Gender & Breeding Initiative

CGIAR

Gender and Social Targeting in Plant Breeding

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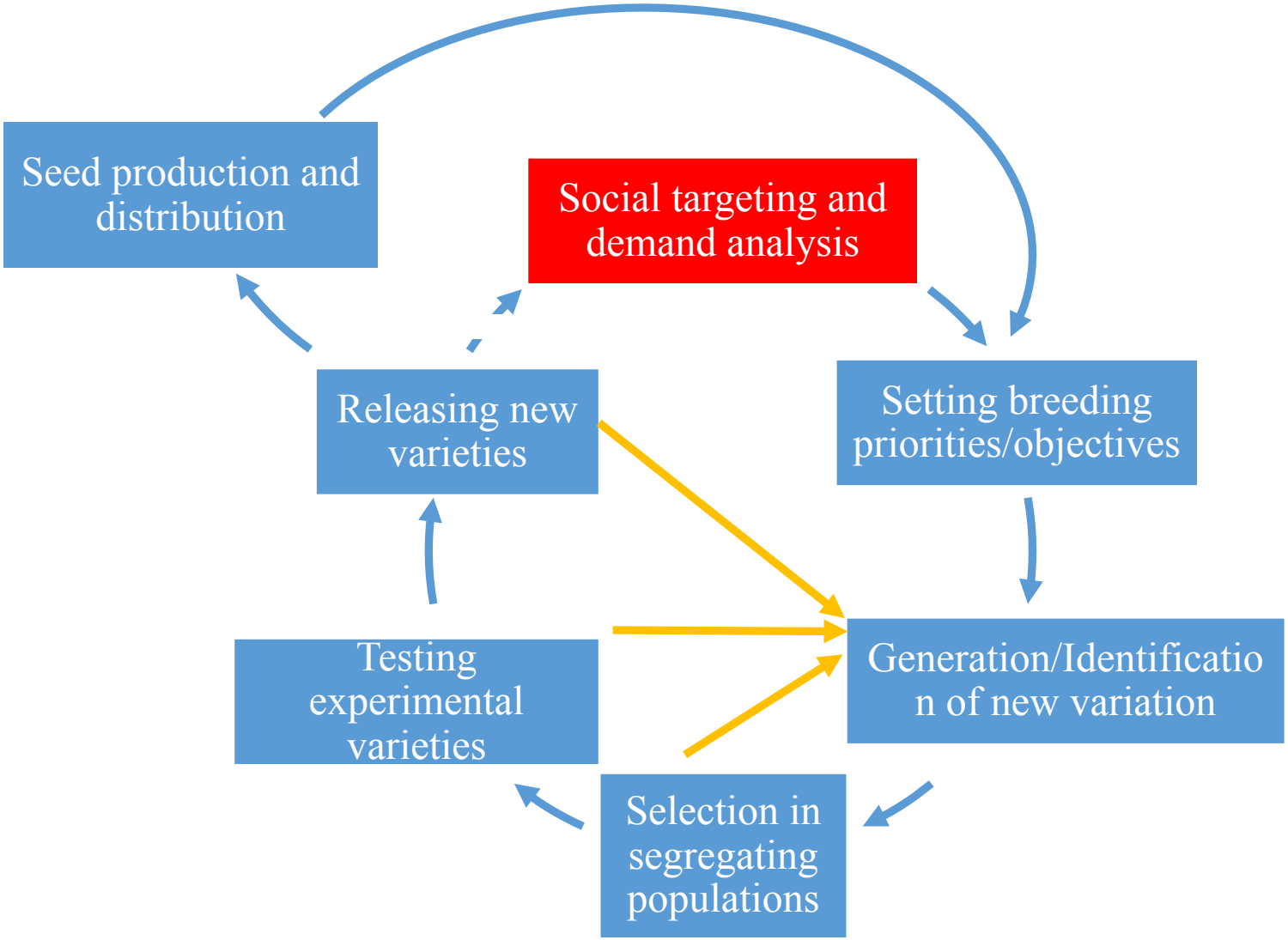
5 October 017

Breeding Cycle – Main Stages



Introduction

Background Paper commissioned for this Workshop, to be uploaded on WOC website

Objectives of this presentation:

- Share draft paper
- Useful ideas from Penang Workshop
- Your feedback needed to help finalize the paper

A work in progress….!

