

# **SUPPORTING THE ENABLING ENVIRONMENT FOR DATA AND AI IN UGANDA**

CONFERENCE ON THE STATE OF ARTIFICIAL INTELLIGENCE IN AFRICA (COSAA)

16 . 03 . 2022



**UN  
GLOBAL  
PULSE**

# TEAM



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# PRESENTATION

## OVERVIEW

1

ABOUT UNGP

2

AI TOOLS SHOWCASE



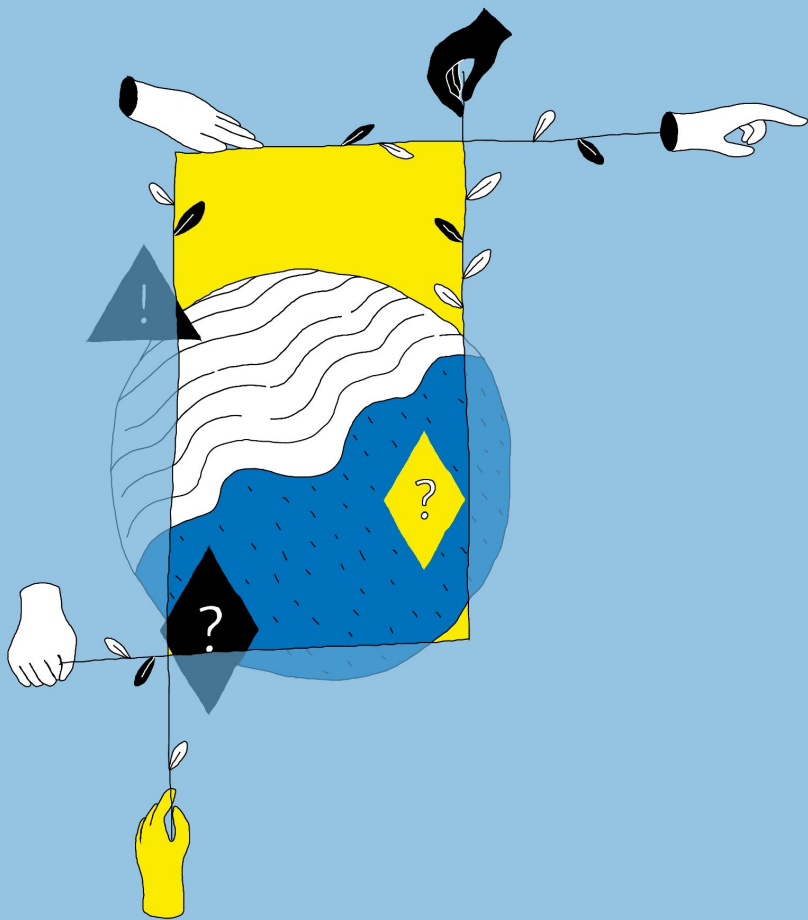
RADIO MINING TOOL



PULSE SATELLITE TOOL

3

ENABLING ENVIRONMENT  
FOR DATA & AI



# ABOUT UNGP



RECENT PAST (2015 - 2022)

