

# **FEED THE FUTURE ILSSI – GHANA**

## **OVERVIEW OF THE ILSSI PROJECT INTERVENTIONS**

Prepared by UDS Team

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Accra

# UDS Core Team Members

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# Introduction

- In April, 2015, Ghana ILSSI team with partners visited some parts of the Northern, Upper East and Upper West Regions of Ghana to identify potential sites for the project.
- Following a well defined criteria, beneficiaries were selected to take part in the project for 3 years.
- About 56 beneficiary households were selected.
- Beneficiary communities included;
  1. Zanlerigu-Nabdam District
  2. Dimbasinia-Kassena/Nankana District,
  3. Bihinaayili-Savelugu/Nanton Municipality

# Zanlerigu Home Gardens

# Description of Interventions/technologies

Technology	Treatment Group	No. of famers	Control Group	No. of farmers
Type of irrigation system	1.UDS drip irrigation system	2	No drip-water tank with hose	1
	2. Bucket-drip (iDE) irrigation	2		-
Total		4		1
Selected crop	Local leafy vegetable (black- eyed peas)		leafy vegetable (black-eyed peas)	

# Summary of Home Gardens

- Construction of roof water harvesting structures for home gardens started in early July, 2015.
- Home gardens were fenced in December, 2015. Fenced area (10mx15m).
- Land preparations started immediately after the fencing in December, 2015
- Started installing drip kits (UDS and iDE) on home gardens on 23<sup>rd</sup> December, 2015.
- In all, 5 farmers are involved in the pilot (3 women, 2 men)
- Farmers planted black-eyed peas or cowpeas on 29<sup>th</sup> December, 2015 (crops are 7 weeks old)

# Challenges of home gardens

- Main challenge is insufficient harvested water.
- 3000L tank may just last 2 weeks.
- Insect attack on vegetables
- Poor seed selection
- Seed planting rate
- Some tanks were almost on the ground because some houses roofs were shorter

# Water harvesting during raining season





# Fencing of Home Gardens



# Installation of drip kits

**Farmer trying to fix iDE drip**



**Farmer trying to fix UDS drip**



**UDS drip**



**iDe drip**



**UDS drip**



**iDE drip**



# Yields at maturity



## Yields at maturity (7 weeks)



## Measuring Biomass



# Measuring Biomass



# Zanlerigu Shallow wells-Onion Farmers



# Description of interventions

Technology	Treatment Group	No. of farmers	Control Group	No. of farmers
Type of irrigation system	1. Overhead irrigation with tank and hose + irrigation scheduling tool	4	1. Watering can + Irrigation scheduling tool	4
	2. Overhead irrigation with tank and hose without irrigation scheduling tool	4	2. Watering can without irrigation scheduling tool	4
Total		8		8
Selected crop	Onions		Onions	

# Summary

- In all, 16 farmers (8 women and 8 men)
- Farmers using water pump (4 farmers -2 women and 2 men) each having an overhead water tank
- Farmers using watering cans (4 farmers -2 women and 2 men)
- Onion variety planted (Violet Damani)
- Nursed on 2<sup>nd</sup> November, 2015.
- Transplanted on 30<sup>th</sup> December, 2015
- WFD are installed for one water pump group and watering can

## Challenges

- Some farmers find it difficult to operate the water pump
- Small insects are eating onion leaves
- Use of water hose not fast enough
- Water tanks are small

**Water tank**



**Farmer about to use water pump**



# Land Preparations

**Bizoola inspecting land preparations**



**Prof. Dittoh visited farmers**



**Sylvester having discussion with farmers**



**Farmer (Chairman) on his onion farm**



**Farmer irrigating using water hose**



**Farmer using watering can**



**Bihinaayili-Corchorus (ayoyo) Farmers**

Technology	Treatment Group	No. of Farmers	Control Group	No. of Farmers
Type of irrigation system	1. Overhead irrigation with tank and hose + irrigation scheduling tool	4	1. Watering can + Irrigation scheduling tool	4
	2. Overhead irrigation with tank and hose without irrigation scheduling tool	4	2. Watering can without irrigation scheduling tool	4
Total		8		8
Selected crop	leafy vegetable (Cochorus)		leafy vegetable (Cochorus)	



