

**Intergovernmental Authority on Development (IGAD) Biodiversity Management  
Programme (BMP) In the Horn of Africa**

**Assessment of Honey value chain development, Rain water harvesting and communities  
awareness on natural resource management in Laga Badana Bush Bushel Intervention  
sites in Bur Gabo Somalia**



**Baseline Assessment Report**

**Prepared by IIMAAN RELIEF AND DEVELOPMENT ORGANIZATION (IRDO, 2017)**



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## **List of Abbreviations**

AMISOM	African Union Mission in Somalia
BMP	Biodiversity Management Programme
CSOs	Civil Society Organizations
EU	European Union
GM	Grams
HVC	Honey Value Chain
IRDO	Iimaan Relief and Development Organization
KIIs	Key Informant Interviews
KM	Kilometers
NGOs	Non-Governmental Organizations
NRM	Natural Resource Management
RWH	Rain Water Harvesting
SDGs	Sustainable Development Goals
UN	United Nations

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Lastly, we thank all the enumerators who supported the team of consultants on the field by guiding them and ensuring that the community in the area got involved in the entire process of the study.

## **Executive Summary**

This baseline assessment study was funded by European Union through IGAD BMP implemented by World Agroforestry Centre (ICRAF) in the Tana-Kipini-Laga Badana Bush Bushle Land and Seascape (North East Kenya and South East Somalia). The assessment was conducted by Imaan Relief and Development Organization with facilitation and technical support from ICRAF.

The overall goal of the study was to document baseline information on current status and assesses feasibility of implementing; [1] Community mobilization and awareness creation on Natural Resource Management (NRM), [2] Rainwater harvesting and water catchment improvement and [3] Honey value chain development in Burgabo, southern Somalia region. Specifically, the study aimed to establish the level of community knowledge and skills in natural resource management and the training needs gaps, access to water resources and identify alternative rain and water harvesting technologies as well as honey value chain analysis. The report focuses on the status of natural resources management and socio-economic-cultural wellbeing of local communities, soil and water conservation, honey sub-sector and improvement of honey value chain process. The three activities are envisaged to contribute to the IGAD BMP project goal.

The assessment was based on primary and secondary data. Secondary data was collected from review of existing literature. Qualitative and quantitative primary data was collected through participatory approaches including interviews using semi-structured questionnaires, key informants, focus group discussions and direct observation through transect across the study sites. Respondents were purposively selected representing local communities (women, men and youth), local authorities and key actors in honey, water and natural resource sub-sectors. A total of 31 respondents were interviewed. This report documents key results, conclusion and recommendation of the baseline assessment for the three activities planned for implementation by ICRAF-IGAD BMP project in Burgabo.

## **Key findings**

### **The Honey Value Chain**

Despite the fact that honey inputs sub-sector is under-developed with non - existence of any companies supplying modern equipment (hives, harvesting kits, processing machines and packaging materials), there is high potential for modern bee keeping in Burgabo district. The value chain is feasible because of local community's culture and indigenous knowledge of honey hunting and gathering. Production of honey is mainly through traditional wild honey harvesting. The key actors in honey sub-sector are hunters and gatherers, processors, traders (retailers and wholesalers), exporters and consumers. The hunting and gathering of wild honey is done in the forest areas, mangroves, and caves of big stones, large trees and open holes. Sustainability of honey value chain is compromised by human associated activities such as; cutting of trees to produce charcoal and burning of the forest which wipes destroy honey bee's habitats.

Major honey producing areas are Holawajer stream, Bushbushle, Sadexlagood, Illiga, Kabashodley cadeyley and Manarani. Study results revealed lack of clear policy guidelines governing the honey subsector, political instability, and climate change effects to be the key threats to the development of the honey value chain. To respond to the existing gaps for honey value chain development, the consultants recommend for short term interventions including; mobilize community members and create more awareness on effective ways of honey production and bee keeping, enhance environmental protection and management in the area, Strengthening the existing linkages between producers, processors and traders, community capacity building on modern bee keeping technologies to improve honey production, business skills, group dynamics, artisans skill development to construct the bee hives, linking actors to appropriate providers of finance in order to support bee keeping and honey production, strengthening/ formation of groups for ease of access to assets and exterior services. In the medium term attention on improvement of honey processing, packaging and development of market linkages both local and export is recommended. In long term, policy environment is necessary to guide environment conservation which includes reforestation, conserving water resources and minimizing pollution.



Some of the key stakeholders recommended to support HVC development include National Environment Management Authority, National Forestry Authority among other government departments as well as development agencies e.g. United Nations Environmental Program (UNEP) and UNDP through a public private partnership/arrangement together with participation of communities.

### **Natural Resource Management**

Burgabo has both biotic and a biotic natural resources which include the Indian Ocean, Hola Stream, farming land, unmined volcanic stones, firewood, salt, wildlife, and natural port. The current potential resources noted from the sites includes honey, small scale rain fed farming which is based on one season per year, livestock production mainly goats, sheep, donkeys and local fishing. Common sea fish species include shilips sea fish turtle, sea horses, sea trees (khandal), sea pearl, cat's eye, quarts and sea opal. The main sources of livelihood for the community include rain fed subsistence farming and livestock production. Other sources of livelihoods noted include firewood, as well as local port transport services operating between Burgabo and Kismayo.

The site has no organization or government agencies involved in natural resource management though the community has interest of being engaged in natural resource management through a well-established environmental committee. The general public is involved in the management of natural resources as a collective responsibility to awareness creation on the effects of cutting trees at the community level. Awareness creation is done at low community level, which still requires capacity building and support from the government systems.

Burgabo faces a number of challenges which include land degradation caused by monsoon wind from the sea which blow off white sand to the black soil affecting agricultural activities. This leads to opening up of new land for farming every season. Timber is transported and sold in Kismayo for building and boat making. There are no technologies on soil and water conservation. However, the respondent felt that planting of trees can facilitate restoration of the already degraded sites.

There are no trained extension staff who can continuously build the capacity of community members on soil and water conservation techniques, though the local community have acquired some skills on water conservation through use of water catchment introduced by IRDO health promoters. Findings further revealed community's inadequate knowledge in environmental and lack of organized marketing structures for farm produce as other challenges to biodiversity conservation

There are no formal policies guiding access, use and management of natural resources. However, different groups like AMISON have assisted in conserving natural resources by stopping community members from burning charcoal burning. The community is not aware of any government protected areas or developed systems in form of national park or reserve or conservancy. Based on findings, the consultant recommends the following;

1. Strengthen the capacity of community members on effective utilization and management of natural resources. Establish structures and systems to promote sustainable conservation and utilization of the locally available natural resources i.e. water catchment areas.
2. Develop extension service provision for training community members on natural resource management such as soil and water conservation.
3. Strengthen partnership between local authority with other stakeholders in Jubbaland state to map out, gazette and create awareness amongst the community on all protected natural resources areas to manage natural resources utilization conflicts.
4. Enhance participatory development and enforcement of natural resource management policies.

### **Water and Rain Water Harvesting**

The baseline findings indicate generally lack of access to safe water. Only 45% of Somalis have access to improved water sources and this increases the risk of outbreaks of waterborne diseases according to the multispectral assessment December, 2016. Cholera is endemic and claims hundreds of lives annually, particularly in densely populated areas.

Water quality monitoring, house water treatment and safe storage are critical interventions to reduce the risk of contamination of water supplies. From the survey finding, the main reasons for water shortage in Somalia are the recurrent droughts and floods, the strain on the few available water supply points, and the absence of state services that would otherwise create and maintain water supplies.

The baseline survey revealed that local communities also find their access to water prevented by insecurity arising from the ongoing Alshabaab conflict. The baseline established that repairing/rehabilitating existing water sources, such as boreholes, hand-dug wells and pumps, and drinking-troughs for animals are very key to enhancing water supply and accessibility for the communities. Although many organizations are involved in water-related activities, the capacity of the community and government is still inadequate to take advantage of the potential that rainwater harvesting offers in mitigating the effects of water scarcity in most parts of Somalia. Rainwater harvesting is not adequately mainstreamed in policy documents.

