



SOMALI KNOWLEDGE ATTITUDE & PRACTICES STUDY (KAPS)

OFFAL CONSUMPTION
AMONG THE SOMALI POPULATION
IN BOROMA, BURAO AND BOSSASO TOWNS

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Information for Better Livelihoods



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Executive Summary

The overall aim of the World Bank funded Rapid Response Rehabilitation of Rural livelihoods Project (RRRRLP) implemented by FAO Somalia is to mitigate the chronic food crisis in Somalia, by increasing domestic food production and reducing livestock losses for poor rural households. One of the key expected outcomes includes support to strategies using livestock resources to address the food crisis, through the construction of model slaughter houses, consequently providing the opportunity for the promotion of sale of quality animal co-and by-products and the consumption of offal as a means of improving community and household incomes and nutrition well being.

FSNAU and partners¹ conducted knowledge, attitudes and practices (KAP) study in relation to offal consumption among the communities in Boroma, Bossaso and Burao towns between 28th May and 6th June, 2010. Offal refer to parts of livestock carcass that are not skeletal muscle, and covers internal organs such as liver, kidney, heart, stomach and intestines, head and bones. The aim of the study was to gain further insight and understanding of the population's common practices, beliefs and level of knowledge in regards to consumption of offal, to better inform the designing an appropriate nutrition communication campaign targeting the promotion of offal consumption in the community as a means of combating micronutrient malnutrition and promoting the health and well being of the population. A total of 5 teams, each team consisting of one supervisor (FSNAU field staff), one moderator and one enumerator conducted the data collection activities. Focus Group Discussions (FGDs) and Key Informant Interviews (KIs) were the main data collection techniques used in the study, in addition to other qualitative methods of collecting data applied in the context of triangulation were case studies, informal observations and proportion piling. The respondents were represented by various groups based on gender, age, occupation and socio-economic background ensuring all groups were given a chance to express their views and opinions openly. Analysis involved collating and interpreting all the information collected and analyzing it for consistency in ideas.

Results indicate that offal consumption is generally acceptable. The main factors affecting offal consumption include availability, cost, cultural beliefs and practices, socio-economic status and known or associated health benefits. The main types of offal consumed are liver, kidney, stomach/intestines, head, heart and bones (bone marrow). This offal is culturally acceptable, considered palatable, associated with known benefits to the body and is consumed by people of all ages. Mainly offal is traditionally consumed by women, apart from liver and kidney which is also consumed by men. Offal is mainly prepared by first washing it thoroughly and then boiling or frying. The main accompaniments served with offal include bread, rice, *canjera* or pasta.

The general cultural acceptability of offal consumption offers a positive opportunity to initiate the promotion of nutrition education packages that aim at promoting offal consumption for better health and well-being. However, some cultural beliefs, negative socio economic attitudes and lack of adequate supply are factors that limit the optimum consumption of offal in the community especially by the vulnerable groups. The recently released Micronutrient study conducted by FSNAU and partners reveals high levels of iron and vitamin A deficiency in the country, especially among women and children. Considering this, advocacy strategies such as those aimed at promoting offal consumption because of its known health benefits and implementing measures that aim at countering the negative cultural and socio-economic attitudes towards offal consumption, in addition to appropriate intra household distribution of offal for all groups through campaigns in schools, health clinics and by community mobilization are required. The provision of cold storage facilities to slaughterhouses or traders will also ensure that offal can be available for purchase at all times, and for all, even those without slaughterhouses nearby.

¹ FAO Somalia, MOHL- Somaliland and MOH Puntland and UNICEF

1. Introduction

1.1 Background and Justification for the Study

The livestock sector remains the most important productive sector of Somalia, with approximately 3 million animals being exported each year, which creates about 60% of Somalia's job opportunities and generates about 40% and 80% of Somalia's GDP and foreign currency earnings respectively. Nevertheless, the slaughterhouses and meat and meat products related infrastructure, including meat markets, meat transport and delivery practices, and retail businesses (food kiosks and restaurants), are without formal structures. This has increased the risk of human and animal diseases which may have a negative impact on household incomes and community and individual livelihoods. Through the Rapid Response Rehabilitation of Rural Livelihood's Project (RRRRLP) being implemented by FAO Somalia in Somaliland and Puntland, a range of infrastructural interventions that aim at the construction and equipping of slaughter facilities at community level are ongoing. One of the key activities under this intervention will include the promotion of recovery, sale and consumption of offal by households, in addition to the promotion of animal by-product production and sale to improve household incomes and ultimately the nutritional status of the target communities.

Offal can be defined as those parts of a meat animal which are used as food but which are not skeletal muscle². The term literally means "off fall", or the pieces which fall from a carcass when it is butchered. Originally the word applied principally to the entrails³ (intestines). However, it now covers other internal organs including the heart, liver and lungs, all abdominal organs and extremities i.e. feet, and head (including brains and tongue). Offal especially the liver, kidney and heart, are good sources of nutrients such as protein, fats and micronutrients, with the liver being particularly rich in iron, vitamin A and micronutrients, which are essential in maintaining good health in individuals. Community acceptance and inclusion of offal as part of their daily diet would result in increased income to the various actors along the livestock production and marketing chains and access to cheaper and more affordable animal protein at household level. This development would improve household food and economic security, while having a positive impact on the nutritional and health situation of the community at large. This is extremely crucial especially in light of the recently concluded national micronutrient and anthropometric survey that has revealed the extent of nutritional deficiencies in the country.



