



**An Accessibility Assessment in the West Nile, Western and Karamoja Regions
Uganda**

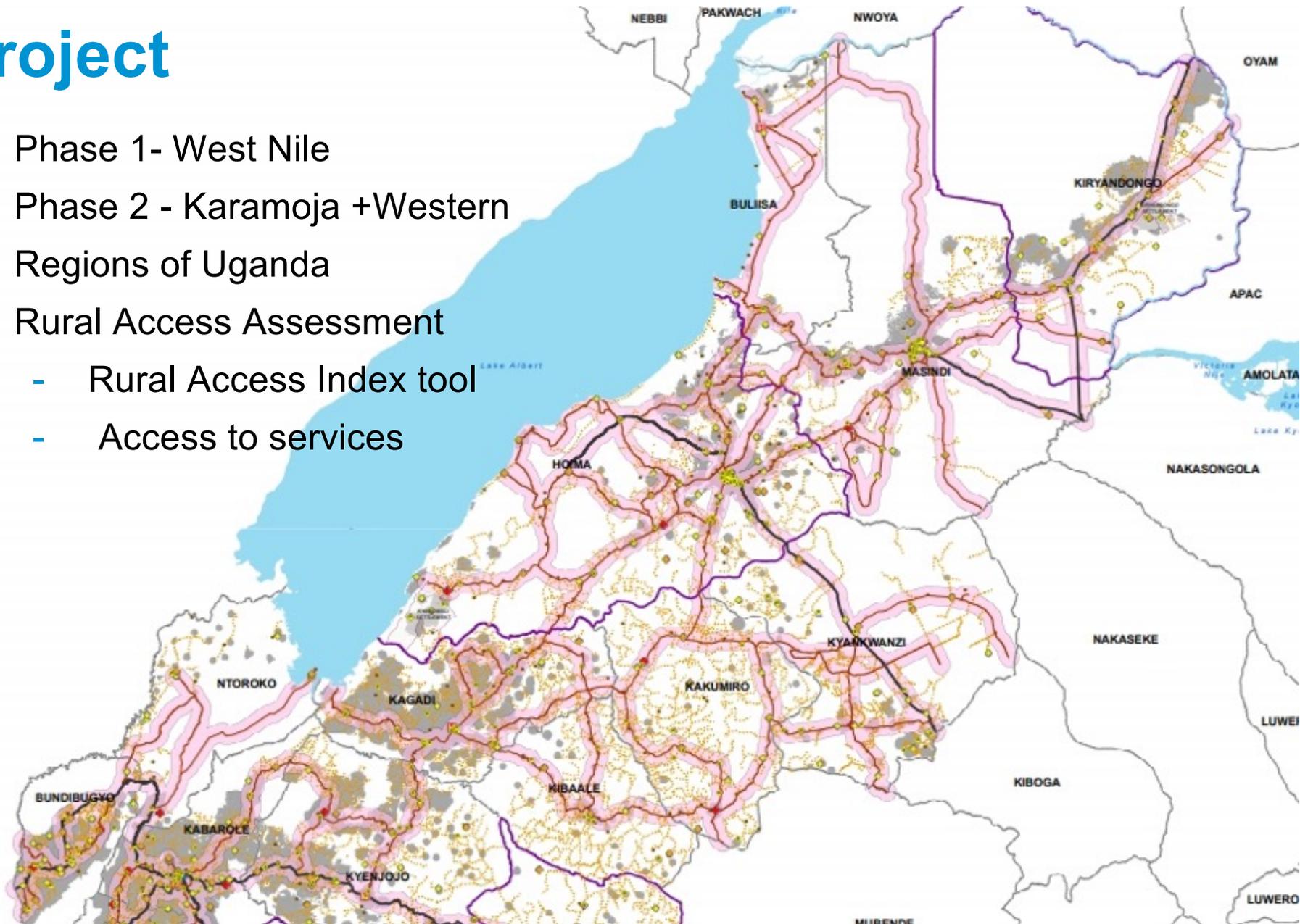
Introduction to the Rural Access Index

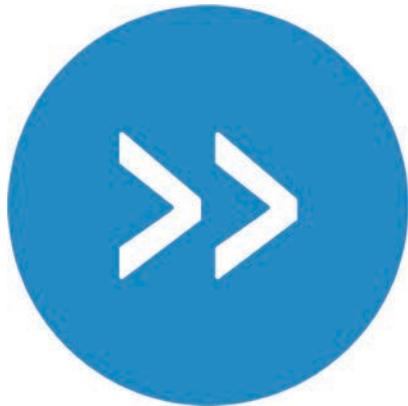
Kampala, 18th February 2019



The WFP /UNOPS Project

- Phase 1- West Nile
- Phase 2 - Karamoja +Western Regions of Uganda
- Rural Access Assessment
 - Rural Access Index tool
 - Access to services



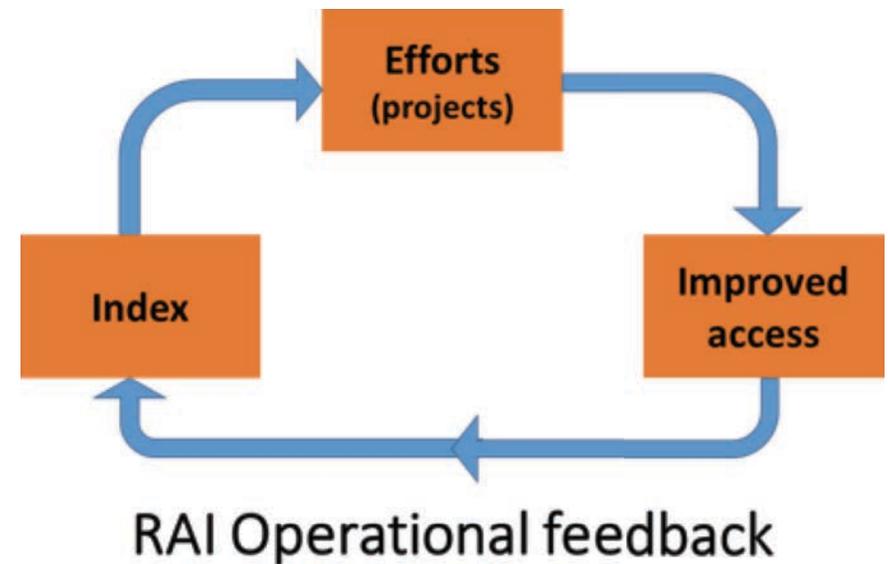
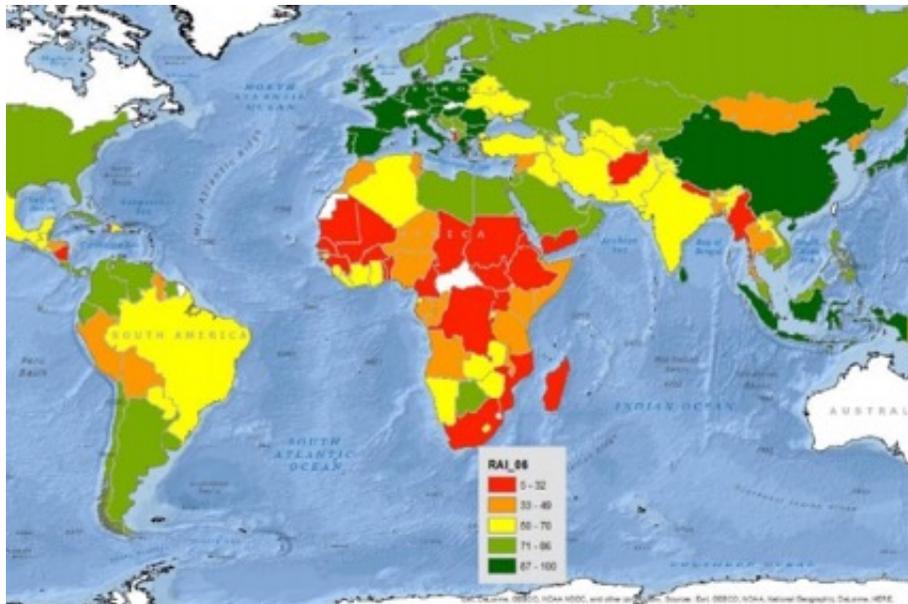


RURAL ACCESS INDEX

The Rural Access Index (RAI)

A World bank key transport indicator

- **Key Development Indicator** measuring people transport accessibility in Rural Areas
- **The RAI informs development efforts** mostly at the country/regional level, which improves rural access and updates of the index



SDG: 9.1.1: Rural Access Index



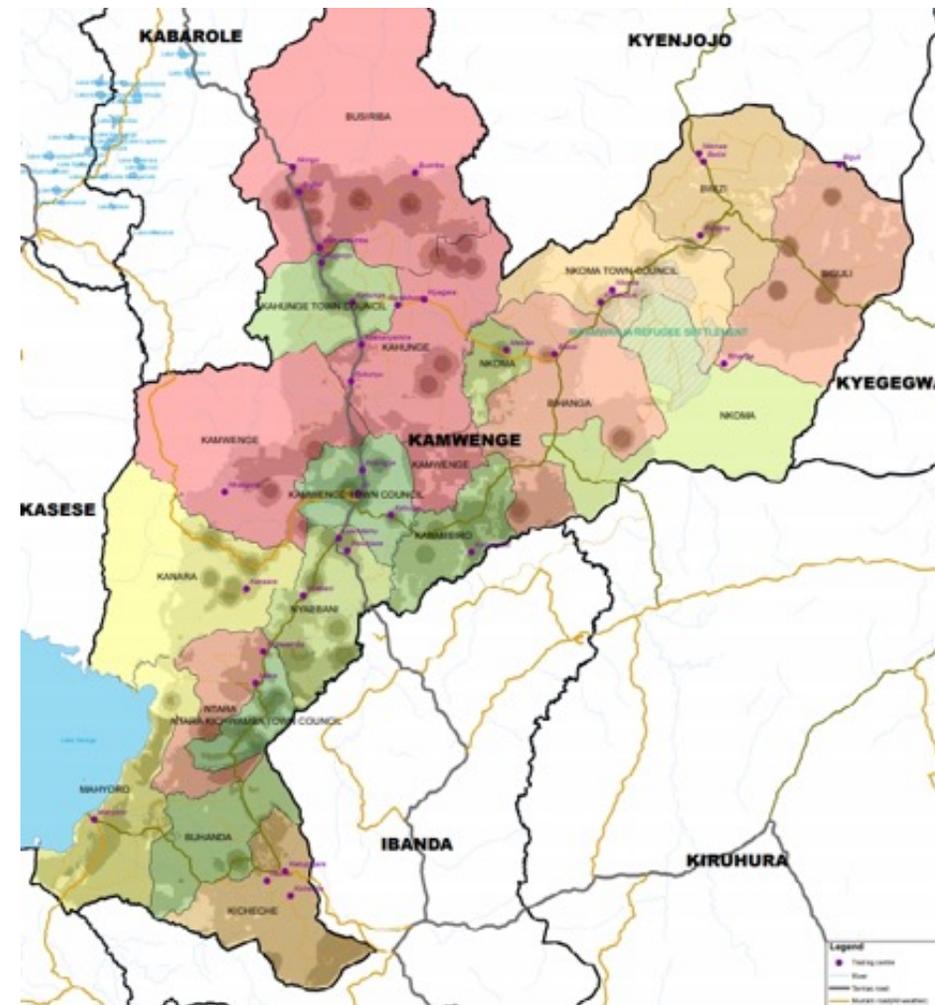
Goal: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

- **Target 9.1:** Develop quality, reliable, sustainable and resilient infrastructure including regional and trans-border infrastructure, to support economic development and human well being, with a focus on affordable and equitable access for all
 - › **Indicator 9.1.1:** proportion of the rural population who live within 2 KM (reasonable walking distance) of an all season road



The RAI method requires 3 types of data:

- 1) Population distribution
 - 2) Road network, and
 - 3) Road condition
- } Exist
- } We assess



World Bank RAI

Population distribution

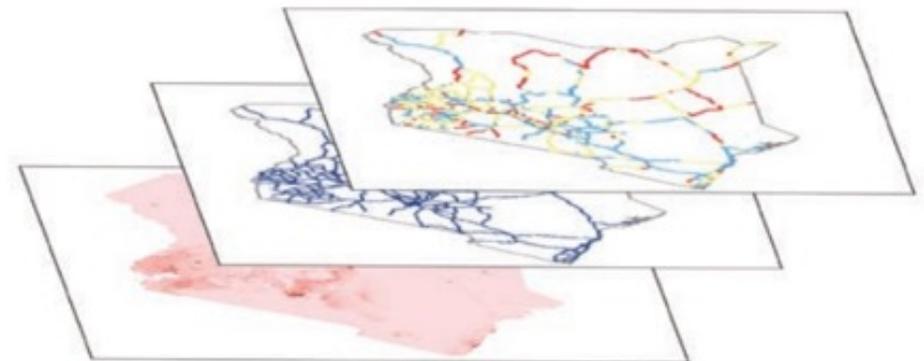
- Where do people live?

Road network

- Where are the Roads?

Road condition

- Are they in good condition?