The majority of the households use up to 140 litres per day which is not enough for both domestic and animal consumption. There are 7 Barked<sup>1</sup> where only 2 are functional and provide water for the community. This were constructed by solidarity a local organization and supported by the community members. The two barked managed by water committee have capacity of storing up to 30M<sup>3</sup> to 35M<sup>3</sup> whereas the only existing natural water pond is nonfunctional and requires rehabilitation. The main three sources of water include 1-Bush-bushle shallow well which is located far distance from Burgabo around 50 km, 2- Odow shallow wells which are located 45km between Ras kamboni and Burgabo and Holawajer stream 60 km from the settlements. Access to water from these sources is difficult due to distance and inaccessible roads.

Rain water harvesting presents opportunities which communities can take advantage to enhance their livelihoods. The runoff water can be used to boost human health (since rainwater from roof and rock catchment is fairly clean and safe); improving agricultural productivity and thus food security; involving local communities in planning and implementing RWH projects and creating on-farm employment.

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<sup>1</sup> Water catchment source

The cost of excavating a shallow well was estimated at \$2,500 and borehole \$120,000 whereas the Berkads depending on its capacity costing \$50,000 to \$70,000. Natural water pond rehabilitation was estimated at cost of \$30,000 to \$50,000. In order to improve the availability and access to sustainable safe water, the following is recommended;

- Constructing reservoirs to store flood water, for irrigation, livestock and domestic use during the dry period, establishing new Berkads, bore holes, and rehabilitating natural water catchments installing water tanks to collect rain water
- Due to frequent drought, there is need to develop water distribution plan to reduce the cost of water and purify salty water to improve the community access to safe water
- Build the capacities of local authorities, communities and water committees for better management of supplies and maintenance of water catchment sources.

## **GENERAL INTRODUCTION**

Somalia is one of the countries in the horn of East Africa bordered by the Gulf of Aden and Djibouti to the north; the Indian Ocean to the east and south; Ethiopia to the west and Kenya to the southwest. Somalia covers an approximate area of land of 638,000 km<sup>2</sup> (Gedow et al. 2017). It lies in the North Eastern corner of the horn of Africa between latitude 12° N in the north and 2°S at its southernmost point at the Kenya border. Topographically, the country is fairly uniform with exception of the northern range mountains and the associated escarpments facing the Gulf of Aden.

Climatologically, the country is dominated by the monsoon; rainfall is the most important meteorological element affecting life in Somalia (Wikipedia, 2017). In the southern regions, the precipitation reaches 600mm and 400mm in the Northwest, while the intervening area receives between 100-200mm annually (Ibrahim et al. 2016). The livelihood of the Somali people is closely intertwined and dependent on access to and use of the Somalia's terrestrial and marine ecosystem. Livestock, agriculture and fisheries are the dominant agricultural production systems on which the

When the Central Government of Somalia collapsed in 1991 the country plunged into bloody civil war for more than two decades (Ibrahim et al 2016). In the absence of a central government, people reverted to their traditional customary and religious law for governing and tackling the clan conflict. One of the autonomous regions of Federal State of Somalia is Jubaland, where the Laga Badana National Park is situated. The park is located in the southern tip of the Somali border to Kenya and hosts lowland forest and bush lands with a rich biodiversity.

South Somalia is faced with challenges such as solid waste disposal, water shortage, limited livelihood options, natural resource management challenges and high poverty level.

## **1.0: About the BMP project**

ICRAF is implementing BMP project in the cross-border area of North Eastern Kenya and Southern Somalia in an area extending from the Tana River delta in Kenya to the Laga Badana Bush Bushle National Reserve in Somalia. Imaan Relief and Development Organization (IRDO) partners with ICRAF and was commissioned to undertake baseline survey to establish background information related to the planned three pilot activities; a) Community awareness on Natural Resource Management (NRM), b) Rainwater harvesting and water catchment improvement, c) Honey value chain development.

### **1.1: Justification of the Activities**

Mobilization of community for awareness creation on Natural Resource Management (NRM) has important role contributing to *Biodiversity conservation*. This can be achieved through training *on biodiversity conservation* focusing on generated evidence based policies that addresses ecosystem management and biodiversity conservation at national and regional level. Initiation of pilot Rainwater Harvesting (RWH) and water catchment improvement interventions contributes to enhance local community access to clean water for domestic and livestock use. Support to development of value chains based on biodiversity related ecosystem goods and services (including Honey value chain) contribute to livelihoods and environmental conservation linkage. The activity will build capacity of key actors and supporters to improve honey value chain increasing its benefits along the value chain through imparted skills and knowledge.

## **2.0: Methodology**

Burgabo is a division under Badhadhe district in lower Juba which is located between Kuda and Ras kamboni in the south of Somalia. To the south and east side of Burgabo, is joined by Holawajer stream and sea canal which exist as a natural port. The town has flat area with white sand from the coastal side and south east with mix of black and red soil along the stream.

The estimated population in the area and its surroundings is around 3,000 families which translate to 15,000 people *calculated at 5 people per family*. The main occupants are the Somalis who speak Somali dialect and Bajuni who speak both Somali and Swahili. According to the locals, the main sub clans of the Somali community who identify themselves as the original occupants of the area are Ogaden and the Gaal jeel.

Local fishing is the main source of livelihood for the community in Burgabo. The fishermen use local made boats with nets and collect fresh fish from the sea. Though, with limited market the fish is transported to Mombasa markets in Kenya. The income from the fish business is used to cater for the basic needs of the family. Average 30% of both the Somali and Bajuni community practice fishing while 15% of the communities practice small scale seasonal subsistence farming. Crops grown include sorghum, beans and maize between May and August. About 25% of the community is pastoralist and rear goats and cattle. The other 30% are city dwellers involved in casual employments such as transportation for their livelihood. Burgabo has poor infrastructure with no formal education (schools) and hospitals. The majority of the population is poor and illiteracy level is high according to the 2016 Somalia humanitarian needs overview. The limited outreach of Ministry of Education (MoE) to support education, inadequate funding and the lack of education opportunities are some of the underlying drivers of vulnerability to children. This has left around 1.7 million children in crisis in need of education. Southern and central Somalia has had no functioning education information management system in place since its collapse, thereby making it difficult to correctly disaggregate the numbers of children in need of education by gender.

## **2.1. The Respondents**

### **2.1.1. Local Authorities**

Meeting with the local authority was very important in the baseline because of community entry. Consultant identified key respondents from the local authority to participate in the survey. The officers were drawn from the senior police officers, members of judiciary and committee members for Security Council paved way for planning and identification of the community enumerators who supported IRDO field officers in the field visits as well as

identification of women, elders and youth groups who were interviewed. The local authority and the deputy district officer representing the local administration also formed basis for our key informant interviews. The security team have been empowered by Juba state administration to administer functions in the locality on behalf of the Jubba land administration. The group is involved in maintaining law and order and carrying out general administration.

#### **2.1.2. Elders**

The elders were interviewed as key informants because of their long understanding of the area and command of respect they have in the community. Their role in the community is to assist the local authority in mediating and resolving minor offences and disputes which are clan based for reconciliations. They were very informative in regards to the background information of the region, socioeconomic status as well as the estimated population in the area. Their involvement in the interviews gave confidence to the community members to participate in the focused group discussions that we conducted.

#### **2.1.3. Youth and Women**

Youth and women were interviewed separately in focused group discussion responding to all the questions in the questionnaires. The separation of the groups was very important to allow in-depth discussions and clarifications.

#### **2.1.4. Enumerators**

This group provided technical support to the field officers and they were drawn from the local community (BURGABO) as endorsed by the local authority and the elders. Their participation supported translation of the questions into local language and effective communication between the field officers and the respondents. They also formed part of key informers for the baseline survey.

### **2.2. Data Collection**



The baseline survey was conducted using participatory methodologies, where all the key stakeholders were consulted in the project sites. The consultants employed a combination of primary and secondary data collection and interpretation methodologies; involving qualitative approaches during primary data collection using developed questionnaires. The qualitative data was collected from discussions with the key informant drawn from the elders and the local authority. Secondary data collection involved desk review.