What's ahead

The problem
A conceptual framework
Application to breeding programs
Designing targeting studies
Using large datasets
Conclusions

The problem: how to make breeding programs more customer-driven?

Breeding programs for resource-poor farmers have limited information about their clients and their clients' preferences

Why?

- No market indicators
  - sales
  - market share
  - Instant feedback from sales teams
- Small-scale studies, not representative at national, agro-ecosystem levels
- No disaggregation (poor/non-poor, gender)

Conceptual framework: use a marketing approach

Segmenting: Identify market segments *("a homogeneous group of consumers with a unique set of preferences")*

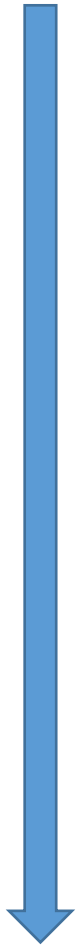
"Market" not necessarily a commercial market, can be for home consumption

Targeting: select market segment(s) for specific products

Large consumer databases to identify market segments and preferences: eg. LMS, Target Group Index

Example: The CIAT Bean Program used LCM for Kenya to target the urban/middle-class market and participation ('immersion') to learn preferences for pre-cooked beans

The Segmenting-Targeting-Positioning (STP) Framework



S: Segmenting the market
1. Define the market
2. Select bases for segmentation
3. Validate the segments
T: Targeting specific market segments
4. Construct segment profiles
5. Evaluate market attractiveness of segments
6. Identify which and how many segments to target
P: Positioning products with target market segments
7. Develop positioning strategy
8. Design appropriate marketing mix to communicate positioning

Application to breeding programs: Segment the market

Steps	Description	Data required
1. Define the market	Generic market: aggregate market for a product Relevant market: boundary to guide breeding program Defined market: existing customers, potential customers	Target countries, Agro-ecosystems, Area planted to crop Value chains for crop End uses for crop
2. Select bases for segmentation	Geographic (where?) Demographic (who?) Behavioral (why?)	Region, state Age, marital status, gender, ethnicity, income, occupation, consumption/sale End uses, trait preferences
3. Validate the segments	Measurable Substantial Accessible Differentiable (respond differently to market stimuli); Actionable (program can be designed to serve the market);	Size Purchasing power, profitability Growth rate Location Distance to market

Application to breeding programs: Target the market

Steps	Description	Data required
5. Evaluate market attractiveness of segments	Exclude segments with low numbers of poor growers, sellers, processors	Absolute number of poor and non-poor growers, sellers, processors
6. Identify which and how many segments should be targeted	Compare segments with resource-poor growers, sellers, processors	Size of segments, growth rate, number of resource-poor growers, location, distance to market

Gender and social targeting

Primary target segment is the resource-poor grower, seller or processor, not women/men

