



September, 2024

Report of Water Resource Management Training for Water points in Gem and Luanda sub counties –Integrated Rural Development Project

Venue: Luanda Oasis Hotel

KUMEA REPORT

Prepared by Peter M. Okaka, Programs Coordinator-KUMEA

3rd October, 2024

TABLE OF CONTENT

ITEM	PAGE
1.0 EXECUTIVE SUMMARY	3
2.0 KEY RECOMMENDATIONS & WAYFOWARD	4
3.0 WORKSHOP PROCESS	
DAY ONE: TUESDAY, 17TH SEPTEMBER, 2024	
Activity 1: Participatory Introduction & Workshop Norms.....	6
Activity 2: Participant Expectations and Workshop Objectives.....	7
Activity 3: Overview of National Water Policy and Water Sector Reforms.....	8-10
Activity 4: Effective Community Based Management.....	11
Activity 5: Leadership Styles& Qualities.....	12-14
Activity 6: Gender Task & Resource Analysis.....	14-19
Activity 7: Financial Management &Record Keeping.....	20
DAY TWO: WEDNESDAY, 18TH SEPTEMBER, 2024	
Activity 8: Group Development Dynamic.....	21
Activity 9: Overview and Formulation of Water Committee Constitution/By-laws.....	22-23
Activity 10: Duties and Responsibilities of Water User Committees.....	24
Activity 11: Rights of Water User Members.....	25
Activity 12: Election of Water User Committee Leaders.....	25-26
Activity 13: Code of Conduct & Ethics for Water User Committee Leaders.....	27-28
Activity 14: Environmental Health and Sanitation Promotion.....	29-33
DAY THREE: THURSDAY, 19TH SEPTEMBER, 2024	
Activity 15: Operation and Maintenance of Water points	33-34
Activity 16: Scheduled Operation and Maintenance of Water point.....	34-35
Activity 17: Operation and Maintenance of Spring Water points.....	36-37
Activity 18: Environment Protection by-laws for Management of water springs.....	38

Activity 19: Overview of Drip Irrigation systems..... 39-41

Activity 20: Documentary Videos.....41

Activity 21: Community Action Plans for Gem sub county.....42

Activity 22: Community Action Plans for Luanda sub county.....43

Activity 23: Workshop Evaluations.....44

ANNEX

Annex 1: Workshop Photos

Annex 2: Workshop Program

Annex 3: List of Participants

1.0 EXECUTIVE SUMMARY

Community training workshop for Water Resource Management was carried for 18no. Water User Committees involved in Management of Water points in Gem and Luanda sub counties supported by the Integrated Rural Development Livelihoods Project. Training was conducted as from 17th October to 19th October, 2024. The workshop had 60 Participants (40men and 20 women) from 17no. Water points (7no. shallow wells fitted with solar pumping system ,4no. Ferro-cement& VIP Latrines in no. schools and 6no. spring water points)-Wasafi,Estray ,Abbasebu, Eleven jaws hand dug wells groups for Luands subcounty, Onding farmers, Olalo women & Mudhiero handdug wells for Gem subcounty. Musikomari, Emanyinya and Ebuchiebe water springs for Luanda sub county. While Kotiu, Kohato and Naya water springs from Gem subcounty. Schools include Sinaga, JM Rembe and Jina Primary schools while Musitinyi primary school in Luanda sub county was involved in the training. The workshop facilitators adopted a strategy to achieve the objectives of the trainings.

First, the workshop adapted a synergy of methods role-plays small-group discussions, pairing and action planning to allow for a critical interchange of ideas, to stimulate learning and to establish an on-going follow up through the process.

At the end of the workshops, evaluations were done to determine the level of understanding of participants, which was found to be satisfactory. Some of the objectives of the workshops were:

- 1. Develop capacity of Water User Committees in management of water points**
- 2. Define the roles of various partners and stakeholders in management of community water and sanitation project**
- 3. Build capacity for sustainability and effective use of the water points**
- 4. Promote productive use of water and adaptation of livelihoods based on community water supply**
- 5. Share experience in management of water points**
- 6. Develop Action plans for implementation by Water User Committees and Schools involved in Project activities.**

The trained participants formulated action plans for implementation to enhance effective community participation in management of water points and sanitation in target villages and schools. As part of preparations for operation and maintenance after construction the following key aspects were agreed on;

- a) Formation for sub-committees to coordinate various project activities**
- b) Initiate mechanism to start income generating activities based on productive use of water to enhance improved livelihoods and sustainability of water projects**
- c) Understanding of Water User Committee constitution and by-laws formulation**
- d) Active involvement of community members in project implementation and management**
- e) Scaling up sanitation improvements via ecological sanitation promotion at households' level**

The overall response has been positive based on the training evaluation checklist and outcomes. We therefore hope the process of follow up and capacity-building sessions will be strengthened by the various stakeholders involved and specific water user committees including schools task force committees for the schools involved as per the action plans formulated. This report provides the training process and outcomes with view of enhancing capacities of the various water points water user committees and target schools involved refresh their understanding of key sessions. The project team wishes to thank the various stakeholders involved in the training and their valuable contribution and support towards project implementation. We especially thank the sub county department of agriculture, provincial administration and sub county Education office for providing relevant support to the schools and the various water user committees involved in project implementation process.

2.0 KEY RECOMMENDATIONS AND WAYFOWARD

- a. Every effort needs to be put in place to promote and ensure gender equity in all hygiene, water and sanitation implementation processes and to ensure that gender concerns are addressed in planning and implementation of hygiene, water and sanitation**
- b. Each water point need to scale up vegetable production for income generating and also reduce schools' food production costs thus saving funds for other critical needs in the schools**
- c. Operation and maintenance manuals provided should facilitate effective use and sustainability of the water facility constructed by the project**
- d. That the water user committees to enhance membership drive so that they can easily mobilize resource for project development and up scaling.**
- e. Future project implementation process should integrate hygiene promotion by capacity building resource persons to enhance community appreciation of water services and scaling up improved sanitation thus adding value and quality of project interventions.**
- f. That all the spring water points sites should have cut off drains to prevent storm water from destroying the spring catchment and reduce any form of pollution**
- g. Environment Protection and management by-laws need to be introduced to all spring water points to ensure the sustainability of the water point and reduce any factors contributing to water point pollution**
- h. The Water User Committees' should mobilize communities' members to start mobilizing funds for operation and maintenance to enhance sustainability of the spring water points.**
- i. The Water User Committees need to scale up production of cassava and tissue banana for households' food security**

- j. That the Water User Committees need to formulate arrangement of giving feedback to all the villagers through the village level barazas so that all the community members can be involved in project implementation and decision making process**
- k. The Water User Committees should take a leading to ensure households sanitation improvements is attained in the respective target villages**
- l. That Water User Committees to form subcommittees to enhance implementation of various project components.**
- m. That the water user committees to enhance membership drive so that they can easily mobilize resource for project development and up scaling.**
- n. All water points to be fenced to secure the water points from encroachment of animals and also vandals**
- o. That the Water User Committees should ensure the spring water points have adequate vegetation cover to enhance improvement of water yields**

3.0 WORKSHOP PROCESS FOR WATER RESOURCE MANAGEMENT TRAINING

DAY ONE: TUESDAY, 17TH OCTOBER, 2024

THEME: INTRODUCTION & COMMUNITY MANAGEMENT PROCESS

ACTIVITY 1: PARTICIPATORY INTRODUCTION & WORKSHOP NORMS

Purpose

To reduce social distance, informally build group spirit and break the ice among participants with view of improving/facilitating interaction Participants discussed and agreed on the following likes and dislikes during the workshop

LIKES	DISLIKES
<ol style="list-style-type: none"> 1. Making friends 2. Politics 3. Competition 4. God fearing 5. Praying 6. Cleanliness 7. Positive Engagement 8. Education 9. Team work 10. Farming 11. Time management 12. Networking 13. Learning and experience sharing 14. Socializing and caring 15. Knowledge 16. Peace 17. Hardworking 18. Cooperation and development 19. Gospel music 20. Visitors with good ideas 21. Football and soccer 22. Support Projects 23. Travelling 24. Poultry and vegetable production 25. Sustainability 26. International news 	<ol style="list-style-type: none"> 1. Idleness 2. Disappointments 3. Gossiping 4. Political Arrangements 5. Rumor Mongers 6. Laziness 7. Conflicts and dishonesty 8. Un-prayerful 9. Noise makers 10. Lies 11. Fighting 12. Careless talks 13. Arrogance 14. Inadequate rains 15. Politics 16. Interruptions 17. Misuse of resources 18. Bad company

1.1 WORKSHOP NORMS & WORKSHOP SCHEDULE

Workshop Norms	Workshop Schedule & Leaders
<ol style="list-style-type: none"> 1. Avoid unnecessary movement 2. Keep the workshop hall clean 3. Respect for others opinion 4. Active participation 5. Observe punctuality 6. Phones to be on silent mode 7. Avoid abusive language 8. Avoid repetition 9. One person to talk at a time 	<p>Start time :9.00am</p> <p>Ending time:3.30pm</p> <p>Lunch time: 1.00pm</p> <p>Time Keeper: Benson Chogo</p> <p>Welfare: Madam Muhindi</p> <p>Ice breaker: Paul Owino</p> <p>Group leader: Madam Christabel</p>

ACTIVITY 2: PARTICIPANTS EXPECTATIONS AND WORKSHOP OBJECTIVES

Purpose

1. Share hopes, fears and expectations about the workshop that can be monitored during the training
2. Explore the participants' constructive criticisms\
3. Build participant's confidence and encourage communication on issues beyond the training program

HOPES	FEARS
<ol style="list-style-type: none"> 1. Learn more about KUMEA 2. Implement knowledge and lessons learnt 3. Share experience 4. Growth in activities 5. Water and Environment activities 6. Good training 7. Kitchen garden 8. Rationale for the training 9. Meeting new people 10. Objectives of the training 11. Empowerment 12. Value addition 13. Expansion and improvement 14. Agribusiness 15. Project Continuity 16. Live well 17. Healthy and wealthy communities 18. Role Model 	<ol style="list-style-type: none"> 1. Starting a project and failure 2. Long topics 3. Failure 4. Inadequate cooperation 5. Disunity 6. Not meeting training objectives 7. Fearless 8. Fights 9. Cheated 10. Gossips 11. Disappointment 12. Lateness 13. Environment Distractors 14. Fears God 15. Theft 16. Sickness

Workshop Objectives

1. **Improve management of water resource facilities**
2. **Facilitate effective use of water points**
3. **Promote hygiene & sanitation improvements**
4. **Develop capacity for operation & maintenance of water points**
5. **Enhance good leadership to enhance sustainability**
6. **Enhance livelihoods through productive use of water**
7. **Develop appropriate Community action plans**

ACTIVITY 3: OVERVIEW NATIONAL WATER POLICY AND WATER SECTOR REFORMS

Plenary presentation

Objective: To enable the Water User Association leaders understand the changes in the water sector and the new institutions that have been created because of the reforms.

1. Introduction

- a) The water sector reforms are enshrined in the Water Act 2002, which provides the institutional and legal framework for implementing the sectors' policy objectives, which are:
 - b) To conserving and protect water resources and allocating them in a sustainable manner
 - c) To supply adequate and good quality water while ensuring safe disposal of wastewater and environmental protection
 - d) To establish efficient and effective institutional framework, promoting and supporting participation of users
 - e) To develop sustainable financing mechanisms. This will enable the management of effective water supply and sanitation development.

