

COMMUNITY BASED NATURAL RESOURCES MAN-
AGEMENT USING A WATERSHED APPROACH

VILLAGE MAPS & PLANS

Preface

Note on Save the Children and the need for a strategy to move from disaster relief and emergency response towards disaster mitigation and resilience.



Save the Children

*Figure 1: Save the Children
East Africa Regional Office*

Contents

Preface 3

Introduction 7

Background of the study sites 9

Further Work 17

Introduction

This document presents results of a rapid assessment of three village lying South of Wajir in its Central district, namely Eladow, Kulaley and Leheley. A two stage survey was conducted in these villages, the results of the first, two day, stage are presented below. Participants during the survey included village elders, the government appointed chief. Other participants included members of various village committees, women and youth. Information collected per village varied based on the persons participating in the exercises. The following details were collected during the survey:

History: A brief history of the village, when it was founded and the kinds of major disasters that were faced and coping strategy adopted by the community.

Infrastructure and ownership: Major infrastructure of the settlement and its ownership and access restrictions if any.

Statistics: Demography of the village in terms of households, proportion of different age and gender groups and a breakup of the livestock populations. A ranking of wealth was also attempted.

Stakeholder analysis: Ranking of different institutional stakeholders.

Livelihood analysis: Occupational group and income sources ranked by season and importance.

Seasonality: Major resources and events such as prevalence of disease were ranked and organised according to seasons.

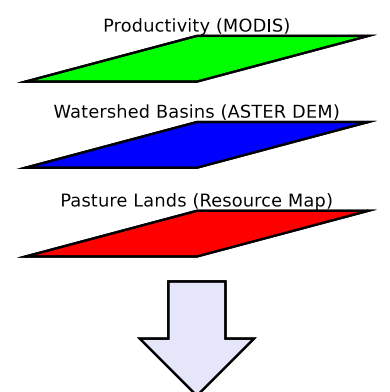
This was followed by a participatory mapping of the village resources. The resource map was then transferred to paper, major locations mapped using a GPS and the map ported to the GIS. A number of additional *layers* of information (summarised below) were added to the resource map based on secondary data and from processing satellite imageries. This information is meant to support decisions such as selection of areas for pasture land development such as described in the figure.

Resource layer: A series of high resolution images were downloaded from Google Maps¹ and mosaicked to provide a background on which various village resources could be identified. This layer served as the background for the cadastral mapping of the village.

Watersheds: Elevation maps from ASTER² were used to derive basin boundaries and streams using a threshold of 100ha as an initial overlay. This provided information on the extents and shape of watersheds that comprised catchments or drained into various important resources such as shallow well and grazing areas.



Figure 2: Rapid participatory surveys underway at Leheley village.



Prioritise Pasture Lands

Figure 3: Layers used for the analysis.

¹ <http://maps.google.com>

² <http://asterweb.jpl.nasa.gov/gdem.asp>

Productivity: Net Primary Productivity (NPP) from MODIS³ which provides an annual total of 8 day net primary productivity measures.

³ http://modis.gsfc.nasa.gov/data/dataproducts.php?MOD_NUMBER=17


Hydrology models: Modelling routines were used to generate scenarios for flooding, erosion and accretion. These routines were parametrised⁴ using available datasets on soils, geology, precipitation and vegetation cover.

⁴ Input data needed to run the models/routines.

How to use this document

The document comprises of three sections the first being the present introduction. Chapter two provides the background of each of the villages based on the analysis of the non-spatial data collected during the surveys. The third chapter deals with the spatially explicit datasets generated through participatory mapping and analysis of secondary datasets and imageries as discussed earlier.

This is a work in progress and mean to be a live document. Links provided on the right column give access to data sets, printable maps and geo-databases which can be downloaded and used as appropriate⁵. Materials provided include the following:

⁵ All original data provided here is shared under [Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported License](https://creativecommons.org/licenses/by-nc-sa/3.0/) 

1. Printable maps in PDF format.

These may be used for updating features along with participants and to facilitate discussions on possible interventions in natural resources management.

Derived and secondary data is subject to license restrictions of the source datasets and users are requested to contact the concerned author/institute directly for the same.

2. Spreadsheet data in Microsoft Excel format along with charts of the data collected.

This can be used as background information about these villages and built upon through additional surveys into a more complete baseline.

