KINKO C & D WATER SUPPLY PROJECT FINAL REPORT

Executed in the period January up to November 2019 inclusive.

21st of January 2020

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Executive Summary

This report documents the successful completion of the project **Kinko C&D Water Supply Project** for the communities of Kinko and Nkundei villages in Lushoto District, Tanzania. Kinko and Nkundei village have each a part of the village in the project area of Kinko C and D.

The project was implemented by Chamavita and the communities of the Kinko and Nkundei villages who worked hand in hand over the 11 months period, from January to November 2019 inclusive. The ultimate direct beneficiaries are 295 households of a total population of about 1400 people (600 in Kinko C and 800 in Kinko D) and a number of 182 livestock, consisting mainly of sheep and cattle.

The total budget of € 48,374.-- (Tshs 121,861,179.--) was funded by multiple donors as shown below:

NO.	Donor	Total		%
	Contribution in **Cash**:			
1	BVA *)	€ 28,974	Tshs 73,040,678.68	51,6
2	SPOT Tanzania Foundation**)	€ 19,400	Tshs 48,820,500.00	34.5
3	total exterior	€**48,374**	Tshs **21,861,179.00**	
4	Chamavita	€ 3,454	Tshs 8,633,000	6.1
	Total in cash ext.+int.	€ **51,828**	Tshs **130,494,179**	
5	Community of Kinko & Nkundei Voluntary work in the value of	€ 4,351	Tshs 10,875,316.00	7.7
	TOTAL Contribution	**€ 56,179.**	**Tshs 141,369,495.**	**100**

Detailed information is presented for both the physical infrastructure constructed during the project, as well as activities carried out to empower the community members of Kinko and Nkundei

Each family contributed **2 days per week of work** to earn their right to the water supply service and the following components of the project were successfully completed:

- 2 No. small + 1No. big dams;
- 1 No. 90m^3 storage tank;
- 4 No. each 15m^3 Break Pressure Tanks (BPTs);
- 5,500 meters of pipeline;
- 12 No. water points (12 No DPs + 12 No Washing Tables);
- 12 Nos. Water meters;
- 4 Nos. Washouts;
- 1 No. Air valve.

On project completion, the project activities were 100% implemented and everything was set in place in order to ensure the long-term sustainability of the project.
Finally, this report will provide insights on the challenges, lessons learned and a few practical recommendations regarding the project.

***)** BVA is a foundation which organize the Parishes having an own Charity goal. BVA is located in the Hague, the Netherlands. The Parishes have to collect at least 67% of the planned budget. BVA pays the other 33% of this planned budget. The parishes which adopted Kinko C and D as their own project (on proposal of SPOT Tanzania).The main office of the Clara and Franciscus Parishes,is located in Langeraar, the Netherlands. Catholic Churches for Clara Parish are located in: Aarlanderveen, Langeraar, Zevenhoven, Nieuwveen, Nieuwkoop and Noorden, for Franciscus Parish: Leimuiden/Rijnsaterwoude, Roelofarendsveen, Rijpwetering, Oud Ade and Hoogmade.
****)** SPOT Tanzania receives money from Donor Organizations, enterprises, (other) churches and from private persons. The money indicated in the financial report under SPOTT is originated from these donors and subsidizers.

Brief Project Description of Kinko C

1.0 Kinko C Water Supply Project

Kinko C Water Project , situated high up in the mountain bordering to the Kinko A Water Project (Implemented in 2017 - 2018). Kinko A was completed in March 2018. The community Of Kinko C is concentrated in four settlements: Mbogo, Kwemighambo, Kwelughojo and Balangai. Before the project their water supply came from small natural ponds on cultivated areas. These sources are highly contaminated with animal waste and industrial fertilizer residues, and is not treated or purified in any way before usage, causing risks to the community's health.
This project involved the construction of a gravity flow water supply system (an enlargement of the Kinko A gravity water supply system), connected from the break pressure tank of Kinko A project providing the community in the settlement with water in good quantities and of good quality.
Generally speaking, the construction of the system consisted of the following: connection from the Kinko A system pipeline, two 15m^3 break pressure/storage tanks, delivering water to the pipe network for 8 (metered) water points. The pipes are in total 2.4km long.