2. The Act Provides

- Clear definition of the roles of institutions in the sector to minimize duplication and conflicts;
- Separation of roles policy formulation, provision of water and sanitation services and management of water resources;
- Creation of new institutions to carry out the new mandates envisaged by the new water policy (decentralized institutional framework);
 - Retain the residual role of the Ministry as sector coordination, policy formulation and development of sector legislation

3. The various institutions under the water sector reforms include the following:

- Ministry of Water and Irrigation (MWI)
- Water Resources Management Authority (WRMA)
- Water Services Regulatory Board (WSRB)
- Water Services Boards (WSBs)
- Water Service Providers (WSPs)
- Water Services Trust Fund (WSTF)
- Water Appeals Board (WAB)
- Catchment Area Advisory Committees (CAACs)
- Water Resources Users Associations (WRUAs)

4. The Water Act 2002 separates policy formulation, regulation and services provision and management of water resources.

It defines clear roles for sector actors and a decentralized institutional framework. The following key institutions are involved in coordination and implementation of the water services in the country.

Key institution	Role & Mandate
1. Ministry of Water and Irrigation	Policy formulation and guidelines on Water Sector Management and services for all relevant key institutions
2. Water Resources Management Authority (WRMA)	<ol style="list-style-type: none"> 1. Management, protection and conservation of water resources 2. Develop principles, guidelines and procedures for allocation of water resources; Monitor and enforce conditions attached to water permits; 3. Manage and protect water catchment; 4. Regulate and protect water quality etc. 5. Ensure rational and equitable allocation of water resources in an integrated manner to reduce use conflicts while ensuring allocation for ecological sustenance)
3. Water Services Regulatory Board (WSRB)	<ol style="list-style-type: none"> 1. The regulatory board provides general oversight for the provision and monitoring of Water Services Board and the service providers. 2. This includes the issuance of licenses to Water Services Boards, determining standards for the provision of water services, procedures for handling complaints and develop guidelines for water tariffs
4. Water Services Boards (WSBs) Seven water service boards at regional level	<ol style="list-style-type: none"> 1. Responsible for efficient and economical provision of water services in their respective areas; 2. Responsible for controlling water facilities, applying regulation on water services and tariffs, purchasing and leasing water and sewerage assets and contracting water services providers.
5. Water Services Providers (WSPs)	<ol style="list-style-type: none"> 1. Provide water services under delegated authority of WSBs 2. Agreement with WSBs 3. Approval of WSRB
6. Water Services Trust Fund (WSTF)	Financing the provision of water services to needy areas of Kenya
7. Water Appeals Board (WAB)	Handling appeals from any person having a right or proprietary interest, which is directly affected, by a decision or order of the Authority, the minister or the Regulatory Board concerning a permit or license.
8. Catchment Area Advisory Committees (CAACs)	<p>Advise the WRMA at the appropriate regional office concerning:</p> <ol style="list-style-type: none"> 1. Water resources conservation, use and apportionment 2. Grant, adjustment, cancellation or variation of any permit 3. Any other matters pertinent to the proper management of water resources
9. Water Resources Users Associations (WRUAs)	<ol style="list-style-type: none"> 1. Identifying, quantifying and registering water consumers 2. Water locations and catchments management Determination of water and sanitation investment demands 3. Monitoring and information systems for water quantity and quality 4. Conflict resolution and management of water resources in the catchments 5. In recognition of the role of women in water resources management, at least 30% of members of WRUAs should be women.

RATIONALE FOR WATER SECTOR REFORMS

Changes in policy based on the following	Problems /issues that motivated water sector reforms
<ol style="list-style-type: none"> 1. Separation of functions; 2. Decentralization; 3. Commercialization of services; 4. Stakeholder and private sector participation 	<ol style="list-style-type: none"> 1. Degradation of water resources – decreasing dry season flows, deteriorating water quality; 2. Degradation of water catchments and riparian areas; 3. Poor reliability of water supplies; 4. Lack of financial resources; 5. Insufficient or inappropriate support; 6. Increasing incidence of water use conflicts; 7. High vulnerability to droughts and/or floods.

A) KEY ASPECTS OF THE WATER SECTOR REFORMS

1. Water as an economic and social good	This implies that although water comes free from the clouds, there are costs associated with managing and making the water available to consumers. Three key features are associated with treating water as a social and economic good
2. Commercialization of water services	This implies that water services should operate on commercial principles <ol style="list-style-type: none"> a) Charges for providing a service b) Revenues must exceed operating expenses c) There should be a mechanism for capital replacement d) Business should have proper books of accounts Water business should run as a separate entity from other activities (this is why all the municipal water supplies have been handed over to companies (Water Service Providers or WSPs) owned by the municipal councils – so that the water service provision runs as a separate operation to all the other affairs of the council)
3. Protection for vulnerable groups so that, despite water charges, they are not denied access to water for basic needs	Revenue from water business should not be used outside the water business (ringfence revenue). This means that water cannot be charged at high tariffs to finance, say new road. Block tariff structures – tariff structures that recognize different economic status within the consumer population
4. Economic value of water	This implies that water allocation should recognize productive, domestic and environmental uses of water. There are costs associated with managing the water resources. The following consequences are noted: <ol style="list-style-type: none"> 1. WRMA charges water use charges for resource management; 2. Water charges means there will be less wastage; 3. Polluter Pays principle. If someone pollutes or degrades the water quality so others cannot use it or have extra costs to clean the water before they use it, then the polluter, if caught, can be made to pay for the cleanup of the resource

B) STAKEHOLDER PARTICIPATION

This means that private and community stakeholders should play a greater role in water services and water resource management based on the following rationale

1. Community members should have a greater voice in deciding how government resources are spent on water services and water resource management (Example: CWP can apply for CDF financing);
2. Community members should have a greater voice in deciding what kind and quality of services they require (e.g., communities must be consulted before projects are designed or implemented);
3. Community members should have a greater voice in how water is allocated to competing water demands (through a WRUA – water resource users association – comment on permit applications);
4. Private companies should be used more in the water sector to increase professionalism, performance or output based services, and competition (e.g. Municipal services are now run under a publicly owned company, borehole drillers are from private sector)

ACTIVITY 4: EFFECTIVE COMMUNITY BASED MANAGEMENT AND ROLE OF COMMUNITIES IN WATER AND SANITATION

Purpose

Community and participants to appreciate the good attributes of effective community management process Plenary and brainstorming session

Attributes	Objectives and outcomes
1. Discussions/Meetings	<ol style="list-style-type: none"> Helps us to come up with proper solutions It helps to make a work plan People will work voluntarily and willingly Work will be well done Help in choosing good activity
2. Initiative	<ol style="list-style-type: none"> Accomplish work on time Accomplish standard work It improves work standard
3. Problem Solving	<ol style="list-style-type: none"> It allows exchanging of views It creates moral relationship among members It discourages misuse of funds It minimizes problems in the organization
4. Organization	<ol style="list-style-type: none"> It creates social relationship It makes work easier Members can acquire loans/grants from the Government Can be able to solve problems Can be able to market goods anywhere Can learn different skills from others
5. Self-Reliance	<ol style="list-style-type: none"> To solve our problems accordingly We need to sustain our daily needs Create aspects of unity It creates aspects of social, cultural, and economic independence Creates the aspect of commitment and responsibility
6. Committed and Responsible	<ol style="list-style-type: none"> Create the ownership of the project People are able account their ability Human resource utilization There is security of the project
7. Demand Driven	<ol style="list-style-type: none"> Sustain the needs of the community Resources of the community are well utilized Political interference is reduced to community project
8. Action	<ol style="list-style-type: none"> To develop the group Helps choosing the right work that's affordable Helps improving the lives of people around us
9. Planning	<ol style="list-style-type: none"> Planning help identify goals Helps in setting specific time to start and end projects Helps in determining the cost of material use Help in choosing the right activity
10. Making Decision	<ol style="list-style-type: none"> Helps get the right usable idea For transparency and accountability Brings unity in the group Saves time
11. Raising And Management of Money	<ol style="list-style-type: none"> Help get finance Helps the group to identify the method of using funds Helps the group to invest in money generating activities Help the group develop
12. Empowerment	<ol style="list-style-type: none"> Because we understand our needs To work on our own/skilled To exploit our skills Helps us to make our own decisions Eradicates the culture of corruption

ACTIVITY 5: LEADERSHIP STYLES AND QUALITIES

Plenary presentation

Objective -To enhance leadership skills in the Water User Committee members.

a) Introduction to good leadership

Who is a Leader	Leadership Qualities
A leader is a person who has ability to influence the community to work in harmony and to achieve a set goal in an organization.	There are many leadership qualities and some are shown here below; a) Ability to communicate b) Intelligent c) Courageous d) Flexible e) Have time for public service f) Self confidence g) Ability to inspire h) Integrity i) Good judgment

b) Key attributes of Leaders

Key Attributes	Rationale
1. Acceptability	A person who commands respect and self-discipline. Has good interpersonal relations and meets minimum community norms of good conduct
2. Job-Competence	Has a track record of exemplary performance in a skill area or areas
3. Ability to listen	Listens patiently for meaning and understanding
4. Tolerance	Has the ability to listen to and accommodate dissenting views and constructive criticism
5. Delegation	willing and able to share responsibilities in order to build the potential of others
6. Flexibility	open to change and reason
7. Communicative Competence	Can influence others through logical and effective speech.
8. Empathy	Ability to enter into others' feelings as a way of understanding a situation.
9. Self-Organization	Sets an example on personal orderliness
10. Self-confidence	Inspires confidence in others because he/she has the same.
11. Honesty	Can be trusted at all times
12. Reliability	Is dependable on words, promises and deeds
13. Impartial	Is guided by fairness, truth and justice in making all decisions.
14. Good time manager	Ensures good time management in all activities

c) Leadership Styles

Leadership Styles	Description
1. Autocratic Leader	This leader centralizes leadership, does not allow any participation but motivates subordinates. His motto is that of, “I will help you if you obey me”.
2. Democratic Leader	Democratic leader decentralizes power and allows for group participation in decision-making. The motto of this leader is, “Do you agree with my views”
3. Free-Reign (Laissez-Faire)	A laizzer-Faire leader may be described as a “No decision-making” leader since he is passive and has no initiatives of his own. His motto is, “What do you want to do it”.
4. Dictator	This leader leads with an iron hand and subordinates live under fear. His leadership code is, “you must do what I say”
5. Visionary Leader	This is a leader who lives in the future, he sets targets and works towards the achievement of the goals

Group Task

Participants discuss /define the different types of leadership and analyze the advantages and disadvantages

A) DEMOCRATIC LEADRESHIP

This is a leadership where views from different people opposing minds are set together for better governance

Advantages	Disadvantages
<ol style="list-style-type: none"> Freedom of all people to participate All citizens views are accepted It caters for all citizens regardless of position There is freedom of choices It allows opposition parties to criticize the Government 	<ol style="list-style-type: none"> It is time consuming-discussions It encourages indiscipline It creates burdens to some communities It is not easy to create a decision

B) AUTOCRATIC OR DICTATORSHIP LEADERSHIP STYLES

Advantages	Disadvantages
<ol style="list-style-type: none"> No contradiction to the passed law It gives the leader easy time to pass laws No time for funds wasted on passing discussion in any motion for it needs less time for one to decide 	<ol style="list-style-type: none"> Those governed have no freedom to decision making The Government suffers a great deal i.e. death Always his reign doesn't last longer No development is noticed since most people don't participate Those governed easily drop out since their view are not considered Triggers possibility of growth of other groups Spend funds of his group on his intention

C) LAISSE-FAIRE LEADERSHIP STYLES

Definition: This is the type of leadership whereby followers or subordinates are given tasks and left alone to decide their way forward

Advantages	Disadvantages
<ol style="list-style-type: none"> 1. Decision of members is taken on put in action without forcing them 2. Specific timetable is freely set by the members 3. Identification of problems within that period is realized 4. Easy to define goals in the group 5. Minority building ideas is harvested from less active people in the group 6. Exposes exploration & discovery in doing activities 7. Brings in different views in the group 8. Encourages freedom of participation 	<ol style="list-style-type: none"> 1. Encourage a lot of laziness amongst people 2. A lot of time is wasted on decisions 3. Expert ideas are realized 4. Inadequate follow –up 5. No peace and cohesion 6. No respect and discipline 7. Destroys progress of the group due to conflicting ideas

Summary of leadership styles

Best leadership style-Democratic & Reasons	Qualities of a Good Leader
<ul style="list-style-type: none"> ✓ Every member is involved ✓ Everyone cares ✓ Everyone is a beneficiary (both gender and youth) ✓ Everyone contribute equally ✓ Everybody's opinion heard and respected ✓ There is transparency and accountability Success of the project is high 	<ul style="list-style-type: none"> ✓ Listens ✓ Patient ✓ Polite ✓ Good role model ✓ Determined ✓ Willing to Trustworthy

Conclusion-Leadership skills improvement is necessary if Water User Committees have to develop and serve the people in a cordial environment generally Water User Committees leaders has to be democratic.