### **2.3. Field Visits**

Field visits by IRDO team started after consultation with the local authorities that included police, judiciary and Security Council committee members. The meeting paved way for the approval of the team to carry out the baseline survey in the region. Mobilization of different groups commenced with selection of target participants drawn from elders, youth and women. During mobilization consultations and discussions over dates for the interview were agreed and set by the enumerators or evaluators together with the groups.

### **2.4. Limitations of this Study**

- Insecurity and poor infrastructure
- High level of illiteracy
- Limited documented data to review for secondary data collection. This was limited to the verbal information given by the local authorities and elders in the area.

### **3.0. Baseline Findings**

#### **3.1. Honey Value Chain Assessment**

Study revealed that the wild honey producing areas in Burgabo covered the following villages; Holawajer stream, Bushbushle, Sadexlagood, Illiga, Kabashodley cadeyley and Manarani.

The major sources of honey collection and harvesting areas in Burgabo is usually associated with wild honey harvesting collected from the larger Burgabo forest, mangrove, caves of big stones and open holes. The respondents noted that wild honey is available all the seasons but in bulk or surplus after summer and autumn periods. Wild honey collectors harvest honey twice year and normally after long rains in the month of May and June of every year. The honey is harvested in bulk during the month of July and August.

Mostly honey hunters go as a team to the forest and take from their homes water, food e.t.c. to the forest to sustain them for some weeks. They do this by locating safe place in the forest away from wild animals. Honey hunters use fire, smoking to chase or frighten bees from their colonies to access and harvest honey. Sometimes they use anti insects' sprays to kill the bees and to collect or harvest the honey.

This method is commonly practiced because the community has limited access to modern bee keeping and honey harvesting equipment. The method also was found to be harmful because it kills the bees, destroys bee colonies and is the main source of forest fire.

The wild honey collectors face a number of challenges during harvesting of honey; lack of protective harvesting gear; wild animals such as lions, snakes and buffalo attack in the forest. Other challenges include; insecurity especially from Alshabaab fighters, lack of transport, communication, poor infrastructure and poor hygiene in terms of handling the harvested honey, mass charcoal burning and timber.

Cutting of trees and burning of the forest in search of honey was found to be the main source that limits the availability of wild honey because the process was found to be killing bees and

others living their colonies. Respondents also identified honey badgers (*Mellivora capensis*), wild animals which contributes to the limited access to honey as it breaks into bee colonies to feeds. The respondents also noted that there are no modern bee hives owned by either individuals or community members.

### **3.1.1. Assessment of the Advantages and Disadvantages of Each Type of Hives**

The study established that though community is not involved in the domestic bee keeping, most of them were familiar with the existing bee hives. Some of the community members engaged in producing them locally and selling them in other parts of the country. They noted that one disadvantage for the locally produced bee hives is that they are not attractive to the bees therefore taking too long for the bees to occupy them. The community also noted that they have information in regards to the modern bee hives though they are limited to access them because they are costly and also not available locally.

### **3.1.2. Honey Value Chain; Actors in Honey Harvesting, Processing and Marketing**

According to the respondents men are fully involved in the collection of wild honey and its processing. Women on the other hand get involved in marketing and selling either wholesale or retail. The youth are involved in honey collection and transportation from the forest to homes and also sometimes to the market for selling. According to the respondents the main actors in bee keeping include honey hunters and gatherers, transporters, processors, traders (wholesalers and retailers), and consumers.

### **3.1.3. Volume of Honey Produced Per Hive.**

Traditional honey hunting and gathering is commonly practiced in the area. Findings revealed there is no accurate measure of amount of honey collected from each wild bee's colonies. However, the respondents noted that volume of honey collected depends on how long the bees have occupied the trees, mangrove and seasons but usually the average wild honey they harvest is between 10litres to 15litres harvested by each honey collector.

However, respondents observed that with the introduction of the modern bee keeping technology including modern bee hives, they will be in a better position to identify and measure the volume of honey collected per hive.

#### **3.1.4. Forage and Water for the Bees**

Domestic or on-farm bee keeping is not practiced in Burgabo. However, wild bees benefit from the naturally available natural forage. The quality and quantity of honey vary depending on source of forage; if there is less forage it becomes difficult for the bees to survive especially during drought period. It was also noted that modern bee keeping technologies including machines for processing honey are not yet available but the community is ready and welcomes any initiatives to help them standardize and modernize honey production in the area. The area has high potential for attracting internal and external market as well as being a potential opportunity for economic growth and source of employment.

Currently, honey is not exported instead used or rather traded locally where the majority of the consumers are the local community members who use honey as food and also as medicine. The income generated from the sale of wild honey is used by the households to meet most of their family basic needs such as buying food, water and payment of madrasa fees as schools are not in the locality.

#### **3.1.5. Challenges Facing Honey Value Chain Actors**

The challenges facing main actors and supporters include;

- a. **For input suppliers:** poverty and lack of capital to invest in honey production, lack of skills and knowledge on modern ways of honey production.
- b. **Producers/collectors;** lack of bee hives, limit producers engaging into the small scale honey production. Lack of skills and knowledge in sustainable modern bee keeping technologies.
- c. **Processors,** lack skills and better modern equipment for honey processing which affects the quality of honey being sold in the market at low price.

- d. **Traders (Retailers and Wholesalers;** limited access to the equipment for storage and selling of honey, poor hygiene and honey contamination compromising natural honey quality.

### 3.1.6. Honey Harvesting

The harvesting of wild honey is seasonal and collected from the forest. The major tools and materials used for wild honey harvesting include; match box, torch, and axe, plastic and jericans.

**Table 1:** Advantages and disadvantages of different types of bee hive

Type	Advantages	Disadvantages
<b>Log Hive</b>	<ul style="list-style-type: none"> <li>Materials for construction are locally available, cheap and in most cases they are free.</li> <li>Beeswax and propolis are relatively high.</li> </ul>	<ul style="list-style-type: none"> <li>Combs are destroyed during harvesting which forces bees to build new combs all over again.</li> <li>Loss of brood during harvesting.</li> <li>Low production e</li> </ul>
<b>Top Bar</b>	<ul style="list-style-type: none"> <li>made from relatively cheap local materials,</li> <li>It is easy to lift individual frames to inspect the comb and/or harvest the honey.</li> <li>Less disturbances to the colony</li> <li>The brood can be inspected easily for better hive management</li> <li>Quality honey as the combs can be selected free of pollen and brood.</li> </ul>	<ul style="list-style-type: none"> <li>Combs are cut during harvesting, and bees have to make new combs after each harvest</li> </ul>
<b>Langstroth Bee Hive</b>	<ul style="list-style-type: none"> <li>Easier to manage</li> <li>More quality honey is harvested per season</li> </ul>	<ul style="list-style-type: none"> <li>Slightly difficult to make (requires skilled artisans).</li> <li>Very expensive thus unaffordable to</li> </ul>

*Note: Top bar and Langstroth bee hives are not currently available in the area but were preferred by the community.*

### **3.1.7. Honey Processing.**

Honey harvesting and processing is locally done and honey is packaged into small containers or bottles ready for sale and consumption. The youth and men are most involved and men in this process. Those involved in selling use three liters or one liter and even sometimes 500ml packages. Plastic bottles used to package vegetable oil and mineral water are used to package honey. These containers are usually collected and washed. Packaged honey, is sold and consumed locally.

### **3.1.7. Pricing**

The respondents acknowledged that there was no any better way of weighing the honey instead they sell in litres locally. One liter cost average \$ 20 for pure honey in local market and externally they sell at a cost of \$30 to \$40. Marketing is done individually. Sometimes sellers trade directly with honey Collection Company in Mogadishu. The baseline findings also indicated that farmers prefer individual marketing options because it is the most reliable and trustworthy for them.

### **3.1.9. SWOT Analysis of Honey Value Chain in Somalia**

Honey production in Burgabo can be a feasible enterprise given that the strength and opportunities that exists have better prospects than the weakness and threats according to respondents interviewed during the baseline survey.

