

# **APPENDIX-IV**

Training Programs and Materials  
(KOT, MTT, AEW, MST)



# KOT 2023 Follow-up Provinces

## Agenda of Kick-off Training of MoA/JICA E-COBSI

Date: From XXX to XXX, 2023

Venue: At XXXXX, XXXX Province

(Officer in Charge)

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### DAY 0 (Date/Month, 2023): Gathering to the Venue

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### DAY 1 (Date/Month, 2023): Orientation & COBSI Scheme

(Officer of the day: Mr./Ms. XXX)

#### Module 1 – Program Orientation

(Mr./Ms. XXX)

- 08:00-08:30 Registration
- 08:30-08:45 Prayer, welcome remarks, and program orientation (housekeeping issues)
- 08:45-09:15 Opening (PACO/PAO), self-introduction, and overview of the training

#### Module 2 – Purpose of KOT

- 09:15-09:45 Purpose and Expectations for KOT (Mr./Ms. xxx)

#### Module 3 – COBSI Scheme : Potential Diversion Points, Basic 4 Types of Simple Diversion Weir, Canal (Furrow), Sprit Level, Ancillaries, and Framers' Organization

- 09:45-10:00 Potential Point Place for Simple Weir Irrigation Development (Mr./Ms. xxx)
- 10:00-10:15 Inclined Weir and Construction Method (Mr./Ms. xxx)
- 10:15-10:30 Single-line Weir and Construction Method (Mr./Ms. xxx)
- 10:30-10:45 Double-line Weir and Construction Method (Mr./Mr. xxx)
- 10:45-11:00 Health Break**
- 11:00-11:15 Trigonal Prop Weir and Construction Method (Mr./Ms xxx)
- 11:15-11:30 Others, e.g. Soil Masonry and Construction Method (Mr./Ms. xxx)
- 11:30-12:00 Canal (Furrow) Alignment by Sprit Level (Line Level) and Ancillaries (Mr./Ms. xxx)
- 12:00-12:30 Framers' Organization (Mr./Ms. xxx)
- 12:30:13:30 Lunch**

#### Module 4 – COBSI Scheme : Practice of Trigonal type and Canal Alignment

- 13:30-15:00 Practice of Trigonal Prop Weir and Sprit Line Level (at the venue) (Mr./Ms. xxx)
- 15:00-15:15 Health Break**

#### Module 5 – COBSI Scheme : Water Management, Operation & Maintenance, On-farm Irrigation and Environmental & Social Consideration

- 15:15-16:30 Water Management, Operation and Maintenance (Mr./Ms. xxx)
- 16:30-17:30 On-farm Irrigation Method (Gravity, Sunken bed and Furrow) (Mr./Ms. xxx)

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### DAY 2 (Date/Month, 2023): Cultivation Technics of Horticulture Crops related to SHEP

(Officer of the day: Mr./Ms. XXXX)

- 07:45- Registration
- 08:15- Recapitulation (review and clarification of the Day1 activities)

#### Module 6 – Cultivation Technics for Horticulture Crops

- 08:45-09:45 Pre-Cultivation Activities (Mr./Ms. xxx)
- 09:45-10:45 Horticulture Crops Cultivation (General) (Mr./Ms. xxx)

# KOT 2023 Follow-up Provinces

<b>10:45-11:00</b>	<b>Health Break</b>	
11:00-11:45	Appropriate Farming Technologies	(Mr./Ms. xxx)
11:45-12:30	Soil Management	(Mr./Ms. xxx)
<b>12:30-13:30</b>	<b>Lunch</b>	
13:30-14:00	Popular Crop No.1: Tomato	(Mr./Ms. xxx)
14:00-14:30	Popular Crop No.2: Onion	(Mr./Ms. xxx)
14:30-15:00	Popular Crop No.3: Okra	(Mr./Ms. xxx)
<b>15:00-15:15</b>	<b>Health Break</b>	
15:15-15:45	Popular Crop No.4: Cabbage	(Mr./Ms. xxx)
15:45-16:15	Popular Crop No.5: Irish Potato	(Mr./Ms. xxx)
16:15-17:00	Popular Crop No.6: Watermelon	(Mr./Ms. xxx)

## **DAY 3 (Date/Month, 2023): Cultivation Technics of Horticulture Crops related to SHEP and Irrigated Agriculture Development** (Officer of the day: Mr./Ms. XXXX)

<u>07:45-</u>	Registration
<u>08:15-</u>	Recapitulation (review and clarification of the Day2 activities)

### **Module 6 – Cultivation Technics for Horticulture Crops (cont'd)**

08:45-09:15	Nursery Bed Making (Theory)	(Mr./Ms. xxx)
09:15-09:45	BOKASHI Fertilizer Making (Theory)	(Mr./Ms. xxx)
09:45-10:15	Organic Pesticide Making & Disease Control (Theory)	(Mr./Ms. xxx)
<b>10:15-10:30</b>	<b>Health Break</b>	

### **Module 7 – Irrigated Agriculture Development**

10:30-11:00	Contour ridges for soil conservation	(Mr./Ms. xxx)
11:00-11:30	Environmental & Social Consideration	(Mr./Ms. xxx)

### **Additional Module (a) – Cultivation Technic of Wheat**

11:30-12:30	Lecture and Implementation Arrangement	(Mr./Ms. xxx)
<b>12:30-13:30</b>	<b>Lunch</b>	

### **Additional Module (b) – Revised “Tebakari Eiyoho” (Hand Scale Measurement Method)**

13:30-13:45	Lecture and Provision of Dissemination Material	(Mr./Ms. xxx)
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### **Additional Module (c) – Introduction of “Grevenco”**

13:45-14:30	Lecture	(Mr./Ms. xxx)
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### **Back to Module 6 – Cultivation Technics for Horticulture Crops (cont'd)**

14:30-15:30	Nursery Bed Making (Practice at the venue)	(Mr./Ms. xxx)
15:30-16:30	BOKASHI Fertilizer Making (Practice at the venue)	(Mr./Ms. xxx)
16:30-17:30	Organic Pesticide Making & Disease Control (Practice at the venue)	(Mr./Ms. xxx)

## **DAY 4 (Date/Month, 2023): Progress of Project Activities done so far, Entry Planning, Achievement Test, and Closing** (Officer of the day: Mr./Ms. xxx)

<u>07:45-</u>	Registration
<u>08:15-</u>	Recapitulation (review and clarification of the Day 3 activities)

# KOT 2023 Follow-up Provinces

## **Module 8 – Progress of Project Activities so far & Entry Planning to Next Term (Mr./Ms. XXXX)**

8:45-09:45 Sharing the achievements, Findings, Challenges and Countermeasures identified by the District Officers and BEOs/CEOs from Annual Evaluation Workshop 2022 (CPU Team)

9:45-10:30 E-COBSI Activities 2023 (CPU Team)

### **10:30-10:45 Health Break**

10:45-11:45 Making the target & implementation schedule from this KOT to MTT in July by all Participants (All participants)

11:45-12:30 Progress and Plan of E-COBSI (SHEP) Activities done since MST in January to this KOT

(Representatives of all districts)

- Presentation by the representatives from all districts, and discussion by all participants

Note: 20 min per district for presentation and discussion

### **Progress to be presented by District team done since MST in done January**

No	Check points
1-1	Number of SHEP training done by District team and CEO
1-2	Number of farmers who participated in those training
2-1	SHEP Activities done by the farmers after trainings conducted by District team and CEO
2-2	Number of farmers who participated in those activities
3	Activities are done by the farmers of the District Model Site
4	Findings, Challenges & Good Practice from January to March

### **12:30-13:30 Lunch**

13:30-15:30 Progress and Plan of E-COBSI (SHEP) Activities done since MST in January to this KOT

(cont'd)

### **15:30-15:45 Health Break**

## **Module 9 – Reporting and Feedback Mechanism (Mr./Ms. XXXX)**

15:45-16:00 Reporting Mechanism and the Reporting Form

## **Module 10 – Achievement Test (Mr./Ms. XXXX)**

16:00-16:30 Achievement Test

## **Module 11 – Program Evaluation and Closing (Mr./Ms. XXXX)**

16:30-16:15 Evaluation of the training program

16:15-16:30 Collection of the documentation (the achievement test, the training evaluation sheet)

16:30-17:00 Closing (PACO/PAO), Certificate

**DAY 5 (Date/Month, 2023): Home Sweet Home**

Have a Safe Trip!

# KOT 2023 NEW TARGET PROVINCES

## Agenda of Kick-off Training of MoA/JICA E-COBSI

Date: From XXX to XXX, 2023

Venue: At XXXXX, XXXX Province

(Officer in Charge)

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### DAY 0 (Date/Month, 2023): Gathering at the Venue

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### DAY 1 (Date/Month, 2023): Orientation, Introduction, and SHEP Approach

(Officer of the day: XXXXX)

#### Module 1 - Program Orientation (XXXXXX)

- 08:00-08:45 Registration and pre-training knowledge inventory  
08:45-09:00 Prayer, welcome remarks, and program orientation (housekeeping issues)  
09:00-09:40 Opening (PACO), self-introduction, and overview of the training

#### 09:40-10:00 Health break

#### Module 2 – Overview of E-COBSI (XXXXXX)

- 10:00-10:15 What's E-COBSI (XXXXXX)  
10:15-10:45 COBSI approach at a glance (video) (XXXXXX)  
10:45-11:15 E-COBSI activities (XXXXXX)

#### Module 3 – SHEP Approach (Market Oriented Irrigation Agriculture) (XXXXXX)

- 11:15-12:45 Concept of SHEP Approach (XXXXXX)  
• Presentation (30 min.)  
• Video (30 min.)  
• Discussion (30 min.)

#### 12:45-13:45 Lunch

- 13:45-14:30 **Step 1:** Sensitizations of Farmers (XXXXXX)  
• Presentation (20 min.)  
• Discussion (25 min.)

- 14:30-15:10 **Step 2-1:** Participatory Baseline Survey (XXXXXX)  
• Presentation (20 min.)  
• Discussion (20 min.)

#### 15:10-15:30 Health break

- 15:30-16:20 **Step 2-2:** Marketing and Market survey (XXXXXX)  
• Presentation (20 min.)  
• Discussion (30 min.)

- 16:20-17:00 Preparation for Market Survey (XXXXXX)  
• Presentation (20 min.)  
• Role-play (20 min.)

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### DAY 2 (Date/Month, 2023): SHEP Approach (cont'd)

(Officer of the day: XXXXX)

- 07:45- Registration  
08:15- Recapitulation (review and clarification of the Day 1 activities)

#### Module 3 – SHEP Approach (Market Oriented Irrigation Agriculture) (Cont'd) (XXXXXX)

- 08:30-09:00 Move to the Market  
09:00-11:00 Market Survey (*practice*) (All participants)  
11:00-11:30 Back to the Venue

# KOT 2023 NEW TARGET PROVINCES

<b>11:30-11:45</b>	<b>Health break</b>	
11:45-13:10	Analysis of Market Survey Results ( <i>practice</i> )	(XXXXXX)
	• Group Work (60 min.)	
	• Presentation by participants & Discussion (25 min.)	
<b>13:10-14:10</b>	<b>Lunch</b>	
14:10-15:30	<b>Step 3-1: Crop Selection and Crop Ranking</b> ( <i>practice</i> )	(XXXXXX)
	• Presentation (20 min.)	
	• Group Work (60 min.)	
15:30-16:00	<b>Step 3-1: Crop Selection and Crop Ranking</b> ( <i>practice</i> ) cont'd	(XXXXXX)
	• Presentation by participants & Discussion (30 min.)	
<b>16:00-16:15</b>	<b>Health break</b>	
16:15-18:00	<b>Step 3-2: Crop Calendar</b> ( <i>practice</i> )	(XXXXXX)
	• Presentation (15 min.)	
	• Group Work (60 min.)	
	• Presentation by participants & Discussion (30 min.)	