1. Population distribution

Legend

Health Facility Level

- HC II (Red cross)
- HC III (Red cross with dot)
- HC IV (Orange cross)
- General Hospital (Blue cross)
- Trading Centre (Black dot)

All Season Roads

- Bituminous (Thick black line)
- Unsealed (Thick brown line)
- Assessed Road (Thin orange line)
- Dry Weather Road (Dashed brown line)

River

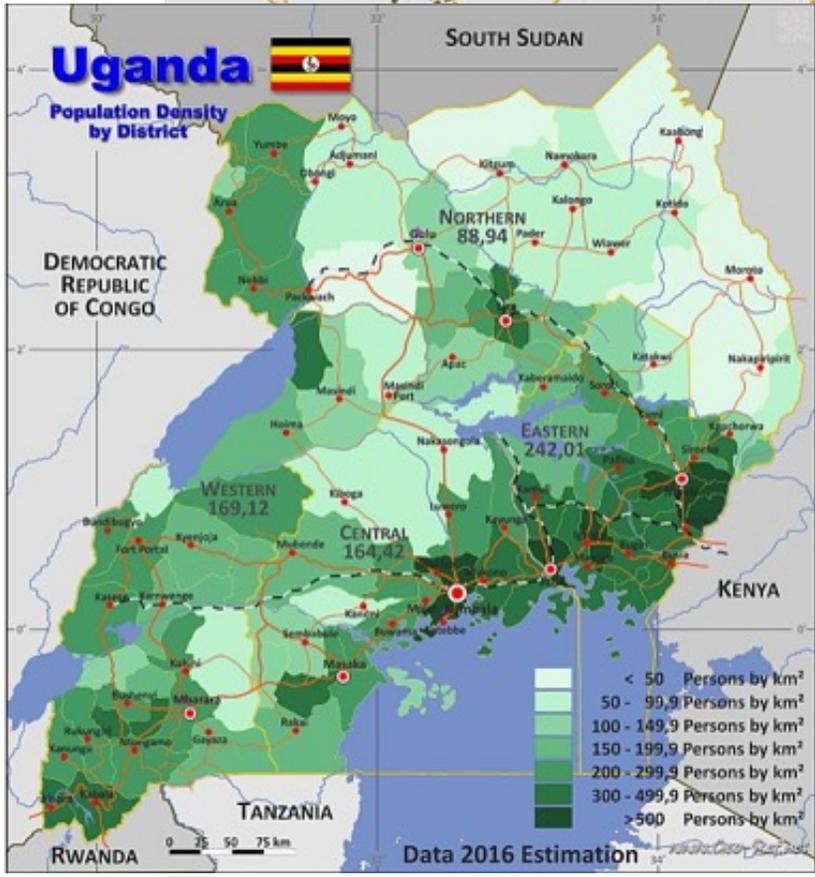
- Main River (Blue line)
- Small River (Thin blue line)

Other Symbols

- Kaabong District Boundary (Grey outline)

Population Density (Persons Per 100M Sq.)

- 0 - 3 (Lightest grey)
- 3-26 (Light grey)
- 27-115 (Medium grey)
- 116-226 (Darkest grey)



WorldPop

Traditional way to represent density



2. Road network

- Existing Road network – UNRA roads and MOWT maps
- Priority Roads for WFP
- Open Street map data
- UNOPS verification of roads

OpenStreetMap

Relation: Uganda (192796)

adding driving_side=left to admin level 2,
https://wiki.openstreetmap.org/wiki/Key:driving_side

Edited 3 days ago by Conz0r
 Version #110 - Changeset #6655591

ISO3166-1	UG
ISO3166-1:alpha2	UG
ISO3166-1:alpha3	UGA
ISO3166-1:numeric	800
admin_level	2
boundary	administrative
currency	UGX
driving_side	left
img	http://upload.wikimedia.org/wikipedia/commons/4/4e/Flag_of_Uganda.svg
is_incontinent	Africa
name	Uganda
name:ace	Uganda
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name:an	Uganda
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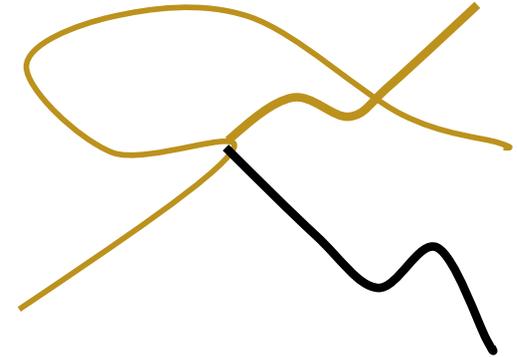
3. Road condition – 2 types



Asphalt road



Stabilised, Murram Road



All season road Network, roads that connect

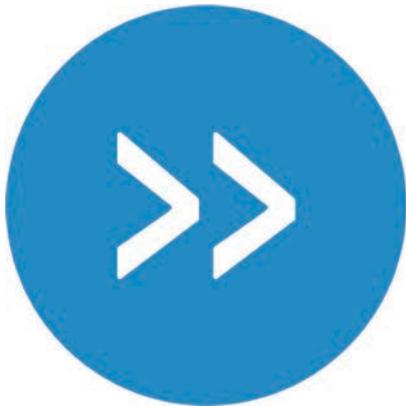


Dirt road, Unpaved,
Non-compacted, Terrain

Dry season roads - roads with limited access

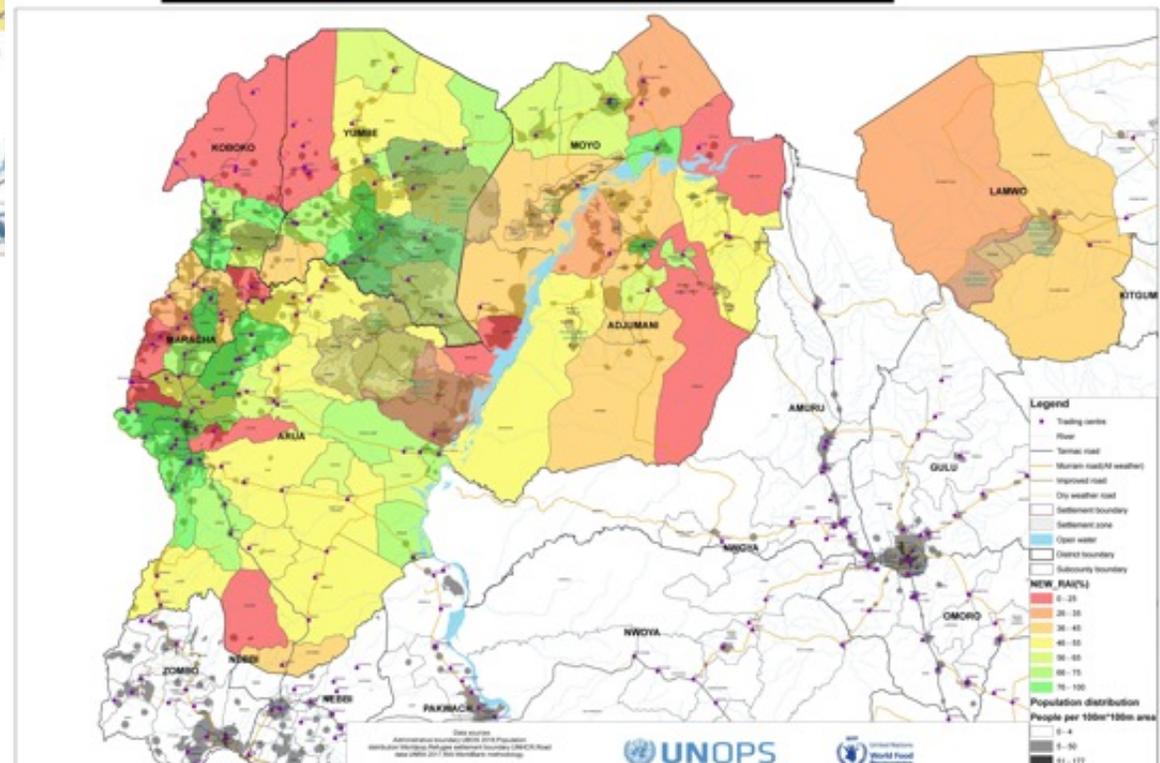
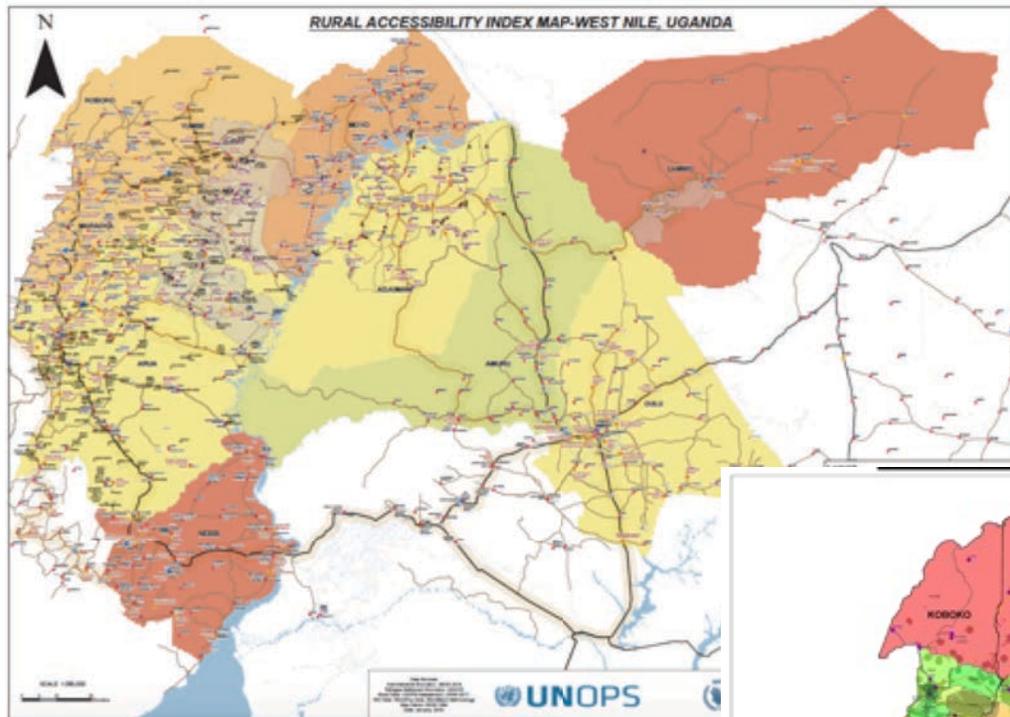
Examples of Critical points



