

Information Collection Survey on Sustainable Forest/Natural Resource Management in West Nile Region, the Republic of Uganda

Webinar (Sharing and exchanging opinions on the survey results with stakeholders)

OCTOBER 2021

JAPAN INTERNATIONAL COOPERATION AGENCY



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Remarks to Participants(1/3)

Mute your Microphone all the time except when you wish to speak



Use **Raise your Hand** function before you wish to Speak and wait till your turn by Chairperson of the Session



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Remarks to Participants(2/3)

Write your name and affiliation for your account name when you enter the ZOOM. For example, "Reo WATANABE -JICA Survey Team".

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3

Remarks to Participants(3/3)

Program

Time	Description	Speakers and Groups
9:00 (5 min.)	Confirmation of attendees	JICA Survey Team
9:05 (10 min.)	Welcome Remarks	Mr UCHIYAMA Takayuki Chief Representative, JICA Uganda Office
9:15 (10 min.)	Opening Remarks	Mr Kazungu David Apollo, Commissionr Refugees, OPM
9:25 (60 min.)	Presentation from JICA Survey Team <u>Session 1: Presentation by Sector</u> <ul style="list-style-type: none"> ▪ Introduction / Overview of the Survey (TEJIMA) 10 min ▪ Financial / private sector cooperation (IZUMI) 10min. ▪ Electricity Plan (KIKUCHI) 10min. ▪ Peace Keeping & Social Development (KATO) 10min. ▪ Off-grid and Socioeconomic Information (Social Survey Results) (WATANABE) 10min. ▪ GIS (TEJIMA) 10min. 	JICA Survey Team
10:25 (20 min)	Comments by the participants (Q&A Session)	All participants
10:45 (10 min.)	Break	
10:55 (50 min.)	Presentation from JICA Survey Team <u>Session 2: Priority Project</u> The priority project (OGAWA) 30 min Comments by the participants 15 min Wrap-up 5 min	JICA Survey Team All participants
11:40 (10 min.)	Closing Remarks	Ms ADATA Margaret, Commissioner, Forestry Sector Support Department / DEA, MWE
11:50	End	

4

Information Collection Survey on Sustainable Forest/Natural Resource Management in West Nile Region, the Republic of Uganda

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11 October 2021

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Program Webinar Sustainable Forest & Natural Resource Management in the West Nile Region

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Introduction

The webinar aims at sharing the findings of the JICA Survey to the relevant stakeholders and exchanging views for future cooperation.

This Webinar aims at;

- ◆ Informing all participants about the survey results and a concept on the priority project proposed by the team.
- ◆ Gathering input from participating stakeholders with the survey results and proposed priority project.



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Program Webinar Sustainable Forest & Natural Resource Management in the West Nile Region

1. Introduction

A) Objective of the survey

This survey aims at;

- To understand the current status and challenges of **forest and natural resource use, management and energy supply** in the refugee hosting and affected areas in the West Nile region,
- To provide necessary **geospatial information** for policymakers, local residents, civil society, development-related organizations and other stakeholders to realize sustainable forest and natural resource management,
- Consider the **possibility of future cooperation and collaboration** with private sector and other donor projects.

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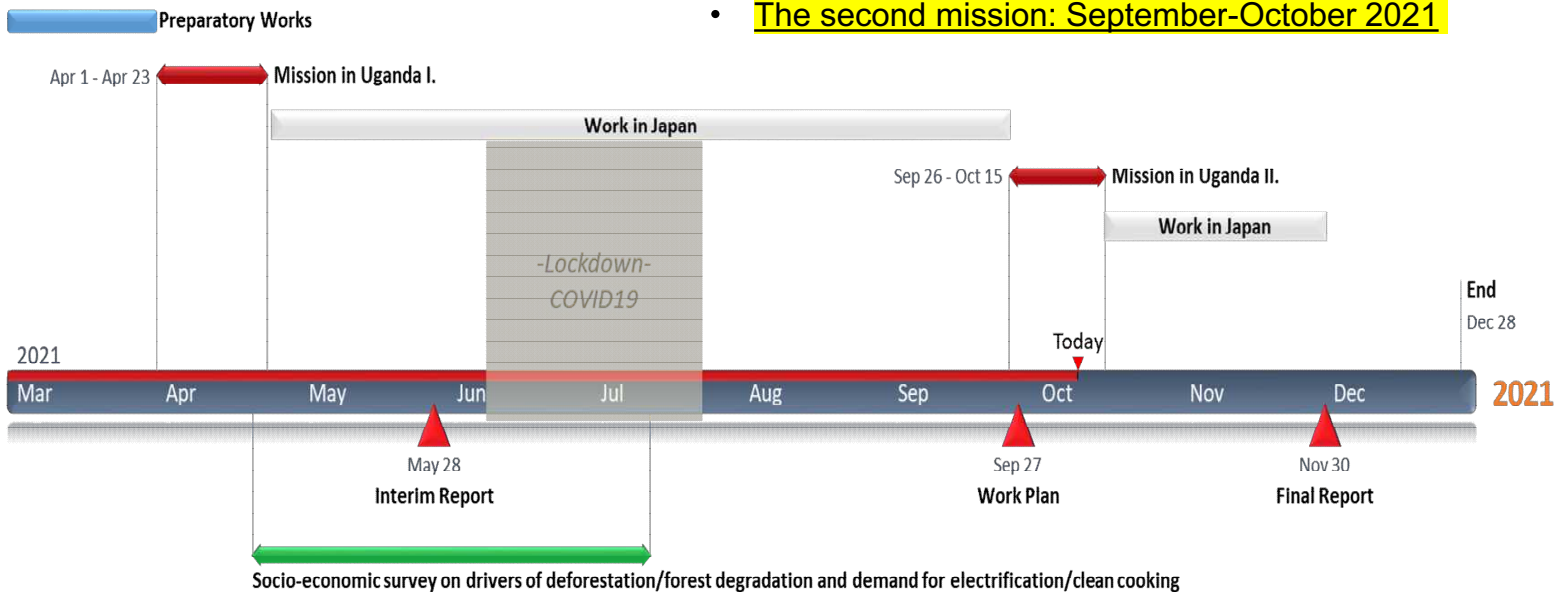
Program Webinar
Sustainable Forest & Natural Resource Management in the West Nile Region

B) Survey Period

February 2020 – December 2021

(Resuming from March 2020 due to the COVID-19)

- **The first mission :April 2021**
- **The second mission: September-October 2021**

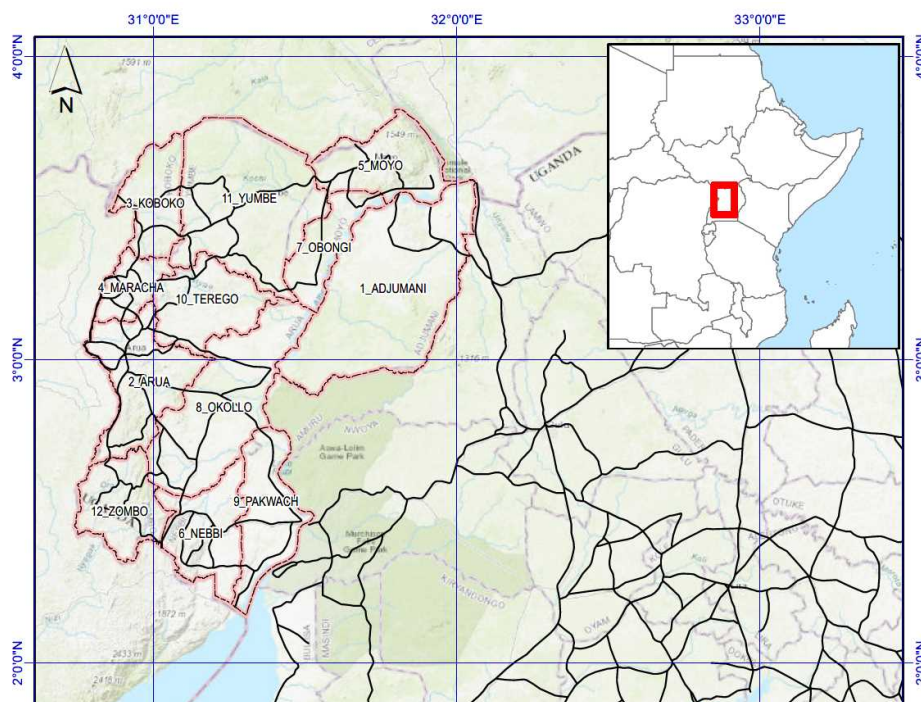


Program Webinar
Sustainable Forest & Natural Resource Management in the West Nile Region

C) Target Area

Target area:

- **12 districts in West Nile Region.**
 - **Refugee Hosting District (RHD),**
Madi Okollo, Terego, Adjumani, Moyo, Obongi, Yumbe, Koboko,
 - **Refugee Affected District (RAD),**
Arua, Maracha, Zombo, Nebbi and Pakwach



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Sustainable Forest & Natural Resource Management in the West Nile Region

D) JICA Survey Team

N.	Name	Expertise
1	OGAWA Shinji	Team Leader / Forest and Natural Resource Management
2	KIKUCHI Yota	Electricity Planning
3	IZUMI Yasuo	Cooperation with Donors & Private Sector
4	GONAI Yoshimizu	GIS
5	KATO Shimpei	Peace Building Assessment / Community Development
6	WATANABE Reo	Off-grid/Social Economy 1
7	TEJIMA Shigeharu	Off-grid/Social Economy 2

Second Mission Members

Information Collection Survey on
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Financial and Private Sector Cooperation

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1. International Technical and Financial Partners 1/4

❖ World Bank

■ Development Response to Displacement Impacts Project (DRDIP)

➤ Implementation progress has been satisfactory

○ **Component 1 (socio-economic services)**

better access to education and health facilities, roads and bridges and water systems

○ **Component 2 (environmental management)**

Labor Intensive Public Works (LIPW) based subprojects are supporting tree planting, agroforestry, wetlands/riverbank/ lakeshore restoration, and gully control structures. These subprojects help to address environmental damage caused by the refugee presence - which can be a source of tension - and put cash in the hands of host community members and refugees.

○ **Component 3 (sustainable livelihood)**

to strengthen District capacity for prevention and response to violence against women and children in hosting communities and refugee settlements

1. International Technical and Financial Partners 2/4

❖ World Bank

■ Investing in Forests and Protected Areas for Climate-Smart Development Project (IFPA)

➤ Approved in April 2020 and is intended to preserve and improve the ecosystem in Uganda, but due to the COVID-19, full-scale implementation is yet to come.

➤ No update

■ Uganda Forest Carbon Partnership Facility REDD Readiness

➤ Still in pipeline

■ Sustainable Energy Response Plan for Refugees and Host Communities in Uganda (SERP)

➤ Developed by WB with UNHCR and GIZ. Part of the CRRF for host communities and refugees facing with difficulties in accessing efficient energy.

➤ Inception Report September 2020 - Energy access programs for refugees and host communities need to be designed using an alternative approach to standard development programming

➤ Private Sector and Social Enterprises: Adapt Plus, Green Bio Energy, Green Charcoal Uganda, Oryx Energies, Potico, Solar Africa, Solar Now etc.

1. International Technical and Financial Partners 3/4

❖ UNHCR/GIZ

- **Response to increased demand on Government Service and creation of economic opportunities in Uganda (RISE) with EU funding**
 - Greater Economic and Employment Opportunities
 - Strengthening Resilience
 - Improved Governance and Conflict prevention
- **Specific Objective 1: Strengthen local authorities' coordination and development & contingency planning**, as well as local authority-led service delivery to refugees and the host populations.
- **Specific Objective 2: Increase economic self-reliance of refugees and host populations.**
 - Increased **financial inclusion** of refugees and host populations and linkages created to creditbased interventions to support livelihoods
 - Enhanced carrying **capacity** of allocated land for refugees: **Fast growing crops**, such as vegetables promoted and **simple irrigation** systems developed
 - Improved **local processing of agricultural products** and market access

1. International Technical and Financial Partners 4/4

❖ USAID

- **Policy recommendations to the National Forest Agency (NFA) on the National Forest Policy**
 - Target is only Central Forest Reserve under the jurisdiction of NFA
 - Bio-diversity perspective indispensable
 - Five areas of approach to the forest sector: 1) forest management, 2) forest area determination, 3) organizational structure development, 4) forest policy formulation, and 5) NFA operational capacity enhancement.
 - GIS information sharing could be of interest of USAID/NFA

2. Private Sector Institutions 1/3

❖ Forestry and Natural Resources - Company K (Kenya)

- Headquartered in Kenya, founded in 2008, is a sustainable forest development and management company originated in San Francisco.
- Afforestation, acquisition of forest management skills, timber sales, and livelihood improvement on a community-by-community basis.
- Collaborating with **Apple** on Carbon Neutral Strategy – Jun 2021
- Raised fund of JPY 3 billion through **Airbnb method** (without owning assets) – Aug 2020
- Concentrating on Eucalyptus and Lelia
- Possible expansion to Uganda

2. Private Sector Institutions 2/3

❖ Energy Supply – Company M (Kenya)

- A British off-the-grid power company with its business headquarters in Kenya
- to expand into Uganda in 2022.
- The main business is **off-the-grid kiosk power generation** and sales for villages.
- Provides means of improving livelihoods using electricity, such as **hen incubators**

❖ Energy Supply – Company W (Tanzania)

- An **off-the-grid power company** established in 2013 with a main sales office in Tanzania and registered HQ in Tokyo
- A subsidiary in Uganda opened in 2020.
- Major shareholders are invested by Edge Capital of the University of Tokyo, JICA, DBJ, Kansai Electric Power, Marubeni, Yamaha Motor, etc.
- Its main business is to open **LED lanterns** and smartphone apps for lantern control, and it offers **rental-style power services** for non-electrified areas and more than 1,000 small store kiosks.

2. Private Sector Institutions 3/3

❖ Financial and IT Service with Start-up Youth Enterprises – MCard Foundation (USA)

- The world's leading financial service company
- Expanding the **mobile money market** in Uganda, In particular, it provides services for the **poor and refugees** who have difficulty in **financial access**.
- Key area of focus expanding - **access to finance**, education, and **skills training to smallholder farmers**, teachers, out of school youth and **youth in agriculture**

- **Young Africa Works in Uganda** focuses on three economic sectors, including **agriculture, tourism and hospitality, and construction/housing.**
- Partners - Private Sector Foundation Uganda (PSFU), The Innovation Village, Gudie Leisure Farm, GOAL Uganda, the National Social Security Fund, and Equity Bank Uganda
 - Private Sector Foundation Uganda (PSFU)- made up of over 200 business associations, corporate bodies and the major public sector agencies

End of Presentation

❖ [00 Introduction](#)

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Electricity Planning

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3. Electric Plan (KIKUCHI)

Outline

Electricity
Planning

1. Objective
2. Results of 1st field survey
3. Results of the Social Survey
4. 2nd field survey
5. Conclusion

3. Electric Plan (KIKUCHI)

Objective

Based on the results of the 1st field survey and the Household survey, continued to collect additional information during the 2nd field survey.

The period is from October 4th to October 8th, 2021.