ACTIVITY 6: GENDER RESOURCE AND TASK ANALYSIS

Purpose:

To depict and examine Gender roles /tasks in the area of water, sanitation and hygiene behavior To determine the different tasks women perform each day, the sequence in which they do them. How long each activity takes and whether the most time consuming activities are considered a problem. To raise awareness of men and women's workloads To depict and examine resources that are owned by men and women and which can be used for improvement of water, sanitation and hygiene behaviors.

Task

- ◆ Draw a 24-hour time cloak indicating activities, which are carried out by men and by women. ◆ List Resources available in a household and indicate who controls what resource between man/woman.
- ◆ Indicate who does what between men/women or both
- ◆ Who controls what resource between men/woman or both.

- ◆ Who should be the target for hygiene and sanitation awareness?
-) What should be our gender strategies?
-) Are current development initiatives designed at alleviating the burden of women?

Sample presentation for water and sanitation based on gender

6.1.1 24-GENDER O'CLOCK EXERCISE

a) 24-Gender o'clock women

TIME	ACTIVITIES
5.00am	Waking up
5.00am- 6.00am	Preparing breakfast for the family
6.00am-7.00am	Preparing(bathing) children to the school
7.00am	Having breakfast with family
8.00am	Fetching water, Cleaning house and compound Opening for chicken Making beddings
8.00am -9.00am	Washing of clothes and nappies Showering and bathing of the baby
9am-10.00am	Preparing uji for those at the farm , Washing utensils
10.00am-11.00am	Water collection and lunch preparation
11.00am-2.00pm	Washing utensils and breast feeding
2.00pm-3.00pm	Collection of firewood and going to the posho mill
3.00pm-6.00pm	Attending the meetings and discussions Going to the market and the farm, Preparing supper and bathing children Preparing water for husband to bathe
6.00pm-8.00pm	Serving supper
8.00pm-10.00pm	Washing utensils and waiting for mzee

b) 24 Gender o'clock for men

TIME	ACTIVITIES
6.05 am	Waking up
6.05 am-7am	Monitoring and supervision of animals/compound
7am-8am	Take breakfast, Checks farm laborers,
8am-1.00pm	Looking for farm inputs and Marketing produce
1.00pm-2.00pm	Lunch hour and listening to news
2.00pm-7.00pm	Local market and Entertainment
7.00pm-9pm	Monitoring his farm
9.00pm	Showering
10.00pm	Bed and waiting for the wife

6.1.2 WOMEN TIME MANAGEMENT

ACTIVITY	TIME	DURATION
1. Fetching water	Early morning	4 Hours
2. Washing utensils	After every meal	30Minutes
3. Taking children to the clinic	Morning	A day
4. Weaving	Leisure	2 hours a day
5. Milking	Morning & Evening	1 Hour
6. Thatching	Morning	2hr to 4 hrs
7. Waste disposal	Morning	5minutes
8. Pounding maize/Muthokoi	Any time	30 minutes
9. Digging and weeding	Morning	3 hours
10. Feeding babies/children	Any time	20 minutes
11. Reading magazine/newspapers	Evening	30 minutes
12. Washing latrines	Morning	30 minutes
13. Sweeping compound	Morning	30 minutes
14. Tethering	Morning	1 Hour
15. Cutting trees	Any time	1 Hour
16. Market	Morning	A day once a week
17. Washing clothes	Morning	3 days per week
18. Breast feeding	Any time	10 to 20 minutes
19. Fetching fire wood	Evening	3 hours
20. Cooking	Morning and Evening	20 o 30 minutes or 1hour

6.1.3 RESOURCE ANALYSIS OF MAJOR RESOURCES AT HOUSEHOLDS

RESOURCE	WHO HAS ACCESS?	WHO CONTROLS?	WHO BENEFITS?
1. Land	Man/woman	Man	Man/woman
2. Trees	Man/woman	Man	Man/woman
3. Money	Man/woman	Man/woman	Man/woman
4. Livestock	Man/woman	Man	Man/woman
5. House	Man/woman	Man	Man/woman
6. Utensils	Man/woman	woman	Man/woman
7. Radio/TV	Man/woman	Man	Man/woman
8. Bee-Hive	Man	Man	Man
9. Farm tools /equipment	Man/woman	Man	Man/woman

Summary of the Gender in water, hygiene and sanitation Key issues noted

- Women overburdened and may not have time to attend hygiene and sanitation promotion sessions
 - Men have adequate time to attend hygiene and sanitation and sanitation sessions but have no time to implement
- Women do most of the household chores pertaining to hygiene and sanitation
- Most of the decision-making process based on hygiene and sanitation practices
- Children are taught positive hygiene and sanitation practices by women and good health by all.

6.1.4 Proposed ways to improve the Gender disparities in water and sanitation together with strategies to promote gender equity in hygiene, water and sanitation

Ways to reduce Gender disparities	Strategies to promote Gender equity
<ol style="list-style-type: none"> 1. Community sensitization in gender equity 2. Discarding negative cultural values 3. Sharing responsibilities among the family members 4. Provide equal opportunities and fairness to both women and men 5. Promote basic education for the girl child 6. Men to share with women some of the household activities especially taking children to school during their spare time 	<ol style="list-style-type: none"> 1. Promote community empowerment process through participatory learning methods 2. Behavior and attitude change by community members on Gender issues i.e. role of women and girl child 3. Facilitate shared decision making and chain of command 4. Respect one another i.e. Men respect to women Promote positive cultural values that promote women

6.1.5 Gender checklist for WASH programming

General data	Water collection, transportation, and allocation at household (HH) level	Access to, and control over, water source
<ul style="list-style-type: none"> ✓ Total number in family. Data disaggregated by age and sex. ✓ Number of families headed by females, and number by males. ✓ Child-headed families. ✓ Number of unaccompanied boys and girls, elderly, and disabled people. 	<ul style="list-style-type: none"> ✓ Patterns of water collection (water fetching and carrying): time spent (hours / day). ✓ Relationship between water collection and girl child school attendance. ✓ Gendered division of access to means of water transportation. When the family has access to private transport (bicycle, donkey, motorbike, etc), do men retain priority use, leaving women more reliant on travel by foot? ✓ Patterns of water allocation among the family members (sharing, quantity, quality). 	<ul style="list-style-type: none"> ✓ The different uses and responsibilities for water by men, women, and children (e.g. cooking, sanitation, gardens, livestock, etc.). ✓ Who makes decisions about different water use in the community (water for irrigation, domestic use, livestock watering, water selling, brick making, etc.)? ✓ Do women have access to income generation activities related to water

6.1.6 Guidelines on Gender time management and technical options

Gender division of time-use in the HH	Technical options / operation and maintenance (O&M)
<ol style="list-style-type: none"> 1. Who makes the decision about the time spent at HH level? 2. What is the normal means of handling, storing, and treating water at HH level? 3. Who is responsible for HH hygiene? Who is responsible for hygiene and sanitation practices at community level? 4. If women are responsible for the hygiene status of themselves and their families, what level of knowledge and skills do women have? 	<ol style="list-style-type: none"> 1. What is the division of responsibilities between men and women for maintenance and management of water and sanitation facilities? Are women equally represented in community development committees, water committees, community associations, etc? 2. Which roles do women take on in those associations? Do they have access to the treasury? Who usually maintains the latrines/water points? 3. Does the community need technical training on latrine operation and maintenance and hygiene, and/or managerial training for maintenance? 4. What are the options for convenient user-friendly designs, low cost and affordable facilities? 5. Are the physical designs of water points and latrines appropriate to water source, and the number and needs of users? 6. Does the community need facilities adapted for disabled/elderly people (especially women)?

6.1.7 Guidelines on Gender privacy and traditional roles

Privacy and security	Sanitary habits of women and girls
<ol style="list-style-type: none"> 1. Location and design for privacy and security of water points/latrines and bathing facilities. Safety around water sources, especially if women and children are primary users. 2. Do women feel constrained to travel alone in public to the water point/sanitation facilities because of real danger of aggression or social disapproval 	<ol style="list-style-type: none"> 1. What is appropriate to discuss? What types of materials are appropriate to distribute? How are children's faeces dealt with? 2. What are the cultural assumptions with regard to water and sanitation activities during pregnancy, menstruation, anal cleaning, etc?
Cultural issues	Traditional gender roles and power structure
<ol style="list-style-type: none"> 1. What are the main cultural issues, which impact upon women's and men's access to water and sanitation? 2. Do men and women share the same latrine (at HH level and Community level) 	<ol style="list-style-type: none"> 1. How do women perceive themselves in traditional roles and active participation? How much of this can be changed and how much cannot be changed? 2. Who decides how much money should be spent on water?

6.1.8 Why should there be equal gender representation in the Water User Association?

1. Women are the principal users of a water system. It is in his or her interests more than anyone else for the water system to function properly.
2. As principal users of water, women are the best judges of the most suitable standard of service required (e.g. when water point should be open) and are the first to recognize problems.
3. Women have considerable knowledge of existing water sources, the amount of water, which ones are seasonal and perennial, information that is very important at the planning stage.
4. Women and men's opinions and preferences may differ. It should not be assumed that an all-male committee would always represent the best interests of all users of a water system. Within Kenya women and girls represent more than half the population of the village, if they are left out you lose the opinions, good ideas and commitment of the majority of the community.
5. Women are less likely to leave the village to seek work. past experience has shown that a significant number of men trained are not on hand to deal with problems when they arise, because they have left the village for work or national service. (Members who are likely to leave the village for a prolonged period should not be chosen as members of the committee or to be an attendant.

6.1.9 Suggestions for improving gender awareness

Community consultation	Link to hardware / community training
<ol style="list-style-type: none"> 1. Ensure recruitment of men and women on the team. 2. Ensure that women are available to talk to women, and men to men, in the assessment (especially when discussing sanitation and personal hygiene). 3. Work separately with women's and men's groups, where necessary, to counter exclusion and prejudice related to water, sanitation, and hygiene practices. 4. Women and men need to be consulted about convenient times and locations for meetings, and they need time to be given time to reorganize their schedules. 5. Involve both men and women in discussions on water and sanitation, including personal hygiene habits, general health, and the needs and fears of children (do not just focus on women). 6. Conduct consultations in a secure setting where all individuals (including women and girls) feel safe to provide information and participate in discussion and decision-making. 7. Include questions on cultural and ethnic beliefs on water usage, responsibilities, and sanitation practices. 	<ol style="list-style-type: none"> 1. Provide 'coaching' advice to engineers and hygiene promoters on how to work with the community and make effective use of women's knowledge of the community. 2. Provide formal and on-the-job training for both men and women in construction, operation, and maintenance of all types of water and sanitation facilities, including wells and pumps, water storage, treatment, water quality monitoring, distribution systems, latrines, and bathing facilities. 3. Ensure that the training is suited for the specific needs of women (timing, language, educational requisites, etc). The training needs to be especially tailored to the specific requirements of poor women and vulnerable groups. 4. Offer training in water management to men (preferably using men to men training), especially for single male-headed HHs in which they have previously relied on women to collect water and to manage the cooking, personal hygiene and domestic needs for the family. 5. Work with community groups to expand, operate, and maintain communal facilities, and dispose of liquid and solid wastes.
Social research	Gender sensitization
<ol style="list-style-type: none"> 1. Through interviews with key informants, try to understand the power and social relations in the target communities. Examine the roles, responsibilities, processes and workloads of children, women, and men, and the rich and the poor, in terms of labour in their homes, hygiene practices, and water use and management. 2. Determine how women's and men's participation and skills acquisition influence power dynamics at the HH level. Be aware of possible increases in domestic tensions and provide basic conflict resolution and support where possible. 	<ol style="list-style-type: none"> 1. Develop special activities on gender sensitization for men. 2. Target hygiene programs not only to mothers, but also to fathers and other carers of children.

