Environment Baseline Assessment Report

West Nile Region – Uganda, 2015

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Executive Summary

Key findings

Food security

- All nationals(100%) interviewed engaged in agricultural production, similarly, participation by refugee households was indicated at 85.4%
- On average the hosting communities access at least 4.35 acres of land for agricultural purposes, whereas, this was indicated at only 0.64 acres among refugees' households. The most common land size available for crop production and tree planting was indicated as 2 and 0.3 acres among nationals and refugees' households.

Livelihoods.

- The most important source of household livelihoods was indicated as casual labour (44.8%), followed by sales of own produce (17.3%) and business reported at 11.5%.
- The average household spending on all fuel sources was estimated at 4,826 UGX pr. month. The most expensive fuel source was fuel briquette (household spend 28,000 Ugx pr.month), whereas on average firewood cost 4,777 Ugx pr. month, while for charcoal this was at 4,714 Ugx per month.

Natural Resource Management and Utilization

- The total land size where the sample beneficiariesgrow crops and trees is estimated at 819.2 acres, and the total number of individual trees currently being managed is 4,987 (an average of 5 trees per household).
- 43.2% of the households interviewed acknowledged having planted at least a trees in the past one year. 61% of all the trees planted were reported to have attained stable growth rate and vigor at the time of the assessment
- The majority of respondents indicated Lack of seeds/seedlings, inadequate land, and limited knowledge in tree planting as their major hindrances.
- Between July 2014 and July 2015, the total number of trees cut was indicated at 1,110,792, whereas only 4,987 of these trees were replaced in West Nile.

ENVIRONMENTAL AWARENESS AND CONSERVATION PRACTICES

- 50% of the respondents interviewed in west Nile received environment conservation message between April and June 2014, through some dissemination medium. 73.6% of these messages were disseminated through radio and extension workers.
- Paricitipation in environmental activities by households is still minimal, households participate more in water source cleaning (86.3%) and environment cleaning (64.6%) than others activities such as meetings and celebration of environment day.

HOUSEHOLD ENERGY CONSERVATION

- Firewood comprises the main source of cooking fuel for the majority (91%) of beneficiary households in West Nile. The use of this fuel source was reported by almost all households in Adjumani (97.7%), Koboko (96.1%) and Adjumani (84.9%)
- Fuel briquette has extremely limited use across the three districts of West Nile. An instant of usage was reported by only 1 out of 127 respondents interviewed in Adjumani district. DRC is piloting fuel briquette production in Adjumani district, where a few households are already benefiting from this form of fuel source. A lot of effort is required in sensitizing households on briquette production if this fuel source is to gain attention of the households in West Nile.
- In Adjumani district, furthest village (Ogujebe), households take at least 4.7hrs to access cooking fuel, whereas In Koboko district, the furthest village (Waju I) take at most 2.7hrs.

- Majority (62.9%) of the households interviewed in Koboko acknowledged having been harassed by refugees and host communities while collecting wood fuel, similar incidences of harassmentwere reported to an insignificant proportion in Arua (36.6%) and Adjumani (33.1%). Further data collection is recommended to ascertain the form of harassment and who the perpetuators are.

1. Introduction

This report presents findings from an environment baseline assessment conducted in West Nile, Arua, Koboko and Adjumani Districts, with the aim of; 1) identifying energy conservation practices in use within beneficiaries' households, 2) natural resource management practices in use, 3)and level of environment awareness among benefiting households.The level of engagement in livelihood activities were also explored to gauge how these activities impact the environment.

A. DRC-DDG programme in Uganda

Danish Refugee Council-Danish Demining Group (DRC-DDG) has been present in Uganda since 1999, where operations were launched to support Sudanese refugees and host communities in West Nile region. Operations were in 2007 expanded to provide assistance to Internally Displaced Persons living in camps in Northern Uganda, and in 2008 DRC-DDG commenced on land mine clearance in Northern and Western Uganda. This operation continued until 2012, when Uganda was declared mine free. Since 2010, DRC-DDG has been active in Armed Violence Reduction in the pastoral region of Karamoja in North Eastern Uganda. Since 2012, DRC-DDG has employed an integrated livelihoods and conflict management approach in Karamoja, working actively to address the root causes of violence, while providing direct support to conflict management. As of 2015, DRC-DDG has operations in West Nile, Karamoja, Western Uganda and South-Western Uganda and is active in the programmatic sectors of refugee emergency operations, infrastructure development, WASH, protection, livelihood and environment support and armed violence reduction.

B. Description of the working context

Regardless of the many rounds of peace agreements, the conflict that erupted in South Sudan in December 2013 is not yet solved. The insecurity and fighting has triggered much influx of refugees, the situation is far from being favourable for refugees to return to their homes. The south Sudanese Refugees in Adjumani, Koboko and Arua who arrived since 2013 and before will remain in these districts in 2015. Moreover, the skirmishes and all scale fighting which is going on between the two factions of SPLA/M has triggered new influx which is estimated to be 60,000. By June 2015 a total of132,385 South Sudanese refugees are reported to be hosted in West Nile[1].The demographic composition of the group of refugees who have arrived since December 2013 is largely dominated by female persons (53%) andchildren (63%) under the age of 18 years.

The main source of livelihoods for the population in the region consists of agriculture, casual labour and commercial activities as well aspetty trade.

Based on the 2014 AGDM assessment carried out in Rhino Camp settlement that targeted both old and new caseloads,environment degradation, risk factors recorded included lack of skills on environment conservation, deforestation, inadequate Local Environment Committees and Inadequate support by implementing partners including the district towards environmental conservation and management of natural resources by the refugees and the host communities.

To address this bottlenecks, DRC is implementing an intervention code-named "Natural resources and shared environment resources better protected" with the following intended impacts;

- 60% of targeted households and schools have increased tree planting practices.
- 60% of the targeted households have increased environment protection awareness.

The baseline assessment therefore seeks to provide benchmark figures and information about current environment practices with the view of informing implementation strategy

2. Methodology

[1] RIMS,Population Statistics by Country, Sex and Age Group as of 05 June 2015,Office of the Prime Minister - Department of Refugees.

This reportis based on a quantitative household survey and key informant discussionsconductedin June 2015 the Arua, Adjumani and Koboko,with the aims ofidentifying current livelihoods practices, household energy utilization,and tree planting as well as level of knowledge on environmental conservation among beneficiaries' households.Food security and refugees' perspectives on potential environmental practices to be avoided were explored.

The questionnaire used for the assessment was developed by the DRC M&E unit in close collaboration with the environment and livelihoods team. Prior to its administration, it was reviewed and pretested to ensure that it was well suited for the task. Enumerators engaged in the data collection exercise received intensive training on data collection methods as well as ethical aspects to observe during the exercise.

A. Data collection methods

Combinations of quantitative andqualitative methods have been applied, comprising of a household survey and focus group discussions. Theenvironmentassessment was conducted and among beneficiary households (refugees and nationals) in the refugee settlements in the threeDistricts of Arua, Koboko and Adjumani

Data collection has been coordinated by project field staff together with the DRC-DDG M&E Officer. Survey interviews have been conducted by teams of external enumerators with multi-linguistic skills that reflect the variety of languages spoken refugees in the different locations.

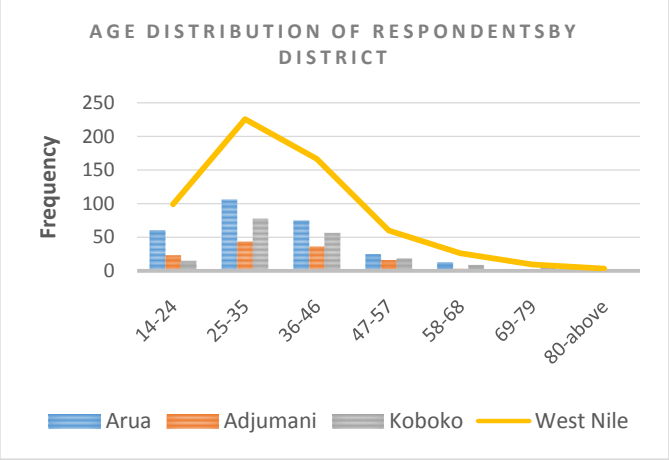
B. Sampling strategy

The sample size for the study has been calculated based on the number of beneficiary households, age, and gender and reflects a confidence level of 95% and a confidence interval of +/- 5 %.In total, 611 households have been interviewed on an individual basis for the assessment. Respondents have been sampled representatively according to beneficiary profiling statistics provided by the project team.

The demographic characteristics of the respondents have been sampled proportionally to the demographics in the refugee population (above the age of 14). The gender composition for the survey sample is as follows: 41.4% are male and 58.6% were female. The youngest respondent was 15years and the oldest was 90 years old, with an average age for all respondents of 35years, which reflects the age of the refugee population above the age of 14 in the threedistricts.

Table 1:Age distribution of respondents

Gender of Respondent:			
District name:		Frequency	Valid Percent
Arua	**Male**	132	44.3
	Female	166	55.7
	Total	298	100
Adjumani	**Male**	46	35.7
	Female	83	64.3
	Total	129	100
Koboko	**Male**	74	40.9
	Female	107	59.1
	Total	181	100



C. Data handling and analysis

The survey data has been collected on paper questionnaires and thereafter entered into an SPSS-database for statistical analysis. Records of interviews have been coded according to assessment indicators, and stored in this form in an office file in DRC's Kampala Office.

Duringanalysis, data has been disaggregated by Districts, caseloads and beneficiary type in the interest of capturing potential variation in trendsacross refugee and host community category.

