



Cameroon Gender and Environment Watch  
CAMGEW



Man & Nature

## TECHNICAL STUDIES ON BEE WAX COLLECTION AND EXTRACTION FROM KILUM/IJIM FOREST - CAMEROON

This study is conducted by Cameroon Gender and Environment Watch (CAMGEW) From September to December 2015 with financial support from man & nature - France

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# **TECHNIAL STUDIES ON KILUM/IJIM FOREST WAX COLLECTION AND EXTRACTION**

## **SECTION I: INTRODUCTION**

### **A- PRESENTATION OF CAMGEW**

Cameroon Gender and Environment Watch (CAMGEW) is an association based in Oku, Cameroon with authorization number N°000998/RDA/JO6/BAPP. CAMGEW works locally and thinks globally, integrating gender in solving environmental problems in Cameroon. CAMGEW believes that the future of our mother planet-earth is in our hands and also that the planet can be sustained by putting social and environmental justice at the centre of development. CAMGEW seeks to achieve her objectives by liaising with other likeminded organizations worldwide like Man & Nature - France. She has resolved to function according to core values of engagement and dedication in respect of its constitution. CAMGEW has as mission to fight poverty; promote sound environmental management, gender balance and economic sustainable development.

### **B- PRESENTATION OF PROJECT**

Cameroon Gender and Environment Watch (CAMGEW) an association based in Oku, Cameroon with authorization number N°000998/RDA/JO6/BAPP and Man and Nature an association based in France matriculated 533620399 signed a partnership agreement to execute a project titled “Economie et Entreprises au service de la Biodiversité” which is aimed at organizing bee farmers around Kilum-Ijim forest into cooperatives for them to produce qualitative and quantitative products from the forest like honey and bee wax for the market. These products will be sold in identified markets and the revenue will help the forest communities improve on their livelihoods and see the need to conserve their forest. In this project 4 new Oku Honey cooperatives will be created around Kilum-Ijim forest to increase the number of white honey cooperatives to 6. This studies aims at carryout feasibility studies for the production of bees wax from Oku White Honey in the Kilum-Ijim forest and engagement of local people in the process. Man & Nature has as objective to support communities in the Southern hemisphere in nature protection and sustainable exploitation of natural resources.

Oku White Honey is produced from Kilum-Ijim Mountain forest and is peculiar to this region reason why it has been certified as Geographical Indication Product by African Intellectual Property Right

Organization. To carryout technical studies on the collection of wax, there is need to know much about Oku White Honey. Bee wax is produced from Oku White Honey in Kilum-Ijim forest. This study will also involve the quantification of the Oku White Honey produced per hive and generally from the Kilum-Ijim forest for 2012, 2013, 2014 and 2015. It will also involve knowing Oku White Honey and bee wax producers, those processing crude honey to honey and wax, and those involved in marketing. Statistics on 100 hives will be gotten on beehive colonization, mounting, production of honey and wax, rate in which bees abscond from hives, death rate, etc.

### **C- PRESENTATION OF PROJECT SITE**

The Kilum Mountain Range and the Ijim Ridge are covered with a montane forest called Kilum-Ijim forest that is peculiar in producing Oku White Honey. The Kilum-Ijim forest is part of the Western Highlands of Cameroon commonly referred to as the Bamenda Highlands. The Kilum Mountain is found in two tribes- Nso and Oku which are in Bui Administrative Division in the North West Region of Cameroon. The Ijim Ridge is found in the Kom tribe in Boyo Division of the North West Region of Cameroon.