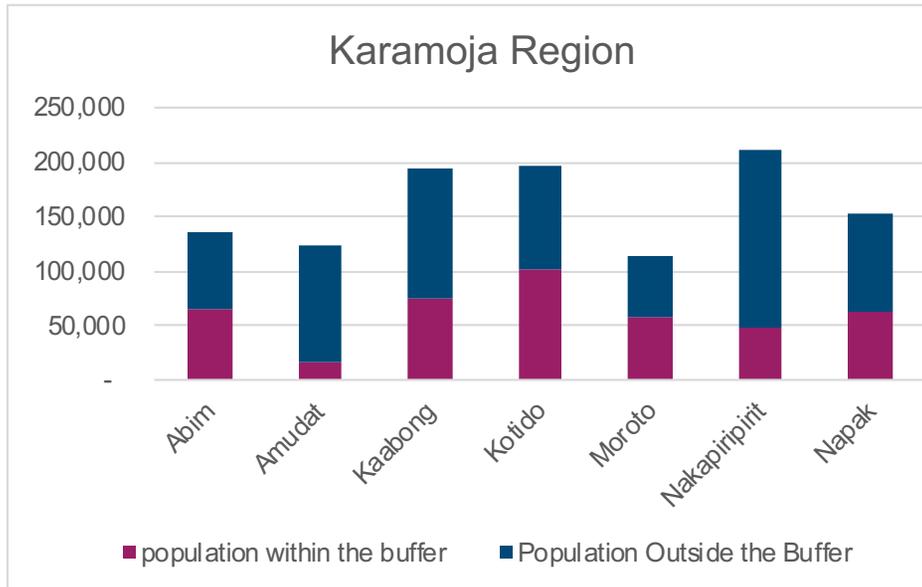


HOW WE CALCULATE RAI

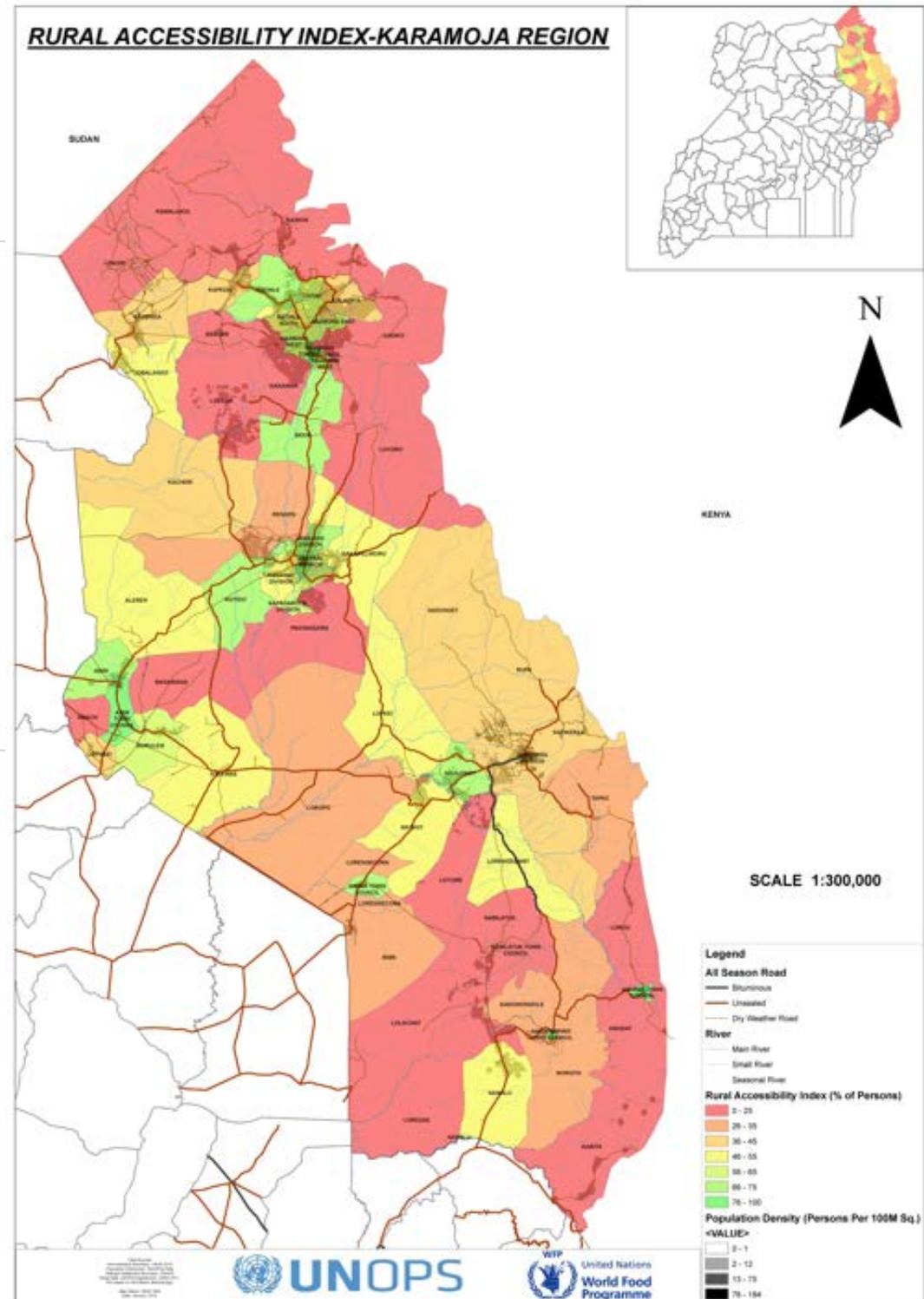
EXAMPLE OF THE RAI WEST NILE



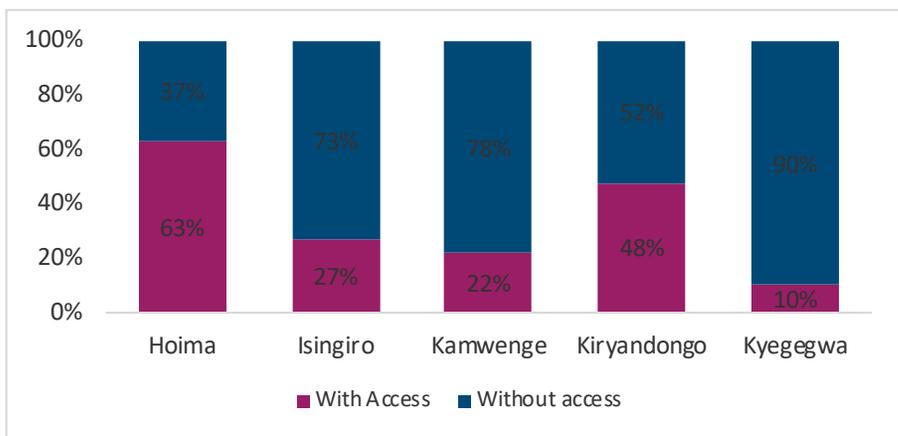
EXAMPLE OF THE RAI KARAMOJA



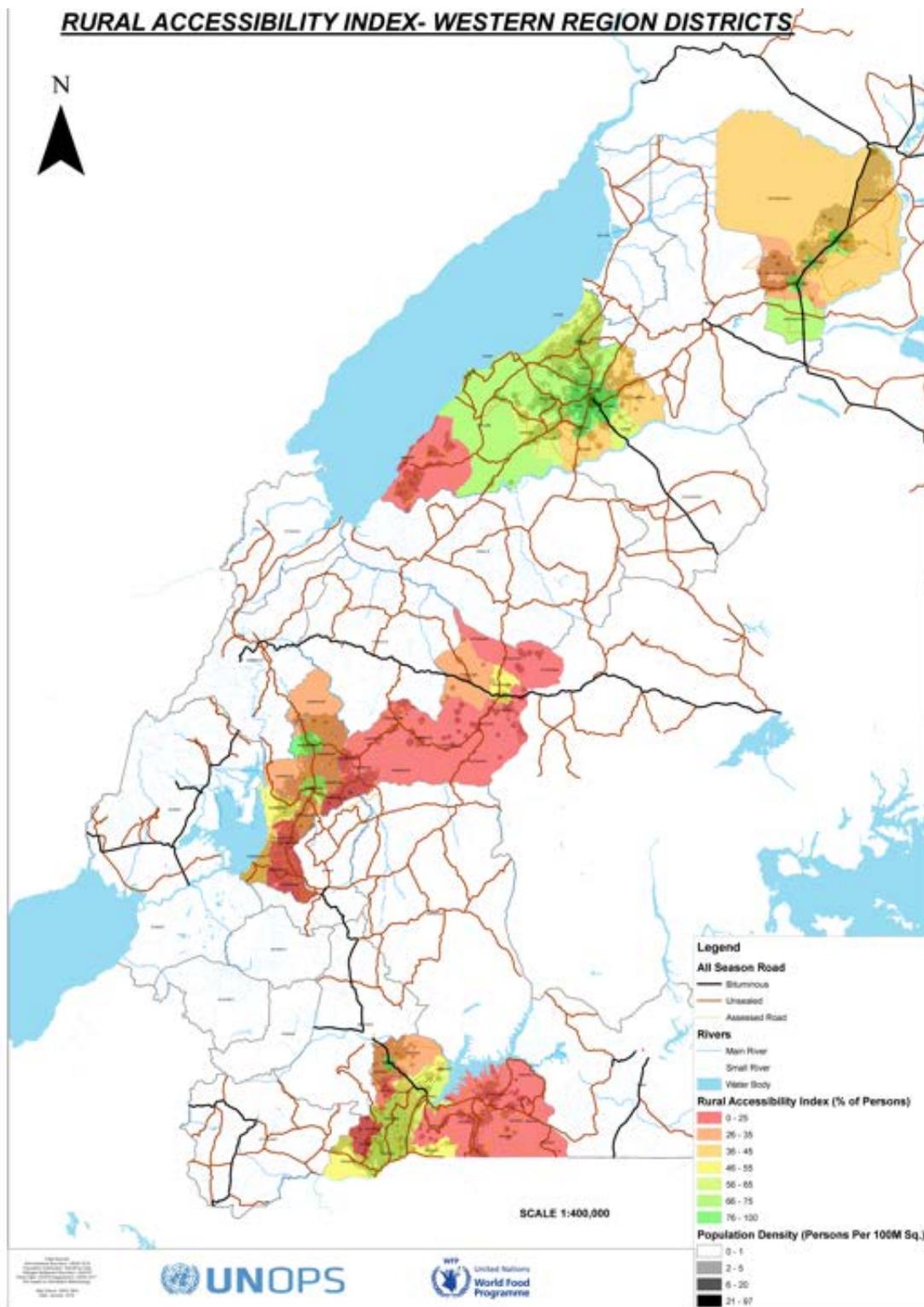
	Total district population	Population within the buffer	Population Outside the Buffer	RAI
Abim	136,200	66,155	70,045	49
Amudat	124,300	17,011	107,289	14
Kaabong	193,600	75,204	118,396	39
Kotido	197,600	101,290	96,310	51
Moroto	113,200	58,148	55,052	51
Nakapiripirit	212,100	48,227	163,873	23
Napak	152,700	62,042	90,658	41
	1,129,700	428,077	701,623	38

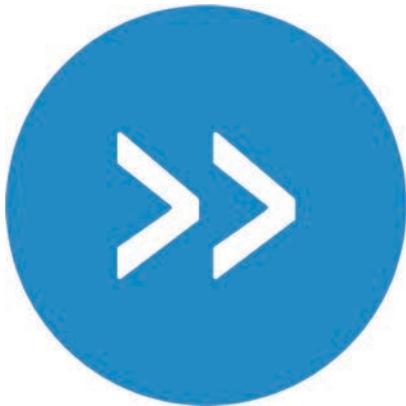


EXAMPLE OF THE RAI WESTERN REGION



	Total Population	Population within buffer	Population outside buffer	RAI
Hoima	676,900	427,777	249,123	63
Isingiro	489,200	132,882	356,318	27
Kamwenge	449,000	96,562	352,438	22
Kiryandongo	281,200	134,450	146,750	48
Kyegegwa	374,000	37,663	336,337	10



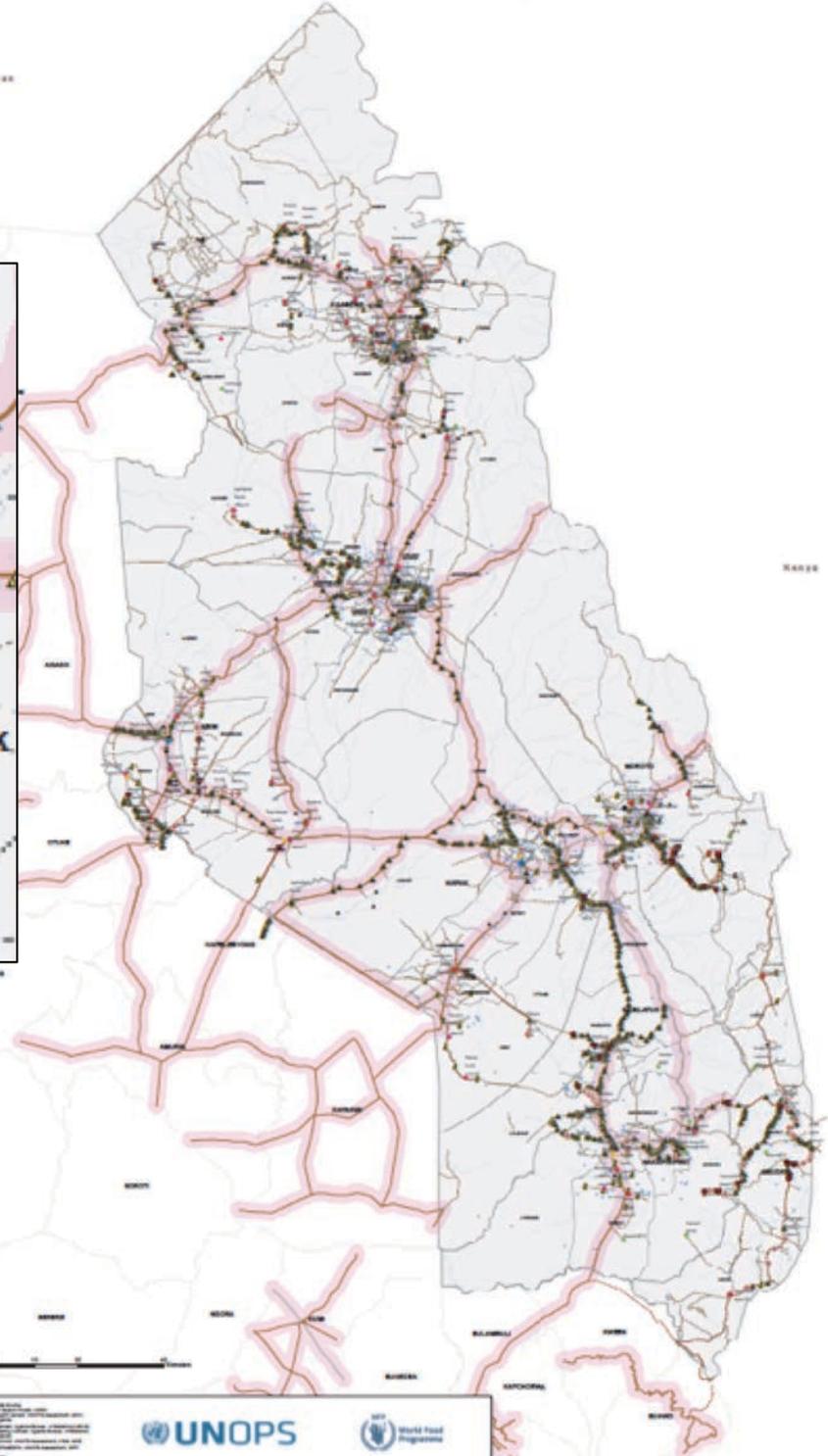
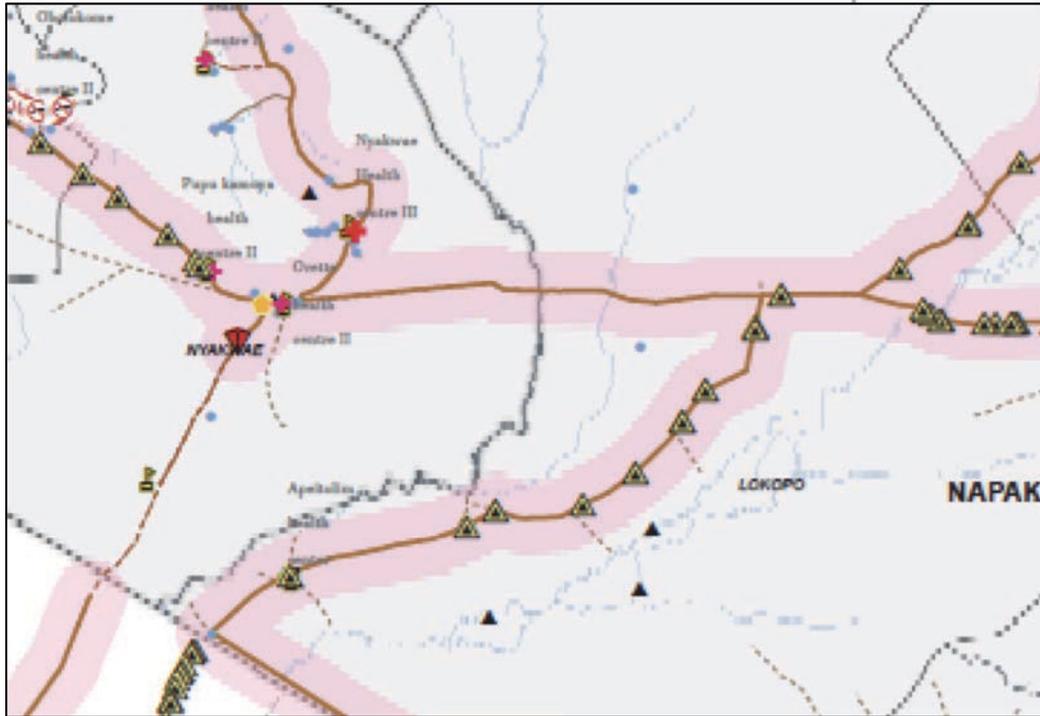