Kinko C Water project being part of Kinko Maintenance Team, its representatives were involved together with that of Kinko D in the strengthening of the Operation and Maintenance Team, on the administration, operation and maintenance for the sustainability of the water system in the future.

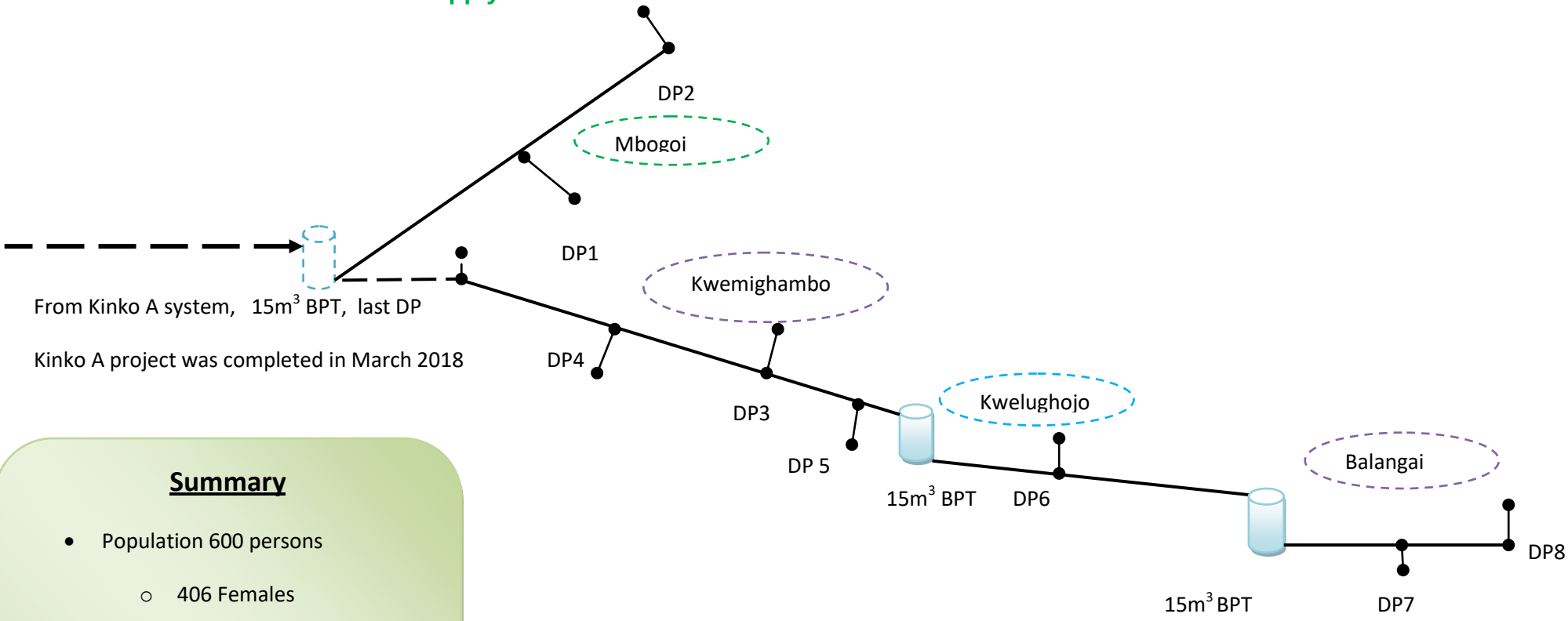
BPT of Kinko A project (2017) at Kwemighambo

BPT 15m^3 at Kwelughojo

8 Water points

BPT 15m^3 at Balangai

1.1 Sketch of Kinko C Water Supply



Summary

- Population 600 persons
  - 406 Females
  - 194 males
- 131 households
- 195 cattle
- 2Nos – 15m^3 BPTs
- 8Nos – (DPs +WTs)
- 2.4km pipeline