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## DAY 3 (Date/Month, 2023): SHEP & COBSI Approach (Officer of the day: XXXXX)

<u>07:45-</u>	Registration	
<u>08:15-</u>	Recapitulation (Review and Clarification of Day 2 Activities)	
<b>Module 3 – SHEP Approach (Market Oriented Irrigation Agriculture) (Cont'd)</b>		(XXXXXX)
08:30-09:15	<b>Step 4: Infield Training &amp; Monitoring</b>	(XXXXXX)
	• Presentation (20 min.)	
	• Discussion (25 min.)	
<b>Module 4 – Gender and Record Keeping on SHEP</b>		(XXXXXX)
09:15-10:00	Gender for contribution to SHEP	
10:00-10:45	Record Keeping	
<b>10:45-11:00</b>	<b>Health break</b>	
<b>Module 5 – COBSI Scheme (Potential Diversion Points, Basic 4 Types of Simple Diversion Weir, Canal, Sprit Level, and Ancillaries)</b>		
11:00-13:30	Potential Point Place for Simple Weir, Basic 4 Types of Simple Weir, Canal Alignment, Sprit Level, and Ancillaries	
<b>13:30-14:30</b>	<b>Lunch</b>	
14:30-17:00	Practice of Trigonal Prop Weir, Sprit Level and GPS at the venue	(XXXXXX)

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## DAY 4 (Date/Month, 2023): COBSI Approach (Field Practice) (Officer of the day: XXXXX)

<u>07:45-</u>	Registration	
<u>08:15-</u>	Recapitulation (Review and Clarification of Day 3 Activities)	
<b>Additional Module (a)– Cultivation Technics for Wheat</b>		(XXXXXX)
08:30-9:30	Presentation and Material arrangement (60 min)	
<b>Additional Module (b)– Nutrition Improvement Hand Scale for serving food per day</b>		(XXXXXX)
09:30-9:45	Presentation (15 min)	

# KOT 2023 NEW TARGET PROVINCES

## **Module 6 –Field Practice for demonstration of Simple Weir Construction**

( XXXXX)

09:45-10:45	Travel to the practice site
10:45-13:30	Construction practice of a simple diversion weir
<b>13:30-14:30</b>	<b>Lunch at the field</b>
14:30-16:00	Canal Alignment practice using the spirit level and GPS survey
16:00-17:00	Back to the venue

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## **DAY 5 (Date/Month, 2023): COBSI Scheme, Entry Planning, Reporting Mechanism, Achievement Test and Closing** (Officer of the day: XXXXX)

<u>07:45-</u>	Registration
<u>08:15-</u>	Recapitulation (Review and Clarification of Day 4 Activities)

## **Module 7 –COBSI Scheme (Farmers’ Organization, Environment & Social Consideration, Water Management, Operation and Maintenance, On-farm irrigation method)**

08:15-08:45	Farmers’ Organization	( XXXXX)
08:45-09:15	Environmental and Social Consideration	( XXXXX)
09:15-10:00	Water Management, Operation and Maintenance	( XXXXX)
<b>10:00-10:15</b>	<b>Health break</b>	
10:15-11:00	On-farm Irrigation Method (Gravity, Sunken bed and Furrow)	( XXXXX)

## **Module 8 – Entry Planning** ( XXXXX)

11:30-12:30	Sharing the achievements, the findings, the challenges and the countermeasures identified by the participants of Annual Evaluation Workshop in 2022
12:30-13:30	Making the target of E-COBSI activities this year
<b>13:30-14:30</b>	<b>Lunch</b>
14:30-16:00	Presentation of the plan by District Representatives

## **Module 9 – Reporting Mechanism** ( XXXXX)

16:00-16:30	Reporting mechanism and reporting format
<b>16:30-16:45</b>	<b>Health break</b>

## **Module 10 –Achievement Test** ( XXXXX)

16:45-17:15	Filling the Achievement Test and collection
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## **Module 11 – Program Evaluation and Closing** ( XXXXX)

17:15-17:30	Evaluation of the training program and collection
17:30-17:45	Closing and Certificate

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## **DAY 6 (Date/Month, 2023): Home Sweet Home**

Have a Safe Trip!





**E-COBSI**

Expansion of **Community-Based Smallholder**  
Irrigation Development Project



## Kick-off Training (KOT) in 2023 for Follow-up Provinces



**E-COBSI**

Expansion of **Community-Based Smallholder**  
Irrigation Development Project



## **KOT: Kick-off Training**

### Module 2:

## Purpose and Expectations of KOT



## Summarized Agenda

### Day-1

Module 1: Program Orientation (Done already)

Module 2: Purpose of KOT (**Here we are**)

Module 3: COBSI Scheme

(Potential Diversion Points, Basic 4 Types of Simple Diversion Weir, Canal (Furrow), Sprit Level, Ancillaries, and Framers' Organization)

Module 4: COBSI Scheme (Practice of Trigonal type and Canal Alignment)

Module 5: COBSI Scheme (Water Management, Operation & Maintenance, On-farm Irrigation and Environmental & Social Consideration)

### Day-2

Module 6: Cultivation Technics for Horticulture Crops

### Day-3 (Field Visiting)

Module 6: Continued

Module 7: Irrigated Agriculture Development

Additional Module: (a) Cultivation Technic of Wheat, (b) Revised "Tebakari Eiyoho" (Hand Scale Measurement Method), (c) Introduction of "Grevencco"

Module 6: Practice at the venue (Nursery bed, BOKASHI, Organic pesticide & Disease control)

### Day-4

Module 8: Progress of Project Activities so far & Entry Planning to Next Term

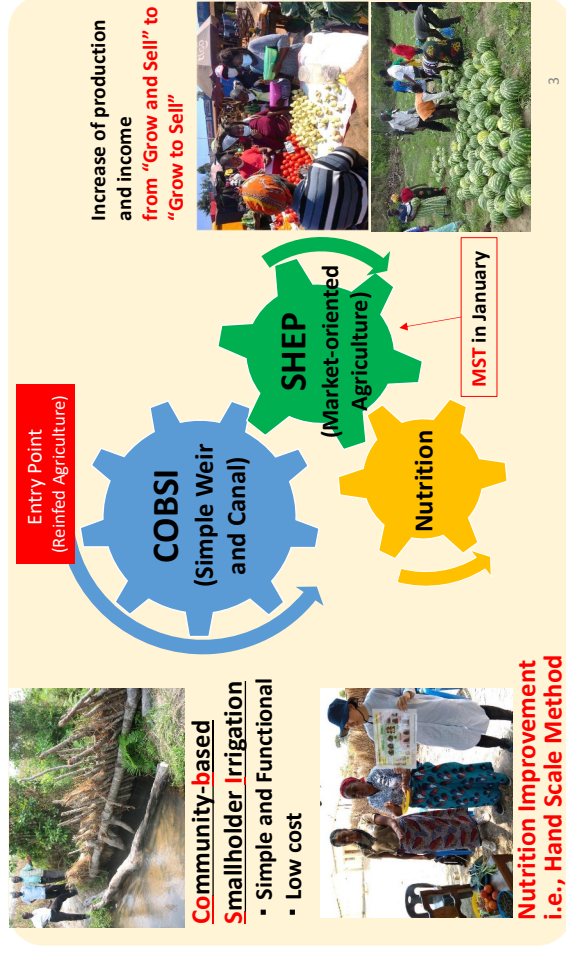
Module 9: Reporting and Feedback Mechanism

Module 10: Achievement Test

Module 11: Program Evaluation and Closing

## What's the E-COBSI Approach?

➤ COBSI enables Market-oriented Agriculture...



## Indicator of the Project Purpose

### Project Purpose

**(will be achieved by the end of the project)**

Community-based smallholder irrigation farming is promoted through the provision of smallholder irrigation infrastructure and management skills for smallholder farmers in the target area.



Decided by 5<sup>th</sup> JCC  
in December 2022

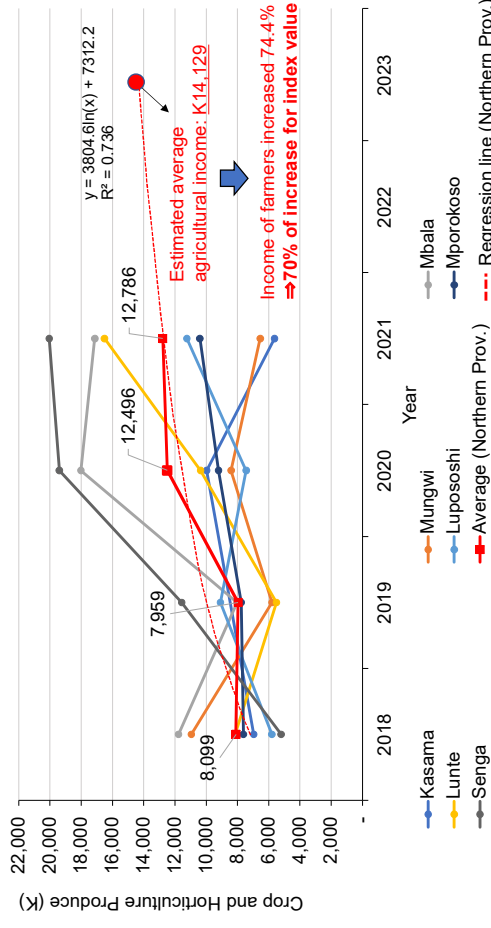
### Indicator (ver.4)

2. **Agricultural** income of farmers is improved **70 %** in the model sites in the follow-up provinces (Luapula, Muchinga and Northern) by virtue of irrigation and marketing approach.

4

## Indicator of the Project Purpose

Crop and Horticulture Produce (Northern Province)



Note: Data sets of districts in Luapula and Muchinga Province and Luwingu and Nsama District were excluded due to lack of data sets.

## Purpose of KOT

Assuming that you are familiar with marketing skills during MST, the next step as E-COBSI activities are;

- Learning **COBSI Scheme** (Simple weir construction, Canal, Farmers' Organization, etc.)
- Getting **cultivation know-how** in horticulture
- **Monitoring the progress** of the Project Activities since KOT
- **Making the target** up to the next training (MTT)
- Achievement Test to evaluate the understanding level

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## Expectations of KOT

State your expectations to KOT and share them together, please!

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# E-COBSI



Expansion of **Community-Based Smallholder Irrigation Development Project**

## Module 2: Overview of E-COBSI in New Target Provinces



# What's E-COBSI

Introduction to the E-COBSI Project

**“SOMETHING NEW!”**

**“SOMETHING MORE!”**

COBSI Promotion Unit (CPU)

## COBSI History Community-Based Smallholder Irrigation

1<sup>st</sup> COBSI  
“COBSI Study”  
(2009 – 2011)

COBSI Study found out the high potential of smallholder irrigation in Northern and Luapula Provinces.

2<sup>nd</sup> COBSI  
“T-COBSI”  
(2013 – 2017)

T-COBSI mainly focused on increasing the number of irrigation sites and irrigable area.

**Achievement:** No. of Irrigation site: more than 1,400 sites  
Irrigable Area: more than 1,500 ha,  
No. of participated farmers: more than 36,000 farmers

3<sup>rd</sup> COBSI  
“E-COBSI”  
(2019 – 2024)

In the New Target Provinces, **E-COBSI emphasizes to expand irrigation area starting with Simple Weir Construction and canal**. Market-oriented agriculture (“SHEP”), water mgt/O&M, on-farm management, etc. are also introduced. Nutrition situation is also expected to be improved.

# COBSI Approach at a glance



(What's COBSI done?)

## What's Simple Weir?



**Entry point to irrigation agriculture**  
Local material are used (grass, twigs, wooden poles)

**Farmers themselves can construct, operate and maintain**



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**COBSI promotes/ emphasizes Community-Based Smallholder Irrigation Development by construction of simple weir and canal.**

## Irrigation Development Period

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rain	Rain	Rain/ Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry/ Rain	Rain
Sup ple men tary irrig ation	Weir constr uction And Canal constr uction	Weir constr uction And Canal constr uction	Irriga tion	Irriga tion	Irriga tion	Irriga tion	Irriga tion	Irriga tion	Irriga tion	Suppl ement ary irrigati on	Suppl ement ary irrigati on

6

**Simple but Functional !**



## COBSI Approach

**Upgrading** simple one to permanent weir

Simple Weir



Permanent Weir



Entry point

Upgrading

Farmers need to get used to irrigated farming through simple weirs, this will ensure a successful irrigation dev. with permanent weir.

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## What's Permanent Weir?



### Stabilized Irrigation Farming

More stable material is used for construction (concrete, stone masonry....)