#### **Strengths of the Honey Value Chain**

- Culture of bee harvesting with indigenous knowledge of the local community members for honey production
- Available market for honey both at the local and export levels
- Natural bee habitats such as mangroves , caves and forests
- Favorable climate for bee farming. The area is located in warm tropical climate

### **Weaknesses of the Honey Value Chain**

- Lack of organized producer groups
- Unsustainable honey harvesting methods of wild honey by the hunters which destroy the bees colonies
- Low honey production
- Poorly organized honey value chain
- Limited access to modern equipment

### **Opportunities for Honey Value Chain Development**

Existence of market both local and foreign; there is growing market and demand for natural honey. Good habitat for bees in the forest. Available modernized methods of honey production, processing and marketing as compared to the previous traditional ways which are harming the environment; it is alternative livelihood for communities.

### **Threats to Honey Value Chain Development**

- Lack of clear policy framework for honey sub-sector
- Insecurity from Al- Shabaab and wild animals
- Climate change effects
- Exploitation of bee habitats
- Honey Adulteration Lack of proper quality control standards Use of insecticides sprays

#### **3.1.10. Policies**

The findings revealed that there are no national apiculture policies existing to provide the framework for development of the honey sub-sector across the country which could promote and support the production of honey and other bee products sustainably. Neither institutional plans promoting honey value chain (enabling environment) exist.

Capacity building in modern bee keeping is required to develop the Honey value chain which is currently not exploited in sustainable way. This will improve benefits to the actors by improving value at each stage in the chain process.

### **3.1.11. Conclusions and Recommendations Based On the Baseline Assessment**

#### **Conclusion**

Honey production is a crucial alternative income earner which can improve the welfare of farmers and needs to be modernized. The success in this enterprise development is reinforced by the fact that it is traditionally practiced in the region so it can easily be improved leading to increased honey production, harvesting and processing for improved livelihood and biodiversity conservation.

#### **Recommendations:**

##### **Proposed Short Term Interventions;**

1. Establish modern honey production, processing systems, enhance environmental protection and management in the area. Mobilize community members and create more awareness on sustainable effective ways of bee keeping and honey production.
2. Strengthen the existing linkages between producers, processors and traders to develop the honey value chain
3. Build the capacity of producers to efficiently manage their business; this should be carried out through and training in business skills. Limited access to finance makes it difficult for producers to utilize modern, efficient technologies in honey production, processing and packaging, linking actors to appropriate providers of finance and extension services in order to support bee keeping and honey production will improve the value chain.
4. Strengthening/ formation of groups for ease of access to assets, extension services and group marketing are recommended. Group formation will make honey actor's credit worth for they guarantee each other facilitating the access to investible finance institutions. In groups, honey producers will be able to increase quantities to sustain



supply and satisfy market demand as well as increase their bargaining power for honey and related honey products price.

#### **Proposed Short - Medium Term Intervention**

1. Market symmetry and competitiveness can only be created by ensuring accurate information when needed.
2. Integrating the honey value chain to existing market information systems will be important. The approach will entail producer groups getting linked to different platforms through subscription after which they can benefit from the programs.
3. Capacity building of actors on bee keeping and honey production; by ensuring that the potential actors in the honey value chain receive the information they demand and hence pay for the services.

#### **Proposed Medium Term Intervention**

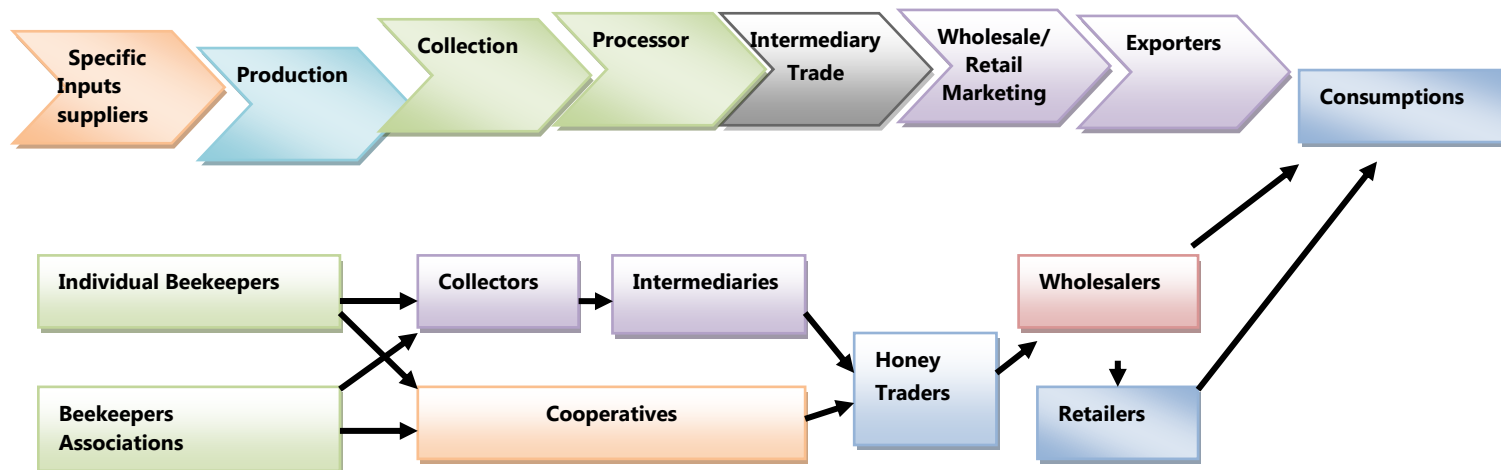
There will be need for strengthening advocacy through a multi actor platform for both the domestic keepers and wild honey harvesters. Organizing community into committees responsible for protection of the environment, build linkage with other honey production institutions in other parts of Somalia, sensitization on international markets by the ministry of energy, environment and tourism, standardization of units of measurement, collection and dissemination of more accurate trade, production and market related information.

#### **Proposed Long Term Intervention**

1. Generally, there is a need to change the perception of producers to see bee keeping as a source of income and employment. For this enterprise to thrive, conservation of environmental resources need to be given priority including reforestation, conserving water resources and minimizing pollution. This will require for a strategy to collaborate with National Environment Management Authority, National Forestry Authority among other government departments as well as development agencies e.g. United Nations Environmental Program (UNEP) and UNDP through a public private partnership/arrangement.

2. Community engagement in the formulation of environmental policies through empowering the community and Jubbaland state in joint development and enforcement of environmental policies.
3. The current honey value chain is not organized and there is need to transform it into commercial value chain that can guarantee communities a sustainable livelihood and to promote biodiversity conservation. With an established and organized value chain all the involved actors in will benefit. The consultant recommends for the following honey market mapping to develop the value chain developed.

### Mapping of Honey Value Chain



**Figure 1: Proposed Mapping of Honey Value Chain Actors**

## 3.2: Natural Resources Management Assessment

### 3.2.1: Introduction

This chapter covers the outcome of the assessment conducted in the pilot sites of Bur Gabo within Laga Badana Bush Bushle area of Badhadhe District in South Central Somalia. The assessment captured consolidated views of respondents obtained during focus group discussion. The interviews largely focused on existing natural resources in Burgabo, community involvement in the management of natural resources, knowledge on soil and water conservation, availability of trained extension staff, biodiversity management, conflict

management and resolution strategies as well as community awareness and understanding of the government environmental protection policies. The information from this assessment was treated as a representation of the views from the BMP project intervention sites.

### **3.3.2. Natural Resources in Burgabo**

Through observations and focus group discussion it was noted that the project intervention sites in Burgabo has both biotic and a biotic natural resources which included Indian Ocean, Hola Stream, farming land, unmined volcanic stones, firewood, salt, salt water and natural port. Other resources revealed to be in Burgabo also included goats, sheep, donkeys, wild bees, and fish.

The current potential economic activities noted from the sites includes honey, small scale rain fed farming which is based on one season per year, livestock production and local fishing. In further discussion it was confirmed that the key sources of livelihood for the community in Burgabo are mainly from agricultural and livestock resources. Even though the beneficial activities were noted to be meeting the basic needs of the public, interviews with groups revealed that most of these activities were being practiced at small scale level resulting to their low productivity.