BEYOND THE RAI

ADDING SERVICES TO BASE MAPS

CRITICAL & BLOCKING POINTS

Critical Points-Karamoja Region



Legend

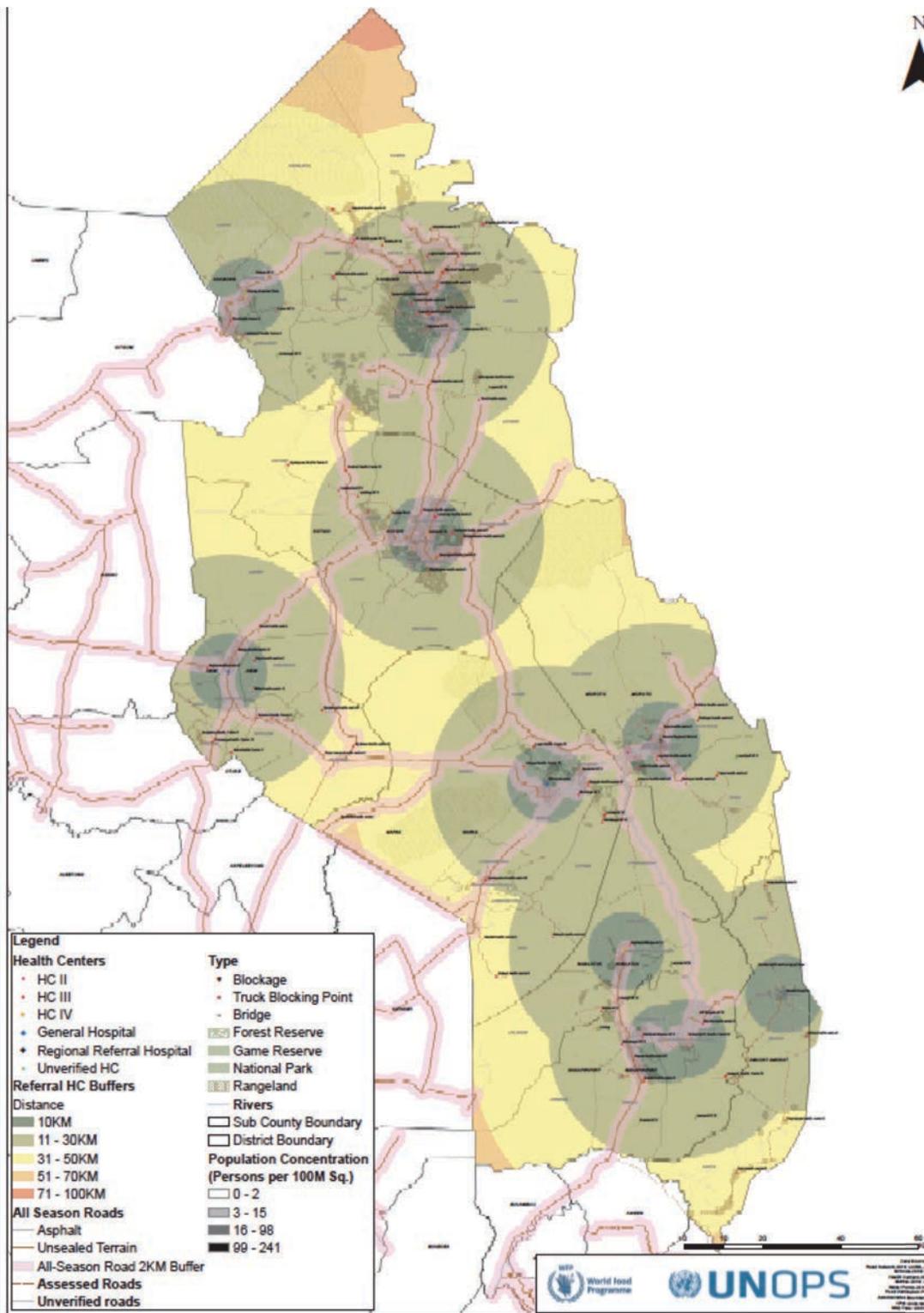
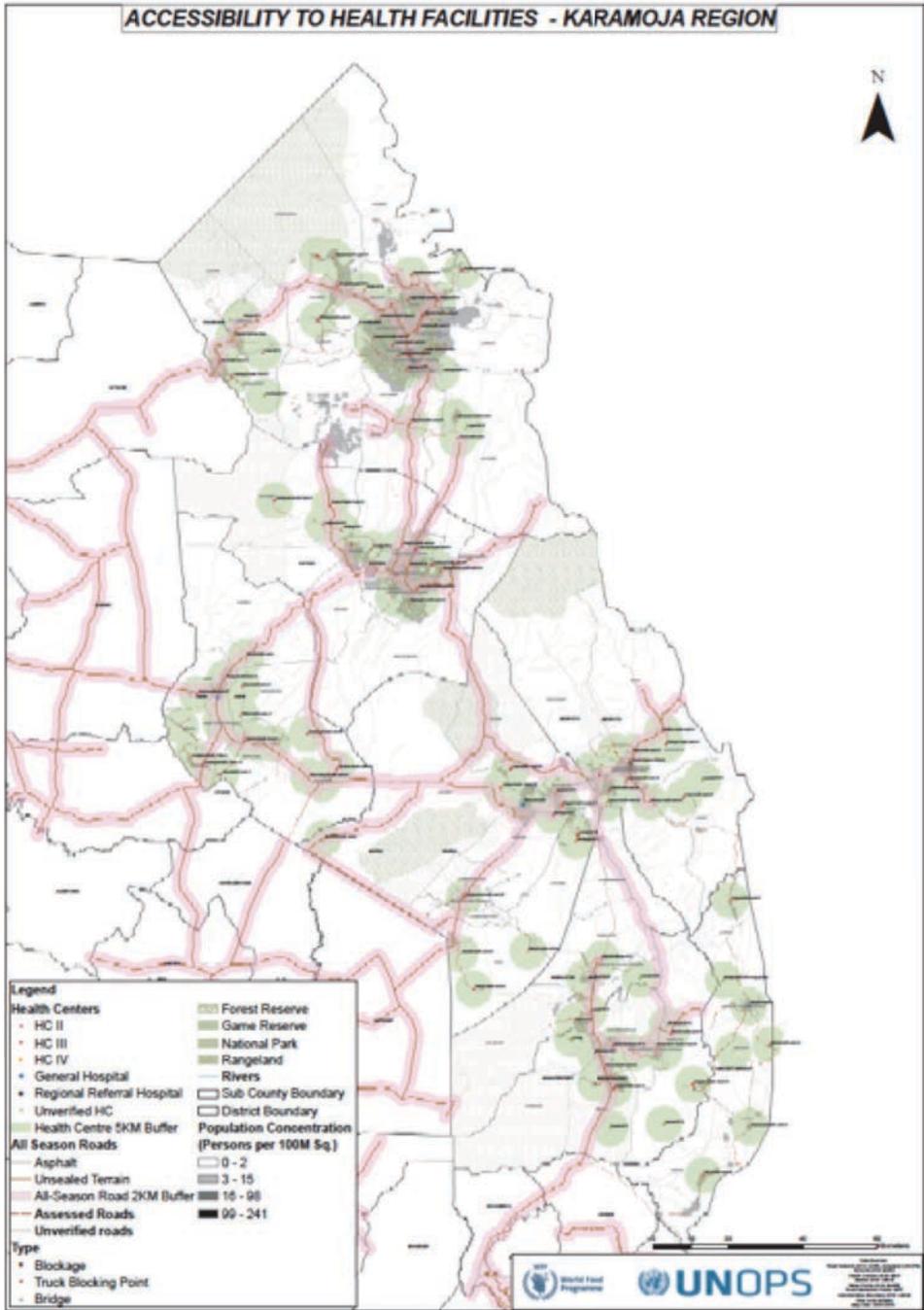
Blocking_Point

Type

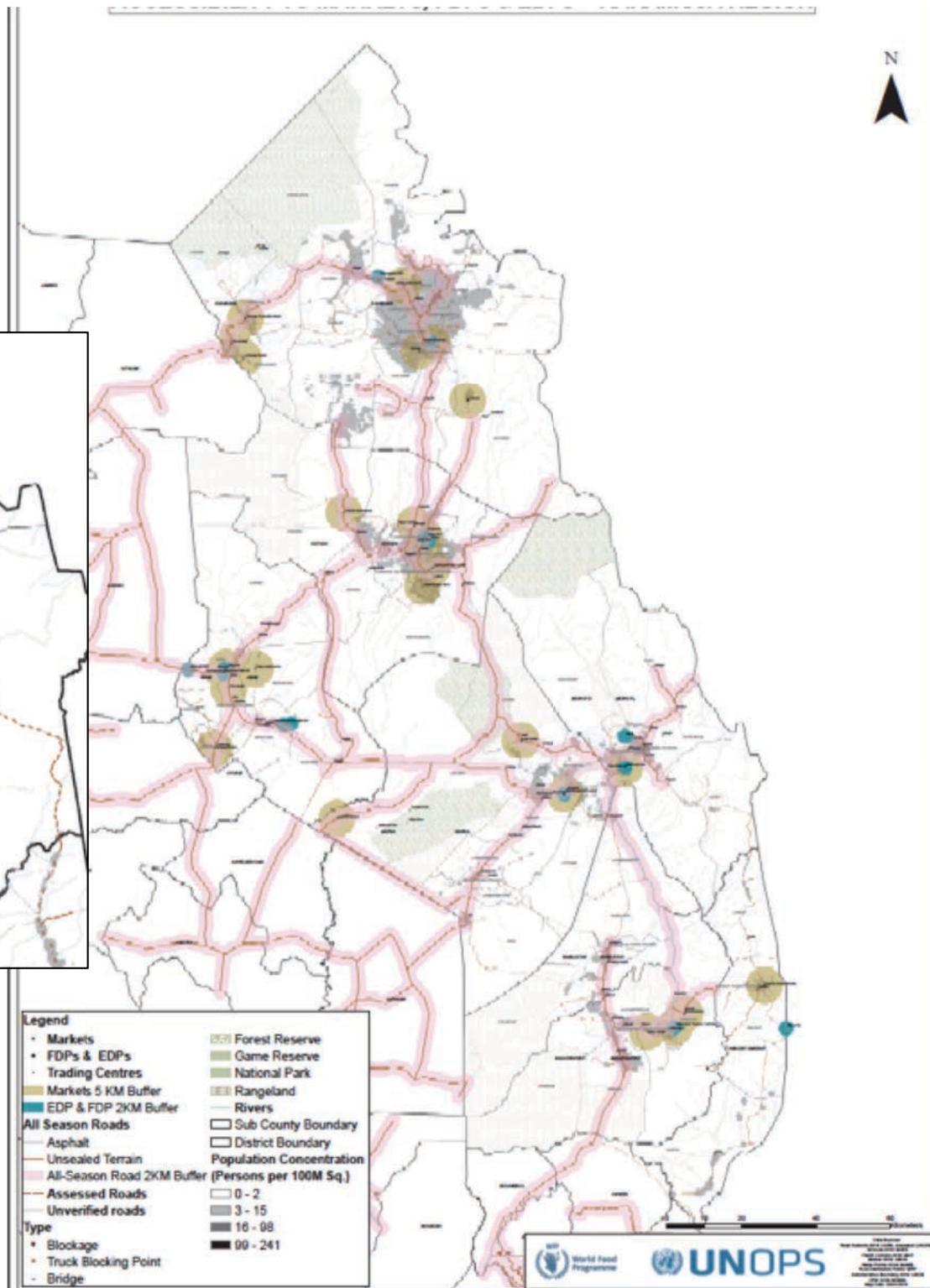
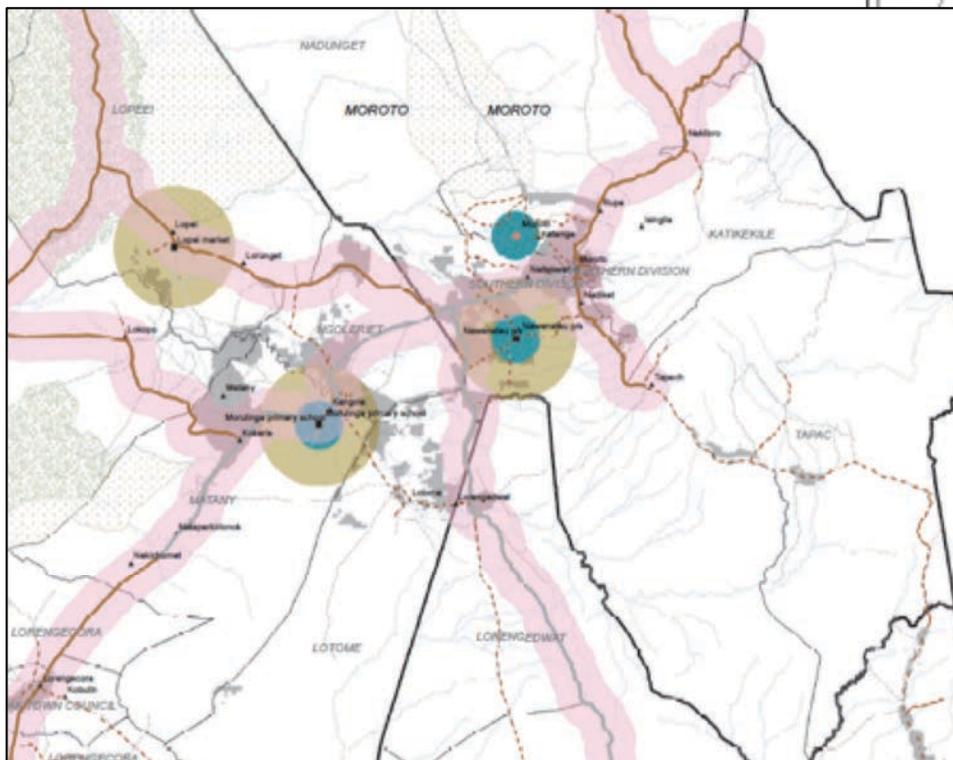
- ▼ Blocking Point
- ◆ Truck Blocking Point
- ▲ Critical Point
- Food Distribution Point
- HC II
- HC III
- HC IV
- General Hospital
- Regional Referral Hospital
- Unvetted HC
- Markets
- Secondary School
- Primary School
- Unvetted Schools
- Trading Center
- Water_Facilities
- Terrain
- Murut AD Weather
- Unvetted Road
- River
- All Season Roads 20m Buffer
- Subcounty Boundary
- District Boundary