# AI & BIG DATA INNOVATION LAB



Track 1: BUILD AI & BIG  
DATA APPLICATIONS



Track 2: AN ECOSYSTEM  
CATALYST



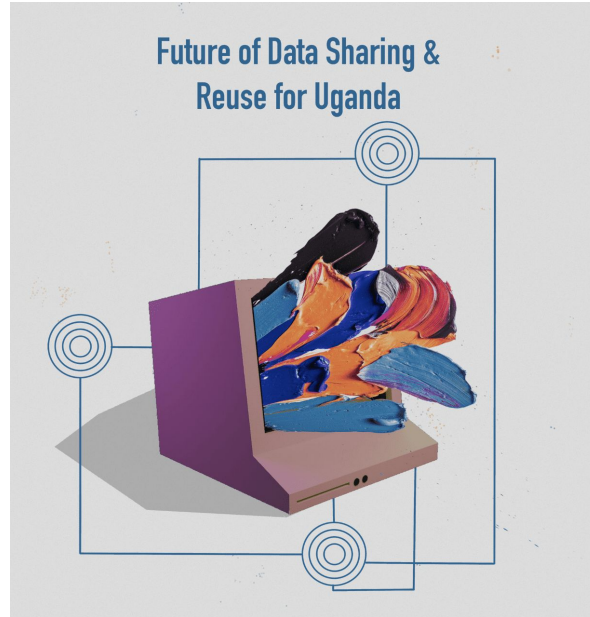
AI & DATA GOVERNANCE

# ECOSYSTEM CATALYST



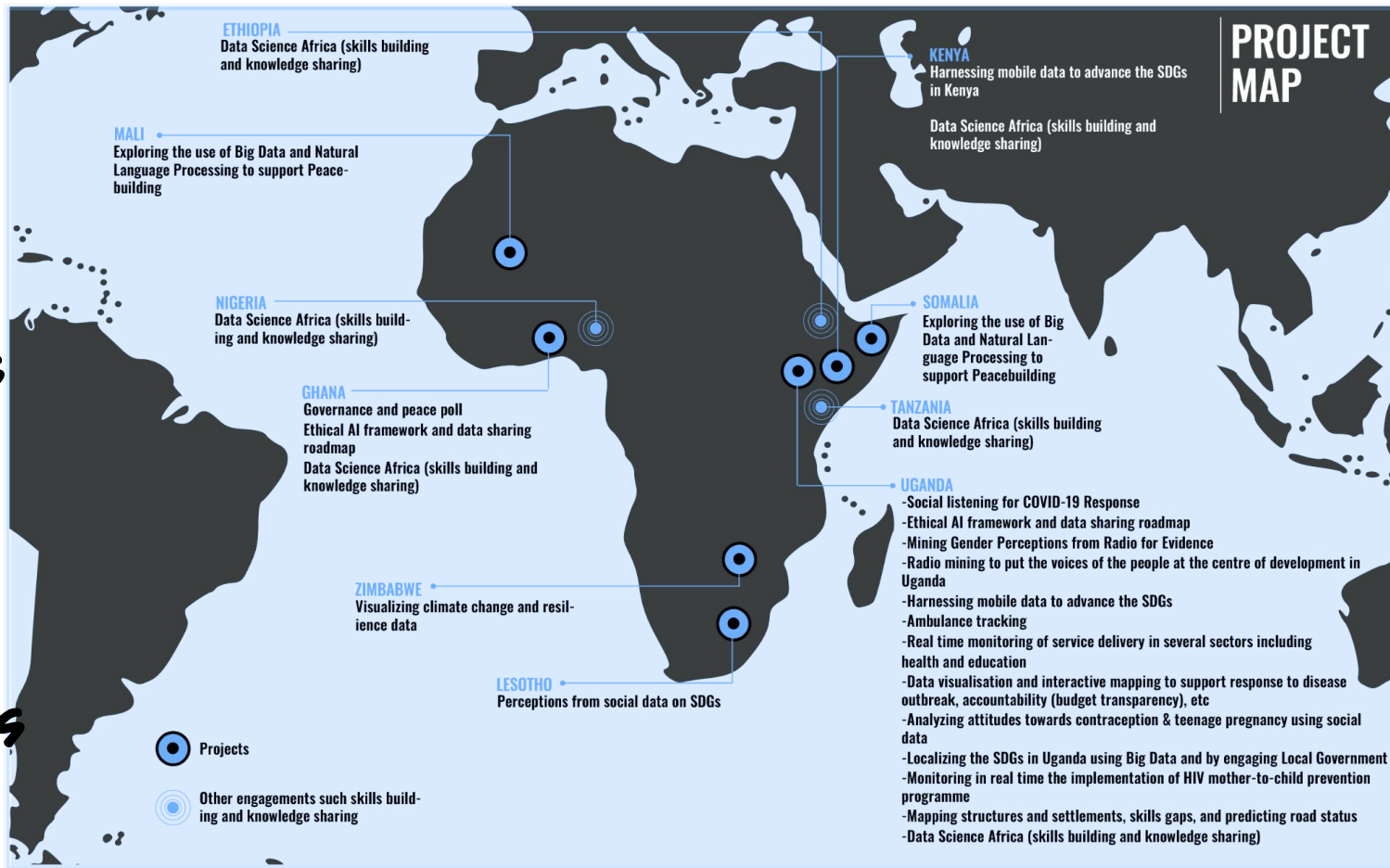
COMMUNITY OF INFLUENCE

DATA SHARING FOR SOCIAL GOOD



COMMUNITY OF PRACTICE  
DATA SCIENCE AFRICA

# The growing presence of UNGP across Africa: by projects and other engagements

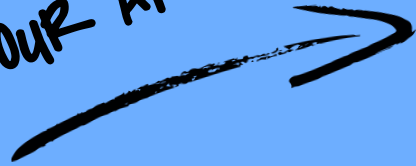




SINCE 2022, OUR MANDATE EXPANDED

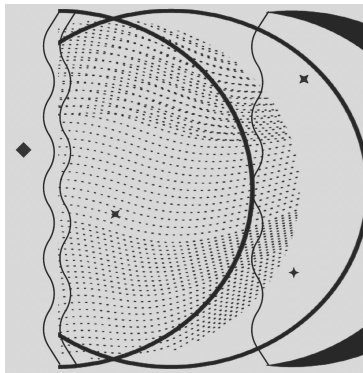
## HUB FOR EXPERIMENTATION & DIGITAL INNOVATION

OUR AMBITIONS:



- ADVANCE DIGITAL INNOVATIONS
- FACILITATE DEVELOPMENT OF FRAMEWORKS
- SUPPORT TRANSFORMATION

# OUR INNOVATION PATHWAYS



## RESPOND

We collaboratively identify challenges and design experiments across dynamic environments



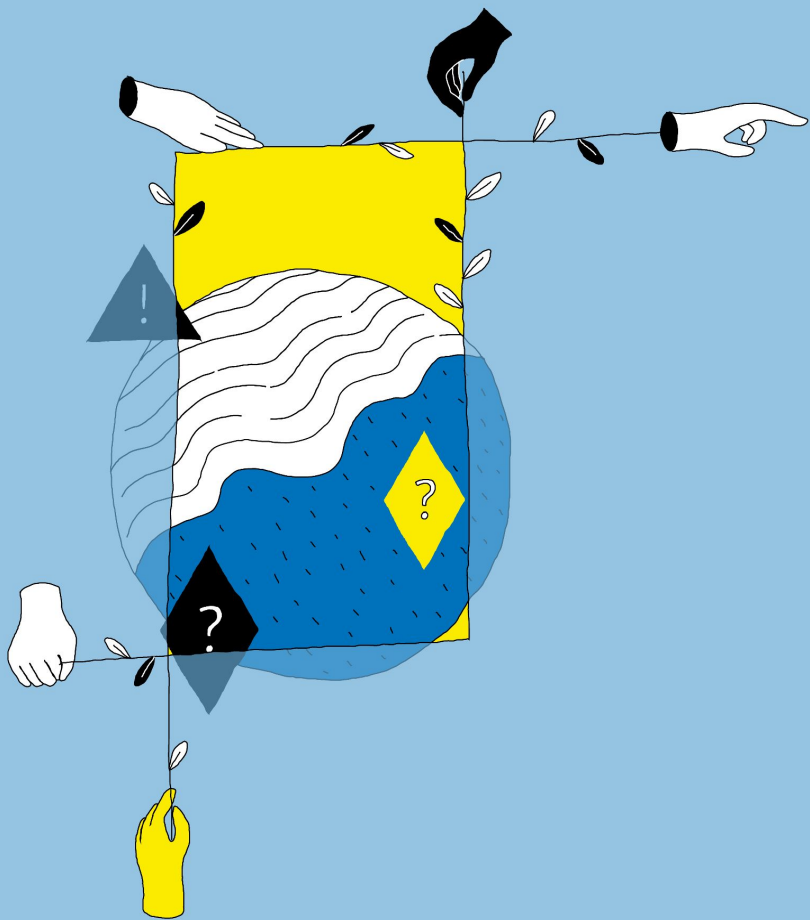
## SYSTEMIZE

We extract learnings and test our methods in other contexts and at different levels of the multilateral system



## SCALE

We create platforms and communities alongside partners to deepen impact and transform the culture of the UN