ACTIVITY 7: FINANCIAL MANAGEMENT AND RECORD KEEPING

Purpose

To make the leaders understand how to handle primary documents and also apply them in the day to day running of the Water User Committees

Primary documents- where initial transactions in a Water User Associations are done e.g. Receipts, Vouchers, Bank Statements, Cheque Book, Invoices, Banking Slips, Purchase Order Book

Secondary documents- Cash Book, Ledger, Inventory

Type of documents	Information required
1. Asset Registers	Maintains record of Water User Association assets
2. Invoice	List of items purchased (quantity, quality ,price and terms of sale offered by supplier)
3. Members register	List of members and their personal names among other details
4. Receipt Books	Record of all the money paid by the Community members
5. Payment Voucher	This shows that money going out was paid for the right purpose
6. Stock taking Journal	Shows quality of stock, status and value
7. Order Book	To order for services and goods
8. Delivery Note	It shows goods and services delivered
9. Cheque	Used for paying or settling a debt
10. Cash Book	Record of all money paid in or out through cheque or cash
11. Ledger-	Summary of all transactions in a business
12. Statement of Affairs	-Reflects a summary of all accounts on a ledger

DAY TWO: WEDNESDAY, 18TH SEPTMBER, 2024

THEME: GROUP DEVELOPMENT, HYGIENE &SANITATION IMPROVEMENTS

ACTIVITY 8: GROUP DEVELOPMENT DYNAMICS

Purpose

To enhance group leadership skills and form the leaders on critical stages in-group or Water User Committee Development

Methodology -Plenary presentation

8.1.0 Introduction

What is a Group?	Importance of a Group?
A group is a collection of individuals intending to have a common aim under the direction of one leader. Members of a group share a sense of common identity. Therefore a group is more than an aimless crowd of people	Individual need groups since they provide: <ul style="list-style-type: none"> • Stimulus • Protection • Assistance and other social and psychological requirements

8.1.1 Group Behavior analysis

Behavior/Cohesiveness	Development
Stage1: Forming A Water User Committee at this stage finds out why it should exist. It should find out what tasks, rules and methods it is going to adopt. To achieve their objectives.	Undeveloped team Feelings are avoided; objectives are uncertain. The group starts to acquire information and resources and mostly relies on the leader for decisions.
Stage2: Storming During the storming stages a Water User Committee develops internal conflicts and members resist tasks and by –laws/rules and emotional levels are high.	Experimenting Team Issues are faced more openly and listening takes place.
Stage3: Norming Conflict is settled; cooperation develops; Views opinions and ideas are exchanged and new standards of relations (norms) are developed	Consolidating Team Personal interaction is established on a cooperative basis, tasks and roles are clarified, objectives agreed and tentative procedures implemented
Stage 4: Performing Teamwork is achieved; roles are flexible; solutions to problems are found and implemented	Mature team Feelings are open, a wide range of options Considered, working methods are methodical leadership styles is contributory, individuals are flexible and the group recognizes its responsibility.

8.1.3 Development of groups and Water User Committees

Reasons for Formation of Groups	Characteristics of an Effective Group	Factors that hold a group together and disadvantages of having a group
<ol style="list-style-type: none"> 1. Certain tasks can only be performed through the combined effort of a number of individuals working together; 2. Groups may encourage cooperation between members; 3. Groups may provide companionship and a source of mutual understanding and support from colleagues; 4. Membership of a group provides the individual with a sense of belonging; 5. The group provides guidelines on generally acceptable behavior; 6. The group may provide protection for its membership 	<ol style="list-style-type: none"> 1. A belief in shared aims and objectives. 2. A sense of commitment to the group. 3. Acceptance of group values and norms. 4. A feeling of mutual trust and dependency. 5. Full participation by all members and decision making by consensus. 6. A free flow of information and communication. 7. Open expression of feelings and disagreements. 8. The resolution of conflicts by members themselves. 9. A lower level of turnover, absenteeism, errors and complaints 	<ol style="list-style-type: none"> 1. Similarity of work 2. Physical proximity 3. Group size (smaller rather than large) 4. Commitment to deal with threats from outside and within 5. The prospects of rewards 6. Leadership style of the committee /manager 7. Common social factors (age, race, social status, etc) <p>Disadvantages of having a group:</p> <ol style="list-style-type: none"> 1. It can be time consuming in making decisions; 2. It can promote dependency of individuals on the group

ACTIVITY 9: OVERVIEW AND FORMULATION OF WATER USER COMMITTEES CONSTITUTION/BY-LAWS

Objective

Enhance better understanding of the Water User Committee constitution and key articles for effective management of water projects

Methodology: Plenary presentation & Brainstorming

9.1.0 Introduction

What constitution defines	Rationale for good constitution
1. Objectives of the group/Water User Committee	1. Help the group/Water User Committee to realize its objectives
2. Organizational structure with committees and officials	2. Protect individual interests within the context of serving the group objectives
3. Who has authority to make decisions on behalf of the group	3. Minimize risk to the project from authoritarian or weak leadership
4. What funds can be used for and how they should be accounted for	4. Provide systems of accountability to the membership
5. How to elect leaders and how long they can stay in office	5. Make the group operate efficiently
6. How often meetings should be held and how they should be conducted	6. Minimize conflicts by being clear on rules and procedures
7. How the constitution can be changed	

9.1.1 Issues arising from constitutions

Common cases where Water User Committees' constitutions are overlooked	Steps that a group/Water User Committee can take to minimize the constitution being overlooked
<ol style="list-style-type: none"> 1. Timing of meetings; 2. Conduct of General meetings; 3. Notice period for General Meetings; 4. Frequency of elections; 5. Holding committee meetings when there is a lack of quorum; 6. Utilization of funds for purposes stated in constitution 	<ol style="list-style-type: none"> 1. Ensure all project members have a copy of the constitution and have had a chance to be inducted "into the constitution"; 2. Appoint an oversight or audit sub-committee whose job it is to ensure that the constitution is followed and to raise any points to the main committee where the constitution is overlooked; 3. In cases where the constitution is impractical, then it is necessary to make a change to the constitution so that it can be followed more easily.

9.1.2 The risk to the group in the event that the constitution is not followed includes:

1. Authority of the constitution is diluted and no longer serves as the guiding tool for the group;
2. Conflicts can arise because the rules "have been suspended";
3. Fraud and malpractices can be allowed to continue without the members realizing

9.1.3 Different type of meetings as stipulated in the constitution

Type of meetings	Rationale
1. Committee Meetings	<ol style="list-style-type: none"> 1. Held regularly, e.g. once every month by the project committee members; 2. To discuss matters mainly concerning administration of the project.
2. Sub-Committee Meetings	<ol style="list-style-type: none"> 1. A project committee may divide itself into various subcommittees 2. These hold their meetings as necessary to discuss specific matters of the project
3. General Meetings	<ol style="list-style-type: none"> 1. Organized and called by the committee once every year 2. The purpose is to inform members about issues concerning their Project accounts and other specific matters (such as elections and project progress).
4. Special General Meetings	<ol style="list-style-type: none"> 1. Held when there is special business to be discussed by the members. 2. These meetings are often seen as extra-ordinary meetings

ACTIVITY 10: DUTIES AND RESPONSIBILITIES OF WATER USER COMMITTEE OFFICIALS

Purpose

To enable the members, know their duties and responsibilities in the Water User Committees

Methodology: Plenary presentation & Brainstorming

10.1.0 Outcomes of the respective roles of Water User Committees

1. Attending meetings
2. Convene meeting General Meeting as empowered by-laws
3. Security of assets
4. Ownership of assets
5. Expenditure approval
6. Convening Special General Meeting (SGM) as per by laws
7. Budget approval
8. Approval of by-laws
9. Amendment of by-laws
10. Electing Committee members
11. Participation in the project activities and forums
12. Contribution to the group's activities and growth
13. Task force committees to undertake other key related developments

10.1.1 Roles and responsibilities of some Water User Committee positions

Position	Role	Responsibilities
1. Water user	To use the water responsibly and efficiently	<ol style="list-style-type: none"> 1. Pay the agreed amount on time 2. Report misuse of the water point
2. Project Members	<p>To ensure the project continues to provide value for money giving the benefits it was developed to provide</p> <p>To keep the leaders accountable in ensuring the service delivery</p>	<ol style="list-style-type: none"> 1. Developing and following an effective constitution 2. Electing an effective management committee 3. Keeping the management committee accountable for their actions 4. Attending project meetings when required and giving ideas on how best to run the project 5. Participate in community work whenever necessary 6. Offer to serve in the leadership
3. Management Committee	To manage the project effectively and sustainably	<ol style="list-style-type: none"> 1. To organize and call General Meetings and other meetings 2. To run project bank account 3. To prepare project budgets 4. To recruit and employ staff 5. To plan and implement water development activities including tariff setting, metering, membership registration, society registration, etc 6. To ensure equitable distribution of project benefits 7. To keep and maintain project records 8. To ensure project accounts are audited 9. Conflict resolution
4. Chairman	Provide leadership to the management committee to enable it to fulfill its roles	<ol style="list-style-type: none"> 1. Chair all project meetings 2. Guide on project policy matters 3. Ensure all project records are properly maintained 4. Ensure smooth running of project activities 5. Enforcement of by-laws
5. Secretary	Keep all the records of the organization	<ol style="list-style-type: none"> 1. To record minutes of all meetings 2. To maintain a Minute Book 3. To maintain a Members Register 4. To ensure that the water supply correspondence is correctly and efficiently attended to
6. Treasurer	To be responsible for all finances of the organization	<ol style="list-style-type: none"> 1. Keep records of the WUA assets and finances 2. To check all payments 3. To sign all payment vouchers 4. To ensure banking of all monies received on behalf of the water supply

ACTIVITY 11: RIGHTS OF WATER USER MEMBERS

Purpose

To make the leaders understand the duties and responsibilities of a member of Water User members

Methodology: Brainstorming and plenary presentation

Task

Identification rights for Water User Association members

11.1.0 Key outcomes from the discussions

Rights of members agreed as follows

1. Attending meetings
2. Convene meetings e.g. Special General Meetings as empowered by the constitution
3. Ensure security of assets
4. Expenditure approval
5. Convening General Meeting as per the constitution
6. Budget approval
7. Approval of constitution
8. Amendment of constitution
9. Electing committee members
10. Participation in project activities
11. Contributions to the Water User Committee activities
12. Scrutiny of the Water User Committee funds
13. Elect leaders of the Water User Committee

ACTIVITY 12: ELECTION OF WATER USER COMMITTEE LEADERS

Objectives

To make the leaders understand the importance of elections and also undertake peaceful elections.