Fig 1: Position of Kilum-Ijim Forest in Cameroon

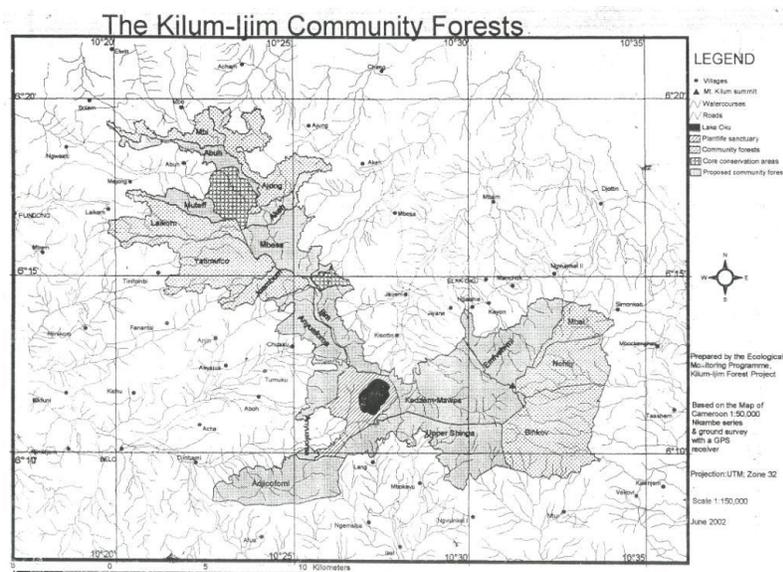


Fig 2: Kilum-Ijim Forest with various community forests

The Kilum-Ijim Community forest covers an area of 20,000 hectares and is located Mount Kilum with its peak at 3,011m and the adjoining Ijim Ridge (2,000-2,500m). BirdLife International created the community forests and divided the Kilum-Ijim forest into 18 community forest. About 44 communities live in the Kilum-Ijim Community Forest. During the period 1987 to 2003 of project execution, there was forest regeneration, environmental education and training on alternative source of livelihoods like agroforestry and bee farming. The contiguous Kilum and Ijim Mountain Forests are located between latitude 6°0'TN and 6°1'TN and Longitude 10°20'E and 10°35'E. The highest altitude of this mountain forest is at 3011m with a large crater lake called Lake Oku at 2500m altitude found along the Cameroon Volcanic line. The Kilum-Ijim forest has a natural setting with about 80% of the population based there made up of natives of Nso, Oku and Kom tribes, some of whom come in from close towns in these tribes to farm. The Kilum-Ijim region is known nationally for its traditional healers due to the many medicinal plants in the bio-diverse Kilum-Ijim forest.

The area around the Kilum-Ijim Forest is one of the most densely populated parts of Cameroon. It is estimated that close to 300,000 people live within a day's walk to the forest. This population is attracted by rich volcanic soils and the near temperate climate that favours the cultivation of crops such as coffee, beans, maize, Irish potatoes and a wide variety of vegetables (onions, tomatoes, cabbages, carrots etc.). Potatoes and beans are exported to other parts of the country as well as to neighbouring countries like Central African Republic, Gabon, Equatorial Guinea, etc. These crops are gradually replacing coffee as the main cash crop of the area because of the dramatic decline in

coffee prices in the mid 1980s. Infrastructure in the area is generally poor. Farm-to-market roads are poor and make evacuation of farm produce very difficult. Bee farming is practiced in the forest and Oku White Honey demand has increased after it was certified as a Geographical Indication Product.

Kilum-Ijim forest has a rich ecosystem with non timber forest products like honey, mushrooms, medicinal plants (like *Prunus africana*, *Pittosporum veridiflorum*, *Agauria salicifolia*), alpine bamboos, wood for firewood and carving, spices, additives(colourings, preservatives and flavourings), etc but suffers from forest degradation due to animal encroachment, farming, poaching and unsustainable forest exploitation. Some trees in this forest that produces flowers collected by bees to produce Oku White Honey are *Nuxia congesta*, *prunus africana*, *Schefflera abyssinica*, etc. This forest is predominantly montane, in which trees are too small and inaccessible to be of interest to commercial loggers. These non timber products could better serve the community and fight poverty if forest income generation activities are promoted and a workable benefit sharing mechanism put in place. The forest has a high potential to improve the living standards of local people but this potential is under exploited or unblocked. Many forest people depend on these products for their livelihoods. These services and products cannot be available if the forest is destroyed. With a good forest ecosystem benefit-sharing mechanism put in place the living standards of the local people will improve and they will see the need to engage in forest ecosystem management. Environmental education is important to tackle forest degradation through behavioural change and to instil in young people the spirit to grow and participate in forest management. Protecting the forest will enable it to generate water, fresh air, serve as carbon sink, source of beneficial insects and protect endangered species like *Bannerman's turaco* (an endemic and endangered bird only found in the Bamenda Highland Forest region with Kilum-Ijim having its largest remaining forest), etc all of which are indirect benefits to village dweller.