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## Concrete Weir (COBSI Study, Length=44 m)



Original a simple weir

## Wet Masonry Weir (T-COBSI)



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## UPGRADING OF SIMPLE WEIR TO PERMANENT



Munyangala site, Nsama District, Northern Province

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## UPGRADING OF SIMPLE WEIR TO PERMANENT



Lualizi site, Isoka District, Muchinga Province

14

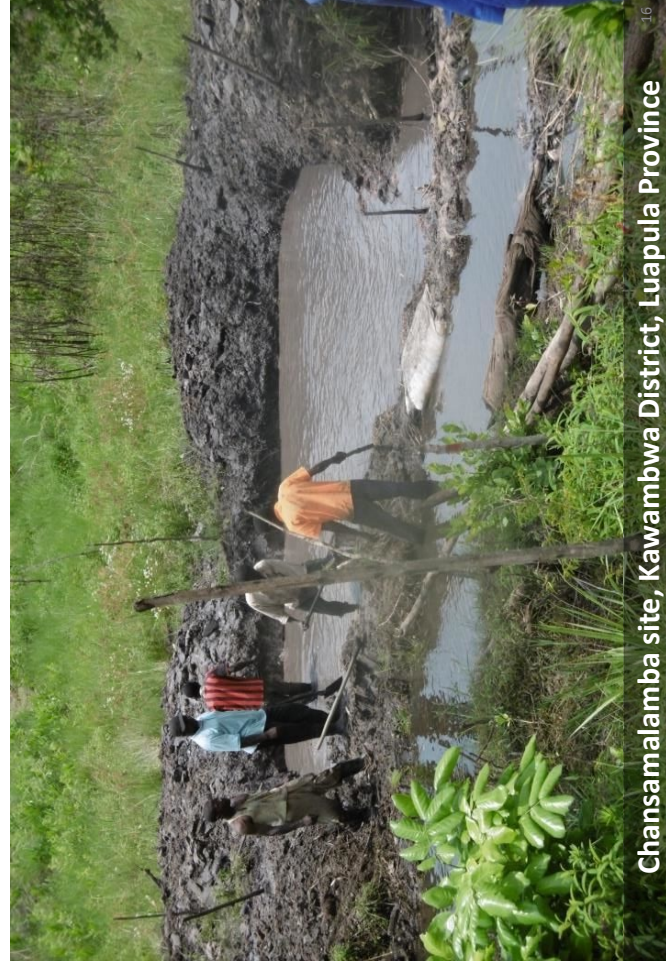
## UPGRADING OF SIMPLE WEIR TO PERMANENT



Kalira site, Mansa District, Luapula Province

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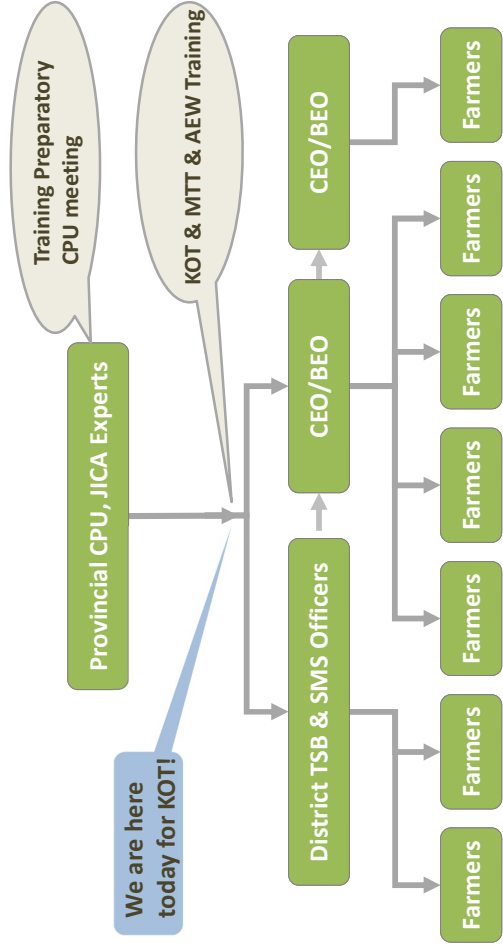
## UPGRADING OF SIMPLE WEIR TO PERMANENT



Chansamalamba site, Kawambwa District, Luapula Province

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# Extension System



We are here today for KOT!

Training Preparatory CPU meeting

KOT & MITT & AEW Training

*Cascade-like dissemination of COBSI, SHEP, Water Mgt/O&M, Nutrition, etc.*

# THEORY AND PRACTICE



LECTURES



EXERCISES



# GROUP WORK, FIELD VISIT AND FIELD PRACTICE



# Mobilization of Farmers



A BEO is teaching the farmers how to construct the simple weir.

## On-farm Irrigation (Gravity)



# Video Watching (T-COBSI Achievements)

## COBSI History Community-Based Smallholder Irrigation

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In the New Target Provinces, **E-COBSI emphasizes to expand irrigation area starting with Simple Weir Construction and (2019 – 2024) canal.** Market-oriented agriculture ("SHEP"), water mgt/O&M, on-farm management, etc. are also introduced. Nutrition situation is also expected to be improved.

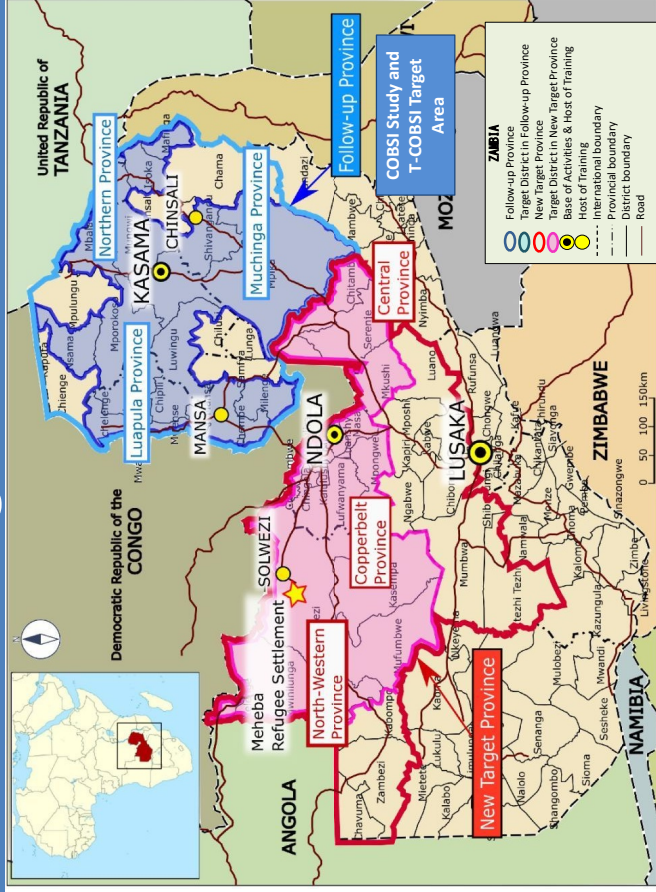
**COBSI promotes/ emphasizes Community-Based Smallholder Irrigation Development by construction of simple weir and canal.**

## Irrigation Development Period

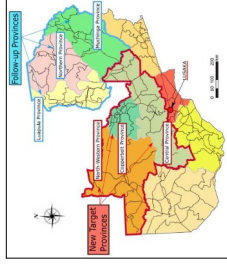
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rain	Rain	Rain/ Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry /Rain	Rain
Sup ple men tary irrig atio n	Weir constr uction And Canal constr uction	Weir constr uction And Canal constr uction									Suppl ement ary irrigati on
			Irriga tion	Irriga tion	Irriga tion	Irriga tion	Irriga tion	Irriga tion	Irriga tion		



# Target Area



# Target Districts



Province	No. of Direct Support target districts	No. of Indirect Support target districts
Northern province	6	3
Luapula province	5	3
Muchinga province	4	3
<b>Total</b>	<b>15</b>	<b>9</b>
Copperbelt province	10	0
Northwestern province	8	0
Central province	3(2)	0
<b>Total</b>	<b>21</b>	<b>0</b>
<b>Grand total</b>	<b>36</b>	<b>9</b>

**Model Site approach : 1 Model Site in each District**

# Project Objectives

**Period: 5 Years: Dec. 2018 to Feb. 2024**

**Overall Goal**

**Irrigation agricultural production in the target areas is increased.**

*Next 3 - 5 year of Post-E-COBSI to be implemented by GRZ*

**Project Purpose**

**Community-based smallholder irrigation farming is promoted through the provision of smallholder irrigation infrastructure and management skills for smallholder farmers in the targeted area.**

**Output 1**  
Capacity Dev't of CPU Members

**Output 2**  
Clarification of the challenges of Agri Production

**Output 3**  
Capacity Dev't of Field Offices and Farmers

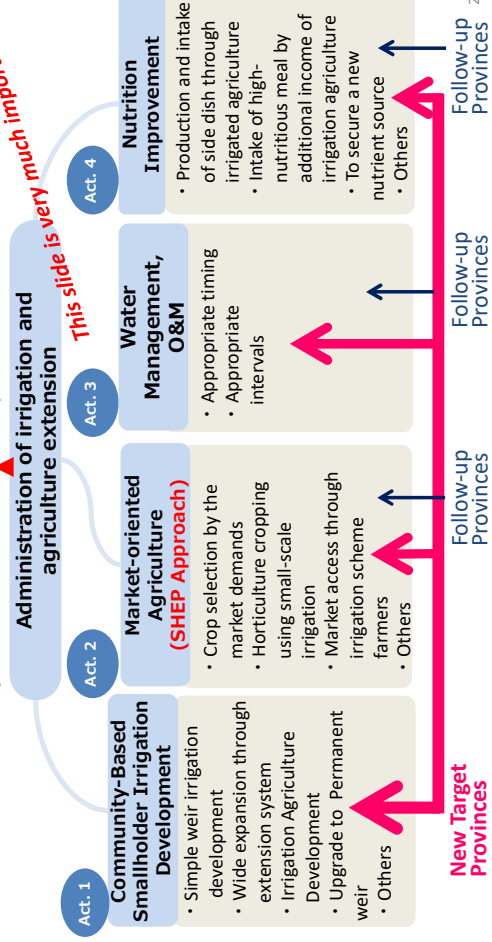
**Output 4**  
Skill's enhancement of the model site farmers

*These activities are covered by E-COBSI*

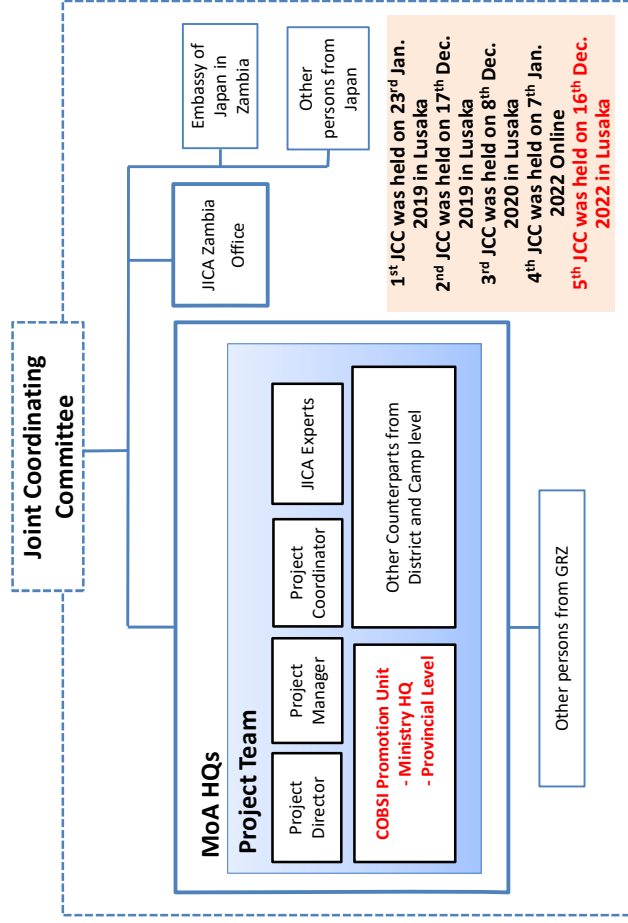
# Project Approach

To realize the development of community-based smallholder irrigation expanded by the self-help effort of farmers and healthy life by profitable agriculture and nutrition improvement

“4 Major Activities” commanded by COBSI Promotion Unit



# Implementation Structure -JCC-



# COBSI Promotion Unit (CPU)

MoA HQ	6 Provinces
Project Coordinator (Irrigation)	PACO
Officer from Policy and Planning Department	PAO
Officer from Crop Production Section	Senior Irrigation Engineer (SIE)
Officers from Advisory branch (Extension and Nutrition)	Officer from Crop Production Section
Officer from Agribusiness and Marketing Dept.	Officer from Extension Section
Officer from Department of Finance	Officer from Nutrition Section
JICA Experts	Officer from Agribusiness and Marketing Dept.
	JICA Experts

1<sup>st</sup> National CPU meeting: 16<sup>th</sup> Dec. 2019 in Lusaka  
 2<sup>nd</sup> National CPU meeting: 7<sup>th</sup> Dec. 2020 in Lusaka  
 3<sup>rd</sup> National CPU meeting: 5<sup>th</sup> & 6<sup>th</sup> Jan. 2022 online  
 4<sup>th</sup> National CPU meeting: 15<sup>th</sup> Dec. 2022 in Lusaka

# CPU Tasks

## (MoA HQ CPU)

- Management of E-COBSI Activities  
⇒ Training Plan Making  
⇒ Monitoring, Evaluation, Feedback, etc...
- Budgeting
- Making a Three-years Action Plan

## (Provincial CPU)

- Management of E-COBSI Activities  
⇒ Training Implementation  
⇒ Monitoring, Follow-up, Evaluation, Feedback, etc...
- Reporting to Central CPU

# Indicator of the Project Purpose

## Project Purpose

**(will be achieved by the end of the project(end of 2023))**

Community-based smallholder irrigation farming is promoted through the provision of smallholder irrigation infrastructure and management skills for smallholder farmers in the target area.



