 118 percent for Middle and Better-off respectively.

The common shocks prevalent in this livelihood zone are repeated droughts, which have negative impact on Frankincense, livestock production and narrowed recovery interval, as well as stresses aggravating rangeland resources. Insecurity, increase in food prices and, stresses affect overall food security and nutrition situation in this livelihood zone.

At the time of the assessment in 2012, East Golis livelihood zone only covered the pastoral and frankincense production areas. Livelihood zone map revisions conducted in the last 2 years have resulted in adding the coastal areas where fishing is a significant source of food and income. Although this baseline report does not capture the detailed strategies of fishing as well as cash and food income from the activity, data from the adjacent Coastal Deeh Pastoral and Fishing zone can be used as a proxy for analyzing the role of fishing in household economies in East Golis zone. This will be a temporary measure until the new livelihood zone baseline data is updated.

## RECOMMENDATIONS

- Given the importance of frankincense production in the zone, it is vital to establish frankincense cooperatives and support the producers with tools (gears) and other capital inputs like loans to boost production. This will ease the high cost of production of the frankincense involving high level of exploitation by traders who give advance cash loans at very high interest rates. The current practice is frankincense farmers buy food and nonfood items on credit from traders, and in turn, the traders take the frankincense produce of the poor indebted farmers at low prices. The cycle continues rendering frankincense farmers to remain hugely indebted.
- to overcome this long standing problem, provision of soft targeted loan and credit services will enhance and promote the overall livelihood food security in East Golis and will relieve the poor farmers from bearing the high cost of trader loan repayments.
- Encourage and enhance vegetable growing, and extend cultivation of dates in the potential areas. This should be supported through input provision and irrigation facilities by developing natural springs widely available in East – Golis.
- Encourage and expand fishing activities, provide subsidized equipment, and operationalize the existing freezers deployed recently in some parts of coastal areas.
- Promote marketing system and grading of the various frankincense products, for value addition which will have positive impact on household incomes and savings for increased livelihood resilience.
- Roads that connect villages to the main market towns are very rough and most of them are often blocked and impassable during the rainy season. Correspondingly, pathways that lead to the Frankincense fields are also in bad condition especially during the rainy season. Thus, improving transport infrastructure by constructing main and feeder roads, as well as bridges will ensure the smooth flow of goods and services, consequently resulting in increased household incomes.
- Establish Cash for work programs for the construction of community assets such as roads, rain water harvesting and prevention of soil erosion. Provision of appropriate training and capacity building for local people, and research programme sustainability of the Frankincense species.

## 2. INTRODUCTION

### 2.1 Background Information

East Golis – Frankincense, Goats and Fishing I livelihood zone is geographically located in the Eastern parts of the Golis chains (ranges from Indian Ocean to Ethiopia), stretching from Bari region up to Sanaag region. Livelihood baselines are quantified analysis of livelihood strategies (sources of food; income and expenditure) for different wealth groups over a defined reference period in a given population (Chambers and Conway, 1992; DFID, 2000).

In a food security context, baseline information provides an analytical basis for identifying key indicators for livelihood and food security monitoring, as well as inform policy, programming and development decisions aimed at risk reduction and resilience building. Livelihood and food security baselines use participatory rapid assessment techniques in generating useful information which explains the vulnerability context of a particular zone, profiles the status of households across the wealth ranks and determines changes in assets or shifts in livelihood strategies.

In November 2012, FSNAU conducted a baseline assessment in East Golis –Frankincense, Goats and Fishing livelihood zones. The main objective for this assessment was to provide a reference point and rationale to guide various decisions - making processes; understand changes and trends in livelihoods; and to inform long-term development-poverty and vulnerability reduction strategies; early warning; as well as for emergency preparedness and disaster mitigation.

#### Main Objectives

1. To establish baseline information that will inform future livelihood and food security monitoring, analysis and reporting.
2. Understand the socio-economic characteristics and asset holding by wealth group in the livelihood zone
3. Determine the coping strategies employed by wealth groups and identify any shifts in livelihood strategies and/or wealth ranking in the livelihood system.
4. Assess the vulnerability (persistent shocks and hazards) factors and how these influence the strategies adopted in the livelihood zone
5. Identify the main problems and priorities for addressing livelihood and food insecurity within the livelihood zone.

This baseline report describes the seasonality in the zone, linkages between East Golis livelihood zone and other neighboring zones, historical timeline and market analysis. The report also discusses the sustainable livelihood elements including vulnerability context, livelihood capitals, livelihood strategies, and the coping/response mechanisms employed by households in East – Golis zone. The findings are useful in recommending the design of timely and appropriate interventions as well as long-term development and policy planning.

### 2.2 Baseline Analytical Approach

The baseline assessment combines two widely used approaches in livelihood and food security analysis: the Household Economy Approach (HEA) and Sustainable Livelihoods Approach (SLA). This integrated analytical approach provides a useful way of assessing how households obtain food, generate income and prioritize expenditure as well as asset holding and coping strategies when shocks occur.

**Table 1: The Integrated HEA and SLA Framework**

	HEA Baseline				HEA Outcome Analysis		
	Step 1	Step 2	Step 3		Step 4	Step 5	Step 6
HEA Process	Livelihood Zoning	Wealth Breakdown	Food, Income Expenditure Quantification	+	Problem Specification	+ Coping Capacity/ Response Strategies	= Scenario Outcome
	↕	↕	↕		↕	↕	↕
SLF Core Areas	Vulnerability/ Context	Livelihood Assets & Policies, Institutions, Processes (PIPs)	Livelihood Strategies & Policies, Institutions, Processes (PIPs)		Policies, Institutions, Processes (PIPs) & Shocks/Trends (under Vulnerability Context)	Livelihood Strategies & Livelihood Assets & Policies, Institutions, Processes (PIPs)	Livelihood Outcomes

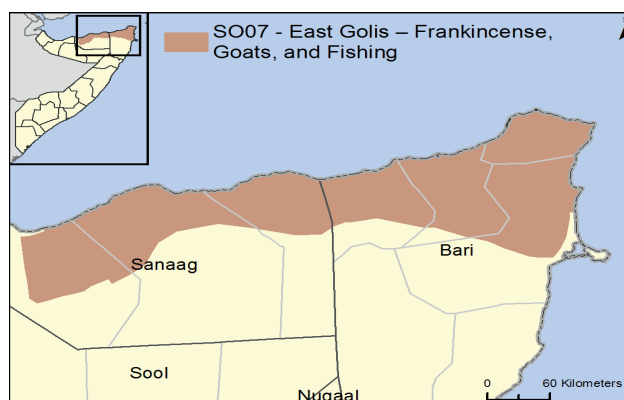
Before conducting the baseline survey FSNAU organized a pre-fieldwork training workshop in Garowe. Consultations were held with Government Focal Points from Puntland Authority, FSNAU food security field analysts and representatives from local non-governmental organizations. During the workshop, discussions focused on how to survey frankincense production as well as on security and accessibility, as this influenced the selection of assessment villages resulting in purposive selection of 11 villages.

During fieldwork, focus groups discussions (FGD) with 6-10 people each were organized with village leaders in each sampled villages. This was to understand overall livelihood situation and background information, focused on historical timelines, seasonality; livestock migration in bad and good years and Seasonal calendar revealing main seasonal activities during hardship time, lean period, and opportunities. Proportional piling was used to classify households into relative wealth groups, based on livestock asset holding, other assets and family structures. From this wealth breakdown, representative households from each wealth group were mobilized and focus group interviews conducted with them. In total, eleven community representative (FGD) and thirty three wealth group interviews were conducted in East-Golis livelihood zone.

### 3. LIVELIHOOD ZONE OVERVIEW

**Livelihood Zone Description:** The East Golis Frankincense, Goats and Fishing livelihood zone covers an area of approximately 41,380 square kilometers, crossing Alula, Qandala, Bosaso, Isku-shuban of Bari region and, Las Qorey, Ceerigaabo and Ceel Afweyne districts of Sanaag region. This livelihood has links with other neighboring livelihoods namely: Northern Inland Pastoral and- Goats and Sheep LZ in the South; Coastal Deeh Pastoral and Fishing in the East and West-Golis Pastoral LZ to the West. Like the neighboring livelihood zone (Northern Inland Pastoral and- Goats and Sheep LZ) and most parts of Somalia, the East- Golis livelihood zone receives bimodal rainfall: Gu (April-June) and Deyr (October-December) seasons. There are also two dry seasons in this zone: Jilaal (January-March) and Hagaa (July-September). The area is characterized by rugged terrain and mountain ranges that are incised by dry seasonal rivers and ravines. The topography is mainly undulating with highly eroded hillsides, barren mountain peaks, shoulders, ridges, saddles and valleys. The slope in the livelihood zone is steep (90-160) in the area around Erigavo, generally moderate (50-90) to very steep (160-270) near the Golis mountains, gently slopes (00-10) towards Alula, before flattening towards the Gulf of Aden. The morphology is descriptive of hills and Mountain foot ridges with alluvial plains to the west of Bossaso and Qandala while deltas and coastal plains occur in Alula. Main sources of income are sale of Frankincense, sale of livestock/livestock products, and employment related to frankincense production such as harvesting, cleaning and collecting resins; and self-employment such as petty trade.