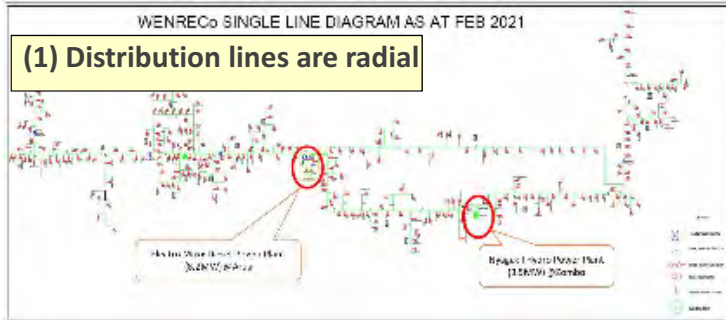
Distribution operators' jurisdiction areas

Distribution Operator	Jurisdiction	Service Territory
UEDCL	Adjumani, Moyo, Obongi	North North West (NNW)
WENRECO	Yumbe, Koboko, Maracha, Terego, Arua, Okollo, Zombo, Nebbi, Pakwach	West Nile (WN)

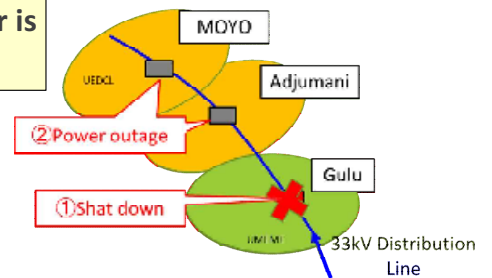
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3. Electric Plan (KIKUCHI)

Results of the 1st field survey



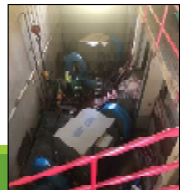
(2) 33kV feeder is not divided



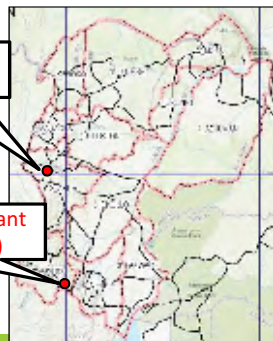
(3) Generation plant



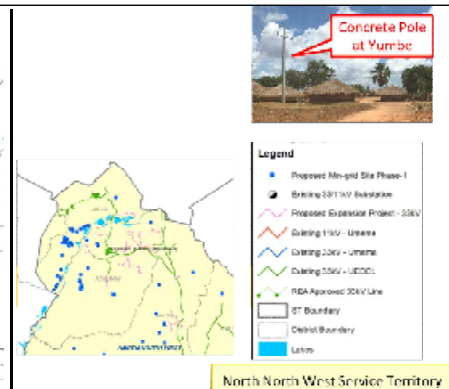
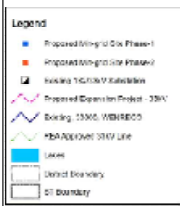
Diesel plant (Arua)



Small Hydropower plant (Nyagak 1, Zombo)



(4) REA Master plan



4

3. Electric Plan (KIKUCHI) ■ Results of the 1st field survey

■ Current power supply project in West Nile, Adjumani and Moyo



No	Location	Project	Status	Remark
①	Arua, Nebbi	132kV/33kV 80MVA Substation & Transmission line	Under construction (Start to operate from 2022)	World Bank
②	Oraba	132kV/33kV 40MVA Substation & Transmission line	Concept Study	No founding
③	Adjumani	30 MW solar power plant plan	Ongoing	German firm
④	Okolo	10MW solar power plant plan	Ongoing	ITUKA Uganda Limited
⑤	Zombo	Nyagak III 6MW small hydropower plant	Under construction	Private
⑥	Adjumani, Elegu	132kV/33kV 80MVA Substation & Transmission line	Proposed	No founding
⑦	Arua, aruu	(Interconnection) 220kV Transmission line & Aruu Substation (DR Congo)	F/S	No founding
⑧	Elegu, Juba	(Interconnection) 400kV Transmission line & Elegu Substation (South Sudan)	F/S	China Sino-Hydro

In the near future, the West Nile region will be connected to the National Grid, and it is planned to secure a power capacity that greatly exceeds the current demand of 6 MW.

3. Electric Plan (KIKUCHI) ■ Results of the 1st field survey

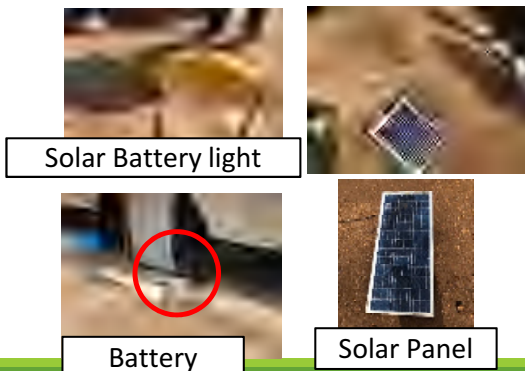
(1) Kiosk at the ferry terminal



(3) Prices for solar panels, batteries, etc. sold in Arua

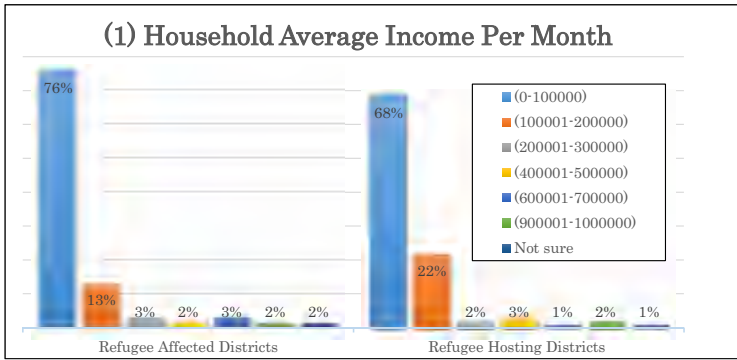
Solar panel (10W to 250W) 25,000 Ush to 420,000 Ush	Battely (7 Ah to 200 Ah) 25,000 Ush to 800,000 Ush
INVERTER (150W to 1000W) 45,000 Ush to 220,000 Ush	Solar Bulbs 5,000 Ush

(2) Solar panels and batteries used by refugee households



3. Electric Plan (KIKUCHI) ■ The result of house hold survey

(1) Household Average Income Per Month



(3) Problems that occur when collecting firewood

	Refugee Settlement	Host Community
1	Long distance round trip	Long distance round trip
2	Bitten by mosquitoes and snakes	Bitten by mosquitoes and snakes
3	Have an accident	Have an accident
4	Encounter harassment. They are chased around, beaten, and robbed of tools such as axes.	-

(2)	ITEM	RAD	RHD
1	Income / Month	100,000 [Ush]	100,000 [Ush]
2	Electric appliances	Cellphone, Light, Radio	Cellphone, Light, Radio
3	Collecting time of firewood (/ time)	1 [h] to 6 [h]	2 [h] to 3 [h]
4	Amount of firewood collected (/ time)	1 [kg] to 30 [kg]	1 [kg] to 30 [kg]

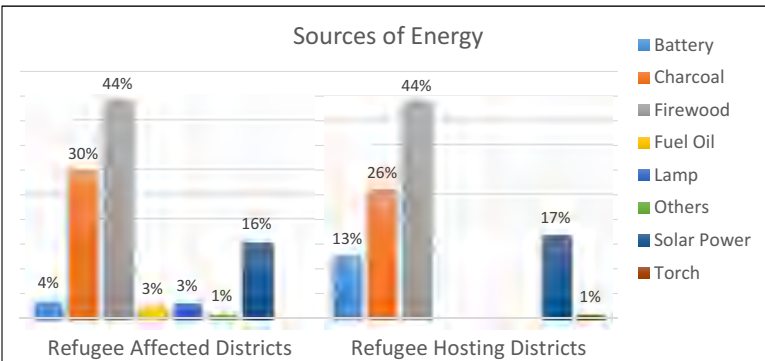
(4) The reason not to buy electricity

- Electricity bill is too expensive
- No need to use electricity
- Instability of electricity
- Can not afford
- The household is Not connected with a grid

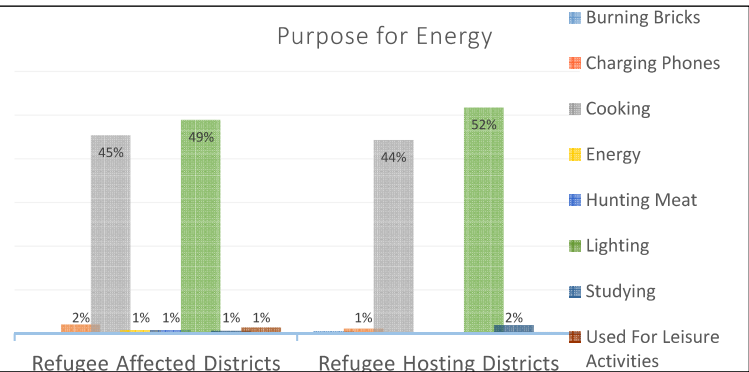
* RAD: Refugee Affected District **RHD: Refugee Hosting District

3. Electric Plan (KIKUCHI) ■ The result of house hold survey

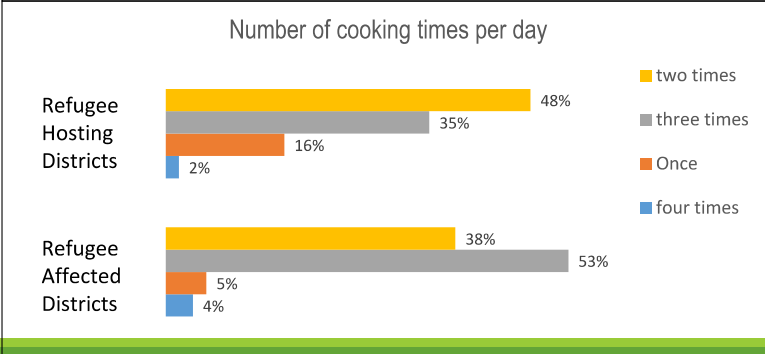
Sources of Energy



Purpose for Energy



Number of cooking times per day



How much can you pay for the electricity charge, if the electricity is provided to your place?

Area	Majority answers
Host community	5,000 to 10,000 [Ush]
Refugee settlement	- Not willing to pay - Can not afford - 100 to 5,000 [Ush]

3. Electric Plan (KIKUCHI) ■ The analysis of result of household survey

■ Monthly electricity bill when using lighting

ITEM	Case 1	Case 2	Case 3	Case 4
1 Number of light	1	2	3	4
2 Power consumption of Light	10 [W]	10 [W]	10 [W]	10 [W]
3 Usage time / day	6 [h]	6 [h]	6 [h]	6 [h]
4 Electricity consumption / month	1.8 [kWh]	3.6 [kWh]	5.4 [kWh]	7.2 [kWh]
West Nile Region	450 [Ush]	900 [Ush]	1,350 [Ush]	1,800 [Ush]
North North West Region	1,350 [Ush]	2,700 [Ush]	4,050 [Ush]	5,400 [Ush]

※The water charges paid by the residents were less than 5,000 Ush.

■ Electricity charges per month when using an electric

ITEM	Case 1	Case 2	Case 3	Case 4
1 Number of cooking times / day	2	2	3	3
2 Time taken to finish cooking	1 [h]	2 [h]	1 [h]	2 [h]
3 Power consumption of Electric stove	800 [W]	800 [W]	800 [W]	800 [W]
4 Electricity consumption / month	48 [kWh]	96 [kWh]	72 [kWh]	144 [kWh]
West Nile Region	30,400 [Ush]	64,480 [Ush]	46,730 [Ush]	98,560 [Ush]
North North West Region	36,043 [Ush]	72,086 [Ush]	54,065 [Ush]	108,130 [Ush]

Electricity charges per kWh

	Customer Tariff Category Domestic Consumers Code 10.1	Tariff Rate [USh / kWh]
WENRECO	First 8 [kWh]	250.0
	Above 8 [kWh]	710.0
UEDCL	All	750.9

If the power consumption is about the same as lighting, the solar panels and batteries available in the settlement and host community are enough to cover it, and there is no need to buy electricity.

When the power consumption reaches several hundred watts, such as an electric stove, it is necessary to connect to a power source with a high power capacity such as a grid or a mini grid.

3. Electric Plan (KIKUCHI) ■ 2nd field survey

■ investigation for 2nd field survey

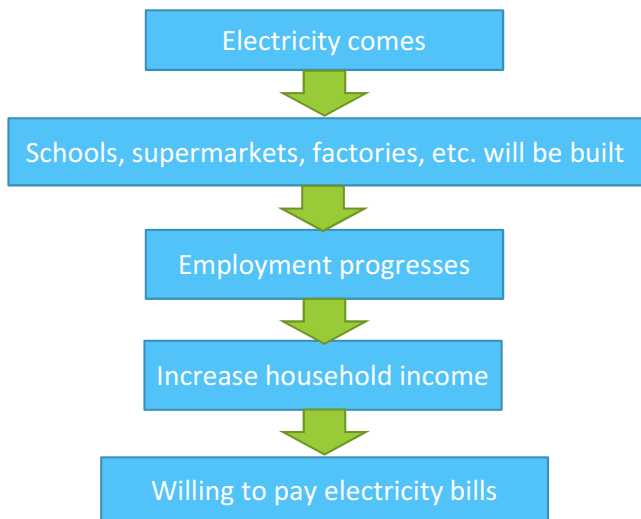
Based on the results of the 1st field survey and the Household survey, the following additional information was collected in the 2nd field survey.

- In rural area of Uganda, while there are many communities with low willingness to pay electricity bills, confirm how they are trying to promote the use of electricity services.
- In the rural electrification plan, in Uganda, it is confirmed whether "2 lines", "looping" and "feeder division" for stabilizing the distribution network are high or low priorities.
- Points to consider when introducing mini grids.

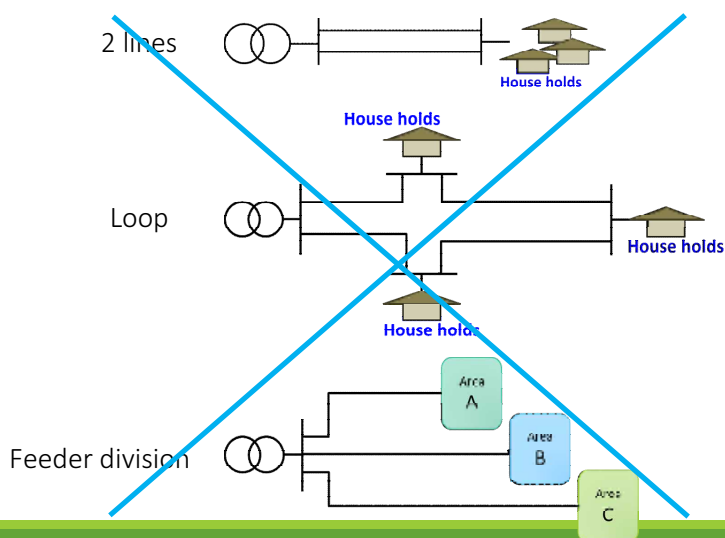
3. Electric Plan (KIKUCHI) ■ 2nd field survey

■ According to talking with REA...

Mechanism to improve the willingness to pay electricity charges by local electrification



Redundancy of distribution lines leads to stabilization of power supply, but at present, radial extension is a method that facilitates electrification.

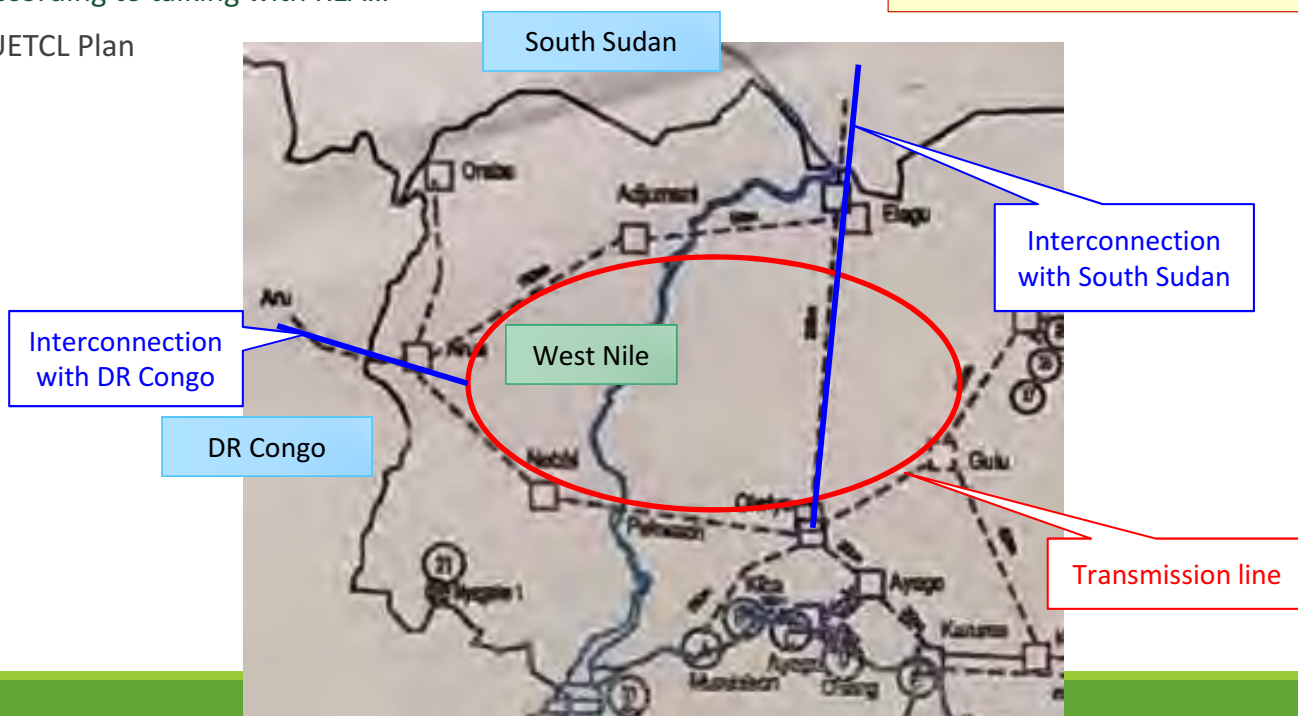


3. Electric Plan (KIKUCHI) ■ 2nd field survey

■ According to talking with REA...

