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# Ground study on Water Management in 17 villages of Oku Analysis of the current situation



# April 2015

# Plan

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### Introduction

There is no use to repeat that water is life. It can also become death if not consumed well : water is the first cause of mortality in Africa, as living conditions do not always allow a safe and healthy consumption of water. 50% of child's mortality is due to diarrhea and 3,1 millions people died in 1996 from this same desease. Water can carry different types of microbiological agents, like bacteria (E. Coli, salmonelles...), viruses (polio, hepatites), protozoaires and intestinal worms. Theses agents are absorbed orally. If water stagnates, it can also be a reproduction site for insects vectoring diseases. The contamination often occurs when the water is in contact with used water, as it is most of the time the case for suface water like streams.

A human being needs to absorb 2,6 L of water a day, either from drinking of from food. Counting other needs, one needs 5L a day. If drinking water is not healthy it represents a direct danger for the consumer.

In Oku, most of catchments are spring catchments and water is caught directly when it comes out from the mountain. If there is no source of contamination between the moment it is caught and the moment it is consumed, there is a small probability for people to become sick drinking it. Anyway the problem which was the most often encountered does not come from the distributed water itself. Even if many water systems in Oku are not too old, most of the villages suffer from shortage : 15 out of the 17 visited villages suffer from water shortage in the dry season or for longer or irregular periods. During this time, some people may have to drink water from streams, thus increasing the risks of being contamined.

Together with the council of Oku, we decided to carry out a ground study on water management in 17 villages of the subdivision, which lead to a Water Forum to which every WMC was invited and where water related issues were discussed. The fourth part of this report summarizes the water forum. We carried out the inquiry in the urban area (which regroups Elak, Manchok, lower Keyon, Fekin, Mbockfui, but counted as one village), Ngashie, upper Keyon, Mbam, Kfum, Mbancham, Nfkui, Jikijem, Mboh, Ibalichim, Ichim, Nvuingkei II, Ngham/Ndum, Nvuingkei I, Kevu, Mbockamlung and Ibal.

The required information concern the water system itself, the type of organisation which is in charge of water management and the problems encountered by the village regarding water supply. The questions are all gathered in two questionnaires you can find at the end of this report in the appendixs : one questionnaire about general questions we have to answer for every village, and one satisfaction questionnaire for consumers, so that we can gather the resident's point of view that may not always be expressed by the WMC.

We also visited storage tanks and water catchements when possible.

This report aims drawing a map of the current situation regarding water management in these villages. It is a public document that should be used as a base document for every stakeholder wishing to improve water supply in these villages. In particular for the council of Oku itself, which is from now aware of the common problems and should take appropriate measures to address them.

The first part relates general observations we have made, the results village by village are described in the second part and summarized by a table, and in the third part we give recommendations on what is urgent to be done.

We want to apologize for any mistake due to misunderstanding or accuracy that can be in this report and we do hope it will be a first stone for Oku's water system's improvement.

### I. General observations

### 1. Water Management Committee

There is no use to say that for any community the water management has to be handled by a structured committee which is in charge of an efficient management of water in the village. The existence of a committee is the precondition to any decision making process. It is in charge to operate the water levy, without which the needed repairs cannot be organised. It is in charge to make on a regular basis the point on the situation, to write projects to address the encountered problems, to search for fundings. However, we have noticed that only 11 out of 17 of the interviewed villages have a proper WMC. And none of them have a regular water levy.

A network that is not maintened is doomed to be inefficient and will need more frequent repairs. Catchements need to be rehabilitated. Caretakers need to be motivated to work. Material has to be bought. All these operations require money.

It is of course a complex problem to collect money, as some people may say that the water system is not efficient so they don't want to pay (thus implementing a vicious circle), some others may say they can take their water from the streams, which is free. The humanbeing is in general reluctant to pay for something he cannot see, and prevention is part of this : it costs less to pay for healthy water than to pay the hospital if one becomes sick.

Some advertisement and sensitisation campain can be done in order to promote water levy.

Also, a crucial point is trust : people may not want to contribute to the water system because they do not trust the WMC. For instance, if there are often some cuts without warnings, they will not be satisfied with the way water is managed. A good communication between the WMC and the community is essential. If members come only to collect money, and not when repairs are needed, the community feels betrayed.

At the same time, it is important that the community feels included when decisions are taken, so that they know which (crucial) role in this machine they are playing. They are the key of the system, as they are the main beneficiaries, so they have to be informed regularly about the plans that are done, about the necessity to spare water.

### 2. Water Shortage

The biggest problem all around Oku is shortage of water. Apart from the urban area and Ngham/Ndum (which experiences of shortage for technical reasons), every village has shortage of water in the dry season, if not for a longer time.

Some village manage to ration water, like Mbam, where people don't have to carry water from streams (in the quarters supplied by the network). Mbam decides which quarter will take water at which time of the day, and give the informations in the church and local radio.

In some villages, people may use their neighbor's private line.

However, during this shortage time, half of the villages use water from streams and may drink this water. As shown in the introduction, this is the biggest health problem, as this water is certainly

contaminated by cattle or used water.

Shortage of water may occur for different reasons :

-most often, there is no maintainance and leeks are responsible of the shortage. Some taps may be spoiled and let the water run. During the rainy seasons, we may not see the effect of leeks on water supply, as the supply is anyway already good. Pipes have to be fixed, leeks repaired. repairs have to be organised together with the WMC.

-the catchement may be too old and do not supply enough water anymore. In this case, rehabilitation is needed, or construction of a new catchement

-bad use of water : we often saw open taps from which water was flowing just because people had not closed them down. The community has to be sensitised.

### 3. Water Accessibility

Every village counts quarters in which water is not distributed. Oku's water networks need extensions. Some people may walk 30 minutes to take water, and in the dry season, they may have to stand in line for a long time because of the small flow. If it is too far, people may even give up and decide to take water from closer streams.

It is however important to check that the supply is already good before thinking about extensions of the network.

### II. <u>Summarized situation village by village</u>

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### <u>Summary of the enquiry in the urban area (Elak, Manchok,</u> <u>lower Keyon, Fekin, Mbockfui) on the 14th of April</u>

### Description of the villages and its water distribution :

There are 2 river catchements supplying the urban area in water. The total population of this area is estimated around 21000 people.

The catchements are in the forest. They are not protected with fences.

The water in then going to the treatment plant.

There are 5 tanks in total :

-The first one, in which water first arrives. Washed every 2 months.

-The second one in the sedimentation tank. Particles depose on the bottom of the tank. It is washed every 2 months. The chemical treatment now occurs in that tank : 2kg of chlorine is used for one week, following instructions given by some engineer of Kombo.

-the third tank is the filtration tank. Water is filtered on sand. It is washed once a year.

-the fourth tank is the chemical tank but is no longer used for this purpose. It is washed twice a year. -the fifth tank is the storage tank. It is washed twice a year.

Most of the equipments (chemical laboratory, sand washing machine, mud upsucker etc) were stolen in 2005. Nothing have been replaced.

There are 5 caretakers who are paid by the council to take care of the system.

The annuel contribution is 2000 FCFA per year per tap.

### Summarize of the current situation and the population's point of view:

Since the robery, the treatment is not as efficient as before. Water is slightly colored, and it gets worse after heavy rain.

There is no shortage of water during the whole year.

Some people complain of sicknesses after having drunk water. And following the analysis conducted in march 2015, the water contains 3 to 6 CFU/100mL of germs (3 already at the source). The report recommended to decrease human activites all around the catchement. The treatment is insuffisant. A feasibility study to replace the equipments was done and estimated the cost up to 21000000 FCFA.

### Work that need to be done :

We would recommend to protect the catchements and ban any human activities below the dams. The ultimate goal would be to replace all the equipments. The most urgent one to replace is the chemical treatment, which wouldn't be as expensive.