HEALTH SERVICES

ACCESSIBILITY TO HEALTH FACILITIES - KARAMOJA REGION



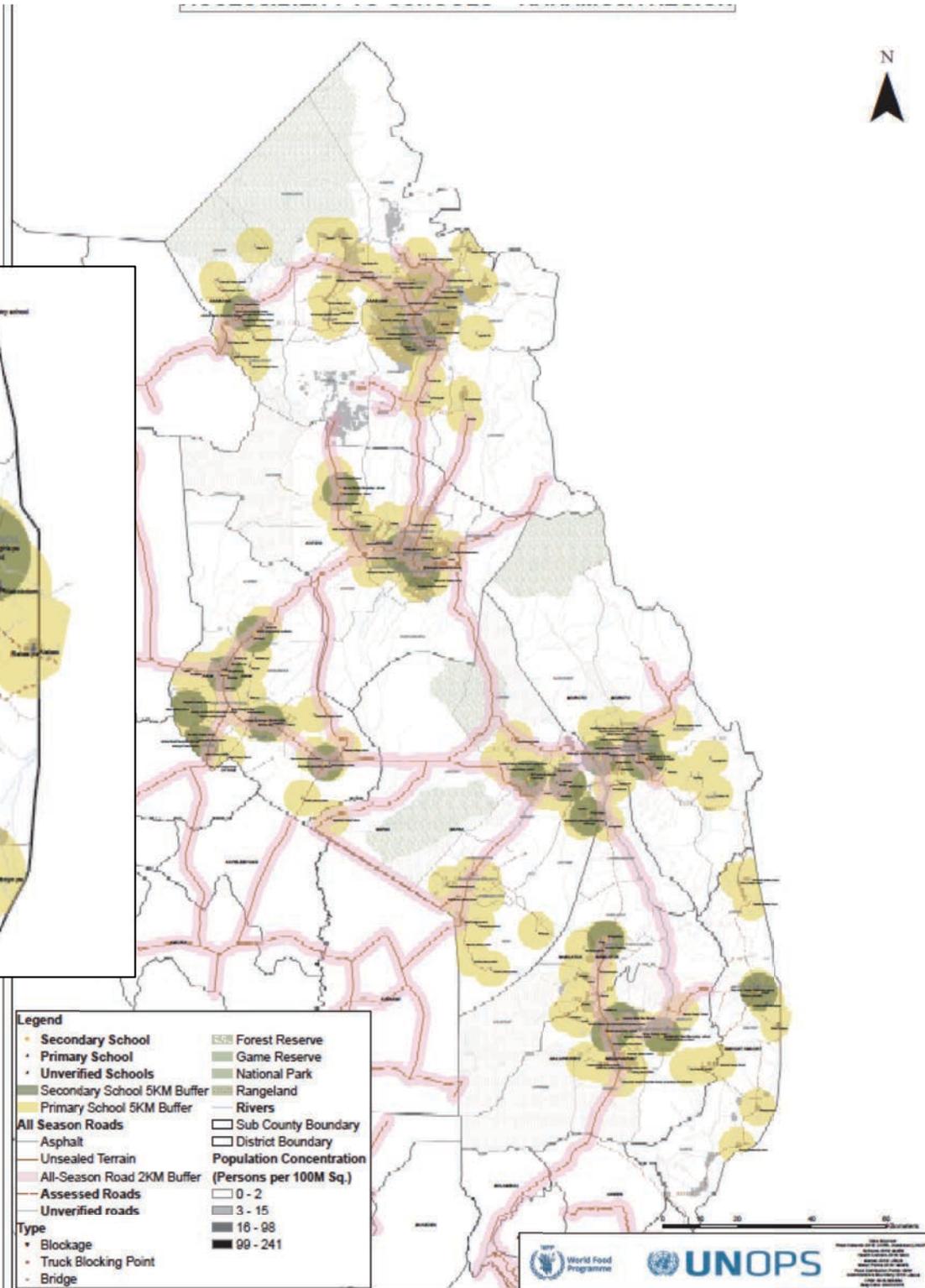
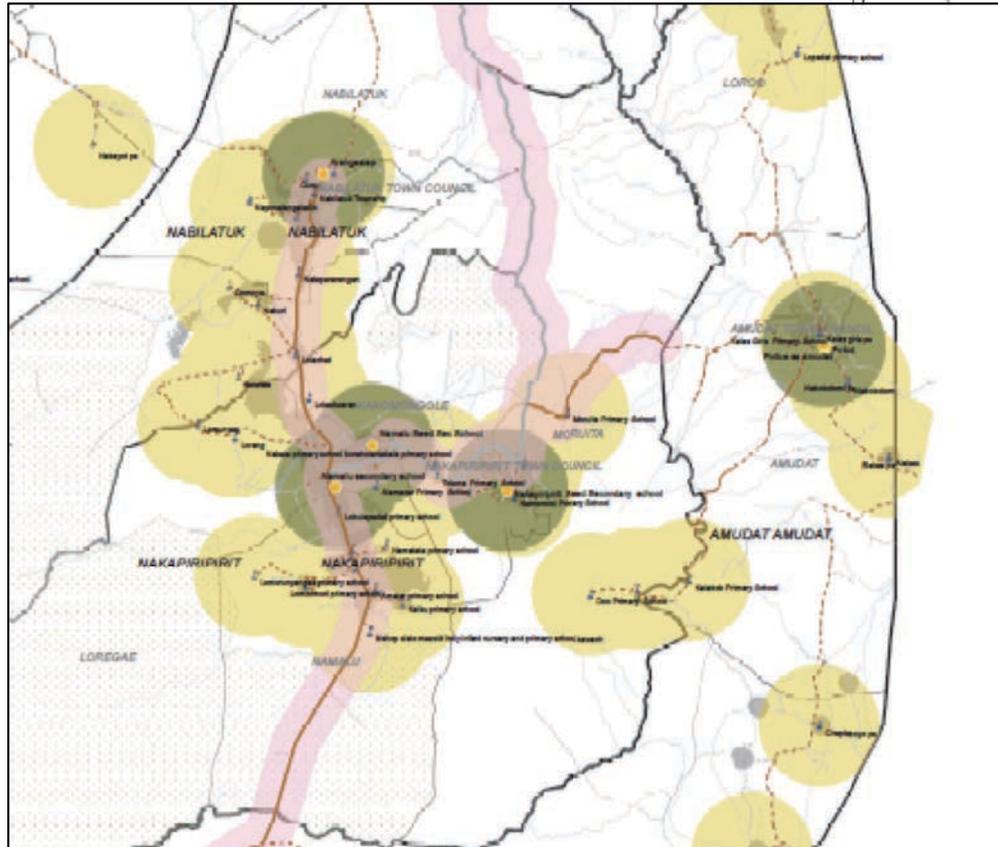
MARKETS & FDPs



Legend

- Markets
- FDPs & EDPs
- Trading Centres
- Markets 5 KM Buffer
- EDP & FDP 2KM Buffer
- All Season Roads
 - Asphalt
 - Unsealed Terrain
 - Assessed Roads
 - Unverified roads
- Type
 - Blockage
 - Truck Blocking Point
 - Bridge
- Forest Reserve
- Game Reserve
- National Park
- Rangeland
- Rivers
- Sub County Boundary
- District Boundary
- Population Concentration (Persons per 100M Sq.)
 - 0 - 2
 - 3 - 15
 - 16 - 98
 - 99 - 241

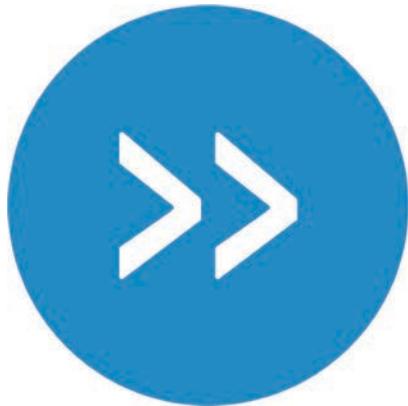
SCHOOLS



Legend

- Secondary School
- Primary School
- Unverified Schools
- Secondary School 5KM Buffer
- Primary School 5KM Buffer
- All Season Roads
- Asphalt
- Unsealed Terrain
- All-Season Road 2KM Buffer
- Assessed Roads
- Unverified roads
- Type
- Blockage
- Truck Blocking Point
- Bridge

- Forest Reserve
- Game Reserve
- National Park
- Rangeland
- Rivers
- Sub County Boundary
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IN FOCUS

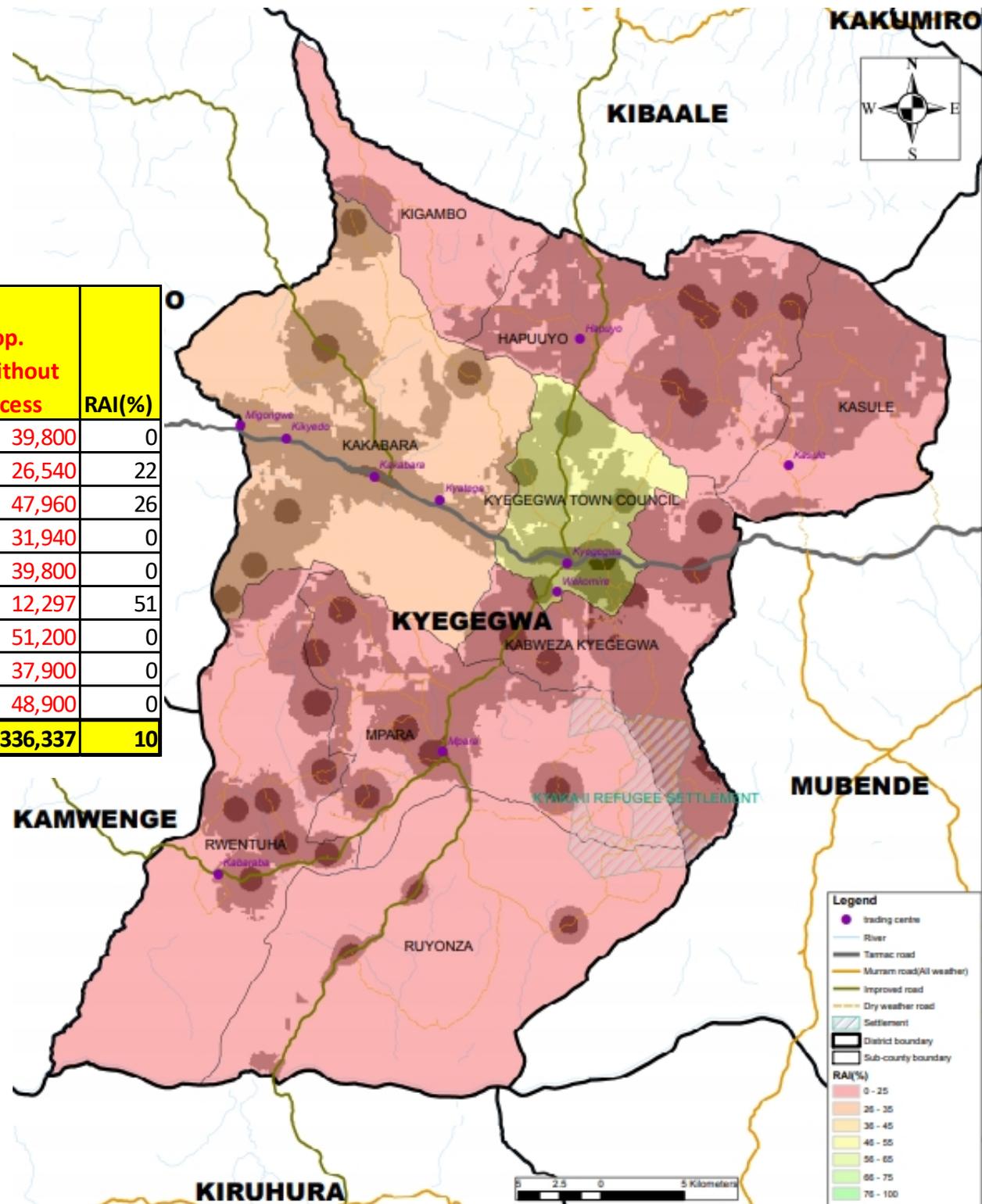
KYEGEGWA- WESTERN REGION

KYELEGWA

RAI = 10%

Subcounty	Total pop.	Pop. within 2km buffer	Pop. without access	RAI(%)
HAPUUYO	39,800	0	39,800	0
KABWEZA KYELEGWA	33,900	7,360	26,540	22
KAKABARA	65,200	17,240	47,960	26
KASULE	32,100	160	31,940	0
KIGAMBO	39,800	0	39,800	0
KYELEGWA TOWN COUNCIL	25,200	12,903	12,297	51
MPARA	51,200	0	51,200	0
RUYONZA	37,900	0	37,900	0
RWENTUHA	48,900	0	48,900	0
RAI KYELEGWA	374,000	37,663	336,337	10

90% of the population do not have access to an all season road
Equivalent to **336,337** people
Lowest RAI assessed

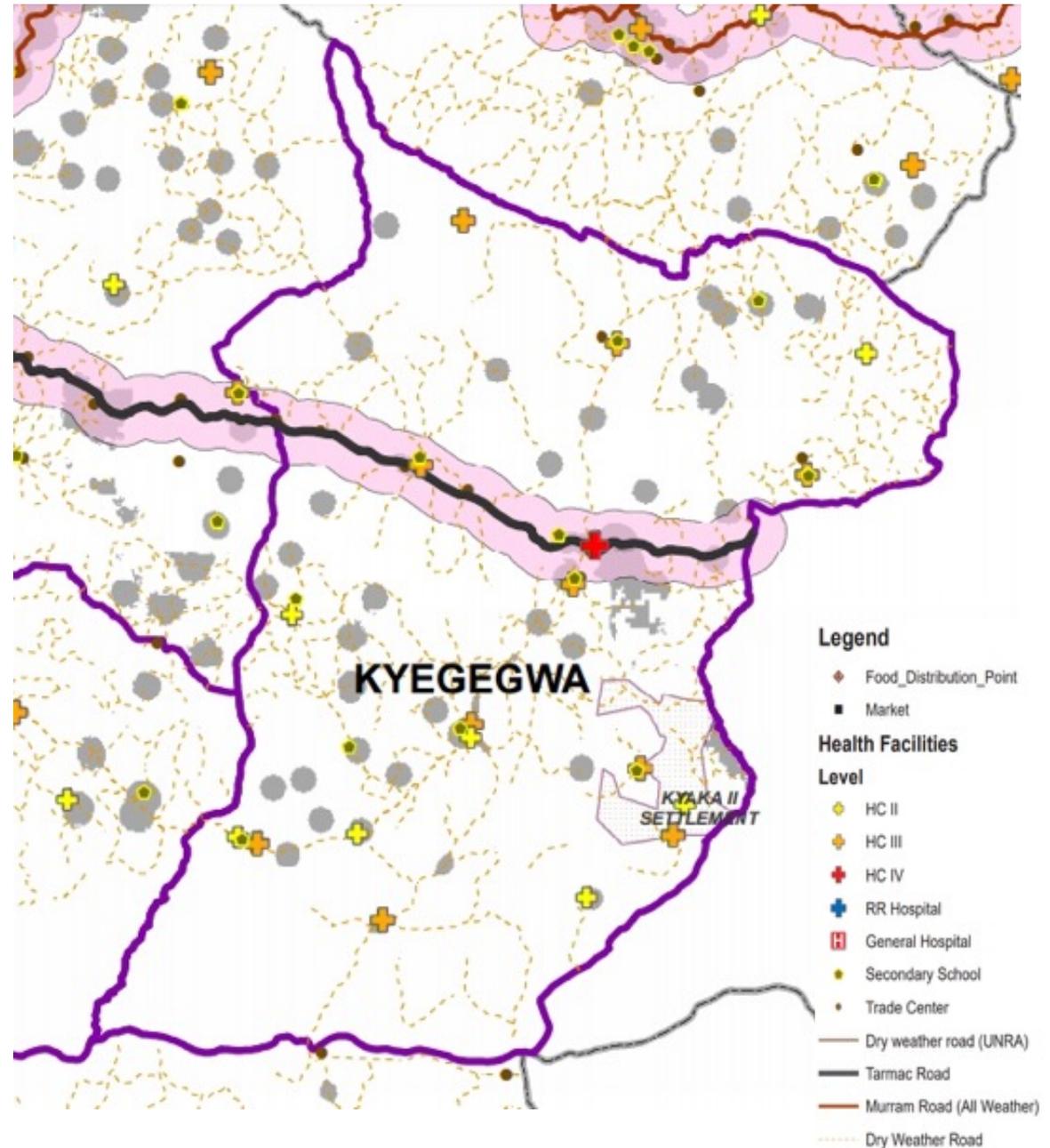


IN FOCUS- KYEWEGWA

All season road network does not cover the district.