**Map 1: Location of East -Golis Frankincense, Goats and Fishing Livelihood zone**



### 4. HISTORICAL TIMELINE AND SEASONALITY

#### 4.1 Historical Timeline and Reference Year

The historical timeline describes the major events that have occurred in the livelihood zone from the Gu and Deyr seasons of 2009 to the Gu season of 2012. It provides a broader understanding of the climatic, socio-political, economic, positive and negative events in the livelihood zone, as well as coping responses and triangulating with the pre-determined reference year for the baseline assessment. Before conducting the baseline assessment in East Golis livelihood zone, discussions and brainstorming sessions were held between FSNAU Baseline Lead Analysts and Food Security field analysts, key resource persons from the Puntland Authority, resource persons from non-governmental organizations operating in the study area, Puntland Government focal points and community representatives. The assessment team also reviewed market prices of key staple and non-staple food items. From the discussions, October 2011 to September 2012 was determined as the reference year.

The Gu 2012 season was a normal period, characterized by average rainfall, which resulted in average pasture, water, livestock conditions, low calving rates (due to poor Deyr 2011) and normal frankincense production. Due to this, pastoral households employed coping strategies, which included normal migration, seeking loans and social support. The Deyr 2011 seasonal rainfall was below average. Coupled with increased insecurity, this limited water and pasture conditions and led to deterioration of livestock body conditions. Pastoralists resorted to abnormal migration, water trucking and seeking social support as a way of coping with the poor performance of the season.

The Gu 2010 rains were normal and resulted in average pasture and water conditions which influenced normal migration. This was an improvement from the poor Deyr 2010 season, which was characterized by rainfall failure, drought and high food prices. These led to poor pasture conditions, poor water conditions, increased livestock deaths and poor purchasing power. In order to cope, pastoralist households resorted to abnormal migration with some using trucks to transport livestock, destitution, intensified water trucking, social support seeking and labor migration to main towns.

In Gu 2010, normal rains contributed to average pasture conditions, average water conditions, average livestock body conditions and normal migration within the livelihood zone. The Deyr 2009 season received poor rains which led to poor pasture and water conditions as well as abnormal livestock migration. This forced pastoral households to intensify seeking of loans and labor

migration to the main towns. This condition was preceded by below normal rains that characterized the Gu 2009 season. This led to poor pasture and water conditions, poor livestock body conditions, increased livestock diseases and livestock deaths. Pastoral households therefore resorted to abnormal migrations as a way of coping.

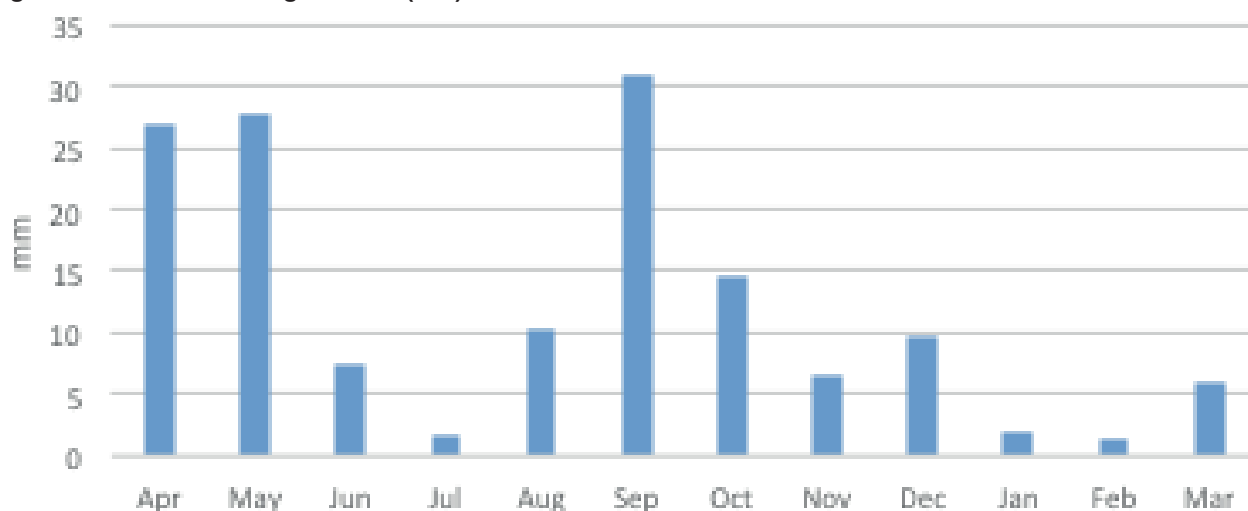
**Table 2: Historical Timeline**

Year	Season	Seasonal performance Ranking <sup>1</sup>	Events	Effects	Response
2012	Gu	Average (3)	Average rains	Moderate pasture Poor livestock body conditions Low calving rate Normal access to loans Normal frankincense activity and production	Normal migration Seeking Loans Social support
2011	Deyr	Below Average (2)	Poor rains Insecurity	Limited water availability Poor pasture conditions Poor livestock body conditions	Abnormal migration Water trucking Seeking social support
	Gu	Average (3)	Normal rains	Average pasture and water condition	Normal migration
2010	Deyr	Poor (1)	Rain failure Drought High food prices	Poor pasture conditions Poor water conditions Livestock deaths Poor purchasing power	Abnormal migration –use of trucks for livestock Destitution Water trucking Seeking social support Labor migration to main towns
	Gu	Average (3)	Normal rains	Average pasture conditions Average water conditions Average livestock body conditions In-migration	Normal migration
2009	DEYR	2	Poor rains	Poor pasture and water conditions	Abnormal livestock migration Seeking loans Labor migration
	GU	2	Below normal rains	Poor pasture and water conditions Poor livestock body conditions Livestock diseases Livestock deaths	Abnormal migration

## 4.2 Seasonality

In the reference year, the Gu (April-June) rains started in April and peaked in May. However, unlike other parts of Somalia, the Deyr rains commenced in September, peaked in October and ceased in November (Fig. 1). Ideally, the movement of the Inter Tropical Convergence Zone (ITCZ) in a southward direction influences the winds to blow from the north east, carrying with it moisture from the Indian Ocean. This influences the onset of the Gu and Deyr seasons. Moreover, the proximity of the livelihood zone to the Indian Ocean also influences the onset and cessation of the rainfall, which in turn relates to water and pasture availability. Rainfall levels average 130-150 mm per year (although less in the coastal areas), divided into two rainy seasons, like is the case for the majority of the country. Both rainy seasons contribute significantly to the renovation of pasturelands, especially in the mountain areas. The gu rains are most significant in April and May (see Figure 2), while September is usually the month with the highest Deyr rainfall levels. As a result of this medium to high pasture conditions peaked in May-July and September-December, while water was available almost throughout the reference year, except in February-March (Jilaal) and August (Hagaa) where low water availability was experienced.

**Figure 1: Estimated average rainfall (mm) East Golis**



East Africa suffered a severe drought between 2011 and 2012. In Somalia the drought affected farmers in the south especially, although the effects of the drought were also visible among pastoral communities in the north. The reference year for the baseline data (October 2011-September 2012) was a normal to below average year. While the deyr 2011 season was poor, the gu rains were good. However, insecurity restricted livestock migration and increased livestock concentration to certain areas. Due to the limited availability of water and pastures, livestock body conditions deteriorated, lowering their value and milk yields declined especially for camels (an average of 1-1.5 liters per day compared to normal yields of 2-3 liters per day).

As a result, pastoralists resorted to abnormal migration, water trucking and seeking social support as a way of coping with the poor performance of the season. Nevertheless, frankincense production was normal and availability of loans from traders continued, which, overall, made the reference year an average year in terms of livelihoods and food security.

The vegetation cover in the zone comprises evergreen trees (angeel, hambaruur, gob, quud), shrubs and acacia species, which mainly grow along the banks of the seasonal streams (wadis). This area is one of the few along the Gulf of Eden where frankincense is produced. The *Boswellia* tree is the species used for the extraction of resin. Additionally, different varieties of grasses, locally known as dureme, taaug and sifaar, are commonly found in areas where frankincense trees are less dominant. These types of grasses have been used by pastoralists for a long time to graze livestock mainly sheep and goats.

Permanent water sources are found mainly along the coastal areas as the highlands areas have fewer permanent water sources. The main water sources available to the local population and livestock include shallow wells and boreholes, seasonal springs, berkads and seasonal catchment areas, although the latter become depleted during times of prolonged droughts.