We would also recommend to adjust the quantity of chlorine and to conduct the treatment in the treatment tank. The reasons for that is that the tank is much smaller, so the stirring is easier, which is a necessity to guarantee a homogeneous concentration of chlorine in the water (there is no point in the tank that is more concentrated than another one in chlorine).

The treatment in the sedimentation tank : we recommend to place it again in the treatment tank.



One of the two dams. Water is quite dirty at the dam. The catchements should be fenced.



Signature of chief caretaker :

Signature of traditionnal ruler or council :

# Summary of the enquiry in Ngashie on the 15th of April

### Description of the village and its water distribution :

Ngashie counts around 8000 (?) inhabitants and has 5 spring catchements but only 3 are working. The WMC does not exist, as the president and some members died some years ago. Money is never collected, except punctually if some catchements have been built. In 2006 for instance, 5000 for men and 3000 for women were given for the construction of a new catchement. Stop cups are not scealled or locked and anyone can open them. One is even in the middle of a farm and the stop cup was covered with ground. The pipes' diameter changes from 40mm to 50mm. A new catchement was built last december.

### Summarize of the current situation and the population's point of view:

Water has not been flowing for sometimes. When we visited the stop cups, someone had apparently opened it and turned it down.

Water is colored. It is due to the old catchements that are still connected to the lines and dirty. Also rain may drain some dirt in the old tanks during rainy season.

If the whole network is functionning well, there is no shortage of water even during the dry season. The quality of water is good (people don't complain about it).

Half of the village does not have access to water. They take their water from sources and drink it.

### Work that need to be done :

A new water catchement should be built to provide water to the part of Ngashie which does not have access to it. That is to say, the network needs extensions.

Every slab from any tank or chamber should be scealled and locked.

There are many leeks that need urgent reparations.

The old water catchements need to be rehabilitated : cleaned, protected, and maybe cimented if there is a stop cup before the connecting tank.

Elections of WMC need to take place together with the council so that a structured and powerful authority can take appropriate decisions such as banning farming from the surroundings of the water catchements and sanctionning people opening the slabs.

Storage tanks are too small (10 000L). They need extensions.

Some trees need to be planted around the new catchement.

### **Contact :**

Mankoh John Tabi Laah Felix - Caretaker Ndifon Raphael Nsuh Samuel Laah – PNDP President This catchment would need rehabilitation : cleaning, farming banned, cementation.



The major problem in Ngashie is management. This slab was not locked, someone had closed it. There is no strong power ruling management of water.



Signature of WMC's President : Signature of traditionnal ruler or council :

# Summary of the enquiry in upper Keyon on the 15th of April

### Description of the village and its water distribution :

Upper Keyon counts around 500 inhabitants and has 1 spring catchement and one storage tank. It was studied and constructed by the Technical Highschool and was supposed at first to provide only the school. Respectively 2000 and 1000 FCFA were collected from men and women to extend the network right after the construction. If someone wants a private connection he has to do it himself. If a tap is broken, he has to buy the tap and call a technician to have it repaired.

The major part of the water is not caught directly at the source, but comes from a connection with running surface water. There is some farming above. As a result, the catchement has to be washed very often, so that mud does not prevent water from flowing.

There are 40 taps.

### Summarize of the current situation and the population's point of view:

As water is running before it is caught, it may drain a lot of dirt and after heavy rains, water has been reported to have a color.

Water is not flowing regularly in the village. As a result, many people have to take water from streams, and drink it, which causes diseases.

There are different possibilities. First, the flow at the catchment is too small. It was not meant to supply water to the village but to the school. It is possible that the pipes are too small and that they do not allow water to run, so that when the lower part of upper-Keyon only gets water when no one else is taking some. For instance the school always has water, except when the catchement is too dirty and blocked with mud.

However, it cannot be the only reason, because the flow is too irregular and water may be not flowing for some days.

As we opened the slab showing the outlet pipe from the storage tank, we could feel a lot of air getting inside the pipe. Together with the size of the pipes and the topography, this may prevent water from flowing.

The accessibility is not good and many people don't have access to water.

Water is never flowing in the part of the village where the line first has to climb up a hill.

### Work that need to be done :

Upper-Keyon needs to build another catchement and place it directly at the source from which water is taken. As it is right now it is very unhealthy.

The pipes need to be change to bigger pipes.

A bleeding point (breathing chamber) has to be installed so that air can escape.

The network needs extension.

### **Contact :**

Ndishangong Jerome – Member (councelor) Ngangwa Martin – chairman Bafon Emmanuel - Caretaker Mankoh Rose – Secretary and treasurer Kiven Peter – Member Nshom Francis – Member

Outlet pipe from the storage tank. The diameter is too small and there is air in the pipes.



Signature of WMC's President : Signature of traditionnal ruler or council :

# Summary of the enquiry in Mbam on the 17th of April

### Description of the village and its water distribution :

Around 8000 people live in Mbam. There are 2 water catchements and a storage tank.

2 out of the 4 quarters of Mbam don't have access to water because they are located at a higher altitude. An amount of 5000 FCFA per person were asked to construct the catchements in 1998, which were also sponsored by the bishop of Kumbo.

There are 40 private taps and 6 public taps.

There is no current water levy, but a new constitution in which a water levy has to be collected will soon be chosen. Owners of a private tap give 2500 FCFA a year and paid 21000 to get the connection. This money is used to buy materials, as motivation for the caretaker, or to be saved in the WMC's account. Pipes were destroyed during the construction of roads but money were given as the WMC did some request to get funds.

Tanks are washed every three months but the catchement we visited was very dirty.

Trees have been recently planted around the catchement we visited. Around the other catchement, they have apparently been taken by the landlord, even if some agreement had been found.

The WMC meets quite often and write in a book what have been discussed.

### Summarize of the current situation and the population's point of view:

The biggest problem in Mbam are the shortages during the dry season. Water is rationned between the two quarters. It is announced in church or using the local radio.

During shortages or even for the people who don't have access to the network, people carry their water from streams.

The quality of distributed water is not the best, the result of the tests run in april for Mbam show a concentration of 2-3 CFU/100mL in the water at the source.

### Work that need to be done :

A new catchement needs to be built.

The two quarters need to be provided.

The water levy needs to be implemented.

The catchement showed in the picture below needs to be more efficiently protected from dirt and cleaned.

### **Contact :**

Seh Joshua – President – 651 092437 Ngek Walters – Vice President Kekay Emmanuel – Secretary – 675507501 Konseh Victorine – Treasurer Ndikwa Peter – Financial Secretary Tafon Henry – advisor Fingek Joseph – chief caretaker - 653264024 Mngo Samson

The results of the chemical analysis done in april 2015 showed that water from Mbam has 2 to 3 CFU/100 mL of coliforms. The catchment we see below is indeed very dirty. The slab would need to close hermetically.



Signature of WMC's President : Signature of traditionnal ruler or council :

# Summary of the enquiry in Kfum on the 17th of April

### Description of the village and its water distribution :

Kfum has one spring catchment in Nankwie which is fenced, and a storage tank. As this report is written, it has not been handed over to the community yet but it is supposed to be quickly the case. At this time of year, the flow is rather slow and the level at the storage tank is low. There are 2 standtaps from this WC providing Nankwie.

There is only one man working on the maintenance right now. He is not paid. He uses material left by the contractor.

The village contributed for 5% of the costs of the construction. The community is ready to pay water levee when it will be organised, so I was told.

### Summarize of the current situation and the population's point of view:

There are shortages of water during the dry season from february to may. During these time people take water also to drink from the streams. They may not boil it and people may be sick in consequence (dysentery, diarrhea...). They may also use rain water to cook. The quality of distributed water is good.

#### Work that need to be done :

The WMC has to be elected or restructured again. Another WC is needed to supply water during the dry season but no feasibility study has been done.

### **Contact :**

Wilfried Shey (Caretaker)

The storage tank providing Kfum. The biggest problem is shortage in the dry season. A new WC is needed. The WMC does not exist.