Methodology: Plenary presentation & Brainstorming

12.1.0 What is Election?

There are some terminologies that should be made clear so as to understand what election is. The terminologies are;

- ❖ Election means the process of selecting a candidate to represent interests of others who have common goal.
- ❖ Appointment – Choosing a person through writing.
- ❖ Nomination – Choosing a person through a word of mouth (verbal statement).
- ❖ Electoral area means a region that is represented by or located to candidate.
- ❖ Returning Officer means a person appointed by the authority e.g. Social services to be in charge of an electoral process in a defined electoral area.
- ❖ Presiding Officer means a person in charge of an electoral process.

12.2.0 Who Should Carry Out Election?

In the social circumstances the community who may be described or categorized as constituents, members or congregation carries out elections. Socially these persons belong to various types of community groups such as political party, business/social groups or a church. In their own rights members of these groups are mandated to carry out elections.

Elections are carried out in a duly convened meeting. The meeting is normally programmed to take place within a given time, for example every year or after every two, three or five years. A notice of the election must be given and issued out to allow members (stakeholders) to participate effectively in the elections.

12.3.0 Who Should Be Elected?

An aspiring candidate normally presents him/her –self to the members (people / members) for consideration of the election. From experience the eligibility for election depends on;

- ❖ Age -A candidate should be between 21 and 70 years of age.
- ❖ Active-A candidate must be active in the affairs or interests of the Water User committee
- ❖ Has interest -A candidate must have interest in the Water User committee
- ❖ Literate -A candidate must have basic literacy.
- ❖ Committed -A candidate must not be delinquent or of unsound mind.
- ❖ Character-Must have good character and be a role model.

12.4.0 Model of Elections

There are various styles of conducting an election, the main ones being;

- ❖ Secret ballot
- ❖ Show by hands/Raising hands
- ❖ Queuing, popularly known as “**Mlolongo**”

All these styles or strategies have one common feature i.e. One-person one vote

12.5.0 Timing of Election

Elections are conducted periodically and must be spelt out very clearly in the regulations/ constitutions of the Water User Committee.

12.6.0 Election Procedures

Some of the election procedures are;

- ❖ Nomination of candidates
- ❖ Registration of members
- ❖ Voting.
- ❖ No proxy *
- ❖ One person, one vote
- ❖ No casting vote

NB: * some community groups allow proxy voting.

12.7.0 Institutions Created By An Election

An election creates offices such as those of a chairman, vice chairman, treasurer and secretary. These officers or posts are usually referred to as executive. Other officers are those of deputies.

12.8.0 Term of Office

Elected persons hold office for a specified period of time, which is defined in the constitution. The life of an office is normally linked to timing of elections.

12.9.0 Appeal against an Election

Traditionally there are accepted ways of solving common disputes in a community, which may include election disputes. Rather than go through the expense of another election the authority may use a number of methods to settle election dispute such as;

- ❖ Panel of elders
- ❖ Arbitration.
- ❖ “A Chance Method” to decide the winner. Such methods are;
 - Flipping a coin
 - Taking a number from a box

Conclusion- Holding proper elections is one way of sustaining interest in community organizations. However, elections can be volatile where the resources of Water User Committee are more and therefore more people become interested.

ACTIVITY 13: CODE OF CONDUCT AND ETHICS FOR WATER USER COMMITTEE LEADERS

Purpose:

This code contains general rules of conduct and ethics to be observed by the members, so as to;

- 1) Enable the Water User committee to offer service to its members and to facilitate the success of implementation of the water and sanitation projects of the Water User Committee,
- 2) Ensure that Community uphold the democratic principles of accountability, transparency and good governance
- 3) Improve the leadership and governance skills to its members
- 4) Building capability for teamwork
- 5) Instil judgement and effective decision making
- 6) Create effective communication skills

Plenary presentation

Introduction

A Water User committee is an autonomous association of persons within a community united voluntarily and in this case to meet their common water services needs and to improve their social standards, through jointly owned commercial and democratically controlled enterprise

The management of Water User Committee is vested in a duly elected management committee whose members are expected to perform their duties with accordance to the water user constitution. This requires performance of duty prudently and diligently with loyalty, integrity, impartiality, and on behalf of the members to whom they stand accountable and responsible

13.1.0 Application: Members shall adhere to this code in both their public and private lives

<p>1. Integrity, Efficiency Responsibility to the Water User Association</p>	<p>A member shall:</p> <ul style="list-style-type: none"> a) Perform their duties with diligence, prudence and efficiency b) Serve with courtesy, honesty ,partiality, integrity, probity and objectivity c) Be committed to duty and be available for the duties bestowed by the Water user committee d) Make sure that non-official activities do not interfere with their official duties or affect the dignity of their office e) A member shall ensure that he carries out their duties in away that is consistent with being part of their association f) Maintain at all times the ethical standards, which the community expects of him in transacting official business g) Except furtherance of official duties, not publicly comment on the matters in relation to which he has been professionally involved, or h) Expressly by implication, not represent that any public comments they make reflect the views or opinions of their association if that is not the case
<p>2. Religious Neutrality</p>	<ul style="list-style-type: none"> a) Regardless of religious belief and opinion maintain neutrality and not make comments that criticise a religion or way of religious belief
<p>3. Ethnic Affiliation</p>	<ul style="list-style-type: none"> a) Regardless of their ethnicity maintain neutrality and not make public comments that criticise an ethnic community
<p>4. Political Affiliation</p>	<ul style="list-style-type: none"> a) A member shall not be a holder of apolitical office at the same time as they are a member b) A member is entitled to their own views on political matters, but shall not be permitted, in the course of the performance of their duties, to express those views publicly or seek to influence their colleagues or those who seek their services to subscribe to their political beliefs
<p>5. Political Comments</p>	<p>Any member shall not:</p> <ul style="list-style-type: none"> a)Make public comments that support or criticise apolitical party b)Make public comments that may compromise, or may reasonably be seen as to compromise, the political neutrality of the office
<p>6. Canvassing Gifts etc</p>	<ul style="list-style-type: none"> a) A member shall not canvass either directly or indirectly for any favours or personal interests in the committee or in the association b) A member shall <ul style="list-style-type: none"> i) shall not accept or request for gifts in exchange of favours ii) it is the duty of a member to make reasonable inquiry before accepting such gift c) An officer shall neither ask for nor accept property or benefit of any kind for himself or for any person, on account of anything to be done or omitted to be done, by him in the discharge of his duties by virtue of his official opposition d)An officer who is given a gift described above shall, even where the gift is deemed to be the gift of the Association e)Report the matter to management committee, which shall direct the appropriate mode of disposal of the gift and; f)Comply with any such direction
<p>7. Conflict of interests</p>	<p>A member is required to observe the following requirements in relation to their private interests</p> <ul style="list-style-type: none"> b)They shall not associate outside their official duties with any financial, or activities in circumstances where there could be suspicion that their official position or official information available to him was being turned to their private gain or that of their associates; c)They shall not engage in any occupation or business that might prejudice their status as members or bring the association in disrepute
<p>8. Improper Enrichment</p>	<p>A member shall not use their position to improperly himself or to others;</p> <p>a)Without limiting the generality of the above, shall not:-</p> <ul style="list-style-type: none"> Accept or reject gifts or favours from person who:- i) Has interest that may be affected by the carrying out of the members work or duties ii)Carries on regulated activities with respect to which the member organisation has a role iii)Has contractual or similar relationship the members organisation/association <p>b)For the personal benefit of himself or another, use or allow the use of information that is required in connection with the members duties and that is not public</p> <p>c) Provided that the above part does not prevent a member from accepting a gift from a relative or friend given on special occasions recognised by custom</p> <p>d) Award contract or influence the award of a contract Himself</p> <ul style="list-style-type: none"> i) A spouse or relative ii)A business associate iii) A corporation, partnership or other body in which they has an interest <p>e)If any of the above is interested in a tender, shall declare that relationship or interest and abstain from voting</p>
<p>9. Conduct of Private affairs</p>	<ul style="list-style-type: none"> a) A member shall conduct their private affairs in a way that maintains public confidence in the integrity of their office b) A member shall not evade taxes c) A member shall not neglect their financial obligations or neglect to settle them
<p>10. Sexual Harassment</p>	<ul style="list-style-type: none"> a) A member shall not sexually harass a member of the public or fellow member i)'Sexually harass' includes doing any to the following, if the person doing it knows or ought to know that is unwelcome ii) Making request or exerting pressure for sexual activity or favours iii) Making intentional or careless physical contact that is sexual in nature iv) Making gestures, noises, jokes or comments, including regarding another sexual activity

ACTIVITY 14: ENVIRONMENTAL HEALTH AND SANITATION

Overall objective

Understand the relationship between water, hygiene and sanitation for health improvements

Methodology: Group discussions using PHAST tools

14.1.0 GROUP WORK: 3-PILE SORTING CARDS EXERCISE-HYGIENE BEHAVIOUR

Purpose

1. To identify what households consider to be good and bad hygiene practices
2. To identify those good and bad hygiene practices that households honestly carry out and those good practices that they do not
3. To identify those factors that prevent households from performing the good practice.

Task

1. Arrange posters in terms of good, in between and bad hygiene practices
2. Discuss and agree what actions can be done to improve the bad hygiene practices to good.

Sample presentation in plenary

Good practices	In between	Bad practices
<ul style="list-style-type: none"> ◆ Use of dish rack ◆ Feeding the child with a clean spoon ◆ Storage of water in covered container ◆ Washing hands with running water ◆ Collecting of garbage into a rubbish pit ◆ Drawing water using covered containers ◆ Cleaning the environment ◆ Boiling water ◆ Washing hands after visiting the toilet ◆ Boiling of water ◆ Washing food before cooking ◆ Using different cups for drawing and drinking 	<ul style="list-style-type: none"> ◆ Disposal of Faecal matter ◆ Washing clothes nearer to the water point ◆ Incomplete disposal of Faecal matter ◆ Uncovered water storage containers ◆ Improper coverage of domestic water ◆ Drawing water from unprotected well ◆ Washing hands with soap from the same basin ◆ Bathing in an open traditional bathroom ◆ Good practice of washing but using water from the same basin 	<ul style="list-style-type: none"> ◆ Defecating in water bodies ◆ Defecating/urinating within the homestead ◆ bathing and drawing water from the same point ◆ open pail placed from chicken to drink water from open pail containing water and placed for animals (dog) to leak ◆ transport water from open container and leaves placed inside the water to avoid spilling ◆ defecating in open fields ◆ sharing food with animals ◆ washing face/drinking water from the water pan

Actions that can be done to improve community hygiene and sanitation situation as agreed in the plenary from all the groups

- Use containers with lid when transporting water
- Use of proper means of waste disposal e.g. Pit latrines
- Feeding and drinking troughs for animals
- Facilitate hygiene and sanitation promotion
- Protection of water points
- Enhance hygiene and sanitation promotion
- Avoid taking water directly from the storage and containers/have cups for drinking water
- Avoid urinating in the water bodies
- Provide drinking troughs for livestock
- Control Environmental pollution
- Avoid bathing in rivers

14.2.0 GROUP WORK 2: SANITATION LADDER EXERCISE-SANITATION IMPROVEMENTS

Purpose:

Assess the level of sanitation standards. It can be used to promote sanitation awareness and measure practices.