Trait preferences reflect gender roles in production, sale, and value addition

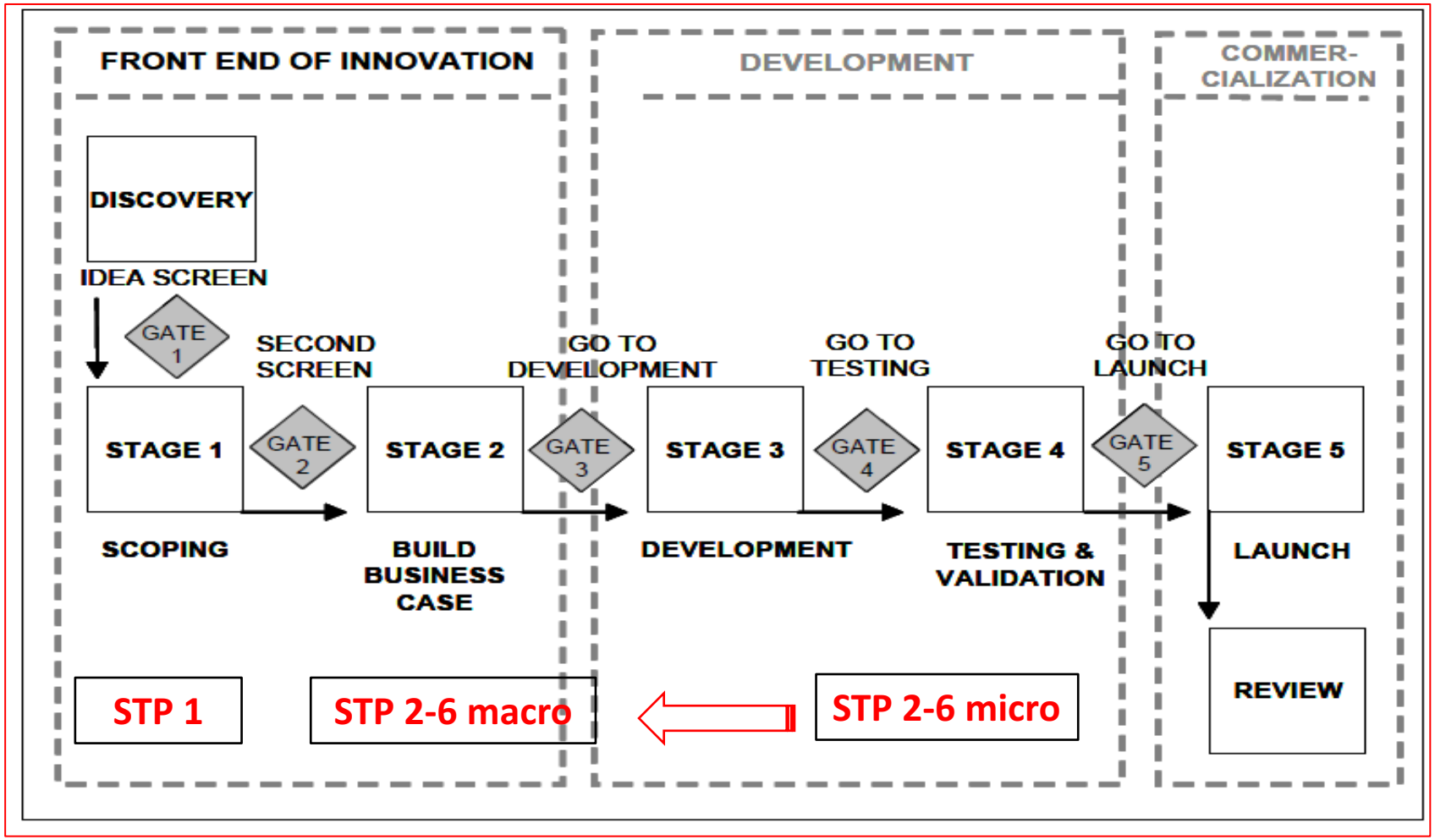
Use gender as targeting variable where women/men play different roles in production, processing, or marketing

Avoid “gender fundamentalism”

Make gender “instrumental”: who do we want to influence to use our product?

The example of pre-cooked beans: first identify consumer segments, then identify gender roles

At what stage in the breeding cycle is information needed?



Designing targeting studies within the breeding team

Define the question jointly

Breeders' question:

Is there a trait that can help develop a new product that will lead to a breakthrough in adoption and result in impact on an industrial scale?