Signature of WMC's President :

Signature of traditionnal ruler or council :

# Summary of the enquiry in Mbancham on the 17th of April

### Description of the village and its water distribution :

There are 2 water catchements and one storage tank in Mbancham that were built last year. As this report is written, it has not been handed over to the community yet but it is supposed to be quickly the case.

There is a good level of water at the catchment and in the tank. They were not locked.

The catchement and the tank are very dirty. Some waste water is not drained and stagnates around the catchement.

There are 8 public taps, one catchement supplying 6 taps and one supplying 2.

There is one leekage on the line from WC 1 and one pipe was completely broken because it was not protected from anything but above the ground, in the air, and not galvanised.

The village contributed for 5% of the costs of the construction, which made 1 000 000 FCFA. The state of the taps is very bad and almost every slab is broken.

### Summarize of the current situation and the population's point of view:

Distributed water has good quality (people living around the first tap answered us). There is apparently no shortage in the dry season.

Because of no maintenance and no real power from the WMC, only 2 taps are flowing. One is not flowing because it is blocked. The others because of the broken pipe after the second pipe of WC 1. There are some conflicts in the WMC and a caretaker who has not been elected also wants to have some responsabilities. Some misunderstanding also concerned the maintenance, since the WMC thought it was to the contractor to take care of the maintenance until it was handed over to the community, whereas it was to the community already.

As a result of the poor maintenance, almost everyone carries water from streams.

### Work that need to be done :

The WMC has to be reorganised and empowered.

Some serious maintenance work has to be done in Mbancham : washing tanks, adding locks everywhere, stagnating water drained at the catchment.

The big leekage has to be fixed. The broken pipe has to be replaced with galvanised pipe and even solidified.

The catchement needs to be protected and some trees should be planted around it.

The population has to be sensitize not to play with taps or the slabs around the taps.

Once this will be done, we can think of extensions.

Mbancham should beneficiate of prevention seminaar on the importance to boil drinking water.

Contact :

Isaac Ngobe (councelor)

Pipe broke down and are no longer providing the village. The situation is critical.



Signature of WMC's President : Signature of traditionnal ruler or council :

# Summary of the enquiry in Nfkui on the 19th of April

### Description of the village and its water distribution :

Around 4500 people live in Nfkui. There are 2 water catchements and no storage tank.

2 out of the 4 quarters of Nfkui don't have access to water.

Around the catchement we visited there is farm and animals. Since there is no storage tank, or maybe for another reason (we could not open the catchment), most of the water is evacuated by the waste pipe. There are 4 breaking preassure chambers.

The pipes were blocked some time ago by a frog, preventing water from running. It is the same situation now, and it may be dirt.

There are 30 private taps and 5 public taps.

Money used to be collected yearly, but it is no longer the case since people from the quarters not supplied by water were reluctant to pay for something they do not have. If some repairs are to be done, people who are concerned contribute.

The caretaker is not paid. 5000 FCFA is the price to get a private connection, and then the annual contribution is 1000 FCFA.

### Summarize of the current situation and the population's point of view:

When the pipes are not blocked, water seems to be running, without even shortages in dry season. However, some dirt or something is apparently blocking the pipes, so water is not flowing well in the village.

If people do not have access to water they may have to walk to reach a tap, or to a stream if the distance is too far. They may drink it.

The quality of distributed water is good.

### Work that need to be done :

A storage tank needs to be built urgently.

Some work have to be done to unblock the pipes.

The catchement we visited has to be protected, farming banned, trees planted and animals delocated. The network needs extensions.

Some seminar need to be organised again to teach how to treat water at home, emphasizing about the money.

The water levy has to be collected regularly again, at least for the quarters which benefit from water. The price to get a private connection should be raised up and put in an account in order to be able to organise bigger reparations.

### **Contact :**

Joseph Wonghibe – President Timothy Bongio – Vice President (elected on the 19th of April) Alphonse Ngek – Secretary Elizabeth Iookem – vice secretary Odette Tete – Treasurer Tafon Vitalis Ngong – financial secretary (elected on the 19th of April) Hilary Ngonyey – Chief Caretaker Mngoh Daniel Nchinda – Second caretaker (elected on the 19th of April)

This water catchement is very bad protected : there is intensive farming in the direct surroundings, as well as animals grazing. Pipes are not burried. There is no storage tank, so the catchement is constantly overflowing.



Signature of WMC's President : Signature of traditionnal ruler or council :

# Summary of the enquiry in Jikijem on the 20th of April

### Description of the village and its water distribution :

More than 10000 from Jikijem, Mbok Jikijem and Kesortin, are supplied by the only water catchement located in Jikijem, which was constructed 30 years ago. The catchment is overflowing. It is protected by fences but there are no trees around it. Every slab is well locked and only the caretaker has the key. There are 3 storage tanks and one interuption chamber.

The catchement's output pipe has a diameter of 63mm, which goes in the interuption chamber, which has itself 3 output pipes, one of 25mm, one of 63mm and one of 50mm. Due to this difference at the interuption chamber (bigger output than input), the flow is not as big as it could be.

Some mud have been blocking the pipes.

A project to raise funds to buy new pipes failed.

Another catchement is being built. No feasibility study has been made. People contribute with their money and time.

There are 200 taps in total. The yearly cost per private tap is 1500 FCFA. The price to get it is 6500 FCFA.

### Summarize of the current situation and the population's point of view:

The WMC has not been functionning for years.

There are some shortages in the dry season. People use water for gardening and making bricks.

3 out of 10 quarters don't have access to water.

The quality of distributed water is good.

### Work that need to be done :

The newly formed committee elected on the 26/04 has to be trained by the council.

If every village that is concerned can get its own water catchement, we would recommend to have different WMC in the villages, so that the management is easier.

Some seminaar has to be organised to sensitise people to water treatment at the house.

A bigger pipe has to replace the actual 63 pipe coming out of the catchement.

The network needs extensions.

A study should be done urgently on the ongoing construction of the catchement. Some trees should be planted around the catchement.

### **Contact :**

These are the members of the WMC elected on the 26/04/2015.

Tanghang Joseph – President – 696118078 - Jikijem Tafon Baibo – Vice President – 697338044 - Mbockjikijem Yang George T – Secretary – 675238614 - Jikijem Lamfu Ndikaka – Vice secretary - Kesortin Ezekiel Bayong – Treasurer – 696043752 - Jikijem Yang Sarah – Financial Secretary – 671693969 - Jikijem Njakoi Samuel – Auditor - Jikijem Chief Ndiskangon – Advisor – 696766097 - Jikijem Chief Fonbi – Advisor – 693930316 - Mbockjikijem Chief Kochi – Advisor - Kesortin Chak Amos – Caretaker – 69954111 - Mbockjikijem Johnson Fonbi – Caretaker - Jikijem Ick Sam Menda – Caretaker – 678252630 - Jikijem Nai Florence – Advisor – 694197195 - Jikijem

This water catchement is protected but the perimeter needs to be bigger, and some trees need to be planted. The flow is good but the pipes to the storage tanks are too small, which can cause shortage.



Signature of WMC's President : Signature of traditionnal ruler or council :

# Summary of the enquiry in Mboh on the 20th of April

We did not manage to meet anyone from the WMC. These informations were given by the CDO and a citizen of Mboh.

### Description of the village and its water distribution :

Mboh counts 3100 inhabitants and takes water from two sources. One is in Mboh near the health center and has only 3 taps (WC2). The tank is overflowing because it is simply not consumed. The biggest part of Mboh's water comes from Jiyane. No money is collected for this water. There are shortages in the dry season.

### Summarize of the current situation and the population's point of view:

Apparently some extensions (1 extra tap) have been tried for the WC2 but apparently there was not enough water for the health center during the time they tried. We are surprised to hear that as the tank seems to be able to supply water to many others taps.

The water from Jiyane is apparently bad, it is colored and contains particles but we have not been able to verify or visit the WC in Jinyane, in order to see what problems it had.