**Figure 2: Seasonal Calendar of Critical Activities and Events in East Golis Frankincense, Goats and Fishing Livelihood Zone**

#### East Golis- Seasonal calendar

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Rainy/dry seasons	Jilaal			gu			hagaa			deyr		
Pasture availability	dry pasture			green pasture			Dry pasture			green pasture		
Water availability	Scarce			Plenty			Scarce			Plenty		
Livestock Conception	Low			high			Low			high		
Kidding/Calving	Low			high			Low			high		
Milk availability	Low			high			Low			high		
Livestock sales	low			high			low			high		
Livestock Migration-average year												
Livestock Diseases	Common						Low					
Staple food prices	Normal trends						High			Normal trends		
Maydi frankincense tapping	low			Low			medium			high		
Maydi frankincense harvesting	low			High						low		
Beeyo frankincense tapping	low			High			low					
Beeyo frankincense harvesting												
Seeking of credit				Common			common					
Human disease												
Legend	Maydi frk harvesting			Beeyo-Frk harvesting			milk production					

#### Livestock production

Availability of water and pasture resources are key factors influencing pastoral livelihood systems. In the reference year, livestock conception, kidding, lambing and calving peaked in tandem with water and pasture availability in the Gu and Deyr seasons. These periods coincided with increased milk availability, which contributed to improved household dietary needs and income from livestock products. Low milk availability occurred in Jilaal and mid-Hagaa seasons, a time in the reference year when there was low water and pastures production as well as increased livestock migration. Livestock sales peaked in May and October, due to improved livestock body conditions, good water and pasture availability and high demand due to the Eid and Hajj festivities. Food prices shot up in August while livestock sales dropped, as is normal during the Hagaa dry period. This affected the cost of the minimum basket and terms of trade. Human and livestock diseases increased in December-January of the reference year.

#### Livestock Migration

All livestock species migrated during the Deyr season, due to poor rains in the reference year. Livestock migration occurred in Nugaal and Gebi valley whereas in Gu, Hagaa, and Jilaal seasons, livestock migration was confined within the livelihood zone. During times of migration, all family members migrate with the animals. In bad years, animals migrated to Sool in Gu and Hagaa seasons, and to Guban and coastal areas in the Deyr and Jilaal seasons. In bad times, mainly men move with the camels while the women and children migrate with the Goats and Sheep.



### Frankincense production

Frankincense is an important source of income and central to livelihoods in East Golis as it also influences pastoral migration. During peak tapping and harvesting periods, job opportunities increase, with the labour opportunities accessible to poor households for about 3 months, while animals especially camels and donkeys are hired from other pastoralists to transport harvested resins to the village markets. Since the livelihood zone has poor road infrastructure, pack animals provide the main transport with one camel carrying about 150 kilograms of frankincense. Two main species of frankincense grow naturally in the livelihood zone. Maydi variety is exploited from the Yagar tree (*Boswellia frereana*) and is highly productive during the wet season. In a good year when production is high (about 12 cycles of tapping spread over 10 months), tapping of Maydi starts as early as August and continues till the end of the Gu.



Frankincense tapping, Ufeyn settlement, November 2012

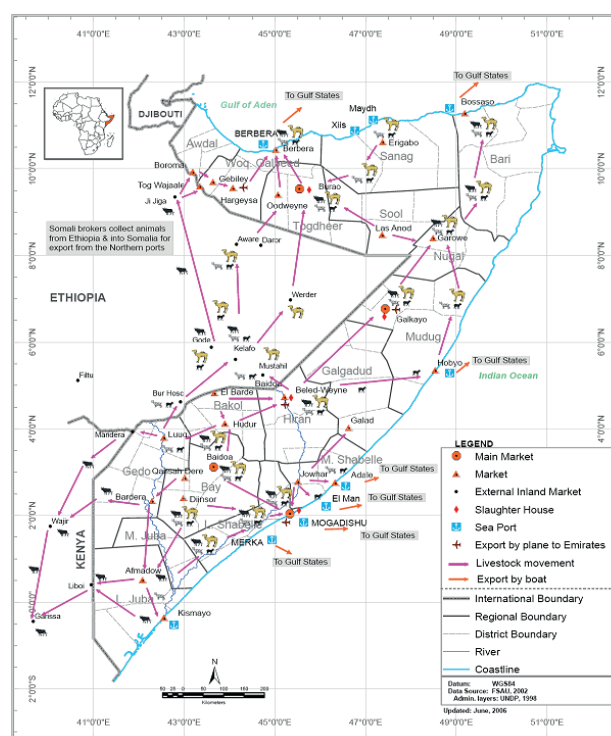
The peak production of the Maydi is in the Deyr season, while much of the harvesting occurs in April-June period. Beeyo production is usually good during the hot season. Tapping and harvesting of Beeyo tree or Mohor tree (*Boswellia sacra*) is high from March to August. From every tapping cycle, frankincense is collected from the receptacle and a new incision made on the bark of the Mohor tree from which frankincense is tapped. While frankincense is a key livelihood activity, its production is negatively affected by droughts, storms and winds which sometimes lead to trees falling, termites, plant borers and overexploitation of trees.

## 5. MARKET ANALYSIS

This section discusses the characteristics of livestock market which form an integral part of East Golis livelihood income sources after frankincense. Unfortunately frankincense market information is not yet monitored and cannot be analyzed as at now. Hence we choose to analyze the second important option which is livestock. The prices of staple and non-staple food commodities are also analyzed to understand household expenditure patterns. This analysis also measures household purchasing power in line with Terms of Trade (ToT) in the reference year (October 2011 to September 2012). Market data has been derived from Bosaso market. Other reference markets (Calula, Bandarbeyla and Isdkushuban) monitored by FSNAU/FEWSNET were initiated very recently after this baseline assessment. Even so, the observed key commodity prices from 2012 to 2015 have shown similar trends with Bossaso markets. Therefore, we used Bassaso as proxy market for the analysis of the zone.

Trade in livestock and livestock products is an essential socio-economic activity for the population in East Golis livelihood zone. Major livestock species that form second main economy (after frankincense) are goats, and sheep, while camel are less important in this livelihood zone, due to declining trends from the effects of drought and flash floods<sup>1</sup>. Goat and sheep are traded as either local quality or export quality sold to Gulf States through the port of Bosasso. Thus, prices are influenced by Islamic festivals (Hajj and Ramadhan) and by other external factors, such as livestock body condition which is linked to rainfall and range land resources. Other factors which affect local livestock prices include exchange rates (Somali currency against the United States Dollar) and livestock demand in the Arabian markets.

Map 2 : Major Livestock Markets in Somalia Monitored by Fsnau/Fews Net



<sup>1</sup> On several occasion camel were caught up by strong flashfloods while grazing in seasonal valley of Golis escarpments.(camels have been drawn and taken away by the seasonal streams).Hence the volume of camel traded in Golis livelihoods is minimal due to the reduced holdings at household level.



## 5.1 Livestock Prices

### Sheep and Goat Export Quality

Despite limited fluctuations, the price of both export quality goat and sheep in East golis was favorable to the pastoralists in the reference year and higher than 5-year average (2006-2010). The average monthly price for the two species was Sosh 1,518,750 and 1562500 respectively, referring to Bossaso market, though 14% less in Erigava market. Sheep prices indicated sharp increase of 50% regarding to 5-year average (From Sosh 1010500 – Sosh 1518750/head). In the same period, the price of export quality goats also increased by 37% (from Sosh 1140200 - Sosh 1562500 /head), compared to 5-year average. Normally, during the Hajj season more livestock is exported to Saudi Arabia for the Islamic Pilgrimage festivities, while more local quality livestock is sold and consumed in the local towns and pre-urban centers. Consequently, increased livestock demand and competition influences the prices to soar during these periods. Local quality goat prices also fetched more than average prices during the reference year in most parts of East-Golis livelihood zone. One local goat was sold for Sosh 1502708 on average. This is 38 % above the corresponding 5-year average of Sosh 1087266.

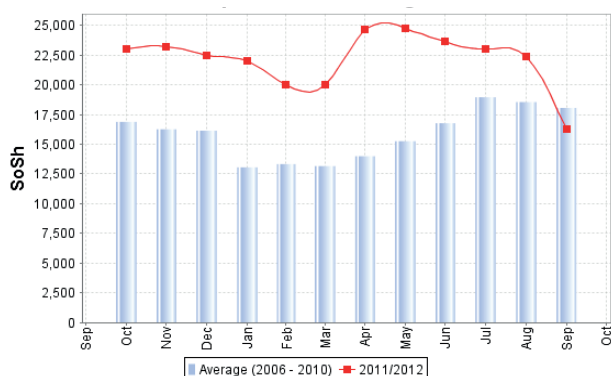
## 5.2 Cereal Prices

The most important staple food commodities purchased by households in East - Golis livelihood zone are imported cereals (red rice, wheat flour, and pasta) and non-staple foods (sugar, vegetable oil and dates). The purchasing power of households is linked to wealth groups and to their income levels, which are determined by the number of saleable livestock, livestock body condition and livestock market value (prices). In general, the prices of imported food items are affected by fluctuations in the exchange rate, by variations in international prices of fuel, transport costs, market supply and local demand.