3. Charts and figures as SVG or EPS files

These may be used in reports and presentations as is or updated from the spreadsheet.

4. GIS data as:

- (a) GRASS database (attributes stored in sqlite file).
- (b) ESRI shape format for vectors.
- (c) TIFF files for rasters.
- (d) Q-GIS project files.

GIS data is provided to serve as a baseline as well as to facilitate creation of different maps as required for discussions. For example, a map may be created to focus on a specific region of the village. This can easily be achieved using the Q-GIS package. Note that the GRASS dataset can be used from within Q-GIS as well. Therefore the user need not be familiar with the analysis itself in order to use the results.

Background of the study sites

Wajir District

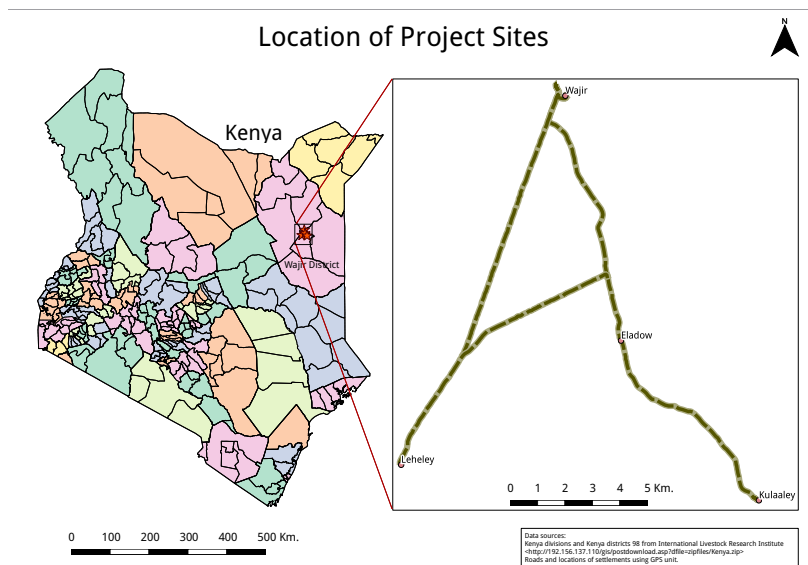


Figure 4: A location map of the sites in Wajir district. Wajir, in yellow, is the third largest district in Kenya with a high population and shared borders with both Ethiopia and Somalia. The project sites are south of Wajir town and fall under the Central division of the district. A printable version of this map can be downloaded from this link: <https://docs.google.com/open?id=0BxykXtTRO5U2RV1qTTWzLU1RczQ>.

Eladow Village⁶

Eladow is a settlement of pastoral drop-outs and active pastoralists about 10km south of Wajir town. The settlement was founded 26 years ago, in 1986, by one person “Adolah” who is still alive. Adolah dug the first shallow well which yielded water. The community was purely nomadic before this and economically better off.

The presence of a high water table together with the proximity to Wajir and the road to the city were the main reasons why this site was attractive. This allowed the pastoralists to diversify into sale of wood and as labourers in the town. The village was settled by about 30 households initially, all of which were pastoralist drop outs due to drought. Subsequently additional pastoral drop outs as well as active pastoralists have settled down in the vicinity of the village. There are four sub-clans in the region of Wajir South. All four are represented in the village and in addition members from two other clans have joined the village.

Occupations in the village have diversified from a period of well off pastoralists to less remunerative livelihoods over the years. A series of droughts successively added pastoral drop outs to the settlement. These were *Af Majir*

⁶ Data collected for this village with some charts in Microsoft Excel format can be downloaded from this link: <https://docs.google.com/open?id=0BxykXtTRO5U2cURkVmZ6VkU5WkU>

