



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

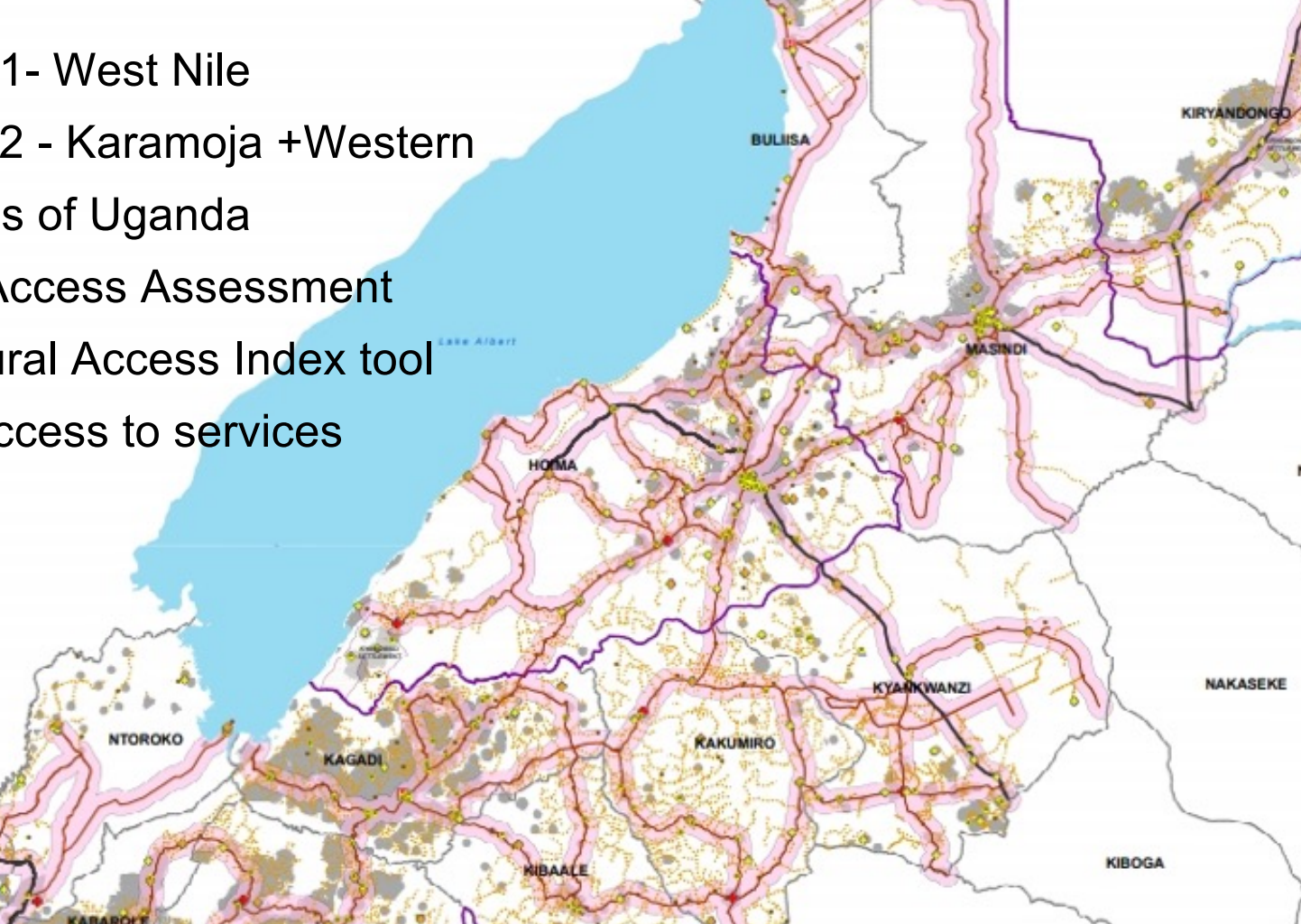
Introduction to the Rural Access Index

Kampala, 18th February 2019



N

A black arrow pointing upwards, indicating North.

- # Project
- Phase 1- West Nile
Phase 2 - Karamoja +Western
Regions of Uganda
Rural Access Assessment
- Rural Access Index tool
 - Access to services
- 
- The map displays the geographical context of the project in Uganda. The West Nile region is outlined in pink, and the Karamoja region is outlined in purple. Other regions shown include Nebbi, Pakwach, Nwoya, Buliisa, Kiryandongo, Apac, Amolata, Nakasongola, Nakaseke, Kiboga, Luweru, Mubende, Kyankwanzi, Rakumiro, Nibale, Kyenjojo, Kabarole, Bundibugyo, and Ntoroko. The map also shows Lake Albert and Lake Kyoga.

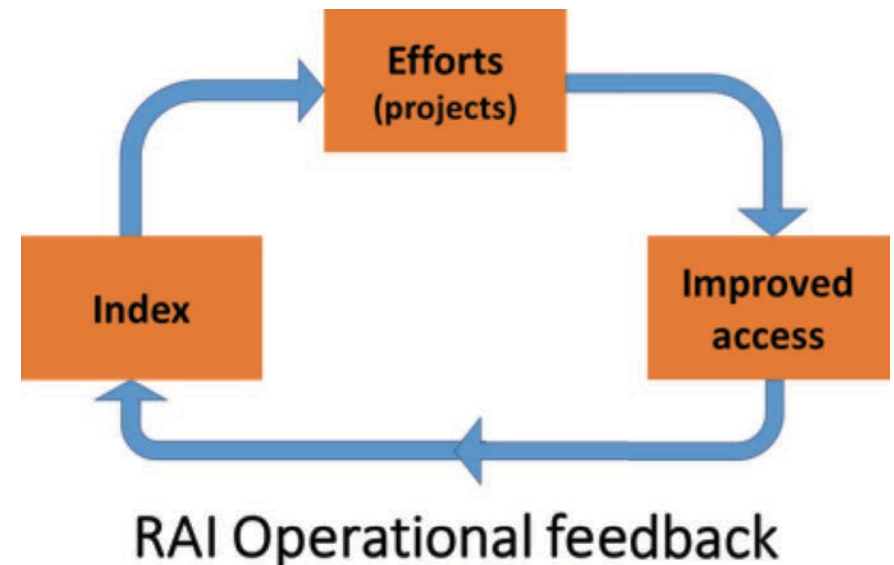
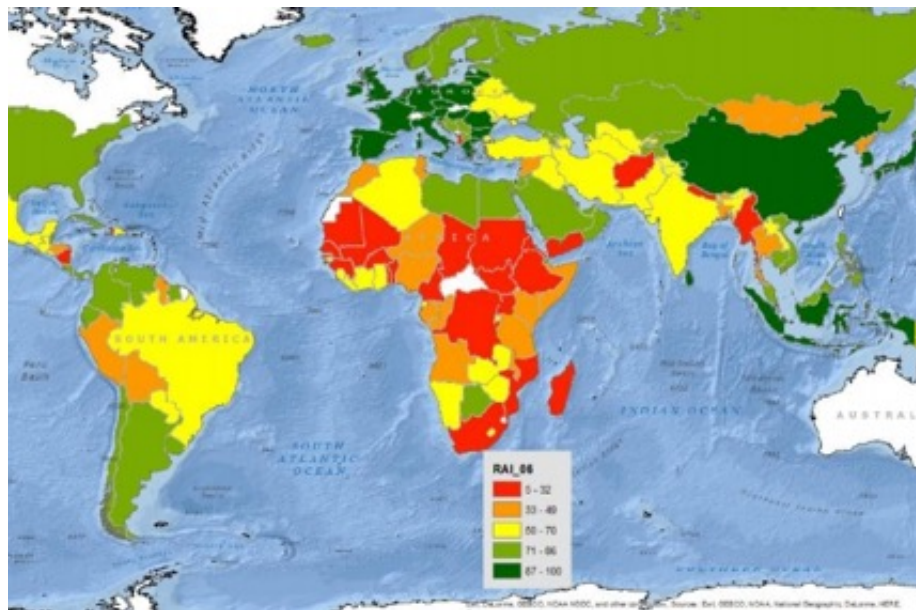


RURAL ACCESS INDEX

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



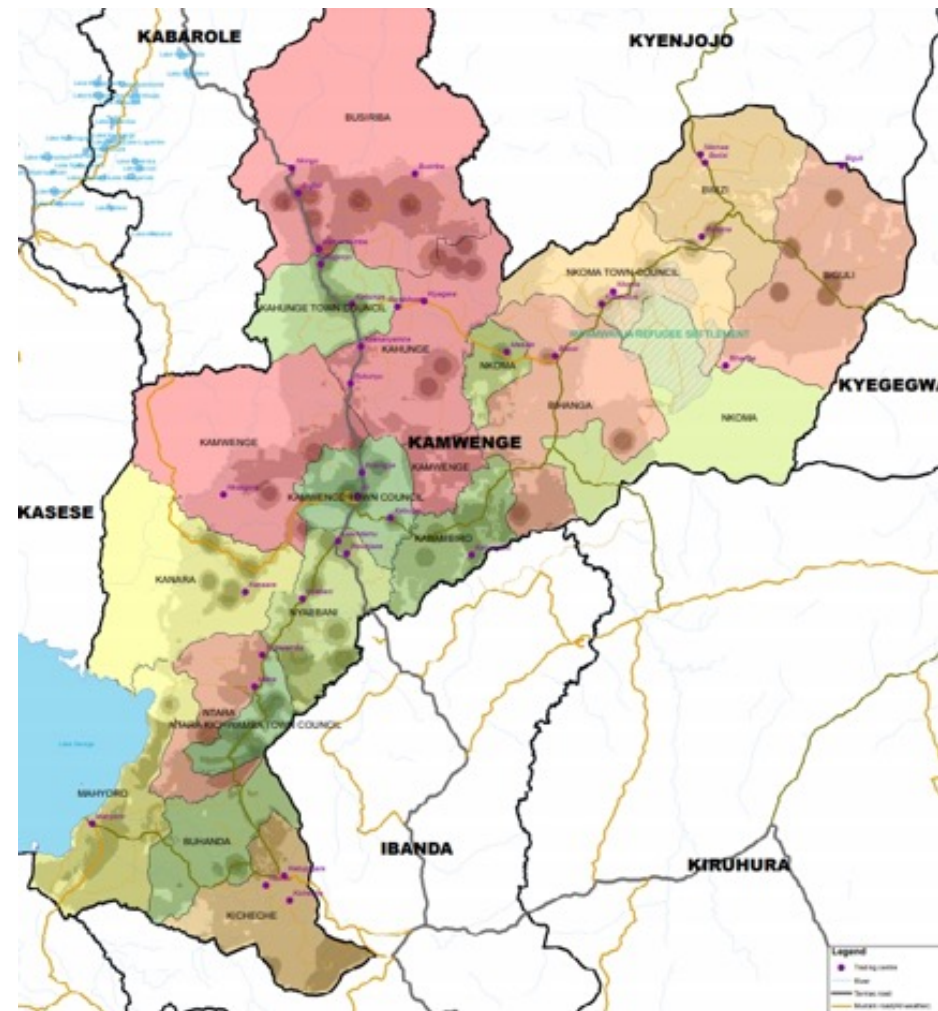
- **Target 9.1:** Develop quality, reliable, sustainable and resilient infrastructure including regional and trans-border infrastructure, to support economic development and human well being, with a focus on affordable and equitable access for all
 - › **Indicator 9.1.1:** proportion of the rural population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

The RAI method requires 3 types of data:

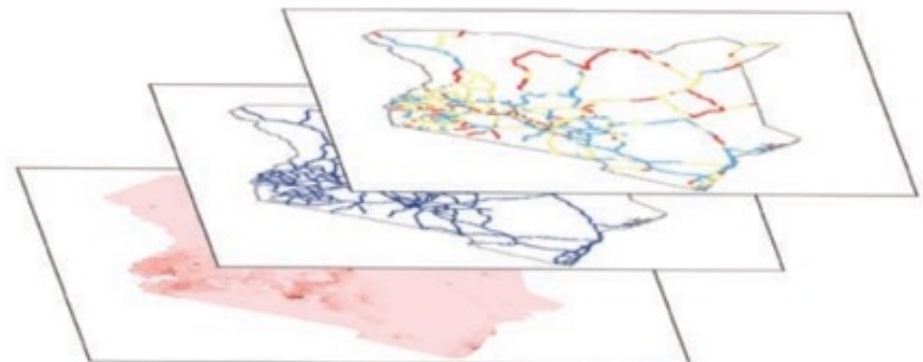
- 1) Population distribution
 - 2) Road network, and
 - 3) Road condition
- Exist
- We assess

Exist

We assess



World Bank RAI





1. Population distribution

Legend

Health Facility

Level

- HC II
- HC III
- HC IV
- General Hospital
- Trading Centre

All Season Roads

- Bituminous
- Unsealed
- Assessed Road
- Dry Weather Road

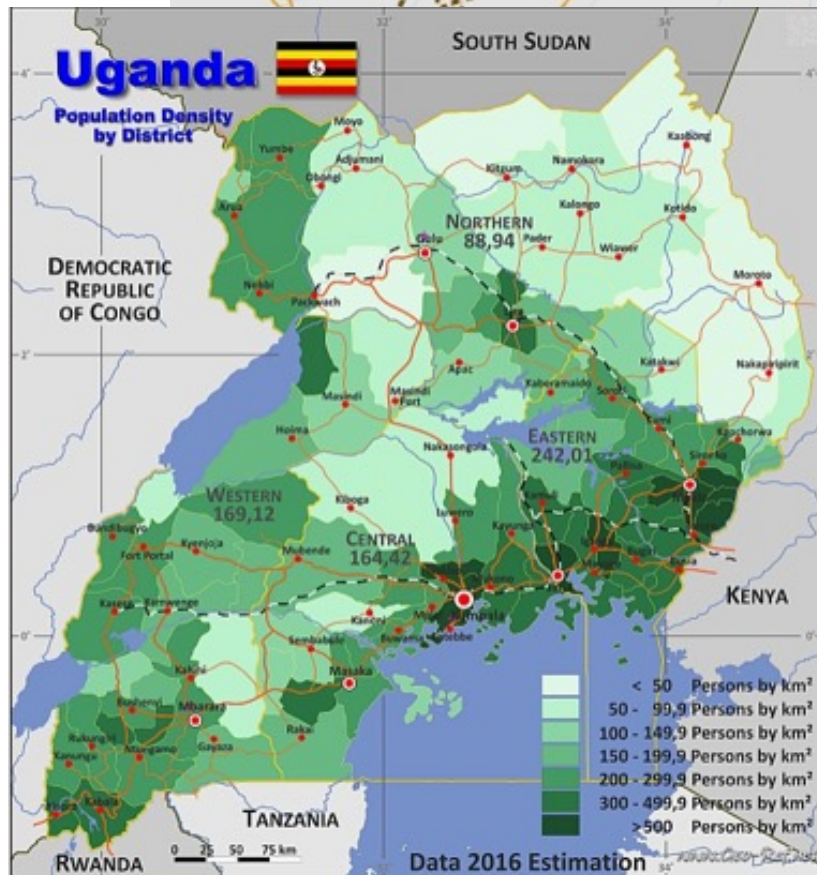
River

- Main River
- Small River

Kaabong District Boundary

Population Density (Persons Per 100M Sq.)