They only have one tarmac road crossing the district

The population is not concentrated along the road network



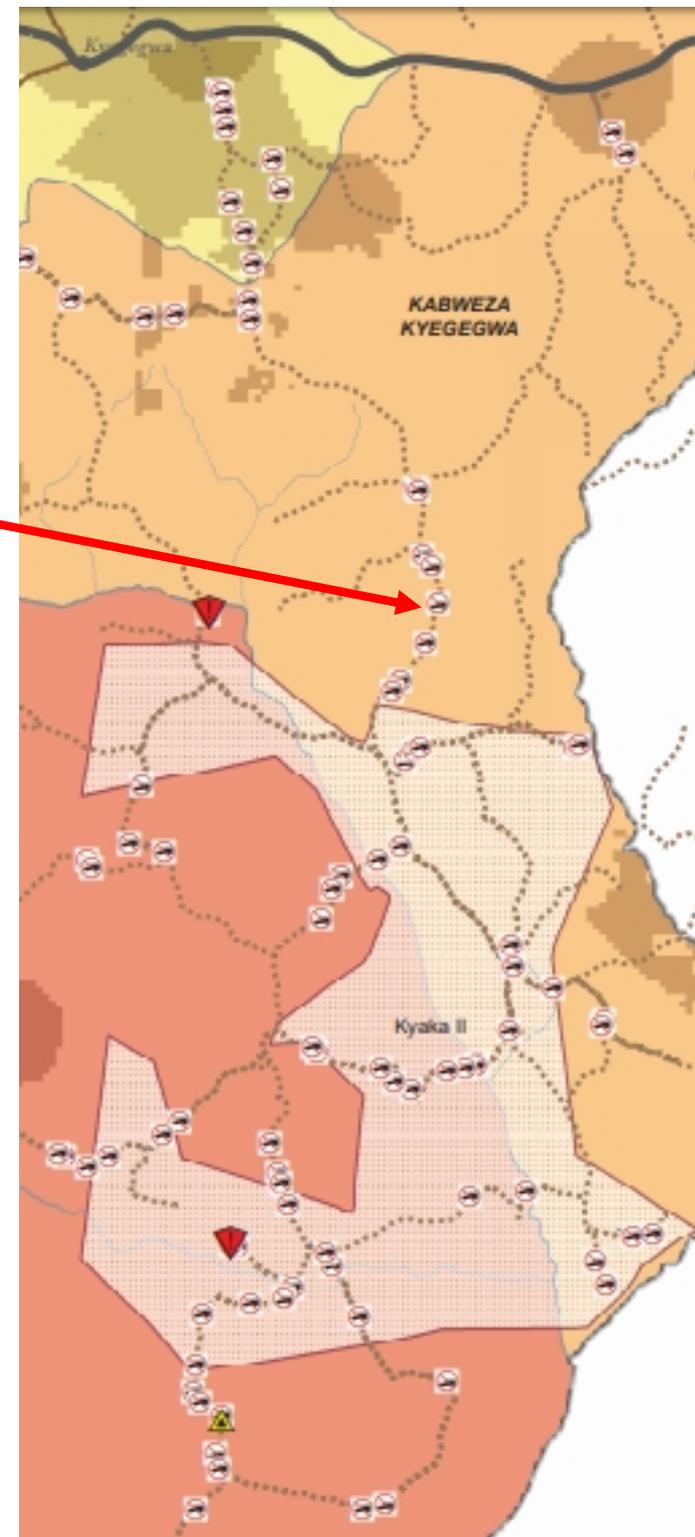
Mukyeya to Kasule road

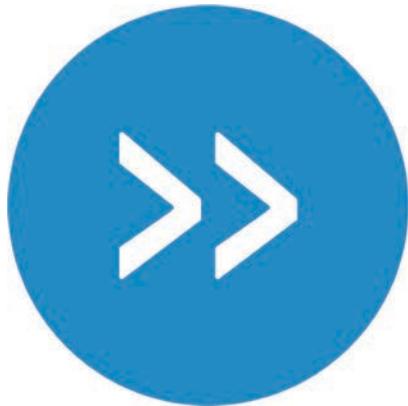


Kyegegwa town to Kyaka II base camp road



Roads are slippery – supplying Kyaka II is difficult for trucks during the rainy season

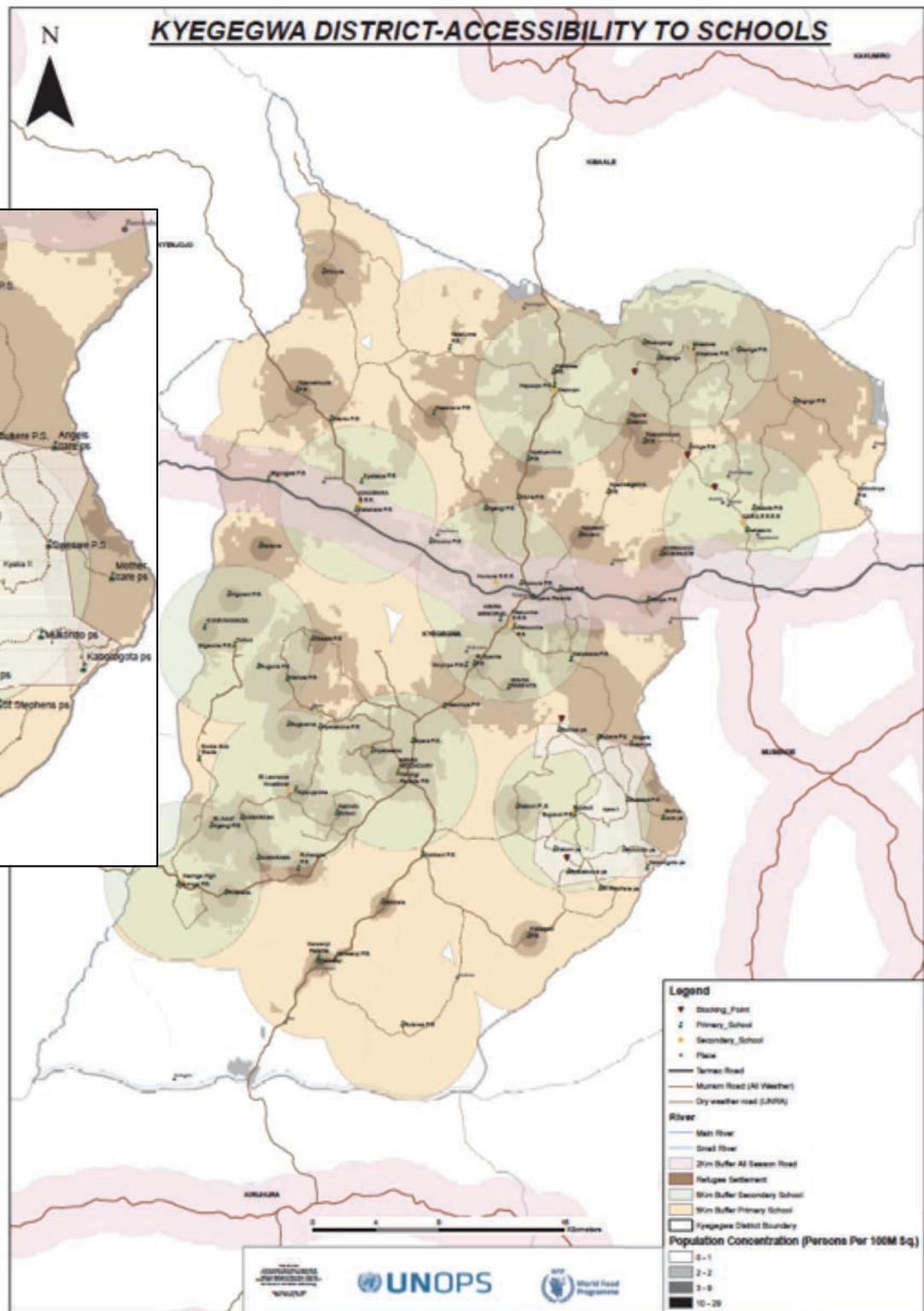
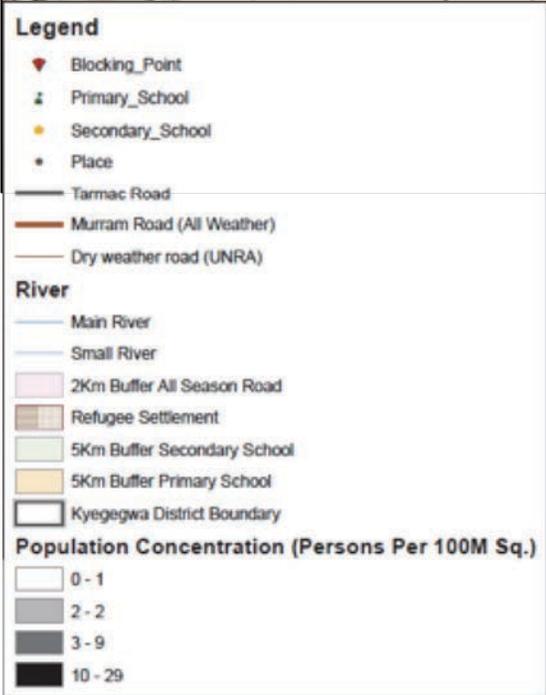
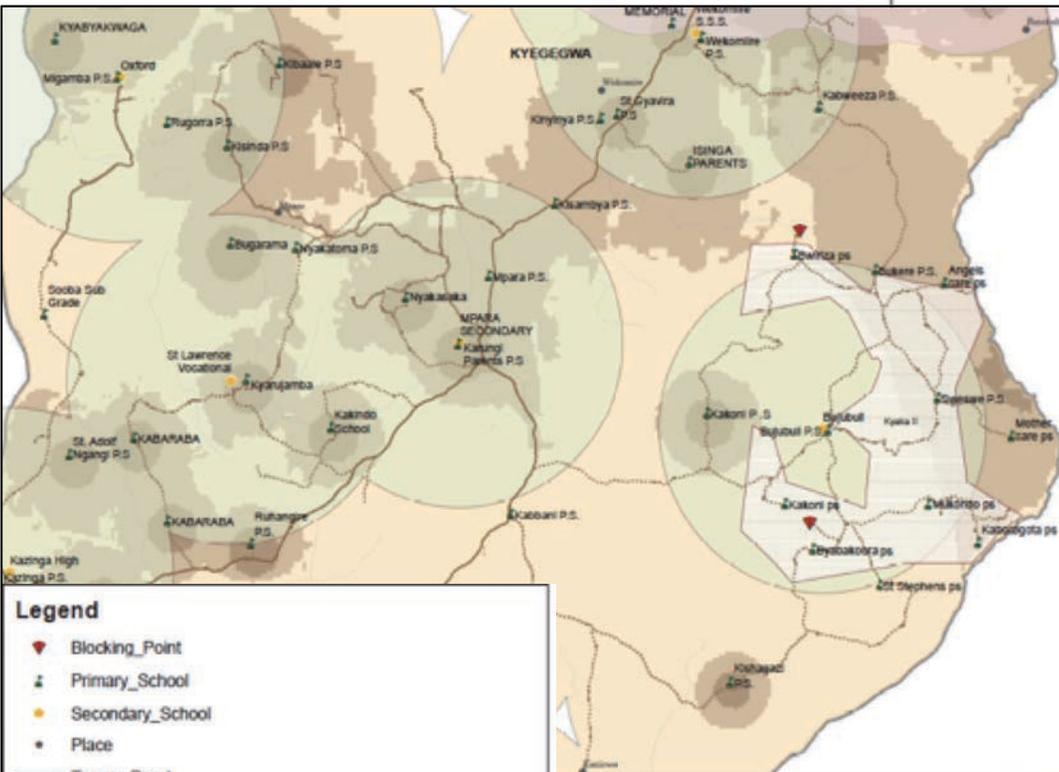