3. Findings

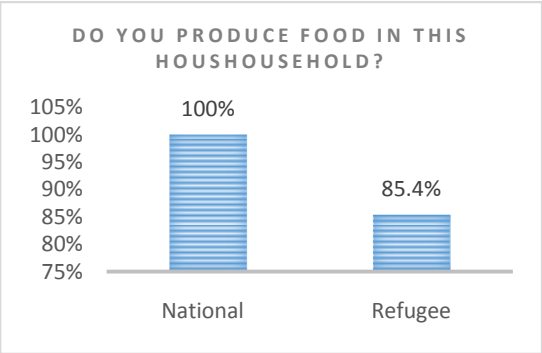
3.1 FOOD SECURITY

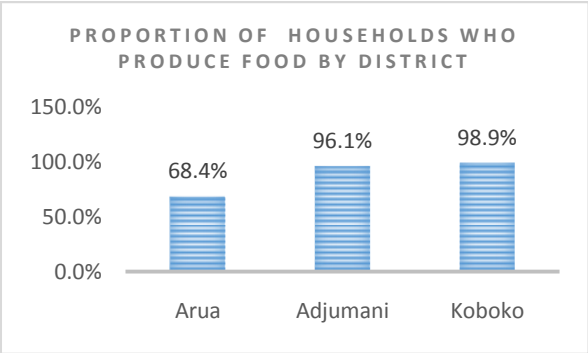
3.1.1 Food production

The rate of engagement in agricultural production has been explored for two reasons, firstlyto identify how commonly beneficiariesrely on this source of livelihoods, secondly, to explore likely impact of these activities on environment. Across all settlements 88.4% of all households indicated that they engage in food production. Data disaggregated by beneficiary type further reveal that all (100%) nationals interviewed engaged in agricultural production,similarly, participation by refugee households was equally high (at 85.4%).

The figures belowpresents food production statistics when data was disaggregated by beneficiary type and locations in west Nile region.

Figure 1: Food production level within Beneficiaries' households



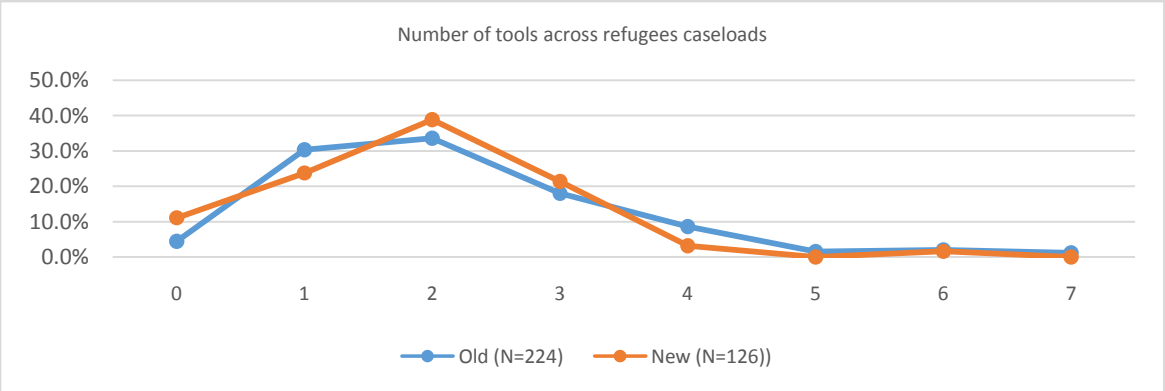


To deepen understanding of the potential for engaging in agriculture and tree planting within beneficiaries' households, respondents were asked about the total number of tools accessed/owned within their household.

To this, a significant proportion (83.1%)of householdrespondents acknowledged accessing between 1 to 5 farm tools, whereas only 8.8% had access to more than 6 tools. The proportion of households with no farm tools was indicated at 8.1%. On further analysis of data, it wasevident that Arua (8.3%)has fairly more households without access to farm tools compared tohouseholds inKoboko (8.1%, N=179) and Adjumani (7.2%, N=125) as, only 8.3% of the households indicated owning/accessing no farm tools within their household.

When data was disaggregated by caseload and analyzed, it was observed that the number of tools withinboth new and old refugee caseloads varied so insignificantly as depicted in the table below.

Figure 2: Number of farming tools within refugees' households

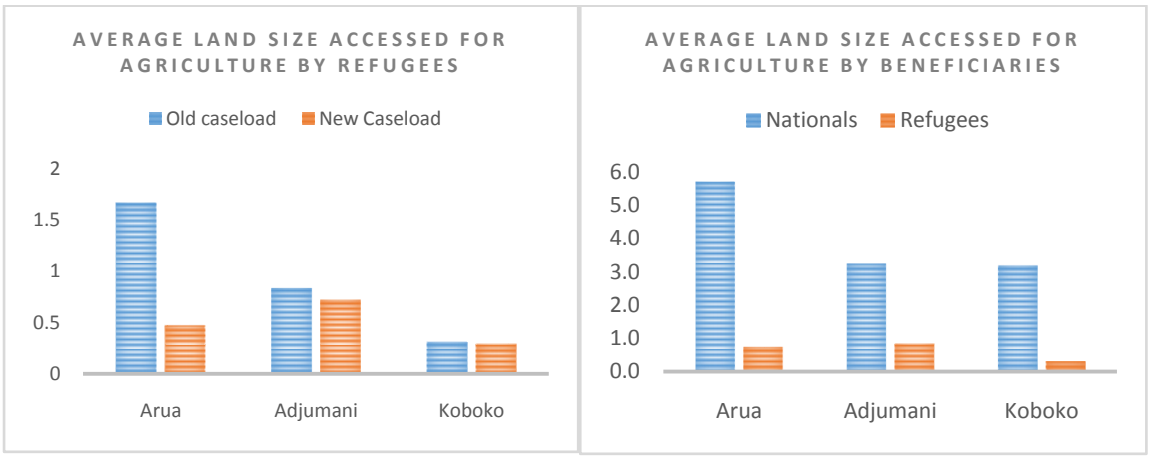


3.1.2 Access to Land and Agricultural inputs

Access to sufficient arable land is one of the major challenges most refugees' households face on arrival to West Nile. To mitigate this, the government of Uganda allocates land to refugee households for habitation during their stay in the settlement. Most times, this land does not satisfy the agricultural production needs of most refugees household; hence most households fill this land gap through hiring or borrowing land from the hosting communities. With this background, access to land by sampled beneficiaries was explored, and huge divide was observed to exist between these two categories of respondents.On average host communities indicated owning 4.35 acres of land for agricultural purposes whereas this was reported at 0.64 acres among refugees' households. The most common land size available to both hosting and refugees

households was reported to be 2 and 0.3 acres respectively. Among the refugee communities, the old caseloads tend to have access to slightly fairer land size compared to their newer counterparts, aspresented in the figure below.

Figure 3: Average land area used for agricultural production



Based on the above statisticsit can be deduced that more host community households have better prospects to engage in large scale tree planting than their refugees counterparts. However, given the available land sizes among refugee households, fruit trees planting seems to make more sense than planting of wood trees.

3.1.3 Acquisition of Agricultural inputs

Another important aspect of agricultural production explored was household purchase of agricultural inputs. To these it wasnoted that less than half of the beneficiaries interviewed purchasedat least one type of agricultural inputs in the past planting season. The few who did, spent mostly on improved seeds and agricultural tools. Households'expenditure on pesticides and fungicide was noted to be very lowwithin West Nile region as seen in the figure below.

Have you bought the following in the past planting season?

Table 2: Proportion of households who bought agricultural inputs by district

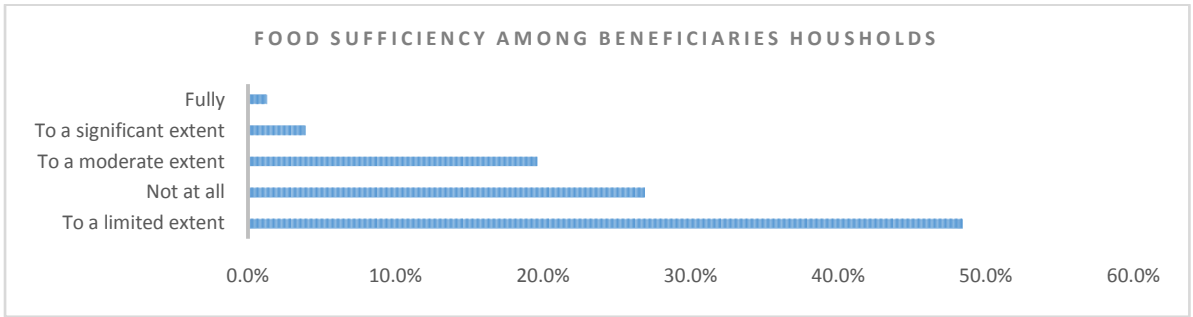
District	Tools (%)	Improved Seeds (%)	Fungicides/Pesticides (%)	Others (%)	None
Arua	37.5	57.1	11.5	2.4	0%
Adjumani	36.9	25.4	3.1	1.5	0%
Koboko	28.9	41.7	12.2	1.7	5%
Total	34	42.3	9.4	1.8	5%

Investment on improved seeds by almost half (42.3%) of the beneficiaries is a positive development towards improving household food security and hence lessening the tendencies of depending on environment to cover food gaps.

3.1.4 Food Sufficiency

In order to understand whether the food produced by the 88.4% of respondents who engage in agricultural production match with household food requirement. A question was posed in this regard and responses were as follows.Almost half (48.4%) of the respondents interviewed indicated that food produced to a limited extentsatisfied their household food needs, and only a few (1.3%) households indicated the food produced satisfied their household needs fully, an can be seen in the figure 4..

Figure 4: Food sufficiency within households in West Nile



Often times when households have limited food supplies within their households, they tend to resort to coping mechanisms which most times are detrimental to environment.For instant households engage in selling

building poles, firewood and charcoal which may be supplied to the market in unsustainable manner, this will be explored further under households income activities in the following section.

3.1.5 Frequency of food consumption

The type of food produced/accessed and their frequencies of consumption within household determines the amount of wood fuel utilization within each household and this in turn has a direct bearing on environment. For this reason the frequency of consumption of different food type within household in the past 30 days was explored. Finding reveal that the average number of times households consumed Beans (19 out of 30 days), Sorghum(14 out of 30 days) and maize(9 out of 30 days) were compared to food which take shorter time to cook such as others(vegetable, meat and fish) and Egg plants(4 out of 30 days),as well as Cabbage(2 out of 30 days) and Irish potatoes(2 out of 30 days) as represented in the table below.