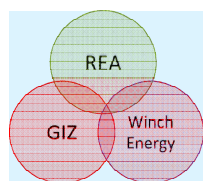
※ UETCL Plan

Redundancy is achieved on the transmission line side.

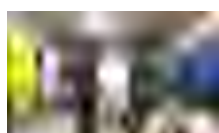
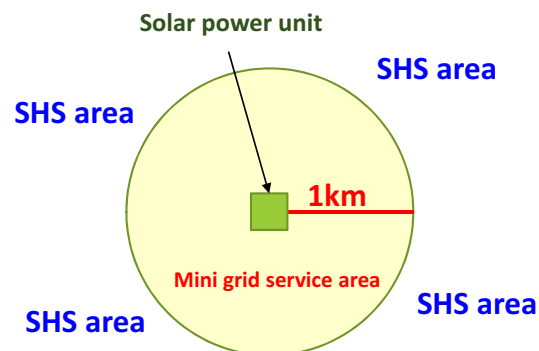
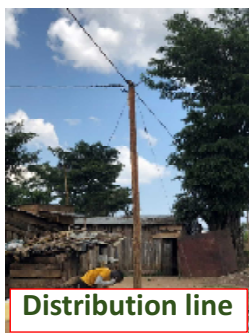


3. Electric Plan (KIKUCHI) ■ 2nd field survey

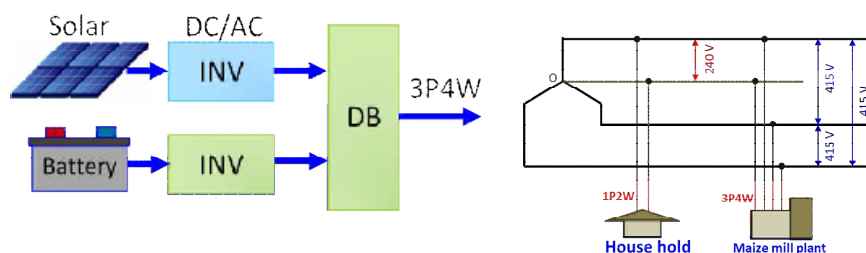
■ Bunjako Island Electricity Project



PPP (Public Private Partnership)



Material for SHS



3. Electric Plan (KIKUCHI) ■ 2nd field survey

■ Bunjako Island Electricity Project

Installation schedule for mini grid

Process	Construction period
1 Installation for LV distribution line	Varies by region
2 Civil work	1 Week
3 Installation for Solar power unit	2 Week
4 Commissioning	1 Week

Main service contents

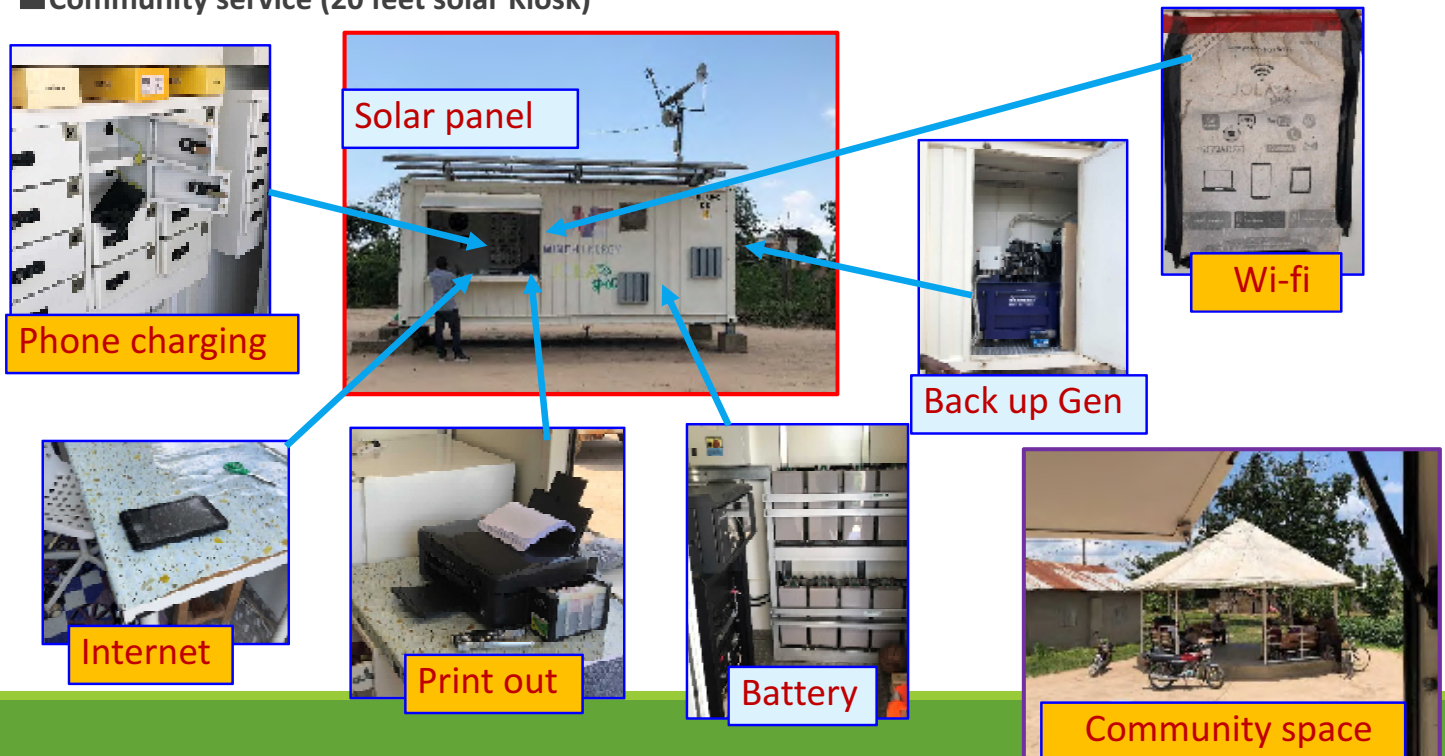
- Free connection to the mini grid for 20 years
- Prepaid electricity bill payment
- Electricity charge is 1,300 Ush / kWh
- Staff will rush within 24 hours in case of trouble

Mini grid user comments

- Occupation is electrical retail at store.
- The electricity of the mini grid is very stable.
- Before the mini-grid service started, solar panels and batteries were used to supply electricity to the store.
- In his home, an electric stove is used for cooking. Before the mini-grid service started, it used charcoal.

3. Electric Plan (KIKUCHI) ■ 2nd field survey

■ Community service (20 feet solar Kiosk)



15

3. Electric Plan (KIKUCHI) ■ Conclusion

■ Regarding to redundancy of Distribution line

- In the West Nile area, first of all, redundancy will be promoted on the transmission line side.
- Therefore, on the distribution line side, the highest priority is to plan in a radial pattern that enables quick electrification so that households can access electricity.

■ Regarding to the introduction of the mini grid

- Free connection fees are also required in the West Nile region to promote residents to connect to the mini grid.
- The problem is that the electricity bill for the mini grid is high. It is necessary to set the price commensurate with the monthly income of households in the West Nile area.

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Peace Building Assessment / Community Development

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Peace Keeping & Social Development (KATO)

•Educational level

<Refugees>

- 32% of the interviewees have no educational background. (66/205)
- 58% of househeads have no educational background. (36/62)

<Host Communities residents>

- 31% of the interviewees have no educational background. (241/772)
- 42% of househeads have no educational background. (89/210)

Peace Keeping & Social Development (KATO)

•Main Spoken Language

District	Refugee Settlements	Host Communities
Adjumani	Madi, Dinka	Madi
Obongi	Kuku, Acholi, Bari	Madi
Yumbe	Bari	Lugbara, Aringati
Koboko	Kakwa	Kakwa
Terego	Dinka, Kakwa, Lugbara	Lugbara
Madi-Okollo	Dinka	Lugbara
Moyo	-	Madi
Maracha	-	Lugbara
Arua	-	Lugbara
Nebbi	-	Alur, Madi

Note: data are missing in Pakwach, Zombo

3

Peace Keeping & Social Development (KATO)

•Househead

<Refugees>

- No child househeads
- 84% of households have female househeads. (52/62)

<Host Communities residents>

- No child househeads
- 39% of households have female househeads. (81/210)

4

Peace Keeping & Social Development (KATO)

- Livelihood

- <Refugees>

- Main Source: Farming, Food assistance from Aid Agencies
- Monthly Income: 53,000 US\$ per month
- Influence of COVID19: Decrease in income

- <Host Communities residents>

- Main Source: Farming
- Monthly Income: 110,000 US\$ per month
- Influence of COVID19: Decrease in income

5

Peace Keeping & Social Development (KATO)

- Natural resources and Land disputes

- *In the refugee settlements, boundaries are not necessarily clear and this leads to disputes among refugees.*
- *Refugees' agricultural instruments were confiscated by host community residents in revenge for refugees' tree cutting.*
- *Illegal grazing in host community areas by refugees' livestock*
- *Insufficient agricultural land for refugees*

6

Peace Keeping & Social Development (KATO)

- Disputes between refugees and host community residents were resolved through intervention by RWCs, Local Governments, and OPM.
- Cooperation with them is essential to avoid disputes and resolve them.
- Involvement of them is also important to take enough care about relationships among a variety of ethnicities in both communities as they have deep understanding.

7

Peace Keeping & Social Development (KATO)

- Sexual and Gender Based Violence
 - 7 districts answered there are cases in recent years
 - There is almost no influence due to COVID19 pandemic, but...
- The longer Pandemic of COVID19 lasts, the worse SGBV situations can be.

8

Information Collection Survey on Sustainable Forest/Natural Resource Management in West Nile Region, the Republic of Uganda

Webinar (Sharing and exchanging opinions on the survey results with stakeholders)

Result of Social Survey (Drivers of Deforestation and Demand for Electrification / Clean Cooking) and off-grid survey

JAPAN INTERNATIONAL COOPERATION AGENCY



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Outline of this presentation

- 1. Result of the Social Survey on Drivers of Deforestation and Demand for Electrification / Clean Cooking**
 - Outline of the survey
 - Result of the survey
- 2. Result of Survey on dissemination of off-grid products**
 - Strategies to disseminate off-grid products
 - Challenges for dissemination

1. Result of the Social Survey on Drivers of Deforestation and Demand for Electrification / Clean Cooking

Outline of the Social Survey on Drivers of Deforestation and Demand for Electrification / Clean Cooking

- **Objective** : 1) to understand the drivers of deforestation, land use cycle, demand for firewood and charcoal, and state of natural resource use, forms and production of agriculture and others; and 2) to collect information on energy use in different regions to analyze the demand for clean cooking.
- **Survey period in West Nile Region** : 2nd May 2021 – 25th May 2021 (done by local sub-contractor)
- **Target area** : The target area of this survey comprised of twelve districts in West Nile Region. In the Refugee Hosting District (RHD), the survey was implemented in settlement (ST) and host community (HC). Since there is no settlement in the Refugee Affected District (RAD), the survey was implemented only in community in RAD.
- **Number of samples** : 336 households (HH), which comprised of 28 households per one district. Within 28 HH, 14 HH in each ST and HC were surveyed in RHD, while 28 HH in community were surveyed in RAD.

Outline of the Social Survey on Drivers of Deforestation and Demand for Electrification / Clean Cooking

➤ Survey method

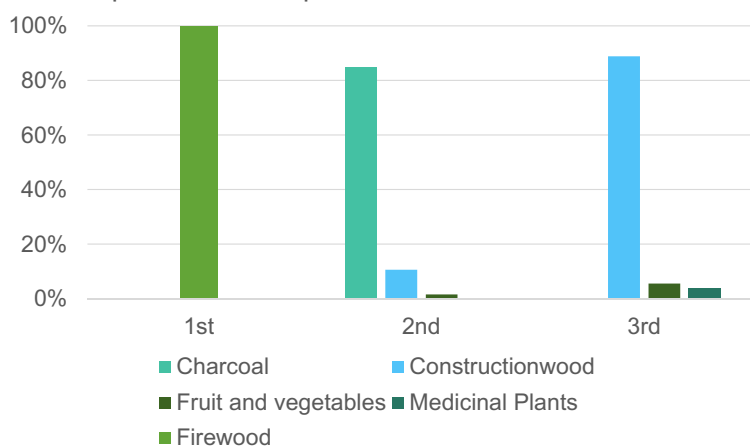
	Interview to OPM	Interview to Household	Focus Group Discussion (FGD) 1	Focus Group Discussion (FGD) 2
Objective	Understand basic information on the survey area, such as population and size of the settlement	Understand driver of the forest increase / decrease in each household and electrification status	Understand the driver of forest increase / decrease and electrification status of the entire survey area	Understand situation of SGBV (Sexual and Gender – Based Violence) in target area
Survey target	OPM office in Adjumani and Arua	House Hold (HH)	Administrative or customary head	Women in target area
Number of sample	-	28 HH	About 2-10 persons	About 2-10 persons
Main interview items	Population, Source of population influx, size, presence of infrastructure and social services, etc.	Basic household information, land use, means of livelihood, frequently used forest / natural resources, energy sources, presence of improved cooking stoves, etc	Present land ownership / land ownership rules, status and rules of forest / natural resource utilization, driver of forest reduction, presence / absence of forest / natural resource related conflicts, etc	Place, time and details of SGBV incidents within 2-3 years
Remarks			Not only men but also women should be included in this discussion	Facilitator of this discussion should be women

Result of Social Survey on Drivers of Deforestation and Demand for Electrification / Clean Cooking

Deforestation driver

- Cutting trees for the purpose of getting firewood, charcoal and building materials are one of the main drivers of the deforestation

Top 3 main forest products used in the settlement



Top 3 main forest products used in the host community and community in Refugee Affected District



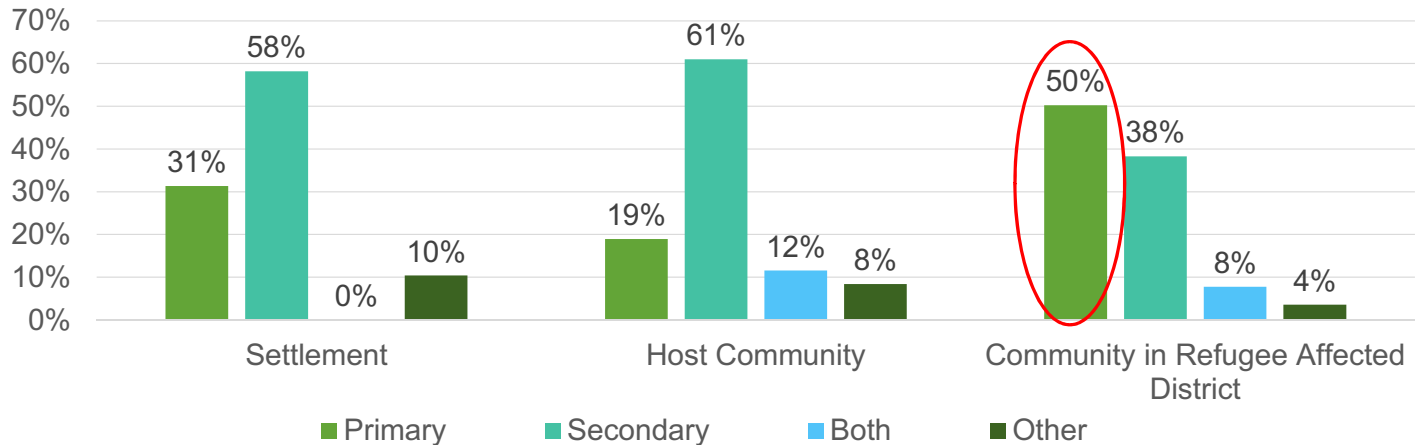
Result of Social Survey on Drivers of Deforestation and Demand for Electrification / Clean Cooking

Deforestation driver

➤ Conversion to agricultural land is also one of the main driver.