# AI TOOLS SHOWCASE

# RADIO MINING TOOL



MORINE AMUTORINE



**UN  
GLOBAL  
PULSE**

# RADIO MINING PROCESS



*This process is non-linear*



**Record**

Identify stations and  
time periods of  
interest



**Transcribe**

Convert speech to  
written text

*←  
retranscribe*



**Filter**

Write a query to  
identify relevant  
content

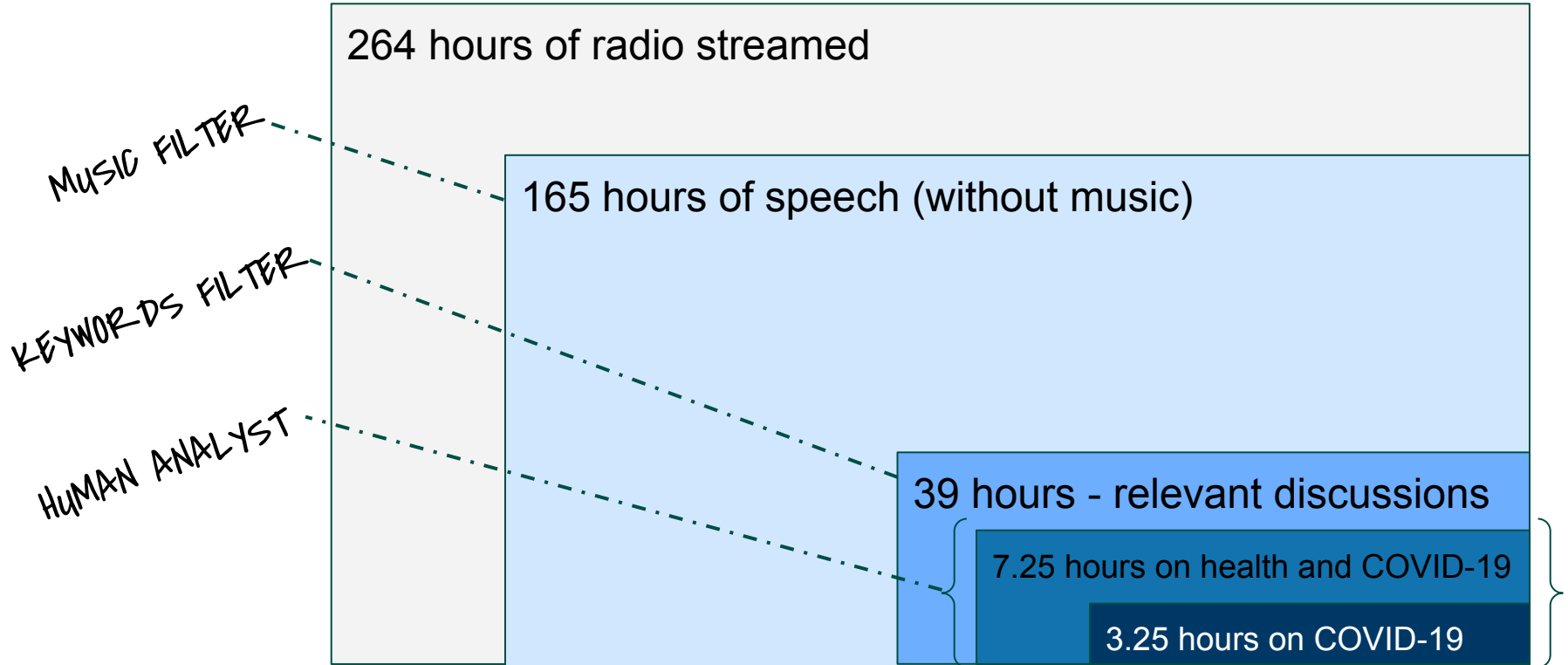
*↕  
refine*



**Analyze**

Extract and  
summarize relevant  
insights

# FILTERING: 1 day (COVID-19 response)



# RADIO DATA

Mostly qualitative  
discussions around topics

*SENSITIZATION CAMPAIGNS*  
**EXPERIENCES**  
**OPINIONS**  
**INCIDENT REPORTS**  
*SCENARIOS WITNESSED*





# STATIC DASHBOARD - GENDER BASED VIOLENCE

## SPOTLIGHT INITIATIVE



**3rd**  
RADIO DATA UPDATE  
1<sup>st</sup> - 15<sup>th</sup> September

## PUBLIC PERCEPTIONS ON GENDER-BASED VIOLENCE AND OTHER FORMS OF VIOLENCE AGAINST WOMEN AND CHILDREN - MINED FROM PUBLIC RADIO DISCUSSIONS

### Background

UN Global Pulse Kampala (UNGP-Kampala) joined the Spotlight Initiative project partners to support the development and strengthening of strategies and programs that promote gender-equitable norms, attitudes, and behaviors, through mining and supplying gender perceptions from public radio in near real-time. This is aimed to enable timely and targeted interventions pointed toward preventing violence against women and girls and harmful practices and promoting women and girls' Sexual and Health Rights (SRHR). By utilizing data mined from public radio to inform gender perceptions in Phase 1, UNGP-Kampala started producing biweekly updates to inform partners of the available data, which can enable them to identify other data needs that can be met by public radio discussion data in Uganda.

### Overview of the data presented in this update (1<sup>st</sup> - 15<sup>th</sup> September)

Data from public radio discussions regarding Gender-Based Violence (GBV), Violence Against Women and Girls (VAWG), Harmful Practices (HP), Sexual Reproductive Health Rights (SRHR), and Violence Against Children (VAC) in Uganda is mined using a set of keywords that were defined through consultations with gender specialists. These keywords have been reviewed and maintained following contemporary trends that affect the language used by the public. Relevant data is mined using UN Global Pulse's AI-powered public radio discussion social listening tool that reduces the number of hours of radio content to be analyzed by filtering relevant discussions.

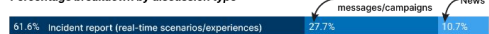
The total discussions relevant to the spotlight program mined  
**112** 1<sup>st</sup> - 15<sup>th</sup> Sept 2022  
**723** Cumulative  
June - August 2022  
**24** Radio stations streamed from the central region

### Percentage Breakdown by gender and speaker type

The data consisted of 51.8% male and 48.2% female speakers. We further break down the data into different types of speakers as follows.

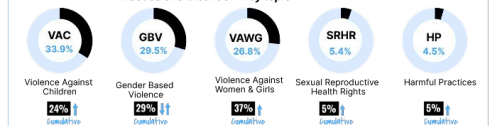


### Percentage breakdown by discussion type



The data indicates that VAC, GBV, VAWG, and other forms of violations persist in the central region. Public radio discussions identified the major causes of violence including poverty and inflation, unemployment, the COVID-19 pandemic, and post-lockdown effects. However, the discussions evaluated over the period indicated that a significant sensitization effort is going on as regards the violations indicated.

### Discussions breakdown by topic



### Violence Against Children

Discussions on violence against children (VAC) have ranked highest with 38 clips. These mostly focus on sensitization/advice in which the dangers of this practice were unveiled. This information was directed to parents following an increase in cases of women expressing their frustration and anger to their children because of their husbands who have abandoned their family responsibilities and resort to violence whenever requested to fulfil their obligations in providing for children.