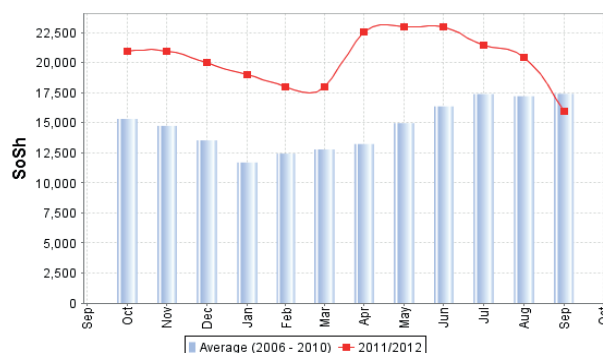
### Imported Red rice and Wheat flour

The average prices of imported red rice and wheat flour indicated declining trends from the start of the reference year, but started to increase from April through May, following seasonal patterns of the year. However, average prices of these commodities have shown moderate increase of 18 % (from Sosh 16883 -19938/kg) in reference year (referring Bossaso market) and 19 % (from Sosh 15333 to Sosh 18313/kg) when compared to five year average, respectively.

**Figure 3: Price Trend of Imported Red Rice**



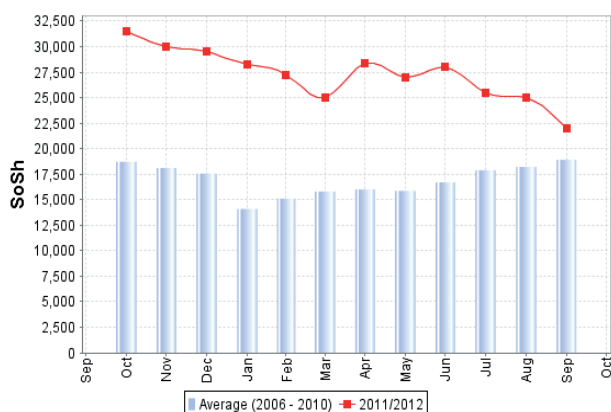
**Figure 4: Price Trend of Imported Red Rice**



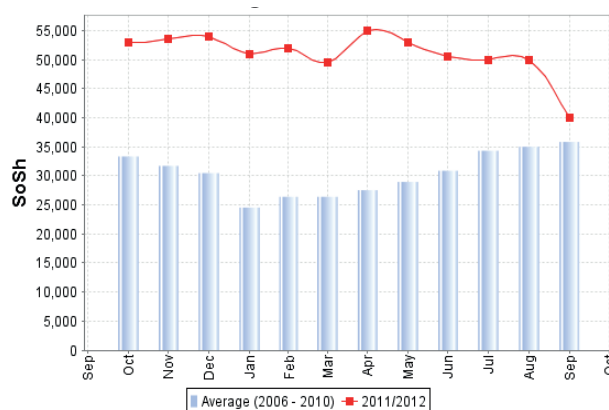
### Non-food items (sugar and vegetable oils)

The price of sugar and vegetable oil in East Golis livelihood zone followed similar patterns as cereal items discussed above. The average price of sugar in the reference year was Sosh 27, 000/kg while that of vegetable oil was Sosh 50,000/lt, showing a price increase of 49% and 39% respectively, compared to the 5 years average which was 18,100/kg for Sugar and 35,850/ liter for vegetable oil.

**Figure 5: Price Trend of Imported Red Rice**



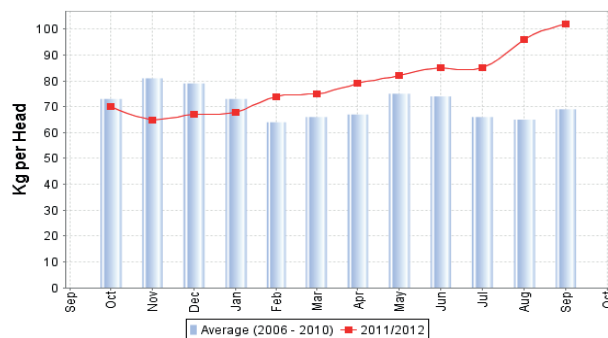
**Figure 6: Price Trend of Imported Red Rice**



### 5.3 Terms of trade

Households in this livelihood depend mainly on market purchase as the food source and their main income is from Frankincense and goats/sheep sales. Despite significant increase in cereal prices, income from goat/sheep sales increased slightly during the reference year. The Terms of Trade (ToT) between local quality goat and imported rice indicated a mild increase of 8% in reference year. In the reference year one local quality goat could buy nearly 1.5 bags rice (79kg), while the average for the previous 5 years is 73kg. This shows improved purchasing ability for basic household consumption requirements in the reference year. The improvement in terms of trade between livestock and cereal is attributable to relatively favorable local goat market prices (price of an average goat increased by 138% of 5 years average).

**Figure 7: Terms of Trade for Local Quality Goat to Imported Red Rice**



## 6. LIVELIHOOD ASSETS

This section discusses the livelihood assets for pastoral households in East Golis Frankincense, Goats and Fishing livelihood zone

### 6.1 Natural Capital

#### Rangeland resources

The main vegetation types in the livelihood zone comprise of evergreen trees (Angeel, Hambaruur, Gob, Quud), shrubs and acacia species which establish along the banks of the seasonal streams (wadi). Grasses locally known as Dureme, Taaug, and Sifaar (commonly found in areas with less frankincense trees) have for a long time been used by pastoralists to graze sheep, but in the recent past, these vegetation types have disappeared or are disappearing and are being replaced by an invasive species locally referred to as Weyrah. The Boswelli specie, which is mainly used in the extraction of a resin, referred to as Frankincense, is common in the steep slopes along the escarpments and cliffs.



*East Golis rangeland condition, Iskushuban district, November 2012*

**Water resources:** Permanent water sources are found mainly along the coastal areas, as the highlands areas have fewer permanent water sources. The main water sources available to the local population and livestock include shallow wells and boreholes, seasonal springs, Berkads and seasonal catchment areas, although the latter become depleted during times of prolonged droughts. Most of the population has free access to water in most areas of the livelihood zones.

**Migration patterns:** As discussed in the seasonal calendar, households in the pastoral livelihood zone practice nomadic lifestyles, with a few areas having pastoral villages. In bad years, animals migrate to Sool in Gu and Hagaa seasons, and coastal areas in the Deyr and Jilaal seasons. During this hardship time, women and children migrate with the goats and sheep. However, in the reference year all livestock species migrated to Nugaal and Gebi valley in Gu season, but experienced normal migration within the livelihood zone in Hagaa, Deyr and Jilaal seasons.

### 6.2 Human Capital

Human capital includes productive wealth in labour, skills and knowledge which directly influence livelihood and food security choices and outcomes. In this section, household composition and access to education and nutrition status are discussed:

**Household Size:** Household size and family structure in East Golis Frankincense, Goats and Fishing livelihood zone varies across the three wealth groups. The poor households are typically monogamous; the middle wealth group has 1-2 wives, while the better off households are polygynous (2 wives). In terms of household size, the better off are composed of about 10 household members, whereas the Poor and Middle comprise of 7 household members. The larger household size for the better off is due to the need for more labour in frankincense production as well as for herding their livestock herds.

**Access to Education:** Similar to other pastoral livelihoods in Somalia, almost all wealth groups in this livelihood have access to Quranic education, which is a cultural practice for most Somali people. Access to formal education is limited, due to inefficient formal learning institutions and weak government system that cannot reach remote areas, and also due to financial constraints faced by most households. Nonetheless, some upper middle and better off households send their children to the main towns and big villages that have relatively good education facilities. Some poor households also send one of their children to relatives in the urban centers depending on wealth level, although this practice is rare.

Nutritional status: In the Post Deyr 2011/12 (beginning of reference year) nutrition analysis depicted a bad situation. Global Acute Malnutrition-(GAM) rate of 15.2 %) was observed in East – Golis of Bari region ('Critical'), while a 'Serious' situation (Global Acute Malnutrition- GAM rate of 10.5%) was observed in East – Golis of Northwest region. Analysis for the whole reference year shows an estimated 15 percent of the population (13000 ) was classified in Crisis (IPC Phases 3 ) initially and the Post Gu 2012 analysis showed the affected population in crisis reduced to 6000 people (7 percent of the population).

### 6.3 Social Capital

Formal support (Zakat) and Informal support (Gifts)

The Middle and Better off wealth groups give obligatory zakat in form of live animals to poor households. In the reference year, the Middle and Better off groups gave away 3 percent (Better-off: 4 goats; Middle: 2 Goats) of their livestock, particularly goats to the Poor households as zakat. Additionally, poor households receive zakatul fitra in the form of staple food (rice, maize, sorghum etc.). This is a special form of zakat which becomes compulsory on each Muslim individual at the end of the fasting month of Ramadan. Zakat in cash is received from the wealthier relatives and friends in the main towns as well as the Diaspora. Other non-zakat gifts of about 1 to 2 percent of the expenditure of the Middle and Better-off households are paid to the needy poor households.

Institutional Support: Despite institutional support being limited and not so effective, local administration and leadership structures, as well as a few non-governmental organizations, UN agencies and religious groups provide the institutional support in the livelihood zone. Relief support during times of shock is often insufficient and irregular food aid from relief agencies operating in the livelihood zone and private sectors was recorded in most areas.