The Kilum-Ijim Forest has had a long history of indigenous and traditional management. The population uses the forest heavily to get a wide variety of products and services. Most water courses in the area originate from the forest. In addition, the forest has significant cultural and spiritual values to the local population. Community forest management in the Kilum-Ijim area has been enabled through the support of an institutional three-way partnership among the traditional authorities (represented by the Fon, Kwifon and village heads), the local communities (represented by user groups) and government. Traditional authorities would have the role of coordinating the activities of the user groups and of resolving conflicts between user groups or members of the same

user group. The government also plays this 2 coordination and conflict resolution role as well as the other key role of creating the enabling policy environment for community forestry through legislation and technical assistance.

Botanic source of Bees wax: Honey is produced from pollen and nectar found in the flower of forest plants peculiar to the Kilum-Ijim forest. This has led to the certification of Oku White Honey as Geographical Indication Product. This certification was done by African Intellectual Property Right Organisation with funding from French Development Agency. The predominant trees that produce Oku White Honey are *Nuxia congesta*, *prunus africana*, *Schefflera abyssinica*, *Zyzigium staundi*, *Schefflera manii*, etc.

#### D- COMMUNITY FORESTS IN KILUM- IJIM FOREST

There are 18 community forests in Kilum-Ijim forest with 44 villages divided in table form as follows:

Table 1: Kilum-Ijim Community forest and villages

N <sup>o</sup> .	Kilum Community forest		Ijim Community forest	
	<i>Kilum Community forest</i>	<i>Number of villages in each community forest</i>	<i>Ijim Community forest</i>	<i>Number of villages in each community forest</i>
1	Bihkov	4	Juambum	1
2	Nchiiy	1	Laikom	1
3	Mbai	4	Ajung	1
4	Emfvemii	4	Yatimuvco	3
5	Kedjem mawes	3	Mbesa	1
6	Ijim	4	Muteff	1
7	Upper shinga	4	Abuh	1
8			Afua/djichami	1
9			Anyafoma 5	5
10			Akeh 1	1
11			Mbi	3

#### E- METHODOLOGY USED

CAMGEW team did literature review of relevant documents in the internet, libraries and her office to gather useful facts for this technical report. Working sessions were organized with resource persons on apiculture in Kilum-Ijim forest to gather information. Some key persons in the community were contacted for information. CAMGEW worked in close collaboration with the Ministry of Livestock, Fisheries and Animal Husbandry (MINEPIA) and the Oku Honey Cooperative to get useful information.

## **SECTION II: OKU WHITE HONEY AND BEE WAX PRODUCTION**

### **A- OKU WHITE HONEY PRODUCTION**

The procedure for Oku White Honey production is as follows:

**Hive construction:** Firstly, a beehive is constructed. Mostly local materials like bamboos (raphia and alpine) are used and grass tied round it to keep it warm and avoid water penetration.

**Colonization:** The beehives are then carried by head to a valley some 15 Km or more to trap bees and when the bees enter the beehives, the hive could be transferred closer to the forest before November or kept in the colonization zone in the valley till November when it is transferred directly to the forest still by head. Colonization is low in the forest. Around Ijim Forest, some bee farmers use Kenyan Top Bar (KTB) hives produced from timber. This KTB hives are mounted in the valleys to trap bees and some are mounted on tree tops in the forest to trap bees. It has been noted that KTB hives produce little white honey as compared to local hollow beehives.

**Transportation of beehives to the forest:** Colonized beehives are transferred from colonization zones to the Kilum-Ijim forest from November to March when there are flowers in the forest. The period from July to October has little flowers in the forest but there are enough flowers in the valley all year round.

**Honey harvesting from the forest:** Honey harvesting in the forest is done from May 15<sup>th</sup> to June ending. There is much flower in the forest from November to June and this permits bees to produce much honey that is harvested in May and June. To harvest honey, necessary equipment must be prepared. The plastic containers (recommended) must be washed and dried. Each harvesting must have two plastic containers with stack lids (one for capped honey – good honey and another for uncapped honey or brood). The smoker must be fueled. Two persons are involved in honey harvesting and must be dressed in bee suits, rain boots and wear gloves to avoid bee sting. Only capped honey is harvested. Uncapped honey and brood must be selected from harvested honey to ensure honey quality. It is advisable not to harvest honey when it is rainy. You must maintain high sanitation values to keep the honey clean. Honey produced by bees is never dirty but could be contaminated during harvesting, processing and packaging.