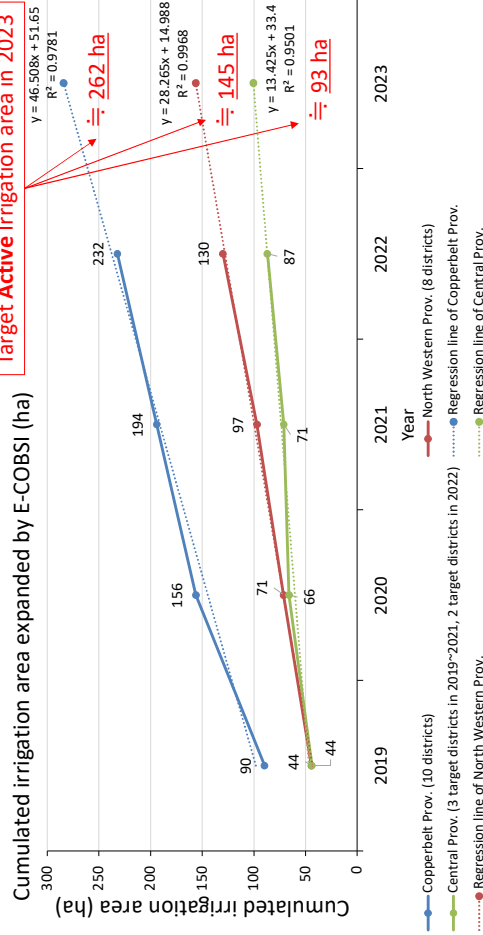
Decided by 5<sup>th</sup> JCC  
in December 2022

## Indicator (ver.4)

1. Irrigation area is expanded by **500** ha in the new target provinces (Copperbelt, Northwestern and Central).

# Progress of the Project Purpose

## Target Active Irrigation Area by 2023

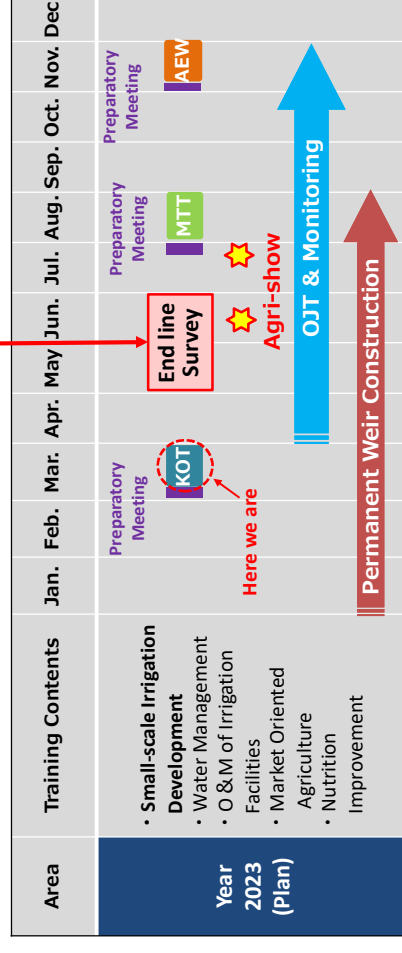


Regression lines are made based on the achievement area during from 2019 to 2022

Note :Data in 2019, 2020, 2021 are referred from the presentation material of JCC in 2019, 2020, 2021 / Data in 2022 are referred from the presentation material of each district in AEW 2022

# Training Schedule in New Target Provinces

One of the most important activities in this year.



# E-COBSI 2023 in New target Province

- Main component in the new target province is Community-Based Smallholder Irrigation (COBSI) Development.
- Small Holder Horticultural Empowerment Promotion (SHEP) which is Market-oriented irrigation agriculture; an approach to motivate farmers to start irrigation farming and boost the COBSI as well as capacity development of marketing skills.

# Training Contents

The objective of the Trainings: District officers and CEOs will acquire necessary skills and techniques on the E-COBSI approach to teach farmers and monitor ongoing field activities with other participants.

KOT	MTT	AEW
<b>Schedule</b> <b>In March (5 days/province)</b> SHEP, Small-scale Irrigation Development, Water Mgt, O&M, Farm Mgt, Env. and social consi., etc.	<b>Schedule</b> <b>In August (4 days/province)</b> Progress report of weir and furrow construction and other activities, action plan, and budget estimation for next year.	<b>Schedule</b> <b>In November (2 days)</b> Annual Report from District, Discussion on the challenges and improvement for future implementation.
<b>Modules to be taught</b> 1) Overview of E-COBSI 2) SHEP Approach 3) Small-scale Irrigation Development including Practical session in the field 4) Water Management, O&M, Farm Management, Environmental and social consideration, etc. 5) Entry Planning, Reporting and Feedback Mechanism	<b>Modules to be taught</b> 1) Progress report of weir and furrow construction 2) Cultivation Techniques including Bokashi Making 3) Farm Management 4) Nutrition improvement 5) Action plan and budget estimation for next year	<b>Modules to be taught</b> 1) Annual Report from District 2) Reviewing Activities at District Model Sites 3) Discussion on the challenges and improvement for the future implementation 4) Action plan and budget estimation for next year
<b>Expected Participants</b> 1-1) 3 CEOs from each District 1-2) 1 CEO from each District Model Site 2) SAO, one Marketing Development Officer, one TSB from each District	<b>Expected Participants</b> 1-1) 3 CEOs from each District (Exactly same CEOs who attended the KOT) 1-2) 1 CEO from each District Model Site 2) SAO, one Crop Husbandry Officer, one Nutrition Officer, one TSB 3) 1 CEO from the District Model Site	<b>Expected Participants</b> 1-1) 3 CEOs from each District (Exactly same CEOs who attended the KOT) 1-2) 1 CEO from each District Model Site 2) SAO, one TSB 3) Provincial CPU members 4) HQ CPU members

- 1) He/She has willingness to develop a smallholder irrigation scheme by introducing a simple weir.
- 2) He/She has his/her own motor bike provided by GRZ.
- 3) He/She is not going to have a leave or to go to school in 2023.
- 4) He/She is not going to be transferred to other camp or other districts in 2023.
- 5) CEO/BEOs from the district model sites are also invited to the training this year. **They should be involved in the End Line Survey.**

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## District Model Site 2023

### Development of the District model site and its utilization as extension base of E-COBSI approach

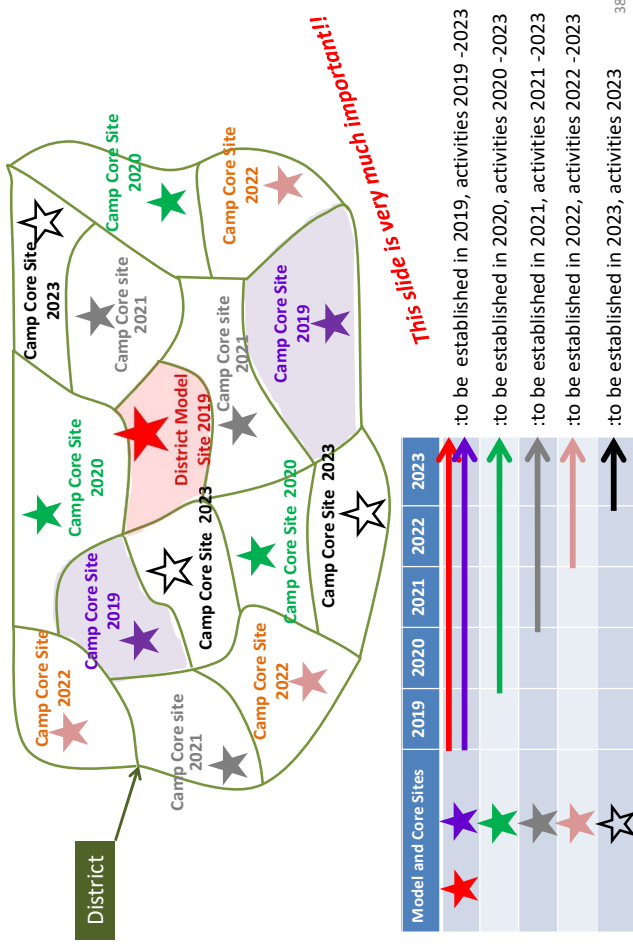
- ⇒ District model sites have been established in each district to extend the E-COBSI activity in the district. By enhancing the activities in the model site, the project accelerates the E-COBSI extension within the district.
- ⇒ Development of the model sites enables the government officers to introduce COBSI techniques to farmers and increases farmer-to-farmer extension as well as Officer-to-Officer extension.

cont'd

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# Model Site Approach

District Model Sites and Camp Core Sites are established for further dissemination in District



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## District Model Site 2023

### Development of the District model site and its utilization as extension base of E-COBSI approach

- ⇒ For instance, the project plans to establish a demonstration farm in each district model site to realize the proper irrigation agriculture using SHEP approach.
- ⇒ To hold the district Agri-show at the district model site, the model site activity can be promoted.
- ⇒ Invite NAIS officer to broadcast the success story of E-COBSI through TV and Radio. (so far, TV program on ZNBC, some articles as well have been published with actual good practices done by the target farmers.)

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**E-COBSI**

Expansion of **Community-Based Smallholder**  
Irrigation Development Project



## Module 3: COBSI Scheme



# Module-3 COBSI Scheme

### Contents:

1. Potential diversion point
2. Basic weir type and construction method (theory)
3. Canal alignment, and Ancillaries

1

# Potential Diversioin Point

*Where is the good place  
to put the simple weir?*

2

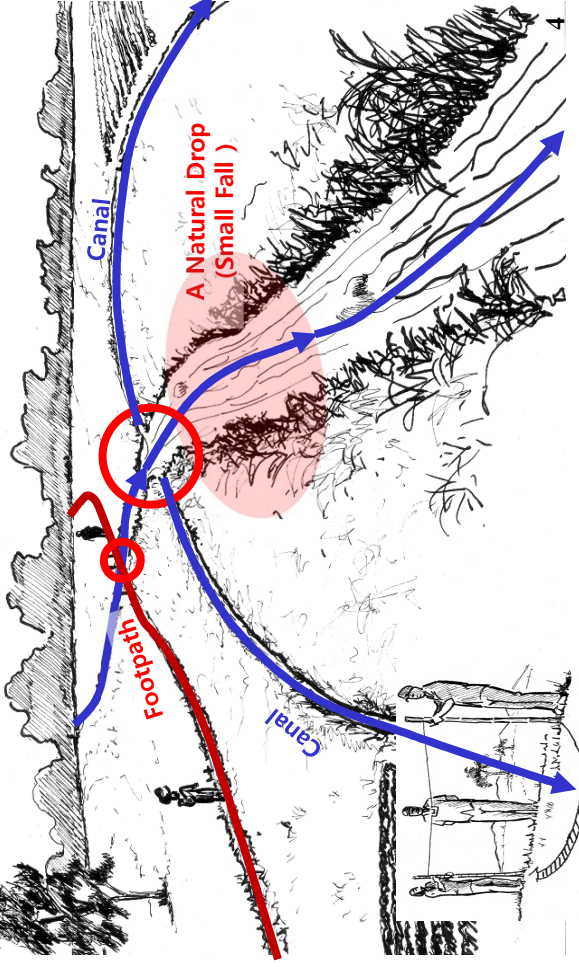
### 3 KEYS TO IDENTIFY THE POTENTIAL DIVERSION POINT

1. The stream should maintain perennial flow through a year
2. At just upstream of natural drops where gives you higher water level and can reduce the labor for construction of simple weir. (upstream of Small Falls)
3. In general, at near villagers' Footpaths where cross a stream. Same reasons to "2" above, and easy construction as well.

3

# Potential Diversion Place

Explore right upstream of a natural drop or near footpath



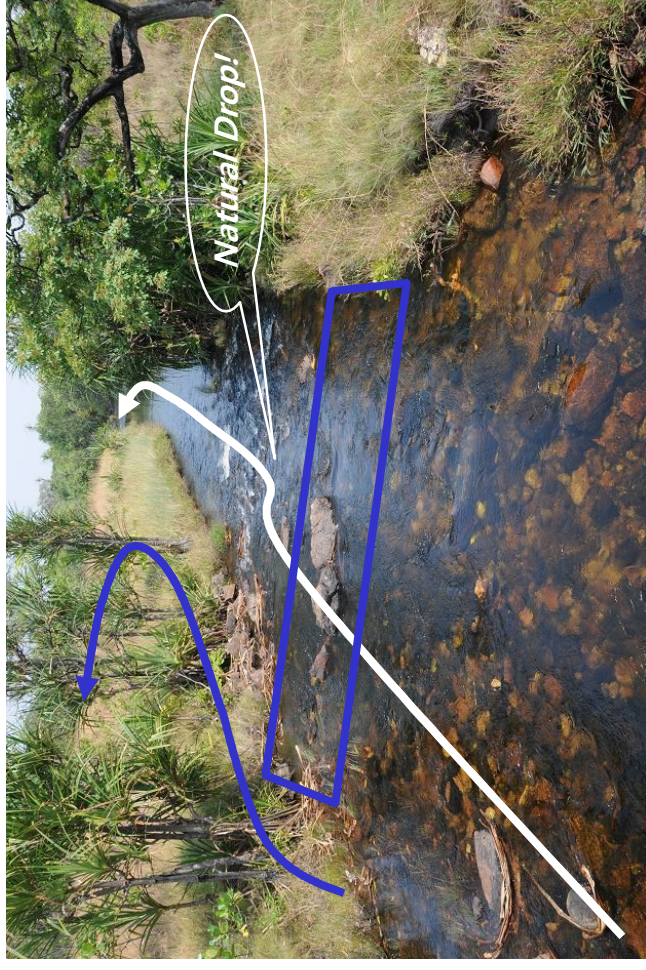
# A Potential Diversion Place



# A Potential Diversion Place



# A Potential Diversion Place



## A Potential Diversion Place in Dambo

- Mid-stream of dambo area is not suitable to construct the simple weir due to flat and wide topography,
- There must be the water source at most upstream of the target dambo,
- Construction of the simple weir there can distribute irrigation water both right and left bank (Edge of dambo).