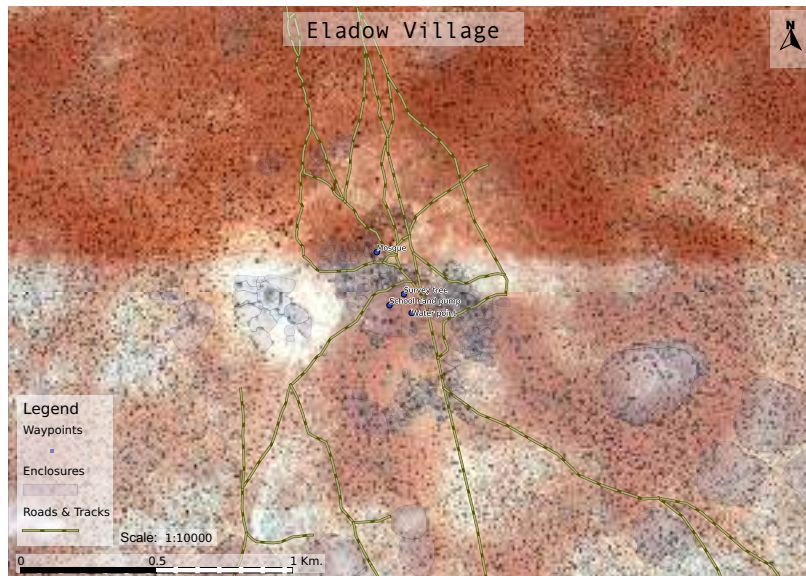


Figure 5: A mosaic of Google Map based satellite imagery over the Eladow village with some landmarks, enclosures and roads digitised. The former were collected with a handheld GPS unit. The source data is scaled to 1:5000 which conforms to a cadastral scale and allows users to mark and identify features easily visible on the satellite image.

The map can be downloaded using this link: <https://docs.google.com/open?id=0Bzqk1tTRO5U2N3p0N6FiYIdmNZA>

in 1995, *Dablak* in 2000 which added 200 households to the village, a third in 2006 and finally the one last year (2011) led to the death of children and old persons as well as decimated the livestock population. In addition to this there was the El Niño flood in 1997 which caused diseases in both children as well as livestock.

At present the village has about 430 households, with a bias towards women in the population⁷. In terms of occupations, men are largely involved in generating income. Work includes quarrying, collection and sales of fire-wood and trading in the Monday animal market. Women are engaged in trade and sale of milk, small businesses and shops selling household consumables and collection of domestic fuel-wood and water. Children also help in the collection of water and fuel-wood for the house.

Other occupations pursued include farming, there are a few traditional “Koranic” teachers and a tailor. None of the villagers are engaged in skilled labour, however unskilled labour is a livelihood strategy pursued by the very poor. The participants were unable to rank the different occupations in terms of income or number of persons engaged.

Analysis of the relationships of importance and access to relevant institutions revealed that government institutions rank high in both importance and often in accessibility. Save the children was considered the second most important and accessible amongst the four NGOs listed, the agency highest on the list is an implementing partner of Save the Children. Both the health department and the local government department were listed but given a “zero” ranking by the community.

Access to all these resources remain open to the community. Nomadic pastoralists from other communities also often use the water and grazing facilities. This is not encouraged, however, the community is unable to enforce any ownership. About 40% of the village is considered to be very poor and 15% being very rich. The former have few assets and rely on manual labour for earnings. The latter own at least 5 cows and 30 goats.

Livestock owned by the village is largely goats followed by sheep and cattle. There are very few camels in the village⁸. Facilities in the village in-

⁷ A detailed breakup was not available during the meeting and demographic data needs to be collected from the Chief.

Table 1: Breakup of livestock. Goats and sheep are taken out for grazing during the rainy season as they tend to get diseased if they are wet. Camels are few in number and tend to range freely.

Livestock	%	Grazing in months	
		Local	Migratory
Goats	70%	11/12	1/12
Sheep	15%	11/12	1/12
Cattle	10%	8/12	4/12
Camel	< 5%	All year	

Table 2: Importance and access of the community to institutional stakeholders.

Institution	Importance	Accessibility
Government agencies & ministries		
Education	6	9.5
Health	0	0
Livestock	2	2
Provisional Admin.	4	5
Local Govt. (DM)	0	0
Nongovernmental agencies		
WASDA	4	9
Save the Children	3	8
ALDEF	1	1
Islamic Relief	1	1

⁸ These figures need to be cross checked with graziers as they may be biased.

clude a school which goes up to class 8, numerous shallow wells and troughs spread in and around the settlement, a mosque and a screening shed. Save the Children supported both the school reconstruction and constructed the screening shed to check for malnourishment and diseases among children. The government maintained road is the only state “owned” property. All the other infrastructure is considered as being owned by the community, with the exception of a few private wells. Among the major natural resources are the quarry, forest, pasture lands and the various water related resources. The quality of pasture is considered to be very good by the community. There is also substantial wildlife in the area, however it is not used for any economic purpose.