Table 2: Typical bee farming calendar in Kilum Forest

	Jan	Feb	Mar	April	Mai	June	Jul	Aug	Sept	Oct	Nov	Dec
<b>Install hives of colonised hives in the forest</b>												
<b>1<sup>st</sup> Harvest after 2 years</b>												
<b>2<sup>nd</sup> Harvest Every year</b>												
<b>Raining season</b>												
<b>Dry season</b>												

**Honey processing:** The processing or draining of Oku White Honey is done within 24 hrs after harvesting to avoid it clotting. The equipment used must be dry and clean. Mostly stainless mesh is good for filtration. The processing room must be dry and free from moisture. Only dry plastic containers with stack lids are used for storage. Honey combs are broken down to smaller particles during harvesting and are filled in portable containers. Before processing, honey is inspected through physical examination for mixture with brood, bee bread or pollen and empty combs. Physical observation involves getting a specimen for viewing, smelling, tasting and touching to get the texture. The moisture content of the honey is determined with a refractometer. If the honey is accepted in the case of Oku Honey Cooperative Society, the plastic bucket of honey is poured into a calibrated micron mesh and is allowed to drop from one micron mesh to the other passing from mesh with large micron holes to that with small micron holes till the finest micron mesh where it passes to the collection basin. From the collection basin, the pure honey is transferred to the storage containers. Honey could also be process using an extractor and in this case the honey could be process after 24 hrs of harvesting but an extractor is expensive and is not used locally. Many bee farmers or bee farmer groups lack the means to get stainless mesh to filter their honey and sometimes the stainless mesh is less available. They use locally made baskets made from bamboo to filter honey. Some bee farmers have a modern honey drainer made of plank and stainless mesh.

**Honey Packaging:** After honey processing it is stored in large containers and packaged in various sizes to meet customers and buyers request.

Table 3: Quantification of Oku White Honey and Bee Wax Produced from Kilum-Ijim Forest

PLACE OF FOREST	NAME OF FOREST	NAME OF TRIBE	NUMBER OF HIVES IN FOREST	HONEY PRODUCED IN 2012 (LITRES)	HONEY PRODUCED IN 2013 (LITRES)	HONEY PRODUCED IN 2014 (LITRES)	WAX PRODUCED IN 2012 (Kg)	WAX PRODUCED IN 2013 (Kg)
Kilum Mountain Range	Oku Community forest	Oku	3862	12884	12005	12736	769	936,5
Kilum Mountain Range	Bihkov Community Forest	Nso	1565	4641	4559	4762	22	18
Ijim Ridge	Ijim Community forest	Kom	3057	5368	6032	6555	393,5	452
TOTAL			8484	22893	22596	24053	1184,5	1406,5

Source: CAMGEW-Man & Nature Feasibility Study Report on Oku White Honey and Bee Wax from Kilum-Ijim Forest in Cameroon From March to July 2014

## B- HONEY DRINK PRODUCTION

After draining honey from the crude honey harvested from the forest, the chaffs are used to obtain honey drink. During honey draining not all the honey leaves the combs. The remaining honey in the chaffs is removed by adding water to the chaffs and steering. The chaffs with water are allowed to stand for a while and then the chaffs are separated from the water with a shift. The honey that remained in the chaffs after draining honey leaves the chaffs and get into water. The water becomes sweet forming honey juice or drink. The more the drink stays, the more it becomes alcoholic. This is the reason why many bee farmers do not produce honey drink from all the chaffs immediately for fear it will turn to alcohol. They produce the honey drink in quantities they consume and this delay the extraction of wax.

## C- PRICES OF OKU WHITE HONEY FROM 2012 TO 2014

Oku White Honey prices were gotten as follows from 2012 to 2014 in the following localities.