### Work that need to be done :

We would recommend to try another time to make extensions for WC2. The network needs to be extended to Fianen Kem. The elections of a WMC have to be organised. We can advise to check the system in Jiyane and maybe to wash the catchements.

### **Contact :**

Bah Emmanuel for WC2 Storage tank newly built. Since it is supplying just 3 taps, the tank is overflowing.



Signature of WMC's President : Signature of traditionnal ruler or council :

### Summary of the enquiry in Ibalichim on the 23th of April

#### Description of the village and its water distribution :

Ibalichim counts around 700 inhabitants and has one spring catchment and one storage tank, which were built in 2013. It was handed over to the community last month.

There are 11 taps and 2 were constructed but are not yet connected because of financial reasons (the fundraising were not enough). No regular water levy is done.

There are 2 caretakers, of whom one was trained by the contractor, but no tool box. Tanks are not washed. The lock of the WC had been removed.

The WC is protected with fence and the surroundings are well protected.

#### Summarize of the current situation and the population's point of view:

Ibalichim experiences shortage between february and march. During this time, the supply is cut at night and reopened in the morning so that people can have water in the morning.

One side of the village supplied by the network does not have water all the time. This concerns 4 taps. As we visited the catchment and the tank, we realised the level was quite low, even at 11 am. This lead us to think there might be a problem in the network, either leeking taps, either taps that are left opened as they were not providing water during the day, and emptying the tank at night.

However, as the main line separates down the hill, and then has to climb again to reach that part of the village where there is not always water. This mays explain the irregularity of the flow.

#### Work that need to be done :

The network needs to be extended to the parts not supplied by water.

The line that has to climb again could be directly connected to the storage tank.

The tanks need to be washed every 3 months.

A toolbox needs to be given to the village.

A regular water levy needs to be implemented, maybe with the part of the village which already has water, in order to pay materials and pay the caretakers.

Some sensitisation has to be done for people not to leave the taps open.

The quality of distributed water is good.

### **Contact :**

Keming Samuel Ngong – Chairman – 677856391 Kuyu Paul – Secretary and Caretaker – 676153256 Mbuh Ignasius – Caretaker – 677702718 Taal Chrisangtus – Financial Secretary Anna Mafene Ndifoyu Bakosi Qwutuyu Patrick The water catchment in Ibalichim is well protected by fences, and some trees are growing. The level is however quite low in the storage tank. The stagnating water should be drained.



Signature of WMC's President : Signature of traditionnal ruler or council :

### Summary of the enquiry in Ichim on the 23th of April

### Description of the village and its water distribution :

Ichim counts 14000 inhabitants and has 2 spring catchments and 2 storage tanks, which were built respectively in 1996 and 1999. Both were paid by the community and beneficiated from financial support from the government to extend the network in 2003 and 2006. Both tanks are washed every 3 months.

WC2 is full and water is even flowing by the waste pipe. Maybe it is because the pipes are too small (40 mm)

4 out of 8 quarters do not have access to water. There are 26 public taps, but 15 have been cut because they were not functionning and had not been repaired because of financial issues. There are 74 private taps. It costs 5000 FCFA to get a private tap and an annual fee of 1200 FCFA. This money is not enough to pay repairs and the WMC is assisted by the VDA.

There are 2 trained caretakers who are training a third one.

The WMC holds meetings every month or more often if there are some crisis.

#### Summarize of the current situation and the population's point of view:

People from the quarters which don't have access to water usually walk to the closest tap in the next quarter.

There are shortages during the dry season (february to march). Sometimes there are shortages but for technical reasons, and even if the flow at the catchment is good. There is some air in the pipes. Some people may walk to a tap which has water, some may take water from streams. They don't always boil the water, although they may know it is necessary.

The network has many leeks, because the pipes are not strong enough.

The quality of distributed water is good.

### Work that need to be done :

The amount collected to get a connection should be higher, like 20 000 FCFA. Private connections should be shut down if the annual fees are not paid and re-opened after having paid a fine. and a regular water levy needs to be implemented, maybe with the part of the village which already has water, in order to pay materials and pay the caretakers.

Leeks need to be repaired.

During the shortage, some rationning can be implemented, splitting the day between the 4 quarters. The network needs to be extended to the parts not supplied by water once a new WC has been built. The pipes have to be burried.

Some sensitisation has to be done for people not to leave the taps open.

A releasing air chamber should be put for the line from WC1.

A feasiblity needs to be done to add a new WC.

### **Contact :**

Diom Elizabeth – President – 697040536 Kensam George – Vice President – 694142071 Yang Ernest – Secretary – 676404133 Alice Ghamte – Vice Secretary Basi Mercy – Treasurer – 674999796 Kangeh Gilbert – Finance Secretary – 696952754 Meyeghe Kenneth – Caretaker – 676127644 Tabi Pius – Caretaker - 694259956

The level in the storage tank is quite low. Ichim's main problem is maintenance. Pipes are broken, and the finance cannot support repairs. A new catchement should also be constructed.



Signature of WMC's President : Signature of traditionnal ruler or council :

# Summary of the enquiry in Ngvuinkei II on the 24th of April

### Description of the village and its water distribution :

Ngvuinkei II counts abund 1500 people and has 3 catchments, built respectively in 1994, 1995 and 2013, and one storage tank for the two most recent catchments. They are washed every month, but since WC3's lock was spoiled, no one has opened it for a long time.

A new WC is being built by the caretaker right now without any study. The digging have been done so far, but for financial issues, it has stopped.

The input and output pipes for the storage tank have a diameter of 50 mm.

The two catchments which are supplying the storage tank connect with pipes whose diameters are respectively 40 and 50mm (so 40+50 from the catchements arrive in a 50 at the tank).

There are 39 private taps and 16 public taps. It costs 35 000 FCFA to get a private connection, except for the people who have contributed with their time for the constructions of the catchments.

Money is collected only when required : there is no regular levy. It would be 1000 FCFA for men and 500 FCFA for women. One for instance was organised in 2014.

All together, this money is not enough to pay material for repairs.

The WMC is structured and powerful. They meet only when necessary.

### Summarize of the current situation and the population's point of view:

Distributed water is good. The village is however facing shortages from january to april.

4 out of 12 quarters do not have access to water. For these two cases, people may drink water from streams and may not boil it, which has health consequences.

The village has to face regular breaks, probably one of the reasons is because the pipes are too small and the preassure too big.

There are conflicts about extensions : some people have complained that the ones who beneficiated from extensions were not native from the village. This should be solved in intern.

We would anyway recommend to change the pipes from the connection of the two catchments to the tank, because the preassure may damage the pipes.

However, the output pipe of the storage tank is too small : it starts with 50 mm at the beginning, and ended with 30 mm, which splits itself in two lines of both 30 mm. I would recommend to replace this line with pipes of at least 60 mm (from the tank until this separation).

WC1 has a major problem : some roots were invading the catchment and the output pipe.

### Work that need to be done :

The new catchment that is built requires a study and financial support.

The water levy has to be organised regularly, so that the big repairs that the network needs (broken taps, locks to replace, broken pipes...) can be done, and caretakers motivated.

The WMC should have regular meetings.

A storage tank needs to be constructed for WC3 which is constantly overflowing. Pipes have to be burried.

WC1 has to be visited very often, so that roots are taken away. Trees which are responsible have to be destroyed.

Small pipes also should be replaced.

### **Contact :**

Stephan Ngala - President – 694890064 Jai Peter Fai – Vice President – 697396084 John Jong – Secretary – 651029828 Kebam Irene – Treasurer – 697040430 Shingwa Itah – Vice Secretary Shey Amos – Caretaker – 695505681 Fornkwa Christopher – Advisor – 696954075 Shey Jonathan – Financial Secretary Augustin Foryrey – Vice Caretaker

This water catchement had not been opened for a long time. Some roots have invaded the catchment and the pipes, which reduces the flow.