A male member of the public gives a scenario about child neglect; "...for instance, the biological mother has left, and the man brings a new woman but cautions her, not to tamper with his children[...]. As a result, the child will take a wrong direction/make mistakes but since the woman was cautioned not to bother the children, she will want to maintain the relationship with the children hence them getting married or spoiled."  
Date: 2022-09-07

The discussion below highlights the sentiments of 2 speakers about the idea of women prioritizing children over their partners; "...Even if you love your man more than your child, you were not born with him, men change all the time and can go, you have seen this man in old age. FMT: Yes, why does he take up your mind? This child is going to be with you forever unlike the man because you are his mother, he is your son, anytime the man can go, he can marry you in church and next day cohabit with your house cleaner."  
Date: 2022-08-15

### VAWG Violence Against Women and Girls

Whereas violence against women and girls (VAWG) is still persistent in radio discussions with cases of women reporting their experiences of torture by their employers in their quest for employment in the diaspora, VAWG is still dominantly caused by issues to do with finances according to the data we have analyzed and as seen in the example discussions below

A male personality gave his view; "This lady's husband wants her to deposit all the money she earns on the issue of the daily financial support given to women to take care of their families. [...] FMT: Economy has gotten hard, and all a man will tell his wife is 'economy'."  
Date: 2022-09-12

One of the reasons why marriages break is the issue of the daily financial support given to women to take care of their families. [...] FMT: Economy has gotten hard, and all a man will tell his wife is 'economy'."  
Date: 2022-09-12

A male member of the public reported; "This is X from Mubende. In our region, we have a woman whose husband has been beaten for requesting school fees for her child. The man claims that he cannot care for this child because the woman is separated from him."  
Date: 2022-09-05

A female member of the public narrated her experience; "I never finished school. I was being paid only 700,000 shillings out of the 1.5 million shillings that I was promised... and I had to work in three houses. I could wake up at 3:30 Am to finish the work. I felt sick due to the hardships, and I had to treat myself out of my salary. I want to tell my fellow young girls that they might be lied to..."  
Date: 2022-07-15

A male local official advises on masturbation in the following example but the message is potentially contradicting efforts towards reducing young/teenage marriages; "It is advisable for the young people who start experiencing the urge for masturbation to get married or fast to overcome the urge. But the best solution is to marry such that every time one develops a sexual urge, the woman will be available to satisfy the urge. If you cannot marry and stop masturbation, the time will come for you to marry, and you will be living with your wife as if she is your sister. [...]"  
Date: 2022-07-28

### Traditional and Harmful Practices

The data shows that conversations relating to harmful practices are shifting from traditional to self-inflicted practices. Unlike in the past when harmful practices were mostly traditional and cultural lately, they are shifting to self-developed practices like masturbation which is gaining attention because of the many cases of pornography, and sex coming up in discussions. These have been noted as influences of domestic violence in homes as well. Below are some example clips;

### Teenage pregnancies

A continuous effort is still geared towards analyzing data on teenage pregnancies, which is sometimes referred to as adolescent pregnancy. (Our working definition of teenage pregnancy is when a woman under 20 years of age conceives). In the discussions, circumstances that lead to this issue were raised and all this pointed at child upbringing and parents abandoning their responsibilities.

In this particular conversation, the media personality noted that phones have caused early marriages. She says "these boys can buy your daughter a phone and take advantage of it, as he encourages her to hide it from you leading to teenage pregnancies and unwanted sorrow[...]"  
Date: 2022-09-07

### Sentiment Analysis

A new addition to our analysis in this update is sentiment analysis. Below are some of the sentiments observed in the discussions analyzed;

The sentiments detected in the discussions indicate that the public is against torturing children and subjecting them to different cases of violation regardless of the situation. Their sentiments varied from sadness to frustration as they were not happy with the incidents highlighting the torture of children.

In addition, women have expressed their frustration and anger towards men who have abandoned their family responsibilities and have resorted to violence whenever requested to fulfill their obligations in providing for children and the family.

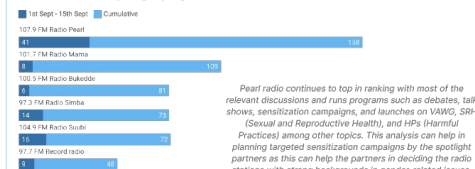
The major sentiments around children reporting cases of violence include fear, and low self-esteem because of threats from the perpetrators of these forms of violence.

### Conclusion

Male dominance and women being inferior continue to persist as the leading driver of GBV. The discussions portray perceptions such as; **women ought to seek the approval of their spouses before they participate in any public activities**; or **woman has no right to demand or deny conjugal rights in a relationship**. This negativity towards the female gender seems to have a trickle-down effect and has in many cases resulted in violence against children who are affected. Such women harbour hidden pain from their past and present relationships with their partners and sometimes take out their anger towards the children.

Therefore, the need to sustain the efforts geared toward creating public awareness on GBV, VAWG, and other related forms of Violence persists.

### Radio stations mined: ranking of the radio stations with the most relevant radio discussion to the spotlight program focus areas



Source: PLX - Created with Datawrapper  
Overall, Pufu Laba Kampala's radio mining tool targets 24 radio stations from the central region to support the spotlight initiative. However, 16 out of the 24 radio stations have proved effective for the project based on the relevance of the radio programs run by the respective radio stations as captured by the keywords applied.

UN Global Pulse - Kampala is grateful to UNDP Uganda for the support given in executing this exercise



# OTHER USES

1

## PEACE BUILDING OPERATIONS

Exploring the use of Big Data to Support Peacebuilding in Somalia and Mali

2

## REFUGEES CRISIS RESPONSE

Bringing people's voices to the refugee crisis response

3

## PUBLIC SERVICE DELIVERY

In health and education sectors



# PULSE SATELLITE TOOL

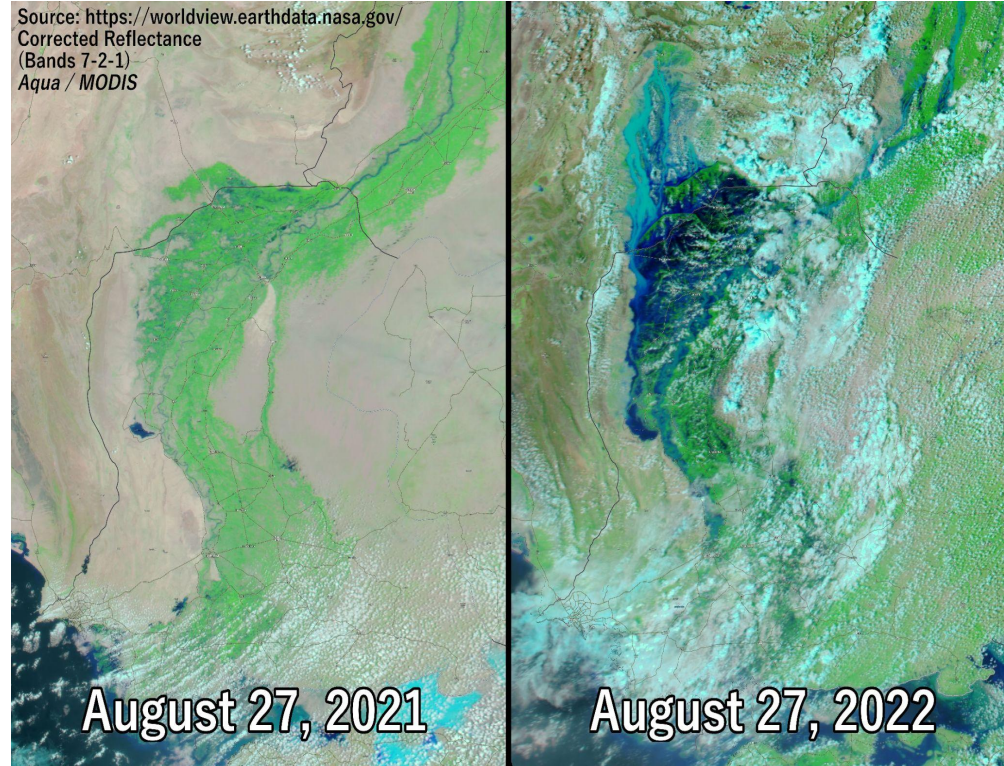


PIUS KAVUMA MUGAGGA



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# SATELLITE IMAGERY



# HUMANITARIAN USE CASES



By CDC - <https://www.cdc.gov/nceh/ierh/Gallery/Zaire%2011g.jpg>Note: As of June 2011, the original URL above is no longer valid, but image was archived on 2009-01-16 by the Internet Archive and remains available at <https://web.archive.org/web/20090116193006/http://www.cdc.gov/nceh/ierh/Gallery/Zaire%2011g.jpg> , Public Domain, <https://commons.wikimedia.org/w/index.php?curid=337397>