Offal on display for sale in local market

A national micronutrient and anthropometric nutrition survey undertaken by FSNAU in 2009 indicated that the overall anaemia prevalence among the children aged 6-59 months was 45.2% (38.0-52.6) and 56.4% (47.7-64.2) in Somaliland and Puntland respectively, this level exceeds the 40% cut off used by WHO that classify anaemia as a high public health priority. The study also showed a high prevalence of iron deficiency among the children aged 6-59 months is 59.6% (51.5-67.2) in both regions. The prevalence rates of iron deficiency and anaemia for the women of reproductive age (15-49 years) and school- aged children (6-11 years) were also of public health concern⁴. Prevalence of vitamin A deficiency similarly indicated a severe situation with prevalence levels exceeding the 20% WHO cut off for severe. The prevalence of vitamin A deficiency was 25.6% (18.3-34.5), 49.5% (43.5-55.6) and 21.3% (14.8-29.8) for children aged 6-59 months,

² <http://www.offalgood.com/what-is-offal>

³ Internal organs specifically intestines

⁴ National Micronutrient and Anthropometric Nutrition Survey, Somalia 2009, FSNAU, MOHL and Partners

women and school age children respectively in Somaliland, while the prevalence rates in Puntland are 24.1% (16.4-33.8), 48.8% (41.0-56.5) and 26.1% (19.8-33.5) respectively. In spite of these alarming micronutrient deficiency rates being reported, it was noted that the consumption of locally available and micronutrient rich food groups is poor. Food types like organ meat (offal), fish, egg, fruits and vitamin A rich vegetables and fruits are least consumed. The promotion of the consumption of these readily available local micronutrient rich foods is fundamental and by far the most sustainable strategy in combating the named micronutrient deficiencies, in order for the population to achieve their maximum growth and health potentials. The high (>45%) prevalence of vitamin A and anaemia in Somaliland and Puntland observed in the FSNAU (2010) nutritional study confirmed that iron deficiency and anaemia constitute important public health problems, that call for urgent and targeted interventions in regions of Somalia.

The RRRRLP activities that involve the construction and equipping of slaughterhouses in the region set to be completed in August 2010 will have ancillary facilities that will ensure that quality and wholesome offal will be available to the communities. However, the key step in addressing some of the deficiencies noted will be to ensure that the community routinely and/or regularly consumes this micronutrient rich offal. For this to be achieved, an effective communications strategy aimed at promoting consumption of offal, especially by the vulnerable groups (women and children) is imperative. The fundamental factor for a successful communication campaign strategy would be to ensure delivery of accurate, acceptable and appropriate messages that are accessible and understandable by the community. It was, therefore, crucial for proponents of the awareness campaign to have a full understanding of the practices, attitudes and level of knowledge the community has in relation to the consumption of offal. It was on this basis that FAO RRRRLP, funded by the WB commissioned the KAP study.

1.2 Study Purpose and Objectives

1.2.1 Aim of the Study

The main purpose of the study was to gain a full understanding on the common practices, attitudes beliefs and the level of knowledge of the community on the consumption of offal meats. This information will be used as a basis for developing a relevant communications strategy that aims at promoting the consumption of offal, as means of combating micronutrient deficiencies in the community which are currently a major threat to the health of the population.

1.2.2 Specific Study Objectives

The specific objectives of the study were:

1. To determine the main and the preferred types of offal consumed by members of the community in Boroma and Burao in Somaliland and in Bossaso Puntland.
2. To establish which are the main and the preferred types of offal consumed by various groups (by gender, age-groups, socio-economic groups) in Boroma and Burao in Somaliland and in Bossaso, Puntland.
3. To identify the main factors affecting or influencing offal consumption among the members of the community in Boroma and Burao in Somaliland and in Bossaso, Puntland.
4. To gain understanding on the cultural beliefs, practices and attitudes regarding offal consumption among the members of the community in Boroma and Burao in Somaliland and in Bossaso, Puntland.
5. To determine the popular preparation and cooking methods used in preparing offal commonly consumed among the members of the community in Boroma and Burao in Somaliland and in Bossaso, Puntland.

2. Methodology

The study was conducted in Boroma and Burao towns in Somaliland and Bossaso in Puntland. Boroma and Bossaso as study sites were selected considering that the FAO-WB-RRRLP funded slaughterhouses will soon be operational in the area, meaning quality and wholesome offal will be more readily recovered and available. On the other hand Burao town in Somaliland, where the H-Foods export slaughterhouse is located, was sampled to validate the data collected from Boroma and Bossaso. In all the three sites, data was collected from both the rural and urban communities.

Focus Group Discussions (FGDs) and Key Informant Interviews (KIs) were the main data collection techniques used in the study (*see table 1*). A total of ten focus group discussions, 9 key informant interviews and 14 case studies were conducted. Other qualitative methods of collecting data applied in the context of triangulation were: case studies, informal observations, photography and proportional piling. The respondents that participated in the study were selected with the aim of guaranteeing that the different members of the community were given a chance to express their views and opinions openly. Representation from various groups based on gender, age, occupation and socio-economic backgrounds was considered and ensured. In addition, to enable all the participants to freely express their ideas, the focus group discussions of men and women were conducted separately. The key informants interviewed included religious leaders, health workers, butchers/staff working in slaughterhouses and restaurant owners.