Table 4: Oku White Honey Prices from 2012 to 2014 per Location

Year	Locally FCFA	Bamenda FCFA	Yaounde and Douala FCFA
2014	4000	5000	6000
2013	3500	4000	5000
2012	2500	3000	4000

Source: CAMGEW-Man & Nature Feasibility Study Report on Oku White Honey and Bee Wax from Kilum-Ijim Forest in Cameroon From March to July 2014

### Oku Honey Cooperative Society buying price of Oku White Honey

The following statistics were gotten from Oku Honey Cooperative Society on the buying price of Oku White Honey for the past 5 years

Table 5: Oku Honey Cooperative Society buying price of Oku White Honey

Year	Crude (undrained) Honey FCFA/Kg	Drained honey FCFA/L	Wax FCFA/Kg
2014	900	4000	3000
2013	700	3500	2500
2012	675	2500	2000
2011	550	2500	1700
2010	500	2500	1500

Source: CAMGEW-Man & Nature Feasibility Study Report on Oku White Honey and Bee Wax from Kilum-Ijim Forest in Cameroon From March to July 2014

Two good buckets of crude honey can give one bucket of drained honey.

## **D-PRESENTATION OF BEE WAX FROM KILUM-IJIM FOREST**

Bees in Kilum-Ijim forest produce Oku White Honey. When this honey is harvested and drained, chaffs are gotten. From the chaffs honey drink is produced when water is added to the chaffs to take off all honey juice. The remaining chaffs are then used to extract bee wax.

**Where does bee wax from Kilum-Ijim forest come from:** Bee wax is produced by all species of bees. Bee wax produced by honey bees *Apis mellifera adousana* is of higher quality than that produced by stingless bees and bubble bees. Wax from Kilum-Ijim forest is yellowish, heavier than other wax and have flower flavor. Bee wax is valued according to its purity and colour. Light coloured wax is highly valued than dark light wax capping (that is the wax seal with which bees cover ripe honey combs). This brand of new wax is pure and lighter in colour.

Bee wax is extracted from honey combs produced by bees. Honey is stored in honey combs by bees. Wax is a creamy substance secreted in a liquid from the glands of bees. The wax glands are on the side of the bee abdomen. When the wax comes in contact with air it forms scales which can be seen as small flask on the sides of the abdomen of bees. Bees use the stiff hairs on their hind legs to remove the scales of wax and pass them onto their jaws where wax is chewed before it is used in producing honey combs. Bees produce more wax when there is surplus honey to be stored. Bee keeping using traditional and Top Bar hives results in greater yield of bee wax. The honey comb is broken during the extraction of honey. There are many ways of extracting wax. Wax is extracted commonly using 2 methods. The two ways are

- Solar wax extraction
- Hot water bath extraction or submerge sack method

### **Hot water bath extraction or submerge sack method**

In Kilum-Ijim forest area, hot water bath extraction or submerge sack method is used and this requires the following:

- a) 2 cooking pots
- b) A jute bag
- c) A string
- d) 2 pieces of sticks
- e) A plastic bowl and
- f) Soap

**Procedure involved in Hot Water Bath Extraction or Submerge Sack Method:** A pot is filled with water  $\frac{3}{4}$  full and placed on fire. The size of the pot determines the quantity of wax to be extracted at a time or the number of times to extract wax. Fire is prepared in the usual way until the water begins to boil. A quantity of broken combs which is obtained after draining honey and producing honey drink is put into a jute bag and tied using the string. A jute bag is used because it is porous; it does not melt at high temperature and has no contaminants. The jute bag and its content are submerged in the boiling water. The wax melts from the bag and flows out to rise to the top of boiling water. Two sticks are used to skim the wax in the bag in boiling water. A plastic bowl is used to remove the oily wax into another container with cold fresh water where it hardens. This procedure is continued until all the oily wax is skimmed out of the combs in the jute bag. The residue is removed after all wax is out and this is made of pollen which can be dried to prepare either fowl or pig feed using corn. All the unwanted water in the wax flows out and the hardened wax remains. The second pot is placed again on fire and the volume of fire is reduced. The hardened wax is put again on fire with no water. The wax melts to liquid as stirring continues. A plastic bowl which is a mold that could be of various size and shape depending on needed shape and size of wax is smeared with soap. The reason for smearing with soap is to prevent wax from adhering to container walls. The liquid wax is poured into the smeared bowl and placed in a cold place to harden. After putting the liquid wax in a bowl it takes between 1 to 3 hours to have a cake of solid wax. The smeared container with wax after solidifying is shaken to remove the wax from plastic bowl.