Seasonality of resources and economic events showed that the *Xaaga* summer after the rains is particularly bad for diseases but is the most remunerative for agriculture, fuel-wood scales and quarrying. Both *Xaaga* and *Jiilal* are good seasons for animal traders while the latter sees the highest sales of *Mira* and migration for pastoralism. The *Gu*’ summer rains are the most productive for pasturelands, forests and water quality in the shallow wells improves.

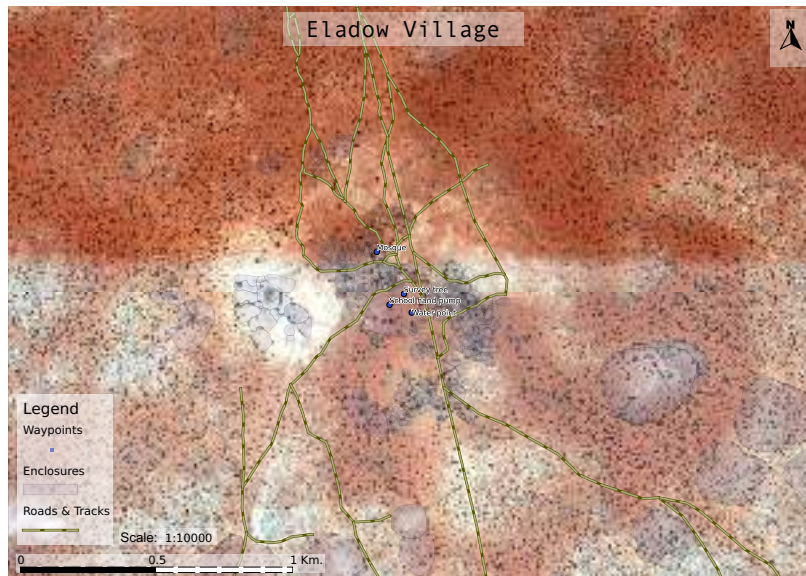
Management structures in the community are based on a traditional committee. Persons from all the six clans, including women, are present on this committee which makes decision on resource use and management. This committee, however, is distinct from the local government structure. The latter comprises an appointed chief for three nearby settlements. There is no formal ownership over resources. As a result, certain activities such as quarrying are carried out by not only the villagers but by other entrepreneurs from *Wajir*.

This also applies to grazing lands. While there is a tacit understanding that watering points and pastures near the village are largely reserved, neighbouring villages also graze their animals and use them. As was pointed out, the neighbouring villages are largely the same clan and families are often spread across adjacent villages. Other than the traditional committee, NGOs working in the area have formed various committees corresponding to their activities. Thus there is a water users committee, a school committee and a relief committee as well.

Table 3: Seasonality of resources and occupation.

Item	Jiilal (Jan- March)	Gu (April- June)	Xaaga (July- Sept)	Deyr (Oct- Dec)
Resource quality				
Pastureland quality	20%	40%	10%	30%
Shallow well quality	10%	40%	30%	20%
Forest (wood)	20%	30%	30%	20%
Disasters				
Animal disease	30%	10%	40%	20%
Child sickness	30%	10%	40%	20%
Occupation				
Pastoralism	40%	20%	20%	20%
Quarrying	20%	30%	40%	10%
Mira Sale	40%	20%	30%	10%
Firewood sales	20%	20%	40%	20%
Agriculture	20%	30%	40%	10%
Animal trading	30%	20%	30%	20%

Kulaaley Village



Data collected for this village can be downloaded using this link in Excel format: <https://docs.google.com/open?id=0BxykXtTR0SU2YjgtaGhUaC1VYTQ>

Figure 6: A mosaic of Google Map based satellite imagery of Kulaaley village with some landmarks, enclosures and roads digitised. The former were collected with a handheld GPS unit. The source data is scaled to 1:5000 which conforms to a cadastral scale and allows users to mark and identify features easily visible on the satellite image.

Founded in 1967, Kulaaley started similarly to Elado - by the discovery of water by two persons who dug a shallow well. The settlement was started with 16 households and was the only source of water in the region, other than the town of Wajir. This was a major attraction to the pastoralists operating nearby. Unlike Eladow, however, there are no pastoral drop-outs in Kulaaley. The village is largely comprised of the dominant clan of the region. Over the years, members of neighbouring clans have also joined the settlement.