A total of five (5) teams, each team consisting of one supervisor (FSNAU field staff), one moderator and one enumerator, conducted the data collection activities. Two teams were assigned in each of the towns of Boroma and Bossaso, while Burao site had one team. The teams working in Boroma and Burao towns were trained in Hargeisa, while the remaining two teams were trained in Bossaso town. The two (2) day trainings were conducted simultaneously on the 29th -30th May, 2010. During the training, the teams were trained on interviewing techniques and were taken through the study questionnaires and guides on the first day, while the pretesting which included conducting focus group discussion and interviews was done on the second day. After the pretesting exercise, the tools were modified to include the issues arising during the pretesting exercise to ensure that the required information was collected, the flow of the discussions was appropriate and that the teams were well equipped to conduct the discussions and interviews. To guarantee data quality, qualified staff from FSNAU supervised the data collection process in each team and ensured that the required interviews and focus group discussions were conducted as required and the information recorded accurately on the questionnaires. In order to validate and ensure that all the information was captured during focus group discussions and interviews, the supervisors taped all the interviews using audio tape recorders and focus group discussions for cross checking and future reference. All the planned discussions and interviews were conducted within the allocated time frame. Given that all data collected was qualitative in nature, a descriptive review was conducted to consolidate the overall conclusions.

Table 1: Summary of Data Collected and Locations Sampled

Location	FGDs Conducted	KI Conducted	Case Studies
Boroma- Ahmed Guray, Xalanle, Goraycawl, Degmolaqas	4	3	8
Burao- Sheekh Bashir, Burao	2	3	2
Bossaso- Biyo Kulule, Lanta Hawada, Laaq, Bendersiyaada	4	3	4



Proportion piling during a women's focus group discussion

3. Study Findings and Discussions

3.1 Factors Influencing Offal Consumption

Majority of the population in the target area consume offal; their consumption is influenced by various factors including: -

Availability of offal - Offal is mainly consumed fresh; offal is bought early in the morning and prepared the same day. *“The taste is best when it is fresh, that is how we prefer to consume meats and offal, fresh”*, reported by informants. Slaughtering of animals mainly takes place daily in the morning, especially in the towns or urban centres, consequently, in the urban areas offal is more readily available and its supply is considered sufficient, compared to the rural areas where animals may be slaughtered once or twice a week. According to the respondents, fresh offal are available daily in the urban communities; it

is found in the local butcherries, market places and in some areas sold by the local traders. The price of offal after midday drops by about 50%, as the demand and quality decreases. Furthermore because of the high climatic temperatures and lack of cold storage facilities, offal can spoil easily, therefore they are bought while fresh in the morning. Availability of offal depends mainly on supply, this influenced by frequency of animals slaughtered, more animals are slaughtered in the urban areas compared to the rural areas, making availability of offal in the rural areas more restricted. However it is important to also note that where offal is available, the time of day it is purchased will also affect its availability and price.

Cost- The price of offal is generally cheaper compared to meat; hence it is more affordable for poorer households. However liver and kidney, the most expensive types of offal almost cost the same as meat and are mainly purchased by the better off households. The cost of offal is mainly influenced by availability, animal source (type) time of the day and the season. It was observed that the offal are cheaper in the afternoon, when there is a high number of animals slaughtered and during the rainy season. During the lean or drought seasons when animals out migrate to great distances less are available for sale and slaughter. The respondents confirmed that the rate of consumption increases with falling prices apart from price and consumption of liver and kidney, that remain constantly high.

Cultural beliefs and Socio economic attitudes- The cultural beliefs and practices on offal consumption among the community are vital, as they determine the type of offal consumed and by which various groups (age, sex, gender etc) and the timing of consumption. For instance, although people of different ages consume offal, liver is not commonly served to children under the age of two years, as it is believed that if they ate it, the children would not learn how to speak properly. Liver and kidney is the main offal consumed by men; the other types of offal consumed are believed to be for women, girls and small children only. Nevertheless, women consumed liver and kidney especially after birth or when they were either diagnosed or believed to be suffering from anaemia. Offal meats are mainly seen as food for the poor households, apart from liver and kidney, this is because they are considered inferior meats and are cheaper to access than meat.



Key Informant interview at a restaurant selling offal

Known and/or associated health benefits of consumption- The consumption of offal in the community is associated with certain health benefits. Some of the different offal are known to either cure or prevent illness and ultimately promote the general health and well being of an individual. For example, it is believed that liver 'gives more blood' and therefore is important in treating and preventing illnesses such as anaemia in women, and is often served when a woman has delivered a baby. Other types of offal are believed to have various benefits when consumed, and this encourages the consumption of offal among individuals in the community (See case study in Annex1.1).