## **SECTION III: QUALITATIVE AND QUANTITATIVE OF OKU WHITE HONEY AND BEE WAX PRESENTATION**

### **A- PRESENTATION OF FINDINGS FROM 100 BEEHIVES**

CAMGEW had to get information on the percentage of beehive colonization rate, honey production, death rate of bees in hives, rate of bees leaving (absconding) hives, the quantity of honey produced per hive and duration of local hives. The following information was gathered from experienced bee farmers. This information was gotten from hives in the hot zones (valleys), Kilum-Ijim forest and Kilum-Ijim forest peripheries.

#### **a)- Colonization rate**

CAMGEW worked with ten experienced bee farmers to obtain this tabulated statistics on colonization rate in Kilum-Ijim forest area.

Table 6: Rate of colonization in different sites

<b>Sites for beehive colonization</b>	<b>Rate of colonization in %</b>
Hot zones (valleys)	80
Kilum-Ijim forest	15
Forest periphery	30

#### **b) - Honey production in the Kilum-Ijim forest**

CAMGEW study team worked with farmers and institutions that produce and process honey to get this statistics. A beehive in the Kilum-Ijim forest can produce averagely the following honey products

Table 7: Quantity of honey and wax produced per beehive

<b>Type of honey</b>	<b>Quantity produced per beehive</b>
Crude honey	6 - 23 Kg
Drained honey	2 – 8 Litres
Wax produced	¼ - 2 Kg

Source: CAMGEW-Man & Nature Feasibility Study Report on Oku White Honey and Bee Wax from Kilum-Ijim Forest in Cameroon From March to July 2014

Old combs produce less wax while new combs produce more wax.

### c) - Death rate of bees in hives

Death rate of bee colonies in hives can stand at about 2%. This hardly happens. When it happens, it could be as a result of bee mouths, and 40% due to poor harvesting in the absence of honey harvesting equipment like bee suits, smokers, etc. When a bee sting it will have less than 24hrs to live. When many bees stings from a beehive there is a high possibility that the colony will die.

### d) - Rate of bees leaving hives (absconding)

This information was obtained from experienced bee farmers who have practiced bee farming for close to 3 decades or more on the rate at which bee colonies leave beehives:

Table 8: Rate of bees leaving hives in different areas

<b>Place of beehive location</b>	<b>Rate of bees leaving beehives in %</b>
Valleys where colonization occurs	5 - 10
Kilum-Ijim forest	40
Around forest periphery	5 - 10

A bee colony could leave a beehive in the forest because of poor honey harvesting, the choice of time of harvesting and the location of beehive. Beehives colonized around forest periphery and carried to the forest have fewer chances to abscond because of fewer differences in climate.

# **SECTION IV- OKU WHITE HONEY AND BEEs WAX QUALITY CONTROL**

## **A- WHITE HONEY ASSOCIATION KIWHA**

The Kilum/Ijim White Honey association (KIWHA) is the umbrella organization created in March 29-20<sup>th</sup> 2011 and registered under authorized No.122/AR/E26/PS/188 in conformity with Law No.90/053 of 19/12/90 relating to freedom of Association in Cameroon. KIWHA takes care of quality control of the production of white honey, transportation and marketing of honey and some honey products around the delimitation zone of Kilum/Ijim forest.

Geographical indication of the Oku white honey: the G.I refers to the certification of the Oku White Honey under certification N<sup>o</sup> 003 of 22/07/2013 in compliance to application N<sup>o</sup> 6201300002 and prefectural decision N<sup>o</sup> AR/E26/PS of 29<sup>th</sup> of March 2011 granting the sole operation of KIWHA over the Delimitation zone that cover the Divisions of Bui and Boyo as follows: Kom, Oku and Nso across Fundong, Njinikom and Belo in Boyo Division, Jakiri and Oku in Bui Division.

These zones are located around both edges of the Oku Mountain, the Kilum zone of which includes Oku and Jakiri being the principal pole of production and the Ijim zone represented by Belo, Njinikom and Fundong.

Three principal types of stakeholders are involved in the white honey value chain as follows: the producers', traders, and the forest management agents. The latter intervene essentially in the preservation of natural resources.