- Monitoring population displacement
- Settlement mapping



By New Zealand Defence Force - CHCH City - Streets1Uploaded by Mattinbgn, CC BY 2.0, <https://commons.wikimedia.org/w/index.php?curid=13699138>

- Damage assessment & response
  - Floods
  - Earthquakes
  - Volcanoes
  - Cyclones
  - Landslides

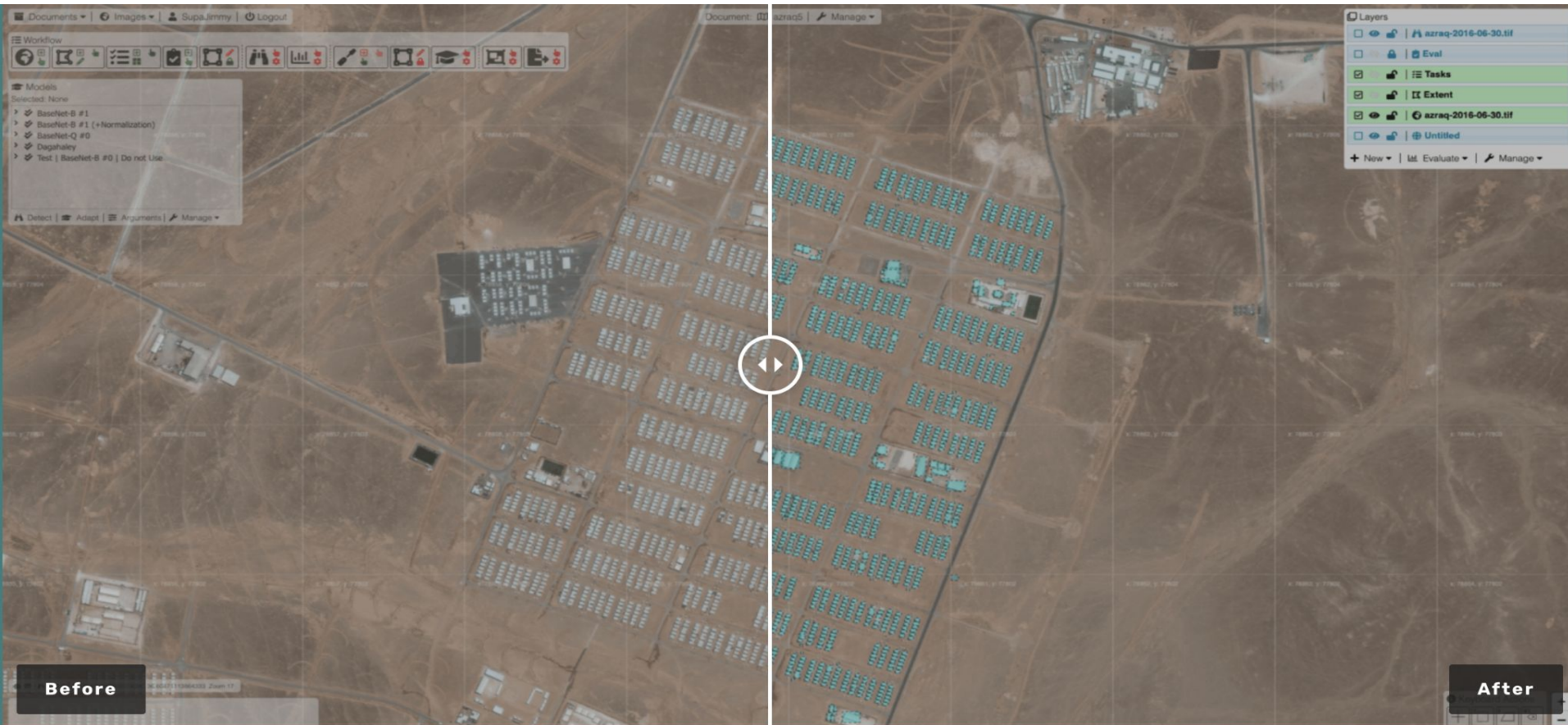


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PULSE**



**Pulse Satellite**

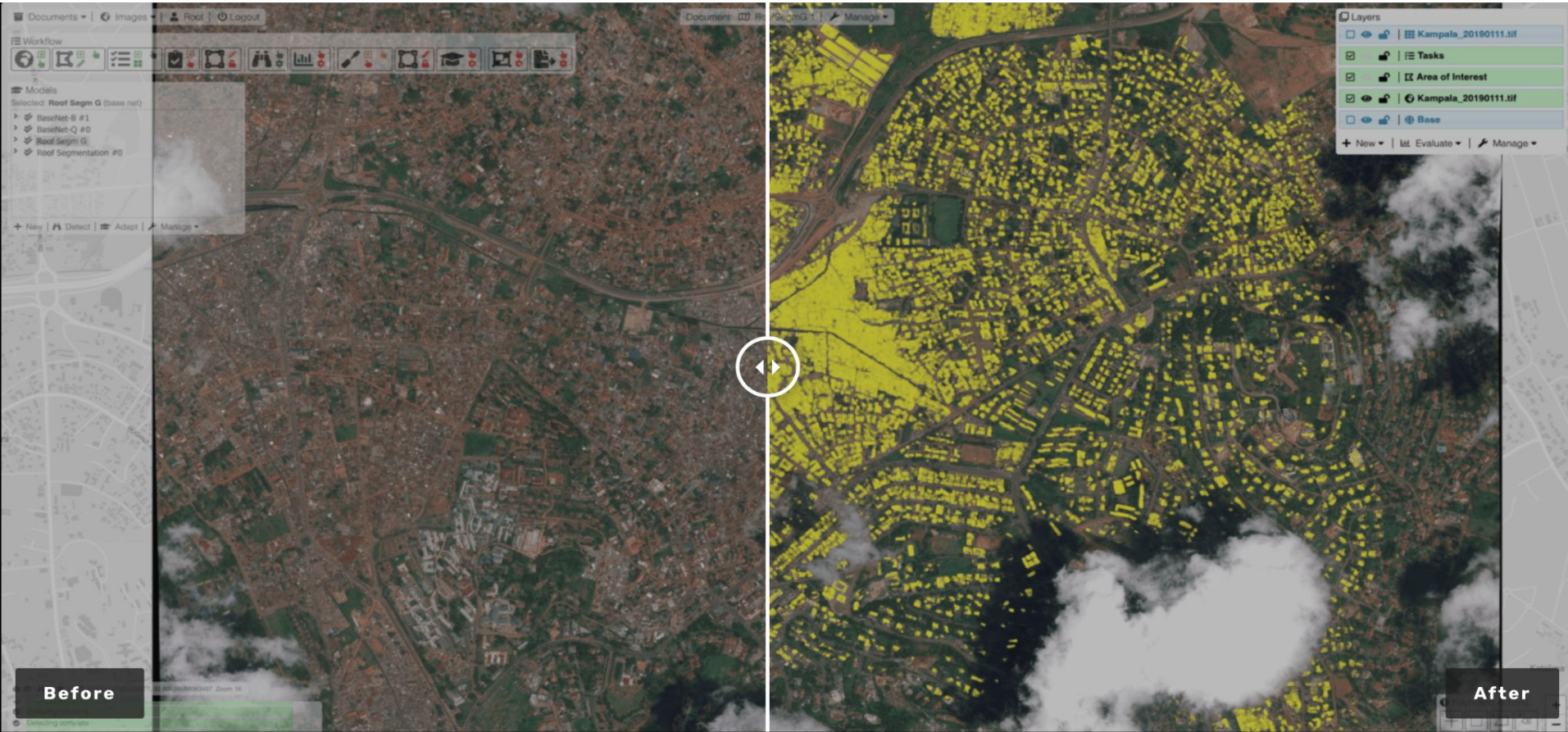
# PULSE SATELLITE - SETTLEMENT MAPPING



Before

After

# PULSE SATELLITE - ROOF DENSITY MAPPING

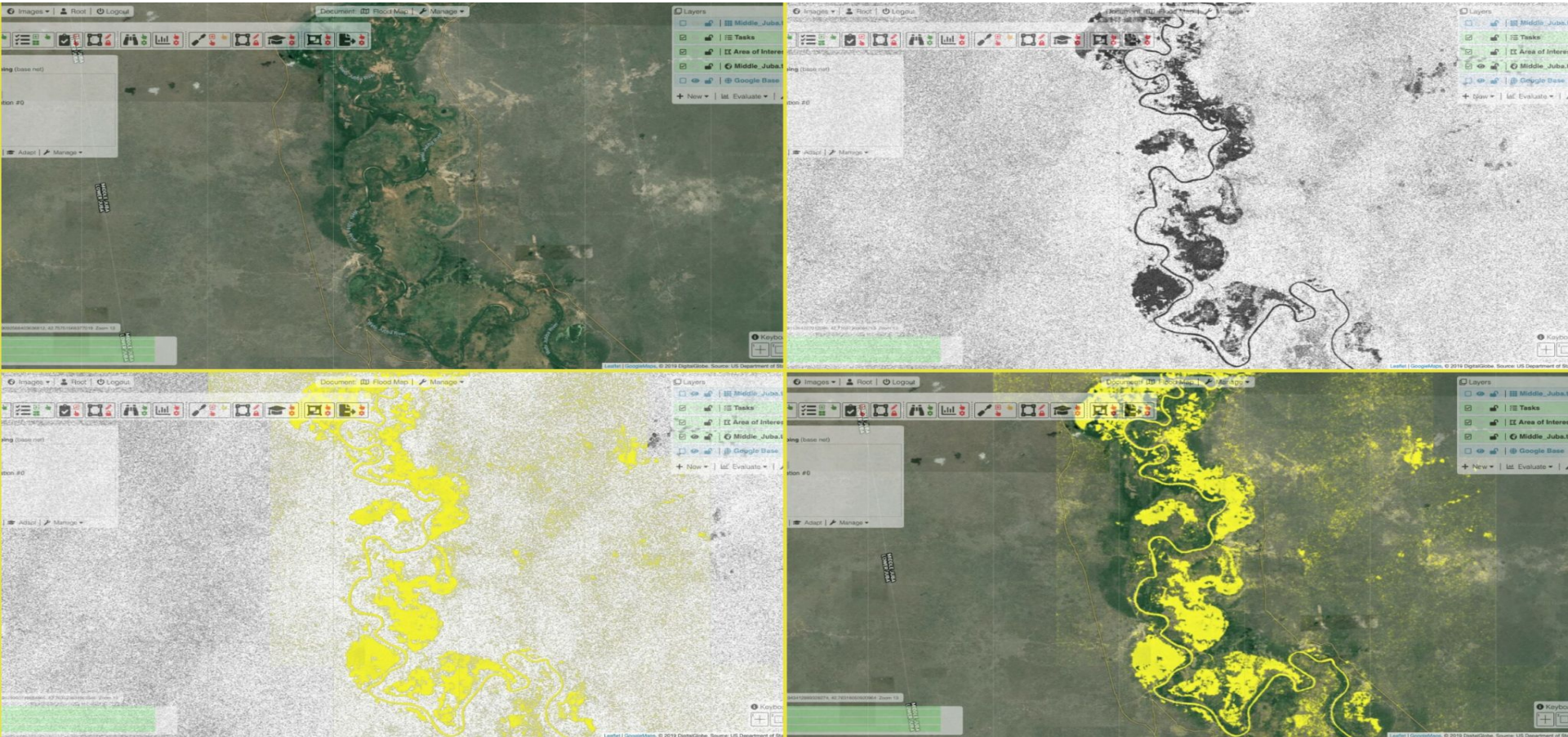


Before

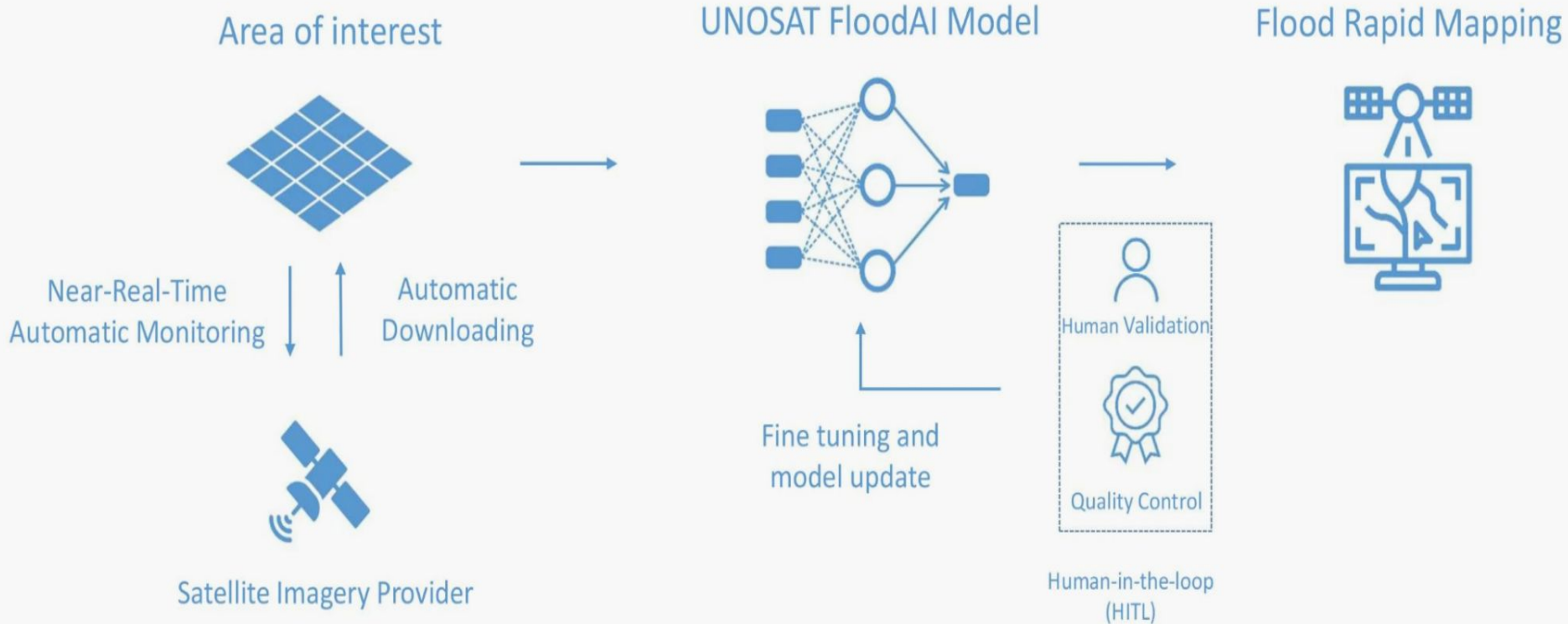
After



# PULSE SATELLITE - FLOOD MAPPING



# UNOSAT - FLOOD MAPPING



# UNOSAT AI



AI-BASED SATELLITE-DERIVED  
MAPS & PRODUCTS

AREA OF  
INTEREST

AI

CATALOGUE OF AI MODELS

UNOSAT  
FLOODAI

UNOSAT  
DAMAGEAI



# ENABLING ENVIRONMENT

➔ MARTIN GORDON MUBANGIZI (PhD)



**MINISTRY OF ICT & NATIONAL GUIDANCE**

A Knowledge and Productive Society driven by ICT & National Ideology

# NATIONAL GOALS

30 years 2010/11 - 2039/40