3.2 The Type of Offal Popularly Consumed

Offal consumption is accepted by majority of the population in this community; however, offal are mainly consumed by women, except for liver and kidney that are principally consumed by men. The main types of offal consumed are:-

- Liver
- Kidney
- Stomach/intestines
- Heart
- Head (head muscle and tongue)
- Bones (bone marrow and soup)

These are the offal that are culturally acceptable, are considered palatable and their consumption is believed to have a known or associated benefit to the body. The brain, spleen, lungs, trachea and oesophagus are rarely consumed. The consumption of spleen, lungs, trachea and oesophagus is not culturally acceptable. These offal are considered as useless foods that not only have no benefits to the body if consumed, but also do not taste good and are difficult to prepare (see caption 1). For example, the respondents mentioned that the lungs are gristly and difficult to eat, the texture of the heart is also not considered good, while the spleen is difficult to cook and remains red like blood. These two organs are usually fed to cats.

The type of offal consumed was mainly determined by the animal species the offal were from. The offal from sheep or goat are the most preferred, followed by camel and then cattle. However for some specific offal types, there may be some variations, for example the livers, kidneys, hearts, heads and tongues from sheep/goat are the most preferred, while it is reported that liver from camel has a different texture that makes it slightly tough compared to that of sheep/goat. Bone marrow from camel is the most preferred source of fat and is commonly used to prepare ghee/fat.

In addition, the type of offal consumed was also influenced by other factors such as: - socio economic perceptions, cultural acceptability, availability and access, cost, taste, known benefit, age and gender. For example, stomach and intestines have to be properly prepared to rid them of the 'bad' smell, if not many people do not like their taste.

Table 2: Type of Offals Popularly consumed by Sex, Age and Socio Economic Groups

Offals	Consumed By	Reasons
Liver	Men, women, children > 2 years, middle and well to do households	Liver is expensive compared to other offals; therefore poor households cannot afford it
Kidneys	Men, women, children > 2 years, middle and well to do households	Kidney is expensive compared to other offals; therefore poor households cannot afford it.
Heart	Women and poor households	Consumption by men and young boys not common
Stomach/Intestine	Women and poor households	Culturally considered as food for women, is accessible to poor households
Head	Women and poor households	Culturally considered as food for women, is accessible to poor households
Bone (Marrow)	Men, women, children, among the poor households	An affordable form of fat/ ghee for poorer households

3.3 The Type of Offal popularly consumed by Gender, Age and Socio Economic Groups

The type of offal and quantity consumed differed among the various gender, age and socio-economic groups in the community. Offal is mainly considered as women's food (apart from liver and kidney), children under the age of two years are generally not fed offal, while it is generally considered food for the poor. Women are the main consumers of offal in the community, although men nowadays are consuming, many still consider it as 'food for women' apart from liver and kidney. This is not to say that women do not consume liver and kidney, they do if there is enough for everyone in the household, in a situation where it may not be enough, and men would be given the first priority. Women who have just delivered or are diagnosed /believed to be suffering from anaemia or 'lack enough blood' will be given liver and kidney, as it is believed to 'add more blood'. This highlights that women usually consume liver and/or kidneys more as a curative food. Table 2 shows the type of offal popularly consumed by the different groups.



Women at a market place selling offal

3.4 Cultural Beliefs and Practices on Offal Consumption

Culturally, the consumption of offal is associated with certain benefits and taboos (*See Case study in Annex 1.2*). These cultural benefits and taboos are important as they provide a guide to the community on which offal can be consumed, by whom and at what time. Liver for example, is believed to 'increase the amount of blood' in an individual and therefore is often served to women just after delivery, it is also believed to treat hypertension in individuals and promote their health. The belief is the same for kidneys; in addition the locals believe the consumption of kidneys 'helps in building the body'.

Consumption of the heart also provides one with protein and is good for curing anaemia and helping those with physical injuries to heal faster. However, it is also believed that if the heart is consumed by young boys, it can make them cowardly. The consumption of stomach and intestines is supposed to ease stomach problems in individuals as it helps in treating constipation and other general stomach upsets, additionally its consumption promotes good health. The consumption of head (muscle) is reported to relieve headaches, helps cure those with eyesight problems and promotes recovery in individuals that have undergone eye or head surgery. When one consumes the tongue they reportedly are able to get relief from throat pains. The tongue is also consumed by women just after delivery to boost the amount of blood they have, hence the elderly women do not usually consume tongue.

Bones are used to prepare soup, and the marrow is also extracted and consumed in the form of fat or oil by all, especially the children, it is often spread on canjera. The soup from bones is considered useful in providing nutrients for the good health of the body, while the consumption of the marrow is thought to provide an individual with fat that promotes one's health, speeds up recovery in case of a bone fracture and is used as a laxative to cleanse the stomach. Although some of the reasons and/or attributes for consumption of specific offal may lack a scientific basis, it is important to consider these cultural reasons and norms when promoting offal consumption among the community members.

3.5 Methods of Preparation of Offal

The main methods of offal preparation are by boiling and frying. The offal are first cleaned and washed carefully and thoroughly, especially stomach and intestines, and then they should either be boiled or fried in plain oil or sometimes along with tomatoes and onions and other vegetables. It can be served with various accompaniments such as bread, rice, *canjera*, or pasta.