Task

1. Arrange the sanitation options from the best to the worst
2. Indicate where most communities are and where they desire to be
3. What can be done to improve the situation
4. Why the community is in the current situation
 - a) **Why communities are in the current situation?**
 - b) Lack of resources
 - c) Lack of knowledge
 - d) Satisfied with situation
 - e) Low hygiene and sanitation awareness/
 - f) Community resistant and taboos
 - g) Low capital/funds to invest in sanitation improvements

b) Sanitation improvements and difficulties experienced as presented in plenary

<i>Reasons for sanitation improvements</i>	<i>Difficulties in sanitation improvements</i>
<ul style="list-style-type: none"> ✚ Technical experience available in the communities ✚ Availability of local resources i.e. bricks ✚ Hygiene and sanitation awareness ✚ Appropriate technology adaptation 	<ul style="list-style-type: none"> ✚ Topographical variations of different project areas ✚ Existing bushes provide cover for open defecation ✚ Cost implications i.e. Materials ✚ Negative behaviors change ✚ Beliefs and taboos ✚ Low priority for sanitation needs ✚ Perceived no incentives for sanitation improvements

Summary of good sanitation situation

- ✓ Cleaner water sources
- ✓ Less or reduced cases of diarrhoeal diseases
- ✓ Savings on medical expenses and care
- ✓ Cleaner environment
- ✓ Release of resources to other community priority projects
- ✓ Technology transfer and local empowerment
- ✓ Adapt a menu of low cost sanitation options

14.3.0 GROUP WORK 1: FAECAL ORAL ROUTE (Transmission Routes) EXERCISE-DIARRHOE DISEASE TRANSMISSION

Purpose

To help participants discover and analyze how Diarrheal diseases can be spread through human hygiene practices and the environment.

Task

Use the drawings to try and create a diagram showing the different ways in which faecal matter might come into contact with person's mouth.

Draw arrows between different drawings to show ways that this may happen.

Sample Group presentation

Routes

1. Faecal matter, fly, utensils, food, hands, mouth
2. Faecal matter, fly, food, hands, mouth
3. Faecal matter, hands, mouth
4. Faecal matter, contaminated water source, unprotected/not covered water storage facilities, drinking of contaminated water (mouth)

GROUP 1: FAECAL BARRIERS EXERCISE

Purpose

- ◆ Ways and means of controlling diarrhoeal diseases
- ◆ Ways of controlling faeces from contaminating food.
- ◆ Communities to identify faecal oral routes and giving suggestions on how to block the routes.

Task

Identify the faecal barriers to the faecal oral transmission and place the barriers on a diagram.

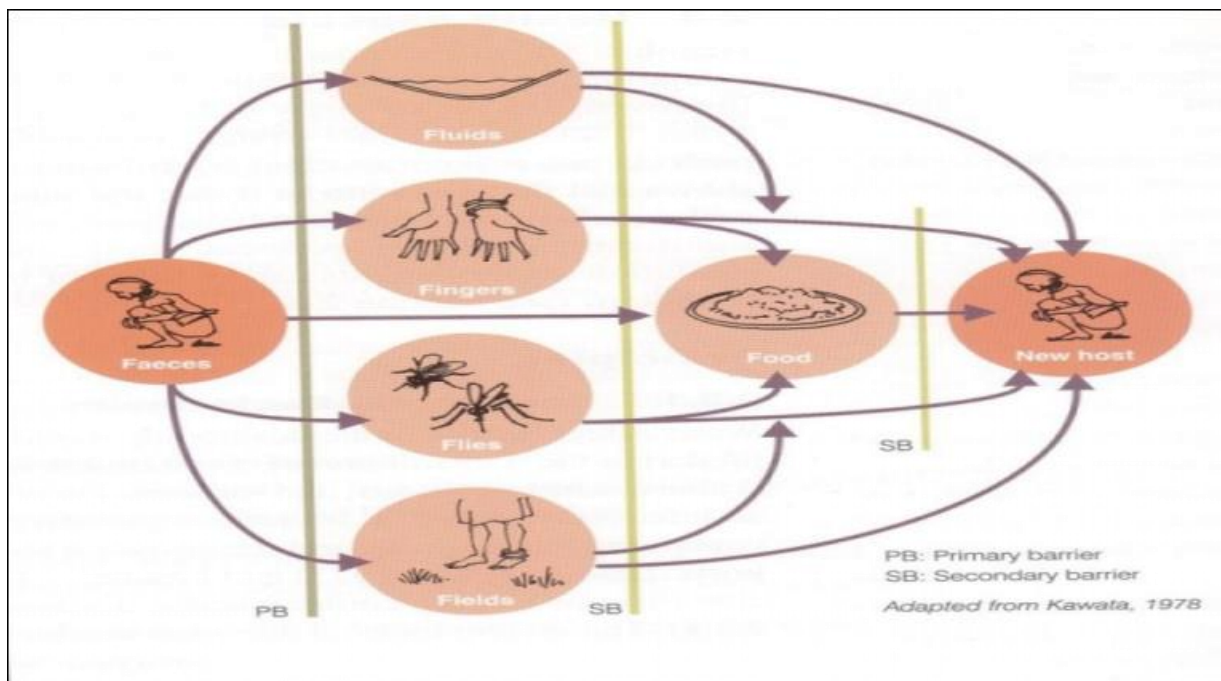
Sample group presentation

List of barriers

- ◆ Disposal of faecal material to toilets
- ◆ Cooking food and serving hot
- ◆ Covering food
- ◆ Cleaning the environment
- ◆ Storing covered water with a drawing cup
- ◆ Washing hands

- ◆ Boiling water
- ◆ Cleaning toilets
- ◆ Drawing water from a well
- ◆ Putting up a latrine
- ◆ Boiling water

F-Diagram for disease transmission and control



PB-Primary barriers are latrines or sanitation facilities

SB-Secondary barriers are composed of hand washing with soap, safe water sources and others listed above.

GROUP 1: BARRIER MATRIX EXERCISE

Purpose

To analyze how effective the blocks are and how easy or difficult they would be put into practice.

Task

Analyze the barriers in terms of their impact or effectiveness and how easy they could be implemented using the matrix provided

Sample presentation from the group

BARRIER MATRIX	EASY TO DO	IN BETWEEN	DIFFICULT TO DO
VERY EFFECTIVE HIGH IMPACT	<ul style="list-style-type: none"> ♣ Washing hands with soap after visiting latrines ♣ Using latrines 	<ul style="list-style-type: none"> • Wearing shoes when visiting latrines • Maintenance of latrines 	<ul style="list-style-type: none"> ❖ Constructing latrines ❖ Construction of wells
IN BETWEEN/MEDIUM IMPACT	<ul style="list-style-type: none"> ♣ Covering food 	<ul style="list-style-type: none"> • Use of clean safe water • Constructing animal pens 	<ul style="list-style-type: none"> ❖ Water storage
NOT EFFECTIVE/LOW IMPACT	<ul style="list-style-type: none"> ♣ Boiling water 	-	<ul style="list-style-type: none"> ❖ -

DAY THREE: THURSDAY, 19TH OCTOBER, 2024

THEME: OPERATION & MAINTENANCE, CONCLUSION & ACTION PLANS

ACTIVITY 15: OPERATION AND MAINTENANCE OF SOLAR PUMPING SYSTEM

Purpose

To facilitate effective operation and maintenance of water points for sustainability and effective use of water points. Key issues that determine effective operation and maintenance are stated

- a) Ensuring the water point is effectively used and routine maintenance is carried out**
- b) Promoting preventive maintenance to reduce maintenance costs**
- c) Improved community financial management system to address replacement of spare parts and other key components**

15.1.0 Key issues for operation and maintenance

ISSUE	WHAT NEEDS TO BE DONE
INSTALLATION ISSUES	
1. Exposed control box	The control box SHOULD be safely mounted onto a solid structure with all the wires insulated
2. Exposed Wires	Electricity wires MUST be insulated at all times; wires should not be exposed.
3. Mounting of solar panels	Ensure solar panels are properly secured on to an appropriate mounting frame with enough reinforcement to mitigate the risk of theft and strong winds blowing off panels.
4. Unsecured Solar Panels	System components including solar panels, the pump and storage tanks MUST be safely secured by lockable fence.
OPERATION & MAINTENANCE ISSUES	
1. Regular cleaning of solar panels	Regularly clean the panels to remove accumulated dust and other debris like bird droppings. This will improve the rate of pumping. Cleaning should be done with soft sponge and water. DO NOT USE SOAP . Cleaning should be more regular during the dry season.
2. Trimming of trees	Trees around the solar panels should be regularly trimmed to ensure that they do not give a shadow that blocks the panels from receiving maximum sunlight.
3. Overflowing tank	If the tank does not have a valve to cut off water supply when it gets full, the system/community operator should shut down the pump as soon as the tank is full to prevent overflows.
4. Clearing the area around the water point and solar panels	The compound where the solar panels and pump are located should be kept clean and free of litter and debris. Any tall grass should be trimmed to deter theft and vandalism.
FINANCIAL MANAGEMENT FOR OPERATION & MAINTENANCE	
1. Storing of collected money	Money that is collected SHOULD NOT be stored in a wallet or the treasurer's home. It is recommended that the money should be immediately transferred to the bank. This can be easily be done through mobile money banking or MPESA
2. Accountability and withdrawing of saved money	There should always be at least two signatories when withdrawing from the bank account. Approvals must be granted by the committee and documented in meeting minutes.

ACTIVITY 16: SCHEDULED OPERATION AND MAINTENANCE OF SOLAR PUMPING SYSTEMS

Purpose

To determine activities to be undertaken periodically for operation and maintenance of the solar pumping system

16.1.0 Schedule of operation and maintenance of solar pumping system

SCHEDULE	WHAT NEEDS TO BE DONE
1. Daily Operation	<ol style="list-style-type: none"> 1. The pump should not be switched OFF when not required 2. Before switching ON the motor, care should be taken to prime the suction pipe by putting some water in the pipe through delivery side. The pump should never run dry. 3. If the pump is not discharging any water after turning ON and the motor is running air may be trapped in the suction pipe through the delivery side. In this case, air can be released through the air trap valve in the pump. The valve should be tightened after removing the air.
REGULAR MAINTENANCE	
2. Once in week	Cleaning the panels with water, sponge or soft cloth. Water can be splashed on the front side of the panels without problem. NOT ON THE BACKSIDE
3. Once every 6months	Checking for any shadow on the panels, and trimming trees if necessary.
4. Once a year	<ol style="list-style-type: none"> 1. Checking and cleaning the foot –valve 2. Checking the switches, fuse and connections. Inspecting the junction box on the back to make sure that the wiring is tight. 3. Checking the wiring for breaks ,cracks insulation or any other damage by rodents or insects

16.2.0 Dos and Don'ts for Solar Pumping system operation and maintenance

DOs	Don'ts
<ol style="list-style-type: none"> 1. The panels should be cleaned regularly 2. The pump should be switched OFF at night or when water is not required 3. No shadow should fall on the solar panels during the day 4. Care should be taken to avoid any leakages in the pump or pipes 5. The panels should be kept in the 0 degrees position in case of strong winds 6. Delivery and suction pipelines should be air-tight 	<ol style="list-style-type: none"> 1. The pump should not be switched on and off too often. After switching it off ,wait at least 15seconds before switching it on again 2. The cover of the main junction box should not be left open 3. The pump level should be changed once installed. There is a high risk of damage 4. No loose wire should be left un-insulated 5. The pump should not run totally overcast/cloudy day 6. The size of the pipes should not be reduced 7. The joints should not be left leaking 8. The panels should never be covered with any material (e.g.). It will reduce the output of the pump substantially. 9. If the solar pump stops working, do not try to repair. The authorized service unit should be informed immediately.