- 0 - 3
- 3-26
- 27-115
- 116-226



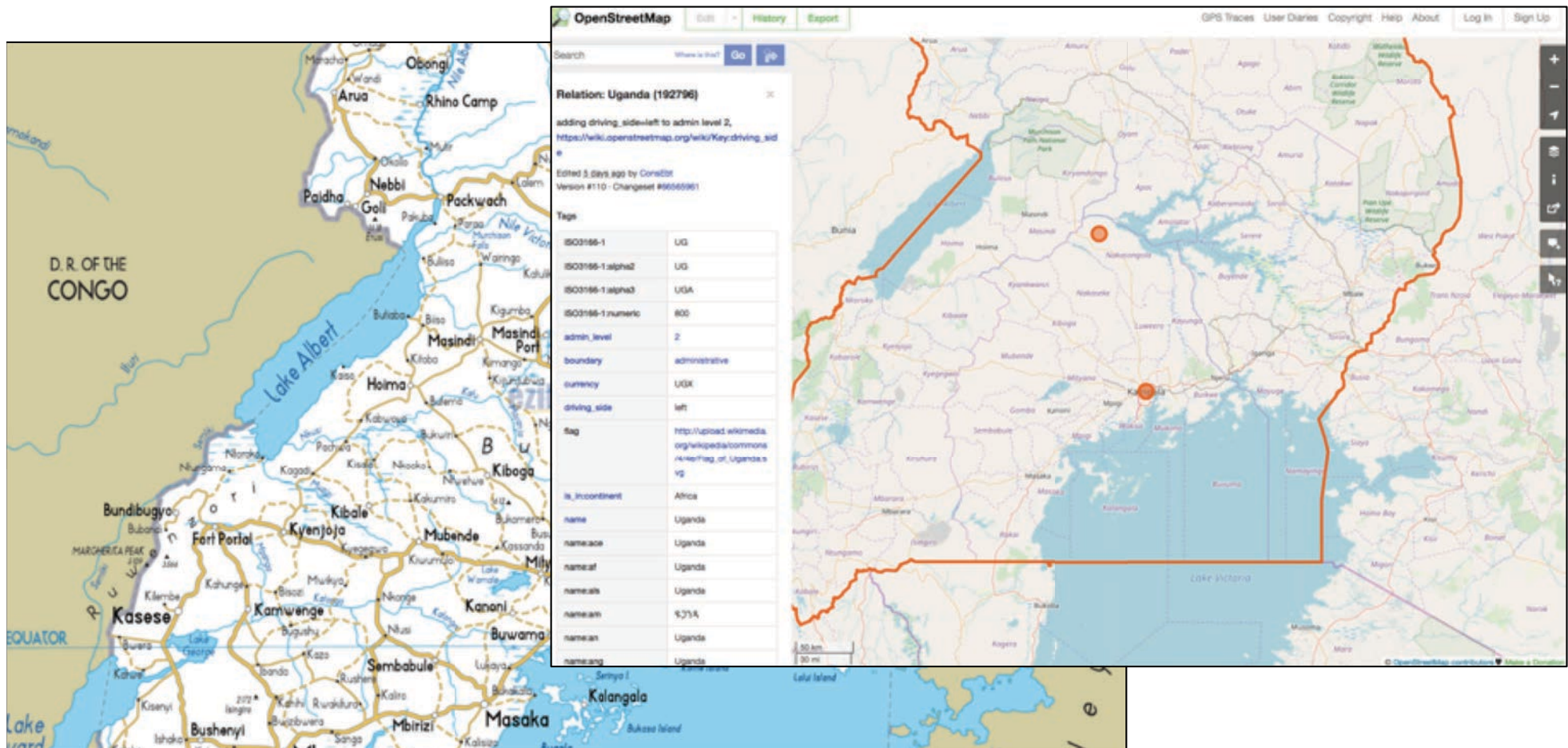
WorldPop

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





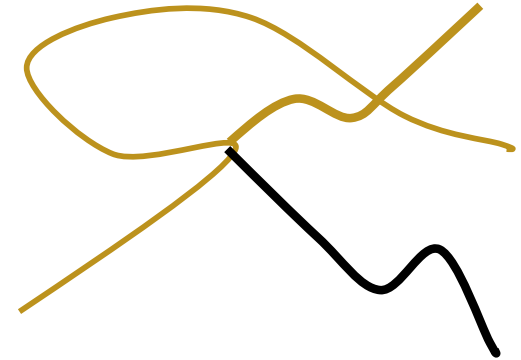
3. Road condition – 2 types



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

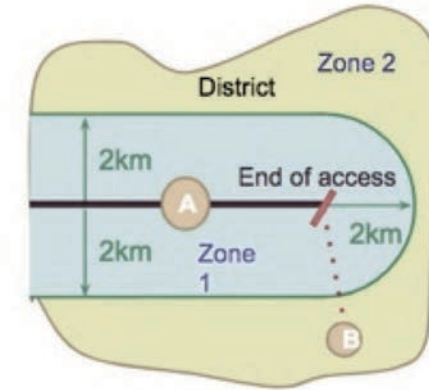
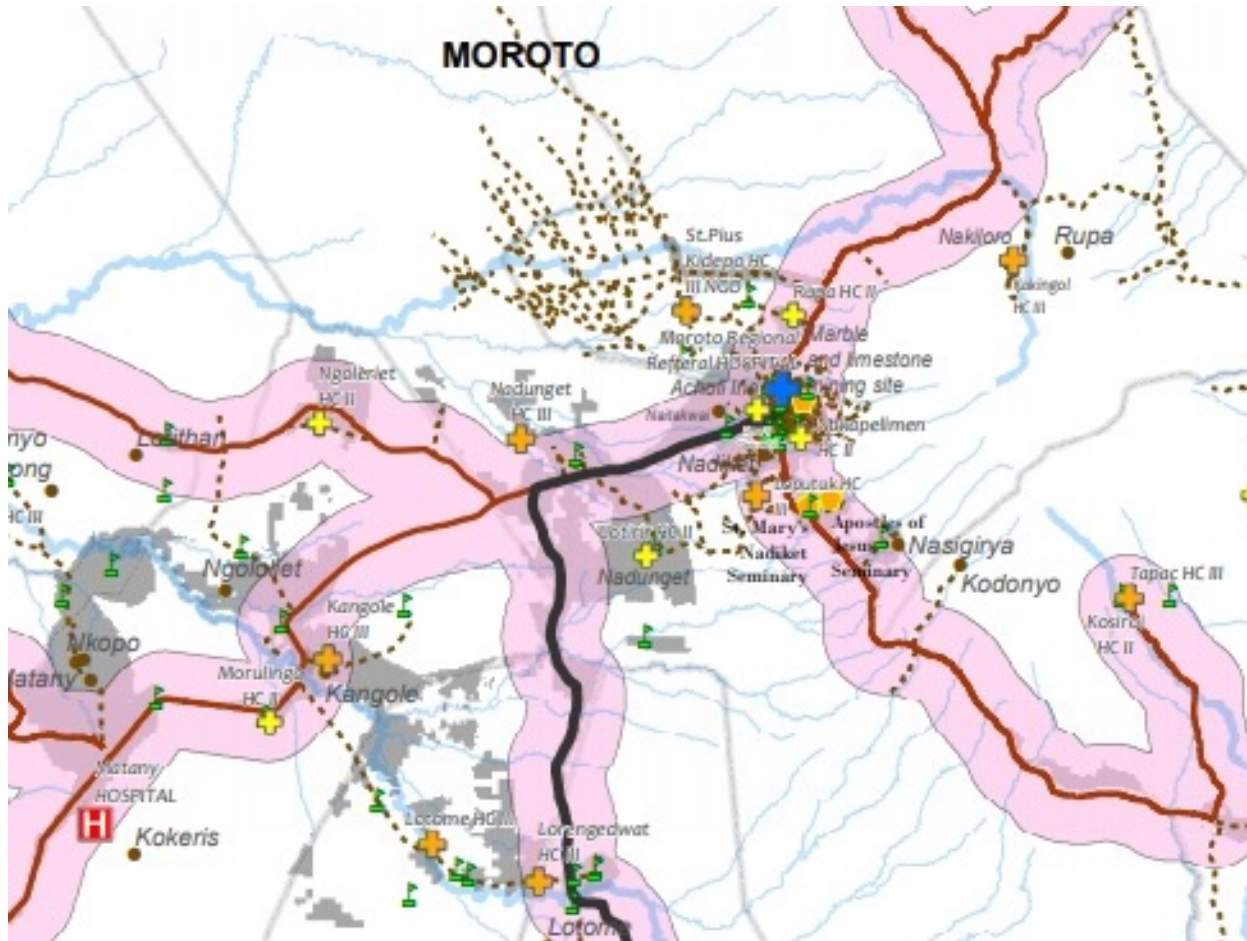
Examples of Critical points





HOW WE CALCULATE RAI

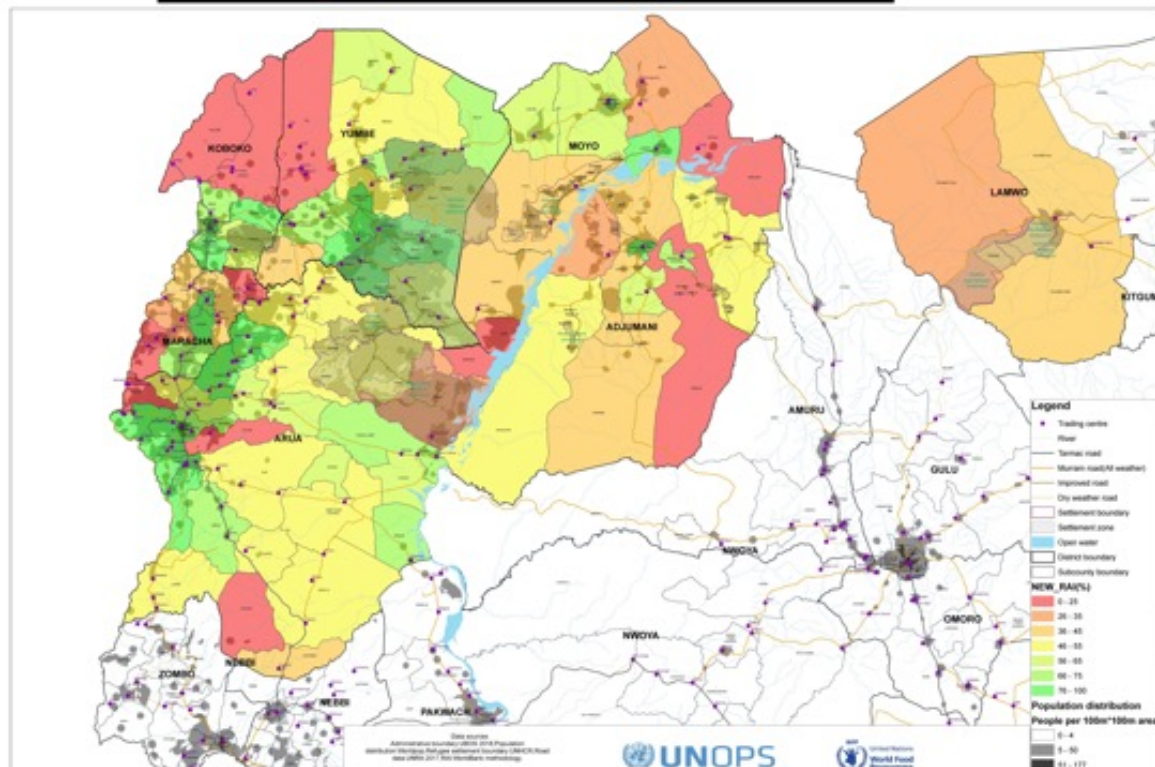
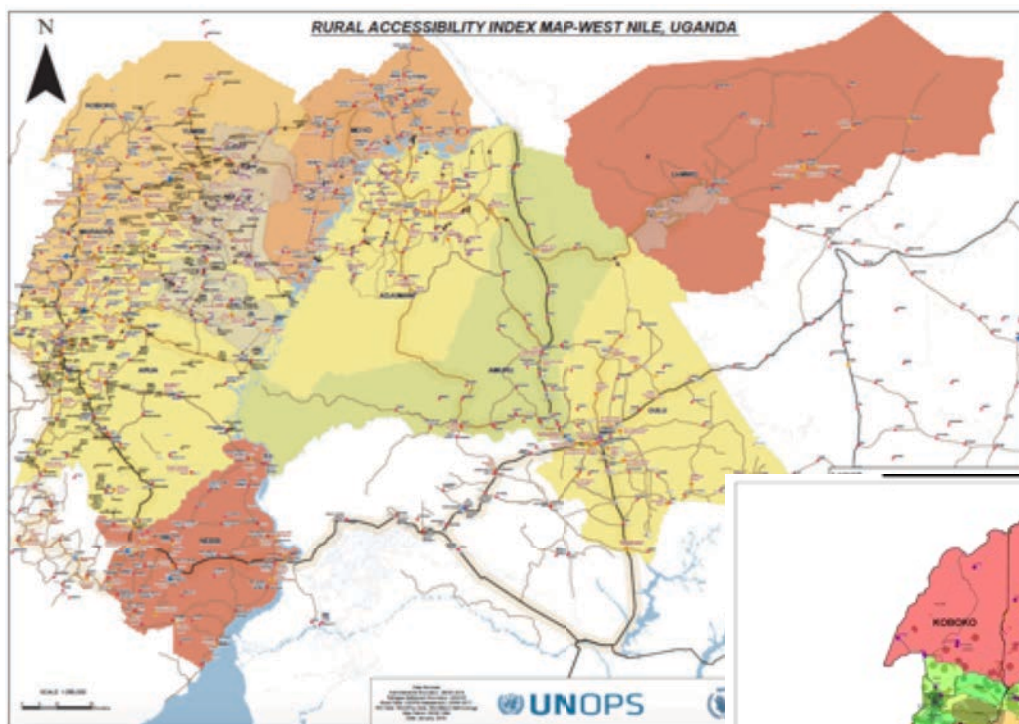
Phase 2 RAI calculation- based on world pop