1.2 Achievement of the Kinko C Project

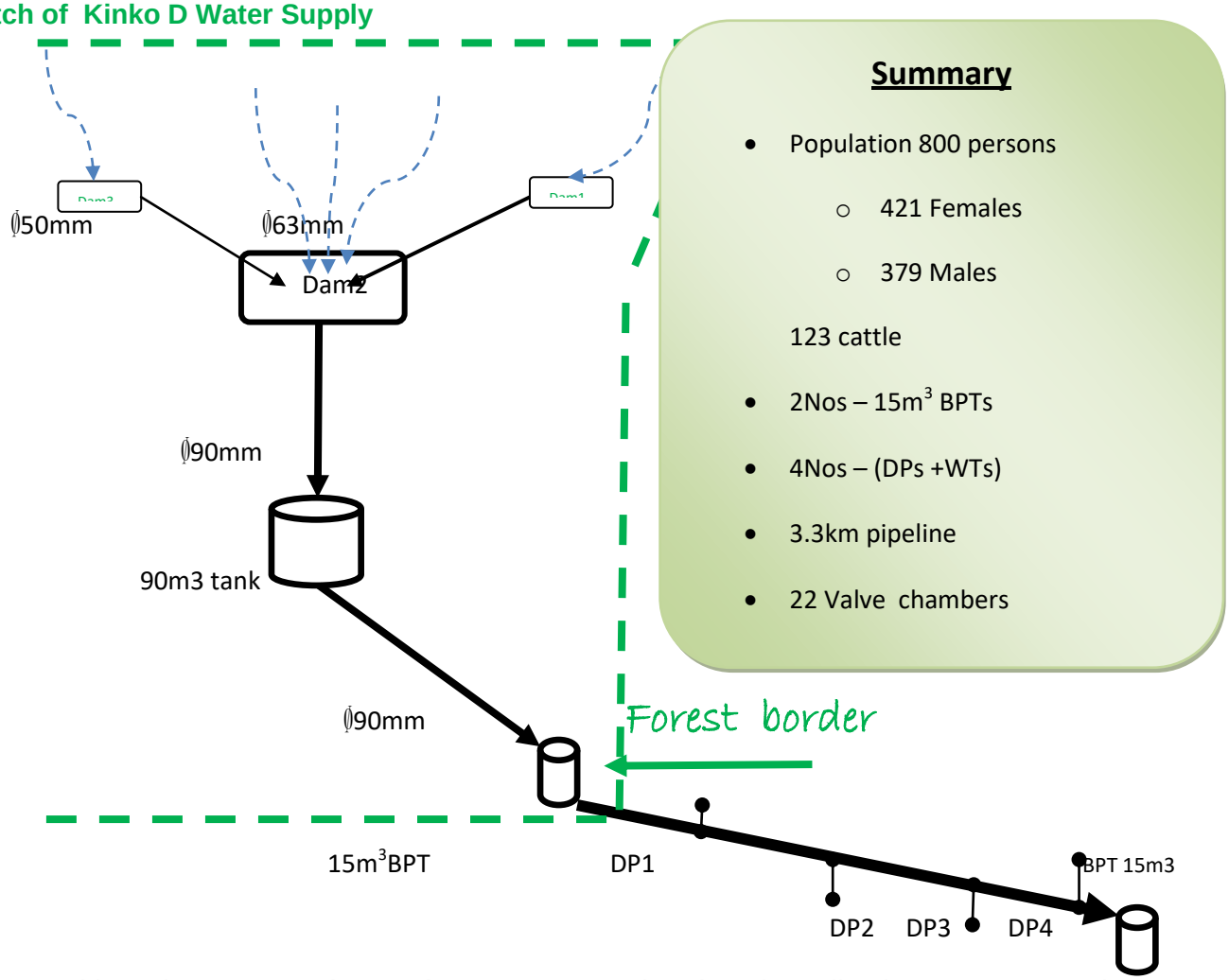
Nr.	Work done for each component	Initial design	Actual	observations
1	**Storage tanks**: The system required the construction of two break pressure tanks. Each is of 15m^3, which can store up to 15,000 litres of potable water and plays the role of pressure reducing tank. Both tanks are equipped with a ventilation pipe, a line for overflow and cleaning, and an inspection cover. They also have each, a control box where gate valves were installed, with inlet and outlet pipes protected by a concrete lid to facilitate operation and maintenance	2	2	100% completed
2	**Pipeline (PL):** The main pipeline has a total length of 2,370m long, and was installed with 63mm HDPE and 50mm HDPE pipes. The 63mm HDPE pipeline is 100m long while that of 50mm is 2,270m long. Two lines are coming out of the 15m^3 BPT (Kinko A Water Supply Project completed in March 2018). One goes to one water point while the other is going through the first BPT to the second one.	2,370m	2,370m	100% completed
5	**Water points (DPs + WTs**): 8 water points (tap stands and washing table) were installed in the network, similar to that of Kinko D. The tap stands have a height of one meter from the ground surface to the tap. At the base, there is a concrete slab where splashing water from the tap and wastewater from the washing table fall and flows through a drainage where it is discharged into a filtration pit which prevents the accumulation of water and mud.	8	8	100% completed
6	**Water meters**: 8 water meters were installed in the water stations. Meters are supposedly used by the community to control water consumption	Non	8	100% completed
7	**Control valves:** Gate valves were constructed at the following points: at the inlets and outlets of the break pressure tanks and at branch lines to the water points. A total of 12 gate valves were constructed.	12	12	100% completed
8	**Washouts**: Two washouts valves were constructed; one on each of the pipelines from the BPT on which the system is connected.	2	2	100% completed