# Summary

- In all, 16 farmers (8 women and 8 men)
- Water pump (4 farmers -2 women and 2 men) each having an overhead water tank
- Watering can (4 farmers -2 women and 2 men)
- Corchorus was planted on 8<sup>th</sup> January, 2016

## Challenges

- Water tanks are small
- Use of water hose is not fast enough

## Land preparations



## Water tank



**Female farmer using water hose**



**Male farmer using water hose**



## Corchorus in Bihinaayili



## WFD at ayoyo farm in Bihinaayili



# Corchorus



# Dimbasinia-Tomato Farmers

# Dimbasinia: Tomato farmers using shallow/deep wells

Technology	Treatment Group	No. of Farmers	Control Group	No. of Farmers
Type of irrigation system	1. IDE drip + irrigation scheduling tool	4	1. Watering cans with no irrigation scheduling tool	4
	2. IDE drip without irrigation scheduling tool	4	2. Watering cans but with irrigation scheduling tool	4
	3. UDS drip + irrigation scheduling tool	4		
	4. UDS drip without irrigation scheduling tool	4		
<b>Total</b>		16		8
<b>Selected crop</b>	Tomatoes		Tomatoes	

# Summary

- In all, 16 farmers (8 women and 8 men)
- 4 farmers using one water pump with each having an overhead water tank
- Could not have a control group
- Tomatoes was planted on 4<sup>th</sup> November, 2015
- Petromech variety
- Tomatoes transplanting started on 3<sup>rd</sup> February, 2016
- Farmers can fetch water directly from the dam using buckets but one is not allowed to use water pump.

## Challenges

- Late harvesting of crops on project site. This affected land preparations
- Farmers resistance to move to appropriate farming location. One location was chosen and later changed
- Land disputes involving owners of the land. The mention of project changes the value of land
- Inadequate water in wells due to inability of the farmers to dig deeper
- Lack of fencing. People go to open water from the tanks
- Timing. Due to late start, farmers had established their own farms and concentrated on them.



**iDE installation**



**Water tanks installed at Dimbasinia**



# Installation of tanks



**Tomatoes on the field**



**Tomatoes on the field**



# Sylvester and Bizoola with a section of land owners in Dimbasinia



# Data Collection

MoFA staff are actively engaged in data collection and supervision.

## **Biophysical Data**

- Regular collection of biophysical data-piezometer readings
- Land preparations
- Rate of discharge from drip systems
- Plant growth parameters
- Application of inputs
- Quantity of water used during the growing season
- Agronomic practices
- Biomass of harvest

# Socio-economic Data

- Household identity
- Farmers participating in project
- Sizes of land (ha)
- Inputs cost-fertilizers, labour, agrochemicals etc
- Daily wage
- Use of labour-hired and family labour
- Prices of produce-Marketing of produce
- Crop information
- Livestock information
- Assets

# Women Participation

- 50% women in shallow wells
- 60% in the home gardens

## **Challenges of Women**

- Not able to dig wells
- Cannot operate water pumps
- Some cannot prepare beds and find it difficult to hire labour
- Some are first time irrigators
- Time constraint

**Gender expert having discussions with women on the project at Dimbasinia**



**Women transplanting onion at zanlerigu**





**Woman prepares onion beds at Zanlerigu. Fencing done with local materials**



**Woman applying organic manure to tomatoes**



# Conclusions and recommendations

- Rolling out the interventions had been very challenging
- Despite the challenges, the project had made significant progress in rolling out the interventions
- Start early especially on home gardens to take advantage of residual moisture
- Possibility of establishing mechanical boreholes
- Women participation in the project is encouraging (about 50%)
- Capacity building for farmers (use of water pump, dis-assembling drip kits, etc)

THANK YOU