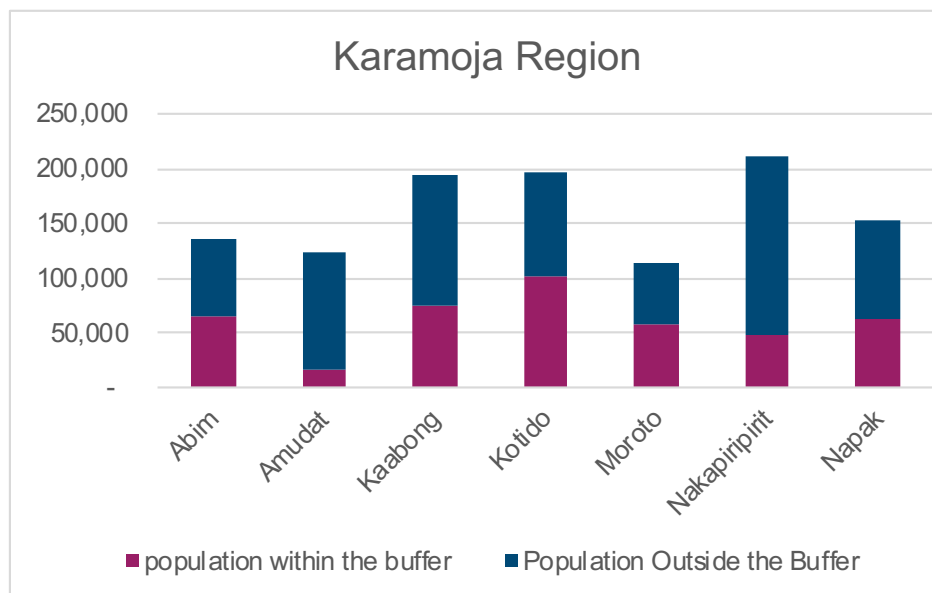
Population
Concentration % provided
by the world pop algorithm
to reside within the 2 KM
buffer
Measured against Uganda
census 2014 - projections
for 2018

$$RAI = \frac{\text{concentration (worldpop) of the population in the 2km buffer}}{\text{total concentration in the subcounty(Worldpop)}}$$

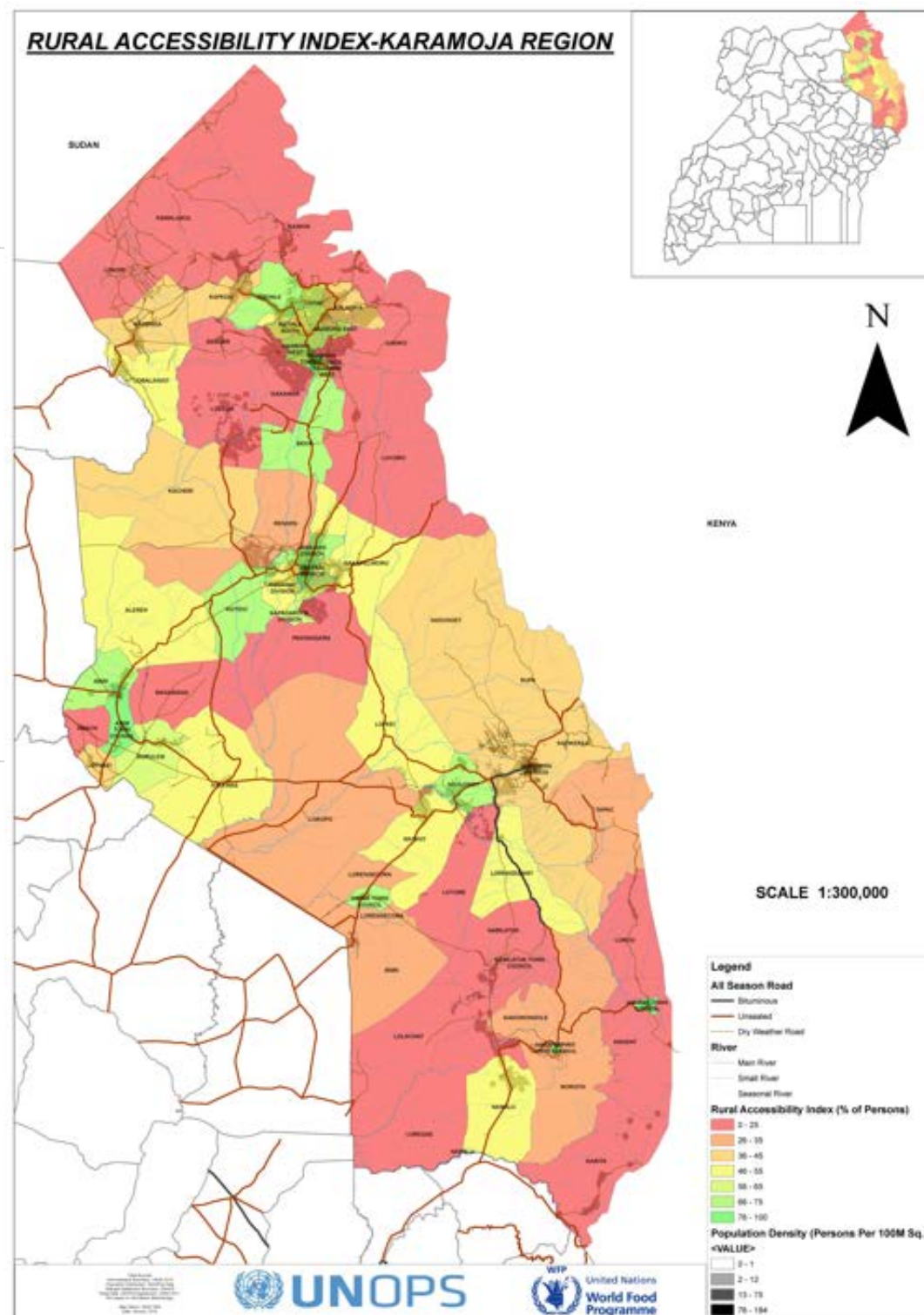
EXAMPLE OF THE RAI WEST NILE



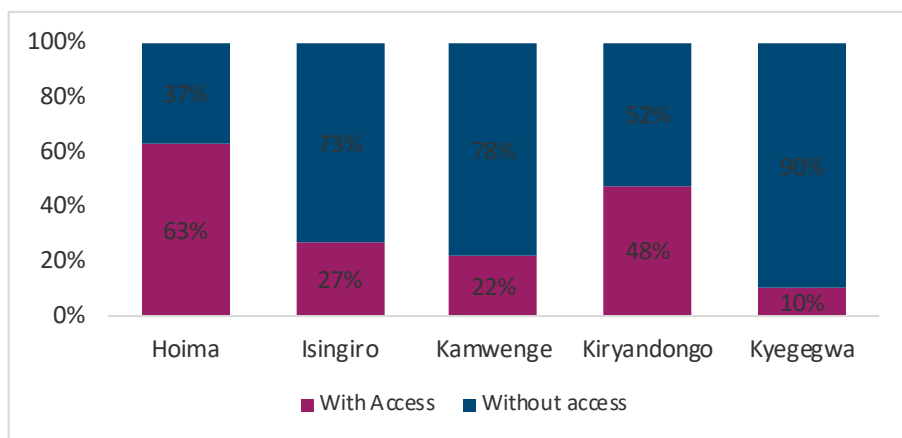
EXAMPLE OF THE RAI KARAMOJA



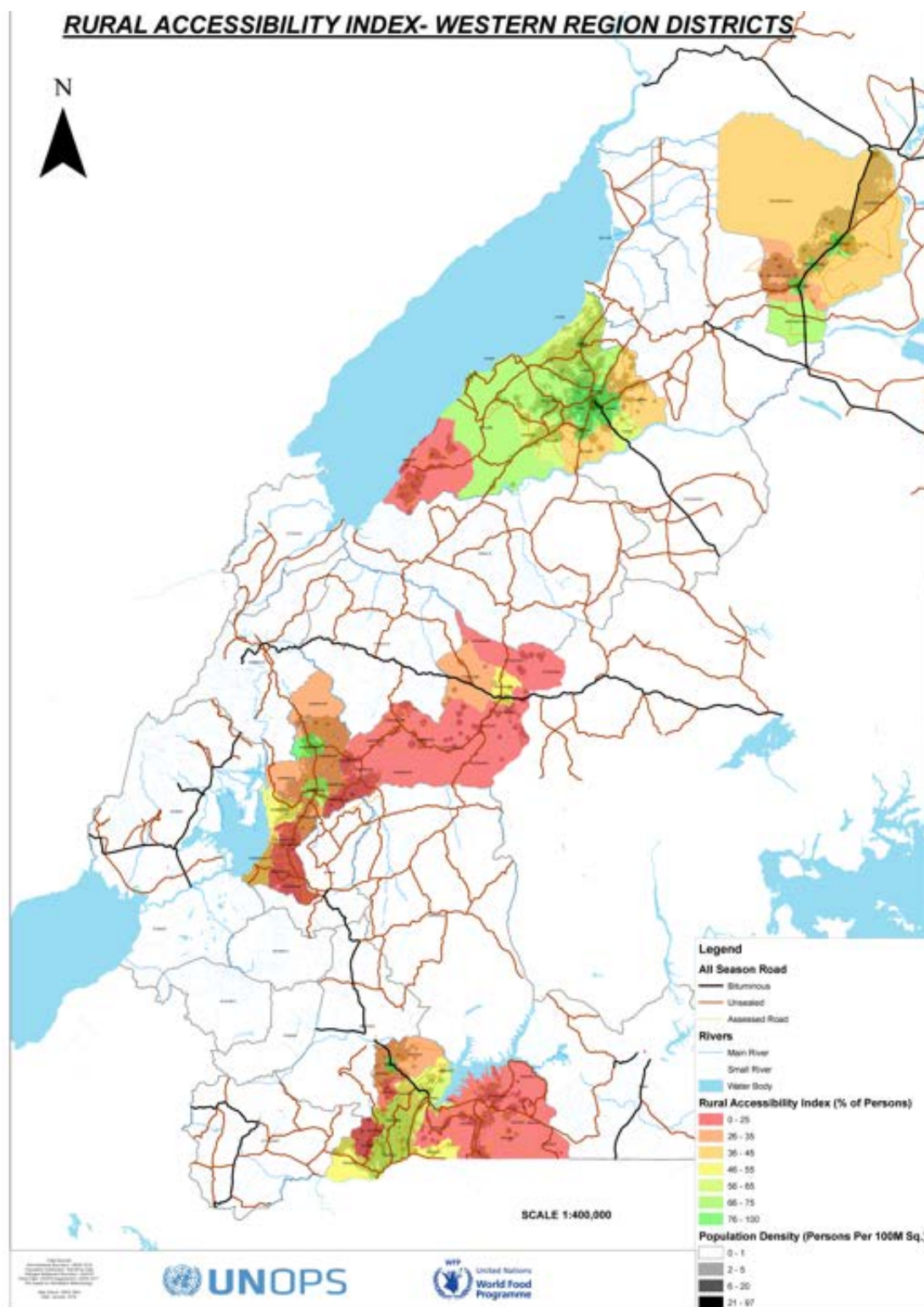
	Total district population	Population within the buffer	Population Outside the Buffer	RAI
Abim	136,200	66,155	70,045	49
Amudat	124,300	17,011	107,289	14
Kaabong	193,600	75,204	118,396	39
Kotido	197,600	101,290	96,310	51
Moroto	113,200	58,148	55,052	51
Nakapiripirit	212,100	48,227	163,873	23
Napak	152,700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