The maintenance in Ngvuinkei II is massive. This catchement need a storage tank.



Signature of WMC's President :

Signature of traditionnal ruler or council :

# Summary of the enquiry in Ngham/Ndum on the 26th of April

We were not able to visit the catchement nor the storage tank because of the distance.

### Description of the village and its water distribution :

Together, Ngham and Ndum counts around 5000 people. There are 2 catchements and one storage tank, constructed in 2013 and 2014 by the council. There are 25 public taps and no private taps so far. The caretaker is not paid and material is bought with money given by the Development Association if available.

3 out of 7 quarters are not connected to the network.

The WMC meets every three months.

The tanks have not been washed so far.

### Summarize of the current situation and the population's point of view:

Last year, most of pipes were destroyed during the construction of the road in 2014, cutting the access of 2 quarters. Half of the pipes have been replaced so far, financed by fund raisings in the village, but 50 pipes still need to be bought.

People who don't have access to water from the network carry water from streams.

There is no shortage of water.

The quality is good.

### Work that need to be done :

Some financial support should be found buy the 50 last pipes (the WMC can write request letters in order to get funds).

Once it is repaired, the network has to be extended.

Tanks have to be washed at least every 3 months.

A second caretaker should be found and trained by the current caretaker.

A water levy (at least for the people beneficying from water) has to be organised and money has to be collected each year.

Once everyone has access to public taps, the private connections can be constructed. We would advise to ask a minimum of 20 000 FCFA for the connection.

Until the situation is stabilized, Ngham and Ndum should benefit from sensitization to th necessity of boiling the water.

### **Contact :**

Ndifon Moses – President – 694482615 Mgoh Mikael – Vice Preseident Goran Emmanuel – Secretary Tawah Abel – Financial Secretary Gralice Bonge – Treasurer Ndifon John – Caretaker Tata Manesis – Member Mkong Manesis – Member Tawah Salomon – Member Signature of WMC's Signat President : ru

Signature of traditionnal ruler or council :

### Summary of the enquiry in Nvuingkei I on the 27th of April

### Description of the village and its water distribution :

There is one water catchment and one storage tank built in 2012 in Nvuingkei I which counts around 2400 people.

The caretaker is not paid and the repairs are financed by the people when there is a need : each compound then gives 200 FCFA when needed.

There are 12 public taps and no private taps.

3 out of 7 quarters don't have access to the network.

Meetings take place every 2 months.

### Summarize of the current situation and the population's point of view:

There are big shortages in Nvuingkei I during the whole year. The catchement is not flowing enough. A possible cause may be the presence of Eucalyptus in the surroundings of the catchement. These trees consume 40 L a day and may reduce the yield of the catchement. The WMC tried to find an agreement with the owner, but he has refused to cut down the trees.

The output pipe of the tank can be blocked for some days before being opened again.

Water is rationned : there are 3 main lines. The main quarter being lower than the others, water will first flow in that one. That's why people from the WMC installed 3 stop cups in order to be able to control which part of the village has water.

Management of water is serious. The quality of distributed water is good. The only problem is that eucalyptus: many people carry water from streams.

### Work that need to be done :

Nvuingkei I has to write a letter to the Council explaining the situation regarding the Eucalyptus farming around the catchement as soon as possible, so that the council either sends someone to cut down the trees, either gives the order to cut down the trees.

A request to do a feasibility study in Nvuingkei I has also to be given to the council because the village needs a new catchement.

The village has to organize regular water levy in order to have enough funds to pay repairs without loosing time to collect money.

The stop cups need locks.

### **Contact :**

Ameso Tata – President – 652466736 Skibo Julius – Secretary Iosembi Godlove – Treasurer – 676240257 Tata Abdoulai – Caretaker – 672531069 Charles Bugi – Vice President – 653261994 Nfomi Eron – Counselor and advisor – 675456500 As we can see on this picture, the flow in the tank is very small. Eucalyptus need to be cut down.



Signature of WMC's President : Signature of traditionnal ruler or council :

### Summary of the enquiry in Kevu on the 27th of April

We did not manage to see the catchements because of the distance.

### Description of the village and its water distribution :

Kevu counts around 7500 people. There are 2 water catchments, built respectively 7 and 2 years ago, by the government and the bishop. There are 28 public taps and 15 private taps. It costs 10000 FCFA to get a private connection.

The new WC has not been handed over yet.

The water in the more recent catchement is chemically treated because of the presence of alguees. 1 kg of chlorine is used for 20000L. This is done every three months. Apparently, there is a constant release of chlorine during this time.

Tanks are washed every 2 months.

#### Summarize of the current situation and the population's point of view:

One of the problem is the management : there are 2 WMC. There is no levy, because the WMC was expecting a legal document to show people they need to contribute. However, such a document is not required, since the fact that the WMC was elected is enough. As a result, the coffers are just empty, and when a repair has to be done, people refuse to contribute to replace taps.

All the quarters have access or partial access to water. 4 out of 7 only have partial access. The quality of water is good.

People who drink from streams are apparently not sick because of the water.

There are some shortages of water all the time from the new water catchement.

### Work that need to be done :

A merging of the 2 WMC has to be organised. Light extensions need to be done. Another line needs to supply the market from the old catchment (2 km). The contractor can do the major repairs that need to be done. Sensitisation has to be organised as well as water levy.

#### **Contact :**

WMC 1 (not trained): Barlack Emmanuel Ngalla Daniel Nambi Alice Nkambi Ignatus Nyingchia Amadou Seh Christopher Menda Samuel - 66231440 Nkaimbi Iganton - 696751466 WMC 2 (trained): Nonki Philemon Song – Caretaker – 669030460 Tambang Emmanuel – Secretary – 669031207 Nkaimbi Iganton – 696751466 Njong Bridister – President Nkaimbi Alice - Treasurier Yham Ernest – Financial Secretary Nkaimbi Comfidence – Caretaker Motilca Samuel – Caretaker

Signature of WMC's President : Signature of traditionnal ruler or council :

### Summary of the enquiry in Mbockamlung on the 27th of April

### Description of the village and its water distribution :

Mbockamlung counts more than 500 inhabitants. A borehole was constructed in the center of the village. It was handed over to the community in january 2015 and was broken two weeks later. No one can repair it in the village.

A study was done to construct a dam in order to have a river catchement. This could supply Mbockamlung and a Bororo community. The costs would be around 25000000 FCFA. Another source in the mountains surrounding Mockamlung could also be used as water source.

### Summarize of the current situation and the population's point of view:

People drink water from streams. They can be sick.

#### Work that need to be done :

The contractor should train someone to be able to fix the borehole in such a case. One catchment should be built, if not from the dam, at least from the other water source that is known. Mbockamlung has to benefit from sensitisation seminars to treat water at home.

This is the borehole, which does not work anymore :



Signature of WMC's President : Signature of traditionnal ruler or council :

# Summary of the enquiry in Ibal on the 27th of April

### Description of the village and its water distribution :

Ibal counts more than 5000 people. There are 3 water catchements and one storage tank, but the water catchement constructed last year is totally dry (it's in the middle of the savanah). The other two catchements were renovated recently.

The final reception of the whole project has not yet occurred. A letter was sent at the beginning of may to the contractor in order to show that people were not satisfied. No answer has been received. This case is similar to the ones encountered in Batibo and will be developed further in the third part. The WMC, which seems to be working well, meets twice a month. The caretaker is not paid. There are 30 private taps and 30 public taps. It costs 3000 FCFA to get a private connection. There is no water levy because people refuse to pay. The contractor gives material for the repairs. The diameters of the pipes are for the three catchements respectively 63, 63 and 50 mm. Every tank is washed every 5 months.

### Summarize of the current situation and the population's point of view:

Water shortage occur very often in Ibal. During the dry season (from january to may), water can be blocked for one or two days before it's open again. People carry water from 2 local streams. 3 out of 7 quarters don't have access to water.