Since its foundation, the residents of the region have faced a series of major disasters. These include droughts, floods, conflicts and disease. The major droughts were *Daun* in 1972 which claimed both human and livestock lives. *Maqarjit* in 1980 caused extensive loss of livestock. In 1984 *Afarmajir* drought resulted in drying up of all the shallow wells at Kulaaley and settlement had to be abandoned and moved to Leheley. This drought wiped out livestock and was followed by the El Niño floods in 1997-98 which caused widespread diseases in children and livestock. Many lives were lost. Among livestock, camels in particular were affected. However the floods also recharged the wells and the villagers returned to Kulaaley. Other disasters included a drought in 2005 and the most recent one from 2009 to 2011 named *Simana* which again caused water sources to dry out and widespread loss of livestock.. The 2011 rains broke the drought and recharged the aquifer. During this drought water was fetched from nearby villages.

One of the important coping strategies followed by pastoralists during these periods of stress was to migrated to other regions, as far as the coastal town of Kismayo in Somalia, about 360km away as the crow flies. These long distance migrations allowed them to maintain a viable livestock number which would then grow back during periods of normalcy. The proportion of livestock and the number of months when the animals were grazed locally as opposed to pasture lands further from the village showed that other than camels, most livestock was kept close to the village for the bulk of the year.

Table 4: Approximate demographic composition of Kulaaley. The total number of houses in the village at the time of the survey was estimated at 430.

Breakup	Households
Men	16%
Women	24%
Children (5-15)	29%
Infants (<5)	18%
Elderly (>60)	12%

Table 5: Proportion of livestock at Kulaaley and months spent in grazing at local and non-local pastures.

Livestock	%	Grazing months	
		Local	Non-local
Sheep	20%	9	3
Goats	30%	9	3
Camels	5%	0	12
Cattle	15%	9	3
Donkeys	20%	12	0
Chicken	10%	12	0

It remains to be found out whether this practice is an indication of sendent- arisation of the community and what has triggered this change in lifestyle.

The village is predominantly pastoralist and the community takes pride in their traditional occupation.

Most other occupations at the village are also directly dependent on natural resource extraction and exploitation. The quality and abundance of these resources varies with seasons. Pastoralism remains the mainstay of the economy and the major occupation across income groups. Other activities such as fuel-wood sales are largely coping strategies to help rebuild livestock numbers while quarrying and sand collection are usually not a commercial activity but to meet domestic requirements. Among the business not based on natural resources are sales of Quatt or Mira and small shops and restaurants which were established with help from various international funding agencies.

The wealth ranking exercise placed 80% of the village in the very poor and the remaining 20% in the reasonably well off category, respondents insisted that there were no rich persons in the village. The bulk of the infrastructure in the villages is community or government owned. This includes schools, health facilities, ponds and dams and markets. Wells, however, are entirely privately owned although access to them remains open to the community as a whole.

Seasonality plays an important role in the availability of resources and incidence of disease and stress in the households. However, in terms of occupations, the respondents felt that only pastoralism and agriculture were important from a seasonal perspective. The results are summarised in table .

Institutional analysis showed that government agencies were considered relatively more important than nongovernmental agencies, however the highest rank awarded was four out of five. Among the NGOs WASDA, a local agency supported by Save the Children ranked the highest with Save the Children itself sharing the same position as Mercy Corps (table 10).

Table 6: Percentage of incomes and persons engaged (employment) from major occupations at Kulaaley.

Occupation	Income	Employment
Pastoralism	60%	70%
Quarrying	20%	10%
Mira Sales	30%	10%
Agriculture	20%	20%
Firewood Sales	40%	50%
Livestock Brokering	10%	10%
Shop keeping and hotels	20%	30%

Table 7: Resources of Kulaaley village ranked by importance and number of users.