8

## Start mobilizing farmers to develop Simple Weir Irrigation Sites as OJT (on-the-job-training) Activities

### Findings, Challenges from previous activities

Officers faced with many difficulties in technical and social aspects:

- CEOs didn't understand well how to identify the good diversion place,
- How to construct the simple weir,
- How to select the canal alignment, etc.,
- Although they learnt such techniques during KOT and MTT, they needed technical assistance from district officers.

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### Findings, Challenges from previous activities (cont'd)

- Farmers gave up/ suspended the activities because they didn't understand E-COBSI concept well before starting the activities, since CEO didn't explain well.
- There were many cases where community members who were not part of the project were refusing the canal to pass through their farm-land.
- **CEOs should have invited all farmers concerned to get consensus.**
- Some CEOs did not have motor bikes and gave up their responsibility, despite receiving fuel from E-COBSI.
- Based on the above reasons, potential sites were left out and farmers lost opportunities to improve their income through development of irrigation farming.
- **If the discharge of stream/river you planned to construct the simple weir is less than your expectation, you should cancel the site and to sift to the next candidate sites immediately. You should not remain such places.**

10

## Mobilization of Farmers



A BEO is teaching the client farmers how to construct the simple weir.

# Taking Farmers to Simple Weir Irrigation (1)

## 3 Key Words

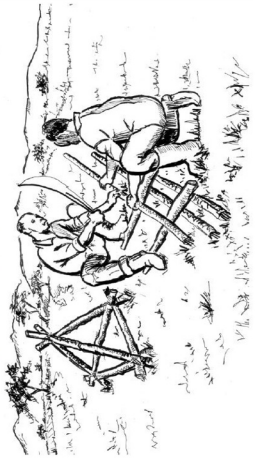
**Easy!**  
**Quick!**  
**and**

**Low Cost – High Return!**

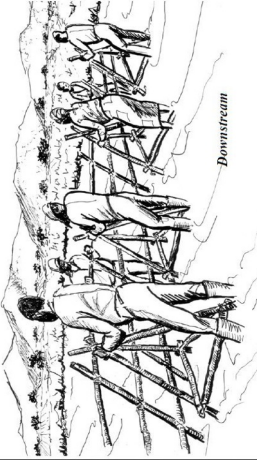
12

## 1. Posters (Four-Flame Story)

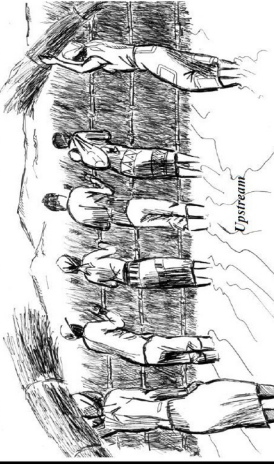
1. Cut tree or bamboo logs to a required size, depending on the height which we want to top water. Then construct number of triangular stand structures depending on the width of the river.



2. Place these triangular stands across the river, and connect them by using horizontal members and tying them firmly. Then start putting grasses on the horizontal members.



3. Continue putting the grass on top of the horizontal members and put another layer of horizontal members again to tie them in position.



4. Place clay soil on top of the grass firmly starting from the bottom up to the required level.



14

# Taking Farmers to Simple Weir Irrigation (2)

## Handy Manuals

*E-COBSI will produce*

*handy manuals for easy teaching and dissemination to the farmers*

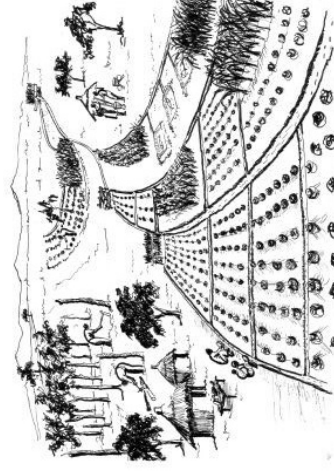
1. Posters (to be provided in KOT)
2. Leaflets (to be provided in KOT)
3. Technical Manuals (to be produced while the project progresses)

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## 2. Leaflets

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)  
MINISTRY OF AGRICULTURE AND COOPERATIVES (MALCO),  
REPUBLIC OF ZAMBIA

**STARTING IRRIGATION  
IN OUR LOCAL CONTEXT:**  
Rather than waiting for someone else's support,  
why don't we try something we can do first?

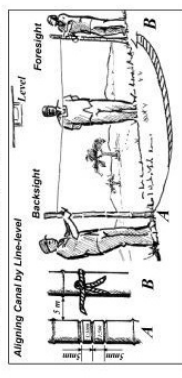


SANYU CONSULTANTS INC., TOKYO, JAPAN

## 4. ALIGN CANAL AND START DIGGING

The simplest way of aligning canal is to follow the water flow by gravity; namely, 1) dig the canal from the diversion point for example a 10 meter distance, 2) let the water flow in the dug canal, 3) deepen the canal and/or shift the canal alignment toward lower side (stream side) if the water does not run well, and 4) repeat the process until the end point.

Better way of canal alignment is to use spirit line level. Interval of the two poles should preferably be 5 meter, and one side of the tied points should be 0.5 – 1 CM HIGHER THAN THE OTHER. Pole with higher tied point should always be placed fore-side, not like conventional alternate placing. 0.5 cm difference in 5 meter gives 1:1000 gradient suitable for gentle topography like dambo, and 1 cm gives 1:500 gradient adaptable for sloped topography. Note that in a very gentle plain like dambo where you can hardly find the B point in 5 m radius area, try 10 - 15m interval instead of the standard 5 m with 1 - 1.5 cm difference, whereby giving 1:1000 gradient.



## 5. LAYOUT THE PLOT AND DO THE IRRIGATION

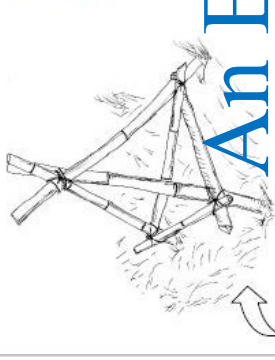
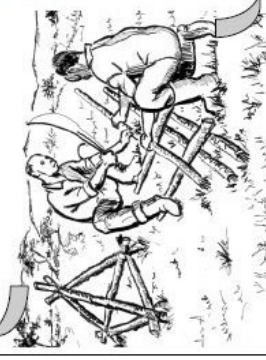
There are two irrigation methods adaptable for smallholders;

MAL 4 JICA 15

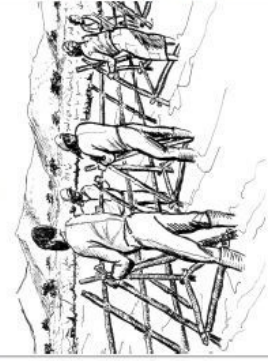



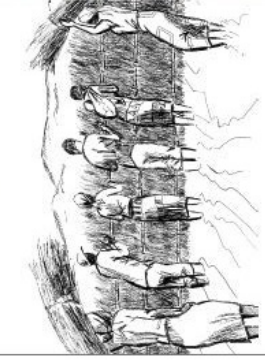

### 3. Technical Manuals (Picture Story)

8.4 Construction of A Temporary Weir: Trigonial Supported Wall Type (can be installed on a rock foundation where wooden logs can't be driven)

Step	Process	Description	Remarks
1		<b>Assemble the Trigonial Prop (Standing Structure):</b> To support the brush dam made of grasses/clay soil, the trigonial prop standing structures are assembled as shown in the left illustration.	The trigonial prop can be made of log/bamboo. The size of this structure is adjusted depending on the site condition with reference to the design tapping water level. As an example, each member is cut with a length of 1.5m for 0.5m of tapping water depth design. The diameter can be of the log's/bamboo's one for the trigonial prop; around 7cm - 15cm each. The front of this structure, namely the upstream side, has an inclination to act as support for the fence made of logs, bamboos and grasses and clay soil, and harty, to stand against a water pressure.
		<b>Refer to the Illustrations:</b> Curving of trigonial prop members and assembling of this structure.	An angle of inclination of the front face is around 70 - 80 degrees. To tie the members to each other, local materials such as runners/grasses/rope can be used. The horizontal 3 members of the prop, forming the horizontal triangular, should be placed outside of the inclined members, so that it can stand more against water pressure.

An Example

Step	Process	Description	Remarks
2		<b>Set up the Trigonial Props across the Stream:</b> The trigonial props are set at the diversion point across the stream. Then, horizontal members are fixed to the trigonial props to keep them in place and in line to each other. At least, 3 horizontal members i.e. upper, middle and lower members should be fixed on the trigonial props. As a result, all of the trigonial props are connected by the horizontal members and will withstand the water pressure as one structure.	The trigonial props are placed at a proper interval in order to prevent this structure from falling down by water pressure. In case of a site in Mtungwi district, the width of the stream at the diversion point was about 1.5m, and 10 trigonial props were set up giving an interval of 1.5m apart. The diameter of fixed horizontal members can be around 3cm - 10cm each. The materials can be wooden poles and bamboos.
3		<b>Place the Grasses on the Trigonial:</b> To tap the stream flow, the grasses are placed vertically in front of the trigonial props touching the bed level of the stream.	To reduce the water leakage, it is better to put the grasses very closely. In particular, at the bottom portion of stream, a lot of grasses should be used and should be placed tightly. The horizontal member to be fastened on the top of the grass is the bottom one. Then the second and finally third on top. This helps to keep the grass very tight to the trigonial prop and indeed reinforces the trigonial prop.

Step	Process	Description	Remarks
4		<b>Tie the Standing Grasses to the Trigonial Structure:</b> To prevent swelling out of the standing grasses, these grasses should be pressed against the trigonial prop by using horizontal members, again tied with runners. Three horizontally parallel members, at the bottom, at the middle and at the top, are finally fastened with the props; or otherwise with the horizontal members already set behind the grasses. The grasses are thus sandwiched by those horizontal members set in front and behind.	To press down the grasses on the trigonial prop, another layer of horizontal members are put in front of grasses which are made to run parallel with the first horizontal members already placed at beginning but at a specified interval between each other and these are tightly tied to the first layers of horizontal member. In so doing, grass is tightly sandwiched between horizontal members. The number of layers of horizontal members is dependent on the height of the trigonial weir. In general, 3 lines of horizontal members are placed.
5		<b>Put the Clay Soil on the Grass Fences:</b> Clay soil is placed on the grass fence starting from the foundation or streambed level. To prevent water leakage, the clay soil is patched on the grass fence. The clay soil is put not only on the grasses as a part of brush dam but also on the gap between the bottom edge of the grass fence and the natural ground/exposed rock foundation.	Putting of clay soil should be started at the bottom, and much attention should be put at this stage. This is because this area is very critical in reducing water leakage and thus where the water pressure is the highest. A lot of clay soil should be placed at the bottom in order to make it water tight as much as possible to prevent leakage.