Remittances: Are external social support mainly going to the urban livelihoods, and less common in most parts of rural zones, though can indirectly be transferred locally from urban relatives to households in rural areas seeking support during severe droughts.

### 6.4 Physical Capital

The physical capital discussed in this section include housing structures, access to water and sanitation, access to road network, telecommunication services, credit and financial services.

Housing structures and settlements: Different housing structures and settlements were observed in this livelihood zone. Mobile pastoralists live in traditional movable Somali huts made of thatch grass locally called duful, covered by plastic sheets. This is erected by poles running over, in latitudinal and longitudinal pattern, tied by natural ropes. Most of these houses are scattered in the rangelands. However, there are other types of housing in the rural villages mainly occupied by some middle and better-off households. Those houses are mainly made of stones and roofed with iron sheets. It is also common to find clusters of traditional huts within and around the villages, which reflect a nomadic lifestyle.

Transport Infrastructure: The East Golis livelihood zone has very poor road infrastructure with only one efficient tarmac road that bisects the zone which is beneficial to nearby settlements. In most areas, all feeder roads that link the villages to rural markets are seasonal and in rough condition. One of the big concerns is the nature of the terrain in the livelihood zone, which hinders Frankincense harvest and transportation from the field to settlements. Donkey and pack camel transport is the only means available for Frankincense collection. Transportation costs of the commodities are higher in the remote areas and settlements in the Golis Mountains facing towards the Indian Ocean. This prompted people in certain areas to use boats instead of trucks.

Livestock ownership: Goats and sheep are the predominant species reared, and are the second important asset of wealth categories for this livelihood. Poor households own 40-50 goats/sheep, while Middle and Better-off wealth groups own 70-90 and 130-150 goats/sheep respectively. These important assets can be readily liquidated to raise cash to procure immediate day to day household needs

Health facilities: The livelihood zone has very few health facilities and even some of these are not functional, like the health post built in partnership between UNOPS and UNDP. More than 40 percent of the households did not have sanitation facilities and a vast majority (>80%) of the population in the East Golis did not have access to safe drinking water for human consumption during the reference year. A report from some local health facilities has shown high morbidity rates of 27.9%; and low vitamin A supplementation status (71.7%) was also recorded.

Telecommunication: Mobile phone use is the common and fast form of communication used in the livelihood zone. Communication masts installed in the hilly areas makes it possible for signal transmission although the strength is very unreliable, with frequent communication breakages experienced. This communication is useful in relaying information on availability of rainfall and pasture, outbreaks of clan-based conflicts, migration, marketing of livestock and livestock products, frankincense and general security surveillance. Mobile phones are also used by to seek and receive information, either in the form of remittances and social support in cash/kind.

## 6.5 Financial Capital

The Financial capital presented in this section refers to financial resources that wealth groups in the livelihood use to achieve their livelihood outcomes. These include access to Frankincense, livestock assets, loans and credit.

### Frankincense production

Frankincense production is the primary economic asset for households in the livelihood zone as it provides income through sale as well as the associated employment opportunities. Employment opportunities arise through: tapping, harvesting, and collection of resins. The Poor wealth group receives the highest financial contribution of 71.5 percent from Frankincense collection and related labor works, while Middle and Better-off households obtained 61 and 57 percent from Frankincense production respectively.



*East Golis Frankincense production area, Dawacaley Village, November 2012*

### Box 1. Taxonomy of frankincense in East Golis

Two types of frankincense are produced in the livelihood zone. Beeyo is exploited from the Beeyo or Mohor tree (*Boswellia sacra*). The resin extracted from this tree is less valuable compared to the resin extracted from the Maydi tree. The Beeyo tree grows naturally over a wide area extending from the coastal mountains of the Red Sea up to nearly 200 km inland. Maydi is extracted from the Yagar tree (*Boswellia frereana*) and is found in an area of about 5-60 km away from the coastal zone and in elevations of more than 750 m above sea level.

Mohor trees generally grow in higher and wetter environments than the Yagar trees although in some instances both tree inhabit similar locations. Frankincense in the livelihood zone dates back to the year 200 B.C. Valued for its pleasant smell, medicinal properties and sacred religious attributes, gum and resins were traded with classical civilizations such as the Egyptians, Assyrians, Persians and Greek. They highly valued these products and paid exorbitant prices for it. From the 19<sup>th</sup> century to the end of world war II, the Adhan (Yemen) was the main export market until 1977. Djibouti then shortly replaced the Adhan market following sore diplomatic relations with Yemen. Currently, though, the main export markets for Frankincense are United Arab Emirates (68%), Saudi Arabia (23%), Yemen (8%) and 1% to other destinations such as Djibouti (Coulter, 1987). Frankincense was used for medicinal purposes in the Middle East Ancient Greek, Roman Empire. In China, it has been used for performing rituals, as fumigant or deodorants in houses. In later years it has been used as a flavor and an additive in drinks such as wine and coffee. Currently Beeyo is mainly used as a pharmaceutical ingredient in china, in the perfume industry in the Roman Catholic and Orthodox Churches in Europe. It is also burnt in many religious occasions in the Muslim world. Maydi is chewed in the Middle East and also burnt as incense.

### Frankincense Land Use

Frankincense trees grow naturally in the rocky escarpments of the Golis range and pockets of Karkaar. These trees grow in the wild and are not subject to any management practices. Historically, the ownership of Frankincense fields is clan-based. Each family has a right to directly work in the fields where the trees grow, either to collect incense, rent or engage in sharecropping. No historical records exist on the land use patterns related to frankincense. However in the frankincense-pastoral zone, communal grazing and private land tenure co-exist together.

Pastoralists have the rights to graze their livestock within the precincts of the privately owned Frankincense fields, collect frankincense but are not allowed to cut down any trees or extract tree barks. There are three forms of frankincense exploitation in the livelihood zone: private ownership, shared cropping or leasehold or Maqda. Before the advent of the collectivization of frankincense under the socialist administration in 1973-91, frankincense production was categorized in three parts: (a) one part for the collector, (b) one part for the owner of the frankincense, and (c) one part for the local merchant who provides credit.

The merchants adopted an exploitative approach where they provided food and clothing to the collectors, and reaped huge profits from the sale of frankincense. In 1973 a cooperative system was established to improve storage and marketing of frankincense, but was riddled with corruption, bureaucracies and fraud. This prompted the emergence of the shared-cropping system, where the collectors rented (awaaj or sad) the frankincense fields from the owners on an annual basis and paid back with interest once the harvest and sale is made to the merchants. Under the rental system, the tenant pays to the owner a negotiated amount in cash or in kind, depending on such factors as the size of the field rented, the condition of the field, proximity to villages and water points and type of frankincense. In a normal year, the rent may vary from USD 50-250. Currently frankincense collectors rent fields from the collective ownership as it is heritage among sub-sub clans not owned by individuals. The frankincense collected from the rented fields is then sold to traders as ungraded frankincense (marbush). The traders then grade the frankincense before exporting it to the Gulf countries. The long value chain of frankincense highlights the importance of the commodity in the local economy.



### Livestock ownership and production

Livestock is the backbone of the economy of pastoral households in East Golis through: livestock and livestock products sales. About 21 percent, 35 percent and 43 percent of the Poor, Middle and Better-off wealth groups' annual income is from livestock /livestock product sales. The mountain goat is the most dominant livestock species in the livelihood zone. Large ruminants are reared in isolated areas between Unuun and El-gal where there is better availability of grass and trees for browsers. Sheep and goats reared in the livelihood zone are exceptionally low in meat and milk production, they take long to mature, but are highly adaptable to the harsher environmental conditions that characterize this ecological zone. Despite the variations in livestock ownership across the different wealth groups, the contribution of livestock to household income and food is significant in the livelihood zone. Donkeys are the main form of transport used for transporting frankincense from the field and water during cultivation and harvesting time.