Sometimes, the supply is cut during one night or many days so that tanks get full. As a result, since people don't know when there will be water and when there won't, they leave the taps always open, and since they know there will be water only for a short period, they just fill some containers and waste a lot of water.

### Work that need to be done :

In order to avoid waste of water, a good communication needs to be implemented between the WMC and the community. This way it would also increase their trust and make them more likely to contribute for the water levy.

The stagnating water around the WC1 needs to be drained.

Answers are still expected, but if possible, the construction of a new catchement should be negociated with him, because the new catchement is a failure.

The network needs extensions once a catchement has been added.

The cost to get a private connection should be higher. We advise 20 000 FCFA.

### **Contacts :**

Fai Ernest – President – 678475868 Njakoi Joseph Mkong – Member – 672116374 Mbuyben Philip Mkong – Caretaker – 679592162 This is the flow of the three catchments (two in reality) and it is too small. A new catchment should be added.



Signature of WMC's President : Signature of traditionnal ruler or council :

### Summarize for all the villages

	Urban area	Ngashie	Upper Keyon	Mbam	Kfum	Mbancham	Nfkui	Jikijem+2	Mboh
General informations									
Population	21000	8000	NI	8000	1000	1500	4500	10000	3100
Number of operational catchments	2	3 (2 to rehabilitate)	)1	2	1	2	2	1	2
Type of catchment	river	springs	spring	source	spring	springs	springs	spring	springs
Location	urban area	Ngashie	Keyon	Mbam	Nankwie	Mbancham	Nfkui	Jikijem	Mboh and Jinyane
Tank Storage	1	1	1	1	1	1	0	3	NI
-requency of tanks' washing	depends	not enough	after rain	Every 3 months	NI	never	NI	Every 3 weeks	NI
Summer dia se of the WO					-	-			
Surroundings of the WC									N II
Presence of farming	no	yes	yes	no	yes	yes	yes	yes	NI
Presence of cattle grazing	no	no	no	no	no	no	yes	n	
Presence of tence	no	no	no	no	yes	no not en euclid	no	yes	
Presence of trees	yes	some nave	yes	yes	not enough	not enougn	no	no	
Presence of nabitations	no	no	no	no	no	no	yes	no	NI
Presence of a road	no	no	no	no	no	no	no	yes	NI
RISK of contamination	yes	no	yes	yes	no	yes	yes	no	NI
Rain drained	yes	not always	yes	yes	no	no	no	no	NI
Tanks and WC scealled	yes	needed	no	no	yes	no	yes	yes	NI
Description of distributed water									
	had	01/		01/			a a a d		hed (for linear)
	Dad	UK	mediocre	UK	good	good	good	very good	bad (for Jinyene)
Accessibility	good	DBO	mediocre	DBQ	mediocre		DBO		to be improved
Number of quarters which do not have water	none	one side	INI 	2\4	INI	INI	Z\4	3/10	1
Shonage	no	yes	yes	yes	yes	system is	biocked pipes	yes	yes
Period of the shortage	/	sometimes	irregular	dry season	dry season	not functional	irregular	ary season	dry season
Ration during this period	/	no	NI	yes	no	/	no	NI	NI
for drinking	no	yes	yes	yes	yes	yes	yes	yes	yes
for drinking	/	yes	yes	yes	yes	yes	yes	yes	yes
for other purposes	/	yes	yes	yes	yes	yes	yes	yes	yes
Description of WMC									
	1	20	1/00	1/00		no nowor	1/00	200	NI
Mater levy	/	10	yes	yes	no	no power	yes	yes newly elected	no
Given amount		nunctual	/	/	/	1	/	1500 private owner	/
Existence of an account		punctual	/	/	/	/	/		/
Maintenance	VOC	10	n	yes	Nes	no	Nes	Nec	NI
	yes	10	10	yes	yes	NI	yes	yes	NI
Financial motivation for Carotakor	yes	yes	yes	yes	yes	101	yes	yes	20
	NI	NI	40 in total	6	10	8	5	50	3 (Mbob W/C)
Number of private taps	NI	NI	/	40	5	NI	30	50	
Cost to get a private tap	NI	NI	, NI	21000	NI	NI	5000	6500	NI
			INI	21000			5000	0500	
Future projects									
Feasibility study to add a catchment done	no	no	no	connect Kfum ?	needed	no	no	1 ongoing no study	no
Budget	/	/	/	/	/	/	/	financial problem	/
Rehabilitation of old catchments	not needed	needed	relocation	dirty catchment	no	no	not needed	not needed	NI
Extension of network	not needed	needed	needed	needed	needed	needed	needed	needed	needed
Reparations and maintenance	improve treatm	ineeded	needed	not needed	not needed	urgent	needed	not needed	NI
Elections of WMC	not needed	needed	not needed	not needed	needed	restructuration	not needed	Was on the 26/04	NI
Training session for caretaker	not needed	not needed	needed	not needed	not needed	not needed	NI	not needed	NI
earning sessions for water treatment at home	needed	not needed	needed	needed	needed	needed	needed	needed	needed
Sensitisation of the population to close taps	needed	needed	needed	needed	NI	needed	needed	needed	needed
WC surroundings need protection	needed	needed	ves	needed	trees	needed	needed	trees	NI
			U					1	I

	Ibalichim	Ichim	Ngvuinkei II	Ngham/Ndum	Nvuingkei I	Kevu	Mbockamlung	Ibal
General informations								
Population	700	14000	1500	5000	2400	7500	500	5000
Number of operational catchments	1	2	3	2	1	2	1	2
Type of catchment	spring	springs	springs	springs	spring	springs	borehole	springs
Location	Ibalichim	Ichim	Ngvuinkei II	Ngham/Ndum	Ngvunikei I	Kevu	Mbockamlung	Ibal
Storage tank	1	2	1	1	1	1	0	1
Frequency of tanks' washing	never	3 months	1 month	never	NI	2 months	/	5 months
Surroundings of the WC								
Presence of farming	no	no	no	no	no	no	/	no
Presence of cattle grazing	no	no	no	no	yes	no	the bore hole	yes
Presence of fence	yes	no	live fence	no	no	no	is in the center	yes
Presence of trees	yes	yes	yes	NI	eucalyptus	NI	of the village	yes
Presence of habitations	no	no	no	no	no	NI	and is no	no
Presence of a road	no	no	no	no	no	NI	longer working	yes
Risk of contamination	no	no	no	no	no	NI	/	ves
Rain drained	ves	ves	ves	NI	no	NI	/	no
Tanks and WC scealled	no	yes	yes	NI	yes	NI	/	no
Description of distributed water								
Quality	good	good	good	good	qood	good	good	good
Accessibility	to be improved	to be improved	to be improved	to be improved	bad	good	to be improved	to be improved
Number of quarters which do not have water	NI	4\8	4\12	3\7	3\7	4\7 partially	NI .	3\7
Shortage	ves	ves	ves	no	ves	ves (new WC)	no water	ves
Period of the shortage	Feb-march	Feb-march	Jan-april	/	all the time	all the time	/	Jan-may
Ration during this period	night cut	no	no	/	ves	NI	/	ves
Water taken from stream	ves	ves	ves	ves	ves	ves (new WC)	ve	ves
for drinking	ves	ves	ves	ves	ves	ves	ves	ves
for other purposes	ves	ves	ves	ves	ves	ves	ves	ves
···· ····· F-··F····	,	,	,	<i>y</i>	<i>J</i>	5	<i>y</i>	<u>)</u>
Description of WMC								+
Existence	ves	ves	ves	ves	ves	2 WMC	no	ves
Water levv	no	1200 for private	no	no	when needed	no	no	no
Given amount	/	/	/	/	200	/	/	/
Existence of an account	no	no	no	no	no	no	no	no
Maintenance	not enough	not enough	not enough	ves	ves	no monev	no	ves
Trained Caretaker	ves	ves	ves	ves	ves	ves	no	ves
Financial motivation for Caretaker	no	no	no	no	no	no	no	no
Number of public taps	11	15	16	25	12	28	0	30
Number of private taps	0	74	39	0	0	15	0	30
Cost to get a private tap	/	5000	35000	5000 ?	/	10000	/	3000
Future projects								
Feasibility study to add a catchment done	no	needed	1 ongoing no study	not needed	needed	needed	done	needed
Budget	1	/	/	/	/	/	25000000	/
Rehabilitation of old catchments	not needed	not needed	not needed	not needed	cut eucalvotus	not needed	reparation is	not needed
Extension of network	needed	needed	needed	needed	needed	needed	needed	needed
Reparations and maintenance	needed	needed	needed	needed	not needed	needed	needed	not needed
Elections of WMC	not needed	not needed	not needed	not needed	not needed	meraina	not vet	Needed ?
Training session for caretaker	not needed	not needed	not needed	not needed	not needed	not needed	needed	not needed
Learning sessions for water treatment at home	needed	needed	needed	needed	needed	needed	urgent	Needed
Sensitisation of the population to close taps	needed	needed	needed	needed	needed	needed	/	Needed
WC surroundings need protection	no	not needed	not needed	NI	needed	NI	/	needed
	1. *			I		I	L	