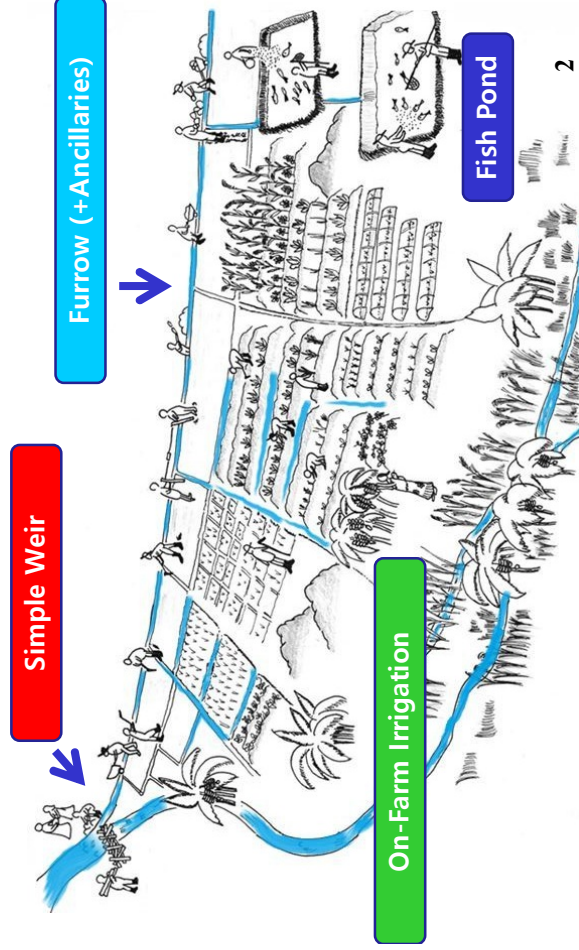
# Module-3

## COBSI Scheme

(cont'd)

Basic weir type and construction method (theory)

Facilities introduced by COBSI to lead the famers to Simple Weir Irrigation

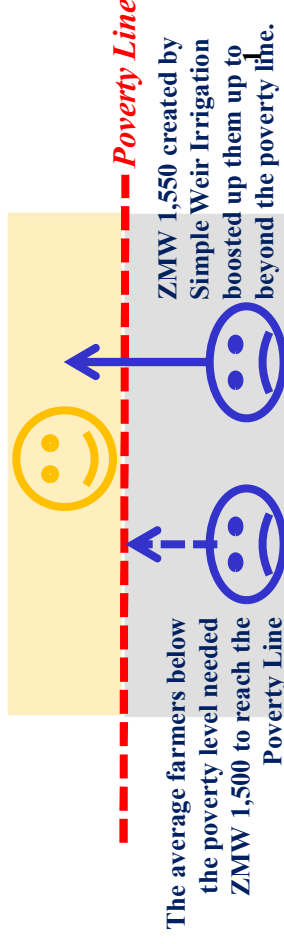


## Impact gained by Simple Weir Irrigation

### The Fact observed in COBSI Study:

- An average farmer among those who are below the poverty line needed a supplemental income ZMW 1,500 to get over the poverty line.
- The average net income per farmers those who introduced the Simple Weir Irrigation was estimated as ZMW 1,550 which can therefore have an impact to raise the farmers to the poverty line.

### Beyond the Poverty Line



## Starting with Simple Weir

### “As Entry Point of Irrigation Agriculture”

When the farmers are used to irrigation farming by testing the Simple Weir, They proceed to the next stage, Permanent Weir- Upgrading.



supervised by CEO



supervised by TSBs

# Simple Weirs



4

# Simple Weirs

4 Standard Types  
by COBSI's Experiences

1. Inclined Type
2. Single-line Type
3. Double-line Type
4. Trigonal Type

5

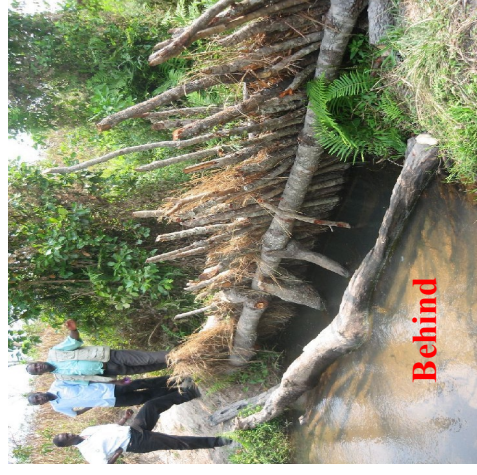
## Applicable Stream Conditions

Type of Weir	Stream Width	Stream Depth	Material of the stream bed, Others
1- Inclined	Narrow	Deep	<ul style="list-style-type: none"> <li>✓ Both ordinary soil and rocky foundation of the stream bed</li> </ul>
2- Single-line	Wide	Shallow	<ul style="list-style-type: none"> <li>✓ Ordinary soil foundation (soft foundation) of the stream bed</li> <li>✓ Basic type</li> </ul>
3- Double-line	Wide	Shallow	<ul style="list-style-type: none"> <li>✓ Ordinary soil foundation (soft foundation) of the stream bed</li> <li>✓ In case of much water leakage (loose soils)</li> <li>✓ Applicable as a footpath (a bridge)</li> </ul>
4- Trigonal	Wide	Shallow	<ul style="list-style-type: none"> <li>✓ In case of rocky foundation of the stream bed</li> </ul>

**Important!**

6

## Type1. Inclined Weir



Width: 5m  
Height: 1.5m

Time for construction: 4 hours



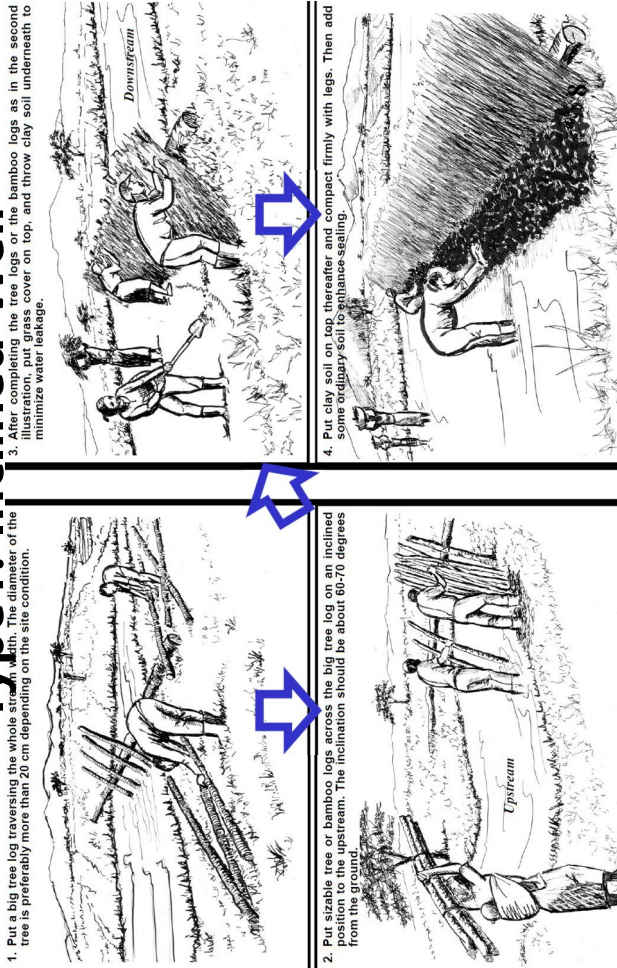
Width: 10m  
Height: 2.0m

Time for construction: 8 hours

7

# How to Construct?

## Type1. Inclined Weir



## Type2. Single-line Weir

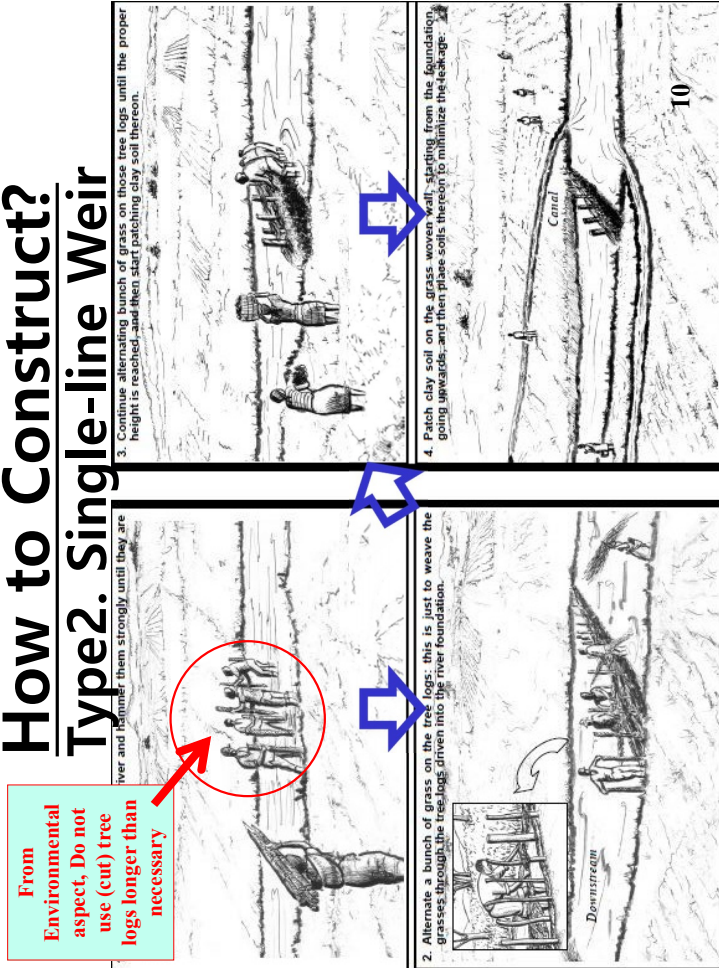


Width: 7m  
Height: 1.0m  
Time for construction: 2 hours



# How to Construct?

## Type2. Single-line Weir



## Type3. Double-line Weir

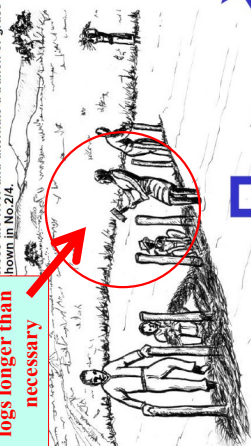


# How to Construct?

## Type3. Double-line Weir

From Environmental aspect, Do not use (cut) tree logs longer than necessary

1. Cut tree or bamboo logs to a required size, depending on the height, which we want to tap water. Then construct number of trigonal stand structures depending on the width of the river.



2. After completing putting grass alternately put clay soil starting from foundation up to the top, and then ordinary soil on top of the clay and compact it just same as No.2/4.



3. Make another line of tree logs woven with grasses about 70 - 150 cm downstream from the first weir.



4. Place clay soil between the weirs, and compact it, and continue the placing and compacting of the clay soil up to the required level.



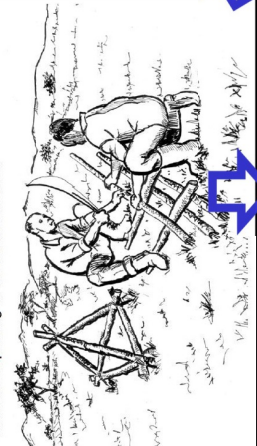
## Type4. Trigonal Weir

Front: Assembling twigs with grasses on the Trigonal-Supports

# How to Construct?

## Type4. Trigonal Weir

1. Cut tree or bamboo logs to a required size, depending on the height, which we want to tap water. Then construct number of trigonal stand structures depending on the width of the river.



2. Place these trigonal stands across the river, and connect them by using and tying them firmly. Then start putting grasses on the horizontal members.



3. Continue putting the grass on top of the horizontal members and put another layer of horizontal members again to tie them in position.



## Simple Weirs

- Other Types:
  1. Clay Masonry
  2. Sandwich Line



**End of Presentation  
Thank you very much  
for attention!!**

# Module-3

## COBSI Scheme

(cont'd)