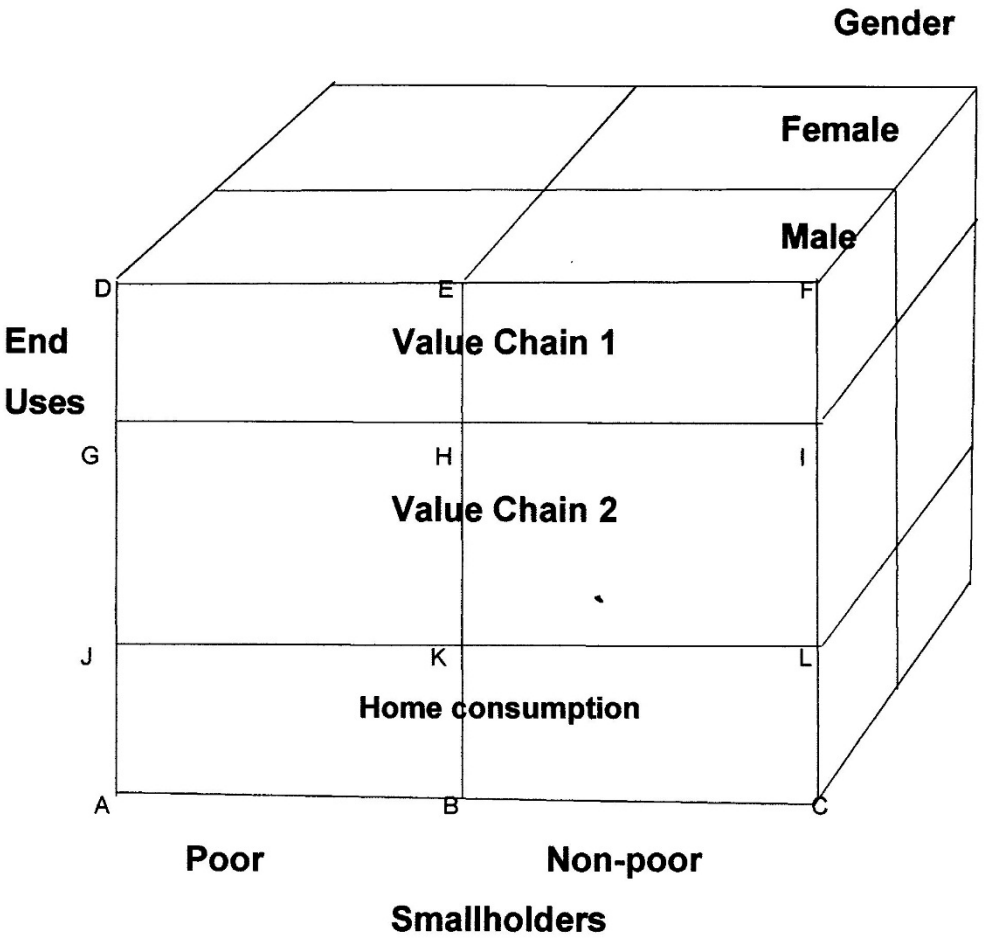
Targeting question:

Is there a trait that can help develop a new product that will lead to a breakthrough in adoption ***by resource-poor farmers/sellers/processors (including women)*** *and result in impact on an industrial scale* ***that benefits poor consumers?***

Use the STP framework as a checklist

Segmenting the market
What are the different end uses for the product? Has the program identified market segments in terms of geography/agro-ecosystem? Has the program also identified market segments according to the type of farmer?
Targeting market segments
Do we know the size, profitability, and number of farmers in each segment? Have we used the right indicators to identify resource-poor farmers? Do women play a major role in production/processing/marketing? Which market segments contain the majority of resource-poor farmers? What are the trait preferences of these farmers? What products are needed to match these trait preferences?
Positioning the product
How will resource-poor farmers become aware of the product? Can they find it easily if they want to try it? How much will they pay to use it?