Offal are mainly served as breakfast or eaten as a snack, but they can also be considered as part of the main meal. Liver and kidney are very common as breakfast foods especially in the middle or well to do households. Preparation is also an important factor that determines if a certain type of offal will be consumed or not. Stomach and intestines for example have a very strong smell and flavour, they have to be prepared properly, many people do not like the smell, and this influences the consumption, some even use detergent to clean the stomach and intestines (see case study in Annex 1.4).



Figure 5: Sale of offal in the market

3.6 Benefits of Offal Consumption

Generally, most types of offal have beneficial nutritive value; offal are good source of proteins, fats and micronutrients. All organ meats are extremely rich in vitamin B12, which plays a crucial role in energy metabolism, functions of the brain and central nervous system and is a crucial component in the creation of red blood cells. Liver contains the highest amount of fats. Vital micronutrients such as iron, vitamin A and zinc are also mainly found in the liver, kidney and heart. Subsequently their inclusion in diets increases the likelihood of having healthier individuals by reducing micronutrient deficiencies. The nutritive benefits of the various types of offal popularly consumed among the assessed population are found in table 3. It should be noted that the community are aware of some of the benefits of offal consumption, especially in regards to liver and kidney.

Table 3: Nutritive Value of Commonly Consumed Offals

Nutrient (per 100 gms)	Sheep				Benefits ¹
	Liver	Kidney	Heart	Tripe	
Protein (g)	21.4	17.1	17.8	13.2	Protein is essential to the structure of red blood cells, proper functioning of antibodies resisting infection, regulation of enzymes and hormones, growth, and repair of body tissue.
Fat (g)	8.6	2.5	5.6	2.1	Fats provide energy, maintain body temperature, protect body tissues and organs and carries the four fat-soluble vitamins: A, D, E, and K
Thiamine (mg)	0.24	0.56	0.61	0	Is needed for energy metabolism and the proper function of the nervous system
Riboflavin (mg)	2.80	2.10	1.10	0.10	Is needed for energy metabolism, building tissue, and helps maintain good vision.
Niacin (mg)	10.9	7.6	5.9	0.2	Is required for energy metabolism, proper digestion, and healthy nervous system
Folate ([micro]g)	230	28	2	5	Promotes normal digestion; essential for development of red blood cells
Vitamin B12 ([micro]g)	90	52	10	1	Is required for building protein in the body, red blood cells, and normal function of nervous tissue
Retinol equi ([micro]g)	314000	93	0	0	Is needed for new cell growth, promotes immunity to disease, healthy skin, hair, and tissues, and vision proper vision
Zinc (mg)	4.3	2.6	1.6	1.2	Needed for cell reproduction, tissue growth and repair
Iron (mg)	9.5	9.8	3.9	0.4	Needed for the formation of haemoglobin, which carries oxygen from the lungs to the body cells, prevents anaemia
Magnesium (mg)	19	16	17	6	Needed for healthy bones and teeth, proper nervous system functioning, and energy metabolism
Sodium (mg)	67	190	82	100	Sodium plays a crucial role in maintaining blood pressure, regulates fluids and acid-base balance in the body, involved in nerve transmission and muscle contraction, including the heartbeat, beneficial for the treatment of diarrhoea, leg cramps, dehydration, and fever
Potassium (mg)	300	260	260	23	Potassium is essential for maintaining proper fluid balance, nerve impulse function, muscle function, cardiac (heart muscle) function

3. Conclusion and Way Forward

Advocacy ensuring that the community are made aware of the benefits of offal consumption especially for the vulnerable groups is very important and should be considered a priority. The frequent consumption of offal as part of regular meals should be promoted. This will involve ensuring that the population are made aware of the nutritive and health benefits associated with offal consumption. This advocacy will also be useful in averting the beliefs and social perceptions that see offal as 'food for the poor', therefore encouraging all households irrespective of their socio-economic status to consume offal as a good source of nutrients in the diet. It would be important to ensure the training of health workers as part of the advocacy strategy; they will be able to successfully promote the health benefits of offal in the diet, either through campaigns or through the health clinics where they are working.

The Micronutrient Survey conducted by FSNAU (2009) observed that the consumption of micronutrient rich foods such as fruits, vegetables, eggs and even offal especially among the children less than 2 years is very low. Previous nutrition studies in the region have indicated that this age group continues to succumb to and/or remain vulnerable to high incidences of acute malnutrition and disease. It would, therefore, be imperative to consider promoting the consumption offal among this age group, as illustrated in table 3, the consumption of offal provides the body with a wide range of nutrients that can definitely benefit this vulnerable group and promote their general health and well being. It would also be important to educate the community on the inhibitors to iron absorption such as tea, and hence to encourage them to consume micronutrient dense foods with vitamin C for better absorption.

Traditionally offal is viewed /considered as food mainly for women. The exception to this general rule is the liver and kidney that are generally a reserve of men and the well to do while generally women are only given liver as a curative measure. Women with the support of men and other community members should be encouraged to consume liver and kidneys along other offal meat to promote their health. Emphasis should be on intra household distribution of these offal meats, ensuring that women are able to access a favourable amount when liver and kidney are prepared in the household. If prepared and cooked well, offal meat can be very tasty. Proper preparation ensures that the offal tastes good and has a pleasant smell. As part of the communications strategy and awareness creation, handling of offal from slaughter to the table including cooking demonstrations should be conducted to illustrate cooking methods and recipes on how offal is prepared. This should help promote the consumption of offal in households.