Table 3: Frequency of food consumption by district

District name:	Maize	Simsim	Sweet potatoes	Cassava	Sorghum	Millet	Beans	Peas	Irish potatoes	Rice	G-nuts	Tomatoes	Cabbage	Onions	Eggplant	Okra	Other
Arua	7	5	1	7	20	2	17	4	1	2	4	5	3	10	3	8	9
Adjumani	5	5	2	7	20	2	16	4	0	1	5	8	2	14	4	5	10
Koboko	15	4	2	8	3	1	24	3	0	2	4	10	2	13	3	7	0
Total	9	5	2	7	14	2	19	4	0	2	4	8	2	12	4	7	6

Food consumption pattern indicated above strengthens response from many beneficiaries who indicated that their energy consumption had increased as a result of frequent cooking hard foods. The consumption pattern discussed above requires adoption of appropriate stove and cooking technologies if fuel are to be used economically

3.2 LIVELIHOODS.

The causes of various household energy challenges seem to be closely linked to livelihood options. Indeed, it is argued that sustainable livelihood options and sustainable environmental behaviour go hand in hand[2]. For this reason, livelihoods options of refugees and host community households were explored. And findings show that the main source of household income is casual labour (44.8%), followed by sales of own produce (17.3%) and business (11.5%). when this data was further disaggregated by respondents type, it was observed that more refugees households depend on casual labour (49.3%) more than theirnational (25%) counter parts, similarly, it was reported that more nationals (45.7%) engage in agriculture compared to the refugee households (10.5%). table below indicate the proportion of respondents who engage in livelihoods activities in each districts.

Table 4: Livelihoods sources disaggregated by location

Districts	Own produce	Charcoal	Casual labour	Business	Relief items	Household items	Building materials	Vocational services	Others
Arua	9.4%	6.3%	26.9%	10.0%	20.6%	11.9%	0.6%	1.9%	12.5%
Adjumani	18.5%	3.1%	41.5%	19.2%	6.2%	0.8%	2.3%	0.8%	7.7%
Koboko	23.5%	1.1%	63.1%	7.3%	0.0%	0.6%	0.0%	2.2%	2.2%
Total	17.3%	3.4%	44.8%	11.5%	8.7%	4.5%	0.9%	1.7%	7.2%

Engagement in charcoal sales and building poles as source of livelihoods was observed to be relatively lower across the three districts, however, the risk of escalation is high with the influx of new refugee caseloads who may lack alternative livelihoods options.

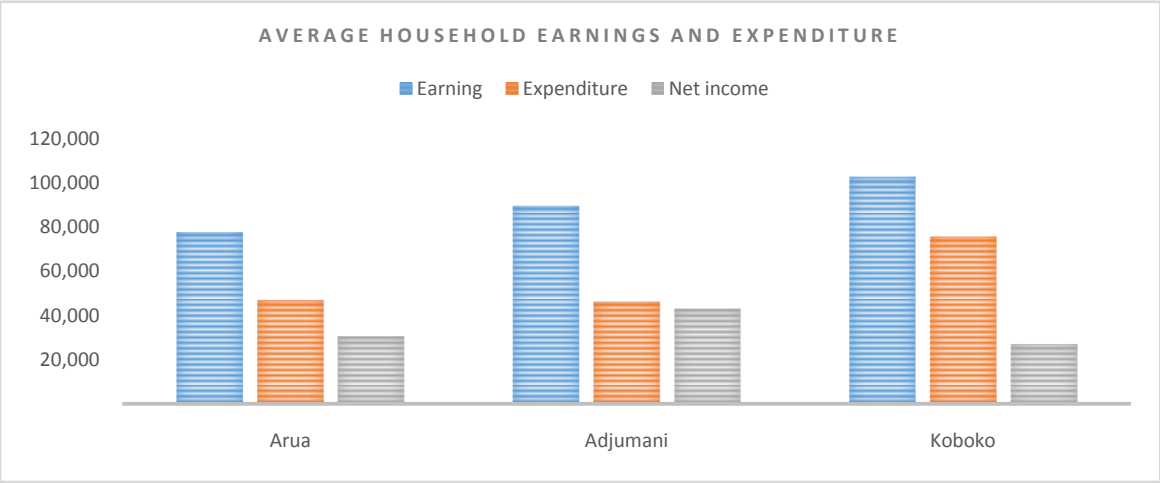
3.2.1 Household Income and expenditure

During the assessments respondents in the target districts were asked to estimate theiraverage earning per month, and Kobokodistrict was reported to have the largest proportion of respondents with averagemonthly earningestimated at 102,751 UGX, followed by Adjumani with 89,348 UGX and in Arua came third at 77,684 UGX. However, when expenditure data is analyzed it becomes clear that expenditure is higher in Koboko (75,638 UGX) leaving households with the smallest average disposable income of 27,113 shillings. In terms of

[2] New issues in refugees Research paper No.127,p.8

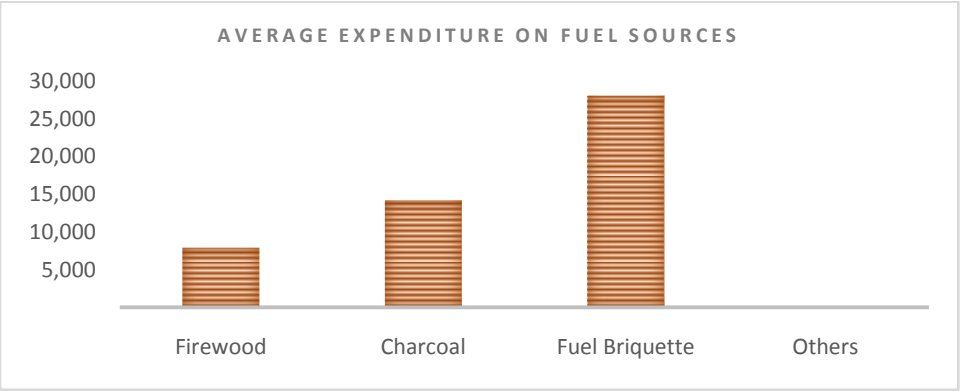
disposable income Adjumani has more households with higher disposable income (46,423 UGX) compared to their counterparts in Arua (30,644 UGX). As seen in the figure 5.

Figure 5: Average household earning and expenditure



3.2.2 Expenditure on Cooking Fuel

Expenditure on cooking fuel was explored and findings indicate that on average households spend 8,508.82 shillings on cooking fuel, the median expenditure value was indicated as 2,000 UGX. The model value was 0 UGX, hence implying the majority of the households do not buy their cooking fuel.The most expensive fuel source was observed to be fuel briquette (28,000 Ugx pr.month). Household average spending on firewood and charcoal was reported as among households that buy their fuel source, whereas average spending on firewood was estimated at 7,928 Ugx pr. month, while for charcoal this was at 14,190 Ugx per month.



According to the DRC fuel briquette pilot projectteam in Adjumani, on average household utilises 20 Kgs of fuel briquette per month, each kilogram of fuel briquette cost between 1500 to 2000 UGX. Therefore, it is anticipated that the price of briquette will go down when households begin to produce their own briquettes using available local materials.

The fact that expenditure pattern across fuel sources varied insignificantly, could mean that household's choice of cooking fuel depends majorly on availability of cooking stove and proximity to free cooking fuel in the environment. The spending pattern is depicted in the table below.

Table 5: Household expenditure on different cooking fuel

Price Range (UGX)	*Firewood*	*Charcoal*	*Fuel Briquette*	*Others*
0-10,000	*237*	*7*	*0*	*2*
11,000-20,000	*14*	*0*	*0*	*0*
21,000-30,000	*4*	*0*	*1*	*0*
31,000-40,000	*3*	*0*	*0*	*0*
41,000-50,000	*3*	*0*	*0*	*0*
50,000 and above	*1*	*0*	*0*	*0*
Total	262	7	1	2

When fuel expenditure data was further disaggregated by locations and analyzed it became clear that a significant proportion of households in Koboko (61%) and Adjumani (47.6%) do not buywood fuel, whereas,all cooking fuelused within households in Arua district was reportedly purchased from a nearby market.

The low household expenditure on cooking fuel coupled with free and direct accessof wood fuel from theirimmediate neighborhoods, may hinderenergy conservation promotions, since the key driving factor "fuel scarcity" may not beregarded a major challengewithin these households.Additional data collection is recommended to ascertain the amount of fuel used per household per month and their unit cost.

3.2.3 Household Lighting Expenditure

Expenditure on household lighting has been explored and findings indicate that on average households spendmore on lighting their households(5,299 UGX pr. month) than expenditure on cooking fuel (4,826 UGX pr. month) . This high expenditure pattern is linked to the wide usage of dry cell for household lighting reported in all households in West Nile. Batteries being a non-renewable energy places a high burden on households.

3.3 NATURAL RESOURCE MANAGEMENT AND UTILIZATION

Under natural resource utilization, the assessment looked at, tree planting versus cutting, shelter needs, garbage management and the level of access to environment information as well as current conservation practices, as discussed below;

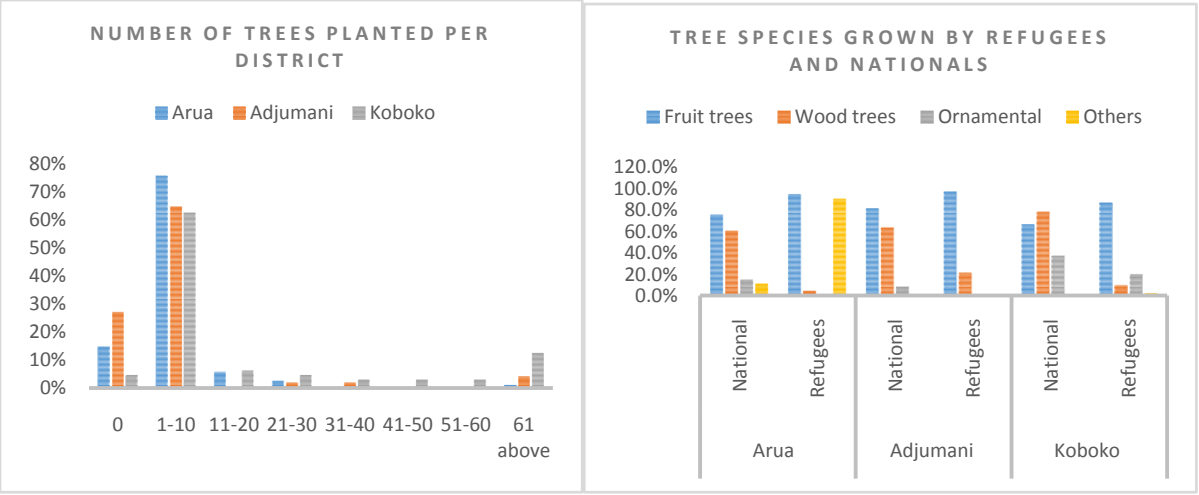
3.3.1 Tree Planting versus Cutting

The presence of so many people living in the community and needing wood for cooking and shelter has taken a heavy toll on the environment. DRC under its environment sector is implementing tree planting intervention in a bid to redress the balance and to heal the land generously provided by the host community.