Resource	Importance	Users
Pasturelands	15%	30%
Shallow wells	30%	35%
Quarry	0%	0%
Trees/forest	15%	5%
Farming	15%	10%
Dams	25%	15%
Wild animals	0%	0%
Sand	0%	5%

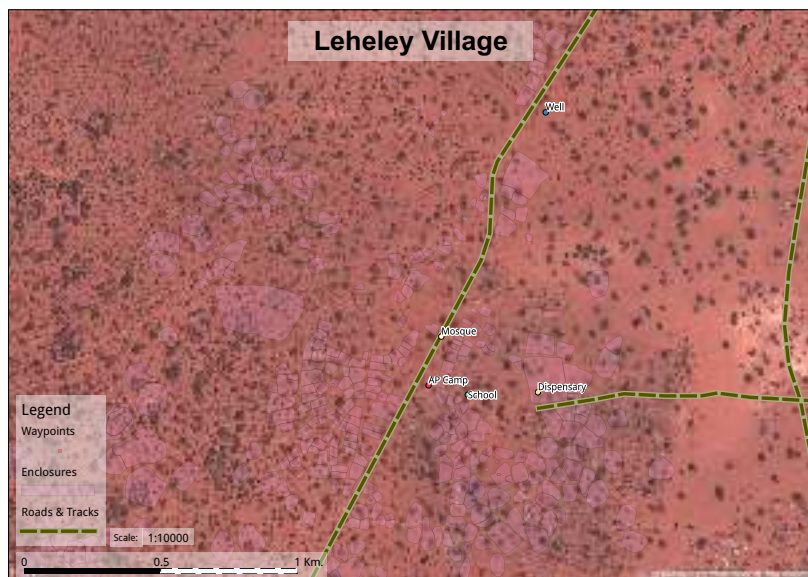
Table 8: Ownership and maintenance of infrastructure.

Infrastructure	Private	Community	Govt
School	0%	60%	40%
Open wells	100%	0%	0%
Ponds and Dams (Arahabis)	0%	100%	0%
Health facilities	0%	70%	30%
Mosque	0%	100%	0%
Market	0%	80%	20%
Road	0%	10%	90%

Table 9: Seasonality of resources and occupation.

Item	Jiilaal (Jan-March)	Gu (April-June)	Xaaga (July-Sept)	Deyr (Oct-Dec)
Resource quality				
Pasturelands	10%	50%	20%	40%
Water resources	10%	40%	20%	30%
Forest resources	50%	20%	10%	20%
Livelihood				
Migratory grazing	10%	40%	10%	40%
Child diseases	10%	50%	10%	30%
Animal diseases	10%	20%	50%	20%
Malnutrition	20%	30%	40%	10%
Aid/Relief	40%	20%	10%	30%
Disaster				
Fire	60%	0%	40%	0%
Drought	70%	0%	30%	0%
Occupation				
Pastoralism	60%	10%	20%	10%
Agriculture	0%	50%	20%	30%

Lehele Village



Lehele was founded in 1970 as a result of the *Dahun* drought which had disastrous effects on human and livestock. As in the other settlements, it was the supply of water from shallow wells which brought the initial 40 households to the village. These households quickly extended the number of wells and the village grew to its present size of over 1900 families. All the initial settlers were pastoralists and even though they came to the village empty handed, they made a livelihood through selling fire wood to Wajir and used the incomes to rebuild their animal stocks. Coping strategies have been essentially the same through the years. Each time there is a loss of livestock, it is rebuilt by other sources of income such as fuel-wood sales to Wajir. As shown in table 11.

, there is some diversification in the occupations pursued in the village. The group however felt that over the years, the village had learnt to cope better with droughts as child mortality had reduced. The major shocks that the village has endured over the years include droughts which have repeated every five years or more frequently. Some of the major ones were *Rahole* in 1980. This resulted in the drying up of the shallow wells and the entire village had to relocate 5km towards Wajir to find water. In 1984 a major disease outbreak called “Furaq” rapidly spread through the cattle population causing extensive losses. The *Kamadi* drought of 1992 was the worst in terms of child mortality and was followed by *Afarmajir* in 1996, a milder drought *Wardig* in 2001, named after a dam that was built near the Somali border towards which all the families migrated. In 2005 the *Aftag* drought led to the cattle migrating to Somalia and finally the 2009-2010 *Simana* drought was the latest where losses were limited to livestock.

Other disasters faced since the village was settled include the 1992-1993 inter clan conflict which engulfed the entire region and the El Niño floods of 1997-1998 which wiped out shoats and caused major disease outbreaks in children as well. Other major disease outbreaks amongst livestock in-

Data collected for this village can be downloaded using this link in Excel format: <https://docs.google.com/open?id=0BxykXtTR0SU2TWdVaFhvdndGNEk>

Figure 7: A mosaic of Google Map based satellite imagery over the Leheley village with some landmarks, enclosures and roads digitised. The former were collected with a handheld GPS unit. The source data is scaled to 1:5000 which conforms to a cadastral scale and allows users to mark and identify features easily visible on the satellite image.