Under these conditions, each operator within the said system is charge to identify his/her self as follows:

## B- IDENTIFICATION

NAME OF MEMBER	Refers to each operator in the Oku White Honey zone that most register with KIWAHA
Date, signature and reference of contract	Each operator must sign a contract with KIWAHA to respect production roles and the date of engagement is made clear with contract No.
Address (Tel, email, P.O. box etc.)	The operator gives his full address.
Honey production zone.	The operator must follow the roles defined in the zone.
Species of bees	All honey and honey products must be of Apis Meilifera a donson
Last date of training of members	Each operator must have undergone training before carrying out operation in the zone
B.	Production
Period of placing Hives	The operator must respect the period of placing the hive in the field of colonization and in the production zone.
Harvest Period	Harvest period begins in April and ends in June and in February after every two years.
Date and Time of Harvest	The date must be mentioned and time must be within the day.
Duration of smoking before harvest.	The time taken to smoke each hive should not exist 30mm to avoid smoke getting adhered to honey and material should come from the forest.
Time and date of deposit at the conditioning centre	The time to smoke should be stated to make sure that the honey is harvested and bring to conditioning before 24 hrs.
Training report of internal controllers.	A panel of controllers are trained to carry control and monitor the activities of operators in the Delimitation zone
Annual internal control (all control report, statistics of internal control, list of recalcitrant producers and measures taken.	All control reports are compened to annual reports and recalcitrant producers and sanction according to their offence as defined in the role of operation.
Annual protocol report for all inspection carried	The reports are examined and compiled to annual reports by president.
Type and nature of sanctions	The list of sanction is stated in relation with the offence as follows: time warnings, remarks and dissimal or legal charges.

# C- INTERNAL CONTROL CHECK LIST OF MONITORING, TRACEABILITY OF THE PRODUCTION AND COMMERCIALISATION OF OKU WHITE HONEY

INTERNAL CONTROL PROJECT GUID FOR EACH PRODUCER

## A-IDENTIFICATION

ASSESSMENT FACTOR	INDICATION OF STRONGER CONTROL	INDICATION OF WEAKER CONTROLS	ASSESSMENT				
			STRONG-----WEAK				
<b>LAWS AND REGULATIONS CONTROL OF THE RESPECT OF THE CAHIER DES CHARGES</b>							
1.the control of conformity of the protocol, equality, traceability, conservation, of the natural resources of the oku white honey	The protocol and its policies are well understood	Policies are poorly understood	1	2	3	4	5
<b>TRACEABILITY</b>							
1.2 respect of delimitation zone	Laikom, fundung 6061, 10017'04 oku, vekovi-jakiri 6014'59, 10026'02	Out of delimitation zone					

1.3 attitude;	Mountainous zone of 1600m and 3011m	Non mountainous zone					
Regional and department limits	North west region-crossing the councils of fundung, Njinikom and Belo in the Boyo, Jakiri and Elak in Bui	Out of north west region					
<b>QUALITY CONTROL ( COLOUR, TASTE, TEXTURE AND MOISTURE CONTENT)</b>							
2.1 COLOUR	WHITE 9-17MM	GOLDEN BROWN					
2.2 TASTE	TASTE OF HONEY	ACIDIC, CHEMICAL					
2.3 TEXTURE	CREAMY AND LIGHTLY GRANULAR	LIQUID AND SOLID					
2.4 MOISTURE	18% - 20%	LESS THAN 20%					
<b>METHODS OF PRODUCTION</b>							

SOURCE	from bee hives of (apis midlifera adansoni)	from bee hives of apartment or genre melipomula or others					
HIVES	traditionally fabricated hives	produce with rusted metal					
PERIOD OF PLACING THE HIVE	September and April	at any time you fell to deposit					
MATERIAL	new plastic buckets reserved for alimentation products or clean dry buckets with covers which have been used to collect products of the nature	metal or recycled plastic and dirty buckets					
HARVEST	for double harvest per year it is done in the month of February and between April	any time you need honey from the forest					