Further interviews with respondents revealed that honey production, rain fed farming, local fishing from the sea and firewood were some of the most commonly practiced activities by the community. In addition the community is involved in local trade of animal milk and meat as well as local port transport services which were operating from Burgabo to Kismayo as alternative means of livelihood. However the respondents still felt that beekeeping intervention should be introduced in Burgabo, this should be backed up with the development of long term policies on environmental system.

### **3. 2.3. Involvement in Natural Resource Management**

According to the groups interviewed there is no organization or government agencies involved in natural resource management, however the community members have interest of being

engaged in natural resource management through a well-established environmental committees which could be empowered with special skills on environmental protection. Further discussion revealed that the general public presently involved in the management of natural resources as a collective responsibility to awareness creation on the effects of cutting trees at the community level. This has received support from local administration. Even though this has been done at low level, the community still needs more capacity building, awareness creation and support from the government systems on the implementation of all environmental legislations related to negative issues on the environment.

According to respondents the participation of community members in natural resource management has been motivated by the many benefits which they have drawn from the locally available natural resources. The motivation of community members have also been enhanced by the awareness creation forums conducted, which have significantly influenced them to take a leading role in coming up with life changing behaviors that are acceptable to environmental protection as well as based on livelihood systems.

### **3. 2.4. Soil and Water Management**

According to the respondents, Burgabo has two distinct soil types which include sea white soil for coastal site and black soil in the north site. The respondents noted that Burgabo faces a number of challenges which include land degradation caused by monsoon wind from the sea which blow off white sand to the black soil affecting farming. This has resulted to opening up of new land for farming every season; the sand has also affected the construction of shallow wells.

The interviews also revealed that Burgabo has not only poor water storage for households use but also lack clean drinking water which notably has been contributed by the ongoing drought in the area, burning of charcoal and cutting of trees to make timber which they sell in Kismayo for building and boat making. These activities are also major threats to soil and water management. Report from respondents confirmed that most people in Burgabo are currently getting their water for use from bush a bushel shallow well supplied by local boats.

Bush bushle shallow well is approximately 60 Km away from Burgabo where the majority of residence currently lives. The second shallow well is Odow that is 45 Km away from Burgabo, whereas these are the only two distinct sources of water for the community a 20 litres Jerican of water is currently being sold at the cost of 1\$. In further interviews to groups it was noted that efforts to conserve soil and water in the area have been put in place, however the respondent felt that the community and the general public should be involved in addressing challenges leading to soil degradation, water shortage and deforestation especially on community awareness creation and development of legislation. Even though Burgabo has Berkad water catchment which is a public water source with an established committee to oversee its maintenance, the water quantity is not sufficient as it can only keep water for one month after raining time.

Even though no technology was noted to be in use to cater for Burgabo soil and water conservation needs, respondent felt that planting of trees can facilitate restoration of the already degraded sites. It will facilitate the involvement of the community by establishing soil, water and forest protection committee. The restoration of degraded ecosystems will contribute to biodiversity conservation within the area joint collaboration of the government, local organizations and the community. Subsequently, this partnership will ensure that the selected units understand environmental conservation at the village level and can engage and practice all developed laws and identify other alternative activities to improve community livelihoods.

### **3.2.5. Extension Service Provision**

The site in Burgabo has not had any trained extension staffs who can continuously build the capacity of community members on soil and water conservation techniques. This was noted from the group interviews conducted, however the local community have acquired skills on water conservation through use of water catchment that were introduced IRDO health promoters.

### **3.2.6. Biodiversity Management**

According to the group interviews, Burgabo is the only area in South Central Somalia along Juba found with unique biodiversity which the community depend on for their wellbeing from benefits they draw from it. The area has diverse range of wild animals which includes Buffalos, elephants, hippopotamus and giraffes. Besides the animals the sea also present different fish species which include shilips a special fish, sea fish turtle, sea horses, sea trees (khandal), sea pearl, cats eye, quarts, sea opal, forest which provide timber.

The respondents further confirmed that the communities have benefited from the biodiversity through fishing, firewood, timber and honey production. Even though Burgabo environment present a number of benefits and opportunities to the community, the respondents confirmed that the community still face a number of challenges. Some of which included lack of proper and effective ways of conserving biodiversity, lack of knowledge on environmental care as well as lack of knowledge on strategies to market their goods.

### **3. 2.7. Conflicts Management Strategies**

Interviews with groups acknowledged that there have been some conflicts between Jubbland and federal government over the ownership and control over natural resources in the area, however the larger community has not been involved. The conflict has not been resolved on consensus basis and this significantly contributed to disagreement. Subsequent interview confirmed that human-wildlife conflict has been experienced especially by the Pastoralist who search for water during dry spell.

### **3.2.8. Natural Resource Management Policies**

The assessment revealed that Burgabo community are aware and understand government policies protecting conservation of natural resources which stopped the charcoal burning and transporting to the natural port in Kismayo and Burgabo. This with support from AMISON Mission has made people stop the business as they felt that the charcoal burning was illegal business. Contrary to this, the interviews confirmed that the community is not aware of any

government protected areas or developed systems in form of national park or reserve or conservancy since 1990 apart from Kiamboni administration. In spite of the government efforts to enforce policies or legislation, the respondents felt that there is a need to develop environmental management policies.

### **3. 2.9. Conclusions and Recommendations**

This study has established that Burgabo has rich biodiversity which local communities depend on for their livelihoods. The ecosystem services derived from natural resources motivate the communities' desire to conserve natural resources for sustainable provision of benefits. Study results have however shown there's limited support for community capacity building on sustainable management of natural resources. Findings further confirm the need for strengthening community engagement in development and enforcement of environmental policies for sustainable conservation of natural resources. The following recommendations are made based on study results;

- 1) There is need to strengthen the capacity of community members on effective utilization and management natural sources. Establishment of structures and systems to promote sustainable conservation and utilization of the locally available natural resources such as water catchment areas for sustainable management of natural resources.
- 2) Enhance extension service provision and training for the community members to impart skills and knowledge acquisition on different aspects of natural resource management such as soil and water conservation to facilitate sustainability of the project.
- 3) Strengthen collaboration between Jubbaland state and other stakeholders in joint partnership to map out, gazette and create awareness amongst the community on all protected natural resources areas to reduce conflict between community members and local authority over access and use of natural resources
- 4) There is a need to improve participation and frequent consultation amongst key stakeholders such as community members, professionals in the field of natural resource

management and the government especially with the regards to development and implementation of environmental care policies.

- 5) Participatory identification and promotion of ecosystem based enterprises for alternative source of income generation to improve community wellbeing and biodiversity conservation linkages



### **3.3. Water Issues in Burgabo**

#### **3.3.1. Introduction**

This section covers different aspects in terms of water access, challenges, availability, and major sources of water in the area as well as different uses of water available. The section captures different views as shared by the respondents that were interviewed.

The report therefore points out that lack of access to safe water is a striking feature in almost all parts of Somalia. Only 45% of Somalis have access to improved water sources and this increases the risk of outbreaks of waterborne diseases. Cholera is endemic and claims hundreds of lives annually; particularly in densely populated areas. Any efforts directed towards increasing access to safe water need to consider the quality of drinking water. Water quality monitoring, house water treatment and safe storage are critical interventions that could reduce the risk of contamination of water supplies. From the survey findings, the main reasons for water shortage in Somalia are the recurrent droughts and floods, high demand on the few available water supply points, and the absence of state services that would otherwise create and maintain water supplies.

The study revealed that Somalia communities also find their access to water prevented by insecurity arising from the ongoing conflict. These problems demand a multifaceted response that combines meeting emergency needs with investing in the maintenance of existing water sources, or creating new ones. The baseline further established that repairing and rehabilitating existing water sources, such as boreholes, hand-dug wells and pumps, and drinking-troughs for animals is key to enhancing water supply and accessibility for the communities.

Subsequently, the opportunity for the rain water harvesting can be a milestone to enhance water availability and access. Although many organizations are involved in water-related activities, the capacity of the community and government is still inadequate to take advantage of the potential that rainwater harvesting offers in mitigating the effects of water scarcity in most parts of Somalia. It is also clear that rainwater harvesting is not adequately mainstreamed

in policy documents. The Jubbaland state will need the support of experts to incorporate RWH in its program and projects

Below shows detailed response from the respondents who were interviewed during the interviews which were conducted through focused group discussions and key informant interviews.