NI = not indicated

### **III. General recommendations**

### 1. Necessity of water levy

As mentionned in the first part of this report, WMC is the central point of an efficient water system. And it is not going without an efficient and strong financial management. Here is the example of Kugweh in Batibo, which we can take as an example, where the WMC is efficient and where the maintenance is assured : the committee counts 10 members, of whom 3 women, a chairman, caretaker, secretery and treasurier. These 4 functions need to exist in every village. The WMC has an account, which is ruled by the Village Development Association, on which the money from water levy is put. This amount is 500 FCFA for women, and 1000 FCFA for men. The caretaker writes in a logbook the repairs he has made and the chairman checks, and gives the caretaker money for the material as well as for the labor.

He goes himself regularly to the water catchement and checks if there is some work to be done. If we take the example of Ngashie, where there is no WMC : there is a caretaker who repairs the network with his own money, if people refuse to contribute. In the best case, in the other villages, money is collected around the place where the repair is to be done. In the worst case, no one contributes.

The caretaker in Ngashie does not always have time to inquiry about the problems and the reason of the shortages. Slabs are not locked, and since there is no authority in charge of water management, anyone opens the slab and closes stop cup if he wants. As a result, half of the village does not have water for weeks.

It is crucial for every village to have a similar structure as Kugweh, so we recommend to organise elections in every village where the committee is inexistant or not structured. Women have to be represented in the committee. A proposal of WMC's Contract is to be found on the appendix 3. It is a document that is defining the role of the WMC and its mission and structure. Among others, the water levy is essential to an efficient organisation of the repairs, maintenance and long term projects. It is not sustainable to count on the contractor to provide materials, because at some point there will be none left. The caretaker has to be motivated. Villages have been so far lucky to have had responsible and devoted caretakers. But if we take the exemple of Kfum and Mbancham, whose systems are both new, we can still observe a big difference, because in Kfum, a caretaker has been doing the required repairs, whereas taps are spoiled and pipes are broken everywhere in Mbancham.

# Restructuration of re-election of the WMC need to take place in Kevu, Mboh, Mbancham, Kfum and Ngashie.

### 2. Needed construction works

It is important to understand that, if poor management is probably the first reason why people don't have enough healthy water, the second problem is finance. Many villages actually need to have their catchements rehabilitated or even new catchements constructed.

It is hard to make a list of the villages which really need a new catchement, since lack of water may

simply be lack of maintenance, but here is a list, which can be modified.

<u>Villages needing a new catchment and a feasibility study :</u> upper Keyon, Mbam, Kfum, Ibal, Ichim, Ibalichim, Kevu, Ibal, Mbockamlung <u>Villages needing a storage tank :</u> Nfkui, Nvuingkei II <u>Village having started the construction of a new catchement without a study :</u> Jikijem, Nvuingkei II <u>Village needing rehabilitation :</u> Nvuingkei II, Ngashie <u>Village needing serious repairs :</u> Ngashie, Mbancham, Mbockamlung <u>Village with special request :</u> Nvuingkei I (eucalyptus)

Once enough water is provided, villages can think of extending their lines. All of them need extensions.

In Ibal, the water system is not working because of the poor quality of the work that was done. Feasibility studies were conducted, usually the village did not receive a copy of it, and work was done without any discussion with the beneficiaries. As a result, we have a system that is not working. The representant of the Ministry Mr Kamogno gave some explanations for similar cases in Batibo (Efah and Ewai) during the water forum organised there on the 21st of April 2015, which we attended. We will summarize them, and add them to the ones obtained during a talk with Nguimbous Nyobe, the engineer in charge of the regional control of the projects of PAEPA-MRU, on the 30th of April 2015. Mr Nyobe works for the FEICOM, which is a public entreprise that works for decentralisation, funds a part of the projects and make sure funds are fairly used. Another part of the funds come from the BAD (Banque Africaine de Developement).

The problem is that the work and the studies were done by the contractor, and approved by the assistant en maitrise d'ouvrage of PAEPA – MRU, Mr Sehli Ali.

- The contractor Yoshim Entreprise may not have the knowledge to conduct the feasibility studies. They should have been given to specialists.
- The communication with the beneficiaries was inexistant : the contractor did not talk to the people from the community, even though they are the own concerned about the work, and the ones who know more than anyone else where are the sustainable sources, for instance.
- The study should not have been approved, but it seems that private interests may have had a stronger weight than public ones.
- There is no real follow-up at a local scale of the construction work : no specific cell or private consultant who is on the field, in charge of supervising and checking the ongoing of the work. The engineers of the FEICOM are not on the field, and if they hear from a problem, the time it takes for the information to arrive and for them to visit the place, the work may be already finished.

In the end, we would summarize it as being a problem of :

-communication : beneficiaries must be included

-organisation : follow-up cell is necessary. Why not a private external expert.

-specialisation : the contractor builds, some specialists can realise good quality studies.

In the future, I guess the Ministry has to make sure studies are given to real experts, that they are approved by people who have also an expertise and no direct interests in signing quickly the work, and

implement a follow-up of the work at a local scale.

The contractor will hopefully fix the problems in Ibal but we cannot say so far if it is going to happen. But anyway, we would advise that in these cases, villages can stop the construction if they think the work that is being done is not appropriate. There could be an emergency cell in the council which addresses these types of cases, so that this situation does not happen again.

In Nvuingkei I, the owner of the eucalyptus was asked to cut down his trees, which are probably responsible of the small yield of the catchement. Since no agreement could be found with him, the village should have informed immediately the council to find a solution. This will be discussed further in the fourth part.

### 3. Water Catchment Protection

Water Catchement need protection in order to decrease the chances of contamination and to improve the yields of the catchment. In the best case, they should be located in a protected area, further than 150m from houses, 100 meters to animals and 60 meters to toilets. There should be no farming activities around the catchement (150m) because growing plants use water that cannot be drained. It is the same with certain types of trees like Eucalyptus. Some trees have to be planted in the direct surroundings, so that water is drained in the soil and the income to the WC increased. If there is no tree, rain will just run on the surface. Recommended trees are fruiting trees or Prunus Africana, following the Water Catchement Protection Handbook written by Helvetas. The fruits can even be harvested and contribute to pay landlord for the land.

Here is a scheme suggested in the Water Catchement Protection Handbook written by Helvetas.



A: land pillar; B: storm water gutter; C: dead fence; D: life fence; E: trees and grasses; F: Vetiver rows; G: deviation around rocky area; H: cattle drinking trough; I: collection chamber; J: water pipe to village.

### 4. Training sessions for caretakers

A problem that is often encountered is the lack of training for caretakers. It is very important to organise at the level of the council some training sessions for caretakers so that they can actually do their job.

Naturally this is going together with a solid financial structure of the WMC which can pay the caretakers once they are trained.