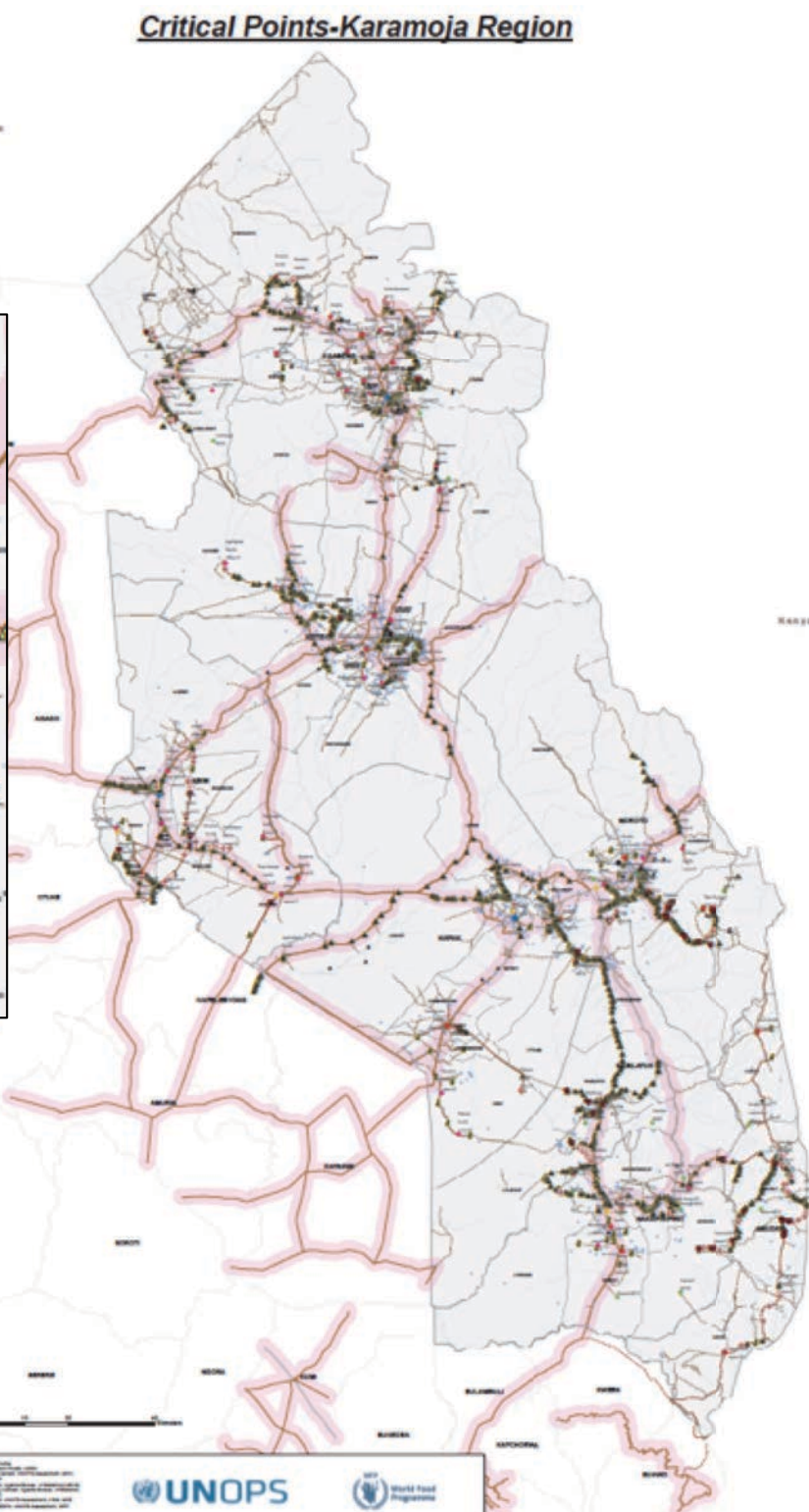
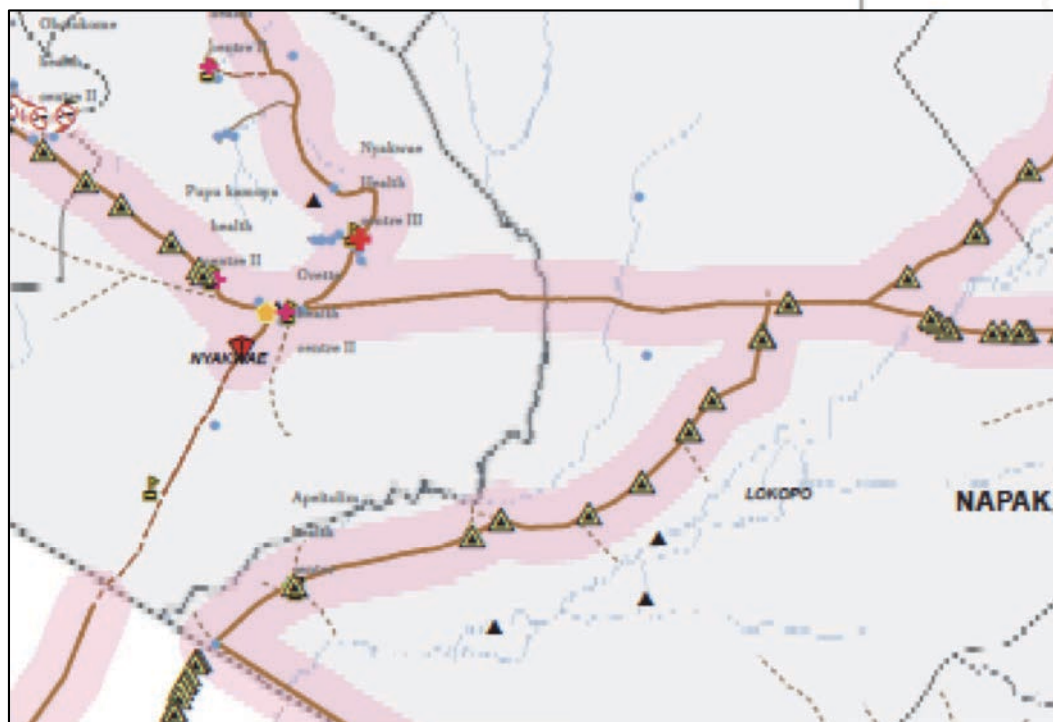




BEYOND THE RAI

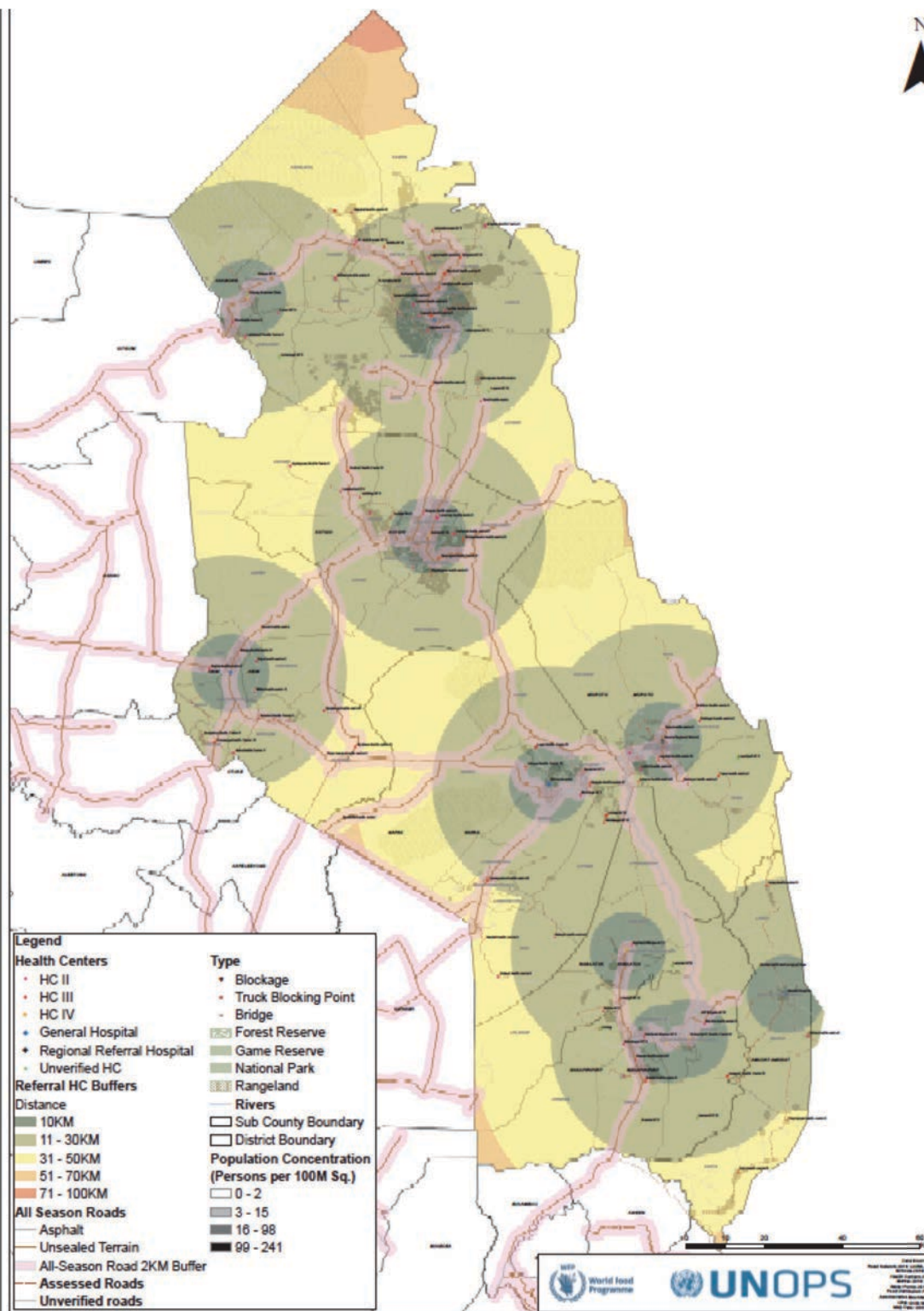
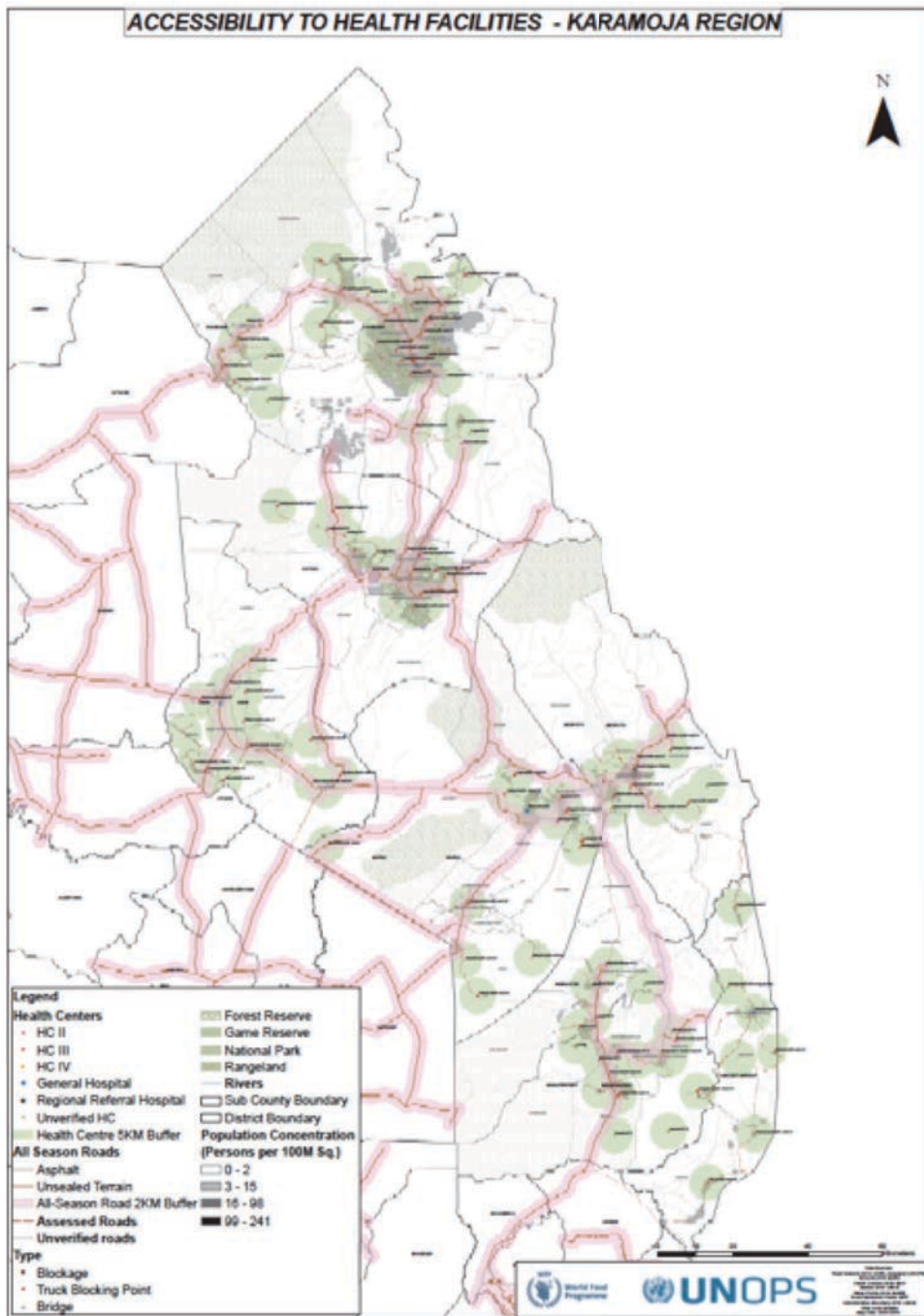
ADDING SERVICES TO BASE MAPS