### **3.3.2. Access to water, Household daily consumption and main Sources of Water in Burgabo**

Water accessibility and availability remains a major challenge for many of the communities not only in Burgabo but across Somalia. This is attributed by ongoing drought and other climatic shocks, exacerbated by the global El Niño phenomena and La Niña-like conditions.

Despite access to underground water, the use of this water is limited as it is salty and not fit for drinking. Most of the respondents in the group discussion shared that the majority of the households use 140 liters per day which is not enough for both domestic and animal consumption.

In addition, 7 Barked water sources were identified which usually provide water for the community use. Out of the 7 Berkads, 2 are functional under the management of a water committee. There is 1 natural water pond which is not functional that requires rehabilitation. This confirms the scarcity of water availability and access in Burgabo.

Three main sources of water were identified which are far away from town. These include 1- Bush-bushle shallow well which is located far distance from Burgabo around 50 km. The water from Bush bushle is brought by Lorries and sometimes local boats. There are 2- Odow shallow wells which are located between Ras kamboni and Burgabo around 45km. The respondents also noted that besides the distance it was also too difficult to access the shallow well water sources due to inaccessible roads caused by the white sand from the sea side which blocks the road. Holawajer stream is another water source but very far around 60 km from the settlements.

Man-made and natural sources of water were identified in Burgabo. The man made sources include Berkads (water catchment source) which were constructed by Solidarity, a local organization and supported by the community members. This is managed by water committees in ensuring its proper utilization. There are only 2 privately owned Berkads managed by water committee with capacity to store 30M<sup>3</sup> to 35 M<sup>3</sup> of water.

One natural water pond was identified with higher capacity compared to the barked and its capacity estimated to hold up between 50M<sup>3</sup> to 60 M<sup>3</sup> of water. However due to lack of proper maintenance, the pond cannot hold the same capacity because it is filled with sand and the water is not clean, and not safe for use either.

### **3.3.3. Distance to the Nearest Water Sources**

On average one takes 1.5 hour to collect the water from the available sources.

### **3.3.4. Status of Water Catchment and Use**

Subsequent interviews confirmed that two Berkads are communal from which the community collects water for their use. This is usually collected by women. The public water pond has no water committee selected to maintain but the two communal Berkads have committee elders who are responsible in maintaining them and they are functioning well. The respondents reiterated that both water sources in Burgabo are prone to drying up every year.

### **3.3.5. Rain Seasons and Durations in Which the Water Catchments Can Hold Water**

Unlike other countries in the region that have networks of rainwater harvesting associations composed of diverse sources relevant to the technology, Somalia is just beginning to establish its own structures. So far, government authorities are taking the lead with the inter-ministerial forums that are looking into policy and regulatory aspects of water management. There is interest to establish watershed management associations that would also include rainwater harvesting in their agenda. Rainwater harvesting is mostly supported by NGOs and UN agencies show-casing or proving to governments and key donors that the technology is a viable

investment. So far, information on costs and benefits is insufficient for use in assessing the viability of RWH.

Focused group discussions indicated that there was insufficient human capacity to implement rainwater harvesting in Somalia. The challenge is to develop a capacity-building framework that will support Somalia in up scaling and out scaling RWH projects and programs implemented by governments, international NGOs and UN agencies.

RWH presents opportunities which communities can take advantage of to enhance their livelihoods. These include taking advantage of runoff water to boost human health (since rainwater from roof and rock catchment is fairly clean and safe); boosting agricultural productivity and thus food security; involving local communities in planning and implementing RWH projects and creating jobs for local communities. RWH complements other water sources. It saves energy and time because its infrastructure is close to its utilization points.

RWH mitigates against the devastating effects of climate change as water stored during floods reduce flood related destruction in the lowlands. Stored water is useful for irrigation and livestock production during the dry periods. Somalia receives approximately 209 km<sup>3</sup> of rainfall annually. This rainfall is unevenly distributed in space and time. Using RWH as a means of addressing this spatial and temporal rainfall variability would contribute to coping with droughts and floods, thus enabling communities to invest in livelihood activities.

The respondents confirmed that there are long rain seasons which occur in the month of May to September of every year in most cases the roof and runoff water goes at a waste. In terms of the duration of water in the catchments the respondents established that water can stay up to 2 months but with the two Berkads it can hold water for more than two months because they usually hire water tanks to collect water from Bush-bushle shallow wells to complement the Berkads.

Once the catchment dries up the community can only access water from the Bush-bushle shallow wells or Holawajer stream either by boat or animals'. The public water catchment is not functional and respondents confirmed that there is need to rehabilitate and construct new water catchment to enhance water access for the community. However, the communal Berkads which are privately owned and functional, will also need intensive rehabilitation to increase the capacity of water it can hold and improve water quality and safety for human consumption.

### **3.3.6. Conflicts over Access to Water Resources and Ways of Solving them**

Somali society is highly structured, anchored in the system of clans and sub-clans that bind Somalis. The respondent reaffirmed community conflicts over scarce resources mainly water and grazing pasture land. Traditionally, Somalis are predominantly pastoral communities relying on livestock. Agricultural communities rely on the limited rainfall as well as river runoff. As a result of drier climatic conditions, breakdown in traditional governance mechanism and increasing number of people, conflict over water resources are now common occurrence in the rural areas. Due to unregulated resource use, overgrazing and deforestation resulting to desertification and soil erosion, competition over water and grazing land are rampant, which in turn result to loss of life and livelihood opportunities.

Conflicts are usually mediated by the council of elders who form a strong social fabric of the Somali community. The group is very influential cluster in terms of bringing harmony back to the clans. Sometimes the Jubbaland state is also involved in the mediation and negotiation process but engage the council of elders. Community elders with a few district peace committees are identified to be very influential in resolving conflicts related to water. Community minimizes conflicts related to access to water resources through the council of elders from each clan through negotiated peace agreements. All clans agree not to possess and involve in the exchange of arms where there is a confrontation between individuals or groups. The other way was establishment of a water committee which has members of different clans represented and different groups varying from age and gender

However, in order to secure their fragile system of life, development of groundwater resources and scaling of rain water harvesting was found to be important for nomadic communities in the rural areas. This development will also minimize, if not eliminate, clan conflict, which often starts at the water sources like wells. Pastoralists make use of wells in many parts of the country, and borehole digging is an investment made by the State. Inevitably, the area around boreholes became eroded by the concentration of livestock, and the environmental consequences became obvious.

### **3.3.7. Technologies Used in the Area to Collect and Store Water in Burgabo**

Findings revealed that there are no other technologies other than the locally constructed Berkads and shallow wells in which the local boats, water tanks and Lorries are used to collect water from Bush-bushle. It was also established that ground water is available but it is not being used because it is too salty.

### **3.3.8. Cost of Excavating a Shallow Well, Borehole and Ponds to Access Water**

The cost of excavating a shallow well was estimated at \$2500 and borehole \$120,000 whereas the Berkads depending on its capacity cost \$50,000 to \$70,000 on average. The natural water pond existing in Burgabo can be rehabilitated at a cost of \$30,000 to \$50,000 by de-silting and expansion to increase its capacity and securing it with a fence. The assessment also found out that the ground has full of many rocks which makes it difficult for digging deep to access ground water sources.

### **3.3.9. Rain Water Harvesting and Irrigation in Burgabo**

A small portion of the community got involved in the harvesting and storage of rain water. This was confirmed to be practiced by few individuals at the house hold level which mostly use drums to collect water from the rooftops. However, the respondents reiterated that the method was not very reliable given that the larger part of the community do not own iron roofed houses from they can harvest rain water. Rain water collected from iron sheet roof tops is mainly stored in one drum at house hold level and few households have iron roofed houses.

None of the irrigation systems existed in the area where most of the community members were involved largely in small scale fishing activities and casual work. Lack of crop irrigation is attributed to the long drought in the area and limited low seasonal rain water harvesting structures to satisfy demand for domestic, livestock use and irrigation.