## Uganda Vision 2040

Comprehensive National Development plan framework (CNDPF)

# NATIONAL GOALS

**1**

**NDP I**

2010/11- 2014/15

**2**

**NDPII**

2015/16 - 2019/20

**3**

**NDP III**

2020/21-2024/25

**4**

**NDP IV**

2025/26-2029/30

**5**

**NDP V**

2030/31-2034/35

**6**

**NDP VI**

2035/36-2039/40

*30 years 2010/11 - 2039/40*

## Uganda Vision 2040

Comprehensive National Development plan framework (CNDPF) - six five-year National Development Plans (NDP)

# NATIONAL GOALS

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Sector Based

*30 years 2010/11 - 2039/40*

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2025/26-2029/30

**5**

**NDP V**

2030/31-2034/35

**6**

**NDP VI**

2035/36-2039/40

Sector Based

Programme based –

18 programmes including digital transformation programme.

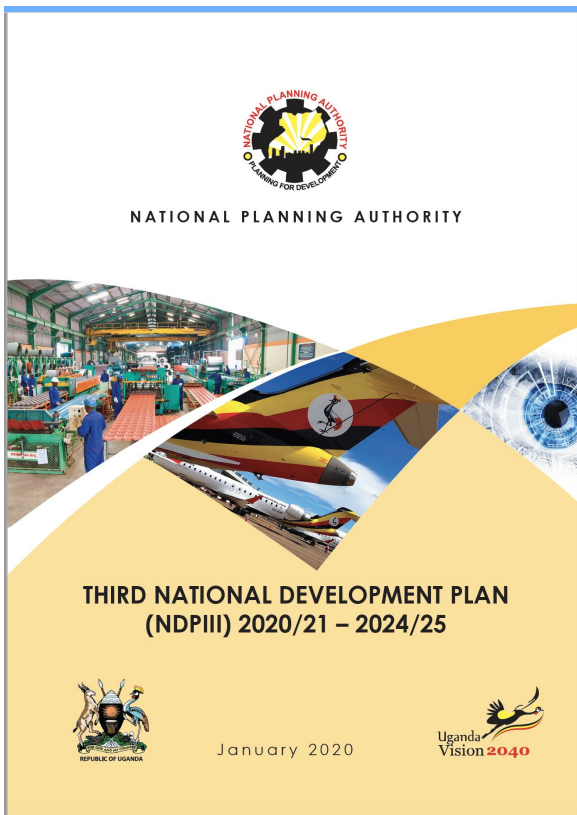
30 years 2010/11 - 2039/40

## Uganda Vision 2040

Comprehensive National Development plan framework (CNDPF) - six five-year National Development Plans (NDP)



# NDPIII - NATIONAL GOALS



## 18 PROGRAMS

Mineral Development  
Sustainable Development of Petroleum Resources  
Tourism Development  
Climate Change, Natural Resources, Environment, and Water Management  
Private Sector Development  
Manufacturing  
Integrated Transport Infrastructure and Services  
Energy Development

## Digital Transformation

Sustainable urbanization and Housing  
Human Capital Development  
Innovation, Technology Development and Transfer  
Community Mobilization And Mindset Change  
Governance and Security Programme  
Public Sector Transformation  
Regional Development  
Development Plan Implementation

# NDPIII - NATIONAL GOALS



## MINISTRY OF ICT & NATIONAL GUIDANCE

A Knowledge and Productive Society driven by ICT & National Ideology

## 18 PROGRAMS

Mineral Development

Sustainable Development of Petroleum Resources

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Private Sector Development

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Integrated Transport Infrastructure and Services

Energy Development

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Sustainable urbanization and Housing

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Community Mobilization And Mindset Change