### CANAL ALIGNMENT WITH SPRIT LEVEL (Theory) AND ANCILLARIES

0

Irrigation Water Running NICELY



### CANAL ALIGNMENT WITH A SIMPLE TOOL - Split Level -

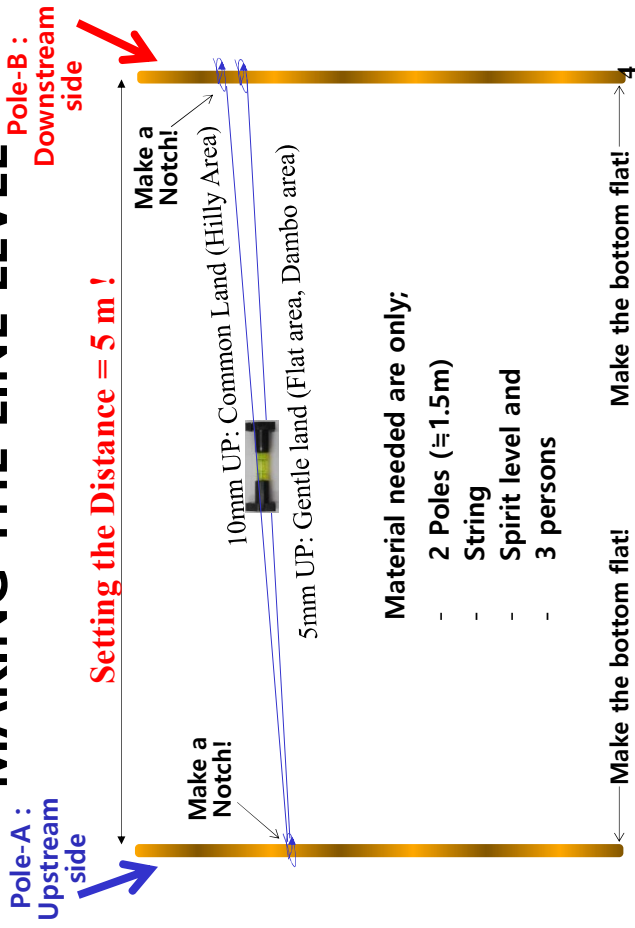


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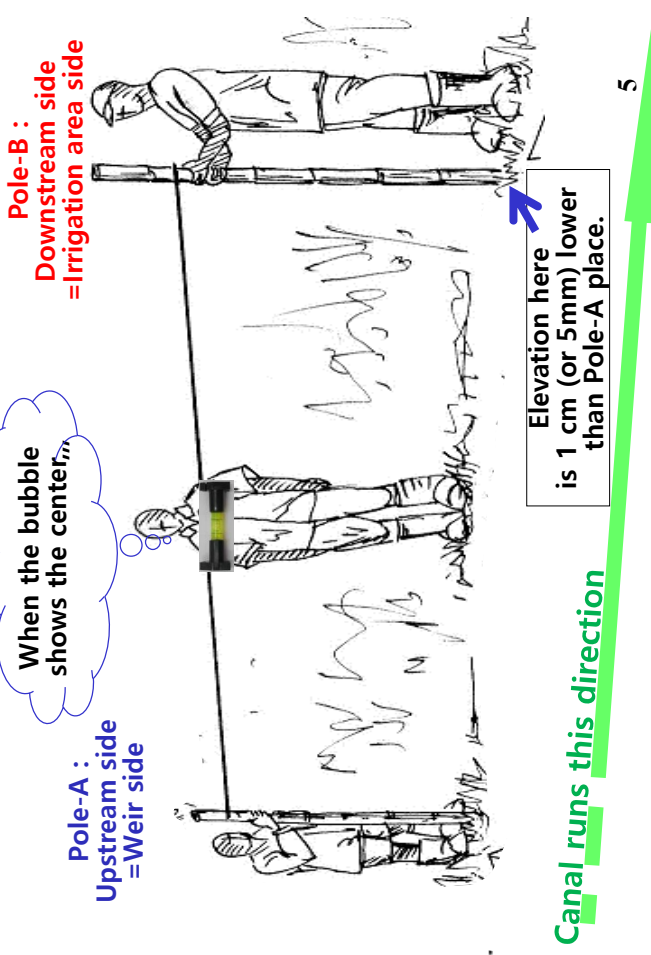


3

# MAKING THE LINE LEVEL

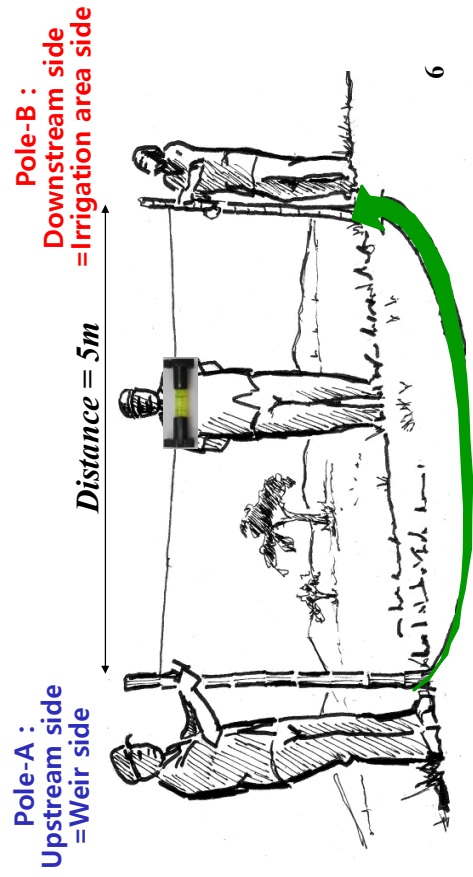


# OFF-SET LINE LEVELING



# COPING MEASURES

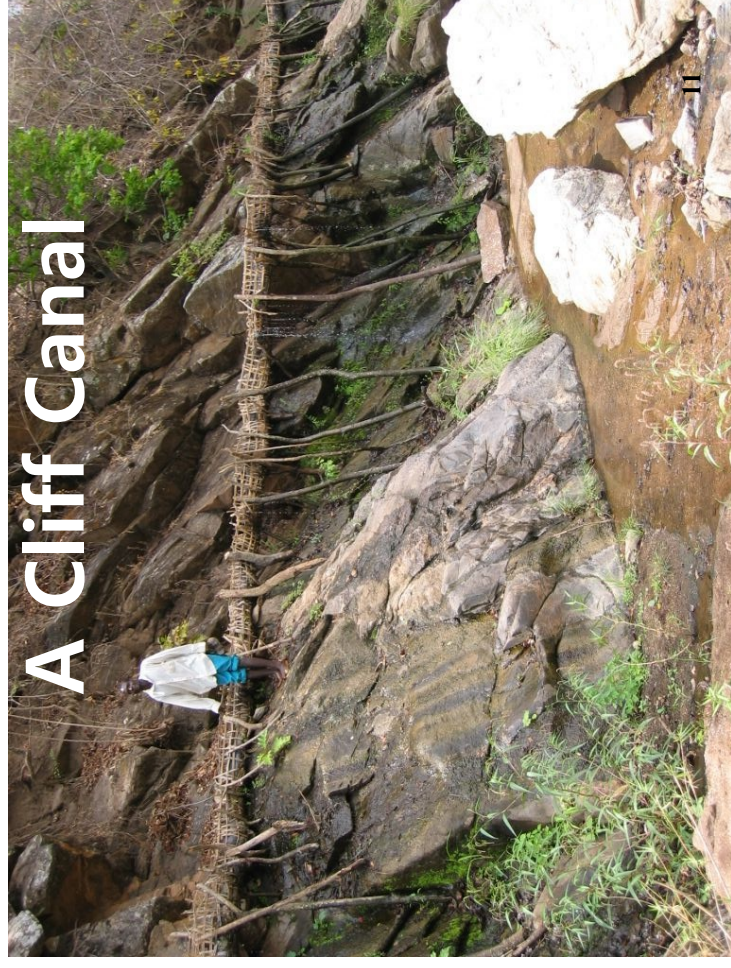
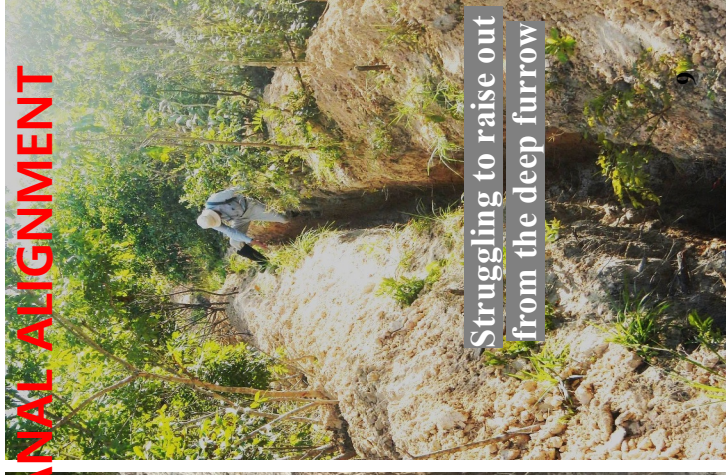
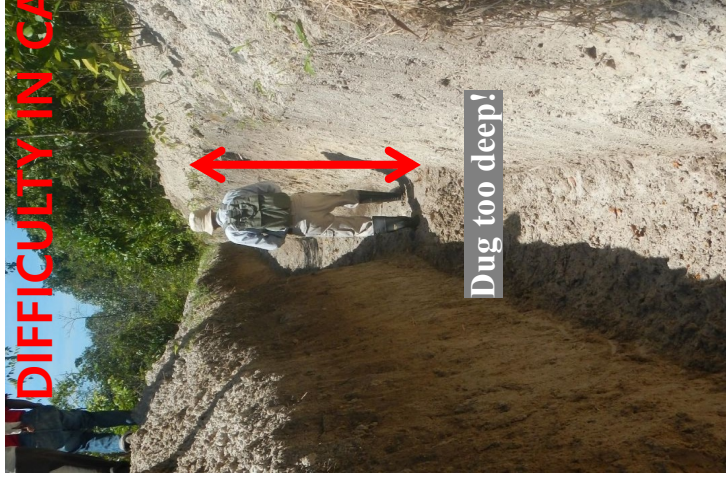
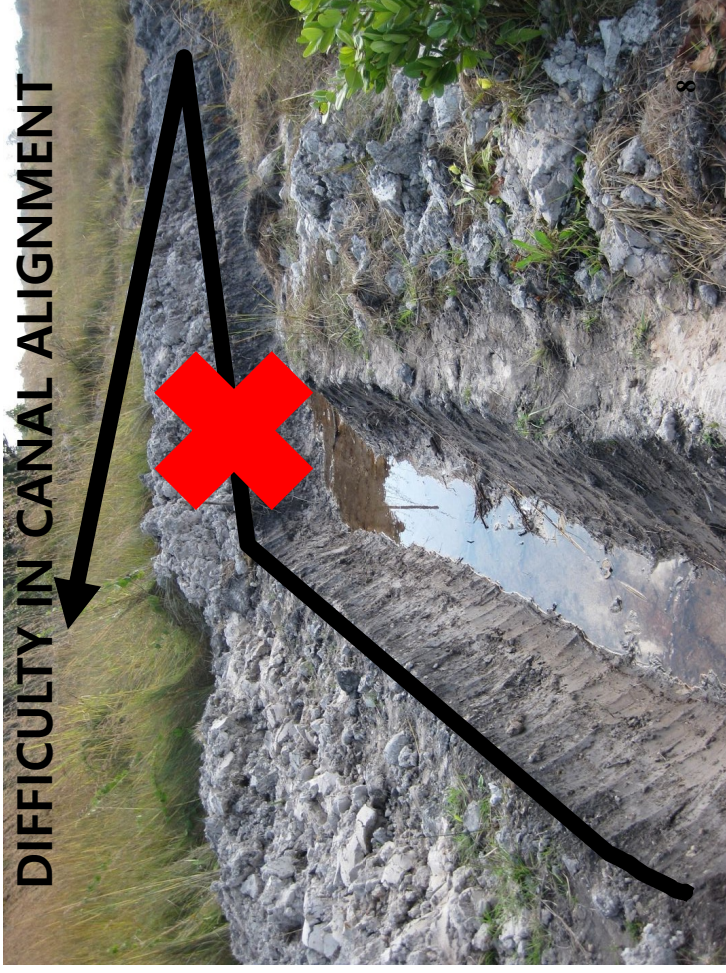
Distance	Off-set	Gradient	Land scape
5m	1.0 cm	1/500	Common land (Hilly area)
5m	0.5 cm	1/1,000	Gentle land (Flat area, Dambo area)