CRITICAL & BLOCKING POINTS

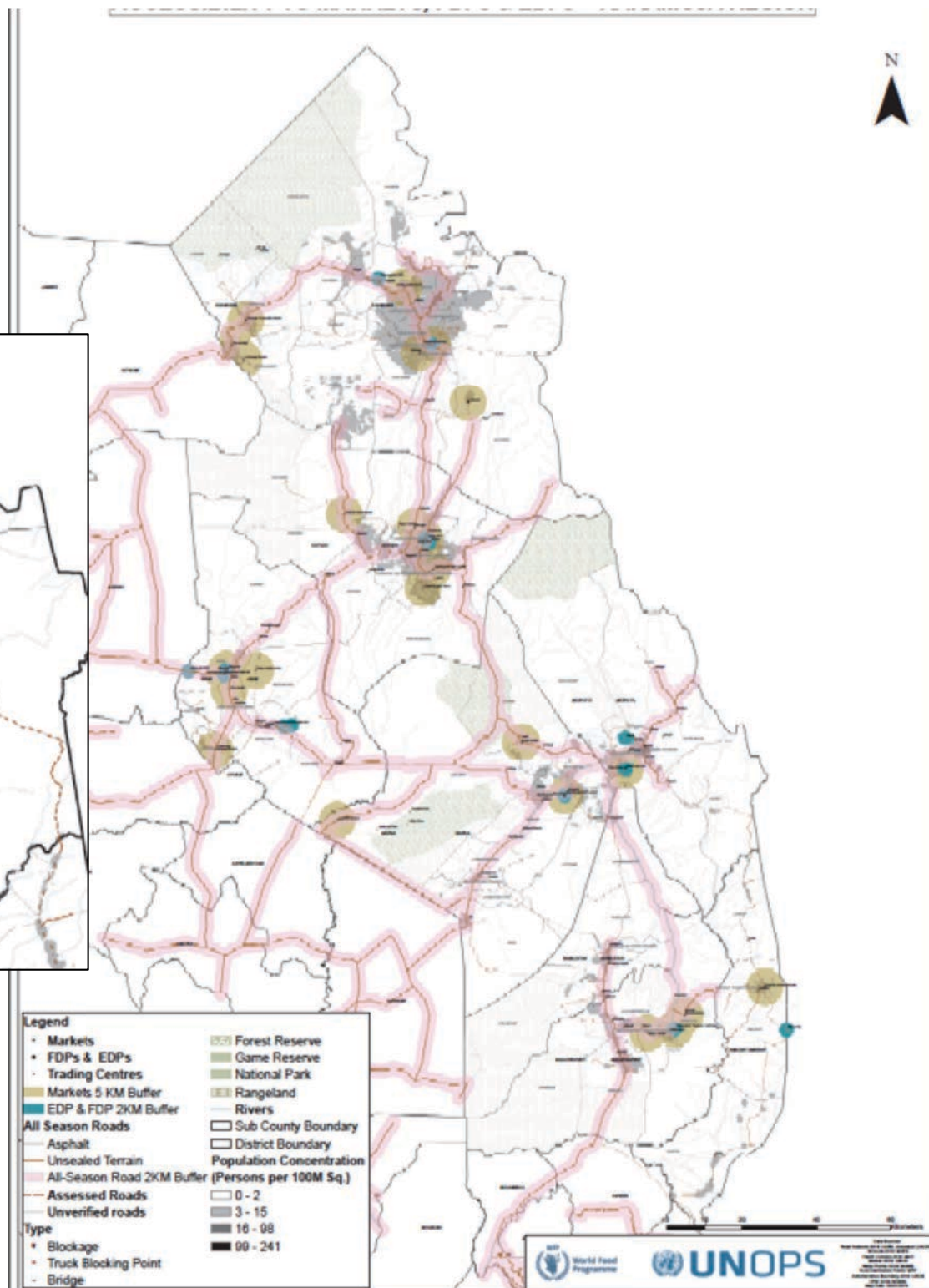
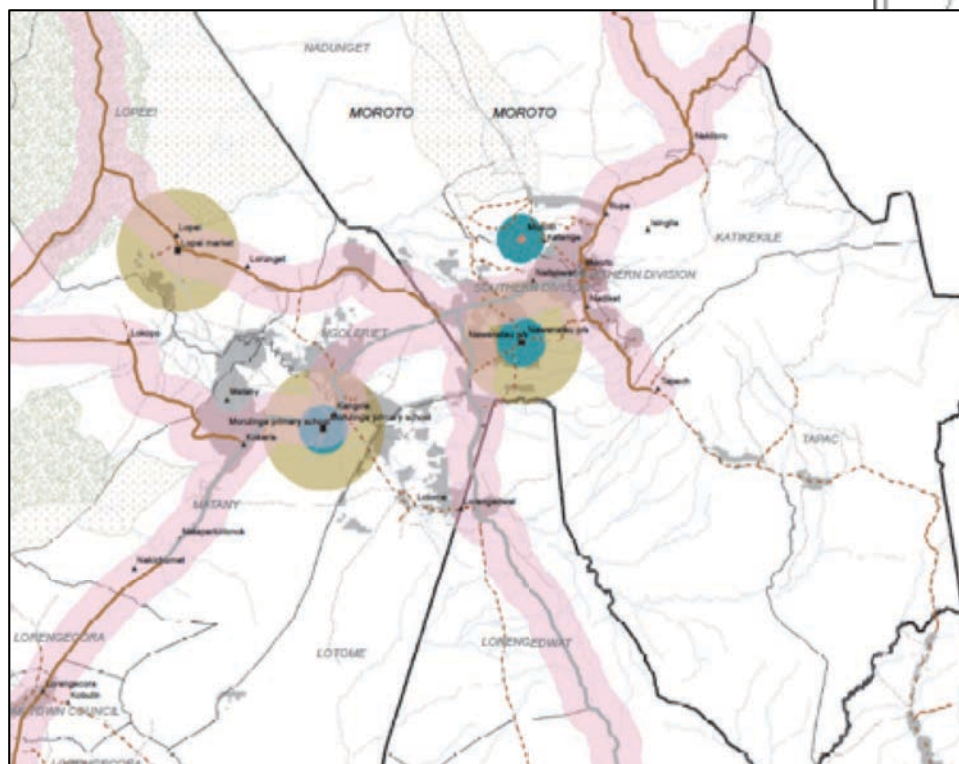


HEALTH SERVICES

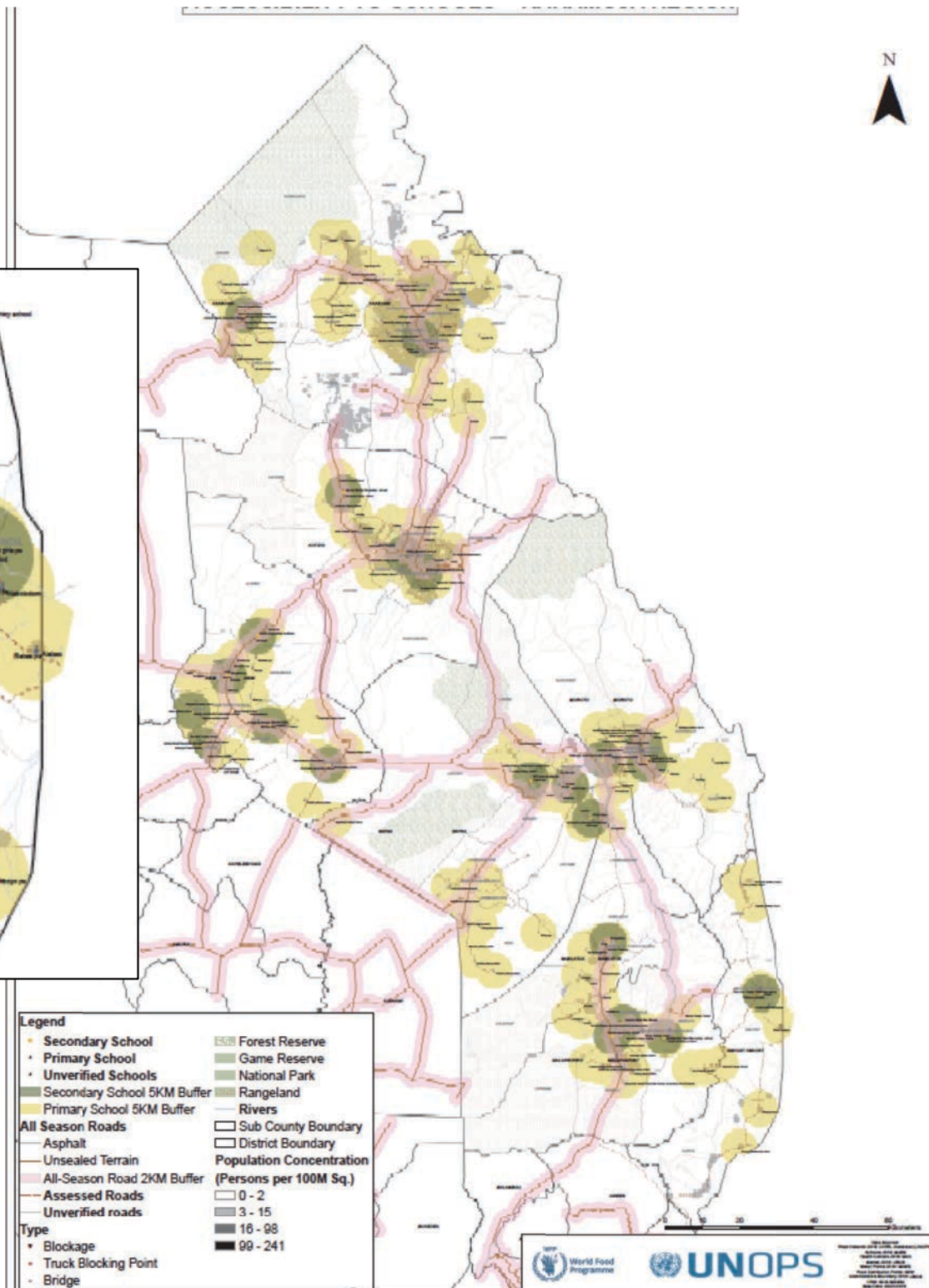
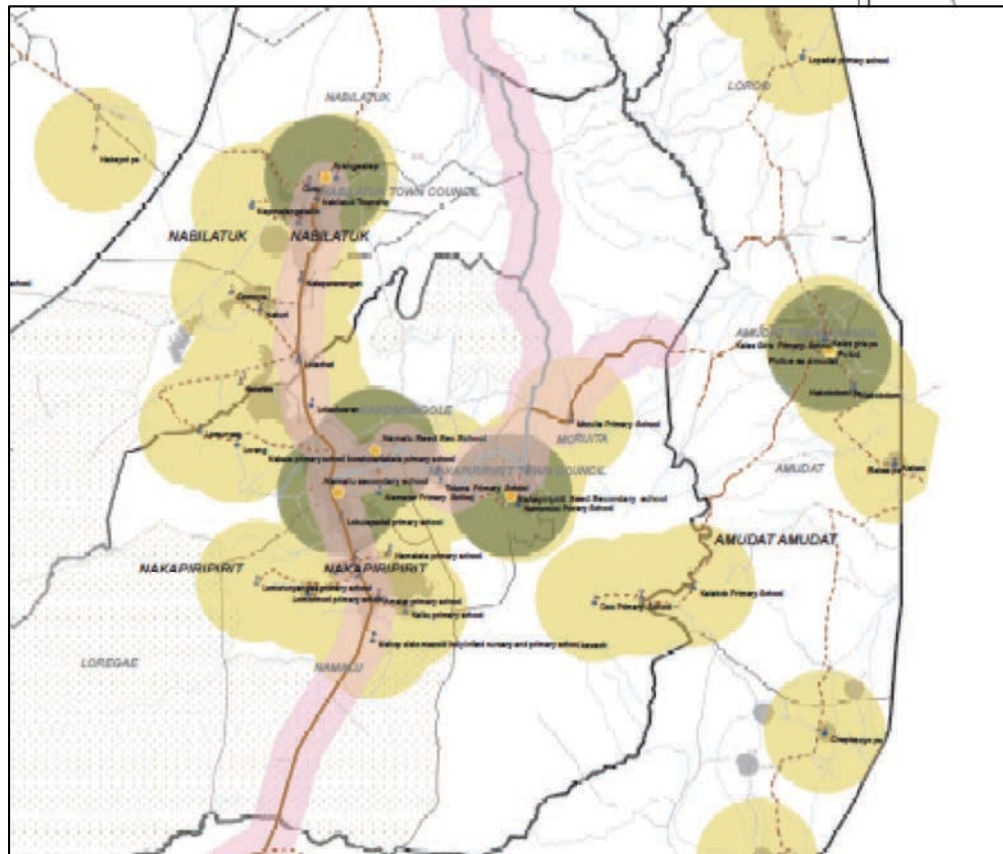
ACCESSIBILITY TO HEALTH FACILITIES - KARAMOJA REGION



MARKETS & FDPs



SCHOOLS





IN FOCUS

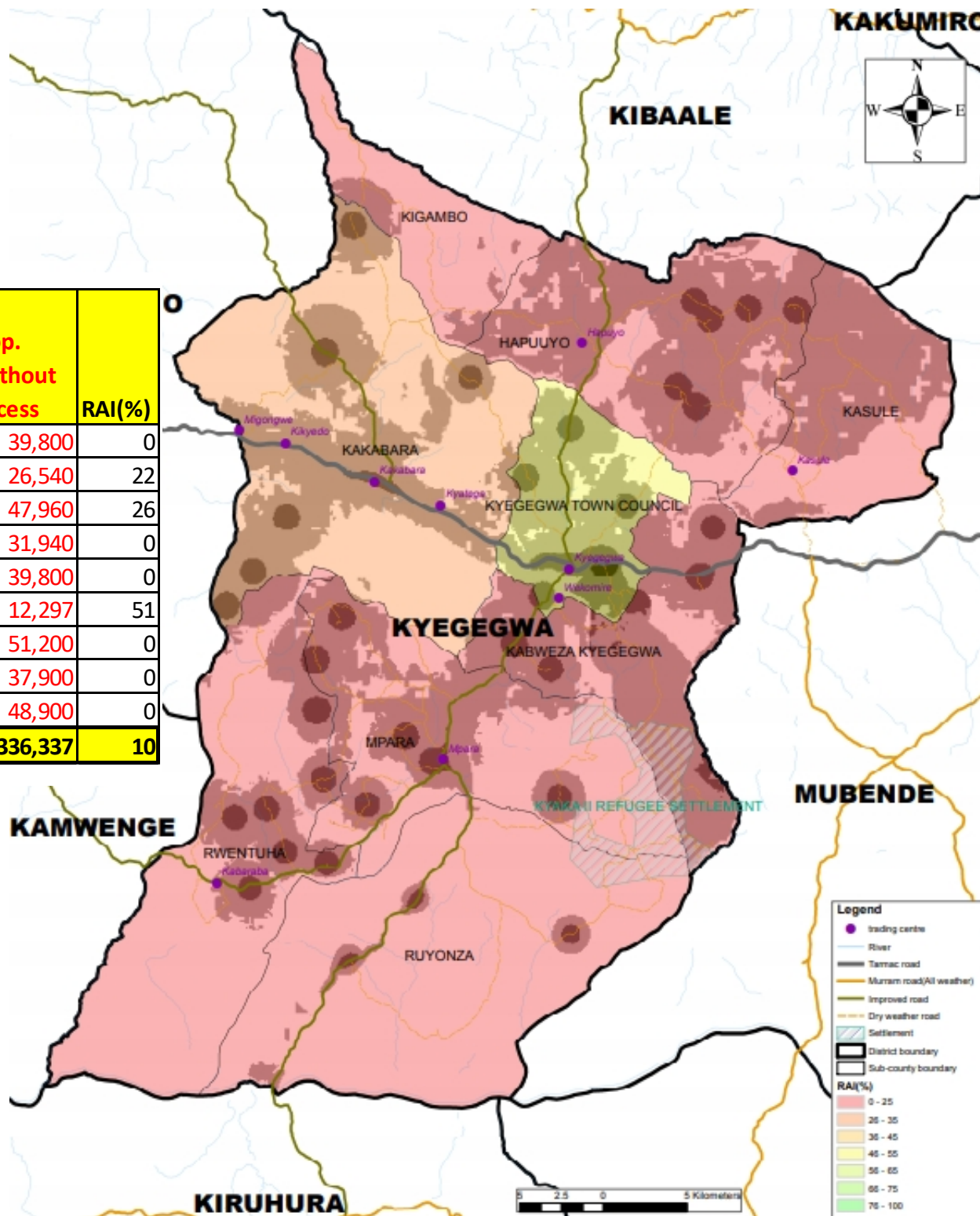
KYELEGWA- WESTERN REGION

KYELEGWA

RAI = 10%

Subcounty	Total pop.	Pop. within 2km buffer	Pop. without access	RAI(%)
HAPUUYO	39,800	0	39,800	0
KABWEZA KYEGEGWA	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 KYEGEGWA	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