- 50 % of household in community in RAD **cut primary forest** while 31% and 19% of household in settlement and host community in Refugee Hosting District (RHD) cut them.

Land type to open crop land



Result of Social Survey on Drivers of Deforestation and Demand for Electrification / Clean Cooking

Effect of deforestation

➤ Settlement and host community in RHD and community in RAD are facing difficulties regarding access to firewood, charcoal, construction wood and other non-timber forest products.

*RAD: Refugee Affected District
RHD: Refugee Hosting District

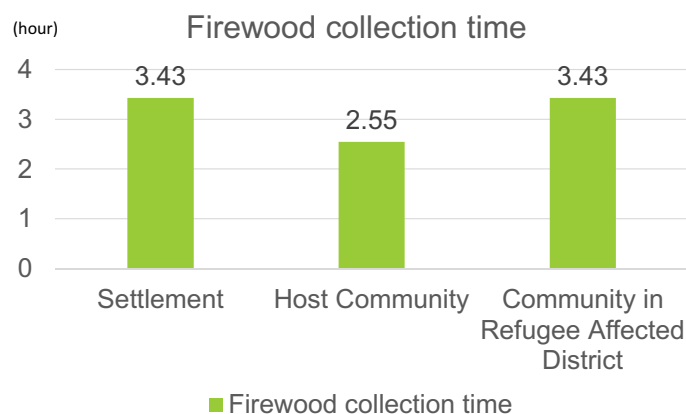
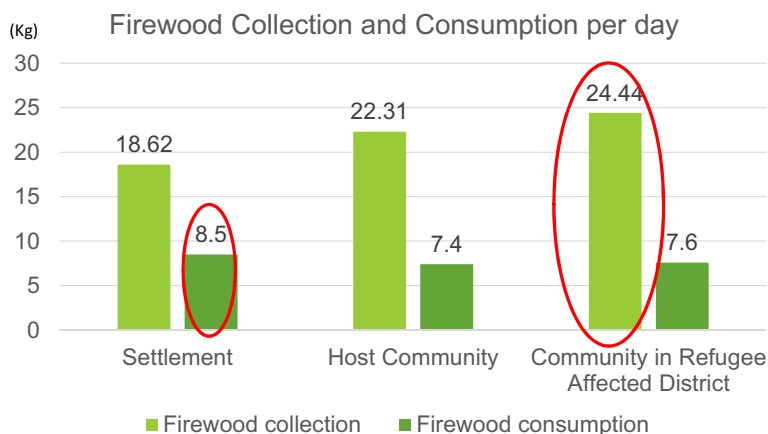
Type of District	District	Settlements	Community
Refugee Affected Districts (RAD)	Arua	-	Getting difficult
	Maracha	-	extremely getting difficult
	Moyo	-	Getting difficult
	Nebbi	-	Getting difficult
	Pakwach	-	extremely getting difficult
	Zombo	-	Getting difficult
Type of District	District	Settlements	Host Community
Refugee Hosting District (RAD)	Adjumani	Getting difficult	Getting difficult
	Koboko	extremely getting difficult	Getting difficult
	Madi Okollo	extremely getting difficult	extremely getting difficult
	Obongi	Getting difficult	Getting difficult
	Terego	Getting difficult	Getting difficult
	Yumbe	extremely getting difficult	Getting difficult

Result of Social Survey on Drivers of Deforestation and Demand for Electrification / Clean Cooking

Demand of the firewood and charcoal

*RAD: Refugee Affected District
RHD: Refugee Hosting District

- Average amount of firewood collection is highest in community of RAD compared to settlement and host community in RHD. On the other hand, average amount of firewood consumption is highest in settlement in RHD.
- Average firewood collection time is 3.43 hours in settlement in RHD and community in RAD.

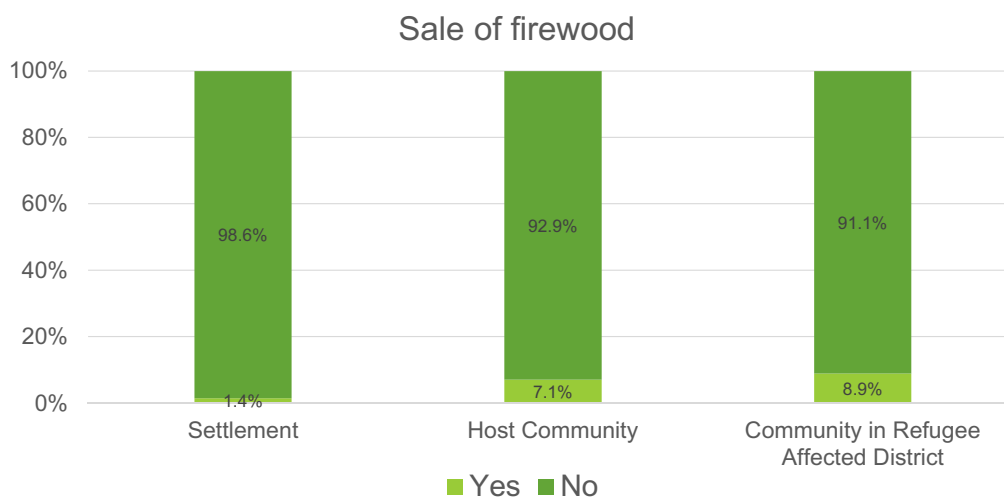


Result of Social Survey on Drivers of Deforestation and Demand for Electrification / Clean Cooking

Demand of the firewood and charcoal

*RAD: Refugee Affected District
RHD: Refugee Hosting District

- More than 90% of the firewood and charcoal produced by local people is **for their own consumption**.
- Community in RAD sell firewood 8% more than settlement in RHD.



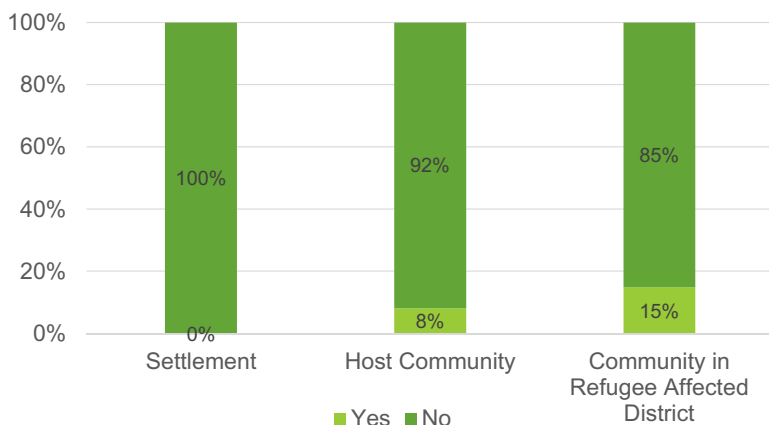
Result of Social Survey on Drivers of Deforestation and Demand for Electrification / Clean Cooking

Demand of the firewood and charcoal

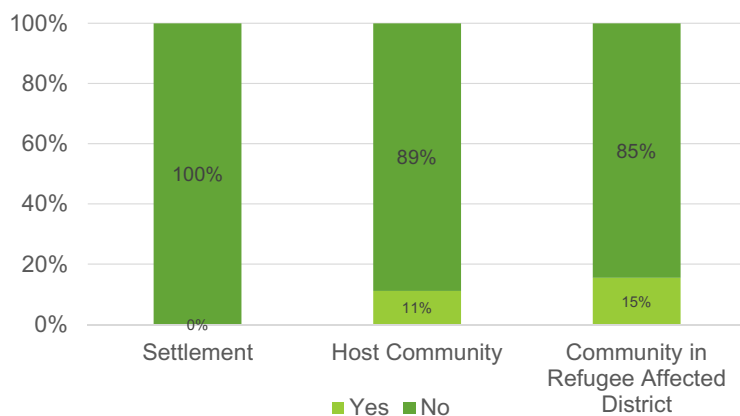
*RAD: Refugee Affected District
RHD: Refugee Hosting District

- 8~15 % of household in host community in RHD and community in RAD produce charcoal.
- Most of the charcoal production is **for their own consumption**.

Charcoal Production in each household



Sale of charcoal



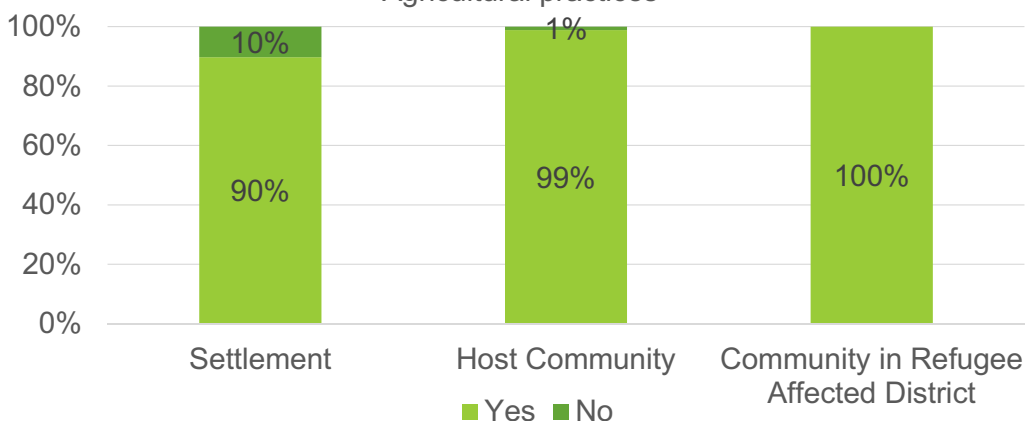
Result of Social Survey on Drivers of Deforestation and Demand for Electrification / Clean Cooking

Agriculture

*RAD: Refugee Affected District
RHD: Refugee Hosting District

- Main agricultural products are Maize, Cassava, Bean, Potato, Sorghum, Tomato, etc and more than **80 % of their production is for their own consumption** in settlement and host community in RHD and community in RAD .
- 100% of household in community of RAD engage in agriculture, while 90% of household in settlement of RHD engage in agriculture.

Agricultural practices



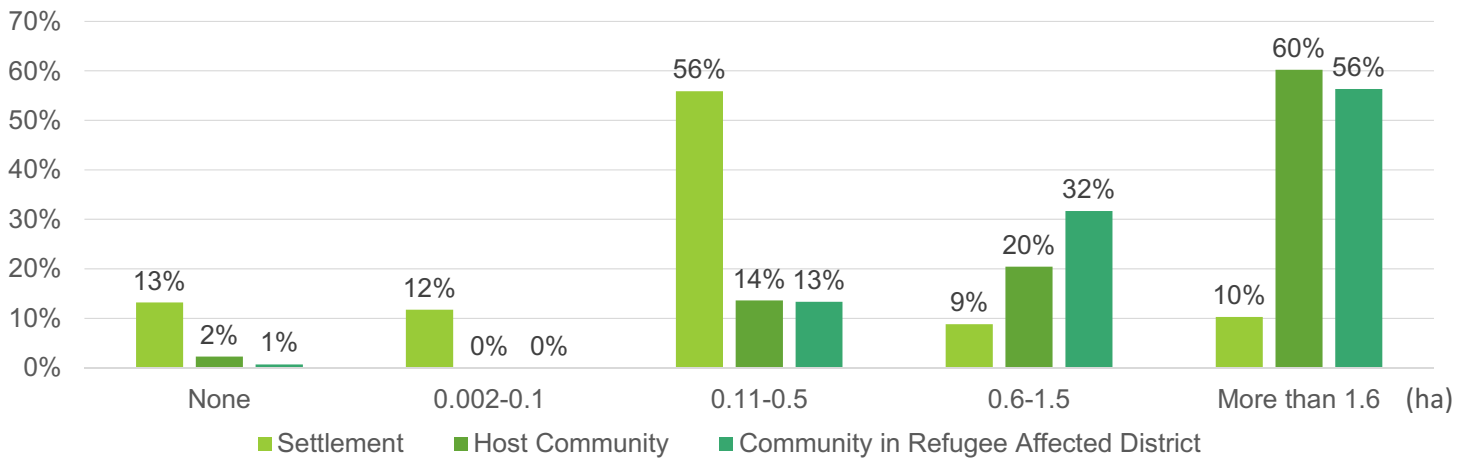
Result of Social Survey on Drivers of Deforestation and Demand for Electrification / Clean Cooking

Agriculture

*RAD: Refugee Affected District
RHD: Refugee Hosting District

- Agricultural land size in each household of settlement is smaller than household of host community in RHD and household of community in RAD.

Agricultural Land Size



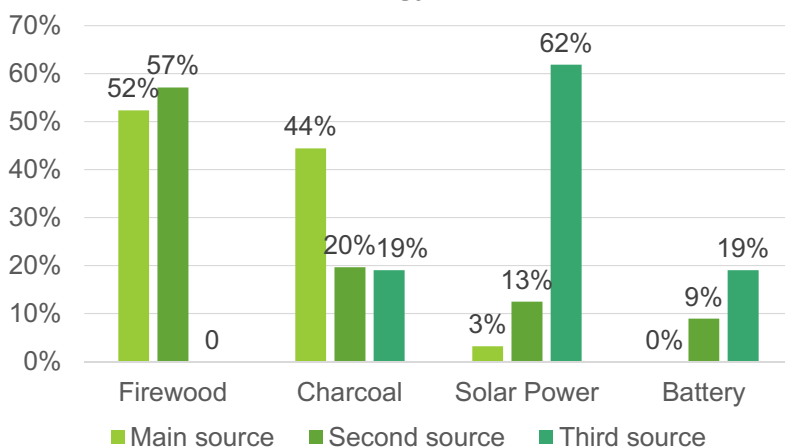
Result of Social Survey on Drivers of Deforestation and Demand for Electrification / Clean Cooking

Energy use

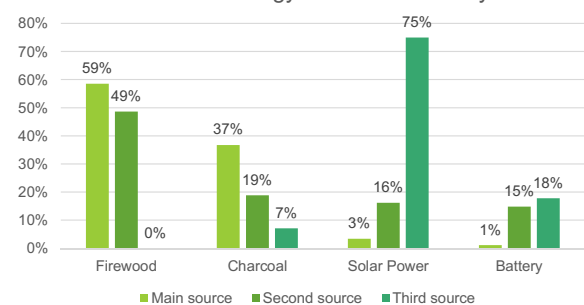
*RAD: Refugee Affected District
RHD: Refugee Hosting District

- Firewood, charcoal, and solar power are used as energy sources by this order in settlement and host community in RHD, and community in RAD.

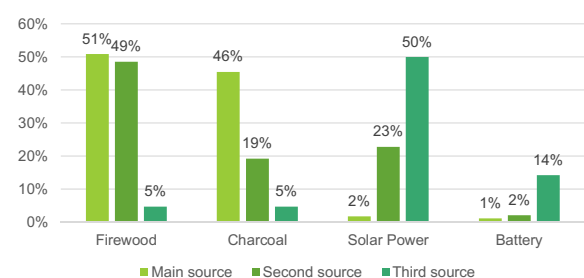
Source of energy in settlement



Source of energy in host community



Source of energy in community of Refugee Affected District



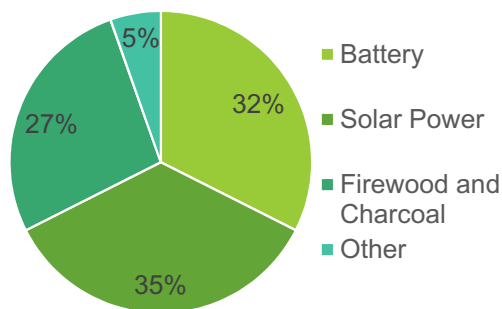
Result of Social Survey on Drivers of Deforestation and Demand for Electrification / Clean Cooking

Energy use

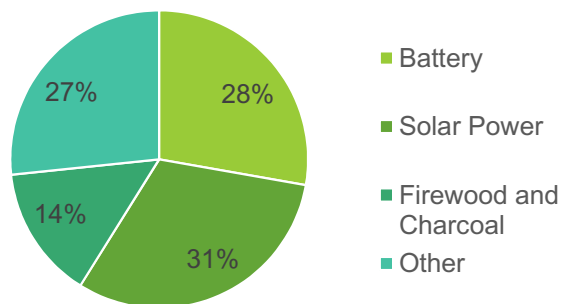
*RAD: Refugee Affected District
RHD: Refugee Hosting District

- Main electric appliances are cell phone, light, flash light radio, etc in settlement and host community in RHD and community in RAD.
- Solar power is the main source of energy for lighting in settlement of RHD and community in RAD while battery is the mains source (53%) in host community in RHD.