2.0 Kinko D Water Supply Project.

Kinko D is part of the Kinko village, situated high up in the mountain on the border of the Magamba original forest. The community, is rather poor, concentrated at Kitengo settlement located 5 kilometers west of Kinko centre. Before the project was implemented, the community's water supply came from hand-dug wells or small springs on cultivated areas. In all cases, these sources are highly contaminated with animal waste and industrial fertilizer residues, and is not treated or purified in any way, causing a real threat to the population's health.

This project involved the construction of a gravity-flow water supply system, providing the community with water in sufficient quantity and of sufficient quality. There are 3 streams. Stream 1 of Q_1 = 0.28 l/s; stream 2 of Q_2 = 0.25 l/s and stream 3 of Q_3 = 0.82 l/s. The three streams join to form a bigger stream called Kwengovai.
Three dams, of varying sizes have been constructed across the three streams in the following manner: dam1 is connected to dam2 and dam3 is also connected to dam2. From here dam2 is connected to the storage tank. The flow from dam2 is 1.35 l/s.

2.1 Sketch of Kinko D Water Supply



Generally speaking, the construction of the system consisted of the following: stream catchment, pipeline, storage tank, smaller break pressure/storage tanks, distribution network and metered water points.
Also significant effort was put into the strengthening the Operation and Maintenance Team, the community-run group in-charge of the administration, operation and maintenance of the **water system over the long term.**

2.2 Achievement of the Kinko D Project

Nr.	Work done for each component	Initial design	Actual	Observations
1	**Spring Catchments**: 1. Kwengovai No1: Construction of a small open dam catchment consisting of a 3m long retaining wall; 2. Kwengovai No.2: Construction of a big open dam catchment consisting of a 17m long retaining wall with an intake chamber and a control outlet Ø 90mm gate valve; 3. Kwemgovai No.3:Construction of small open dam catchment consisting of a 10m long retaining wall with intake chamber and a control outlet Ø 50mm gate valve	1 1 1	1 1 1	100% completed 100% completed 100% completed
2	**Pipeline (PL):** The pipeline has a total length of 1,970m long, and was installed with 50mm HDPE, 63mm HDPE, 90mm PVC, 110mm PVC and ¾" HDPE pipes. It consists of four sections; a 50mm HDPE pipeline from a smaller dam to the big dam and a 63mm HDPE pipeline to the big dam. That's the big dam collecting flows from the two smaller dams situated on either side. 700m long of 90mm PVC pipeline is connecting the big dam with the 90m^3 storage tank. Again, 250m long a 90mm PVC pipeline is connecting the 90m^3 tank to the first break pressure tank – this is within the original forest; and finally 850 long a 110mm PVC pipeline is connecting the first break pressure tank to the second one, which is in the village. In some places, where the terrain was rocky, and trenching (by digging) was not possible, the PVC pipe was buried in an "artificial" trench which was made of two lines of stones with soil in between. The soil is covering the pipes particularly along the side of the road it is very important to prevent soil erosion, thus ensuring that the it will serve the supply system for at least 40 year. The pipe should remain covered by soil to protect it against the UV radiation of the sunlight.	1,800m	1,970m	Over 100% completed, that means it was necessary to construct the pipe longer than planned in the design.
3	**Storage tanks**: The system required the construction of three storage tanks. The first one 90m3 can store up to 90,000 liters of potable water. The second and third ones each of 15m^3 can store together a total of 30,000 liters of potable water and play also the role of pressure reducing tanks. The 90m^3 tank and the first break pressure tanks are within the reserved forest. All tanks are equipped with a float valve, a ventilation pipe, a line for overflow and cleaning, and an inspection covers. They also have a control box where gate valves were installed, with inlet and outlet pipes protected by a concrete lid to facilitate operation and maintenance.	3	3	100% completed