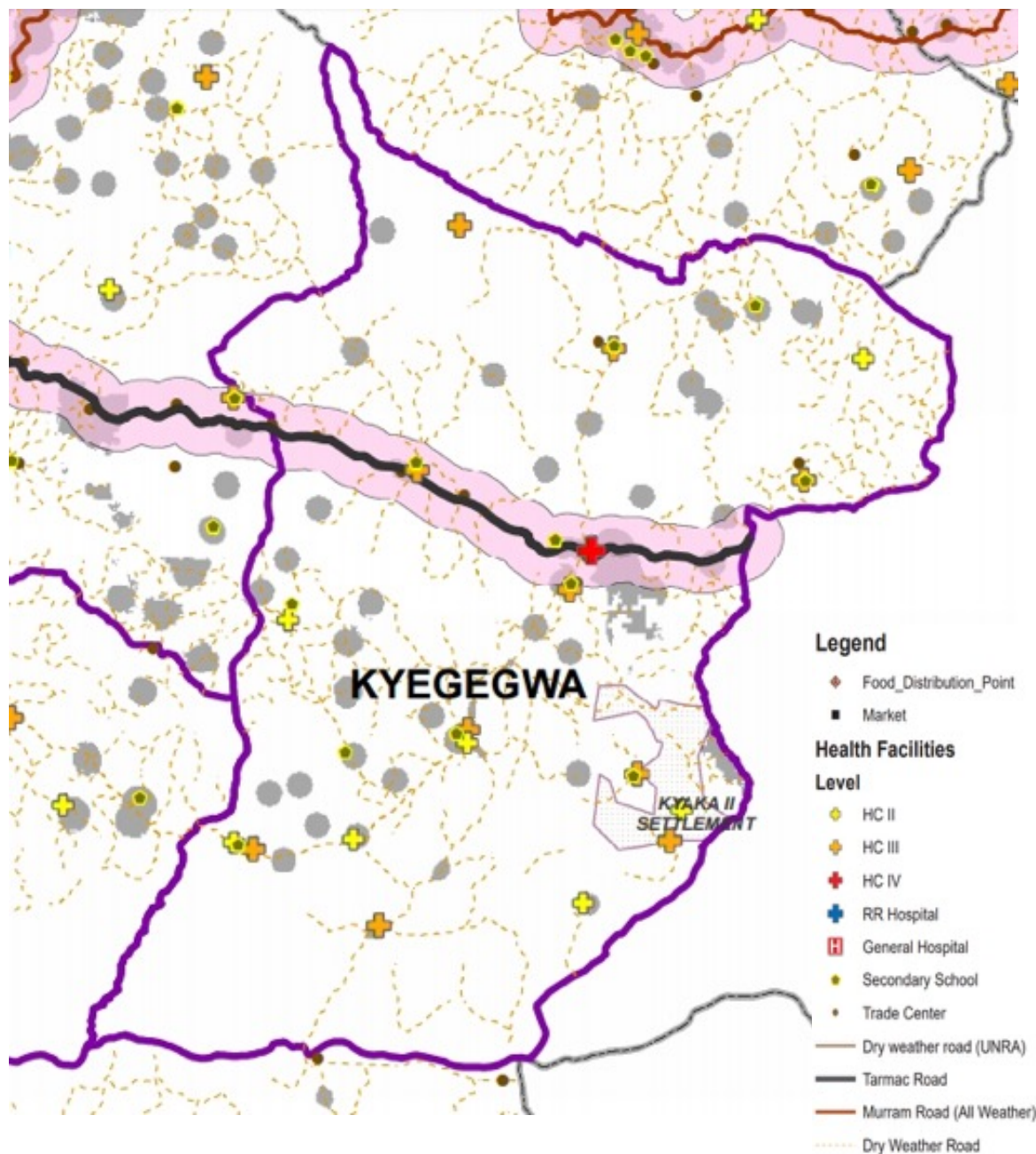


IN FOCUS- KYEWEGWA

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



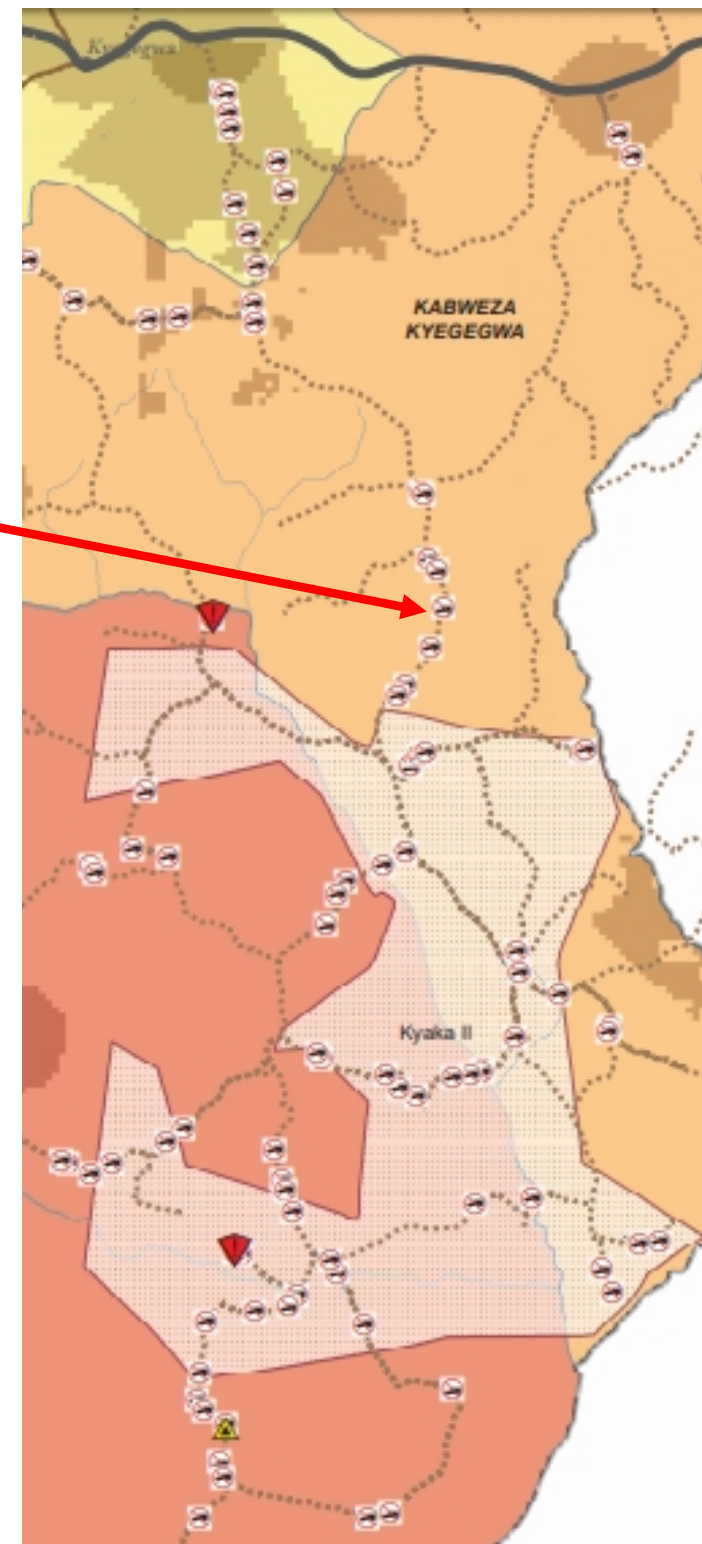
Mukyeya to Kasule road



Kyegegwa town to Kyaka II base camp road



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

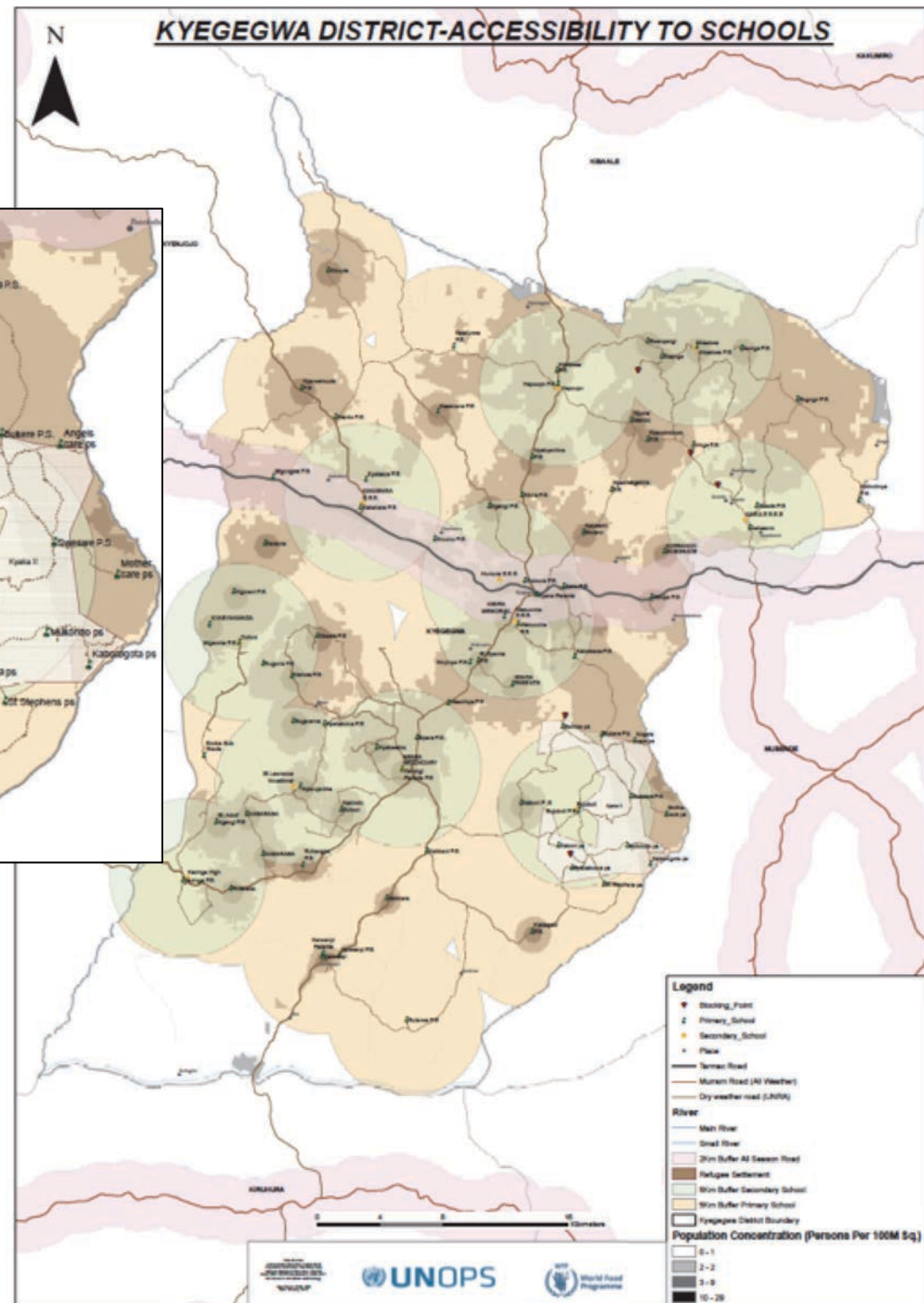
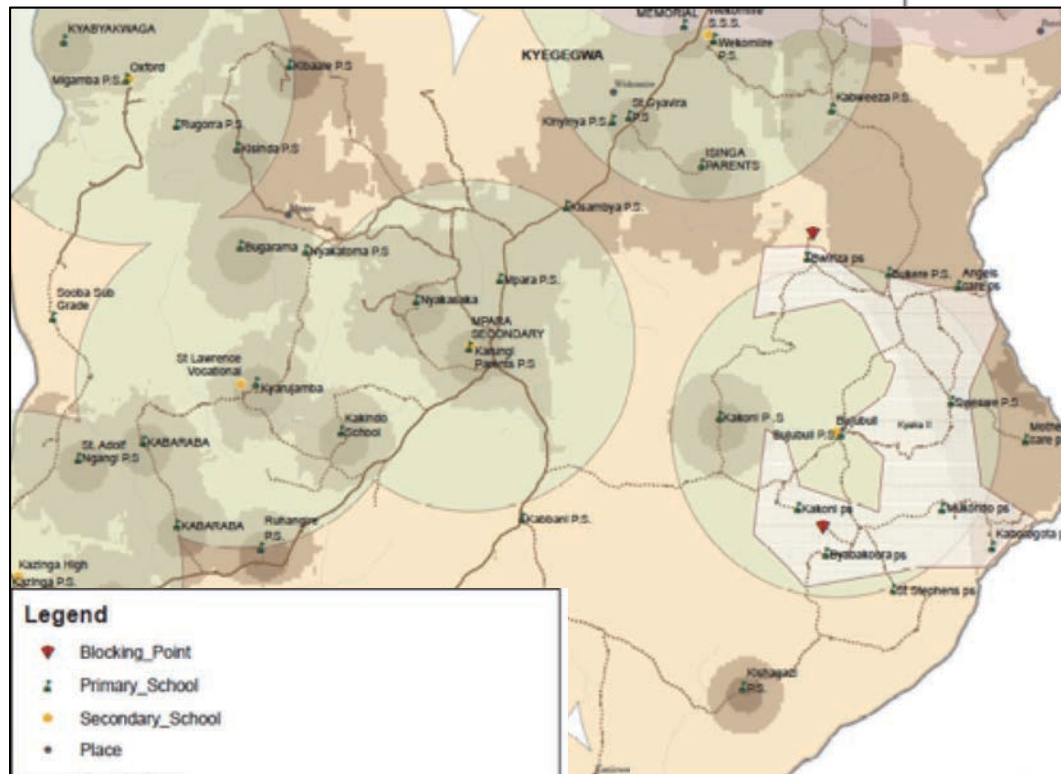