During the baseline assessment project beneficiaries were asked whether they had planted any trees in the past 12 months. To this 43.2% of the households interviewed acknowledged having planted at least a trees in the past one year. 61% of all the trees planted were reported to have attained stable growth rate and vigor at the time of the assessment

The total land size where the sample beneficiariesgrow crops and trees is estimated at819.2 acres, and the total number of individual trees currently being managed is 4,067 (an average of 5trees per household).It was also indicated by 68% of the household respondents, that the total number of trees currently being raised bytheir householdsis in the range of 1 to 10trees. Statistics further indicate that88.4% of thetrees planted by respondents are fruit trees. The refugees' households notably grow more fruit trees than the hosting communities. The figures below present status of tree planting by district and beneficiary type.

Figure 6: Tree planting by beneficiaries



The major sources of tree seeds/seedling were mainly Non-governmental organisations (55.8%).The contribution of market purchase (22.5%), own seeds (20.9%) and others(13.9 %)are not yet well developed in West Nile.

When tree seed sources data was further disaggregated by location and analyzed further it was clear that households in Arua (71.4%) and Adjumani (68) depended more on NGOs seeds support than their counterparts

in Koboko (9.2%). Market purchase was the most prevalent means of accessing seeds in Koboko district as indicated by 46.2% of the beneficiaries. See table below for more details.

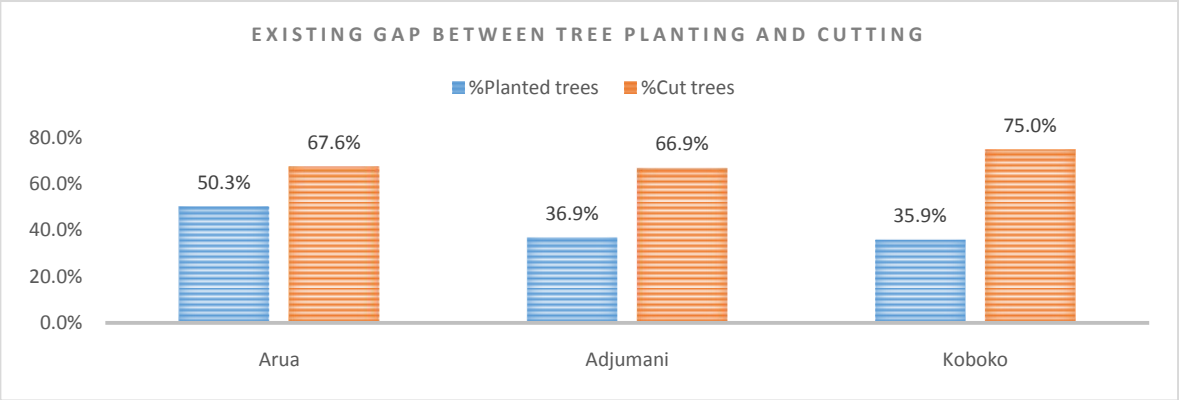
Seeds Source	Arua	Adjumani	Koboko
Market Purchase	*14.3%*	*16.7%*	*46.2%*
NGO	*71.4%*	*68.8%*	*9.2%*
Own seeds	*20.0%*	*16.7%*	*26.2%*
Others	*7.2%*	*8.3%*	*32.3%*

Obstacle to tree planting

To gain insight into factors that hinder participation of most households in tree planting,an open-ended question was presented to household respondents with the aim of capturing key bottlenecksthat impede tree growing.The majority of respondents indicated Lack of seeds/seedlings, inadequate land, and limited knowledge in tree planting as their major hindrances. Other issues also advanced were uncontrolled movement of animals as well as destruction of seedling by pests and diseases.

Tree cutting was also explored among beneficiaries with the intention of determining whether the rate at which tree are planted match the rate at which these trees are being fell for any reasons.To this end, up to 70% of the beneficiaries interviewed acknowledged having cut at least a trees in the past year in West Nile. The figure below point to the fact that a larger proportion of households across all the three districts participated more in cutting down trees than those that participated in planting them, as seen in the figure below. The above imbalance if not check can lead to faster deterioration of the environment

Figure 7: Tree Cutting and Planting Compared



Further analysis reveal that between July 2014 and July 2015, a total of1,110,792 trees had been cut, whereas only 4,987 of these trees were replaced in West Nile. Going by the statutory requirementof 5 trees for 1 cut, last year alone 5,553,960 trees needed to have been replaced in order to counter against this trend. See table below for more details.

District name:	Number Planted	Number Cut
Arua	*2,382*	*1,104,241*
Adjumani	*789*	*2,952*
Koboko	*1,816*	*3,599*

In 2015 Danish Refugee Council is implementing a tree planting campaign, in which tree planting is being promoted through establishing community nurseries and working closely with small holder tree nurseries in the project area to address some of the problems indicated above. It is therefore expected that by end of the project significant improvement will have been registered

3.3.2 Shelter Requirements/Needs

Assessmentalso explored the shelter and settlement needs of the sampled beneficiaries with the intention of understanding how they depended on the environmentfor this purpose, findings are discussed below.

Majority of the respondents live in shelters constructed with locally available materials directlyextracted from the environment. Use of grass, poles, mud/bricks and ropes is widespread across all locations in west Nile. The utilization of manufactured construction materials such as iron sheets, nails and cement is still limited among beneficiaries. Mud-bricks is the mostpreferred walling materials used in Adjumani and Koboko.Conversely,

higher proportions of household in Arua use cement and poles in shelter construction as opposed to Adjumani and Koboko, as detailed in the table below.

District	Grass (%)	Poles (%)	Cement (%)	Bricks (%)	Others (%)
Arua	*95*	*96*	*7.5*	*21.2*	*66.6*
Adjumani	*99.2*	*70.8*	*1.5*	*92.3*	*14.6*
Koboko	*97.2*	*91.2*	*1.7*	*80.7*	*18.8*

The above use of locally available materials if not accessed in environmentally sensitive manner may become a threat to environment.

3.3.3Disposal of household Wastes.

Households'mode of disposal of wasteswas explored with the intention of understanding the current practices and degree of risk these pose to the environment in West Nile.

Findings reveal that great majority of the households in the three districts in west Nile have some form of garbage management. Refuse pit (88.3%) is themost common form of garbage disposal site, followed by Burning (6.4, %) burying (4.4%) andothers (0.8%). The table below indicate deviation in the utilization of the different disposal methods across the three districts of West Nile. Koboko district (95.6%) registered the highest proportion of respondents with Rubbish pit, followed by Arua (89.5%) and Adjumani (75.4%). The statistics below indicate a positive steps towards safety and health.

District	Rubbish Pit (%)	Burning (%)	Burying (%)	Others (%)
Arua	*89.5*	*9.1*	*0.7*	*0.7*
Adjumani	*75.4*	*6.2*	*18.5*	*0*
Koboko	*95.6*	*2.2*	*0.6*	*1.7*

Small household pits offer a simple option for disposal of household waste which are biodegradablesand are suitable within households withsufficient space. Families should be encouraged to regularly cover waste with soil from sweeping or ash from fires used for cooking. It should also be noted that the disposal of organic material in pits create methane gas with associated environmental atmospheric problems (methane is five times more potent greenhouse gas than carbon oxide(CO_2)). Where possible organic material should be removed from the general refuse and composted or usedas feed for livestock (if appropriate). Improper disposal of Plastics bags and bottles within households was indicated as criticalenvironmentally unfriendly practices by most respondents,this mightrequire household to be trained on how to reduce, reuse, repair and recycle some household waste.

3.3.4 Environmentally-unfriendly practices within households

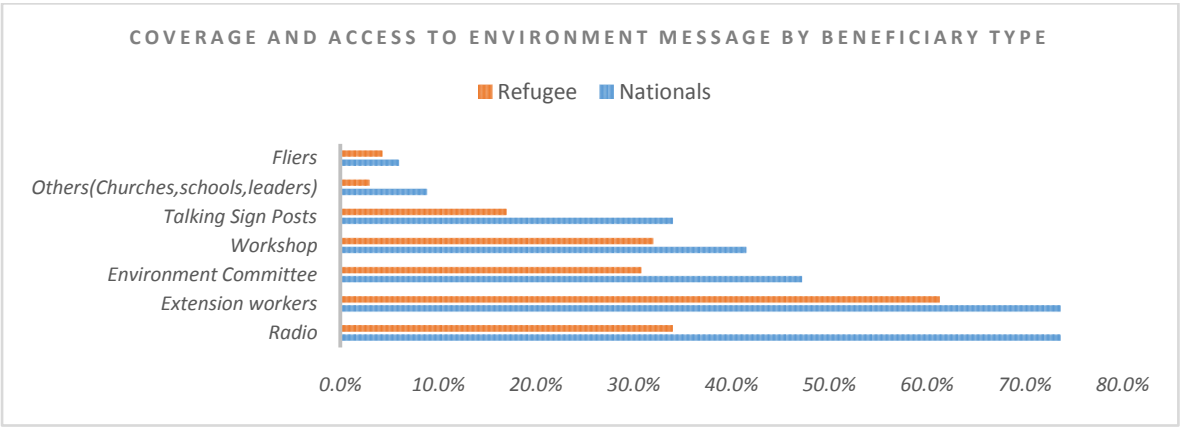
Households were asked to mention some of the environmentally unfriendly practices they see in their environment that they want avoided. To this qualitative responses from respondents were pasted into word cloud generator and bush burning, household waste disposal, poor sanitation and hygiene as well as deforestation were among the most recurrent issues sited as represented in the figure 8.