*Livestock and Frankincense production zone, Bossaso, November 2012*

### Access to loans/ credit

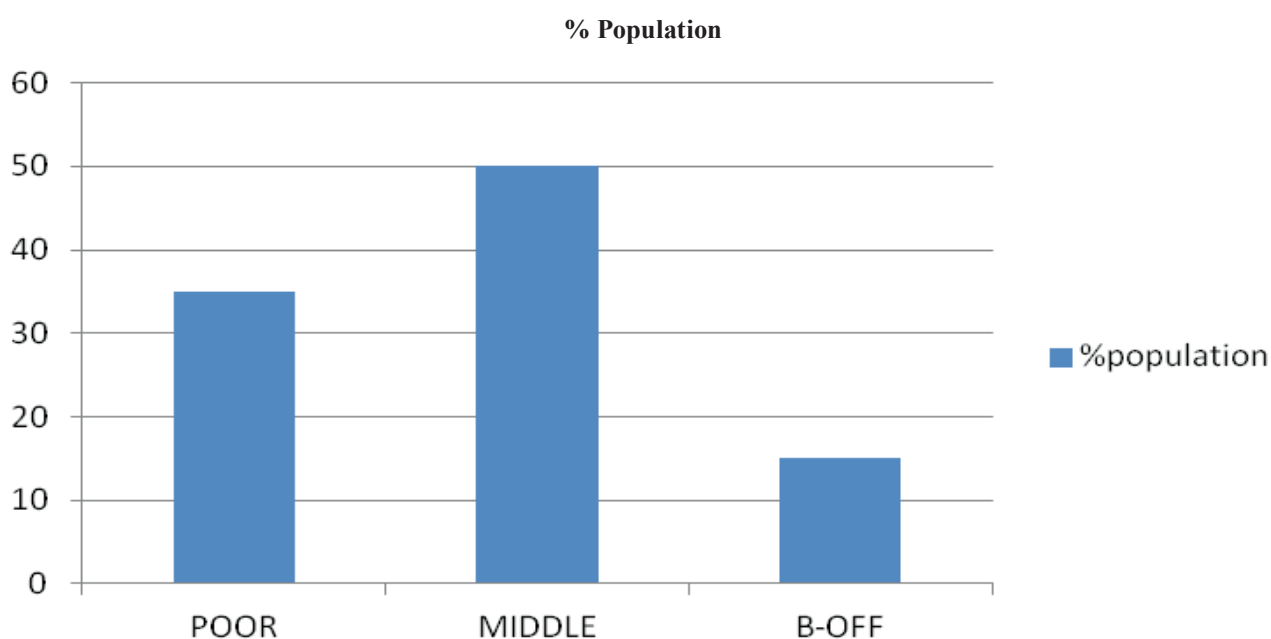
There are a mutual benefits for all wealth groups, having accessing to loan in cash at the start of the season for Frankincense input/rent, as well as loan in kind as a food for their families till harvest time, from the client traders in their respective villages or towns. Hence, indebtedness is very common in this livelihood zone, because of borrowing food at high prices and selling of their products at low prices for debt repayments. Nonetheless, this debt is normally conditional on paying back by selling the harvest to the same client trader who gave the loan, or when livestock body conditions improve and livestock fetch better prices. This is one of the absorptive coping capacities that this social layer engages. Both Poor and Middle wealth groups have access to about 3 percent and 4 percent credit respectively from the traders yearly.

## 7. WEALTH BREAKDOWN

According to HEA definition, Wealth breakdown is the process by which people within a livelihood zone are grouped together using local definitions of wealth and the quantification of their assets. The level of division depends on how the community views their society, and the purpose of the analysis. On the basis of that:

Households in East Golis Livelihood zone are classified in to three groups, namely: the Poor (35%), the Middle (50%) and the Better-off (15%). In the livelihood zone, wealth categorization is mainly dependent on the level and type of asset holding. Use of local definitions of wealth enables grouping of households according to a set of wealth characteristics, and other social economic criteria including household size and skills.

**Figure 8; Wealth breakdown in East Golis Frankincense, Goats and Fishing livelihood zone**



**Table 3. Summary of Wealth Group Characteristics**

		Poor (Sabool)	Middle (Dhexdhaaxad)	Better off (Ladaane)
Average household size		7	7	10
Decision on sale of assets and products	Frankincense	Male	Male	Male
	Livestock	Male	Both	Both
	Livestock products	Female	Female	Female
Maydi/Beeyo (a type of frankincense)		(kob)280- 300kg	(Jaan)350- 500kg	(Jaan-weyn)500-600kg
Goat		30-35(33)	55-70(63)	110-130(120)
Sheep		10-14 (12)	15- 17(16)	20-25(23)
Camel		0	3-4(4)	5-9(7)
Donkey		0	0	1
% of Population		35	50	15

### 7.1 Frankincense production

The Frankincense trees are not individually owned assets as it is a collective belonging inherited from the ancestors and clan lineage. The cultivated land has no standard measurement but has local names that indicate its yield level. Usually poor household cultivate 1 Kob with an average yield of 280-300Kg, while middle and Better-off manage Jaan and Jaan-weyn with annual production level of 350- 500kg and 500-600kg respectively. Most of the Poor provide labour in the fields owned or managed by the Better off and earn income from this activity. In East Golis livelihood zone, frankincense production increases with wealth level.

### 7.2 Herd dynamics

**Table 4: Goat/Sheep Herd Dynamics**

	Poor		Middle		B/off		Average herd growth across the wealth groups.	
	Goat	Sheep	Goat	Sheep	Goat	Sheep	Goat	Sheep
Number at start of reference year	30	11	60	15	115	22	68	16
Adult female	15	6	30	8	60	11	35	8
No. born during the year	12	4.5	24	6	48	8	28	6
No. sold	6	2	10	3	23	3	13	4
No. slaughtered	3	1	6	2	8	2	6	3
No. died	1.5	0.5	3	0.5	7	1	4	1
No. received	2	0	0	0	0	0	1	0
No. given out	0	0	2	0	4	0.5	3	0
No. bought	0	0	0	0	0	0	0	0
No. lost or stolen	0	0	0	0	0	0	0	0
No. at end of reference year	33.5	12	63	15.5	121	23.5	71	14

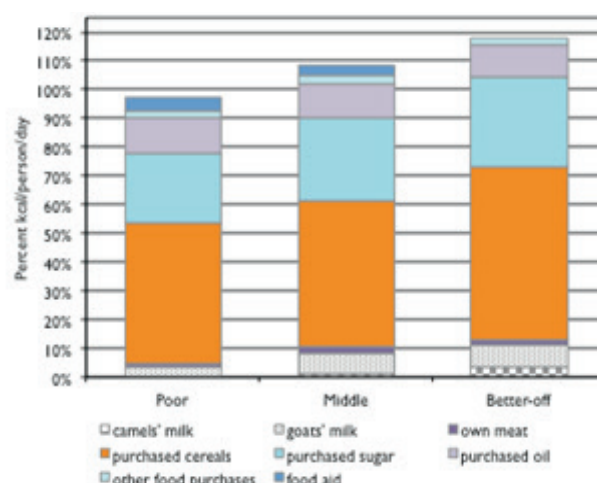
NB - herd change for goat/sheep is about the same and stable, off take 26 %, while kidding/lamming rates was 40 %.

## 8. LIVELIHOOD STRATEGIES

Livelihood strategies is the way in which different wealth groups obtain their food and income, their expenditure patterns, and coping mechanisms engaged during the shock time to maintain their strategies and achieve desired outcome. The type of assets they have and external factors (vulnerability context and policy, institutions and processes), are determinant factors to household's livelihood food security outcomes. This section discusses the livelihood strategies of three different wealth categories (Poor, Middle & B/off) in East Golis Frankincense, Goats and Fishing livelihood zone, during the period of reference year.

### 8.1 Sources of Food

**Poor:** All Poor households mainly depend on the market for most of the food they consume, with additional portion from own livestock products (milk and meat). The amount of cereals purchased annually is 756kg consisting or 7.2bags (50kg) of rice, 7 bags of wheat flour and 7.2 cartons (10kg) of pasta. This

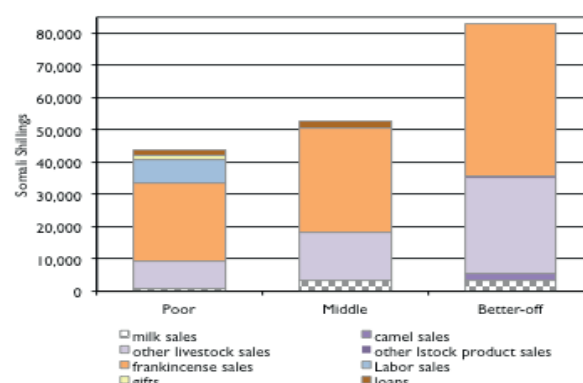
**Figure 9: Food sources by wealth group, East Golis Zone**

meets with 50% of the energy needs for the Poor households. Likewise, they purchase large quantities of non-staple foods, including sugar (7.7 bags of 50kg), vegetable oil (24 tins each 3liters) and 40kg of dates, which represent also a significant part of 38 percent (24% sugar, 12% oil, 2% dates) of their basic energy needs. Additionally, Poor households have access to 5 percent of livestock products (milk and meat) through a consumption of 63 percent of fresh milk from own Goats (275 lt.). However, these amounts vary with seasons and in parts of drier Jilaal (3 – 4months) milk consumption decreases drastically, and sometimes it's completely missing. Relief food also gives 5 percent energy requirements. Hence, every household member could get a minimum energy of 98 percent kcal per day from the combination of the above said food elements.

### Food sources

**Middle & Better-off:** The Middle and the Better-off also depend on the market for most of the food consumed as well as non-food items. The Middle and the Better - off have larger annual Frankincense harvest of 350-500kg and 500-600kg respectively. In terms of livestock holdings, the Middle have about 80 goats/Sheep (80% goats & 20% sheep), while the Better-off have 145 Goat/Sheep (84% goats and 16% Sheep). Camel ownership for the Middle and the Better –off is 3 – 4 and 5 -9 respectively. Apart from these distinctions within the wealth groups, the proportion of sheep to goat, and amount of Frankincense production decreases in the western parts of the zone. The two wealth groups do not have difficulty in meeting their minimum energy requirements as they afford to access 104 percent and 113 percent, respectively, of their energy requirement during the reference year. This is derived from the consumption of 1,286 kg of cereals and non-cereal foods for the Middle, whereas the Better-off managed to get 1,320kg of cereals and 746kg of non-cereals. These represent 96 percent and 104 percent, respectively, of the minimum energy requirement for their household members. Fresh milk/meat consumption contributed 11 percent for the Middle and 13 percent for the Better-off households in terms of their minimum energy requirement. Other noteworthy, food purchases of the otherwise relatively simple pastoral diet include dates, which are consumed almost year round. Dependency on markets for food security is very high and so is vulnerability to market price fluctuations.