The distribution and availability of offal especially in the rural areas should be improved. Cold storage facilities would assist in the storage of offal meat to help ensure that they are available throughout the day.

References

1. 'Benefits of nutrients' <http://www.nutristrategy.com/nutritioninfo2.htm>
2. 'Calf's Liver'- <http://www.whfoods.com/genpage.php?tname=foodspice&dbid=129>
3. <http://www.offalgood.com/what-is-offal>
4. What is the nutritional value of eating liver?- <http://www.whfoods.com/genpage.php?tname=foodspice&dbid=129>
5. Liver: Benefits and Risks <http://ro.uow.edu.au/cgi/viewcontent.cgi?article=1053&context=hbspapers>
6. Malnutrition Trends (2001-2008) in Somalia- A Meta Analysis Study Report, FSNAU 2009
7. National Micronutrient and Anthropometric Nutrition Survey Somalia 2009
8. Nutrient composition of Organ meats – <http://www.thefreelibrary.com/Nutritional+composition+of+red+meat.-a0169311692>
9. Somali Knowledge, Attitudes and Practices Study – Infant and Young Child Feeding Practices and Health Seeking practices, December 2007
10. The World Bank Report No. 44929-SO "Support For A Grant Under The Global Food Response Program Gfrp) Trust Fund (Tf)In The Amount Of Us\$ 7.0 Million To Somalia For A Rapid Response Rehabilitation Of Rural Livelihoods Project (Rrrrlp)"
11. Frequently asked Questions on Liver Consumption -<http://www.eufic.org/page/en/faqid/nutritional-value-liver/>
12. What you need to know about folate –
<http://www.eufic.org/article/en/nutrition/vitamins-minerals-phytonutrients/artid/about-folate/>

Annexes

1. Case Studies

1.1 The Benefits of Offal Consumption

Amina Mohamed, a 45 year old housewife residing in Boroma and married with five children, knows the benefits of offal meat as it is consumed in her household. She prepares kidneys, liver, heart, stomach and intestines. She believes that they are good for the body, they fight against anaemia, and helps relieve abdominal pain (especially stomach and intestines). When Amina was pregnant with her 5 year old son, was ill. She became weak and anaemic from vomiting, during the first three months of her pregnancy. She started eating kidneys and liver cooked together daily. However some of her female friends told her that if keep eating these organs every day, the baby will grow so big that, she will suffer during the child birth. Fortunately, she did not listen to her friends and, she got stronger and healthy again, had a normal birth and delivered a healthy baby boy. Amina continues to encourage the consumption of offal in her home. Her husband and children like to eat liver and kidneys for breakfast and for dinner. She stated that, they are cheaper than meat and, you can get all the vitamins you need from them They also are readily available in the market, although more restaurants are buying more of them nowadays, and therefore, raising their prices. Amina cooks stomach and intestines once or twice a month in her home. Her older son and husband do not eat them, but she eats with her daughters, the other females in the house, as well as her five year old son. She believes that her younger son will probably stop eating these dishes soon because his older brother already started teasing him eating the 'smelly' food with the women. Amina believes that the stomach and intestines clean your stomach. They help prevent all sorts of stomach problems. They also relieve menstrual pains in women, and it is good to consume them after giving birth. She believes that if you continue eating them, you will get stronger faster and, gain back all the blood you lost during childbirth. Amina is a firm believer of the benefits of offal and always promotes their consumption.

1.2 Cultural Beliefs on Offal Consumption

Yusuf is 52 years old and a respected elder in the locality. Yusuf has one wife and 8 children. His family depend on a small rain fed farm and remittances from 3 of his children who live abroad. The family is considered a middle class family; considered as one of the fortunate families in the Degmo-laqa village. He told me that he had never eaten stomach and intestines, heart, bone marrow or soup, or head at all. He commented that it was shameful for men to eat those parts which are common for women and very poor households. He said men eat meat, liver and kidney only. Yusuf added that men who ate these offal meats that were to be consumed by women, do not take part in men's meetings and at same time will not be respected culturally in the community. Yusuf reported that his father he warned him not to consume offal such as head, stomach and related organs. However, he told me that the situation has now changed and that there are men who eat those different offal parts without thinking of the shame or disrespect of the past. However, Yusuf still sticks to his old traditions regardless of the new attitudes towards offal consumption.

1.3 Goat Head on the Menu at Tawakal Restaurant, Bossaso Town

Prior to the civil war in Somalia, the consumption of offal apart from liver and kidney was very low in Bossaso town, however this is not the case nowadays. Abukar is the owner of a restaurant in the center of Bossaso town, he opened his restaurant in 2000, and the only offal he sold was liver and kidneys. However, in the year 2005, five years after the restaurant was opened, Abukar decided to add goat head to the menu, and as soon as he started to, he observed encouraging results. An increase in the number of clients he was