Figure 8: Suggested environmentally unfriendly practices to be avoided

This finding is interesting for two reasons, firstly, it indicate that households are aware of environmentally inappropriate behaviorsthey see/practice in their environment and secondly, there is a positive spirit to avoid some of these practices, however, it seemslimited options to mitigate some of these problem is the key hindrances.

3.4 ENVIRONMENTAL AWARENESS AND CONSERVATION PRACTICES.

Access to environmental awareness and conservation message was explore with the intention of understanding the level of access to information through various channels across beneficiary type and locations.
In light of this, the above respondents were asked if any of their household member had received any environment conservation messages in the past 1 month. To this end, half (50%) of the respondents interviewed in west Nile acknowledged having received environment conservation message. To gain more insight into this, data was disaggregated and further analyzed by beneficiary types. Itbecame clear that a greaterproportion of the national households who, responded to this question, acknowledged having received messages from more varied sources than their refugees counterpart. A greater proportion of the national households received messages through Radio (73.6%) and extension workers (73.6%), whereas, a significant proportion of the refugees households accessed environment message through extension workers (61.3%) and Radio (34%), as represented in the figure below.



When environment information access was further analyzed by location, it was apparent that Arua district has a more varied channel of information than Adjumani and Koboko. Significant households in Arua received environment information through extension workers (67%), workshops (45%) and radios (39%). Access through environment committees (16%) and Print media (sign post (31%) and fliers (5%) were very insignificant among households.

In Adjumani District almost equal proportion of respondents accessed environment information through radio broadcast (63%) and Environment committee outreach activities (61%). Proportion of respondents who accessed received information through workshops (31%), talking signposts (20%) and Fliers (3%) was very insignificant among households.

In Koboko district, themost important source of environment information was indicated as environment committee,this was reported by 43% of the beneficiaries who responded to this question.The rest of the information sources contribute very insignificantly in communicating environment messages, as presented in the table below.

The key promoters of environment message were indicated as I/NGO (78.1%), government (26.9%) and other stakeholders (16.1%) respectively.

Medium	Arua	Adjumani	Koboko
Radios	*39%*	*63%*	*27%*
Extension workers	*67%*	*30%*	*7%*
Workshops	*45%*	*31%*	*17%*
Environment Committee	*16%*	*61%*	*43%*
Talking Sign Posts	*31%*	*20%*	*2%*
Fliers	*5%*	*3%*	*5%*
Others(Churches, schools and community leaders)	*5%*	*0%*	*6%*

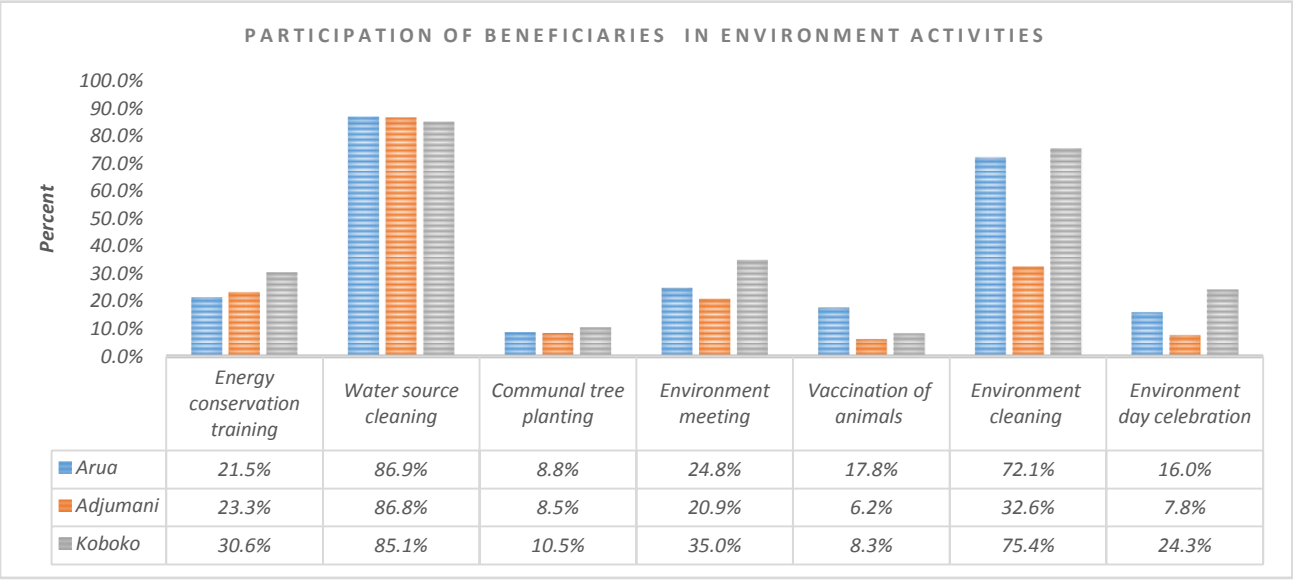
Regardless of the channel of dissemination used, messages received by respondents was indicated to have been adopted by households. Proper disposal of garbage, tree planting, use of energy efficient stoves as well as proper handwashing practices, were among common practices mentioned during the assessment.

In conclusion, a significant proportion (50%) of beneficiaries are still unable to access environment related messages/information for reasonsnot explored during this assessment, however, information from analysis gathered from other section seems to suggest review of the current dissemination strategies with the view of removing bottlenecks such as language barriers, education levels and economic constraints a worthwhile adventure to consider.

3.4.1 Participation in Environment promotion activities

Over the years Danish Refugee Council together with other stakeholder havebeen conductingpublicity campaigns and educational programmes which aim atincreasing environmental awareness of the public, and to show the importance of public involvement. These activities include environmentmeetings, environment cleaning campaigns, as well astraining programmes that focus on household energy conservation, solid waste management, tree protection, environmental awareness in the community and environmentally friendly agricultural practices. During the baseline assessment participation of households in the various environment activities were explore and findings are as below.
Engagement of households in environment activities is still minimal, significant proportion of households interviewed participated in a limited number of activities as can be seen from the figure below. Greater proportions of households participated in water source cleaning (86.3%) and environment cleaning (64.6%). Participation in communal tree planting, environment day celebration and animal health activities is extremely low within households.

It was further observed that greater proportion of households in Koboko district were more involved in environment activities than their counterparts in Arua and Adjumani. Conversely, households in Adjumani district had the lowest participation in environment cleaning (32.6%), environment day celebration (7.8%), and animal vaccination (6.2%)



	Energy conservation training	Water source cleaning	Communal tree planting	Environment meeting	Vaccination of animals	Environment cleaning	Environment day celebration
Arua	21.5%	86.9%	8.8%	24.8%	17.8%	72.1%	16.0%
Adjumani	23.3%	86.8%	8.5%	20.9%	6.2%	32.6%	7.8%
Koboko	30.6%	85.1%	10.5%	35.0%	8.3%	75.4%	24.3%

3.5HOUSEHOLD ENERGY CONSERVATION PRACTICES

In order to mitigate the environmental impact of the use of firewood as an energy source the project has emphasized training in construction and usage of energy saving stoves, thus this assessment will measure the currentutilization of energy saving stoves and lighting sources within households

3.5.1 Cooking Fuel

i. Firewood

Firewood comprises the main source of energy for the vast majority (91%) of beneficiary households in West Nile. The use of this fuel was reported by almost all households in Adjumani (97.7%), Koboko (96.1%) and Adjumani (84.9%) as represented in table below.This fuelwood are commonly gathered from forest and woodlots in the community by both nationals and refugees. The current practice of harvesting this resource in a wholly unsustainable manner is resulting in a precarious situation in many parts of West Nile, some of which is likely to lead to increased conflict over already scarce and increasingly limited natural resources. The effects of this over-exploitation have already begun to manifest themselves in many parts of this region, with longer term impacts now imminent.

Statistics	*Arua*	*Adjumani*	*Koboko*
Frequency	*253*	*127*	*174*
% within District	*84.9%*	*97.7%*	*96.1%*
% within Region	*41.5%*	*20.9%*	*28.6%*

ii. Charcoal

Less than 10% ofall households interviewed in West Nile reportedlyusecharcoal for cooking. When data was disaggregated by district, it was evident that 15.1% of the sampled households in Arua used charcoal for cooking, whereas in this was reported by only 3.1% and 1.5% in Koboko and Adjumani, as presented in the table below.

Statistics	*Arua*	*Adjumani*	*Koboko*	*Total*
Frequency	*45*	*2*	*5*	*52*
% within District	*15.1%*	*1.5%*	*2.8%*	*8.5%*
% within Region	*7.4%*	*.3%*	*.8%*	*8.5%*

Generally, households prefer charcoal for boiling water and cooking soft foods. Respondents reported that due to increasing charcoal prices (because of the few number of hosting community engaged in production) and the tedious process involved, production per person of charcoal this makes charcoal less preferable cooking fuel.

iii. Fuel briquettes

One way of converting loose residues into a more energy-rich and user-friendly form is through compacting them into fuel briquettes. Fuel briquettes are defined[3] as “manufactured fuel pellets produced from organic matter through compaction, external charring, complete carbonization or a combination of these processes”. They are basically compressed fuel blocks made from plant wastes or sawdust. A popular type is the Charcoal briquettes, which are fuel pellets of higher energy content produced from material that has either been carbonized prior to its compaction, or compacted first and then carbonized. Either way, energy values of up to 30MJ/kg can be achieved. This puts some of these briquettes on a par with regular lump wood charcoal in terms of combustive quality.

Charcoal briquettes have been utilised in most refugees operations across the globe and for this reason, the utilization of this form of cooking fuel was explored in beneficiaries’ households in three West Nile district, and findings reveal that this fuel source has extremely limited use across the three districts of West Nile.An instant of usage was reported in only Adjumani district by1 out of 127 respondents.