### 5. Sensitisation of the community

As mentioned before, water is sometimes wasted because of open taps. The WMC needs to organise some sessions in order to sensitise the community. If simple prevention is not working, sanctions can be implemented, like it was the case in Kugweh (Batibo), where people are sanctionned if they do not report a leeks. It is very important that waste of water stays as small as possible, because if many cases, if a tap on the top of a hill is open, it is the whole lower part which will suffer from it. Sometimes, the supply is cut during one night or many days so that tanks get full. As a result, since people don't know when there will be water and when there won't, they leave the taps always open, and since they know there will be water only for a short period, they just fill some containers and waste a lot of water.

### 6. Emergency measure : water treatment at home

There is an emergency : if this present report will be used to take concrete measures like rehabilitation of catchments, WMC's elections or maintenance settlement, it is crucial to face the current situation, which is that **in every village** (apart from the urban area), **people are currently drinking water from stream** during at least 2 months a year (or longer for quarters which don't benefit from distribution).

Some seminars should be organised to teach basic knowledge about water treatment at home. They could feature the three steps of the process : sedimentation (which can be done by decantation), filtration, and the most important : desinfection.

Desinfection can be done using chemicals, but it would be hard to implement that at the scale of the household. We can also think to advise people to **boil water** before they drink it. It takes time and comburant, and as any prevention measure it is hard to implement because the results are not seen, but it would be the best way to prevent diseases to occur.

Another method consist in leaving bottles for 6 hours in the sun. Most of germs will be thus eliminated. These two possibilities have to be told and taught during these seminars as often as possible to reduce the risks of contamination. Young generations especially have to be targeted, so that good habits can be transmitted and can perdure.

# 7. Other possibilities

In order to face shortages of water during the dry season without building a new catchement, we can think of different methods :

-catch rain using a kind of system where water is collected in a clean tank and only after roofs have been washed. Some people in Ashong where collecting rain but after some days water was no longer good to be drunk. This is why people need a proper tank to store it.

-drill wells at some precise spots so that people can have clean water to drink.

# IV. Summarize of the Water Forum – 17/05/2015

### **Conclusion**

As a volunteer carrying on a precise mission, we hope this present document will be used to lauch projects all over Oku to solve progressively the big challenge water supply represents. As we said, the main problem is shortage of water during the dry season, which is linked itself to lack of maintenance and age of the catchements. It is necessery to organise elections of new WMCs in the villages where it is needed, with candidates devoted to their village who want to change the situation, and who can take up the responsabilities and work hand in hand with villagors. It is also necessary to build new catchements where it is needed, to extend the networks of every village, and that villages themselves can organise repairs.

Water is too precious let's try our best at our scale to improve the system.

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# Appendix 1 – General questionnaire

### Study on water management - 2015

### **Questionnaire for each Community**

<u>Name of the village:</u> <u>Estimated population :</u> How many catchments were built in this village ? When ? With which funds ? By who ? How many are actually in function ?

How many public taps and private taps does the village count ?

How many storage tanks ? Breaking pressure chamber ? Breathing point ? Are all theses slabs scealled or locked ?

Is water treated ? Description.

Is there always enough water and if not when do the shortages occur? How long does it last? How do people manage during that time? Do they drink water from streams? What is it due to (lack of maintenance, catchement not supplying as much as before, size of pipes, community increasing...)?

Does the network have leeks, broken pipes, broken taps?

Are people sick ? If yes, which symptoms ? Influence of the season ? Do they boil the water ? Is distributed water safe ?

Distance of the catchements to closest toilets, farming activity, animals, cemetery, road, waste, description of the surroundings of the water catchement (existence of locks, fences, trees)?

Is there a structured and powerful WMC ? Is there a water levy ? If yes, how much ? How much does it cost to get a private tap ? Are caretakers trained ? Are caretakers motivated ?

How many quarters do not have access to water ? Out of how many ?

General remarks ?

### **Appendix 2 – Questionnaire for consumers**

### Study on water management – 2015

#### **Questionnaire for consumers (anonymous)**

Name of the village :

Are you satisfied of the water you have access to ?

If not, why?

- Accessibility ? (how far is it from your home ?)
- Quantity ?
- Quality ? (taste, or problems caused by the water ?)

Do you drink water from stream during dry season because of shortages ?

Do you boil this water ?

Are you often sick ? What kind of symptoms ?

Do you think water should be treated ?

Are you statisfied with the way the WMC (if it exists) is managing water ? Do you think you are enough aware about decisions which are taken ? Would you like to be more involved in the decisions process ?

General remarks :

# **Appendix 3 : Water Management Committee's Contract**

### The role of the WMC:

The Water Management Committee rules the management of water in the village. They can gather once a month to discuss water issues that have been observed during this previous month. They take decisions about future projects, repairs, financial or communication they will be doing the next month.

- 1. **Report of the passed month:** observations, passed projects, state of the current projects, state of the scheme, need of writing new projects
- 2. **Report of done repairs** : nature of the repair, cost of materials, cost of labor and estimation of the payement for the caretaker
- 3. General comments on water
- 4. Guideline for next month
- 5. Eventual review of written projects and plan of the guideline to follow

The meetings have to be summarized in a book by the secretary.

### WMC's constitution :

The committee must include a chairman, a secretary, a treasurer and a caretaker, and must have a female respresentant. Vice chairman, financial secretary and members are optionnal, but recommended in case of a big village.

Candidates for these functions can be elected by the village, function by function. The candidate collecting the higher number of votes wins the election for that function.

### The members:

They have to be devoted to their village. They have to be respectful, especially the chairman. The caretaker has to be trained. If no one can take this responsibility, they need to report at the council to beneficiate from training sessions.

They need communcation skills, in order to be able to tell the community about the situation.

### Finance:

Some water levy has to be organised annually. The date has to be anounced in advance. A possible amount can be 500 FCFA for women and 1000 FCFA for men. This amount has to be evaluated by the WMC itself following the needs. This money has to be put in a private account, or an account that is related to the Village Development Association. It will be used for :

-material for repairs
-motivation for caretaker
-tools
-precise unexpected costs (like lockers)
-rehabilitation of catchment's
-diverse project
optionnal : motivation for the WMC itself if requested

### **Repairs:**

The residents report to any member of the WMC some of the repair that needs to be done. The caretaker is quickly informed, visit the damaged place, estimates the cost of repair and ask the money

for the material to the treasurer.

The repair is reported in a logbook that can be checked by any member of the WMC. The caretaker is paid during the next monthly session for the work he did.

### Visit of Water Catchements :

One or two members of the WMC have to visit the water catchements on a regular basis even if there are no problems.

### **Communication:**

In order to implement a good relation between the WMC and the community, it is important that the contact between them do not only occur when water levy is supposed to be collected. People have to be informed of the role they are playing, and of their rights and duties. They have to be heared. They should know that they are giving money in order to improve the system. People have to be told what their money will be used for (insisting on material and caretaker's motivation).

### Recommendations and measures to be taken:

The WMC has to make sure that

-every slab of the network (any storage tank, stoping cock, breaking pressure chamber, breathing point) is locked

-water catchement's area are protected with fences

-farming is banned from the surroundings of water catchement's

-trees are planted on the water catchement's surroundings

-some regular maintenance is organised (regular washing of the tanks and visit of the different

chambers, tanks, catchements)

-reparations are done efficiently

# **Appendix 4 : Prices of Water Tests**

These were the prices to test water given by Mr Kingsley (674789674) who is working at a laboratory in Bamenda. In order to know if water is potable, all the tests should be done. However, E. Coli is a good indicator.

Nom de la bacterie	Prix /FCFA			
E. Coli	15 000			
Total Coliforms	15 000			
Fecal Coliforms	12 500			
Fecal Streptocoque	12 500			
Salmonella	17 500			
Shigella	17 500			
Yeast/mould	10 000			
Aerobic germs at 36d	10 000			