serving daily, with the new clients mainly ordering the head dishes. Currently, he sells 10 heads daily, which serves about 20 clients mainly at lunchtime, however this is a decrease from about a year ago when he was preparing about 20 heads daily for about 40 clients. He is quick to add that the decrease was not because it was not preferred but it is due to the a shortage in supply of heads. *“After many restaurants started cooking head the availability has decreased, but the demand is much higher today”*. He mentions that the availability of head is sometimes lower during the rainy seasons, as most of the livestock may not come to the market during at this time, or the livestock that usually come from the remote areas may not come due to the rains. Normally he buys the whole head including the tongue and muscles for 20,000 SO.SH, from the market. He then divides it into two and sells each half with bread and spices for 20,000 SO. SH, meaning that he sell the whole head with breads and spices for 40,000 SO. SH. The only part of the head in which he does not sell for now is the brain, although he said that some Yemeni sea men often ask for it, but he has not decided to cook it yet. He has seen some people eating it Djibouti but has never eaten it. According to Abukar, all wealth groups consume the head, particularly poor people, since the price of the head is much cheaper than meat, furthermore, many people consider the head as treatment for some eye conditions, particularly those that have undergone eye operations, and some have highlighted that some doctors advised them to eat the head. Abukar has indicated that there has been a change in the attitudes and beliefs towards offal consumption, particularly the consumption of head and stomach, however he still feels further social mobilization is still required, particularly for other types of offal not consumed such as the brain.

1.4 Preparation and Cooking of Offal

Fuad is 42 years old and a butcher in Borama town who has been in this business for over 15 years. It is a profitable business that he enjoys. He reports that people nowadays are aware of the benefits of offal such as: stomach, whole head, and feet of sheep and goats. It's no longer considered a poor man's food or women and old wife's diet. They have medicinal effects, and are good sources of energy and increases blood for the weak people. He prepares the stomach by thoroughly cleaning with hot water, according to Fuad; you have to repeat washing it with hot water for several times until it is visibly clean. *“I saw some people washing it with powder detergent in order to remove it from its smell. However, that is not necessary. Washing it with very hot water several times and then boiling it for an hour will do the trick,”* says Fuad. After cleaning it is then boiled and fried according to different people's preferences. He likes to eat this special dish once a week and Fuad, would encourage people to do the same to become healthy and strong.

2. Data Collection Formats

2.1 Focus Group Discussion Guide

FOCUS GROUP DISCUSSION GUIDE FOR OFFALS (UUR KU JIRTA) – XAAB CONSUMPTION

District _____ Town _____ Village _____ Team No. _____

1. Is offals consumed in this community? Yes [] No [] _____
2. _____

3. What types of offals are commonly consumed in this community? (Use reference table a)

Table a		Camel		Cattle		Sheep/Goat	
Animal	Type of offals	Consumed (✓) or not consumed (X)	Reason for not consuming	Consumed (✓) or not consumed (X)	Reason for not consuming	Consumed (✓) or not consumed (X)	Reason for not consuming
Liver (Beer)							
Heart (Wadno)							
Kidneys (Kelyo)							
Spleen (Beer yaro)							
Lungs (Sambab)							
Trachea(Hunguri cad)							
Esophagus (Hunguri)							
Stomachus (Calool)							
Intestines (large and small)							
(Xiidmo)							
Testicles (Xaniinyo)							
Whole Heads (Madax)							
Tongue (Carab)							
Brain (Maskax)							
Head Muscle (Muruq)							
Feet (Miilo)							
Hides and Skins (Saamo & Hargo)							
Bones (Lafo)							
Hooves (Qoobab)							
Horns (Gees)							

4. The offals commonly preferred in this community is from which animals (cattle, camel, sheep and goats)? _____
5. What is the proportion of this community that consumes offals? (Use proportion piling) _____
6. What is the proportion of males in this community that consume offals? (Use proportion piling) _____
7. What is the proportion of females in this community that consumes offals? (If there are gender differences probe further) _____

8. What type of offals is commonly consumed and recommended for the following various groups, please use table B below.

Table B

[illegible]

[illegible][illegible]

11. Are there specific events/occasions when offals is consumed? (List the events/occasions and Reasons) _____
12. Are there specific times when offals is not consumed? (Probe for the reasons)- Specify by male and females _____
13. Who in the household determines when offals should be part of the meal? _____
14. Who provides information on the type of offals not consumed by different population group? _____
15. How is the information passed on? _____
16. What role does offals consumption play in the human body? _____
17. Is consumption of offals associated with any social group or status (probe for details) _____
18. Which social group (low, middle and wealthy) consumes offals more than others? _____
19. If there are group differences, what is the reason? _____
20. Where does the community get offals from? _____
21. How far is the offals source from the households (approximate) _____
22. How often are the animals slaughtered? (Twice a day, Once a day, days in a week or weekly etc.) _____
23. Does the frequency of slaughtering have effect on availability and access? _____
24. Are there times/seasons when the prices of offals change (increase or decrease) (probe for the reasons for changes) _____
25. Does the community always get enough offals from the market? _____
26. Are there times of the day when offals is not available? Probe to get reasons _____

27. Are there any health conditions or treatments associated with the consumption of various types of offals in the named groups? Use Table C to classify responses.