ACTIVITY 17: OPERATION AND MAINTENANCE OF SPRING WATER POINTS

Purpose

To facilitate effective operation and maintenance of water points for sustainability and effective use of water points. Key issues that determine effective operation and maintenance are stated

- a) Ensuring the water point is effectively used and routine maintenance is carried out
- b) Promoting preventive maintenance to reduce maintenance costs
- c) Improved community financial management system to address replacement of spare parts and other key components

17.1.1 Description of Operation and Maintenance activities of Spring water points

Water should flow out freely all the time. In order to prevent contamination and leakages the following activities should be undertaken:

- ✓ Ensure the surrounding is clean and properly fenced
- ✓ Protect vegetative cover in the recharge are and immediate surroundings of the spring
- ✓ Prevent roots from clogging the spring
- ✓ Regularly monitor water flow from spring box (color, amount of flow)
- ✓ Wash out accumulated silt annually
- ✓ Prevent soil erosion and maintain storm drain
- ✓ Conduct participatory hygiene promotion to enhance hygiene practices

17.1.2 Operation and maintenance requirements

ACTIVITY	FREQUENCY	MATERIALS	TOOLS & EQUIPMENT
1. Clean spring surroundings	Weekly		Broom, bucket, jembe Panga /slasha
2. Check color (turbidity)	After each rain season/flooding		
3. Repair fence and clean surface drains	Occasionally	Wood, rope ,barbed wire	Panga, axe, knife ,Jembe, spade ,pick axe
4. Repair Cracks	Annually	Cement, sand ,gravel	Bucket, trowel, jembe, spade wheelbarrow
5. Repair piping	Occasionally	Spare pipe, cement, sand, gravel	Bucket,trowel,wrench,flat spanners

17.2.1: Roles and Responsibilities in Operation and Maintenance of Spring Water Points

Actor	Roles & Responsibilities	Skills Required
1. Users	Manage the usage of the spring (e.g. Preventive maintenance ,fundraising ,hygiene promotion	<ul style="list-style-type: none"> • Basic skills in spring protection and operation & maintenance • Hygiene promotion
2. Caretakers	Conduct preventive maintenance ,repairs ,keep records and enforce rules	<ul style="list-style-type: none"> • Basic skills in spring protection and operation & maintenance • Hygiene promotion • Leadership and organizational skills
3. Water User Committees	Making decisions, planning ,organizing and controlling the overall operation & maintenance	<ul style="list-style-type: none"> • Basic skills in spring protection and O&M • Hygiene Promotion • Democratic Leadership Skills • Facilitation and management skills

17.2.2 Common Problems and Remedies

Problem	Causes	Remedy
1. Decreased flow of water	<ol style="list-style-type: none"> 1. Clogged collection system 2. Spring drying up 3. Blocked supply pipe 4. Leakage or bypass 5. Silted spring box 	<ol style="list-style-type: none"> 1. Unblock (clean collection pipes, take out gravel/filter media and replace it) 2. Try increasing size of catchment 3. Unblock and clean supply pipes 4. Repair leaks 5. Scour and clean spring box
2. Clogged water collection system	<ol style="list-style-type: none"> 1. Siltation 2. Plant roots 	<ol style="list-style-type: none"> 1. Dig out catchment, clean pipes, ensures pipes are laid at 2degrees gradient 2. Dig out catchment, remove roots
3. Contamination of spring water	<ol style="list-style-type: none"> 1. Cracks in the seal 2. Human activities that promote pollution 	<ol style="list-style-type: none"> 1. Mend cracks 2. Conduct participatory hygiene promotion
4. Erosion or collapse of spring	<ol style="list-style-type: none"> 1. Wrong design 2. Construction errors 3. Large surface run-off Flows 4. Animal tramping 	<ol style="list-style-type: none"> 1. Redesign spring catchment 2. Employed skilled labour force and increase supervision during construction 3. Provide adequate drainage system 4. Repair fence
5. Damaged piping	<ol style="list-style-type: none"> 1. Faulty Construction 2. Animal tramping 3. Corrosion 4. Vandalism 	<ol style="list-style-type: none"> 1. Provide adequate cover (bury pipe) 2. Repair fence 3. Use appropriate pipes(PVC) 4. Enforce security measures /education 5. Enforce security measures/education

ACTIVITY 18: ENVIRONMENT PROTECTION BY LAWS FOR MANAGEMENT OF SPRING WATER POINTS

Purpose

Participants understand the need for environment protection by-laws to safeguard the springs water points from pollution and destruction by surface run-offs

The following are by-laws linked to local realities and have been proposed to safeguard spring protection water points

KEY ISSUES	ACTIVITIES
1. Tree Planting in Catchments Areas	<ul style="list-style-type: none"> a) Felling of indigenous trees in catchments areas to be prohibited. b) Planting of unacceptable trees (Eucalyptus) trees in catchments areas prohibited. c) Eucalyptus trees found in the catchments areas to be uprooted/destroyed. d) Anyone planting eucalyptus trees in the catchments area will be surcharged for their removal and rehabilitation costs. e) Planting of eucalyptus trees near dug wells/boreholes prohibited. Any trees planted after the development of the water to be uprooted at the owners' risk and cost.
2) Construction of soil conservation structures in farm lands	<ul style="list-style-type: none"> a) Construction of soil conservation structures to be enhanced in accordance with approved plans.
3) Three (3) M strip next to rivers	<ul style="list-style-type: none"> a) Reinforce the Water Act regarding the 3 M strip next to small streams. b) Reinforce the Water Act regarding the 10 M and 7strip next to the river/streams
4) Fencing of catchments area and other water sources	<ul style="list-style-type: none"> a) All water points constructed must be fenced in the approved way. b) Any damage to the fence will be repaired and the cost met by the water point users. c) Unauthorized trespassers over the fence for both humans and animals prohibited. d) Owners of animals which trespass to water point to be surcharged
5) Bush/Vegetation Cover	<ul style="list-style-type: none"> a) Unauthorized farming activities in the catchments area prohibited. b) Burning of dry bushes near water points is prohibited.
6) Land Use Management	<ul style="list-style-type: none"> a) Farming across along the contours next to the spring water point is prohibited b) Grazing of animals near water points prohibited. c) Crop rotation to be practiced. d) Terraces to be improved and should not be directed towards spring water sources.
7) Pollution/Prevention of Siltation	<ul style="list-style-type: none"> a) No sinking of latrines to next to the spring water points due underground seepage which leads to pollution. b) No sinking of water latrines 70M upstream of water sources. c) Every home must have a latrine. d) Disposal pits /composite pits must be made in every home.

ACTIVITY 19: OVERVIEW OF DRIP IRRIGATION SYSTEMS

Purpose

Participants to understand the rationale for drip irrigation for increased food production and productive use of water for improved livelihoods

19.1.0 Introduction to drip irrigation systems for productive use of water

Drip irrigation can reduce the water requirement by as much as 25 to 50 percent compared to conventional irrigation. The main advantage of drip irrigation is that soil moisture remains relatively constant, and it is always available to the roots. In other watering methods, there is extreme fluctuation in water content, temperature and aeration of the soil. With drip irrigation, the water soaks immediately when the flow is adjusted correctly. There is neither flooding nor run-off, so water is not wasted. All of the water is accessible to the roots as it is applied near the root zone. Watering weed patches, walkways and other areas between plants rows is avoided. Water lost to evaporation is negligible and interference by wind is minimal. Fertilizers can be delivered directly to the plant roots through drip. This results in increased efficiency at low fertilizer rates.

Careful choice of the components means half the battle is won. Therefore, the following points should be taken into account when selecting a drip system.

- a) Ease of installation
- b) Ease of cleaning the emitters
- c) Durability
- d) Types of filters
- e) Possibility of flow control

The life of a drip system can be extended by proper design, proper filtering, avoiding puncture with tillage tools, mulching over plastic lateral drip lines to shield them from sunlight, and flushing and draining line periodically. The financial investment is reasonable small if you are willing to plan, assemble and install the system. Savings in water combined with increased yields and quality of vegetables and flowers more than pays for the cost of parts to maintain a drip system.

19.2.0 Selection, number and spacing of emitters

PLANT	FLOW RATE(lit per hr)	NUMBER OF EMITTERS	PLACEMENT OF EMITTERS
1. Low shrubs (2-3ft)	4	1	At plant
2. Shrubs and trees(5-10ft)	8	2-3	2feet from tree equally spaced
3. Shrubs and trees(10-20ft)	8	3-4	3feet apart equally spaced
4. Shrubs and trees (20ft)	8	6 or more	4feet apart equally spaced
5. Ground Cover	4	1	At plant
6. Vegetables (Close space)	2-4	1	Every 16-24 inches
7. Vegetables(wide spaced)	4-8	One per plant	At plant

19.3.0 Key issues for facilitating effective drip irrigation

Key issues	Rationale
1. Subsurface Drip	Subsurface drip irrigation technology is a variation of traditional drip irrigation where the tubing and emitters are buried beneath the soil surface, rather than laid on the ground or suspended from wires. The products being used today in subsurface drip irrigation come in three configuration: hard hose, drip tape and porous tubing. This method reduces maintenance ,injury and vandalism found with surface drip
2. Local methods	Careful observation in your area can reveal other methods developed locally, which are suitable for the local needs and are often less costly. Some of these systems include trench farming, earthen pipes for field crops or diffusers for fruit crops.
3. Managing system well	Whatever system you choose, maintenance is the key to success. Every field has different needs. Therefore, the flow rates and time should be adjusted by some experimentation. The hoses, faucets and water devices should be checked periodically for leaks and malfunctions to help avoid wastage. A little bit of regular maintenance can help not only in saving water but in also extending the life of the system.
4. Timing of irrigation turns	Irrigation should be scheduled when soil temperatures is moderate. In dry season is better to irrigate the field during the late afternoon or at night. It gives the plants sufficient time to absorb water before dry and desiccating weather prevails the next day. During cold /winter water should be applied during the morning hours, when the soil starts warming up.
5. Critical growth stages	There are critical growth period of crops when water stress is most detrimental. For fruiting, the most critical growth stage regarding water deficit is at flowering and fruit formation. Moisture shortage at this stage may cause premature fall of flowers or young fruits, resulting in heavy yield reduction. For grains, grand growth and tillering stages are also critical. In terms of food production, the period of yield formation or enlargement of edible product (fruit, head, root, tuber etc) is critical for all vegetables, and is the most critical for non-fruiting crops. Moisture deficits at the enlargement stage normally result in a smaller edible portion because nutrient uptake and photosynthesis are impaired. On the contrary, over –irrigation during the ripening period may reduce fruit quality. Excess water during fruit –ripening reduces the sugar content and adversely affects the flavor of crops like tomatoes, sweet corn and melons. Moisture deficits at ripening time do not significantly reduce the yield of most crops. So the field should be irrigated with extreme caution at this time.
6. Rotational Irrigation	With solar pumps, there is no need to worry about the number of hours of pumping, as it will not add to your electricity bill. Use this possibility to your advantage by careful planning. The usual practice in many areas id flooding the entire field in one day, and then letting it soak for 10days or so. With solar pump, it is not possible to irrigate a large field in a single day. The solar pump tends to give less output as compared to the much larger electric and diesel pumps used conventionally. On the other hand there is no additional costs in running the pump every single day. So by using a rotational irrigation pattern whereby only small patches (0.5-1 acre) are irrigated every day, you can cover about 5-10 acres over a 10—day period. By the time you have irrigated the last patch, you can start again with the first one.
7. Water only as much as needed	Frequent light irrigation is often harmful. It wets only the surface soil to a depth of less than 1 inch. Most plant roots go much deeper. Light sprinkling only settles the dust and does little to alleviate drought. So, it is better to give plants a weekly soaking. When watering ,the soil should be allowed to become wet to a depth of 5 to 6inches. This type of watering allows moisture to penetrate into the soil area where roots can readily absorb it. A soil watered deeply retains moisture for several days. Excess irrigation can be even more harmful. Too much water in the soil causes oxygen deficiency, resulting in damage to the root system. Plant roots need oxygen to live. When a soil remains soggy, little oxygen in present in the soil. When this condition exists, roots die and no longer absorb water. Then leaves begin to show signs of insufficient water. These symptoms can be misleading. So proper care should be taken while determining the amount of water to be applied. The thump rule is to moisten the soil thoroughly at each watering, and then allow plants to extract most of the available water from the soil before watering again.
8. Storage	Storage of water, especially for an orchard or nursery, can improve the efficiency to a great extent. It can enable you to irrigate according to your needs. It can also serve as excellent back up during a dry spell in monsoon. It allows irrigation during early morning or late evening when there is less evaporation, and the plants can make more efficient use of water.
9. Agronomical Practices	Natural mulch consists of dead leaves, twigs, fallen branches and other plant debris, which accumulates on the earth's surface. Mulch insulates and protects soil from drying and hard barking effects caused by evaporation of water. It breaks the force of rain and irrigation water thereby preventing erosion, soil compaction and crusting. Mulched soils absorb water faster. It also helps to control weeds and