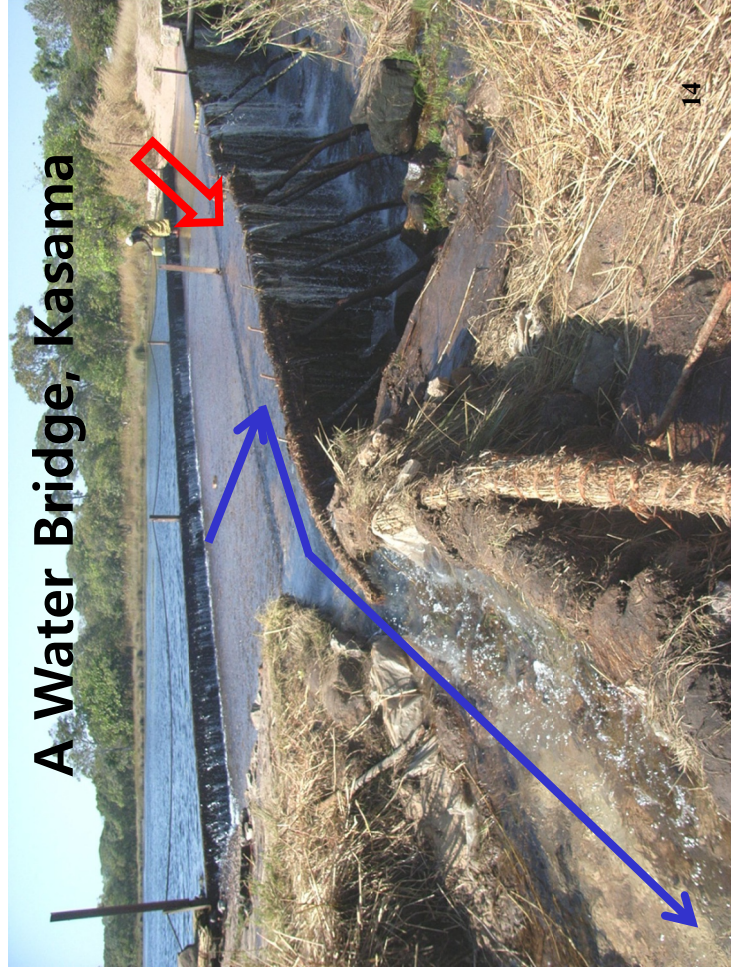
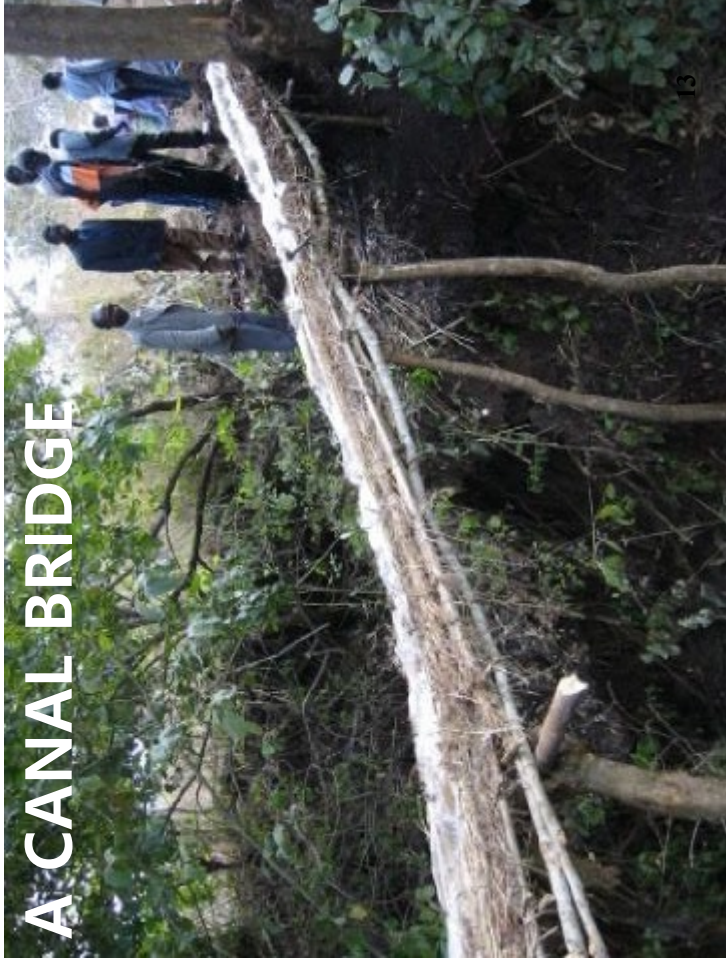
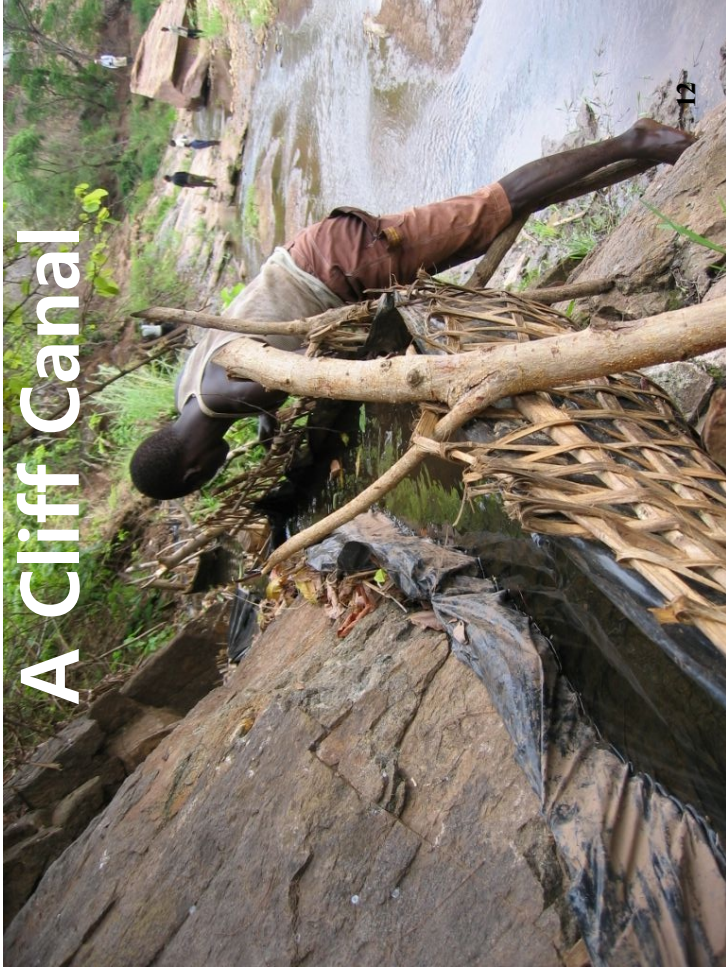
# DIFFICULTY IN CANAL ALIGNMENT



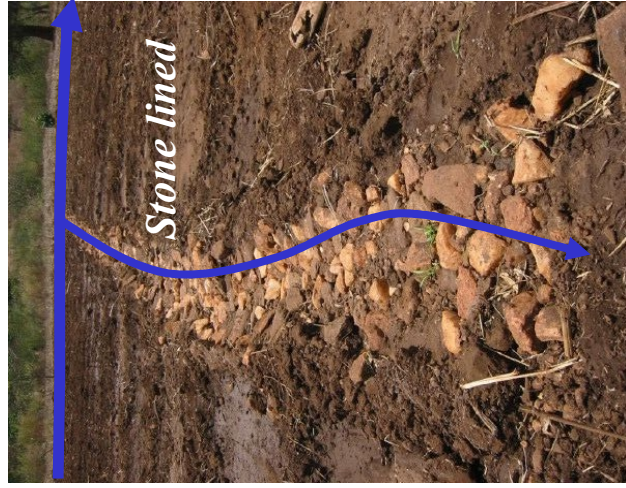




# ANCILLARIES



# Canal Lining in Locality



**End of Presentation**  
**Thank you very much for**  
**your attention!!**

# Module-3

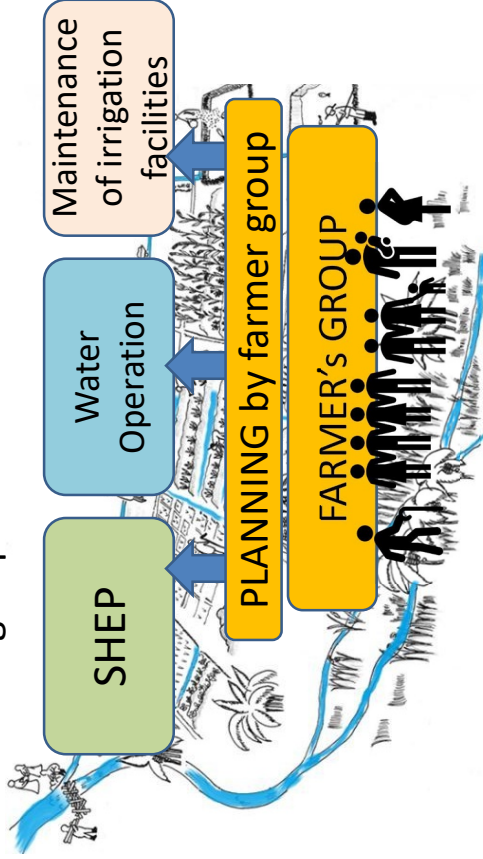
## COBSI Scheme

(cont'd)

### FARMERS' ORGANIZATION

What's farmers' group in E-COBSI

Farmer's group is the base of E-COBSI activities.



## Contents of this module

1. What's farmer's group in E-COBSI
2. Planning by farmer group
3. Farmer's group for SHEP
4. Farmer's group for water operation
5. Farmer's group for maintenance of irrigation facilities.
6. How to organize farmer's group.

### PLANNING by farmer group

Before starting construction, farmers need to discuss and coordinate, how people want to distribute water from weir.

If you skip this process, Irrigation scheme may have challenges...



The furrow may not be directed/established as members' wish.

So, officers need to

1. Facilitate farmer group to discuss the ideal route of furrow.
2. Ask leader of the group to coordinate farmers. And ask leader to negotiate with farmers who need to contribute his/her land for furrow route.
3. After discussion and negotiation among farmers, let community decide furrow route. Then, they can decide intake point and start furrow excavation.

## Farmer's Group for SHEP

### ★ **Buying input as group**

Ex. Registering as Cooperative group allows farmer to buy subsidized fertilizer from FISP.

### ★ **Conducting market survey as group**

Ex. Selecting high demand crop after group market survey.

### ★ **Selling agricultural product as group**

Ex. Transporting product as group for selling can reduce your individual cost and time. And bargaining power can be strengthened by group.

## Water Management

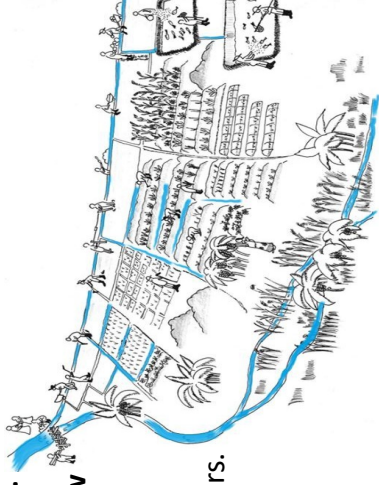
Water Users Group is needed for...

★ **Construction of weir and furrow**  
It needs manpower.

★ **Distribution of water**

It needs discussion among members.

★ **Coordinating users, especially between up streamers and down streamers.**



## Maintenance of irrigation facilities

**After construction of weir and furrow, farmers need to maintain these facilities.**

✓ April-May (after rainy season): remove sediment, clean canal, fix simple weir.

✓ December-April (close intake & open weir in order to avoid overflow of rainy water)

✓ **Regular check of facilities and organize periodical meeting for maintenance.**

✓ **Collect water users fee from member** for the maintenance and for water rights.

## 5 steps for Organizing Farmers' Group

1. Direct farmers to organize group for E-COBSI Activities

2. Election of Board Member by farmer members

3. Preparing written Member List & Regulation

4. Registration and opening bank account

5. Organize periodical meeting and collect member fee

## 1. Direct farmers to organize group for E-COBASI Activities

- Officers recommend to farmers to organize group for our activities. (Farmer can use their existing group.)

Note: situation for grouping is different in FU provinces and New target Provinces as below.



Village head has strong influence on water group in most of sites in Northern province. (photo: Nselka, Northern Province)



No village head, No chief in farm block but landowner including Farmers who have title deed, Councilor, zone leader should be contacted by agriculture officer for project implementation. (photo: Misaka Farm block, Ndola district)

## 2. Election of Board Member by farmer members

- Farmers need to select board members such as, leader, secretary, accountant and so on. Strong leadership is needed for leading water users' group.



### Bitter Experience

In 2019 E-COBASI sites, there were farmers who refused passing canal in their plot. So, it influenced on other farmers stopping irrigation activities. This tells us that initial coordination among members are very important. Remind farmers, this coordination takes time. But they should complete before construction work starts.

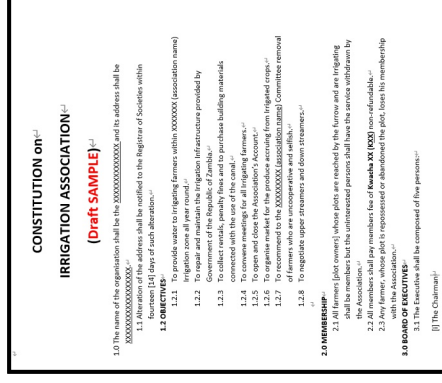
## 3. Preparing Written Member List & Constitution

### ★ Direct farmers to keep name list of members

This helps farmers to gather meeting and collect fees.

### ★ Prepare Constitution (By-law)

Farmers need to discuss the contents of their regulations. Officers can provide exemplified format for farmers.



- If your group is cooperative group, you need to register the Cooperative.

- Requirements for registration is as below:

- More than 20 members
- Opening Bank account
- Registration fee
- Board member list
- Registration letter

(This is information in 2016. Officers need to update info before directing to farmers.)

## 4. Registration and opening bank account

## 5. Organize periodical meeting and collect member fee

- Officers recommend farmers to organize periodical meeting to share information and collecting member fee for group activity.
- For permanent weir sites, officers recommend to farmers to collect member fee **which is also used for maintenance work**.

### Share your idea !

It is better to keep money in bank to avoid theft. And accountant should report the amount of collected money periodically. However, most of bank need account maintenance fee. If you have good idea to keep money, share more idea with other participants.



## Water Right

Water Rights is necessary to protect your rights to use water from river.

In principle, Need Consent from WARMA & ZEMA

If command area is more than 1ha or If water use is more than 10m<sup>3</sup> per of day → Water permit from WARMA is needed.

If command area is less than 1ha or If water use is less than 10m<sup>3</sup> per of day → Consent from WARMA and ZEMA as well (both simple and permanent weir). And You need report to ZEMA Lusaka when you select permanent weir sites.

MoA has planned to discuss (negotiate) with WARMA to exclude the E-COBSI sites from the principle, since the E-COBSI sites are not commercial use and then don't affect to the river/stream environment.