[illegible]

Preparation and consumption

28. How is offals handled and cooked? What are the main ingredients used in its preparation? What is timing of meals where offals is consumed and what are the main accompaniments it is eaten with? Use table D to document responses

29. What is the measuring unit for the different types of offals? Use table D

30. How much does the different types of offals cost (use the different measuring/weighing units?) Use Table D

Table D Type of offals	Measuring unit		Cost per unit		Method of preparation (include ingredients)	Method of cooking (boiling, roasting, frying)	Accompaniment	Timing of the meal (snack, breakfast, lunch dinner)
	Shoat	Camel	Shoat	Camel				
Liver (Beer)								
Heart (Wadno)								
Kidneys (Kelyo)								
Spleen (Beer yaro)								
Lungs(Sambab)								
Trachea(Hunguri cad)								
Esophagus (Hunguri)								
	Measuring unit		Cost per unit		Method of preparation (include ingredients)	Method of cooking (boiling, roasting, frying)	Accompaniment	Timing of the meal (snack, breakfast, lunch dinner)
	Shoat	Camel	Shoat	Camel				
Stomachs (Calool)								
Intestines (large and small) (Xiidmo)								
Testicles (Xaniinyo)								
Whole Heads (Madax)								
Tongue (Carab)								
Brain (Maskax)								
Feet (Mijo)								
Hides and Skins (Saamo & Hargo)								
Bones (Lafo)								
Hooves(Qoobab)								

31. How is offals stored in the household?

a) When raw _____

b) When cooked _____

32. What influences the cost of different types of offals? _____

a) Does the price of the offals affect the level/rate of consumption? _____

b) Probe on the cost effect on consumption _____

33. How would you describe the price of offals (low/average/high)? _____

34. In a situation when you have money to purchase meat, what type would you opt for (offals, meat, mixed offals and meat) _____

35. If offals was to be made readily available in the market, would that affect community level of consumption? _____

36. How much would you be willing to pay for the different types of the offals? _____

37. What are your suggestions on improving offals consumption in this community? _____

2.2 Key Informant Interview Questions

KEY INFORMANT INTERVIEWS FOR BUTCHERS/ SLAUGHTER HOUSE STAFF/

District _____ Town _____ Village _____ Team No. _____

1. Which are the main types of offals consumed in this community? _____
2. Where does the community get offals from? _____
3. Generally, how far is the offals source from the households (approximate)? _____
4. How often are the animals slaughtered? (Twice in a day, once in a day, days in a week)? _____
5. Does the frequency and the environment of slaughtering have an effect on availability and access? Explain _____
6. Are there times/seasons when the prices of offals change (increase or decrease)? _____
7. Probe for the reasons for changes _____
8. Does the community always get enough offals from the market? _____
9. Are there times of the day when offals is not available? _____
10. What is the usual measuring unit sold for the different types of offals? _____
11. How much does the different types of offals cost (use the different measuring/weighing units)? _____
12. What influences the cost of different types of offals? _____
13. Does the price of offals affect the level/rate of consumption? _____
14. How would you describe the price of offals (low/average/high)? _____
15. What would you recommend as the price for the different types of offals? _____
16. Who mainly buys the offals? Probe for the different groups, men, women, social wealth groups etc. _____
17. Which type of offals is commonly discarded and why? Is inspection carried out if so by whom? _____
18. What challenges do you face while selling offals and which type in particular? _____
19. What are your suggestions on improving offals consumption in this community? If offals was to be made readily available in the market, would that affect level of consumption in the community? _____

KEY INFORMANT INTERVIEWS FOR HEALTH WORKERS

District _____ **Town** _____ **Village** _____ **Team No.** _____

1. Which are the main types of offals consumed in this community? _____
2. Which are the main types of offals consumed by boys/men and women/girls? _____
3. What benefits does the different offals identified have on the health of an individual? _____
4. Which illness can be cured by the consumption of offals? Name the disease and the specific type offals. _____
5. Which types of offals if consumed can have a negative impact (disease/condition) on the health of an individual? _____
community is made aware of the health benefits of consuming offals, what would be the factors that would still hinder their consumption of offals? _____
6. Do people have access to information on the benefits of offals consumption? _____
7. If people have access to information on the benefits of offals consumption, where do they get it from? _____
8. Would you advocate for the consumption of offals if you understood the health benefits of offals consumption? _____
9. Do you have nutrition education sessions for mothers? In these sessions do you discuss the benefits of consumption of nutrient rich offals? If so please explain _____
10. What are your suggestions on improving offals consumption in this community? _____
11. If offals was to be made readily available in the market, would that affect the level of consumption? _____

KEY INFORMANT INTERVIEWS FOR RELIGIOUS LEADERS

District _____ **Town** _____ **Village** _____ **Team No.** _____

1. Which are the main types of offals consumed in this community? _____
2. Which are the main types of offals consumed by boys/men and women/girls? _____
3. Do you know the benefits of consuming various types of offals? _____
4. Are there any benefits from a religious perspective on the consumption of offals and if so, what are they? _____
5. According to Islamic religion, which types of offals cannot be consumed? Why? _____
6. If the community is made aware of the health benefits of consuming offals, what would be the factors that would still hinder their consumption of offals? _____
7. As religious leaders, what kind of assistance would you require to promote offals consumption in the community? _____
8. What are your suggestions on improving offals consumption in this community? _____
9. What are your suggestions on improving offals consumption in this community? _____
10. If offals was to be made readily available in the market, would that affect the level of consumption? _____

(Footnotes)

1 Benefits of nutrients reference is <http://www.nutritioninfo2.htm>