Energy source for lighting in settlement



Energy source for lighting in community of RAD



2. Result of Survey on dissemination of off-grid products

Result of Survey on dissemination of off-grid products

Dissemination of off-grid products

- JICA survey team interviewed with the company called "Pesitho", which sells self-contained, multi-purpose home cooking unit, run by solar energy to ask tips to disseminate off-grid products.
- Pesitho is a Danish start up founded in 2017.
- The product can be not only used for cooking but also for chargers.
- The product has a potential to prevent deforestation and reduce the amount of emitting CO2 if local people decrease opportunity to use firewood and charcoal for cooking.



<https://pesitho.com/the-ecoca-new/>



<https://pesitho.com/pilot-study-at-the-bidibidi-refugee-settlement/>



<https://pesitho.com/updates-on-pesithos-ecoca-cooperative-in-uganda/>

Result of Survey on dissemination of off-grid products

Dissemination of off-grid products

- Strategies to disseminate off-grid products (in case of Pesitho)
 - **Technical care for customers**
 - After selling products, Pesitho delivers technical care for customers if they need any technical advise
 - **Data collection to improve their products**
 - After selling products, Pesitho collect data from their products how their products are used by customers to improve their products
 - **Applying new financial source**
 - At present, Pesitho receive donation from some international organizations such as Caritas Denmark, Mercy Corps, and Care International, etc.
 - Relying on these donation is not sustainable.
 - Thus, Pesitho is planning to adapt "Carbon Credits" as a new financial source since using the products can contribute to reduce the amount of emitting CO2.

Result of Survey on dissemination of off-grid products

Dissemination of off-grid products

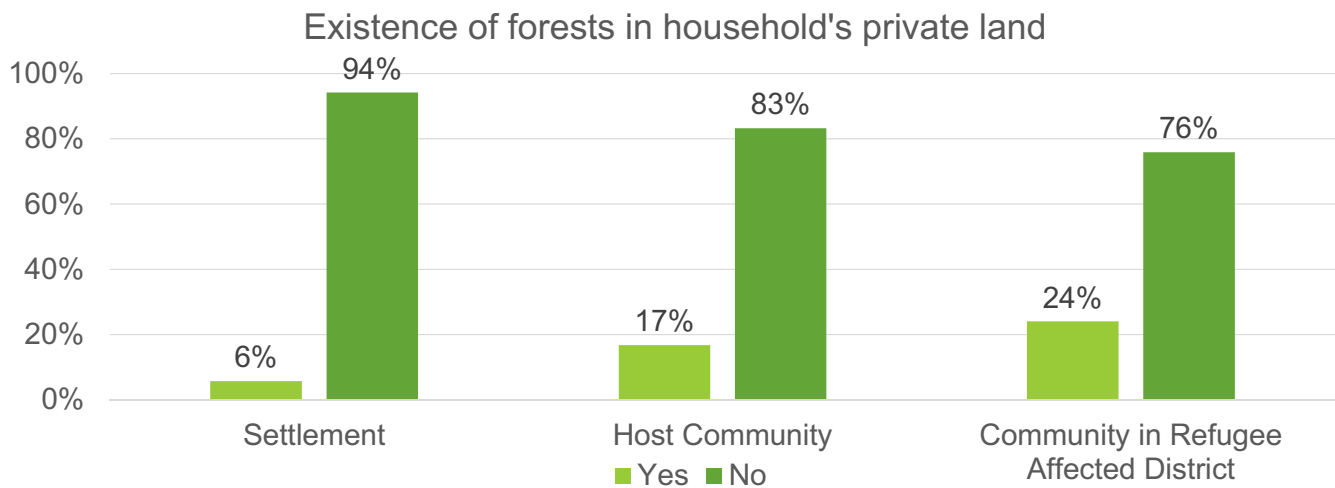
- Challenges for dissemination (in case of Pesitho)
 - **Complexity to acquire carbon credits**
 - Adapting carbon credit requires long and complexed procedure, and expertise.
 - It is difficult to manage adapting carbon credits by one company.
 - Need for expert for carbon credits.

Thank you

Result of Social Survey on Drivers of Deforestation and Demand for Electrification / Clean Cooking

Demand of the firewood and charcoal

- More than 90% of household of settlement don't own forests in their private land while 20% of household of other community have forest in their private land.



Information Collection Survey on Sustainable Forest/Natural Resource Management in West Nile Region, the Republic of Uganda

Webinar (Sharing and exchanging opinions on the survey results with stakeholders)

Geospatial Information

JAPAN INTERNATIONAL COOPERATION AGENCY



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Content

1. Inventory of Collected GIS Data and Data Catalog
2. Study of utilization of collected geospatial information and sample images/outputs
3. Utilization of geospatial information

2

1 Inventory of collected geospatial information (1/2)

No.	Category	Name of data	Copyright
1	Energy	Transmission_SubStations_2017_UETCL	Uganda Electricity Transmission Company Limited
2	Energy	Generation_Sites_2018_MEMD	Ministry of Energy & Mineral Development
3	Energy	Distribution_SubStations_2017_UMEME	UMEME Ltd
4	Energy	Distribution_Transformers_2017_UMEME	UMEME Ltd
5	Energy	Transmission_Lines_2017_UETCL	Uganda Electricity Transmission Company Ltd
6	Energy	Distribution_Lines_2018_UMEME_REA	UMEME Ltd / Rural Energy Agency (REA)
7	Settlement	Settlement_JICA_2017AUG_plus_Lobule Refugee Settlement	JICA
8	Settlement	Settlement_Zone_Boundaries_UNHCR	UNHCR
9	Settlement	Settlement_Boundaries_UNHCR	UNHCR
10	Settlement	Sub-Counties containing Settlements	JICA
11	Population	Population of registered refugee by sub-county	Office of the Prime Minister (OPM)
12	Population	Population Density 2014 by sub-county	Uganda Bureau of Statistics (UBOS)
13	Population	Population Density 2017 by sub-county	Uganda Bureau of Statistics (UBOS)
14	Population	Population 2014 by sub-county	Uganda Bureau of Statistics (UBOS)
15	Biomass	Deadwood	Food and Agriculture Organization (FAO)
16	Biomass	Biomass_per_District_2002	Food and Agriculture Organization (FAO)
17	Land Use / Land Cover (LULC)	Landuse (by Updated_field_data_FAO)	Food and Agriculture Organization (FAO)
18	Land Use / Land Cover (LULC)	T_Map_land_use_FAO	Food and Agriculture Organization (FAO)
19	Infrastructure	Railway	Open Street Map (OSM)
20	Infrastructure	Roads_2017_OSM-WFP	Open Street Map (OSM) / World Food Programme (WFP)
21	Base Map	Industrial_Parks_UIA	Uganda Investment Authority (UIA)
22	Base Map	Target Area_WestNile Region	Office of the Prime Minister (OPM) / JICA
23	Base Map	Towns_point	UN Office for the Coordination of Humanitarian Affairs (OCHA)
24	Base Map	Villages_2009_OCHA_point	UN Office for the Coordination of Humanitarian Affairs (OCHA)
25	Base Map	River	naturalearthdata.com
26	Base Map	River (principal)	naturalearthdata.com
27	Base Map	Water Area	naturalearthdata.com
28	Base Map	Admin Boundary_5_Villages	Uganda Bureau of Statistics (UBOS)
29	Base Map	Admin Boundary_4_Parishes	Uganda Bureau of Statistics (UBOS)
30	Base Map	Admin Boundary_3_Sub County	Uganda Bureau of Statistics (UBOS)
31	Base Map	Admin Boundary_2 County	Uganda Bureau of Statistics (UBOS)
32	Base Map	Admin Boundary_1 District	Uganda Bureau of Statistics (UBOS)
33	Base Map	Admin Boundary_0 National Boundary	naturalearthdata.com
34	Base Map	Protected Area 2017_UNEP-WCMC	UN Environment Programme (UNEP) / World Conservation Monitoring Centre (WCMC)
35	Base Map	Protected Area_NFA	National Forestry Authority (NFA)

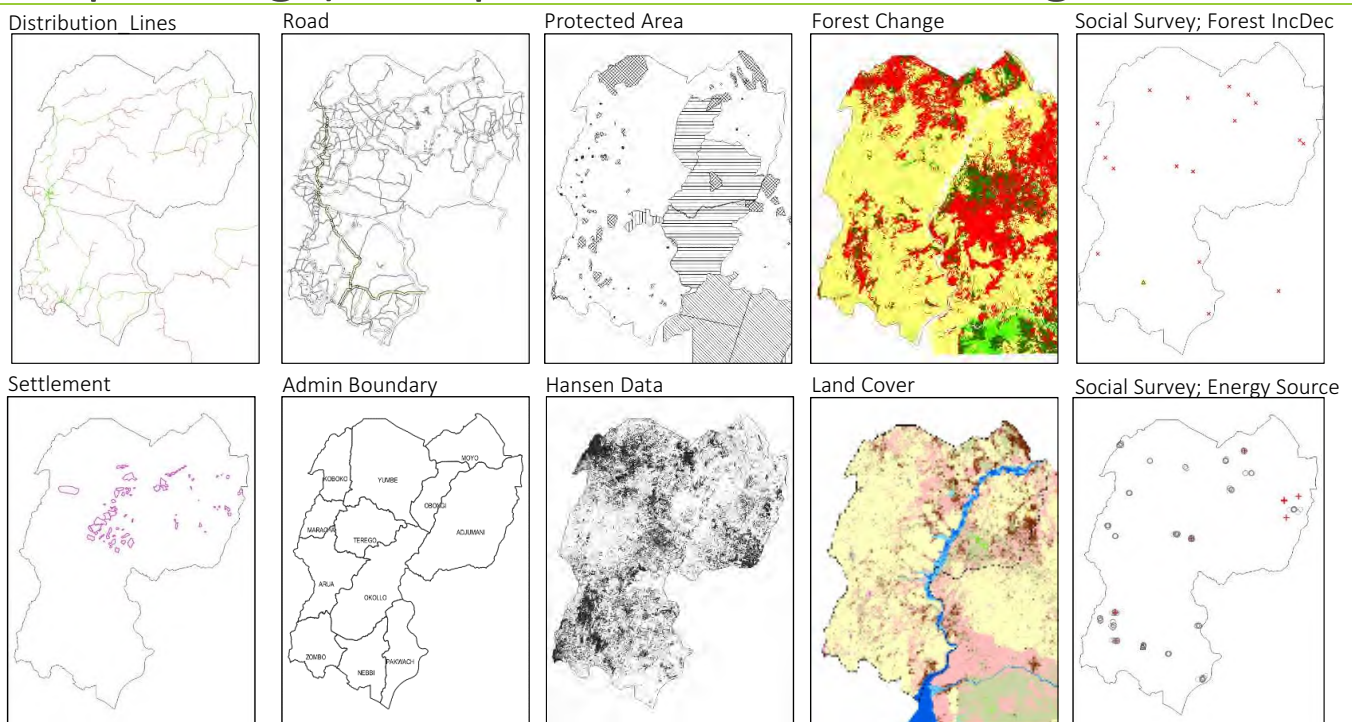
3

1 Inventory of collected geospatial information (2/2)

No.	Category	Name of data	Copyright
36	Forest	Hansen_2020_lossyear_polygon	Hansen et al
37	Forest	Hansen_2020_lossyear_tif	Hansen et al
38	Land cover	GLOBCOVER_2009	European Space Agency
39	Energy	Photovoltaic power potential_PVOUT	Global Solar Atlas
40	Infrastructure	Primary School	
41	Infrastructure	Secondary School	
42	Infrastructure	Bridges	
43	Land Use / Land Cover (LULC)	ForestChange_2000to2017_NFA_tif	National Forestry Authority (NFA)
44	Land Use / Land Cover (LULC)	Forest_Noneforest_2017_NFA_tif	National Forestry Authority (NFA)
45	Land Use / Land Cover (LULC)	Forest_Noneforest_2000_NFA_tif	National Forestry Authority (NFA)
46	Land Use / Land Cover (LULC)	Landuse_cover_2000_NFA_tif	National Forestry Authority (NFA)
47	Land Use / Land Cover (LULC)	Landuse_cover_2017_NFA_tif	National Forestry Authority (NFA)
48	Land Use / Land Cover (LULC)	JAXA_Forest Early Warning System_2020-2021	JAXA / JICA
49	Social Survey by JICA 2021	SocialSurvey_Fwood-Dfclty	JICA
50	Social Survey by JICA 2021	SocialSurvey_Forest-IncDec	JICA
51	Social Survey by JICA 2021	SocialSurvey_Charcoal_Prd_YN	JICA
52	Social Survey by JICA 2021	SocialSurvey_Engy_Src1_5cat	JICA
53	Social Survey by JICA 2021	SocialSurvey_Engy_Src1_3cat	JICA
54	Social Survey by JICA 2021	SocialSurvey_PlntTrees_YN	JICA
55	Social Survey by JICA 2021	SocialSurvey_Engy_Src2_3cat	JICA
56	Social Survey by JICA 2021	SocialSurvey_Cooking_Mthc	JICA
57	Land Use / Land Cover (LULC)	Stable Forest by Parish (2000-2017, NFA)	NFA / JICA
58	Land Use / Land Cover (LULC)	Forest Loss by Parish (2000-2017, NFA)	NFA / JICA
59	Land Use / Land Cover (LULC)	Forest Gain by Parish (2000-2017, NFA)	NFA / JICA
60	Land Use / Land Cover (LULC)	Stable None Forest by Parish (2000-2017, NFA)	NFA / JICA
61	Land Use / Land Cover (LULC)	Stable Forest by District (2000-2017, NFA)	NFA / JICA
62	Land Use / Land Cover (LULC)	Forest Loss by District (2000-2017, NFA)	NFA / JICA
63	Land Use / Land Cover (LULC)	Forest Gain by District (2000-2017, NFA)	NFA / JICA
64	Land Use / Land Cover (LULC)	Stable Noe Forest by District (2000-2017, NFA)	NFA / JICA

4

(example/image) Geospatial information catalog



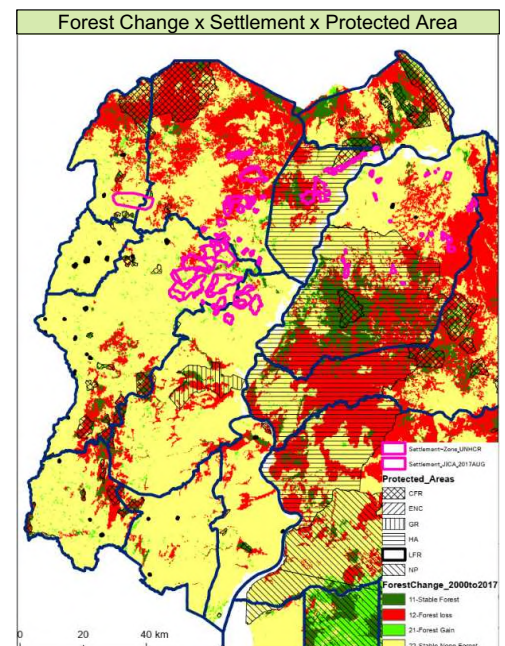
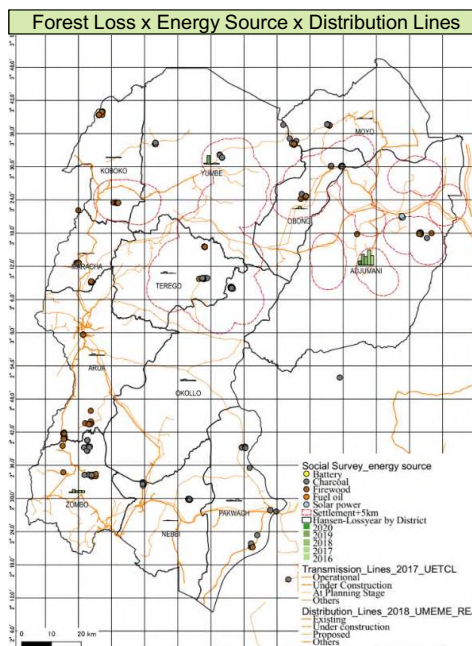
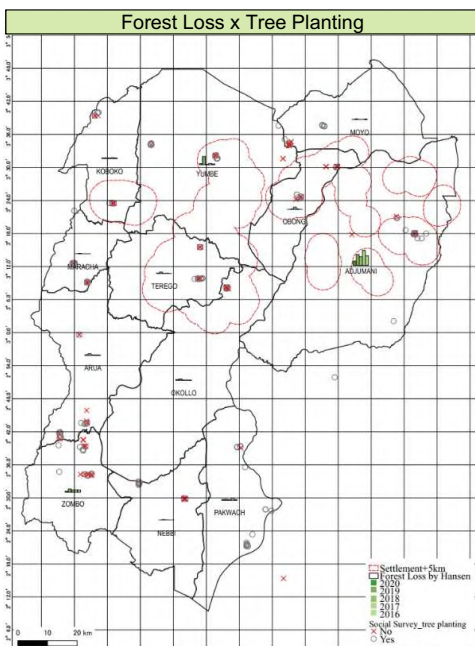
5