**Figure 10: Cash Income Sources by Wealth Group, East Golis Zone**



## 8.2 Sources of Income

**Poor:** Poor households in East Golis cultivate an area of land that is not a unified unit of measurement and given different local names. In addition, most poor households rent land through loan given by the traders in their locations. In most cases The Poor produce an amount of Frankincense in a range of 280- 300kg of Meydi and Beeyo in a reference year, with small livestock holding. Their livelihood is firmly dependent on taking loan in kind for the household food and non –food consumption throughout the year. They also access some cash loans from the client traders and use it to rent land.

The major concern is that the Poor borrow commodities at higher prices, while repayment is with their harvests at very low prices, this puts the Poor in a situation of perpetual indebtedness, with the carryover loans. Nonetheless, this is their part of their normal strategies, especially given that traders do not put too much pressure on the Poor to pay back the loans. The other concern is restricted access in selling their products to other traders, rather than the traders who provided the loans. This means the Poor have little opportunity, if any, to negotiate for a better price for their commodities.

The Poor wealth groups rear goats and sheep, with the sheep being more dominant in the western side of the livelihood zone. Notably, livestock holding decreases as you move towards the Eastern part of the livelihood zone, while Frankincense production conversely increases. The major sources of income for the Poor are sales of Frankincense, livestock and livestock product sales, as well as some casual labor from the collection and taping of frankincense. Each family has a right to directly work in the fields where the trees grow, either to collect incense, rent or engage in sharecropping.

Annual income for the Poor households amounted to Shs 43 775 000 approximately 44 000 000). Frankincense products contributed about 72 percent of the total income, including income of 16 percent earned from labor related frankincense activities. Livestock/livestock product sales added 21 percent (Of this livestock sell is the biggest contributor at 97% while product sale contributes 3%) to the total income. Additional income from Loans (3%) and gifts (4%) are received from relatives and better-off wealth groups within the rural and urban areas.

**Middle & Better-off:** Both the Middle and the Better-off wealth groups acquire more income (61% and 57%, respectively) from frankincense. The second most important source of income is livestock sales contributing 28 percent (from selling 13 goats/sheep (5 export goats & 5 local goats) and 3 local sheep) and 39 percent (11 export & 12 local goat) and 3 local quality sheep respectively. Approximately 7 and 4 percent for the Middle and Better off incomes come from milk sales.



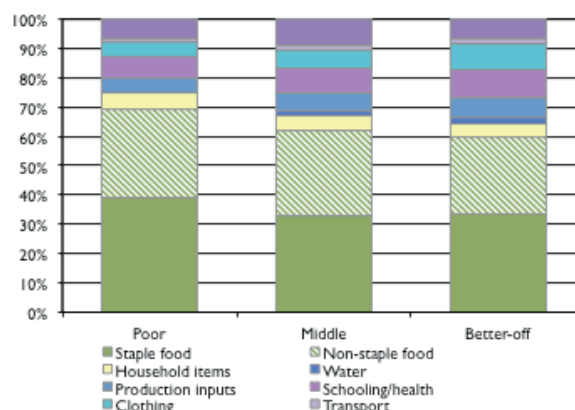
With similar characteristics to the Poor, the Middle households have further access to cash loan/credit, which contribute an additional 4 percent to their total annual income. The overall annual income earned by the Middle and the Better-off is estimated at 52,875,000 and 82,765,000 Sosh respectively, based on the mid - point taken from the range.

### 8.3 Expenditure patterns

**Poor Wealth group:** Turning to expenditure patterns, it is food that represents the largest expenditure category across the three wealth groups. The relative weight of this item is heaviest for the Poor households; approximately 70 percent of their annual income is spent on staple (37%) and non-staple foods (33%), which reiterate the high level of dependency on markets for food and the vulnerability to food price fluctuations of all households. The next highest expenditure is on Social services (8.5%), followed by household items and cloths (5%), while 4 percent and 3 percent is spent on inputs and debt repayment respectively. The remainder of the expense categories were spent on Tax and others (such as gifts).

**Middle and Better- Off:** The Middle and Better-off spent a relatively smaller portion of their income, with expenditure on food taking 62 and 60 percent of their annual expenditure respectively. In addition, they spent 6 percent and 9 percent on cloths and 7 percent and 8 percent on social services respectively. The two wealth groups also spent approximately 2 percent of their total annual expenditure on water, while Poor households mainly relied on free water sources. This is in line with number of livestock owned which forces the Middle and Better – off to secure additional water for their livestock as compared to the Poor. The remaining proportion of 3 percent of total expenditure was spent on other items (transport, festivals etc.) and 2 percent on tax, and 1 – 2 percent on gifts to poorer households. The Better – off households also saved about 1,700,000 Sosh, which is close to 1000 US dollars in the reference year.

**Figure 11: Allocation of Expenditures by Wealth Group, East Golis Zone**



## 9. HAZARDS AND VULNERABILITY CONDITIONS

The main hazards affecting East Golis Frankincense, Goats and Fishing households in order of importance are: persistent drought, insecurity, inflation, frankincense market shocks; livestock and human diseases etc.

**Persistent droughts:** one of the main hazards is the lack of pasture and water due to reduction in rainfall levels, delayed rains and drought situations, which lead to weakened animal body weight and value. For instance, the routine drought have killed substantial number of livestock stock (e.g.: GU '2011) and reduced Frankincense production to one – third of the normal harvest. Recurrent and persistent drought affects livestock production and herd viability as miscarriages can occur alongside the death of young animals. Such effects are not only confined to current situation, but its impact of the preceding season will have detrimental effects to the livestock reproduction/production and future herd size trends. Subsequently, this affects incomes and purchasing power at household level, and often leads to acute food security crisis. Other impacts include weakened social support as re-stocking and loaning of animals to the poor households in the rural areas decreases.

**Frankincense Market shocks:** As experienced in the last Gu 2015, income from Frankincense sales and related activities reduced by 73 percent, due to market shocks resulting from Yemen conflict that affected trade in Frankincense. This is because of the declined price of Frankincense – by 80 percent compared to the baseline, and the main reason for the decline is the low demand due to the conflict in Yemen.

**Pests:** Of great concern are the Termites and other parasites that have detrimental effect to health of the trees and hasten the life of trees to the end. Similarly, storms and strong winds are among the damaging factors that sometimes lead to trees falling. Overexploitation of the trees: Due to over tapping and not respecting the intervals between harvests. As a result, frankincense yield per unit area is showing declining trends.

**Livestock diseases:** Animal disease outbreaks follow in importance and are frequent especially during the dry season. The most common diseases in this area are endo-ectoparasits, Contagious Caprine Pleuropneumonia (CCPP) and Peste des Petits Ruminants (PPR) that affects goats.

**Livestock bans** or restrictions and border closures especially towards the Gulf States: - an example is the aforementioned 2000-2009 livestock ban to contain the spread of livestock diseases into the Gulf peninsula. This has a big impact at both the macro and micro levels as households are not able to sell for export, and the national economy loses out on incomes from the export trade.

**Limited health and school facilities:** The livelihood zone lacks health facilities and some of the health posts built in partnership

between UNOPS and UNDP, and others have no proper functioning facilities. Therefore endemic diseases and seasonal watery diarrhea outbreak is prevalent. Access to education services is very poor in rural areas of East Golis because of the poor road infrastructure and lack of education facilities. A few big villages have primary and secondary level education (e.g. Ufeeyn district) although the Poor are largely unable to access these facilities.

**Poor infrastructure:** The area is characterized by rugged terrain and mountain ranges that are incised by dry seasonal rivers and ravines. This worsens the conditions of the road networks and accessibility. Run-off rain water from the mountainous range damages roads and blocks transport routes. This hampers product flow to the main markets, as well as restricts access to services and supply of commodities. Most access routes used by households in the livelihood zone are footpaths climbing mountains used for transporting frankincense.

**Civil insecurity and conflict:** Sub-clan conflicts in the East –Golis livelihood have negatively impacted access to markets, pasture and permanent water sources. This also often claims several human lives and creates high tension in the area. The combination of conflict amongst different clans within the livelihood zone and the added threat of terrorist groups from the south of the country, make the situation very complicated.

**High food prices:** The cost of food accounts for 75% of annual expenditure of Poor households in the livelihood zone, as well as approximately 60 percent of annual expenditure for the Middle and the Better – off. Imported food commodities such as rice, wheat flour, sugar and cooking oil come at especially high prices and this restricts access by the poorer households.