Much as use of fuel briquette is still undeveloped in West Nile, it stillpossessesa high potential and can still gain acceptance among households if more targeted promotional activities as well as provision of the required skillsis considered.

iv. Others

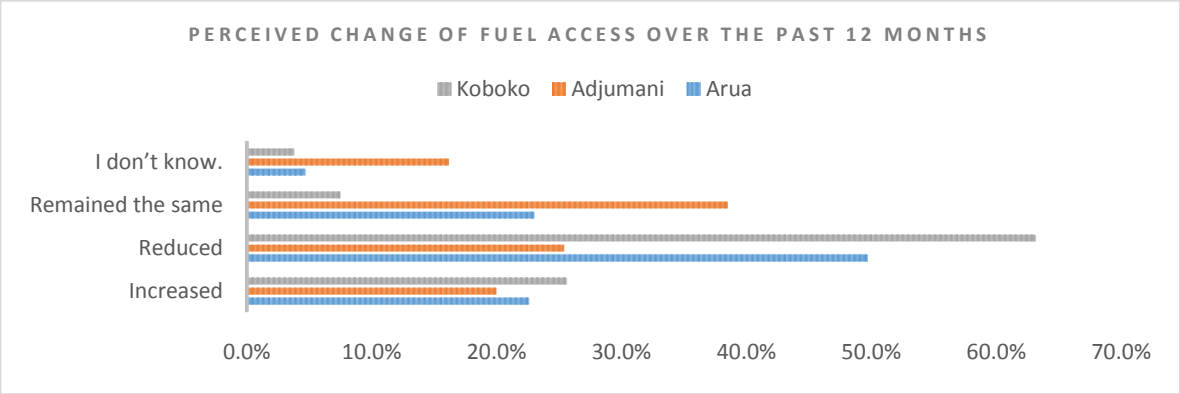
Use of alternative cooking fuel (Electricity, solar, biogas and Kerosene) was also explored, however findings indicate that no household reached within West Nile utilize these forms of cooking energy within their households. In Koboko only 2 out of 153 respondents indicated using other source of fuel, which consistedmajorlyof loose wastes and residues scavenged aroundnearby cultivated fieldsand settlements. Such

[3] *UNHCR handbook of experiences in energy conservation and alternative fuels*

wastes include maize cobs, sorghum (or other crop) stalks, twigs and leaves. These loose wastes are considered inferior to firewood and charcoal because they have a much lower energy content and are harder to burn. The use of firewood is wide spread in west Nileexposing household members to smoke from wood fuelthat is particularly known for its harmful side effect on human health and environment.

Change in Fuel Utilization

To understand the perceived change in both access andutilization of cooking fuel over the year, respondents were asked whether their use of major fuel sources hadchanged. To this responses varied significantly across the three districts, households in Koboko (63.1%) and Arua(49.7%) indicated that their use of common wood fuel had reduced, whereas those in Adjumani indicated that their use of wood fuel had remained the same (38.5%) as representedin the figure below.
There were however limited proportion of beneficiaries in Adjumani (16.2%), Arua (4.7%) and Koboko (3.8%) who could tell whether their utilization of cooking fuel had changed over the past one year, as represented in the figure below



To understand factors that have contributed to the change in household fuel utilization over the past one year, a qualitative question was posed in this regard and reasons advanced for changes in fuel utilization were observed to be similar across all the three districts.Hence Salient issues advanced were summarized and presented in the table below

Response category	Reason for change in fuel Consumption
Reduced	*-Use of energy efficient stoves* *-Relocated to a place with easy access to firewood* *-Enforcement of regulation by environment committee (by-law)*
Increased	*-Increase in the household size* *-Cooking of hard foods such as beans* *-Do not have energy efficient stove* *-Long distance to fetch firewood due to scarcity* *-Lack money to buy firewood*
Same	*-Cooking of hard foods such as beans ,peas and maize* *-Sicknesses and disabilities*
Don't know	*-Do not keep record on fuel use.*

Time taken to fetch cooking fuel

The time spent accessingfirewood and charcoal varied widely across settlements in West Nile. Households surveyed in the three Districts reported spending between one totwo hours per trip to collect firewood, with an average time of over one and half hours.

When data was further disaggregated by locations it became clear that some villages in West Nile take more than the average amount of time reported at the regional level. In Arua District, the furthest village take on average3.25hrs to access cooking fuel, whereas those in Simbili village takea minimum of0.9hrs. In Adjumani district, furthest village (Ogujebe) take at least 4.7hrs to access cooking fuel, whereas those closest (Adidi village) take up to 1.14hrs to access firewood. In Koboko district, the furthest village (Waju I) to source of cooking fuel take at most 2.7hrs, whereas, in Adologo, theclosestvillage to fuel source, this takes close to 2 hours (1.8hrs) for households to access cooking fuel.

The long distances traveled and the many hours spent out while collecting wood fuelpresents a serious protection risk to beneficiaries. Majority (62.9%) of the households surveyed in Kobokoacknowledged having

experienced some form of harassmentwhilecases of harassments were lower inArua (36.6%) and Adjumani (33.1%).

Maintaining constant supply of wood fuel within householdspose a huge burden on responsible household members. The time consuming nature of the task hinder participation of members in productive activities such as agriculture, trade and school attendance

3.5.2 Cooking Stoves

This section exploresthe level of utilizationof different energy efficient stoves as well as recommended cooking practices that are known to work well in situations where access to cooking fuel is a challenge. This section further explores challenges in regards to use of energy efficient technologies.

In West Nile region, it was observed that households use a variety of cooking stoves depending onthe fuel requirement for each stove and also the type of food being prepared. Findings on each stove type has been discussed independently and where necessary contrasts were made, as seen below.

i. Open air stove

According to the assessment findings, open air stoveis by far the most used cooking fireplacein the three districts of west Nile, this was reported by 65.5% of household respondents who provided response to this question .in Koboko district more than ¾(87.3%) of the sampled respondents indicated open air stove as their main cooking fire place. In Arua and Adjumani ownership of this fireplace was reported by half of the households as presented in the figure below.

Category	Arua	Adjumani	Koboko	Total
Frequency	*175*	*65*	*158*	*398*
% within District	*58.8%*	*50.0%*	*87.3%*	*65.4%*
% within Region	*28.9%*	*10.7%*	*25.9%*	*65.5%*

The most common open air stove is the traditional three stone. Which is not only used for cooking, but also provides a source of heat and light within households. Though open airstoves are adaptable and easy to use, open fires waste fuel, because flames are focused poorly on the bottom of the cooking pot. Typically only 15% of energy that is released from the cooking fuel actually enters the food or water in the pot (Cooking Options in Refugee Situations, UNHCR, p.10).additionally, fuel savings of 15-20% can be achieved by proper shielding of fireplaces from wind (Cooking Options in refugee Situations, UNHCR, p.19).This form of stove is also known to produces smoke which can have negative impacts on the health of household members.

ii. Mud-stove

The term 'mud-stove' is used to describe any number of improvements to the traditional three-stone fireplace. These are easily constructed by refugees and others using locally available materials. The baseline assessment set out to establish the utilization of this cooking fire place among sampled respondents. To these, 43.5% of all respondents in West Nilenamed mud stove as the second mostprevalentstove after the traditional open air one.

When data was disaggregated and further analyzed for insight, it was observed that greater proportion of households in Koboko (64.6%)districthave more of this stove compared totheir counterparts in Arua (59.2%) and Adjumani(25.8%) as presented in the table below.

Category	*Arua*	*Adjumani*	*Koboko*
Frequency	*77*	*77*	*117*
% within District	*25.8%*	*59.2%*	*64.6%*
% within Region	*12.6%*	*12.6%*	*19.2%*

The most common mud- stoves observed in most households relied heavily on firewood as opposed to charcoal.

iii. Clay- metal stove

Clay -metal stove is as an extension of all-metal cooking stove, this stove brings the portability of the all-metal stove together with the efficiency and durability of the clay liner. The use of type of stove was investigated within sampled households and findings are as follows. Generally the use of this type of stove in West Nile is very limited as reported by only 36.1 %(N=588) of the households interviewed. More (186 out of 286 of valid responses) of this stove are available in refugees households as compared to those of the nationals (25 out of 85 of valid responses).

Statistics	Arua	Adjumani	Koboko	Total
Count	*204*	*6*	*2*	*212*
% within District	*68.5%*	*4.6%*	*1.1%*	*34.8%*
% within Region	*33.5%*	*1.0%*	*0.3%*	*34.8%*

The major barrier to utilization of this type of stove is its high price in the local markets and also lack of knowledge and resources withinbeneficiaries' households to construct.

iv. Fired clay stove

Various types of stove can be made from fired clay[4]. Suitable clay is gathered, cured, shaped into a stove (often using a special mould), left to dry and then fired in a kiln. According to findings the level of usage of this stove is still low among households in West Nile as indicated by only7.1% (43out of 604) of respondents who responded to this question. When data was disaggregated and further analyzed, it was observed that more households in Adjumani (12.3%, N=114) District areutilizingthis stove more thantheir counter partsin Koboko (6.3%, N=150) and Arua (4.3%, N=286).

Findings further reveal that slightly more fired clay stove are found within the host (14 out of 96 households who responded to this question) community householdsas compared to their refugee (25 out of 448 households who responded to this question) counterparts.

Statistics	Arua	Adjumani	Koboko
Count	*13*	*16*	*14*
% within District	*4.3%*	*12.3%*	*7.7%*
% within Region	*2.1%*	*2.6%*	*2.3%*

This type of stove is considered harder to produce than the all-metal stove, even by experienced potters used to working with clay. This is mainly because the firing of the thick-sided stove requires fairly sophisticated kiln technology that ensures controlled temperature changes to minimize cracking. This could explain the limited use of this stove among the sampled project beneficiaries.

v. All metal stove

The use of all metal stove is extremely low in West Nile as only 6.6%(N=551) ofthe sampled households in West Nile.Koboko has more households (13 out of 147 valid responses) with this type of stove compared to Arua (18 out of 281 valid responses) and Adjumani (7 out of 123 respondents who responded) as seen in the figure below.