4	**Distribution networks**: The distribution network was 190m long and was constructed with 0.75mm HDPE pipes to four water points.	Not indicated	190m	100% completed
5	**Water points (DPs + WTs)**: 4 concrete water points (tap stands and washing table) were installed in the network. The tap stands have a height of one meter from the ground surface to the tap. At the base, there is a concrete slab where splashing water from the tap and wastewater from the washing table fall and flows through a drainage where it is discharged into a filtration pit which prevents the accumulation of water and mud.	4	4	100% completed
6	**Water meters**: 4 water meters were installed in the water stations. Meters are supposedly used by the community to control water consumption.	None	4	100% completed
7	**Control valves**: Gate valves were constructed at the following points: at the outlet of the dams, at the inlets and outlets of the tanks and at branch lines. A total of 13 gate valves were constructed.	9	13	>100% completed
8	**Washouts**: Two valves for cleaning the pipeline were constructed at the lowest points; one between the old BPT and the water point and the 90m^3 tank and the other between the two break pressure tanks.	2		100% completed

Every Wednesday & Saturday in a week the community transported sand, cement, and concrete blocks, pipes and reinforcement bars to construction sites.

The community also dug trenches for pipe laying

Kwengovai dam

90 m^3 storage tank

4Nos. Water point in the village

2Nos-15m^3 Break Pressure Tank

During Construction of Kinko D

3.0 LOCAL EMPOWERMENT

3.1 Strengthening of Water Committees capacities

The Kinko water board (COWSO) from the 3 present project villages: Kinko, Nkundei and Kwembagu was established in 2018 for O&M for the then completed **Kinko A** project and for the future project areas being **Kinko B, C, D, Kwetete, Kifuruga and Makanya** (five project areas from 2018 up to 2023) and it was trained on Operation and Maintenance of completed water systems. In this training are two plumbers from each village involved, so in total 6 village plumbers/technicians (also called fundis). The COWSO members are key actors of the project as they are the ones responsible for the water system once the project is completed. The 6 fundis were employed in all the completed projects and they will also be employed in the future ones to enhance their technical know-how. Furthermore the COWSO members together with village leaders were given progress report on the construction of the current project, on the status of O&M on previous ones. During the meetings we reviewed procedures of handling the O&M

3.2 Current Status of COWSO Organization

The Kinko COWSO does not currently have an official legal status according to the new policy (on structure and operation) but the CHAMAVITA will help them in the legalization process. By law, all MT members are volunteers elected by the community and recognized by the local authorities. The MT only employs village fundis (in this case 6 of them) for carrying out operation and maintenance.

4.0 CONCLUSIONS

The projects successfully fulfilled all of the initial objectives. As a result, the 482 families (and 318 cattle) in the community of Kinko and Nkundei villages, totaling 1400 inhabitants, are now assured of having enough clean drinking water 24 hours a day. This represents a substantial improvement in the quality of life for the members of each family, especially for women who will no longer have to travel or spend much effort to fetch drinking water. The project will somehow also reduce the incidences of water-borne diseases, and significantly improve the personal hygiene of the individuals. The MT is sufficiently strengthened in the correct use and maintenance of the water supply system to be able to solve any common problem that could come up.