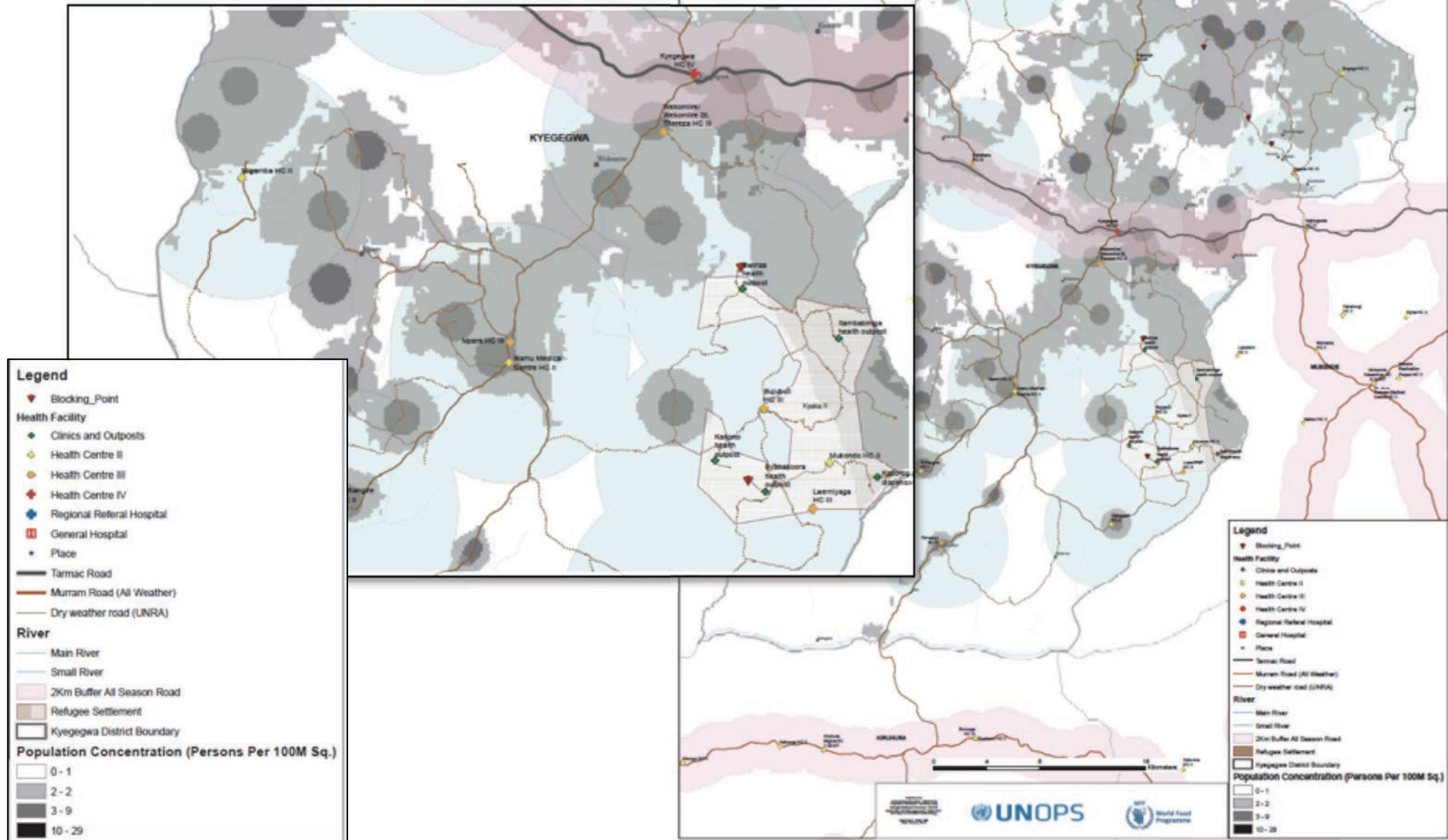
Access to services

Kyegegwa

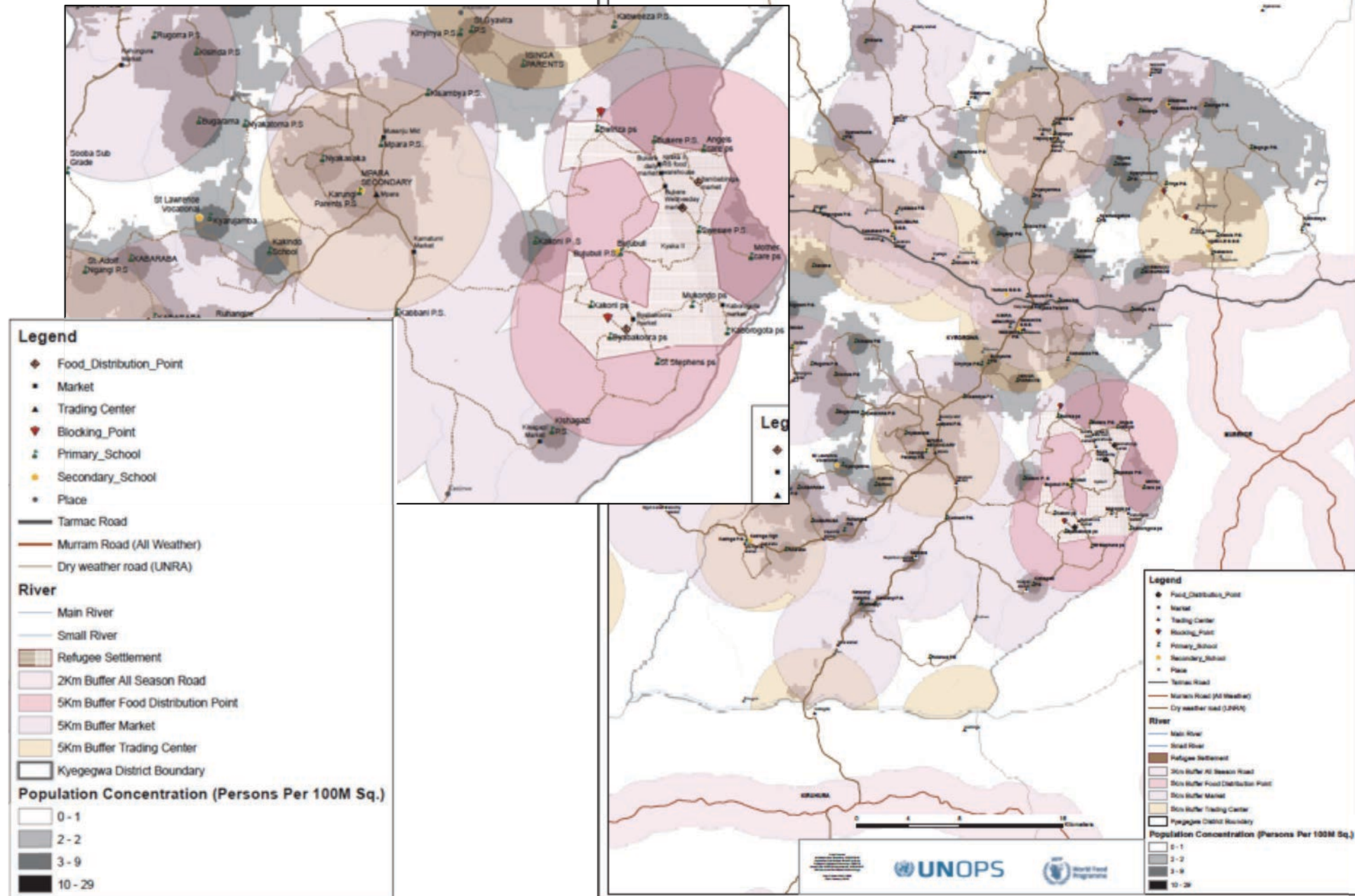
Schools



Health Facilities



Markets, FDPs and Trading Centres





WHAT CAN WE DO WITH THIS INFORMATION?

INTEGRATED SOLUTIONS

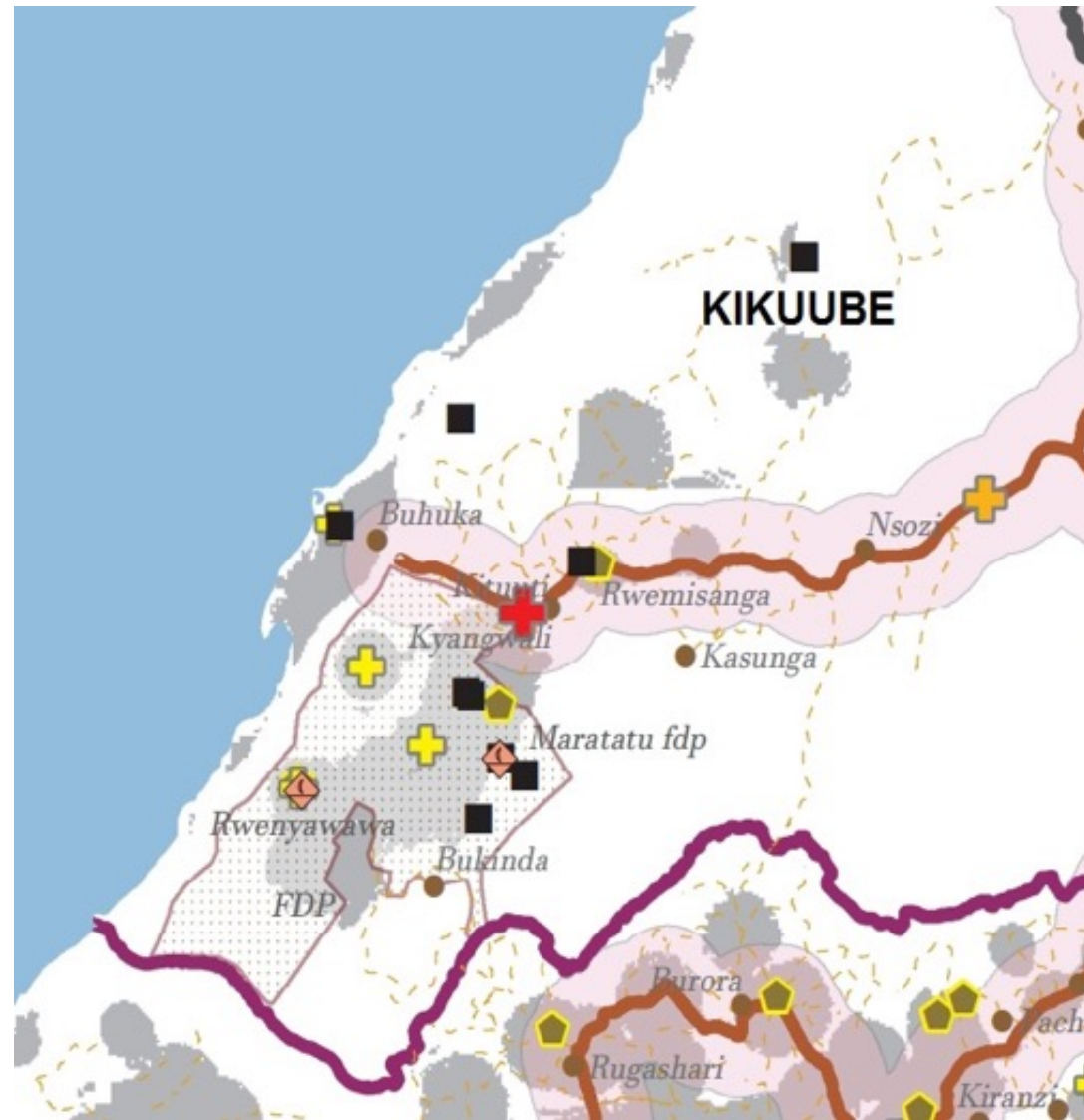
Simulations

Segment of road:

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

Selection will be done based on

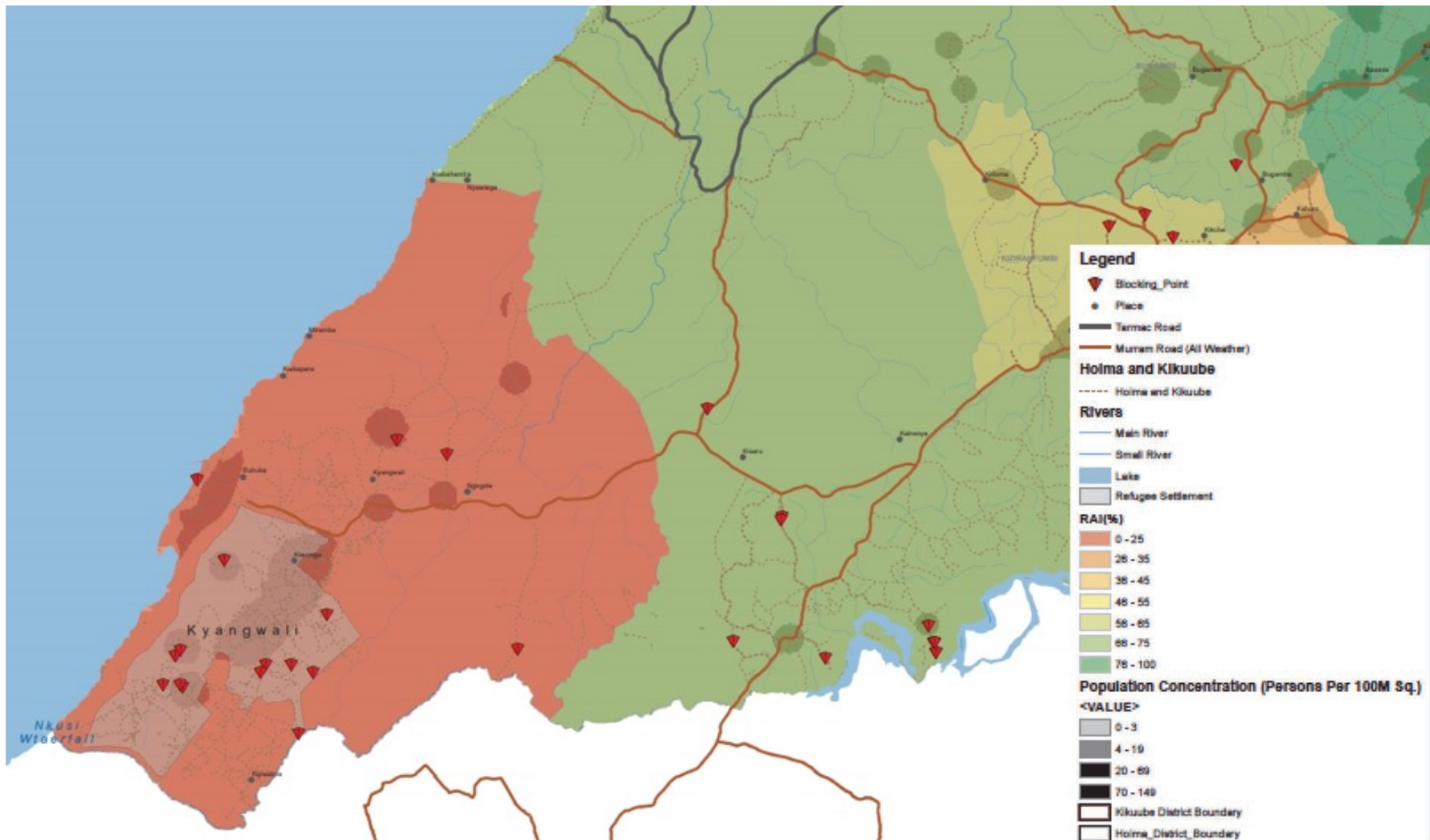
- The identified critical points
- Access to services



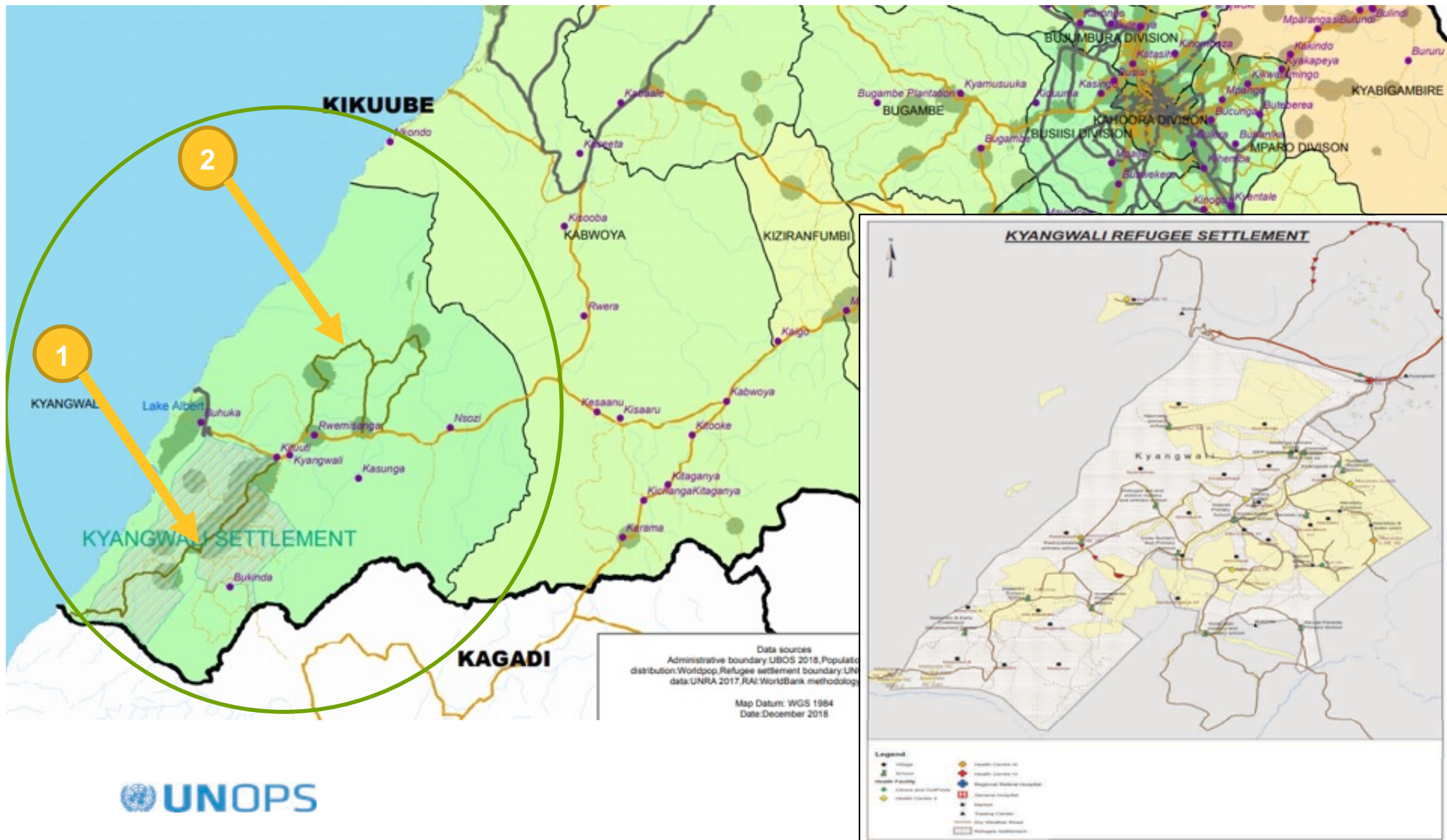
Kikkube District

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

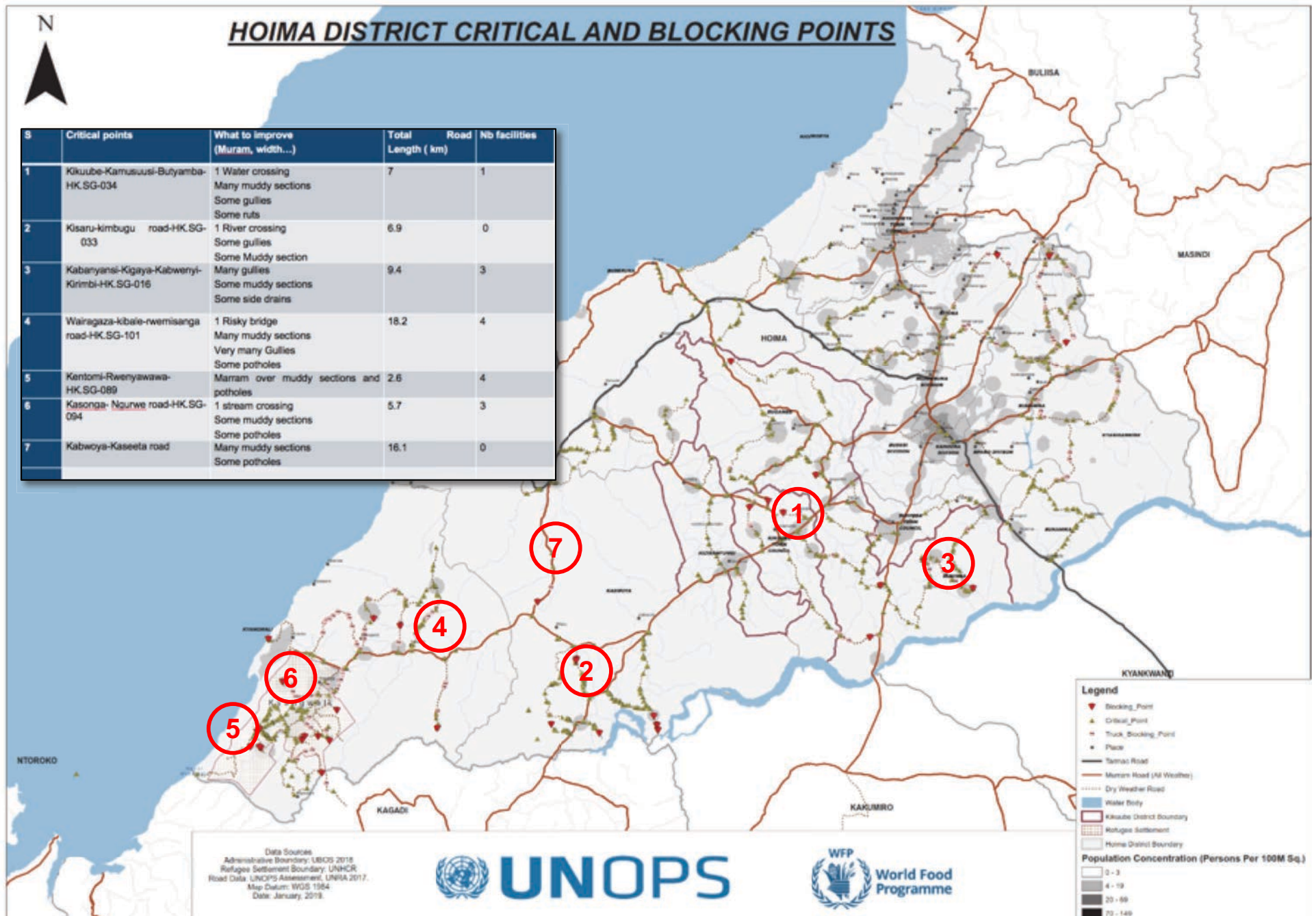
93,732 people do not have access to an all weather road



**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



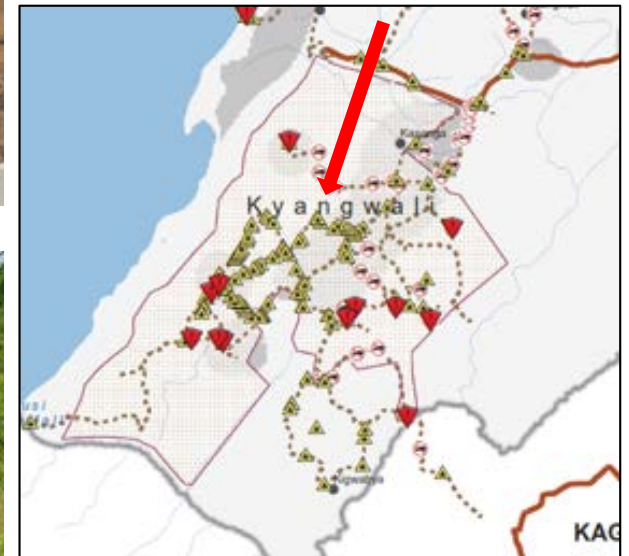
Identified Areas for improvement

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 Ayivu 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 murram and compacting.
Cost estimate (USD)	Murram	211000
	Ford	4000
	Total	215000

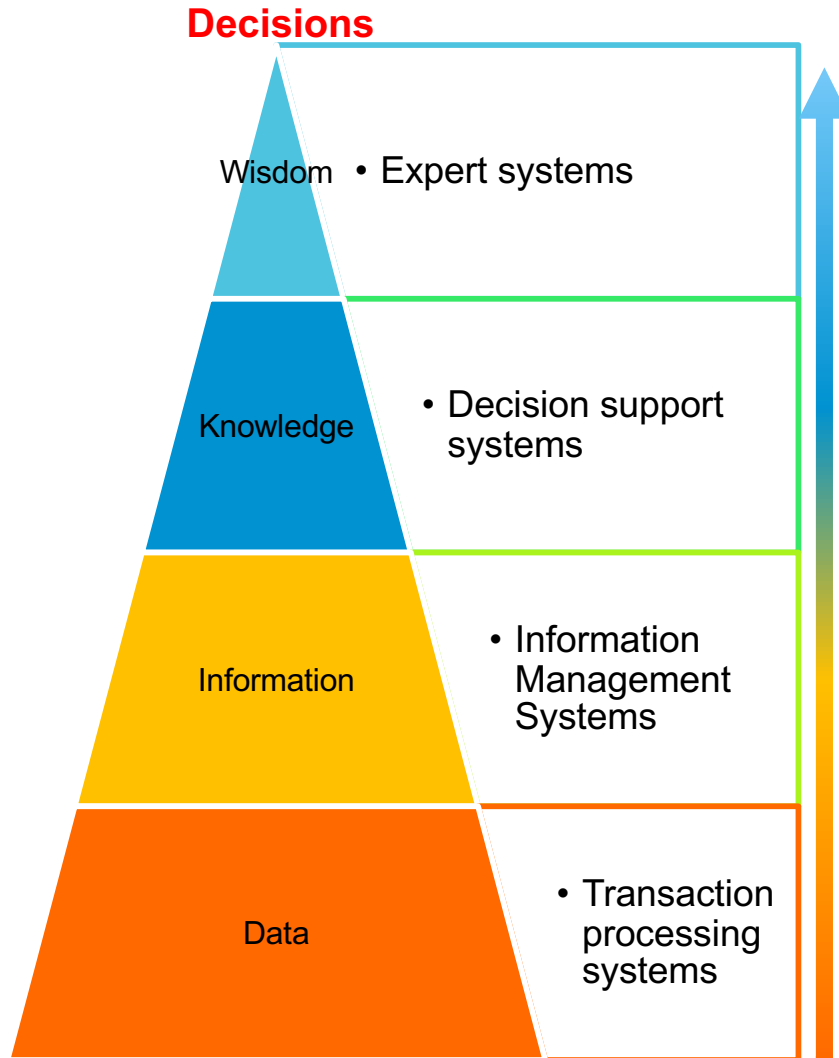


SECTION 37

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

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