#### **3.3.10. Preference of Technologies used to Access Water**

The group discussion interview pointed out (i) Berkads, (ii) Bushbushle and (iii) rain water in that order were the best community reliable sources of water

#### **3.3.11. Vegetation Cover**

Natural grass, mangrove and forest were the main existing vegetation in Burgabo. There were no strategies employed by farmers to minimize water loss through evaporation and preserve water quality. This was attributed to different factors such as drought in the area which makes farming itself unreliable. The area lack extension services to offer training on alternative water harvesting technologies, management and use of the water catchment in Burgabo.

#### **3.3.12. Main Actors in Water Collection and Storage**

There are balanced and shared roles on water issues in the community despite the Somali culture where women have always played a second role after men in the family. Table 2 shows the roles of different actors for water collection and storage within communities in Bur Gabo. In terms of water use, all the gender were involved and mainly, domestic consumption was main use.

**Table 2: Main Actors in Water Collection and Storage**

<b>Action/Role</b>	<b>Description</b>
<b>Construction\installation of rainwater</b>	Both men and women
<b>Water collection,</b>	Both men and women where men get involved at long distances like fetching water with boats and animals from Bushbushle in the forest and women from short distances like the available Berkads
<b>Maintenance of the catchment</b>	For the Berkads they have water committees which consist of both men and women
<b>Use of the water from the catchment</b>	Households for the entire family

### **3.3.12. SWOT Analysis of Accessing Water in Burgabo**



**Table 3: SWOT Analysis of Accessing Water in Burgabo**

Strengths	Weaknesses	Opportunities	Threats
<p>The Berkads and shallow wells available can be rehabilitated and they are reliable sources of water catchment.</p> <p>The local community is fully involved in the maintenance of the existing water catchments</p> <p>The use of locally available materials</p>	<p>Poverty in the community, not every household is capable of owning an iron roof structure</p> <p>Lack of skills and knowledge to collect and store rain water</p>	<p>Communal maintenance shows potential for sustainability</p> <p>Resilient community</p> <p>RHW technologies</p> <p>Organization interested in supporting water projects in the area</p>	<p>Limited Access</p> <p>Lack of water policies from the federal government and Jubbaland state</p> <p>Drought in the area which makes it difficult to have sustained water</p> <p>Salty ground water sources</p>

### 3.3. 13. Recommendations

Establishing new Berkads, and rehabilitating natural water catchments which already exist. This will provide a long term solution to the water scarcity.

- Because of the ongoing drought there is need to have water distribution plan to reduce the cost of water and supporting water access interventions to the community. Support construction of bore holes and carrying out research on this.
- Installing water tanks to collect rain water. Some of the accessible and central villages that were suggested for water tanks installation include Burahowle, Sinyale and Iliga.

- Install machines which purify and recycle the sea water for human consumption and carry out capacity building for water committees on better management and maintenance of water catchment sources.
- Constructing reservoirs to store flood water for irrigation, livestock and domestic use during the dry periods.

#### **4.0. Existing and Unexploited Opportunities Available in Burgabo**

Burgabo has so many resources however, fishing was found to be the main source of livelihood and income generation. The area practice traditional fishing using locally available fishing equipment's such as fish hooks, nets and local boats which are all locally made. The artisans who are involved in the making of local fishing materials including local boats are drawn from the Bajuni community.

A recommendation was made on exploring natural resource based enterprises and development of fish value chain through sustainable fishing practices to increase benefits to the main actors and promote biodiversity conservation mainly fish stock.

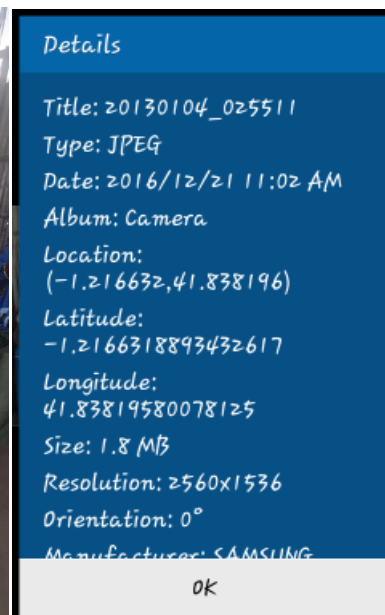
## 5.0.: Annexes

### Annex 1: Pictorial and GPS location information for the group of participants during the baseline survey

Focused group discussions with local authority



Focused group discussions with community elders



## Focused group discussion with women



## Focused group discussions with youth





## Annex 2: Photo of Dry Berkad with GPS Information



## Annex 3: List of Participants

Sno.	Names	Affiliation	Telephone
1.	Muktar Mohamed Hussein (Senior Police Officer)	Local Authority	06177727
2.	Ibrahim Ahmed Dagane (Judiciary)	Local Authority	615687727
3.	Ahmed Gure Olow (Committee)	Local Authority	0615972493
4.	Mahadey Khatari Mahadey (committee)	Local Authority	0615290263
5.	Mohamed Dayow Abdi ( committee )	Local Authority	0615472007
6.	Mohamed Abdi Hagar (committee)	Local Authority	0615299070
7.	Tifow Adan Salat	Community elders	0618353156
8.	Abdirahman Mohamed Mohamud	Community elders	0615161649
9.	Adan Idow Mahaday	Community elders	0618671488
10.	Omar Mohamed Masua	Community elders	0618671322
11.	Hussein Mohamed Boholi	Community elders	0615861732
12.	Ahmed Mohamed Boholi	Community elders	0615941765
13.	Mohamud Suleiman Alifdon	Community elders	06183531

<b>Sno.</b>	<b>Names</b>	<b>Affiliation</b>	<b>Telephone</b>
14.	Abdirahman Mohamed Ismail	Community elders	061688873
15.	Amina Hilowle Adan	Women Group	0617990397
16.	Fatuma Mohamed Abdirahman	Women Group	0615129340
17.	Amal Khadar Abdi	Women Group	0612598318
18.	Nimo Sheikh Mohamed	Women Group	0617799196
19.	Shamsa Isse Ali	Women Group	0615389967
20.	Khayro Mohamed Ibrahim	Women Group	0615290259
21.	Iuul Hassan Adan	Women Group	0615542890
22.	Feisal Shee Mohamud	Youth Group	0615942004
23.	Hussein Mohamed Ali	Youth Group	0612030278
24.	Abdikheir Hussein Noor	Youth Group	0616850733
25.	Hussein Gabobe Abdullahi	Youth Group	0612570944
26.	Ali Yussuf Isse	Youth Group	0616850733
27.	Ahmed Gure Olow	Enumerators	0615972493
28.	Hussen Mohamed Baoli	Enumerators	0615861732
29.	Rahmo Noor Aydiid	Enumerators	0616850051
30.	Sara Mohamed Baholi	Enumerators	0615575968
31.	Feisal Shehe Mohamed	Enumerators	0615942064

## **Annex 4: Data Collection Tools (Questionnaires)**

### **5.2.1: Water Issue**

1. Do you have access to water sources?
2. What is your household daily water requirement (Litres)?
3. What are the main sources of water in Buurgabo?
4. Are the sources natural or manmade?
5. What is the distance to the nearest water sources?/How much time does it take to reach the nearest water source
6. Please name the type and number of the different water catchment available in the area?
7. Who uses the catchment is it individual or community water collection point?
8. Who manages\maintain the water catchment?
9. What is the capacity of the water catchment described above?
10. Are the catchment permanent or they dry up after some time?
11. Which are the rain seasons in the area? (Months when it rains, could specify short and long rain seasons if rainfall is bi-modal)
12. How long after the rainy season does the catchment hold water?
13. Once the catchment dries where do you collect water for domestic, pastoral, farming, fishing, and other purposes?
14. What is the status of the water catchment? Are they functional or nonfunctional, do they need rehabilitation?
15. Are there conflicts over access to water resources?
16. How are these conflicts resolved?
17. Who are the main actors in resolving conflict related to access to water?
18. What are ways in which community minimize conflicts related to access to water resources?
19. What other technologies apart from natural catchment used in the area to collect and store what?
20. Do people use ground water? How deep is the aquifer? (in terms of feet)
21. What is the cost of excavating a shallow well, borehole and ponds?
22. Are there any initiatives supporting access to water in the area? Which ones

23. Is rain water harvesting been used as a technology to collect and store water in the area?

Please explain

24. Which is the most common approach used to collect and store rain water?

25. Other than domestic use and livestock, is water used for crop irrigation?

26. Which crops are irrigated?

27. Which type of irrigation is commonly practiced in the area?

28. Rank in terms of preference the technologies used to access water assessing the advantages and disadvantages of each type of technology

29. Where is the water catchment/storage sited?

- a. Types of vegetation around the place
- b. Size of land set aside for the water catchment

30. What strategies do farmers use to minimize water loss through evaporation and preserve water quality?

31. Are there any extension services such as training on excavating, management and use of the water catchment in Buurgabo?