2 Study of utilization of collected geospatial information

	Forest (Land Use/Land Cover, etc.)	Refugee (Settlement boundary, etc.)	Electricity (Facility, Network, etc.)	Social Survey (Charcoal use, electrification, etc.)
Forest	1) Hotspot of deforestation	2) Relation between	3) Electricity development considering the environment	4) Relation between charcoal usage and deforestation
Refugee	—	5) Accurate understanding of the distribution of refugee	6) Electricity development planning based on the demand	7) Identification of electricity high demand area by refugee
Electricity	—	—	8) Accurate understanding of current situation of electricity development	9) Understanding of the electricity demand
Socio-Economic	—	—	—	10) Analysis of residents characteristics and living condition by region

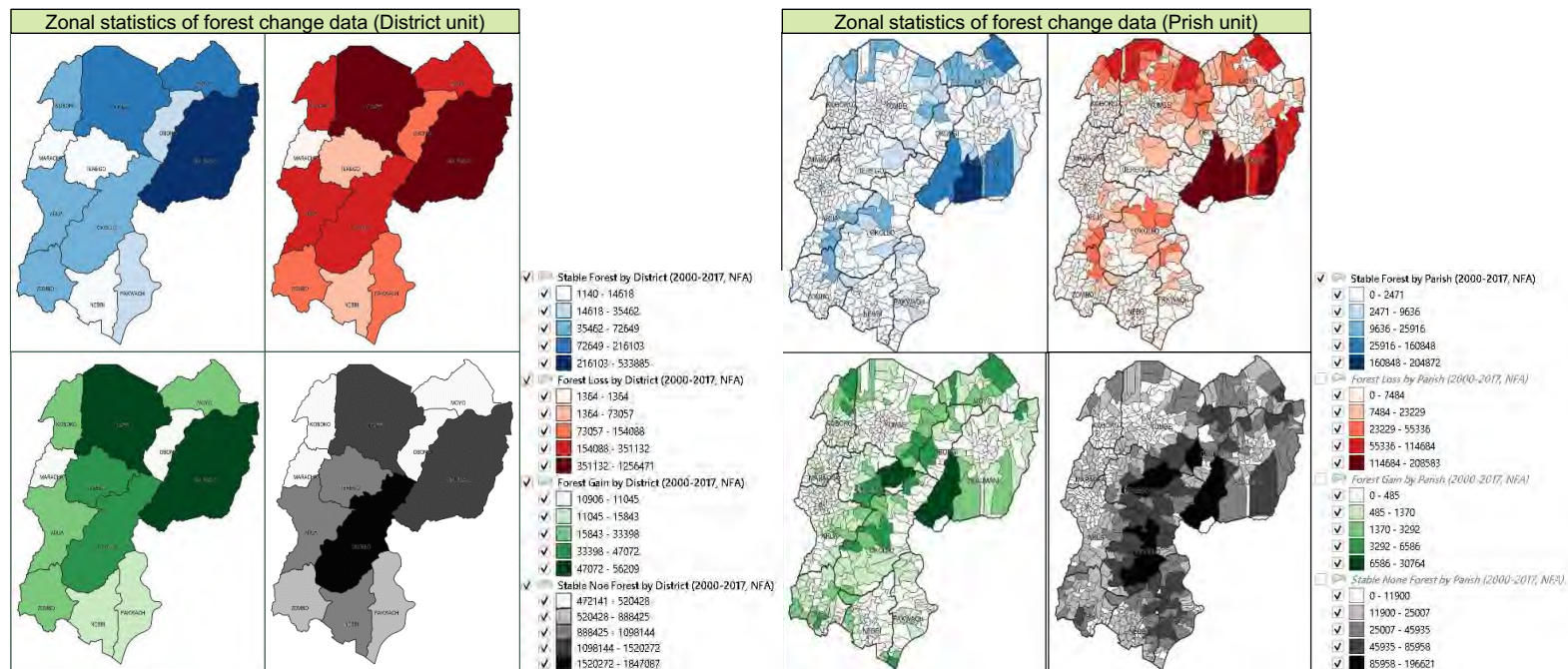
6

2 Utilization example image of geospatial info (1/2)



7

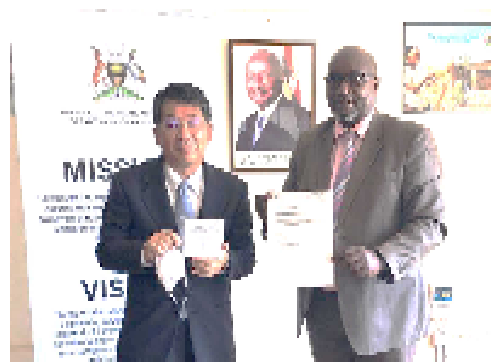
2 Utilization example image of geospatial info (2/2)



3 Utilization of the geospatial information

- Handover to the OPM
 - Datasets covers multi-sectors (settlement-refugees, forest information, electricity and social survey results)
 - OPM is the suitable organization to cover such multi sectors.
 - Uganda Refugee Response Monitoring System (URRMS)

- Handed over on 4 October 2021
DoR, OPM



Mr Kazungu D Apollo, Commissioner Refugees (Right) and Mr Ogawa, S. Team Leader JST (Left)



Forest status in West Nile Region and countermeasures

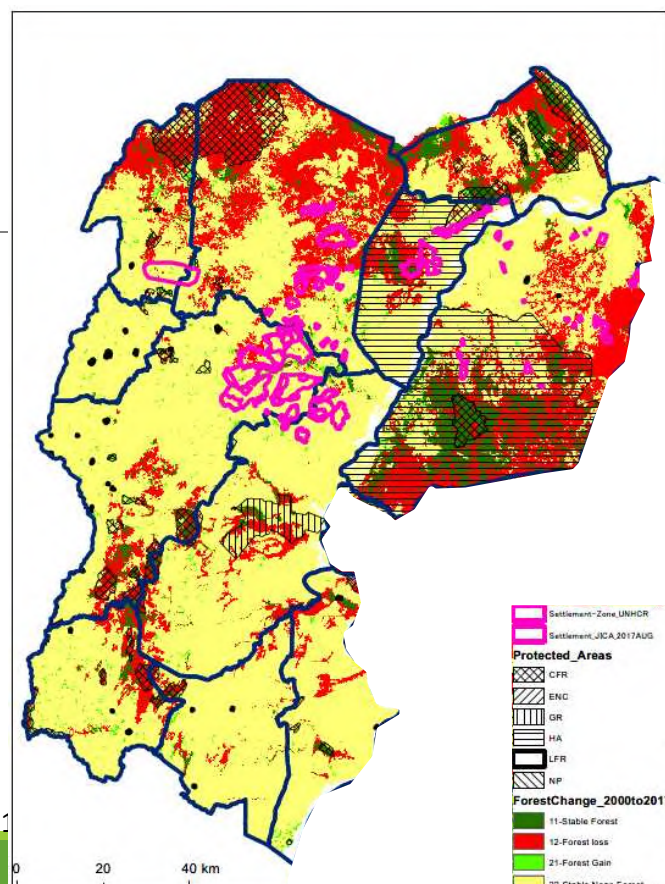
1. Forest Status

To understand the situation of forest status of West Nile and identify the intervention area for the new cooperation (priority project)

- Analysis of Hansen data (Global Forest Change 2000-2020)
- Analysis of satellite imagery provided by NICFI (Norway's International Climate and Forest Initiative)
- Analysis of the datasets provided by NFA (forest cover change 2000 – 2017 (before influx)
 - **Deforestation is occurring in whole area of the West Nile Region regardless of the large influx of refugees.** (gain, loss, stable and complexity depending on the region)
 - It is believed that this trend will not change after 2017, and it is very likely that the pressure on the remaining forests will increase due to further population growth.
- Necessity of checking the latest status after 2017 (possibility of utilizing NICFI data, etc.)

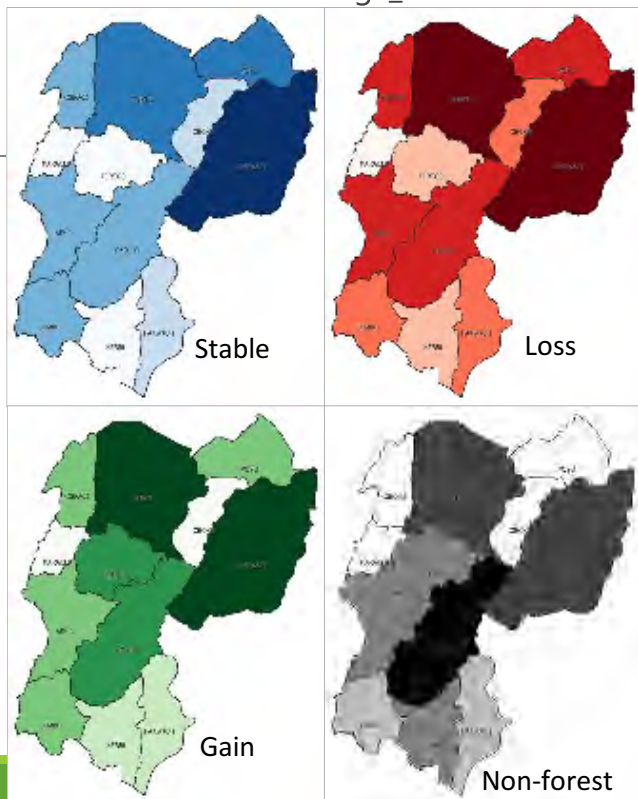
1

Analysis of the NFA Datasets
ForestChange_2000to2017



2

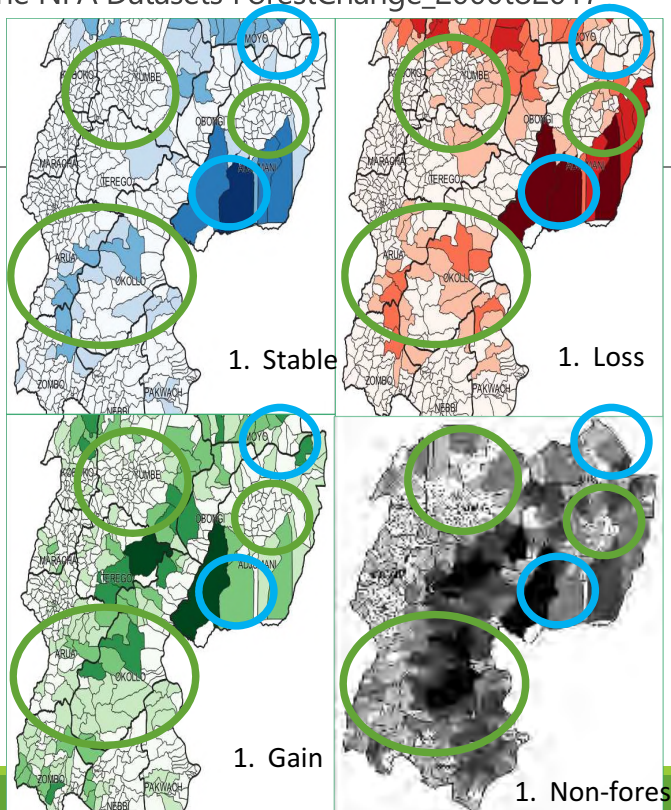
Analysis of the NFA Datasets ForestChange_2000to2017



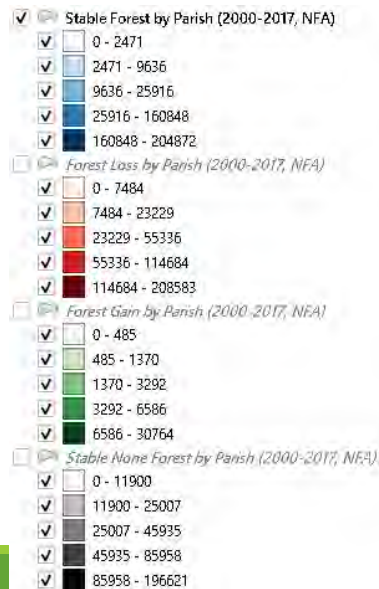
4 Attribute values (Stable Forest, Forest Loss, Forest Gain, Stable None Forest) aggregated **by District**



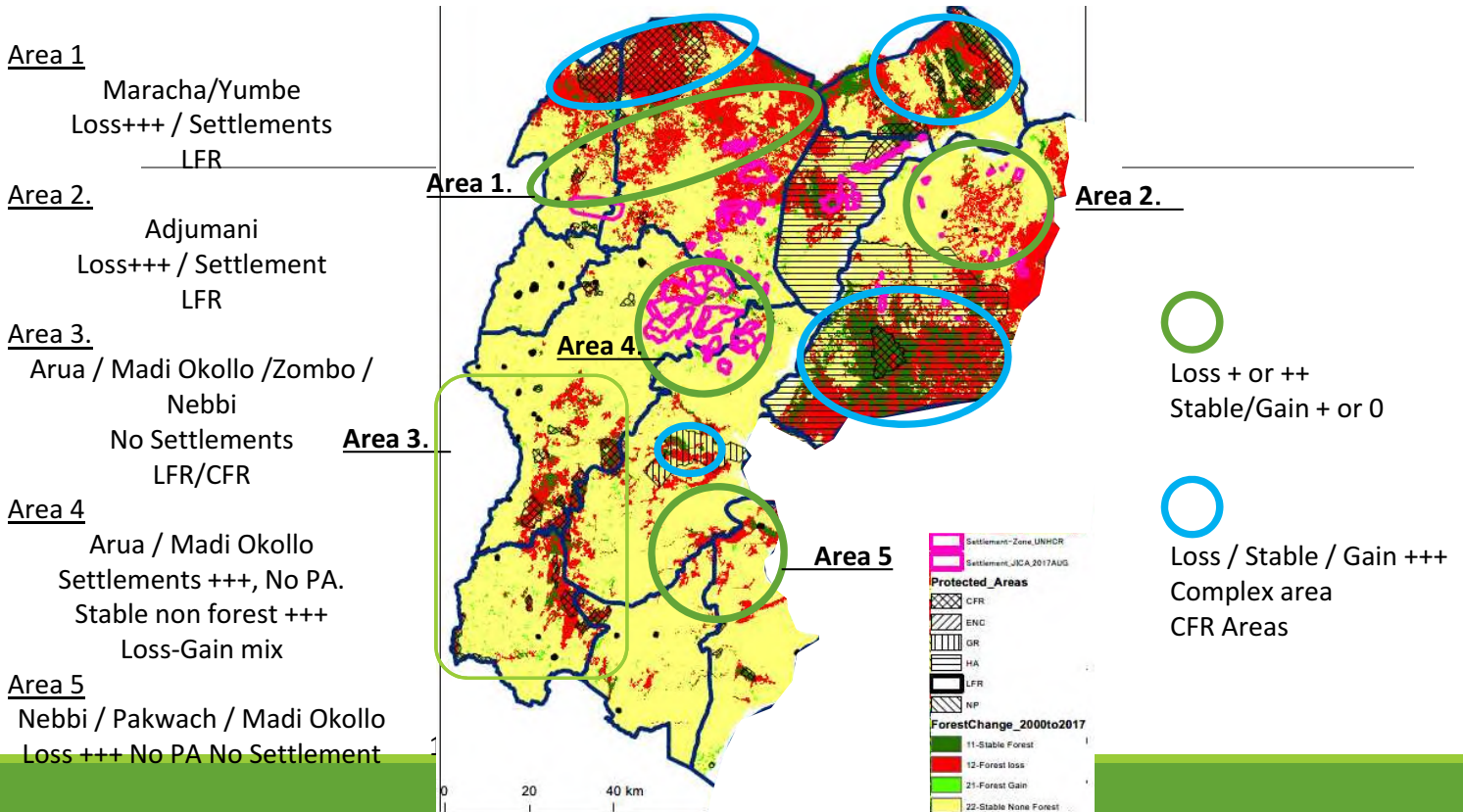
Analysis of the NFA Datasets ForestChange_2000to2017



- 1. Loss + or ++
Stable/Gain + or 0
- 1. Loss / Stable / Gain ++



Analysis of the NFA Datasets ForestChange_2000to2017



Categorisation of each area extracted.