Generally, the project leads to the following observations:

The project has helped the families of Kinko C &D community to acquire two fundamental human rights:

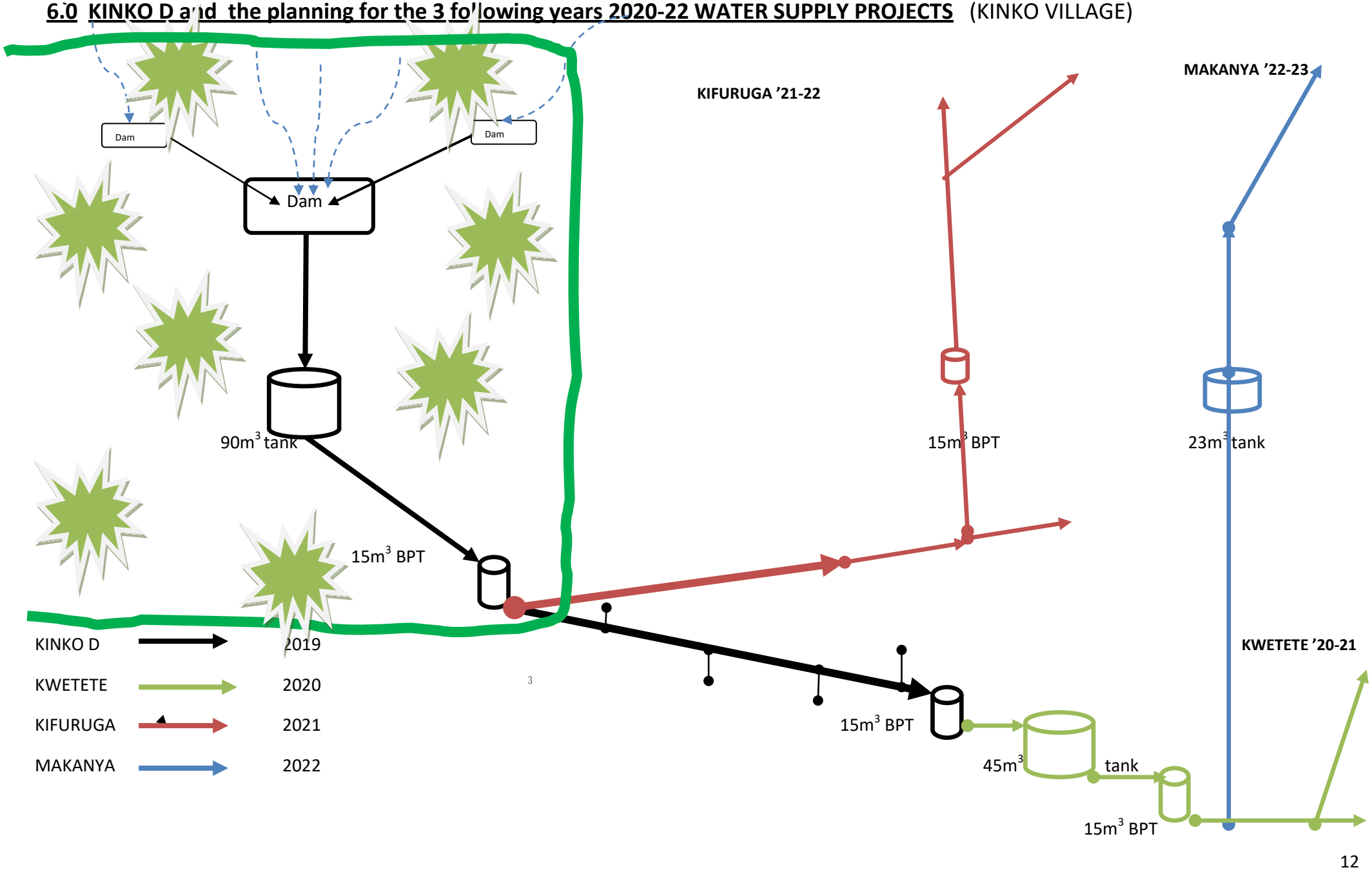
1. Access to reliable water supply of good quality and in sufficient quantity;
2. The project has helped to raise awareness that water for human consumption is a common good which has a cost, and whose conservation involves collective duties and rights.

5.0 PRACTICAL ADVICES

CHAMAVITA has suggested to the MT a list of key practical advices that could help them ensure the sustainability of their project. The advices included the following:

- Keep the regulations active, through regular MT meetings;
- Develop ways for communicating to the local authorities the O&M for the sustainability of their water system(by means of reports);
- Monitor the working of the village fundis and pay them their dues regularly;
- Propose the legal recognition of the water system to the RUWASA authority (through regular reports) in order to be informed of the current water policy of CBWSO.
- CHAMAVITA will monitor the implementation of these practical advices during the implementation of Kwetete Water Supply project in 2020 -2021.