	Arua	Adjumani	Koboko
Count	*18*	*7*	*15*
% within District	*6.0%*	*5.4%*	*8.3%*
% within Region	*3.0%*	*1.1%*	*2.5%*

Households that use this type of stove acknowledgedthat it is the most durableamong allothers, however in terms of fuel utilization it is considered less economical as much charcoal is required during cooking of a single meal.

vi. Others

The use of other types of stove were almost non-existent as was reported by only 1.4 %(8 out of 584 valid responses) of households interviewed.

3.4.3Energy-Saving Practices

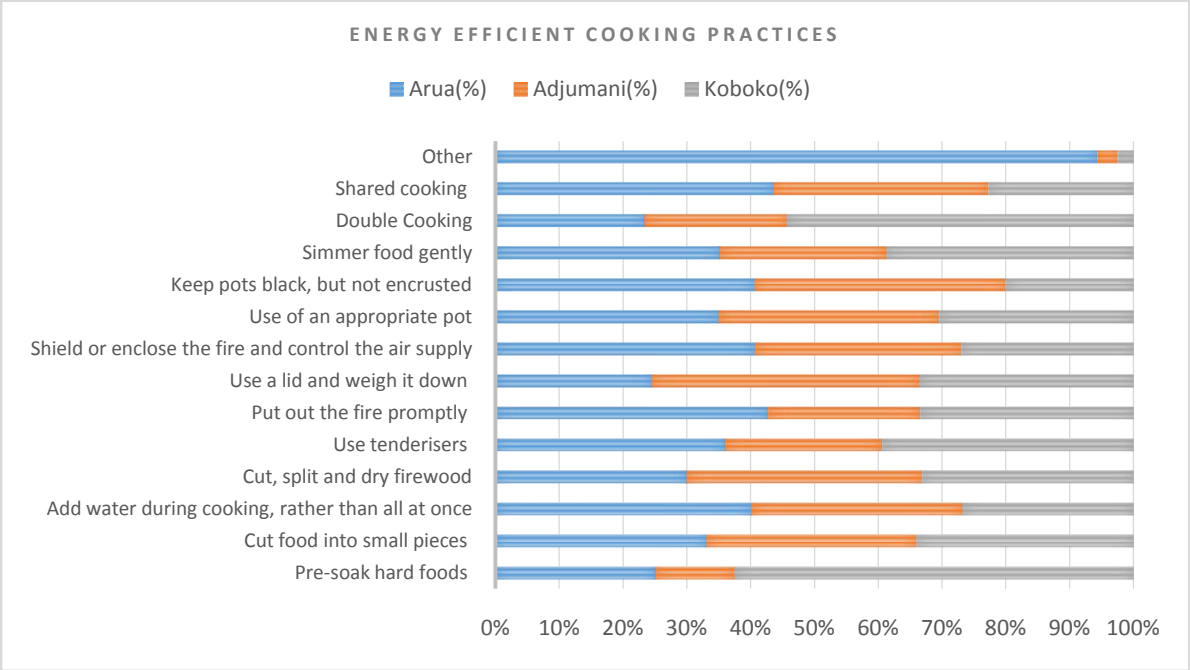
More efficient cooking stoves such as those previously investigated should not be promoted in isolation, but always alongside improved cooking practices. Use of better stoves without employing improved practices at the same time loses the full benefits of energy-saving that might be achieved[5].

In this regard the assessment also set out to investigate use of fuel-saving practices that are culturally appropriate to households in West Nile. According to the assessment findings, the most applied cooking

[4]*Depending on levels of experience in pottery, a group of refugee (or local) artisans mightneed as much as a year's training and experimentation in clay stove making before they can reduce drying and firing losses through cracking to acceptable levels of 10% or less.*

[5]*UNHCR Handbook on experience of energy conservation,page19*

practices include, cutting food into smallerpieces (98.2%), adding water incrementally during cooking (78.5%) and splitting and drying firewood (73.4%), as well as using tenderizers (70.6%), putting out fire promptly (69%) and Use of a tight-fitting lid, with a weight on top (62.9%).To the contraryuse of other methods like hay basket (11.2%), shared cooking (23.6%) and double cooking(26.2%) as well as simmering food gently(32.3%),keeping pot black but not encrusted(42.4%) and pre-soaking hard foods were among the least utilised energy efficient practices as can be seen in the appendices. In conclusion Arua (54%) has higher proportion of households applying all practices compared to Koboko (52.2%) and Adjumani (47.2%) as can be seen from the figure below.



Challenges and Gaps in Utilization of Energy efficient stove

In order to understand constraints households have with regards to access and utilization of energy efficient stoves. Household members were asked factors that limit their utilization of stoves and the following responses were advanced. Lack of knowledge and skillsrequired for construction of energy efficient stove was the most recorded response across the three districts, followed by lack of tools and materials required for construction of these stoves, restricting number of beneficiaries to participate in Energy efficient stove projects by IPs was also cited an hindrance to utilization of this modern .

3.4.4 Lighting Sources

Sources of lighting within households was also explored, and findings reveal that use of non-traditional lighting sources such as candles, torches, and wood fuel constitute the main lighting for households in the West Nile region as represented in the figure below. Kerosene was the second most popular source of lighting followed by Solar.

Source of Light	Arua	Adjumani	Koboko
Kerosene lamp	*16.2*	*26.2*	*12.2*
Solar	*9.8*	*3.8*	*3.9*
Others	*73.6*	*70*	*84.0*

Access to electricity(both Hydro and thermal) was not indicated by respondents interviewed during the assessment.

4. Conclusion and Recommendation

From the analysis of data it is worth noting that significant proportion of beneficiaries' household appreciate environment conservation, however, are constraint by different challenges they encounter in their daily lives. Unfavorable attitude and culture towards environment require time and continuous education and learning. It is therefore recommended that environment messages considered in all places people converge to e.g., churches, youth centres and others.

Innovative dissemination strategies of environment messages has to be considered. Incorporation of music, dance and drama in environment activities is likely to raise interest of wider audiences.

Firewood comprises the main source of cooking fuel for the vast majority (91%) of beneficiary households in West Nile. Majority of the households interviewed access this fuel free of charge. There is therefore need to strengthen environment committees, and to the extent possible, enforce by-laws or enact for areas that do not yet have. Furthermore the sense of fuel "lack" or "shortage" has to be emphasized among beneficiaries if promotion of energy efficient cooking is to gain wider acceptance.

Fuel briquette has a high potential of gaining acceptance within both refugees and national households if more targeted implementation strategy is adopted, there is need to domesticate these fuel technology by adopting use of locally available materials within households, other than expensive mercenaries, which are considered out of reach by vast majority of the respondents.

There is need to review dissemination strategy of IEC messages so that messages are able to reach all intended beneficiaries. More data collection might be required to illuminate why use of channels such as talking sign post, print media are not widely accessed by beneficiaries.

There is need to sensitize households on controlled grazing of animals within the settlement, fencing or zero grazing could be considered for households with higher risk of causing environment damage. This is in line with recommendation from most households citing uncontrolled grazing as one of the environmentally unfriendly practices to be avoided.

Communal /institutional tree planting seems to be a suitable strategy as most households have very limited land size which can accommodate few trees.

5. Appendices

Sources of Household Income

Beneficiary type	Own produce	Charcoal	Casual labour	Business	Relief items	Selling household items	Building materials	Vocational services	Others
National	*45.7%*	*9.8%*	*25.0%*	*9.8%*	*0.0%*	*0.0%*	*0.0%*	*2.2%*	*7.6%*
Refugees	*10.5%*	*1.9%*	*49.3%*	*11.8%*	*11.0%*	*5.6%*	*1.1%*	*1.6%*	*7.2%*
Total	*17.4%*	*3.4%*	*44.50%*	*11.4%*	*8.8%*	*4.5%*	*0.9%*	*1.7%*	*7.3%*

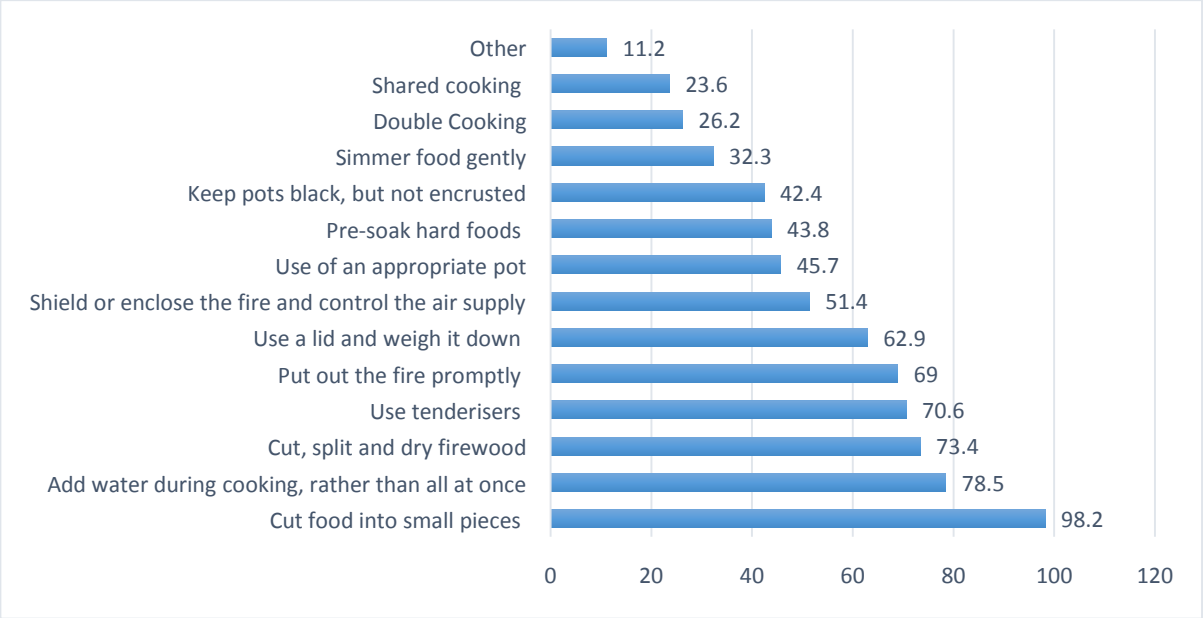
Status of farming tools owned in households