Area	District	Forest Change 2000-2017	Settlement	LFR	CFR & and other PA	Remarks
Area 1	Maracha/Yumbe	Loss +++	+	+	-	
Area 2	Adjumani	Loss +++ Non forest +++	++	+	-	
Area 3	Arua / Madi Okollo / Zombo / Nebbi	Loss +++	-	++	++	RDC border
Area 4	Arua / Madi Okollo / Terego	Stable non forest +++	+++	-	-	
Area 5	Nebbi / Pakwach / Madi Okollo	Loss +++	-	++	-	
Others 1	Obongi / Adjumani /	Loss +++ Gain +++ Stable +++	+++		+++	
Others 2	Northern Maracha & Yumbe	Loss +++	-	-	+++	

Priority project (Draft Profile)

1. Name of the project

- ▶ **Green growth promotion project through agroforestry and sustainable forest and natural resource management promotion for smallholder farmers in refugee affected areas, West Nile Region Uganda**

2. Characteristics of Project

- ▶ Forest and Natural Resource Management X Refugee response (Peace building) X DX (use of satellite image information) → **Uganda's green growth promotion**

3. Purpose

- ▶ To reduce the pressure on the natural forest resources in the West Nile region and efforts for better livelihood

4. Beneficiary

- ▶ Smallholder farmers (both refugees and farmers in the HC and other farmers in RAD)

5. Period

- ▶ 5 years (TBD)

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Green growth promotion project through agroforestry and sustainable forest and natural resource management promotion for smallholder farmers in refugee affected areas, West Nile Region Uganda (Draft Profile)

6. Target Districts

- ▶ TBD

7. Counterpart agencies

- ▶ FSSD/MWE (leading agency) , MAAIF Agricultural Extension Service (cooperate agency) and Local Governments (implementation agencies)

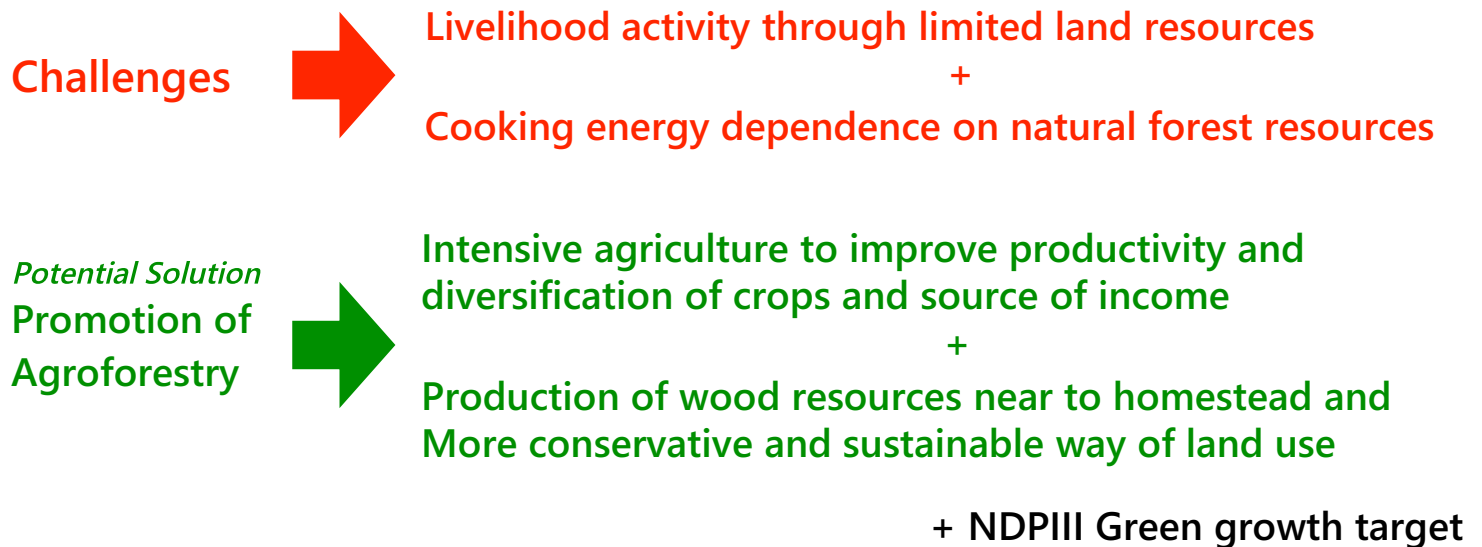
8. Approaches

- **Approach 1. Increase the amount of wood supply**
 - ▶ Agroforestry and woodlot development
- **Approach 2. Reduce the amount wood fuel use**
 - ▶ Dissemination of energy saving stoves and improved charcoal production technology
- **Approach 3. Introduction of innovative energy use technology**
 - ▶ Promotion of innovative technology for efficient use of energy

8

Approach 1. Increase the amount of wood supply through agroforestry and woodlot development

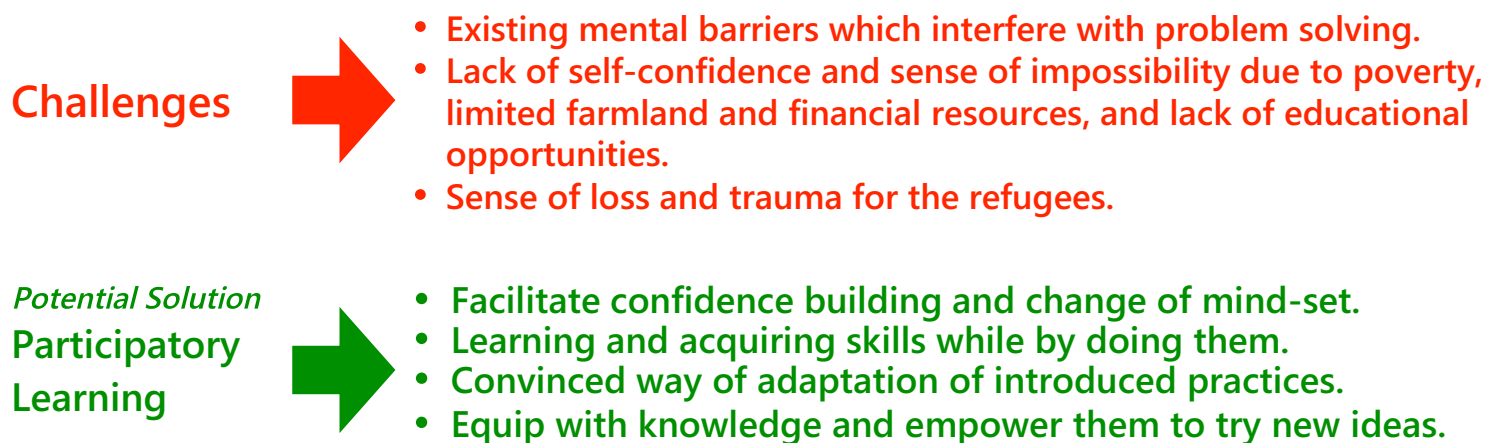
Smallholder farmers and Refugee communities in the areas



9

Approach 1. Increase the amount of wood supply through agroforestry and woodlot development

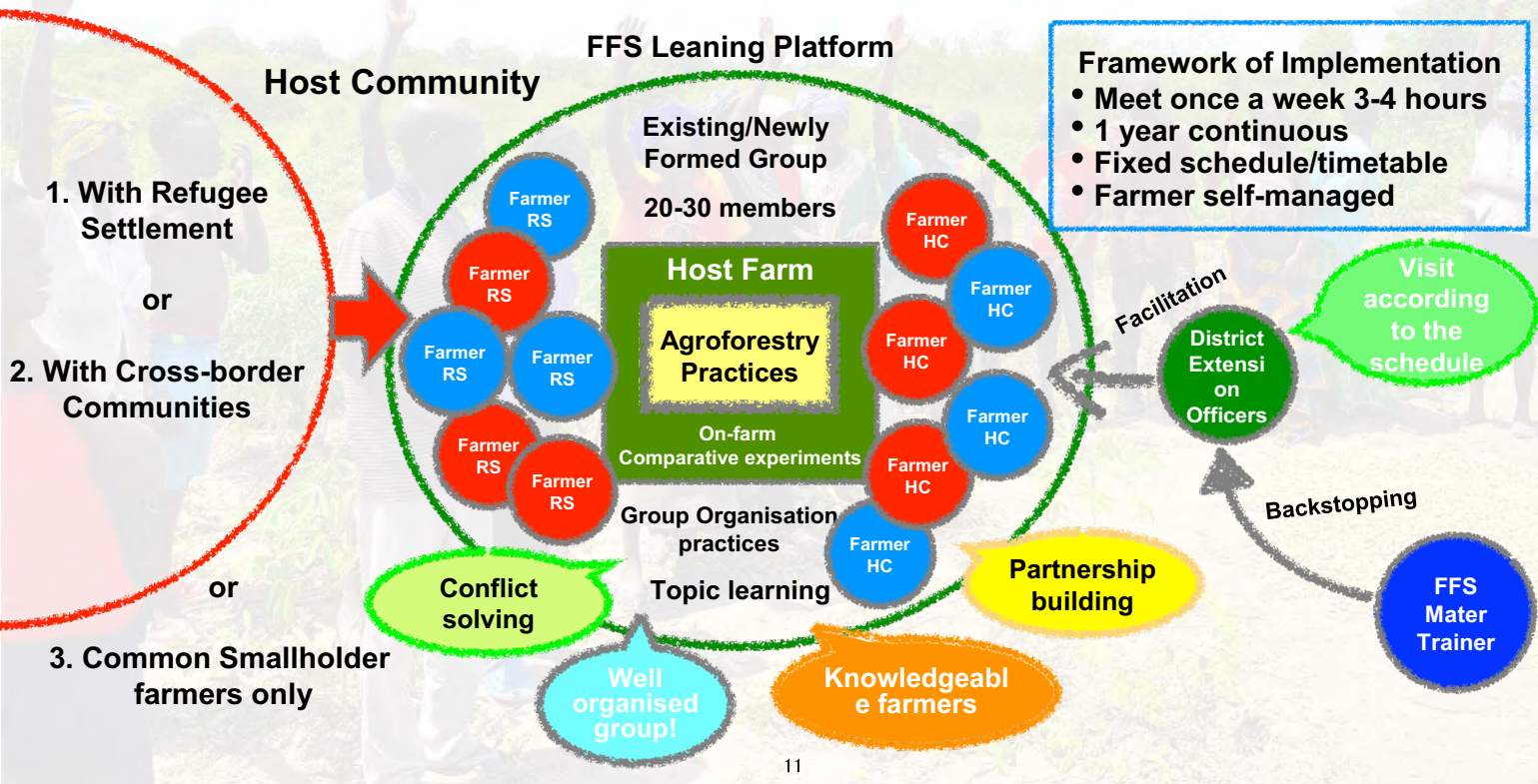
Smallholder farmers and Refugee communities in the areas



Use of Farmer Field Schools (FFS) as participatory learning approach for agroforestry