<b>transformation and storage</b>							
DURATION OF TRANSFORMATION AFTER STORAGE	within 24hrs in very hygienic conditions	after 24hrs when solidification gas already takes place					
STORAGE	stored in clean alimentation buckets with covers in and authorised store: by minepia avoid contamination	stored in recycled buckets and kept in an environment with free access to the public					
CONDITIONING	honey stored in a clean buckets or containers forbidden to be heated and registration of the documents as per the date of operation, origin of the conditioned honey, quality and quantity	Management is willing to get the job done without adequate regards o quality					

Labelling	All the honey sold to consumers must have the label Oku white honey	Oku white honey sold without label on the containers					
<b>ORGANISATIONAL STRUCTURE</b>							
Assessment factor	Indication of stronger control	Indication of weaker control					
Complexity of the organisational structure	Complexity of the structure is commensurate with the organisation lines or reporting, are clear and documentation is up to date	Lines of responsibility are unclear or unnecessarily complicated for the size of the entity					
Organisation chart	Documentation exist and up to date	Documentation does not exist or out of date					
Size of the management group	Size is commensurate with the complexity	Size is not appropriate i.e too many levels etc					

Stability of the management group	High turn over	Low turn over					
Capacity building	Internal controllers are fully trained to ensure quality control	Little or no training obtained					
Test analyses	All test conducted for quality control are documented and up to date	No good data recorded					
Delegated signature authority	Appropriate limits have been placed on each delegation of signature and authority. Management review and update signature records as turnover occurs	Signature authority is delegated without adequate consideration. Delegated authority is not in line with employee knowledge, training or competence					

Trainings	On the job and other training programs have defined objectives. They are effective and important	Training programs are inconsistent, ineffective or are given lower priority					
Supervision policies	Personnel are adequately supervised. They have a regular resource for solving problems	The evaluation process is adhoc and inconsistent. Performance issues are not formally addressed					

## SECTION V: MARKETING OF HONEY AND BEE WAX

### A- EXISTING MARKETS

The following markets were identified as existing for Oku White Honey and Bee wax from Kilum-Ijim forest.

Table 10: Existing markets for Oku White Honey and wax locally and nationally

Locally in Oku	Nationally (other towns)
Oku Honey Cooperative Society - Oku	Apiculture and Nature Conservation Organisation (ANCO) formerly called NOWEBA - Bamenda
Etablissement Sammy Sammy - Oku	HONCO - Bamenda
Oku Bee farmers - Oku	BERUDA - Belo
Strugglers Mixed Farming Group - Oku	MAHIMA – Yaounde and Douala
Pure Refine Honey - Oku	Promise Enterprise - Kumbo
Oku Cultural and Touristic Centre - Oku	Shiyka Supermarket - Kumbo
Mann Group - Oku	Bamenda Handicraft Centre - Bamenda
Oku forest Honey - Oku	Bamenda Vegetable Cooperative - Bamenda
	North West Cooperative Association (NWCA) - Bamenda
	North West Bee House - Bamenda
	Le Miellerie – Douala
	<b>Mount Oku Organic Honey - Yaounde</b>
	Guiding Hope - Yaounde

All these institutions sell both white honey and wax except Supermarkets that do not sell wax like MAHIMA and SHIYKA Supermarkets.

## **B- COLLECTION OF BEE WAX FOR MARKET**

The collection of bee wax from cooperatives around Kilum-Ijim forest for marketing is important to ensure respect of standards, time and be sure of quantity. This will help us convert farmers produce into money that will improve on their livelihoods thereby making them see every reason to conserve the Kilum-Ijim forest. The bee farmers around Kilum-Ijim forest that produce Oku white Honey have been organized into groups at village level and then the groups have come together to form cooperatives. CAMGEW will sign a contract with the cooperatives on an agreed price, quality and quantity that will be delivered to her. The cooperative will agree on environmental responsibility of members of the cooperative towards the Kilum-Ijim forest where the wax come from. The farmers through their groups will bring the harvested Oku White Honey to the cooperatives for processing. The chaffs from the honey will be process to bee wax. The bee wax will be collected from the various cooperatives by CAMGEW in jute bags and stored in the Honey Shop she owns at Bamenda for exportation to the buyer.

### **RECOMMENDATIONS**

- There is need to encourage many community members in bee farming activities.
- There is need to training bee farmers in wax production and beehive construction.
- Bee farmers around Kilum-Ijim forest need to be organized into cooperatives. The cooperatives need to be provided with equipment and materials for wax production.