How many farming tools are owned in this household?											
District name:	*0*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Arua	*8.30%*	*21.70%*	*33.10%*	*18.50%*	*8.90%*	*1.90%*	*6.40%*	*0.60%*	*0.00%*	*0.00%*	*0.00%*
Adjumani	*7.20%*	*23.20%*	*31.20%*	*20.80%*	*8.80%*	*2.40%*	*4.00%*	*1.60%*	*0.80%*	*0.00%*	*0.00%*
Koboko	*2.80%*	*29.10%*	*33.00%*	*19.60%*	*7.30%*	*1.70%*	*4.50%*	*1.10%*	*0.00%*	*0.60%*	*0.60%*
Total	*5.90%*	*24.90%*	*32.50%*	*19.50%*	*8.20%*	*2.00%*	*5.00%*	*1.10%*	*0.20%*	*0.20%*	*0.20%*

According to project finding it can be found that most people

What is the main cooking fuel for your household?				
District	**Firewood**	**Charcoal**	**Fuel Briquette**	**Others**
Arua	*84.9%*	*15.1%*	*0.0%*	*0.0%*
Adjumani	*97.7%*	*1.5%*	*0.8%*	*0.0%*
Koboko	*95.6%*	*3.1%*	*0.0%*	*1.3%*
Respondent Type				
National	*90.60%*	*8.50%*	*0.00%*	*0.90%*
Refugee	*90.90%*	*8.60%*	*0.20%*	*0.20%*

Cooking techniques



BASELINE QUESTIONNAIRE FOR UNHCR ENVIRONMENT SUPPORT PROJECT-2015			
General information			
EN	Enumerator's Name		
G1	Report number :(To be filled by data Entrant)		
G2	District name:	1.Arua 2.Adjumani 3.Koboko	|___|
G3	Zone		
G4	Village Name		
G5	Sex of Respondent:	1.Male 2.Female	|___|
G6	How old are you?		|___|
G7	What is your status?	1= National (If no skip to L1) 2= Refugee	|___|
G8	For refugee households: Are you…	1= Old caseload(Arrived before 30th Dec,2013) 2= New caseload(Arrived after 30th Dec,2013)	|___|
Livelihoods and Food Security			
L1	How much farm land do you access for food production? (Individual and/or group)	Indicate number of acres	|___|
L2	Do you produce food in this household?	1= No 2= Yes	|___|
L3	How many farming tools are owned in the household? (E.g. hoes, pangas, axes, plow… etc.)	Indicate total number of tools	|___|
L4	In the past 12 months, to what extent has the food produced in this household been sufficient to cover the food consumption needs for all household members?	1= Not at all 2= To a limited extent 3= To a moderate extent 4= To a significant extent 5= Fully	|___|
L5	Can you please tell me how many times you consumed the following types of food in the last 30 days? A. Maize B. Simsim C. Sweet potatoes D. Cassava E. Sorghum F. Millet G. Beans H. Peas I. Irish potatoes J. Rice K. G-nuts L. Tomatoes M. Cabbage N. Onions O. Eggplant P. Okra Q. Other	Indicate number between 0 and 30	A. |__ _| B. |__ _| C. |__ _| D. |__ _| E. |__ _| F. |__ _| G. |__ _| H. |__ _| I. |__ _| J. |__ _| K. |__ _|

			L. |__ _| M. |__ _| N. |__ _| O. |__ _| P. |__ _| Q. |__ _|
L6	Have you planted any trees in the Past 12 months?	1=No (skip to L12) 2=Yes	|___|
L7	If yes, how many trees did you plant?	Indicate number	|___|
L8	How many of these trees survived?	Indicate number	|___|
L9	What type of trees did you plant? A. Fruit trees B. Wood trees C. Ornamental trees D. Others(specify)	1=No 2=Yes	A. |__ _| B. |__ _| C. |__ _| D. |__ _|
L10	What were the reasons for your choice of tree species in L9 above?		
L11	What was the source of these seed/seedlings you planted? A) Market purchase, B) NGOs C) Own seeds D) Others (specify)……	1=No 2=Yes	A. |___| B. |___| C. |___| D. |___|
L12	If no in L6 above, what were the constraints/challenges?		
L13	In the past 12 months, did you cut down trees for any reasons?	1=No (skip to L17) 2=Yes	|___|
L14	If yes, how many trees did you cut?	Indicate number	|___|
L15	What type of trees did you cut? A. Fruit trees B. Wood trees C. Ornamental trees D. Others(specify)	1=No 2=Yes	A. |___| B. |___| C. |___| D. |___|

L16	What were the reasons for cutting down these trees?	

L17	Have you bought any agricultural inputs in the recent planting season? A) Tools B) Improved seeds C) Pesticides/Fungicides D) Others E) None	1=No 2=Yes	A. |___| B. |___| C. |___| D. |___| E. |___|
L18	What are the total monthly expenditures in this household?	Indicate amount	
L19	Can you please estimate the average monthly earnings of all household members?	Indicate amount	|___|
L20	What is the main source of income for this household?	1=Selling own produce 2= Selling charcoal 3= Casual labour 4= Business 5= Selling relief items 6= Selling household items 7= Selling building materials 8= Vocational services 9=Others (Specify)……	|___|
Shelter			
S1	What building materials are on high demand in this household? A. Grass B. Poles C. Cement D. Bricks E. Others (specify)……	1=No 2=Yes	A. |__ _| B. |__ _| C. |__ _| D. |__ _| E. |__ _|
S2	What is your main source of building/ construction materials in S1 above?	1. Forest/woodlot, 2. Buy from market, 3. Distributed by agencies, 4. Others (specify)……	|___|
S3	To what extent has access to these construction materials improved recently?	1. To a significant extent 2. To a moderate extent 3. To a limited extent 4. Not at all	|___|
S4	How do you dispose your household garbage/refuse?	1. Rubbish pit 2. Burning 3. Burying	|___|

		4. Others (Specify)……	
Energy Utilisation and Conservation			
U1	What is the main cooking fuel for your household?	1. Firewood 2. Charcoal 3. Dry grass 4. Fuel Briquette 5. Others (specify)……	|___|
U2	How long does it take you to fetch this cooking fuel?	Indicate number (hours)	|___|
U3	In the past 12 months how has the use of the above fuel changed in your household?	1. Increased 2. Reduced 3. Remained the same 4. I don't know.	|___|
U4	What are reasons for the change in question above?		
U5	Have you experienced any conflicts in the process of accessing cooking fuel in the past 3 months?	1=No 2=Yes	|___|
U6	What is the main source of lighting in your household?	1. Kerosene lamp 2. Solar 3. Electricity 4. Generator 5. Others (specify)……..	|___|
U7	How much do you spend on lighting in a month?	Indicate amount In UGX=	
U8	How much do you spend on cooking fuel in a month?	Indicate amount In UGX=	
U9	Do you have any of the following cooking stoves in your household? A. Open air stove B. Mud-stove C. All-metal stove D. Fired clay stove E. Clay and metal stove F. Others (specify)…….	1=No 2=Yes	A. |___| B. |___| C. |___| D. |___| E. |___| F. |___|
U10	In the past 12 months, how has your household demand for cooking fuel changed?	1. Increased, 2. Reduced 3. Remained the same, 4. I don't know.	|___|
U11	Have you ever constructed energy efficient stove?	1=No 2=Yes	|___|
U12	Have you ever received training on construction of energy efficient stove?	1=No 2=Yes	|___|
U13	If No in U11, what has been the challenge/gap?		
U1	What environmentally unfriendly practices do you see in your community that you want to see avoided?		

4			
U15	Now am going to ask you about common process applied during cooking food, let me know if you practice any , A. Pre-soak hard foods (e.g. beans) and mill or pound grains B. Cut food into small pieces (e.g. meat or hard vegetables) C. Use tenderisers (e.g. pawpaw juice, lime juice, bicarbonate, and ash) D. Cut, split and dry firewood E. Shield or enclose the fire and control the air supply F. Share cooking with other people (large pots help) G. Use an appropriate pot (e.g. iron or clay for slow cooking, aluminium for fast) H. Use a lid and weigh it down (e.g. with a stone) I. Double Cook' with one pot on top of another J. Add water during cooking, rather than all at once K. Simmer food gently, without over-boiling L. Keep pots black, but not encrusted M. Put out the fire promptly (e.g. using sand; needs matches) N. Other(Specify……..)	1=No 2=Yes	A. |___| B. |___| C. |___| D. |___| E. |___| F. |___| G. |___| H. |___| I. |___| J. |___| K. |___| L. |___| M. |___| N. |___|
Environmental Education/Message			
E1	In the past one month, did you receive any environment conservation messages?	1=No (skip to E4) 2=Yes	|___|
E2	How did you access this messages A. Radio B. Extension worker C. Workshop D. Environment committees E. Talking sign post F. Fliers G. Others(specify)	1=No 2=Yes	A. |___| B. |___| C. |___| D. |___| E. |___| F. |___| G. |___|
E3	What was the message about?		

E4	Have you or any other member of your household attended any training on environment conservation?	1=No(Skip to E8) 2=Yes	|___|
E5	From which agency? A. Government B. NGO C. Others (specify……..)	1=No 2=Yes	A. |__ _| B. |__ _| C. |__ _|
E6	To what extent has your knowledge on environment issues improved as a result of this training?	1. Greater extent 2. Somehow improved 3. Less extent improved 4. Not Improved 5. I don't know.	|___|
E7	What have you been able to do differently after receiving these messages/trainings?		
E8	In the past 3 months have you taken part in any of the following environmental activities? A. Energy conservation training(eg.stove making etc) B. Water source cleaning C. Communal tree planting D. Environment meeting E. Vaccination of animals F. Cleaning of the environment G. Environment day celebration.	1=No 2=Yes	A. |__ _| B. |__ _| C. |__ _| D. |__ _| E. |__ _| F. |__ _| G. |__ _|

Thank you!