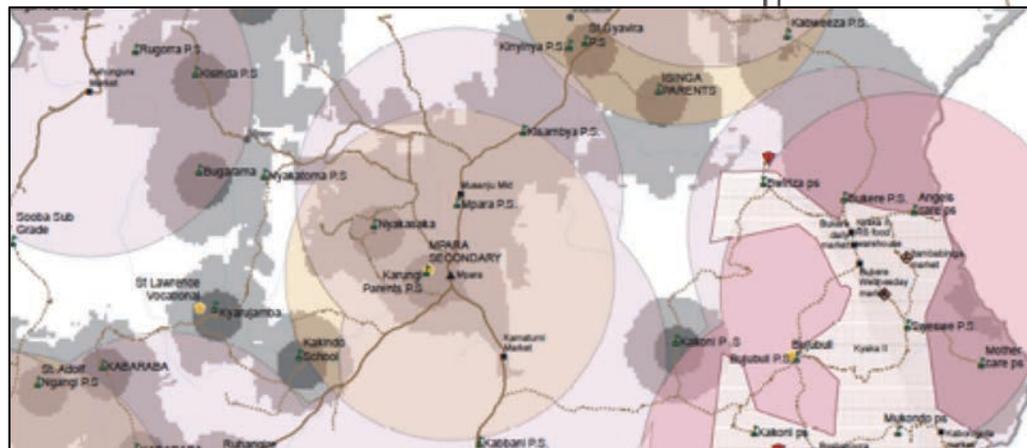
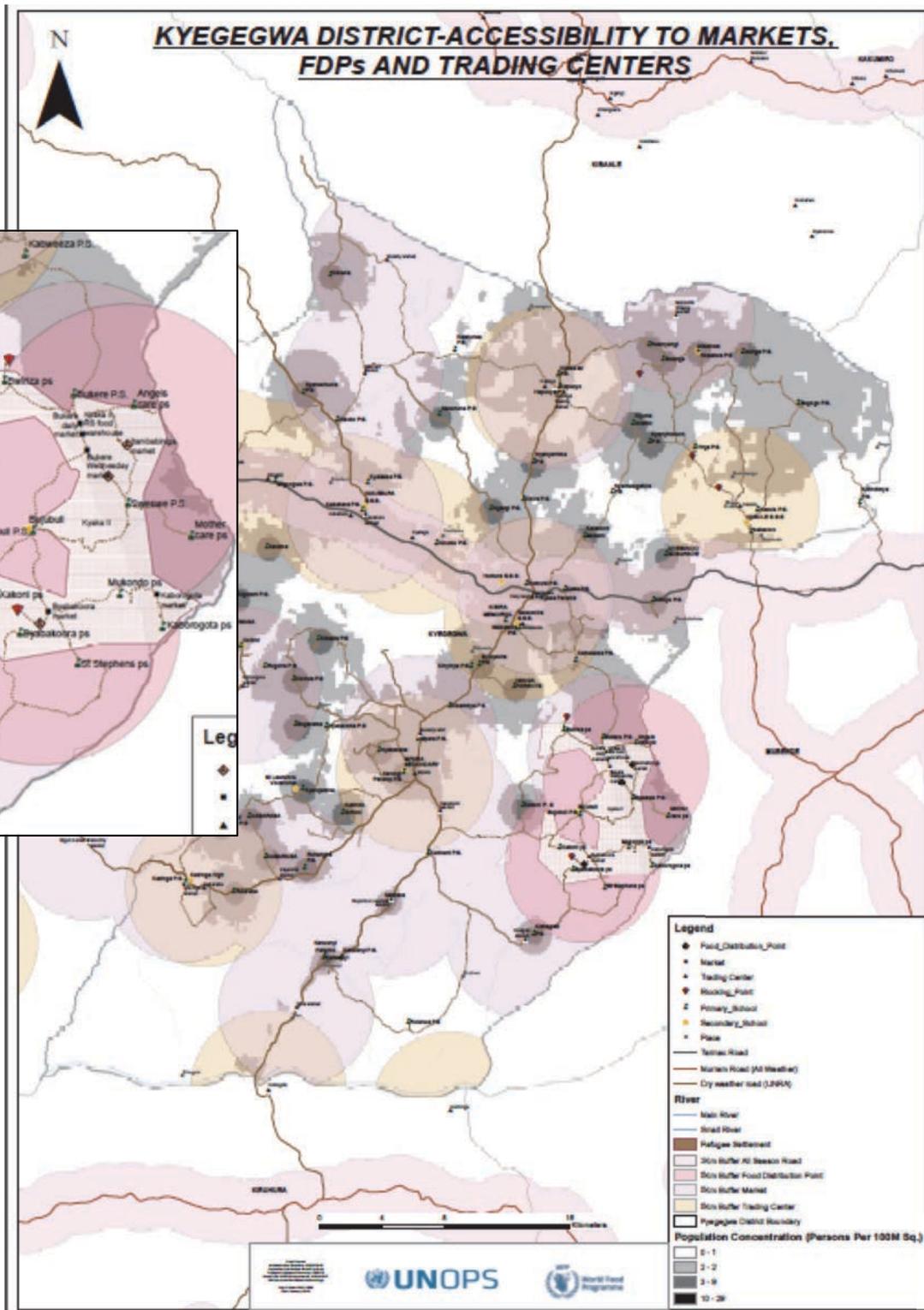
Access to services

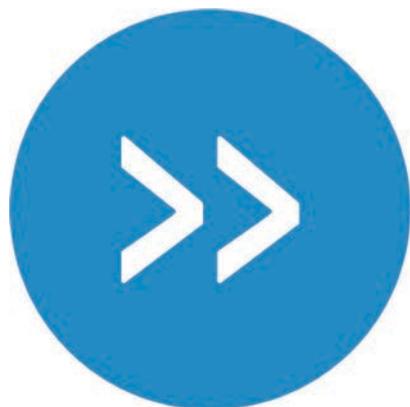
Kyegegwa

Schools



Markets, FDPs and Trading Centres





WHAT CAN WE DO WITH THIS INFORMATION?

INTEGRATED SOLUTIONS

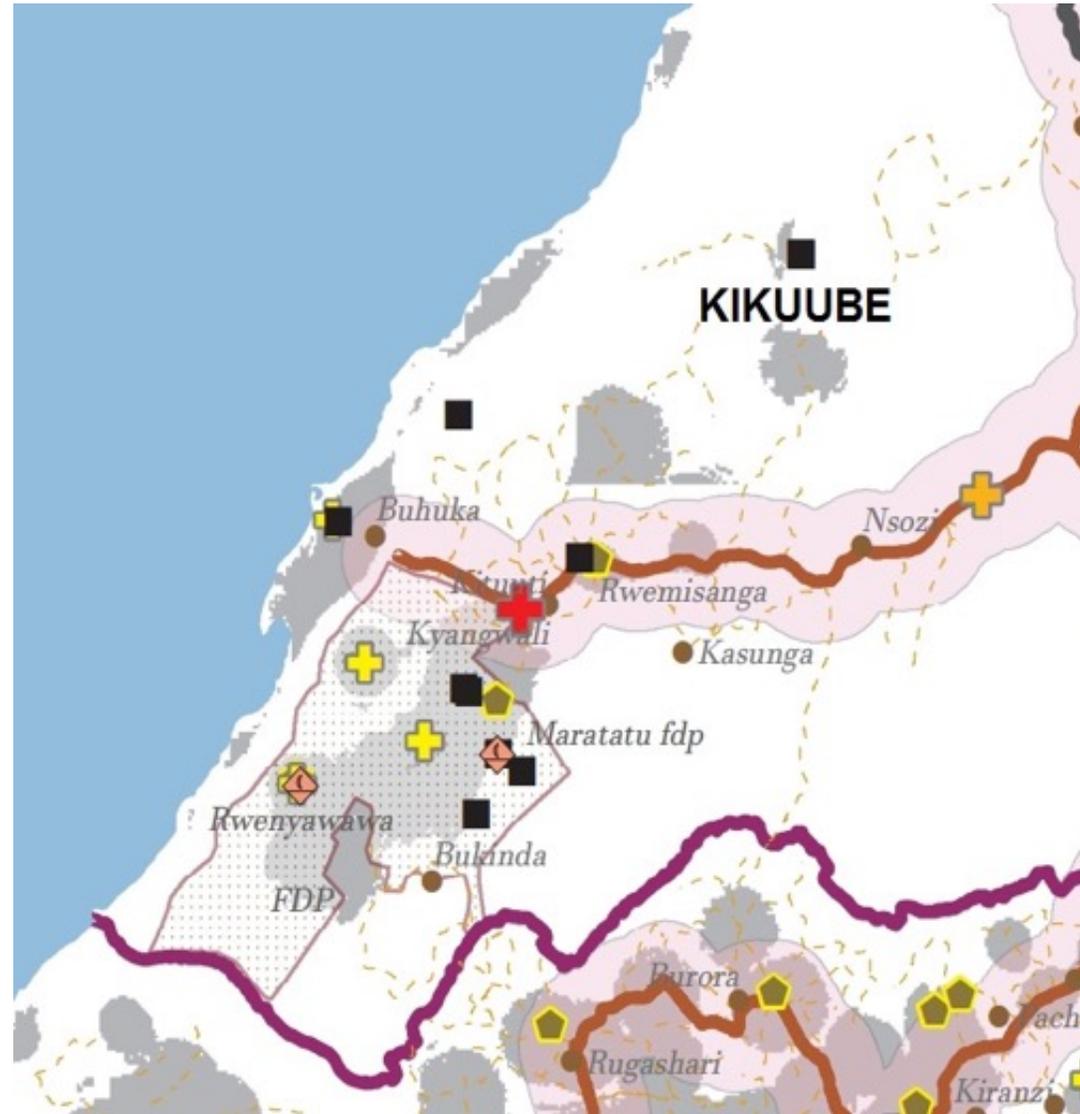
Simulations

Segment of road:

- Proportion of population – Impact
- Provides access to services – Health center, Schools, Markets, Trading Centers

Selection will be done based on

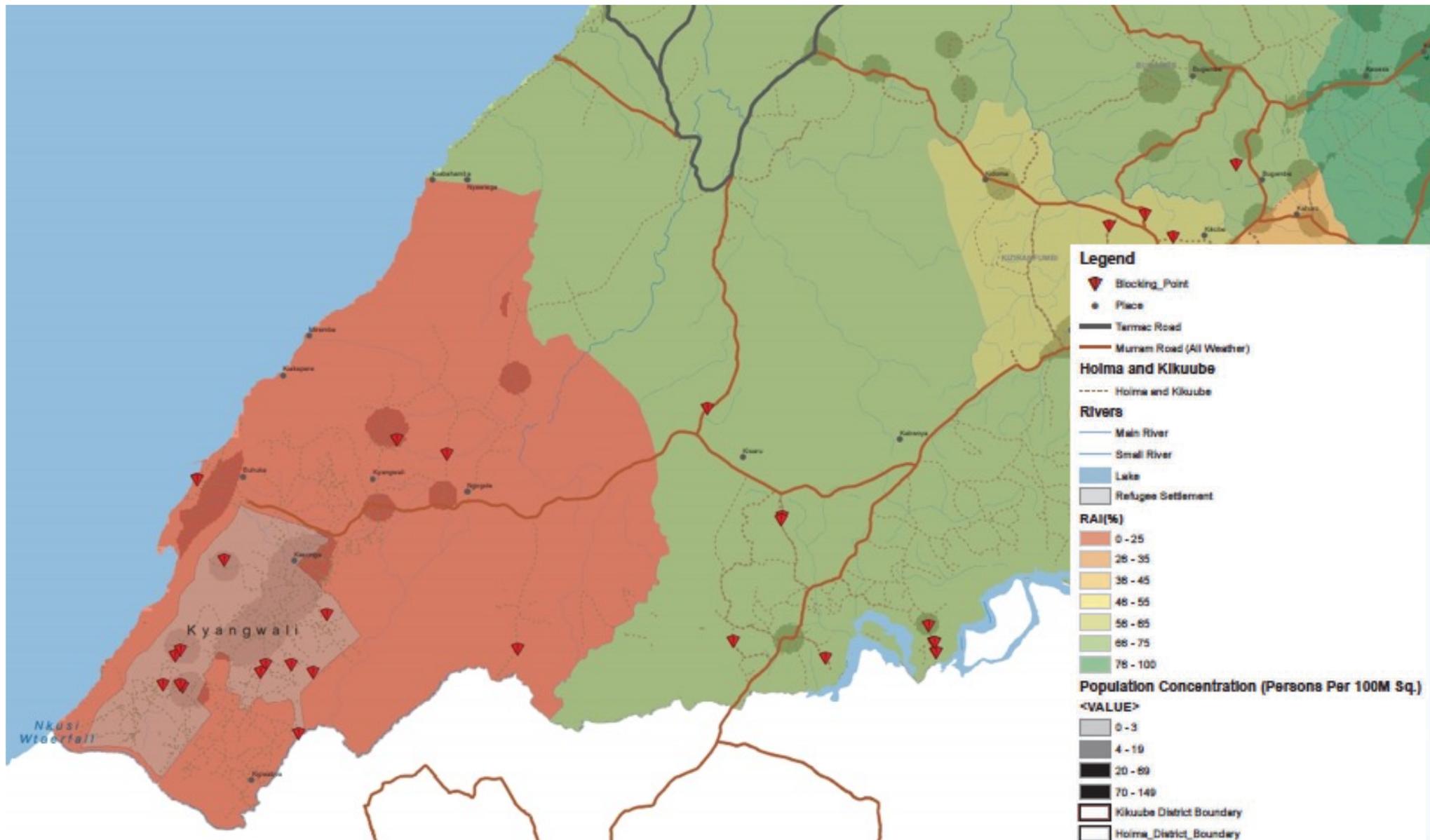
- The identified critical points
- Access to services