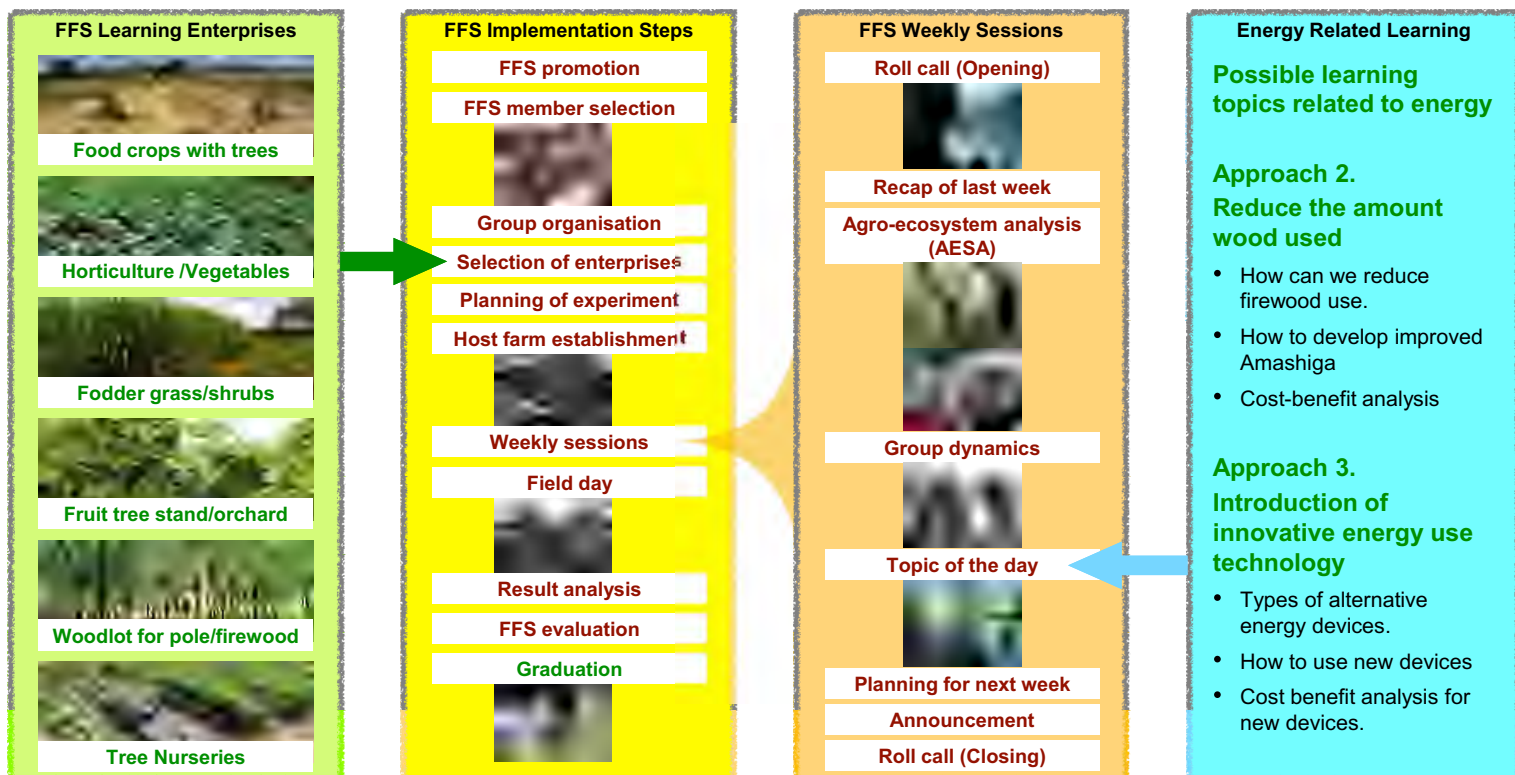
10

Possible FFS model for target areas



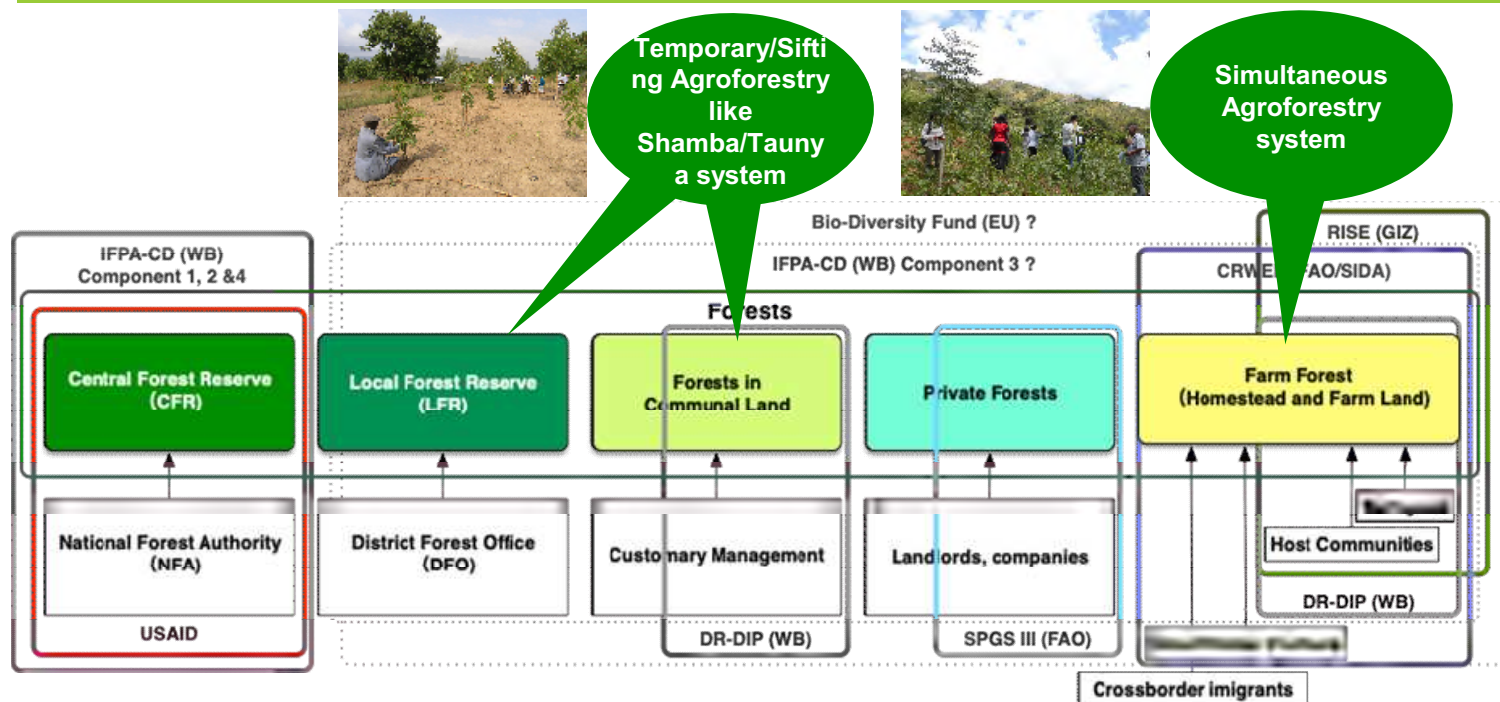
11

FFS Implementation Framework in combination with energy related learning (Approach 2 & 3)



12

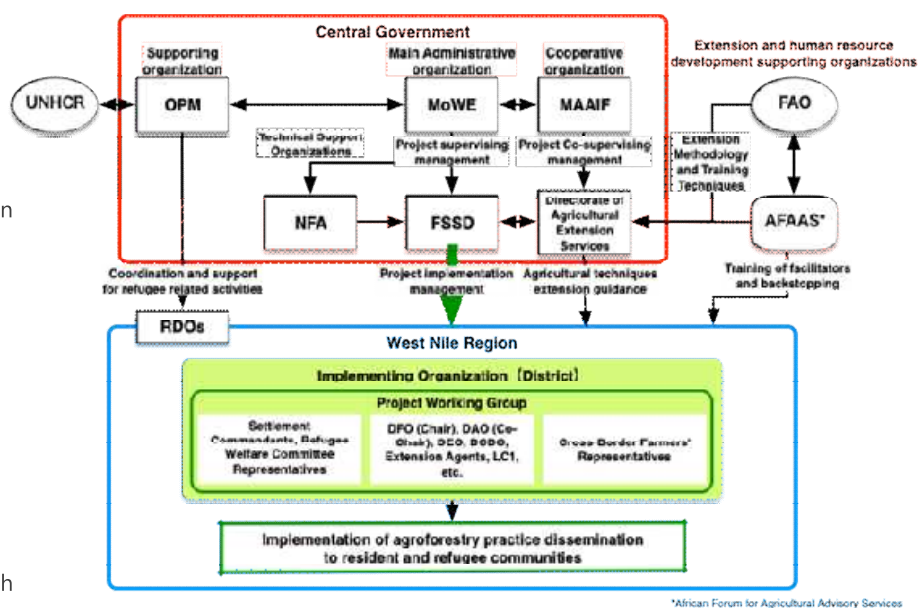
9. Coverage of the priority project



13

10. Possible Implementation Framework

- i. MWE
 - FSSD (Forestry Sector Support Department) → Counterpart agency for the project. Support for the promotion in Agroforestry.
 - NFA (National Forestry Authority) → Technical support for forest management and, tree growing.
- ii. MAAIF
 - Agricultural Extension Services: Provide guidance on technical aspects of agriculture and sharing the extension know-how to forestry sectors
- iii. Other related organisation
 - OPM: Support for the project activities in the refugee settlements area
 - FAO: Support with technical guidance on FFS
 - AFAAS: (African Forum for Agricultural Advisory Service) → Training and backstopping of FFS facilitator for the district level extension agents
 - Others: TBD
- iv. Local Government : TBD target LG/parish
 - District Project Working Group (PWG): Project planning, implementation, M&E.
 - Establishment of agroforestry extension system with DFO, DEO and DAO in the local government



*African Forum for Agricultural Advisory Services

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11. Joint Coordination Committee (JCC)

The committee of the project stakeholders to meet (mandatory once a year and as necessary);

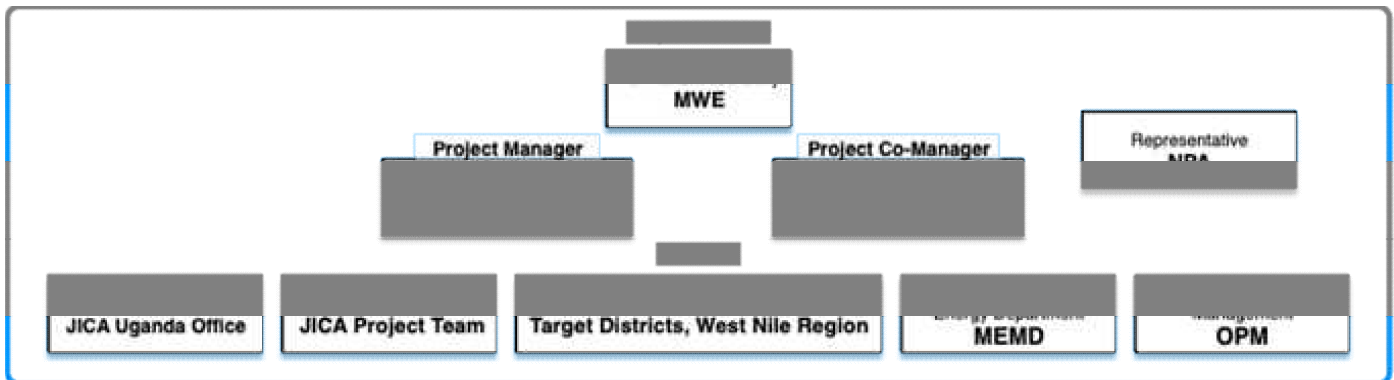
To formulate annual work plan.

To review the progress of the project.

To exchange opinions on the issues raised during the implementation of the project.

To discuss other issues pertinent to the smooth implementation of the project.

Possible Structure of Joint Coordination Committee for the Project



12. Use of DX

A) Use of forest information (satellite imagery)

Satellite image information can be used to estimate and monitor the forest status in the area. Such information will be useful as an indicator of the project impact in evaluation. It can also be used for reporting results and disseminating information with evidence.

- Use of datasets provided by NICFI (Norway's International Climate and Forest Initiative)
- Cooperation with the Uganda's NFMS
- Based on the above, it is possible to contribute to REDD + MRV and result-based payment (Uganda is the Africa's first country to submit the BUR [biennial update report] in 2019)



Forest status in West Nile (analysis of datasets provided by NICFI)

Challenges

- An image is created by a mosaic containing images of multiple periods.
- The appearance varies greatly depending on the period



True color image 2017



True color image 2020

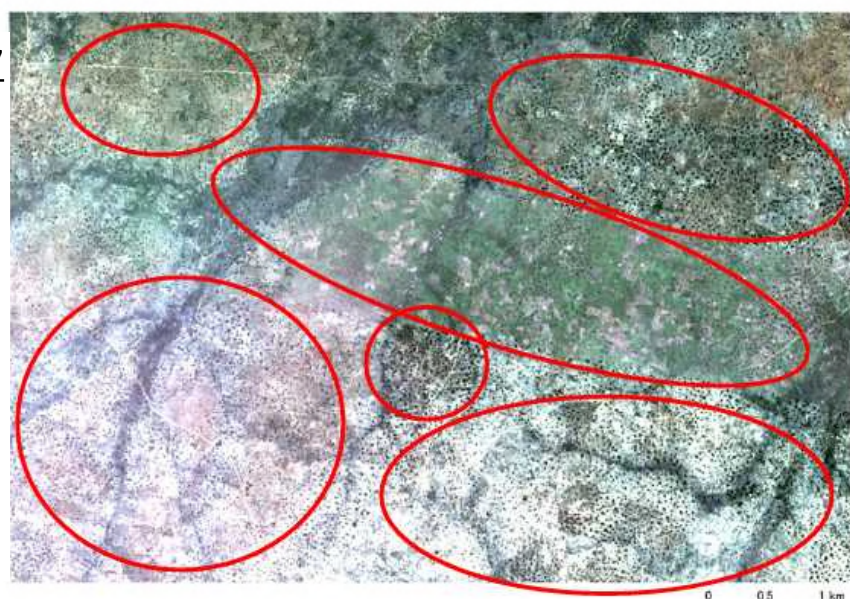
Created by RESTEC

Forest status in West Nile (analysis of datasets provided by NICFI)

Challenges

Enlarged view of 2017

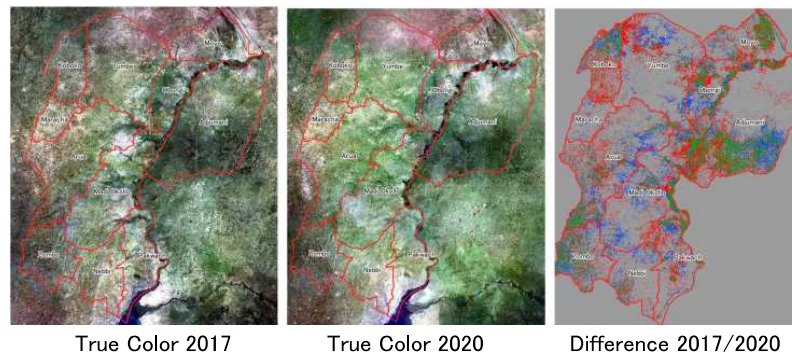
- It consists of a mosaic of 6 images of different times and qualities in a range of about 7x5km.
- The digital value of the tree is not constant.
- Difficult to classify trees.



Created by RESTEC

Trial of individual tree detection by remote sensing using NICFI data

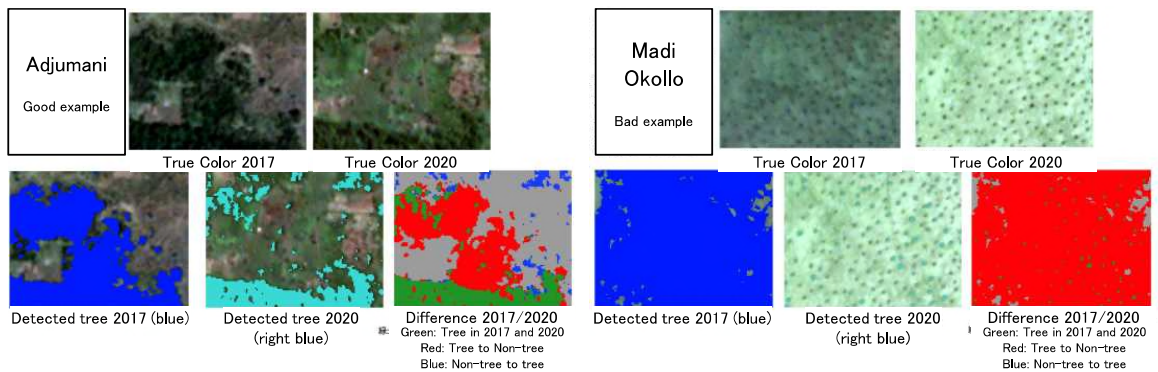
- Input: mosaic image (DEC 2016-MAY2017, JUN-NOV2017, DEC2019-MAY2020, JUN-AUG2020)



Green: Tree in 2017 and 2020
Red: Tree to Non-tree
Blue: Non-tree to tree

- Methodology: PCA (Principal Component Analysis)

• Output



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Wrap up

- Forest status after 2017 (2000-2017) datasets developed by using data Dec2017-Feb2018 (Influx from SS) Open Data NICFI possibility to use for small area
- LFR will be one of the area to be covered by the proposed project (TBD) for woodlot development. Necessary to discuss at District level to avoid overlapping
- Local Forest Reserves in the survey area, JST will summarize confirm the numbers of the LFR with collaboration with the FSSD
- Carbon trade: (Technical Cooperation Project)
- Project cost – extension workers
- Gap of investments and interventions between refugee settlements and hosting or impacted communities by Partners
- Data and information collecting stage

● [00 Introduction](#)

添付資料-5
現地調査写真集



Central Forest Reserve の違法に利用された跡地に対する
補植 (UNHCR 支援)



Adjumani 県へ行く途中の天然林



Zombo 県から Nebbi 県方面の森林破壊状況 1



Zombo 県から Nebbi 県方面の森林破壊状況 2



Zombo 県から Nebbi 県方面の森林破壊状況 3



Zombo 県から Nebbi 県方面の森林破壊状況 4



Zombo 県のホームステッド（薪は全て天然林からのもの）



Zombo 県近隣のコーヒーアグロフォレストリー1



Zombo 県近隣のコーヒーアグロフォレストリー2



Terego 県の分収林



Nebbi 県の共有地荒廃状況



Nebbi への主要道で販売されている木炭



Nebbi 郊外のホームステッド（天然のシアバターノキや配布された導入樹種の植栽が残存する）



苗畑（Green Life International）



苗畑（ICRAF）



苗畑（West Nile Foresters）



LWF 支援によるウッドロット（Adjumani）



Madi Okollo 県庁舎



Rhino Camp (Yoro / Madi Okollo)での Settlement Comandant 表敬



難民とホストコミュニティとの農民グループの共同農地



より乾燥した地域では、野火の問題もあり、人工林には、より耐火性のあるチークが植林される。



伝統的三石かまど



農業廃棄物等から作る練炭(ブリケット)(Nebbi 民間企業)



道路沿で販売される木炭



Nyagak I 小水力発電所のダム。本ダムにて雨季・乾季における流量調整を行っている。



Nyagak I 小水力発電所のダムのゲート放流口。本ダム建設時に、住民移転の問題があった。



Adjumani の 33kV 配電ネットワークに接続されているキャパシタバンク。これにより無効電力調整を行っている。



33kV 配電線用の柱上変圧器。集落の近くまで電力が来る予定である。コンクリートポールが使用されている。現在 33kV 配電線が建設中である。アルア方面から電力供給される予定である。



240V の低圧配電線。被覆電線が架空配線されている。



33kV 配電線と 240V 配電線。240V の低圧配電線は被覆電線が使用されている。



2022年に運転開始予定のカルマ水力発電所近くの河川状況。ここで発電した電力は西ナイル地域へ132kVで送電される予定である。



2022年にカルマ水力発電所から西ナイル地域へ132kVで送電される予定である。現在、送電線建設中である。



Electro Maxのディーゼル発電機。本発電所には12基の発電機があり、合計8.2MWの容量を持っている。配電事業者であるWENRECOと連絡を取り合いながら運転を行っている。



電気小売店の太陽光パネル販売状況(Arua)



カンパラから80km程離れた、ブンジャコ島のミニグリッドサイト状況



木炭を用いる金属製ストーブ (Lewa / Adjumani)