<p>a) Mulch</p>	<p>works as a food for earthworms, microbes and other beneficial soil life by composting at the moist earth surface. Any plant material that is free of weed seed and diseases is suitable for mulch. Weed-free hay or straw, leaves, grass clippings, compost etc are all-great. Fresh grass clippings are fine for use around well-established plants, but they should be cured for a week or so before placing them around young seedlings.</p>
<p>b) Avoid over fertilization</p>	<p>The application of excess fertilizers increases the need for water and can lead to soil salinization. If the soil is over –fertilized frequently, especially with chemical fertilizers, the soil life can be greatly hampered, causing decrease in productivity. So fertilizers should be applied with caution. Fertilizers, which contain slow release, water insoluble forms nitrogen are preferable to normal fertilizers.</p>
<p>c) Use of organic manures and soil amendments</p>	<p>Organic manures and soil amendments help to build the soil organic matter, .one of the ingredients in soil quality. Soils rich organic in organic matter hold water well and offer a favorable environment in which the plant roots grow well. So organic manures should be a great way to improve soil productivity if other manures are not feasible.</p>
<p>d) Observe and manage the soil well</p>	<p>Maintaining the soil condition improves the water uptake to a great extent. The goal should be to provide the plant roots with moist, well-drained, and well aerated growing environment. Proper tillage and appropriate soil amendments, improve the structure and water holding capacity of the soil. Heavy clay soils have a high water holding capacity and will benefit from adding some type of coarse aggregate, like rice or wheat straw, which will improve the ability of water to move through the soil. Sandy soils, on the other hand, do not hold enough water and nutrients for plant use. Adding the fine – textured organic matter to these soils is often helpful. Careful observation can also help to determine the timing and the quantity of water applied. The symptoms seen on plants can be misleading.</p>
<p>e) Earn Water. Catch rainfall as much as possible</p>	<p>This is probably the best strategy in water management, for a country like ours, where we gain water during brief period and then used around the year. This is especially true when the ground water level is dropping steadily all over the country. Therefore, every effort should be made to catch the rainwater and store it to allow it to percolate so that it will recharge the ground water reservoir from which the pump takes out water. Field ponds, ditches around the field crops, earth dams in any stream flowing across the field can substantially improve the water storage. Even simple practices like tilling the soil across the slop and ploughing the field before and after showers can help the field to retain a lot more.</p>

ACTIVITY 20: VIDEO SHOWS ON WATER, SANITATION &PRODUCTIVE USE OF WATER MODELS

To complement the prior sessions, the workshop participants viewed 2 documentaries on water and sanitation. The first one, `Prescriptions for Health' graphically depicts appalling water and sanitation practices (and standards) in the Philippines and Asia and provides useful tips on practices that prevent contamination and transmission of water related diseases.

The second documentary presented the productive use of water-depicting Kabuku community water project in Kiambu County and the positive impacts on community livelihoods by use of water for dairy production, vegetable production, poultry production etc. It highlights the key aspects of effective community participation and contribution for community water supply sustainability.

ACTIVITY 21: COMMUNITY ACTION PLANS FOR GEM SUBCOUNTY

ACTIVITY	WHERE	WHEN	RESOURCE REQUIRED	WHO IS RESPONSIBLE
1. Household sanitation & hygiene promotion	Hand dug well sites Mudhiero Olalo/Lihanda Onding farmers Group	1 st September to 1 st October,2025	Local materials –Sand and ballast Cement and round bars Sanitation training	Chairperson for Water Points Committees KUMEA
2. School health promotion	Sinaga JM Rembe All saints Lwenya	1 st October 2024 to October ,2025	Training of resources person /school health coordinators	Education office, Head teachers &KUMEA
3. Fish farming	Spring sites Kotiu ,Kohato& Naya	October,2024 to January,2025	Fingerlings, Feeds Digging of ponds Training of resource persons	Fisheries department, Chairperson of spring water points KUMEA
4. Vegetable production, Kitchen gardens &organic farming	All water point sites	September ,2024 to February ,2025	Certified seeds, organic fertilizer, Establish drip irrigation for hand dug &Ferro cement Water tanks in schools	Head teachers for target schools, Chairperson for water points KUMEA
5. Establish tree nurseries & woodlots	Hand dug wells &spring water points Target schools	October,2024 to February 2025	Tree seedlings for community water points Woodlots for schools	Head teachers for target schools, Chairperson for water points KEFRI/KFS KUMEA
6. Fencing of water points	Spring and hand dug well water point sites	October,2024 to December,2024	Hardware materials Vegetation cover &cut-off drains	Chairperson for water points
7. EM Application for Environmental Health Improvement	Target schools	October,2024 to January ,2025	EM solution Demonstration on EM Application at Sanitation facilities	Head teachers for target schools KUMEA
8. Develop constitution &by-laws for Water User Committees	Water User Committees for Hand dug wells &spring water points	October,2024 to December,2024	Review constitution &by-laws	Chairperson for water points Water User Committees
9. Establish record books	Water User Committees for Hand dug wells &spring water points	November2024- December,2024	Purchase of all relevant books &documents	Chairperson for water points Water User Committees

ACTIVITY 22: COMMUNITY ACTION PLANS FOR LUANDA SUBCOUNTY

ACTIVITY	WHERE	WHEN	RESOURCE REQUIRED	WHO IS RESPONSIBLE
1. Household sanitation & hygiene promotion	Target water points- Esitoyi,Emmaloba &Ebuchebe	October,2024 toNovember,20 24	Hardware materials Local material Contribution-Sand &ballast Community participation	Chairperson for water points Water User Committees KUMEA
2. EM Application for Environmental Health Improvement	Musitinyi primary school	October,2024	EM solution Demonstration on EM Application at Sanitation facilities	Head teachers for target school KUMEA
3. Fencing of water points	Spring and hand dug well water point sites	October,2024 to December,2024	Hardware materials Vegetation cover &cut-off drains	Chairperson for water points
4. Vegetable production, Kitchen gardens & organic farming	All water point sites	September ,2024 to December,2024	Certified seeds, organic fertilizer, Establish drip irrigation for hand dug &Ferro cement Water tanks in schools	Head teachers for target schools, Chairperson for water points KUMEA
5. Fish farming	Spring sites Estoyi, Ebuchiebe, Emanyinya	October,2024 to June,2025	Fingerlings, Feeds Digging of ponds Training of resource persons	Fisheries department, Chairperson of spring water points KUMEA
6. Establish tree nurseries & woodlots	Hand dug wells & spring water points Target schools	October,2024 to June 2025	Tree seedlings for community water points Woodlots for schools	Head teachers for target schools, Chairperson for water points KEFRI/KFS KUMEA
7. Develop constitution & by-laws for Water User Committees	Water User Committees for Hand dug wells & spring water points- Estoyi,Emmaloba,Ebuchebe	October,2024 to December,2024	Review constitution &by-laws Stationary, Community members	Chairperson for water points Water User Committees KUMEA
8. Fundraising/Financial Plan	Esitoyi, Emmaloba Etiend, Ebuchiebe, Emanyinya	October,2024 to December,2024	Stationary	Chairperson for water points Water User Committees

ACTIVITY 23: WORKSHOP EVALUATION FOR WATER RESOURCE MANAGEMENT TRAINING

ACTIVITY	WELL UNDERSTOOD	UNDERSTOOD	NOT UNDERSTOOD
1. Participatory Introductions and expectations	80%	20%	
2. Workshop Norms	85%	10%	5%
3. Workshop Objectives	75%	25%	
4. Overview of National Water Policy & Water sector reforms	60%	40%	
5. Community Based Management	60%	40%	
6. Leadership styles and Qualities	75%	25%	
7. Financial Management and Record Keeping	70%	30%	
8. Gender and Development in Water and Sanitation	85%	15%	
9. Group Development Dynamics	75%	25%	
10. Overview of Water User Association constitution and formulation	70%	25%	5%
11. Roles and responsibilities of Water User Association	75%	25%	
12. Environmental health and sanitation	80%	20%	
13. Code of ethics for WUA Leaders	75%	20%	5%
14. Election of WUA Leaders	80%	15%	5%
15. Overview of water point maintenance-Application ,Challenges , Options & Solutions	75%	20%	5%
16. Scheduled Operation & maintenance for Solar Pumping	65%	30%	5%
17. Operation & Maintenance for spring water points	70%	30%	
18. Environment Protection by-laws for Management of spring water points	75%	25%	
19. Overview Drip Irrigation Water system-Application ,Challenges , Options & Solutions	70%	25%	5%
20. Documentary Videos-Productive use of Water & Prescription for Health	80%	20%	
21. Community Action Plans	70%	30%	

ANNEX 1: WORKSHOP PHOTOS



1.0 Participants introduction session



2.Group discussions on key topics



3. Group discussions on key topics



4.Group presentations



5.Plenary presentations & discussions



6.Group & plenary discussions and presentation

ANNEX 2: WORKSHOP AGENDA FOR WATER RESOURCE MANAGEMENT TRAINING

VENUE: LUANDA OASIS

DAY 1: TUESDAY, 17th SEPTEMBER 2024: INTRODUCTION AND COMMUNITY MANAGEMENT PROCESS

AM

- Participatory Introductions and expectations -(Prisca)

- Workshop Norms -(Prisca)

- Workshop Objectives-(Prisca)

- Overview of National Water Policy & Water Sector Reforms (County Water Officer/Okaka)

- Community Based Management (Peter Okaka)

- Leadership styles and Qualities-(Okaka)

- Financial Management and Record Keeping (Peter Okaka)

- Gender and Development in Water and Sanitation (Mercy)

DAY TWO: WEDNESDAY, 18th SEPTEMBER, 2024: GROUP DEVELOPMENT, HYGIENE & SANITATION

- Group Development Dynamics (Peter Okaka/Mercy)

- Overview of Water User Association Constitution and formulation (Peter Okaka)

- Roles and responsibilities of Water User Association(Okaka)

- Environmental health and sanitation (Public Health Officer/Keya)

- Code of ethics for WUA Leaders(Okaka)

- Election of WUA Leaders (Mercy/ Okaka)

- Rights of WUA Members(Okaka)

DAY THREE: THURSDAY, 19TH SEPTEMBER, 2024: OPERATION & MAINTENANCE, CONCLUSION & ACTION PLANS

- ❑ Overview of water point Maintenance-Application, Challenges, Options & Solutions (Okaka/Water Officer)
 - ❑ Operation & Maintenance for spring water points (Okaka/Water Officer)
 - ❑ Environment Protection by-laws for management of spring water points (Okaka/Water Officer)
 - ❑ Scheduled Maintenance for Solar Pumping system (Okaka/Water Officer)
 - ❑ Overview Drip Irrigation Water System-Application, Challenges, Options & Solutions (/Agriculture officer)
 - ❑ Documentary Videos-Productive use of Water & Prescription for Health (Peter Okaka)
-
- ❑ Action Plans (All participants & facilitators)