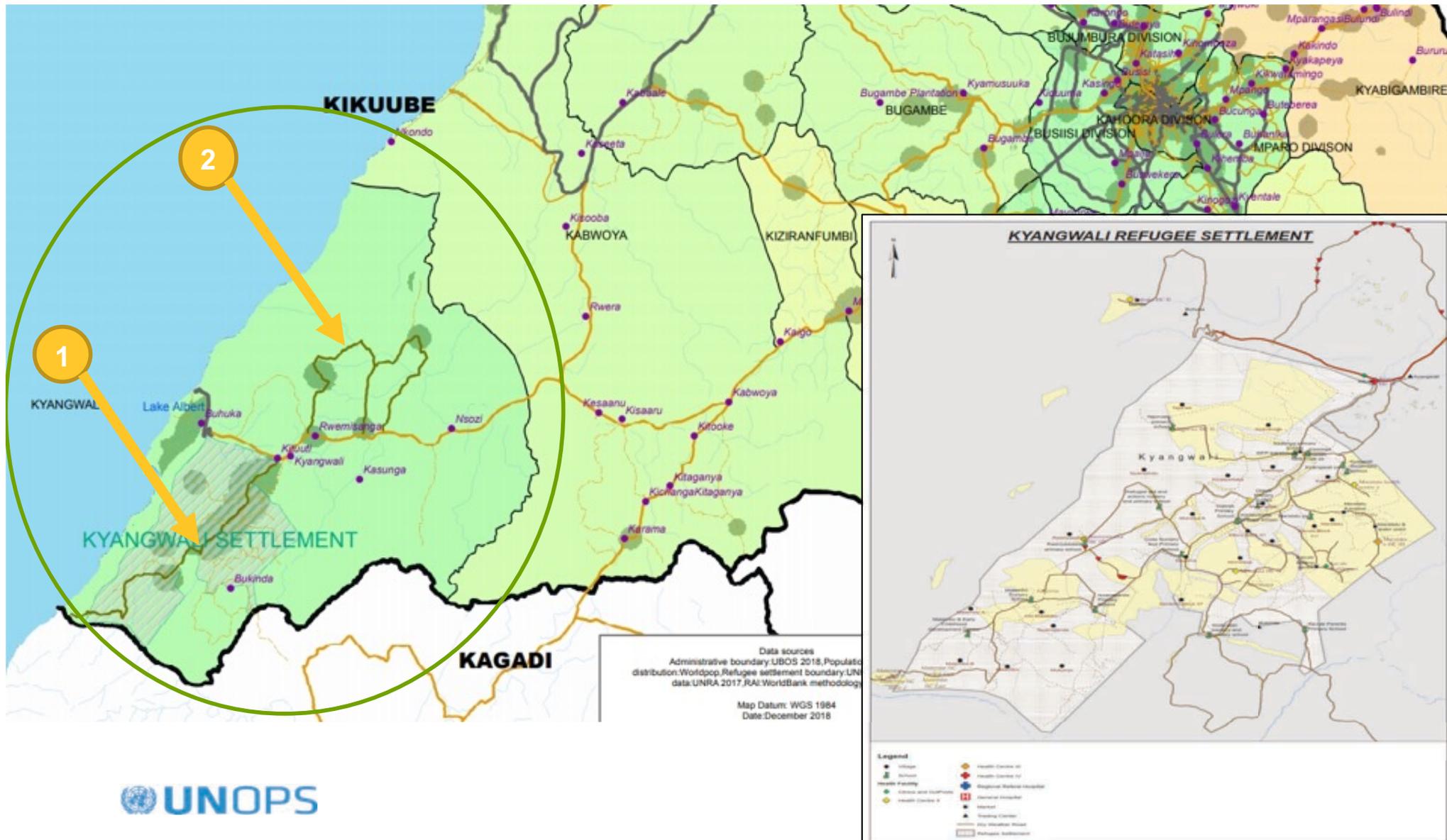
Kikkube District

RAI in Kyangwali = 20% (the lowest in the District)

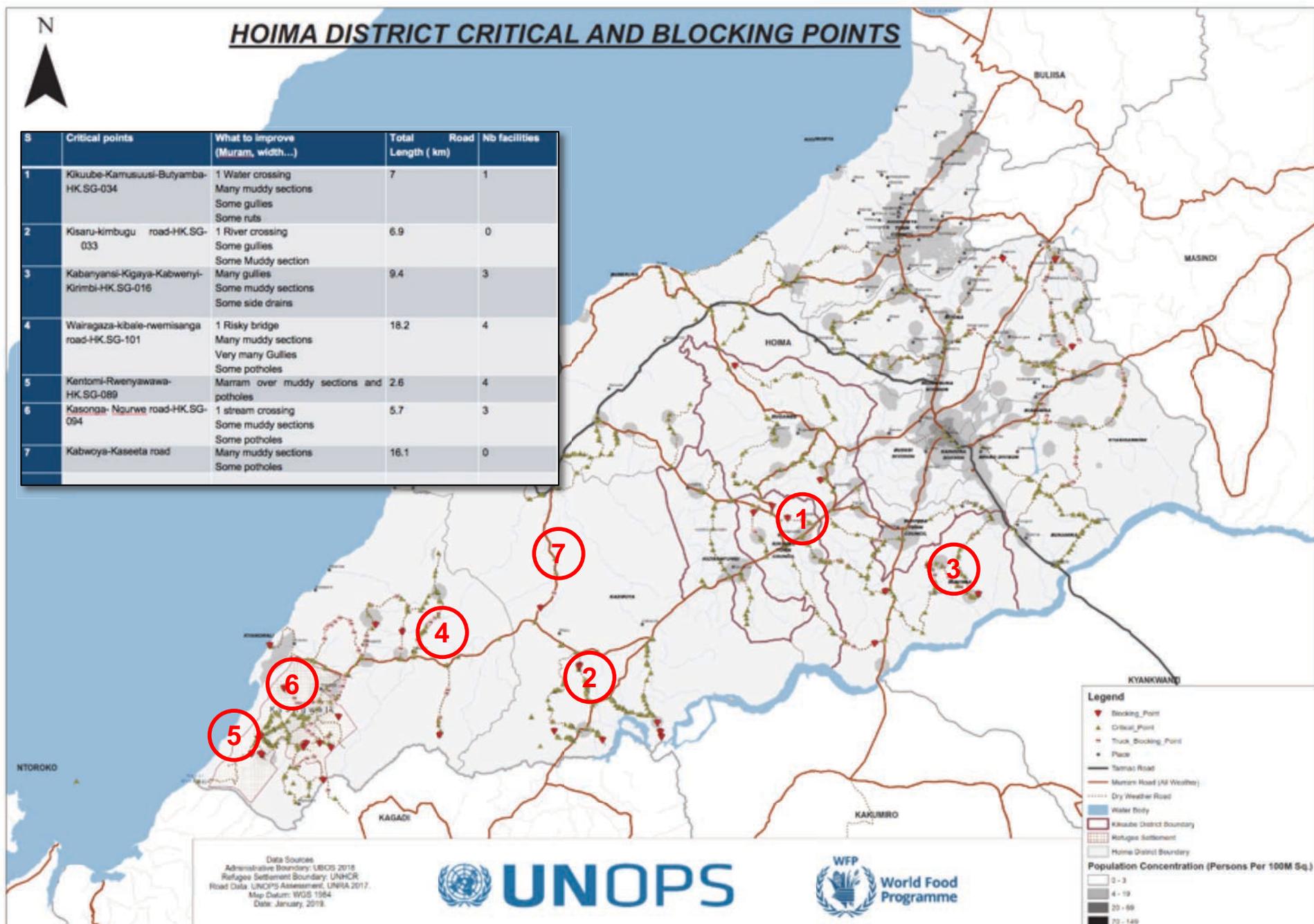
93,732 people do not have access to an all weather road



If we improve the 2 roads (1 and 2 in yellow) →
 RAI in Kyangwali will go up to 80% →
 92,836 people will have access to an all season road



Identified areas of intervention



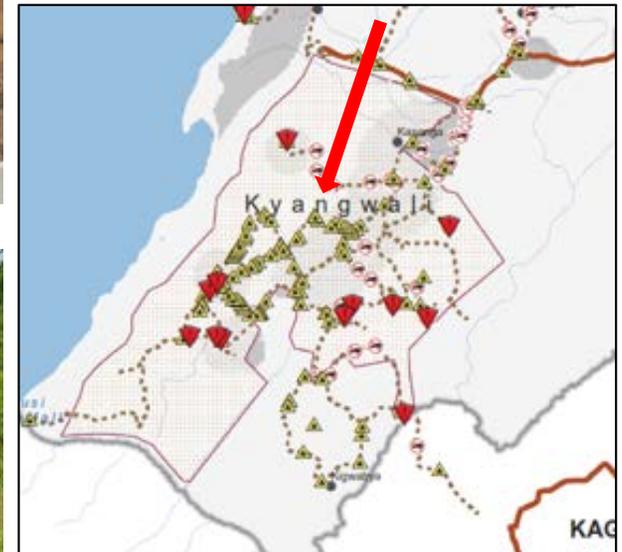
Identified Areas for improvement

S	Critical points	What to improve (Muram, width...)	Total Road Length (km)	Nb facilities
1	Kikuube-Kamusuusi-Butyamba- HK.SG-034	1 Water crossing Many muddy sections Some gullies Some ruts	7	1
2	Kisaru-kimbugu road-HK.SG- 033	1 River crossing Some gullies Some Muddy section	6.9	0
3	Kabanyansi-Kigaya-Kabwenyi- Kirimbi-HK.SG-016	Many gullies Some muddy sections Some side drains	9.4	3
4	Wairagaza-kibale-rwemisanga road-HK.SG-101	1 Risky bridge Many muddy sections Very many Gullies Some potholes	18.2	4
5	Kentomi-Rwenyawawa- HK.SG-089	Marram over muddy sections and potholes	2.6	4
6	Kasonga- Ngurwe road-HK.SG- 094	1 stream crossing Some muddy sections Some potholes	5.7	3
7	Kabwoya-Kaseeta road	Many muddy sections Some potholes	16.1	0

Example : Segment 6- Kasonga- Ngurwe road- HK.SG-094



- 5.7 KM
- 1 Primary School and Health Centre
- Narrow and has blocking point / swamp



Example of how this translates into practical use - BOQs

Segments identified

Works identified

Beneficiaries estimated- both users and workers

Costs estimated

Evidence can help formulate the needs at district level

Estimation can be done by district and MoWT engineers

Beneficiary users are calculated by geospatial analysis and population data

Beneficiary workers: calculated based on number of labour days required for work

SECTION 11

Description	This section is a 11Km, 6 meters wide dirt road running from <u>Andelizo</u> through <u>Afeia</u> to <u>Ayivu</u> market.	
Critical points		Solution
Muddy sections during rainy seasons and waterway during rainy seasons		This section requires building of a Ford and stabilization of the road by grading , leveling ,supply of murrum and compacting.
Cost estimate (USD)	Murrum	211000
	Ford	4000
	Total	215000

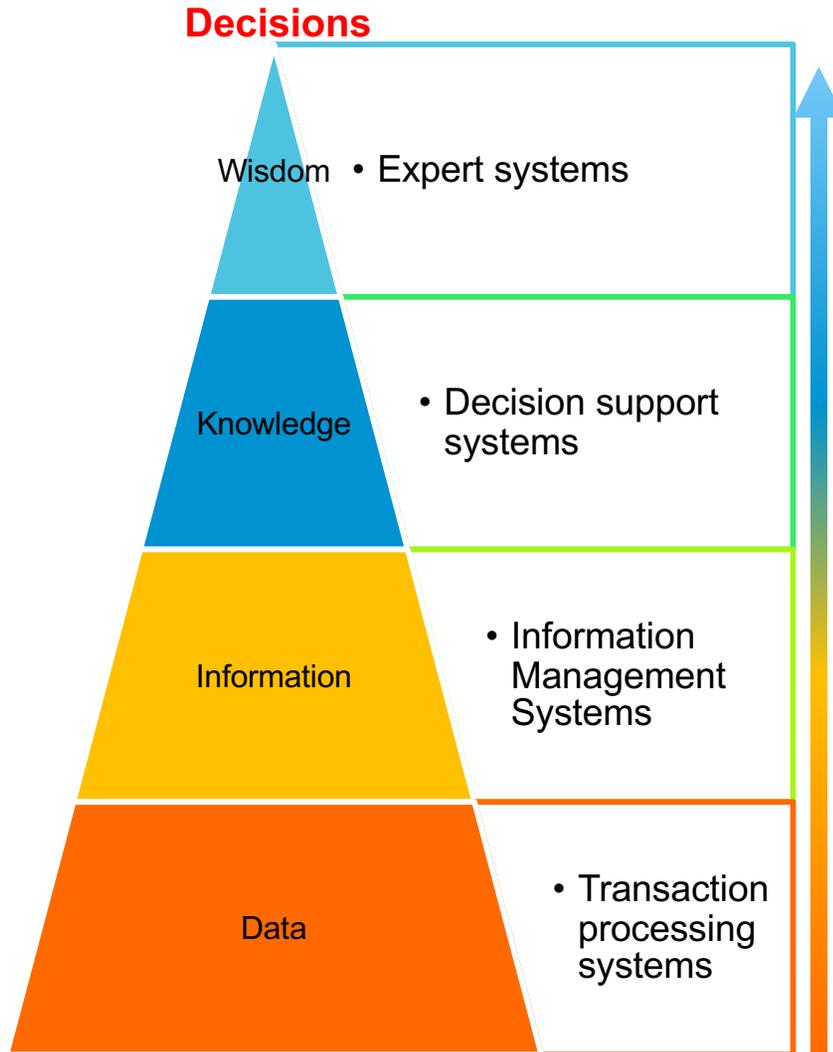


SECTION 37

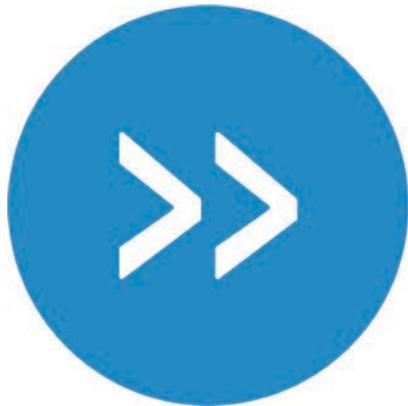
Description	This section is a 24Km, 6 meters wide dirt road running from <u>Ayivu</u> through <u>Uwa</u> to <u>Obongj</u> .	
Critical points		Solution
Muddy sections during rainy seasons		This section requires stabilization of the road by grading , leveling ,supply of murrum and compacting.
Cost estimate (USD)	Murrum	461000
	Total	461000



Why is this important for Governments/ Agencies



- Enables the partners to make accurate **decisions** on funding/budget allocation
- Provides partners with the information they need to **prioritize short, medium and longer term** investment requirements for the county
- Provide Local Government with **evidence** they need to ensure that decisions are made on **priority of need** rather than **politics**
- Allows for **evidence-based planning** for future investment and prioritization
- Allows for the identification of **bottle necks and critical points** that need attention
- Provides an **accurate picture** of the network connecting population centers to **public services** (Health, Education, Water, Markets, etc) and transportation



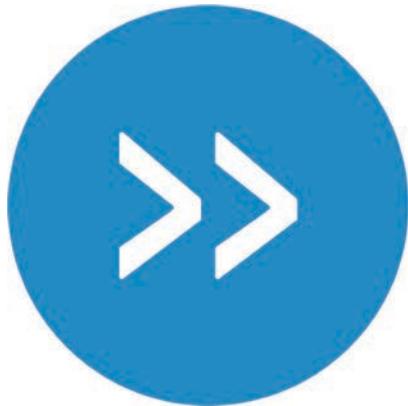
How have we involved the Government

CENTRAL LEVEL

- MOWT GIS team has been trained in the methodology of data processing and analysis
- MOWT engineers accompanied some of the surveyor teams while they were collecting data
- MOWT GIS section will be central repository for the data collected
- MOWT Engineers were involved in the disseminations in the field

DISTRICT LEVEL

- District engineers accompanied the field teams when collecting data and identifying critical points and blocking points
- District engineers and planners were engaged when selecting the final areas that have been selected for improvement for our final technical report.



Thank you!

Questions?

Thushanti Selvarajah

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