32. Who are the main actor in water collection and storage?

- a. At construction\installation of rainwater harvesting technologies?
- b. water collection,
- c. maintenance of the catchment
- d. use of the water from the catchment

33. Conduct a SWOT analysis of access to water in Buurgabo

- a. Strengths of the water catchment, access to ground water and rainwater harvesting technologies
- b. Weaknesses of the water catchment, access to ground water and rainwater harvesting technologies
- c. What are the opportunities for the water catchment, access to ground water and rainwater harvesting technologies
- d. Any threats to the water catchment, access to ground water and rainwater harvesting technologies



- e. Do farmers have any intentions of establishing the water catchment, access to ground water and rainwater harvesting technologies
34. Are there existing policies and institutional plans promoting access to water?
35. Which rain water harvesting and use technology(s) knowledge/skills would respondent suggest to obtain
36. What do communities recommendations based on the baseline assessment?
- a. Proposed Short Term Interventions
  - b. Proposed Short - Medium Term Intervention
  - c. Proposed Medium Term Intervention
  - d. Proposed Long Term Intervention

### **5.2.2: Honey Value Chain Assessment**

37. Identify honey producing areas in Buurgabo
38. Identify source of honey in the area [collected from forest], [ on-farm bee keeping]; [both on-farm and forest], [purchased from other areas]
39. For wild honey collectors
- How often do you collect the honey from the forest?
  - At what time of the year is honey easily available in the forest?
  - What are challenges faced when collecting wild honey from the forest?
  - Which methods do you use to collect/harvest wild honey?
  - Are there risks to the forest you think would affect honey availability in the forest?
  - Please list some of these key challenges
40. What approaches are used in honey production is it household approach, community approach or individuals doing honey production?
41. How many bee hives does each bee farmer own (for household approach) or community own?
42. What types of hives are used in honey production? Please suggest some types of known hives A)Log hallow wood (Dool) B) top bar hive C) opportunistic harvesting (wild collection from forest) D)Modern Langstroth, and others, specify which ones

43. Rank in terms of preference the bee hives assessing the advantages and disadvantages of each type of hives
44. Where is the bee hives sited?
- a. Types of vegetation around the place
  - b. Size of land set aside for the apiary
45. Gender parity: How are the following involved in Honey value chain?
- a. Men
  - b. Women
  - c. Youth
46. What strategies do farmers use to colonize the bee hives?
47. Are there any extension services such as training on siting and colonization of bee hives in Buurgabo area?
48. What is the colonization rate of the hives?
49. How much honey is produced per hive?
50. Where do farmers obtain forage and water for the bees?
51. Which are the most preferred forage for the bees and why?
52. Do the quality and quantity of honey vary depending on source of forage? Please explain
53. Who are the main actors in bee keeping-
- a. at construction\purchase of hives,
  - b. sitting up and installation of hives,
  - c. honey collection,
  - d. honey processing
  - e. marketing,
  - f. Exporters (if exported)
  - g. consumers
  - h. use of the money from the bee keeping
54. What are challenges facing main market actors and supporters;
- a. Input suppliers
  - b. Producers/collectors,

- c. Processors,
- d. Traders (Retailers, Wholesalers, exporters)

55. How is honey harvesting done?

- a. Who is involved in honey harvesting
- b. What are the tools and materials used in honey harvesting
- c. How are the bees handled during honey harvesting
- d. What is the average amount honey harvested (*considering different sources; form farm/wild collection*)

56. After harvesting how is the honey processed?

- a. Who does the honey processing?
- b. How is it done?
- c. What is the time frame between harvesting and processing
- d. How is the packaging done

57. What happens to the honey after processing

- a. Consumed
- b. Sold
- c. Used for other purposes- specify which ones

58. If sold to which markets

- a. Local
- b. External market- provide details
- c. Exported (outside Somalia)-provide end market place

59. Which are the local markets and the external markets?

60. Which markets are better and why?

61. Pricing: Average prices for 1 kg processed honey

- a. Local Market
- b. External Market

62. Which bee products are traded?

63. How is the marketing done?

- a. Individually

- b. Communally
- c. Through brokers

64. Which marketing option do farmers prefer? Please explain

65. Apart from honey are there any other products that farmers extract from bee keeping?

66. What is the net income of bee keepers in the area?

67. How is the income used?

68. What are the management practices used in apiary management in the area?

69. Conduct a SWOT analysis of honey value chain in Somalia

- a. Strengths of the Honey Value Chain
- b. Weaknesses of the Honey Value Chain
- c. What are the opportunities for honey value chain development?
- d. Any threats to honey value chain development?

70. Do farmers have any intentions of establishing formal business linkages?

71. Policy implications on Honey Value chain

- a. Are there existing policies and institutional plans promoting honey value chain (enabling environment)?
- b. Are there policies/legislations that hinders or impact negatively on honey value chain development?

72. Capacity building

- a. Which areas need capacity building to improve development of Honey value chain to benefit key actors?

73. Recommendations based on the baseline assessment

- a. Proposed Short Term Interventions
- b. Proposed Short - Medium Term Intervention
- c. Proposed Medium Term Intervention
- d. Proposed Long Term Intervention

Do you have any additional comments/suggestions which were not covered in this discussion?

### **5.2.3 Natural Resource Management (NRM)**

1. What natural resources are present in/around Buurgabo? Please introduce what is natural resource before you put the question
2. Do you benefit from the natural resources? How, please explain
3. Are there organizations or government agencies involved in natural resource management?
4. Are you involved in managing the natural resources?
5. How are you involved? At what stage or level of involvement
6. What is your motivation to participate in natural resource management?
7. What are the main challenges facing soil in the area?
8. What about water challenges?
9. Are there efforts to conserve soil and water in the area? Which ones?
10. What technologies do you use in soil and water conservation?
11. How did you get to know about the soil water conservation technologies? Is it traditional knowledge or were you trained?
12. Are there extension staff who continuously build your capacity on soil water conservation?
13. Do you know Buurgabo has unique biodiversity (both flora and fauna)?
14. Which are these unique biodiversity in the area?
15. Do you derive any benefits from the biodiversity? Please explain
16. What are the main challenges facing biodiversity in the area?
17. What opportunities do biodiversity present to Buurgabo?
18. Are there any initiatives to conserve biodiversity in the area?
19. Are you involved? At what level?
20. Are there conflicts over use of natural resources?
21. How are these conflicts resolved?
22. Are there human-wildlife conflicts?
23. What are ways community prevent human-wildlife conflicts?
24. Do you have government protected area in Buurgabo (National Park/reserve/conservancy)?
25. Are there policies governing conservation of natural resources in the area?
26. If available, what is your comment on these policies?

27. Do you understand these policies?
28. Are these policies effective in natural resource conservation?
29. Which policies/legislation would you wish to have further information/knowledge and why?
30. Which is the best approach do you propose to impart knowledge to you and community on the existing natural resource policies?
31. What do you propose as possible solutions to conserve soil water and biodiversity?
- (i) Who should do what differently?
  - (ii) What will be your role to ensure forest and wildlife conservation?
- 4) What do you foreseen as the possible challenges in addressing soil, water and forest deforestation and degradation?
- (i) Who should be involved in this and what will be their role?
  - (ii) What will be your role in addressing these challenges?
- 5) What opportunities will restoration of soil, water sources and forest present?
- (i) To you
  - (ii) To the community
  - (iii) To the government