Governance and Security Programme

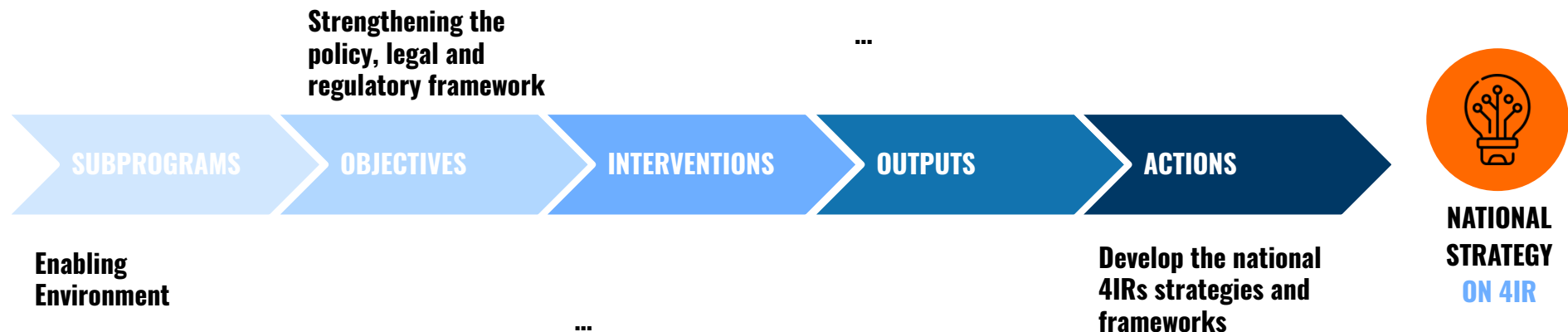
Public Sector Transformation

Regional Development

Development Plan Implementation

# DIGITAL TRANSFORMATION PROGRAM IMPLEMENTATION ACTION PLAN

building blocks



# THE REPORT ON THE NATIONAL STRATEGY ON 4IR ...

identifies critical enablers and delivery mechanisms. the strategy

- highlights the role of data as an essential element of the 4IR and a critical national and business asset. As part of the delivery mechanism #2, ecosystem facilitation, the strategy calls for actions to be taken to support an environment of **safe data sharing**, including through technical and other governance protocols to help **unlock the value of data as a national resource**.
- calls for the development of an **ethical AI framework**, including guiding principles to ensure ethical, safe and trustworthy design of AI. *This is as a way to manage and close the legislative, regulatory and strategic gaps created by 4IR technologies*

# UGANDA'S ACHIEVEMENTS ...



**National Strategy on 4IR - Opportunities and enablers**



**Roadmap for the development of an Ethical AI Framework - That includes ethical principles, implementation mechanisms and pathways**



**Data privacy and protection law**

...



**Roadmap for the development of community-centric data exchanges - Approaches to responsible data sharing**

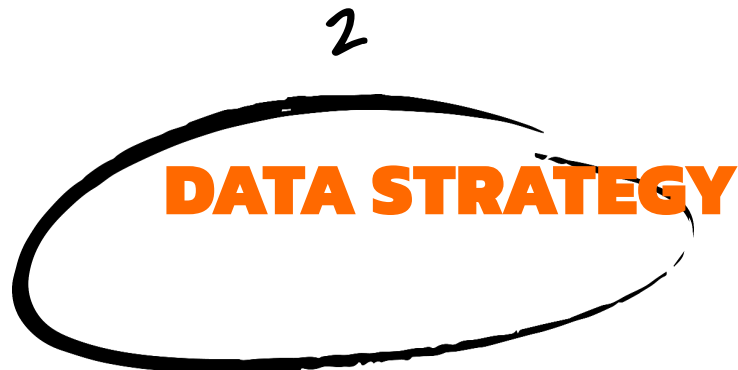
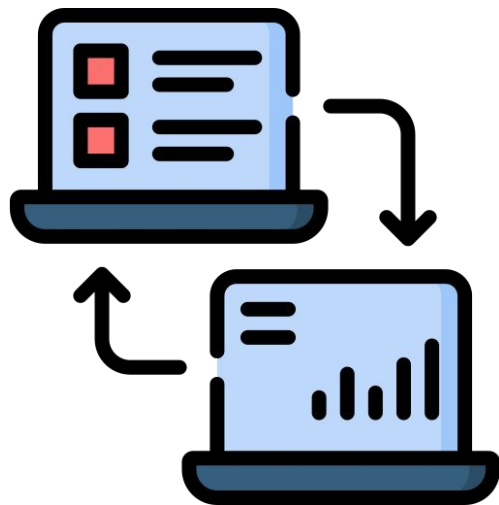


**Now fostering conversation around Data and AI Governance**

# DATA GOVERNANCE

## 1 DATA EXCHANGE PLATFORM

TO UNLOCK DATA AS  
A RESOURCE



To leverage the value of  
data for social economical  
transformation

# AI GOVERNANCE

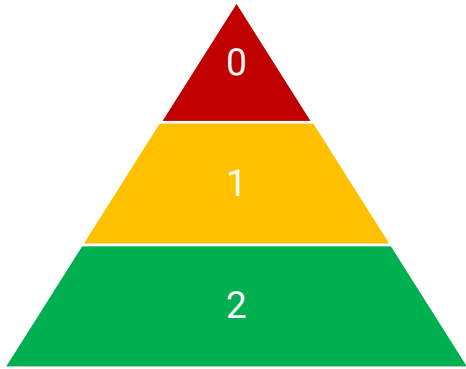
Roadmap for the development of  
an Ethical AI Framework



AI Governance

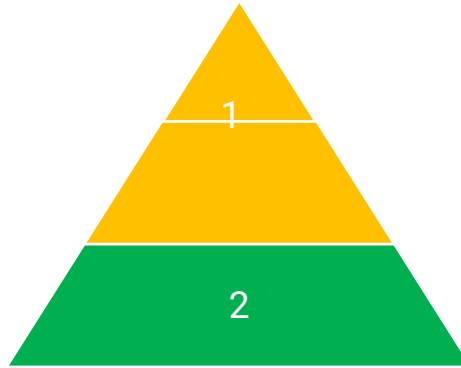
# AI GOVERNANCE - lessons

EU AI Act



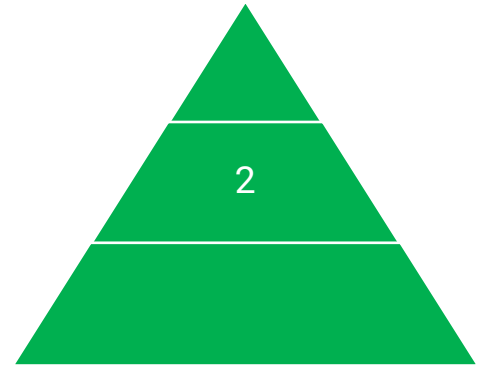
- 0. unacceptable risk.
- 1. High risk.
- 2. low or minimal risk.

US Algorithmic Accountability Act



- 1: turnover > US\$ 50 m.  
> US\$ 250 m in equity value.
- > 1 m users.

Singapore AI Model Governance Framework





# FUTURES AND FORESIGHT



## Future of Data Sharing & Reuse for Uganda





**JOURNEY CONTINUES**

**THANK YOU**

**FOR LISTENING!**



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