The map can be downloaded using this link: <https://docs.google.com/open?id=0BxykXtTR0SU2Hnppb0pfTF9kZEE>

Table 11: Occupations and employment they offer in Leheley village.

Occupation	Income & Employment
Pastoralism	30%
Agriculture	20%
Milk/meat trading	20%
Miraa selling	10%
Firewood	20%
Animal brokering	10%
Shop keeping	10%

clude the *Furuk* in 1984, *Gesdor* a persistent disease of cattle which has been brought under control by drugs and the 2007 *Fighiq* and 2012 *Dukan* camel disease, the latter presently in the area, which has drastically brought down the camel population.

Leheley has a comparatively larger infrastructure base than the other two villages surveyed. The bulk of these assets are government or community owned with the exception of water points which are largely private (table 12).

However, as in the other villages, access to water is usually open to the community. In terms of natural resources, water related resources are ranked the highest. Agriculture, is ranked behind water and pasturelands as an important resource. Access to all resources, other than agriculture, is open to the community. Details of relative importance of resources or resource related occupations and the proportion of users is shown in table 13.

The demography of Lehele is bias towards women which comprise 60% of the population. Each house has approximately 2-3 children (between 5 and 15) and a similar number of infants (<5 years). The percentage of adult women and men was put at 30% and 20%, and elderly (both men and women above 60 yrs) at 30%. Most of the village was categorised as poor (70%) or of medium wealth (25%) with the remaining 5% categorised as rich. The table below provides the yardstick (livestock ownership) used to define these wealth categories.

	V Poor	Medium	V Rich
% Households	0.7	0.25	0.05
Assets	<20 shoats	30-40 shoats 5-60 cows	>100 shoats, >60 cows
Occupation	Labour based: Quarry, digging wells, firewood collection	Pastoralism	Pastoralism

The mainstay of Leheley’s economy is livestock of which the bulk is sheep and goats. Grazing for the bulk of the year is migratory except for donkeys and chicken which are kept in the settlement. Leheley has the largest camel population of the three villages surveyed, all of which are kept in pasture lands throughout the year. A summary of the livestock and grazing patterns is provided in table .

Various ranking exercises were conducted to determine the importance of local and external institutions to the village. The exercise on local institutional structures was an addition to the survey and will need to be repeated in other villages during subsequent villages. All the ranking was done on a range of 1 to 5 with 5 indicating the highest rank and 1 the lowest. On occasion, the respondents assigned a 0 rank to indicate that a particular entity was totally absent.

Importance and access to community based organisations (CBO) was subdivided into the type of organisation which facilitated the formation of the CBO, i.e. government, NGO or the community themselves (local). In Leheley the only NGO formed committee was the rights committee which was considered defunct and wasn’t given a rank. Details of the other CBOs are provided in table 16.

Table 12: Infrastructure and facilities at Leheley and their ownership.

Facilities	Private	Community	Govt
School	0	7	3
Hospital	0	2	8
Water Points	8	2	0
Roads	0	2	8
Market	0	9	1

Table 13: Relative importance of major resources and the number of users in Leheley.

Resource/Occupation	Importance	Users
Pasture lands	25%	30%
Shallow wells	30%	25%
Forests/trees	15%	20%
Farming	20%	5%
Quarrying	5%	20%
Wildlife	5%	0%

Table 14: Wealth categories and their measurement and respective primary occupations.

Table 15: Livestock proportions and grazing patterns in Leheley village.

Livestock	%	Grazing	
		Local	Migratory
Sheep	30%	4	8
Goats	25%	4	8
Cattle	20%	2	10
Camels	15%	0	12
Donkeys	5%	12	0
Chicken	5%	12	0

Table 16: Ranking of community based organisations at Leheley by importance and accessibility.

CBO Name	Importance	Access
CBO - Govt formed		
School mgmt committee	5	3
Health mgmt committee	2	2
Village health committee	3	5
Locally formed		
Local peace committee	5	4
Relief committee	3	2
Women groups	1	3
Youth groups	1	1

Similarly a ranking of governmental and nongovernmental institutions was done with respect to importance to the community and how easily these institutions could be accessed. Government institutions and NGOs tended to be ranked similarly in Leheley village with five institutions, three and two respectively, being ranked 3 out of five. In terms of accessibility, government institutions tended to be ranked higher as shown in table 17.