In order to cope with changes in weather patterns and other hazards, households resort to certain coping strategies. Many of these are used every year such as adjusting the timing of livestock reproduction,(mating and birthing) migrating, hand feeding animals, selling older animals and/or exchanging them for younger ones, storing ghee for consumption during lean season, selling first quality goats to build up a reserve of cash or renting extra fields to increase frankincense production. Support in strengthening these traditional coping mechanisms will help in community resilience building and risk reduction.

Listed below are the common strategies used during bad years, following a particularly bad season.

**Table 5: Coping Strategies in Response to Shock in East Golis**

Very poor/Ppoor	Middle/Better off
Reduction of expenditure on non-essential items and meal sizes	Reduction of expenditure on nonfood items and meal sizes
Seeking extra loans and gifts, especially during the onset of the frankincense production period	Seeking extra loans and remittances
Increasing livestock sales	Increasing livestock sales
Longer or more distant migration to areas with better water and pasture	Longer or more distant migration to areas with better water and pasture
Labor opportunities or share-cropping	Increased milk sales
Seeking extra loans and gifts	Seeking extra loans and remittances

**Table 6: Key Parameters to Monitor in East Golis**

Item	Key Parameter-Quantity	Key Parameter-Price
Frankincense production	Total kg of Maydi produced Total kgs of Beeyo produced Availability of labor from frankincense	Price of Maydi frankincense Price of Beeyo frankincense Labor rates Availability of market demand for Maydi & Beeyo
Animal production	Supply of camels Supply of goats Supply of sheep Supply of camel milk (season 1 especially) Supply of goat milk (season 1 especially)	Price of camels (local quality) Price of goats (local and export quality) Price of sheep (local quality)
Other	Casual labor availability	Labor rates – casual labor Price of red rice Price of wheat Price of sugar Price of vegetable oil

Source: FEWS NET/FSNAU

## 10. CONCLUSION

Frankincense trees grow naturally in the rocky escarpments of the Golis range and parts of Karkaar. These trees grow in the wild and are not subject to any management practices. Historically, the ownership of frankincense fields is clan-based. Each family has a right to directly work in the fields where the trees grow, either to collect incense, rent out or engage in sharecropping.

On the basis of the main findings, most wealth groups in this livelihood are exceedingly market dependent for their main food acquisition. The money to purchase food mainly comes from sale of frankincense and livestock/ products, especially goats and sheep species. Like other pastoralists in Somalia, seasonal rainfall deficit and market disruption are the major detrimental factors to the economy of this livelihood. Frankincense trees are collectively inherited and routinely circulated among the sub-clans for cultivation. This is rented to others and /or cultivated by them, which is invested by the customer traders.

In the reference year, the average herd growth across the wealth groups has shown slight increase of 5%, and despite off-take (sold and slaughter etc) mirrored maximum level of 25%, according to East Africa Standard. However, calving rate was 41% indicating acceptable trend during the reference year. Frankincense production has been declining over the past several years. This is attributable to persistent droughts and adverse effects in pest damage that hindered its production level. Most of the basic services, including safe water, roads, health facilities and formal education are very limited.

The annual income for the Poor households is about Shs 46 500 000 (Frankincense 43%, Goats/Sheep 28%, and 15% casual labor) . Additional incomes of 6%, 5%, and 3% are from milk sales , loans and gifts respectively. About two –third (70%) of the Poor households' annual income was spent on food (37% on staple and 33% on non-staple food). This makes poor households vulnerable to market related shocks in terms of food and livestock prices.

The livelihood of the Poor in particular is very dependent on taking loans in kind for the household food and non –food consumption throughout the year. The major concern is that the Poor take loans to buy commodities at very high prices, while their harvest is conversely sold in low price to pay back the loan. Consequently, they are often indebted, with the carryover loans and very vulnerable to market disruption and livestock ban. This is further worsened by frequent poor harvests meaning the Poor become more vulnerable to food insecurity. Nonetheless, the strong relationship between the Poor households (borrowers) and local traders (loan givers) makes it possible for the Poor households to maintain their basic access to food and income, in light of the hardships in the livelihood zone.

**Key indicators to Monitor:** A Seasonal Rainfall performance is one of the key determining factors of this livelihood system. Hence key indicators to monitor are:

- Frankincense production(Maydi and Beeyo) and Frankincense price)
- Availability of labor from frankincense and the related wage rates
- Goat/sheep supply( number of saleable animals) and goat /sheep prices
- Milk availability and price
- Market demand for both Maydi and Beeyo varieties of Frankincense
- Availability of imported foods (rice/flour, sugar, oil etc.) and the related prices

## 11. Recommendations: ( Development priorities)

In order to enhance livelihood well-being and sustainable development, appropriate action and development priorities need to be focused on the following areas:

- Establish cooperative system and support frankincense producers with tools (gears) and other inputs like subsidized food items and giving them some capital backup as initial capital for production. This will ease the high cost of production of the frankincense involving high level of exploitation by traders who advance them food items at high cost and loan in cash.
- More importantly, the traders force subsistence (poor producers) to sell their products to only client traders at low prices during harvest, while food loans were given at high cost. To address this long standing problem, providing unconditioned loan and credit to the poor producers will enhance their profits and promote the overall livelihood food security in East- Golis livelihood.
- Encourage and enhance vegetable growing, and extend date cultivation in the potential areas. This is should be through provision of inputs and irrigation facilities by developing natural springs widely available in East – Golis.
- Encourage and expand fishing activities and subsidized equipment.
- Promoting marketing system and grading of the various frankincense products, for better incomes, which will have a positive impact on potential buildup of savings and rescue the poor households from indebtedness.
- Roads that connect villages to the main market towns are very rough and most of them are blocked and impassable during the rainy season. Likewise, pathways that connect people to the Frankincense fields are in a bad condition. Thus, improving transport infrastructure by constructing main and feeder roads, and bridges will ensure smooth flow of goods and services.

- Establish Cash for work programs for the construction of community assets such as roads, rain water harvesting and protection of soil erosion and extension of livestock services.
- Provision of appropriate training and capacity building to the local people, and research program on r how to keep the sustainability of the Frankincense species.
- Promoting livestock health status by intensifying treatment and effective health services by creating mobile teams from the local community and provision of effective laboratory and technical experts, as well as increasing capacity building for local staffs.

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# The Information Management Process

## Gathering & processing

- FSNAU has a unique network of 32 specialists all over Somalia, who assess the food security and nutrition situation regularly and 120 enumerators throughout the country, who provide a rich source of information to ensure a good coverage of data.
- Food security information is gathered through rapid assessments as well as monthly monitoring of market prices, climate, crop and livestock situations.
- Baseline livelihood analysis is conducted using an expanded Household Economy Approach (HEA).
- The Integrated Database System (IDS), an online repository on FSNAU's official website [www.fsnau.org](http://www.fsnau.org), provides a web-based user interface for data query, data import and export facilities from and into MS Excel, graphing, spreadsheet management and edit functions.
- Nutrition data is processed and analyzed using the Statistical Package for Social Sciences (SPSS), EPIInfo/ENA and STATA software for meta-analysis.
- FSNAU developed the Integrated Phase Classification (IPC), a set of protocols for consolidating and summarizing situational analysis. The mapping tool provides a common classification system for food security that draws from the strengths of existing classification systems and integrates them with supporting tools for analysis and communication of food insecurity.

## Validation of Analysis

- Quality control of nutrition data is done using the automated plausibility checks function in ENA software. The parameters tested include; missing/flagged data, age distribution, kurtosis, digit preference, skewness and overall sex ratio.
- Quality control of food security data is done through exploratory and trend analysis of the different variables including checks for completeness/missing data, market price consistency, seasonal and pattern trends, ground truthing and triangulation of data with staff and other partner agencies, and secondary data such as satellite imagery, international market prices, FSNAU baseline data, etc.
- Before the launch of the biannual seasonal assessment results (Gu and Deyr), two separate day-long vetting meetings are held comprising of major technical organizations and agencies in Somalia's Food Security and Nutrition clusters. The team critically reviews the analysis presented by FSNAU and challenges the overall analysis where necessary. This is an opportunity to share the detailed analysis, which is often not possible during shorter presentations or in the briefs.

## Products and Dissemination

- A broad range of FSNAU information products include, monthly, quarterly and biannual reports on food and livelihood insecurity, markets, climate and nutrition, which are distributed both in print and digital formats including PowerPoint presentations and downloadable file available on the FSNAU site.
- Feedback meetings with key audiences enable us to evaluate the effectiveness of our information products. We constantly refine our information to make sure it is easily understandable to our different audiences.
- FSNAU has also developed a three year integrated communication strategy to ensure that its information products are made available in ways appropriate to different audiences including, donors, aid and development agencies, the media, Somalia authorities and the general public.

## United Nations Somalia, Ngecha Road Campus

Box 1230, Village Market, Nairobi, Kenya

Tel: +254-(0)20-4000000/500, Cell: +254-(0)722202146 / (0)733-616881

Fax: +254-20-4000555

Email: [info@fsnau.org](mailto:info@fsnau.org)

Website: [www.fsnau.org](http://www.fsnau.org)