6.0 KINKO D and the planning for the 3 following years 2020-22 WATER SUPPLY PROJECTS (KINKO VILLAGE)



7.0 Final Financial Report of Kinko C and D Water Supply Projects

ACCOUNT DESCRIPTION	AMOUNT			COMMENTS
	€	RATE	TSHS	
INCOME DONORS				
SPOTT	€ 14,500	2,539.00	36,815,500.00	Grants received from this donor
BISSCHOP	€13,000	2,570.00	33,410,000.00	1st Grant received from this donor
BISSCOP	€ 9,474	2,465.82	23,361,179.00.	2nd Grant received from this donor
BISSCHOP	€ 6,500	2,503.00	16,269,500.00	3rd Grant received from this donor
SPOTT	€ 4,900	2,450.00	12,005,000.00	Supplementary grant received from this donor
External INCOME	**€ 48,374**			
Income CHAMAVITA truck business	€ 3,453.93	2,499.47	8,633,000.00	Income from ten months' business
TOTAL INCOME Cash: Int+ext	**€51,827.93**		**130,494,179.00**	
Average exchange rate to convert the expended Tshs to Euro's		**2,519**		
EXPENDITURE:CONSTRUCTION 3 NOS CONCRETE DAM				
MATERIALS			6,624,600.00	Cement, sand, aggregate, mild steel, timber & nails, water proof cement
LABOUR			4,689,000.00	Preparation trench, formwork, concreting, plastering
TOTAL CONCRETE DAMS	**4.491**		**11,313,600.00**	

EXPENDITURE:CONSTRUCTION 90m^3 STORAGE TANK				
MATERIALS			8,632,644.00	Cement, sand, aggregates, hardcore, mild steel, timber and poles, paints etc
LABOUR			2,898,000.00	Fabrication of concrete blocks, preparation foundation, construction, mild steel formwork and concrete, plastering, plumbing, painting.
TOTAL STORAGE TANK	**4.577**		**11,530,644.00**	
EXPENDITURE:CONSTRUCTION four BREAK PRESSURE TANKS, EACH 15m^3				
MATERIALS			9,742,976.00	Cement, sand, aggregates, hardcore, mild steel, timber and poles, paints etc
LABOUR			4,627,000.00	Fabrication of concrete blocks, preparation foundation, construction, formwork and concrete, plastering, plumbing, painting.
TOTAL BREAK PRESURE TANKS	**5.407**		**14,369,976.00**	
EXPENDITURE:CONSTRUCTION twelve WATER POINTS				
MATERIALS			2,038,000.00	Cement, sand, aggregates, hardcore.
LABOUR			1,872,000.00	Preparation, construction, finishing
TOTAL CONSTRUCTION WATER POINTS	**1.522**		**3,910,000.00**	
EXPENDITURE:CONSTRUCTION PIPELINE				
MATERIALS			31,158,500.00	Pipes & fittings
LABOUR			9,348,000.00	Pipe laying, transportation
TOTAL CONSTRUCTION PIPELINE	**16.079**		**40,506,500.00**	
EXPENDITURE: three WORKERS CAMP	**997**		**2,512,000.00**	**Tents (sheets), putting up tents, blankets, food, utensils, security at weekends, recreation (playing football)**

EXPENDITURE: ADMINISTRATION	**2.139**		**5,389,065.00**	**Audit fees, bank charges. Board meetings, office consumables, office rent, repairs & renewals, etc**
EXPENDITURE:PERSONNEL COST	**9.531**		**23,964,030.00**	**Salaries, medical aid and NSSF contributions**
EXPENDITURE:CAPACITY BUILDING	**2.642**		**6,655,970.00**	**Staff hours used for capacity building(On -job training 2 technicians, 5 village plumbers, CBWSO members**
EXPENDITURE: VEHICLE RUNNING	**4.151**		**10,457,300.00**	**Petrol. diesel and oils; vehicle insurance and road tax; vehicle maintenance(service, repairs, tires, spare parts, etc)**
TOTAL EXPENDITURE	**51.847**		**130,609,085.00**	
EXCESS OF EXPENDITURE FOR THE PROJECT	**19**	**2,519**	**Tshs 114,906**	**In Euro's it is €19 overspending, calculating with an average exchange rate of 2,519 Tshs for 1 Euro.**