Finally, an analysis of seasonality of resources, natural hazards and occupations was done. Much of the natural resource activity was centred around the long summer rainy season and its subsequent months. The winter dry season had the lowest importance with respect to natural resources, other than forest resources and fire wood sales. It also had the highest incidence of fire. Malnutrition and diseases in children also tended to be highest during the winter dry season and summer rains. Details are provided in table 18.

Table 17: Importance and accessibility of institutions to the community at Leheley.

Govt Institutions	Importance	Access
Min of Education	3	4
Min of Health	3	3
Min of agriculture	1	0
min of internal security	3	3
NGOs		
CESVI	1	1
Mercy Corps	1	1
Save the Children	3	2
WASDA	3	4
ALDEF	2	2

Table 18: Seasonality in natural resource availability, occupation and hazards at Leheley village.

	Jiilaal	Gu'	Xaaga	Deyr
Resources				
Pasturelands	10%	40%	10%	40%
Water	10%	20%	50%	20%
Wood/Forest	40%	10%	40%	10%
Hazards				
Disease in Children	40%	40%	10%	10%
Disease in Livestock	20%	10%	60%	10%
Malnutrition	40%	30%	20%	10%
Fire	60%	0%	40%	0%
Drought	30%	20%	40%	10%
Occupation				
Pastoralism	30%	10%	40%	20%
Agriculture	10%	30%	20%	40%
Firewood sales	40%	10%	40%	10%
Quarrying	30%	30%	30%	30%
Milk Sales	40%	40%	10%	40%

Further Work

Data presented above (not including the maps) was collected over a period of six days with two days per village. It is evident that the amount of information collected per village was different. Eladow, the first village to be visited, had the least information. This was partly because the methods used to collect data were new to the team, but more so because the human resource available for the first field visit were fewer⁹ This changed with subsequent visits where the data entry was further streamlined. For instance, all schedules were transferred to flip charts and filled in by the respondents directly as far as possible. More importantly, the additional Somali speaking members of the SC team took on the facilitation of data collection directly allowing for the group to be broken up into two sets of respondents and hence a wider range of questions to be asked.

There are however some important qualifications to be made on the data collected.

1. No attempt was made to break up the respondents into specific groups. Hence there was no attempt to reduce dominance and bias of respondents due to clan, gender or age. Furthermore, while efforts were made to invite elders and chiefs to the meetings, this did not ensure representation of all the interest groups and their viewpoints.
2. Some of the questions, particularly those pertaining to quantification of demographic or livestock composition, were not easily answered by the respondents. This can be explained by the very nature of these settlements, significant components of which remain semi-nomadic.

Gaps in data

There are a number of questions pertaining to resource use and management which were not covered in detail due to paucity of time.

It would be interesting to find out how access to water sources is managed during times of scarcity. Discussions with others working in the WASH sector indicate that as the severity of the crisis increases access restrictions begin to get enforced. These range from limiting livestock of others to restricting access to only community, kin or family members and their livestock.

Methods protocol

Based on learning from the field visits, a simple methods protocol has been devised which is presented below.

⁹ Only one person spoke Somali and therefore each question needed to be asked first in English, then translated to Somali and back into English.

The reader should note that participatory methods require a fair amount of flexibility to adapt to local conditions and unforeseen circumstances. For instance, if there are a large number of literate and educated respondents, data can be recorded on the sheets using text and numbers. In the case of illiterate respondents, one needs to resort to taking notes and representing numbers with

Apparatus

- Data entry sheets (flip charts) with tables drawn on them as provided in the earlier sections¹⁰.
- Dot shaped stickers to attach to the charts, each dot representing a proportion or number.
- Marker pens.
- Blank flip chart sheets.
- Powders of various colours for drawing resource maps on the ground.
- Note books and pens for notes.
- Camera.
- GPS unit for recording way points of landmarks and tracks of major roads.

¹⁰ This link provides pre-formatted data sheets in PDF format. <https://docs.google.com/open?id=0BxykXtTROSU2Um1MSGVNY31mODQ>. Note that these datasheets are likely to change in the course of time.