Use the STP framework as a matrix



X: Poor smallholders

Y1: Home consumption, value chain 1

Y2: Gender roles in production, sale, processing

Use mixed methods

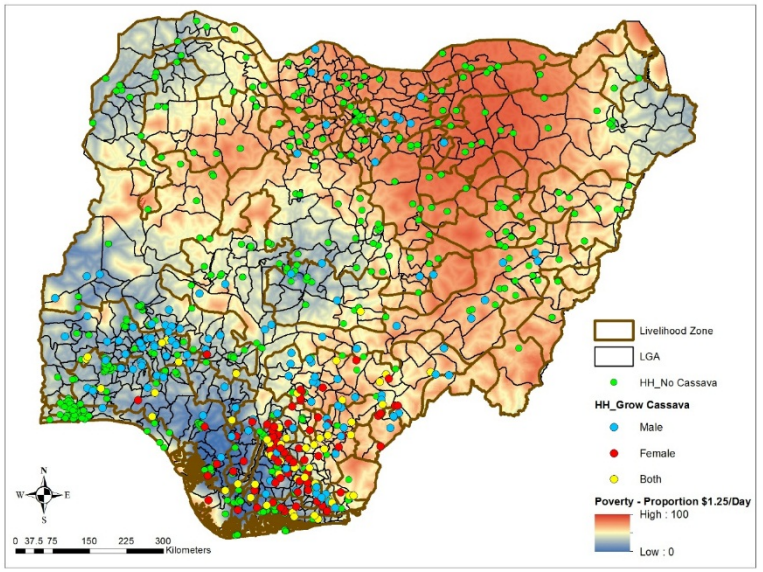
STP Framework	Data needs	Data sources	Tools	Examples
Step # 2 Select bases for segmentation	Geographic (agro-ecosystem, distance from market) Demographics (income, gender, etc) Behavioral (benefits, adoption status)	Living Standards Measurement Surveys (LSMS) Baseline surveys (crop-specific) "Immersion" studies	Cross-tabulation Correlation Factor analysis Qualitative tools	Beans in ESA (Ouma, 2016) Gender roles: Feldstein and Jiggins (1994); Andersson et. al. (2016); Orr et. al. (2016).

Why mixed methods?

Qualitative methods: trait preferences, gender roles, empowerment
Quantitative: trait combinations, segmenting and targeting at national level

Think at scaled and use large datasets

Over to Cindy

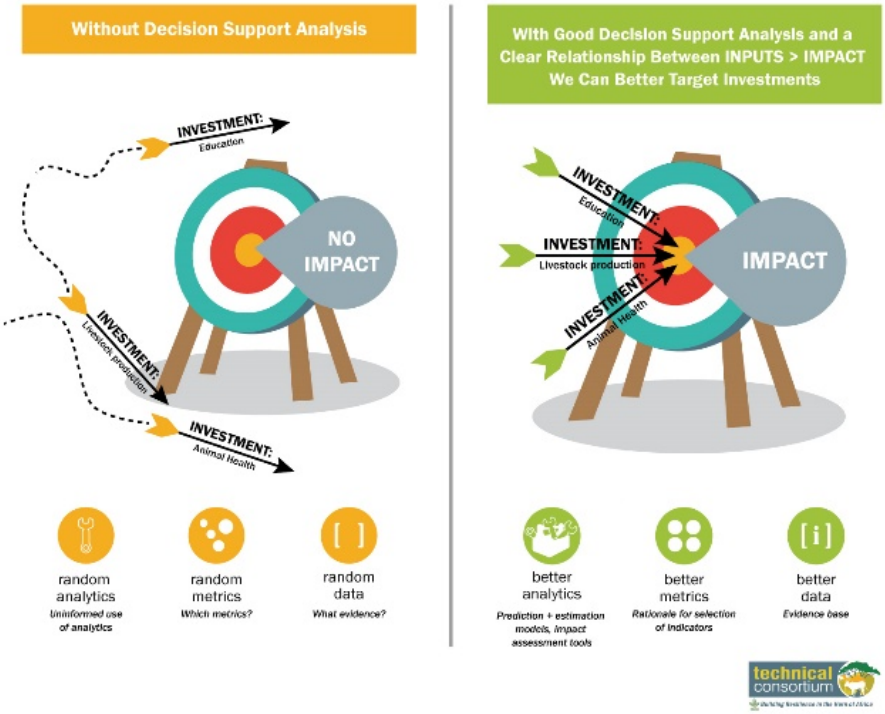


Using large datasets

Targeting

Guiding questions:

- Where are the poor (women and men) farmers and what is their welfare status?
- On what farming systems do they rely?
- What constraints and risks limit the productivity of those farming systems?
- What crop traits might best sustainably raise farm productivity, human welfare and livelihoods?
- What would be the broader impacts of such change – who might win, who would lose (e.g., gender)

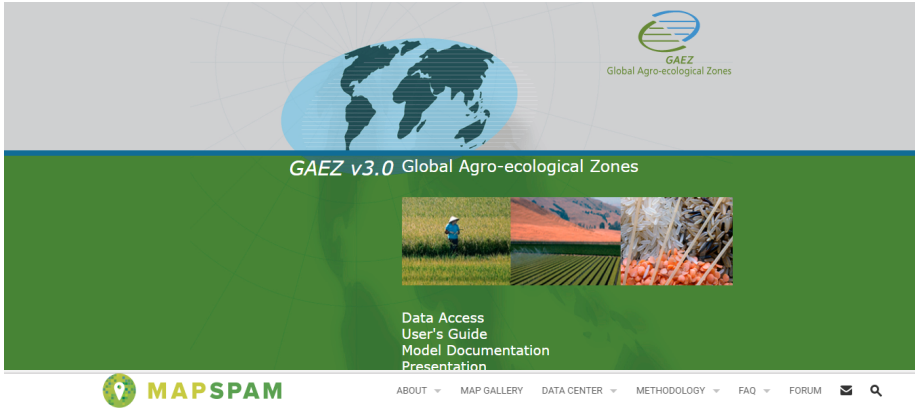


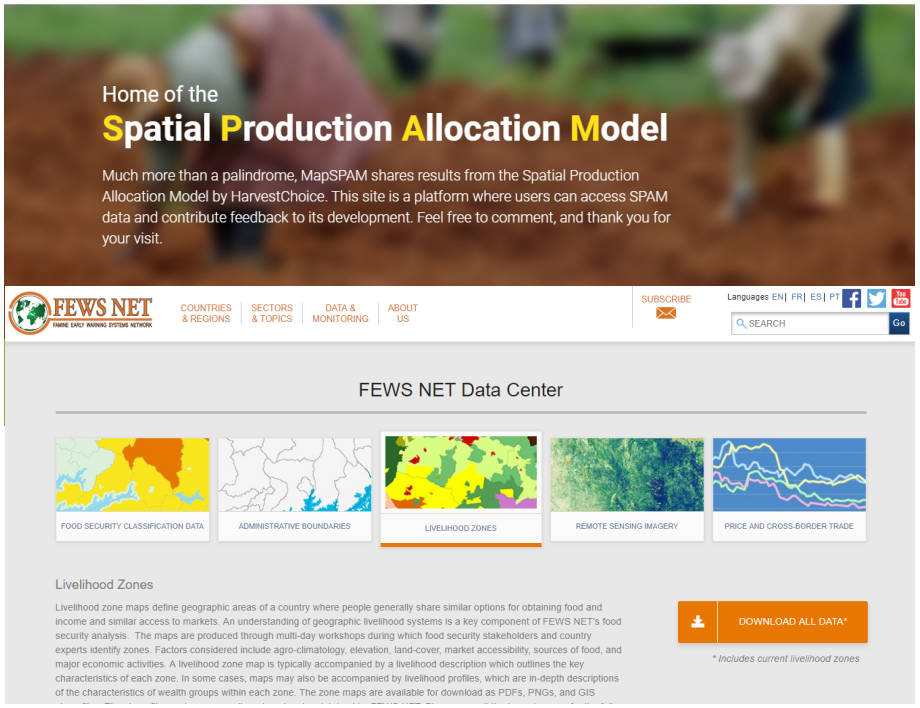
Using large datasets

First-order filter -> Environment

Examples:

- Crop suitability (GAEZ)
- Subnational Crop Stats (SPAM)
  - HarvestChoice/IFPRI
- Livelihood Zones (FEWS NET)





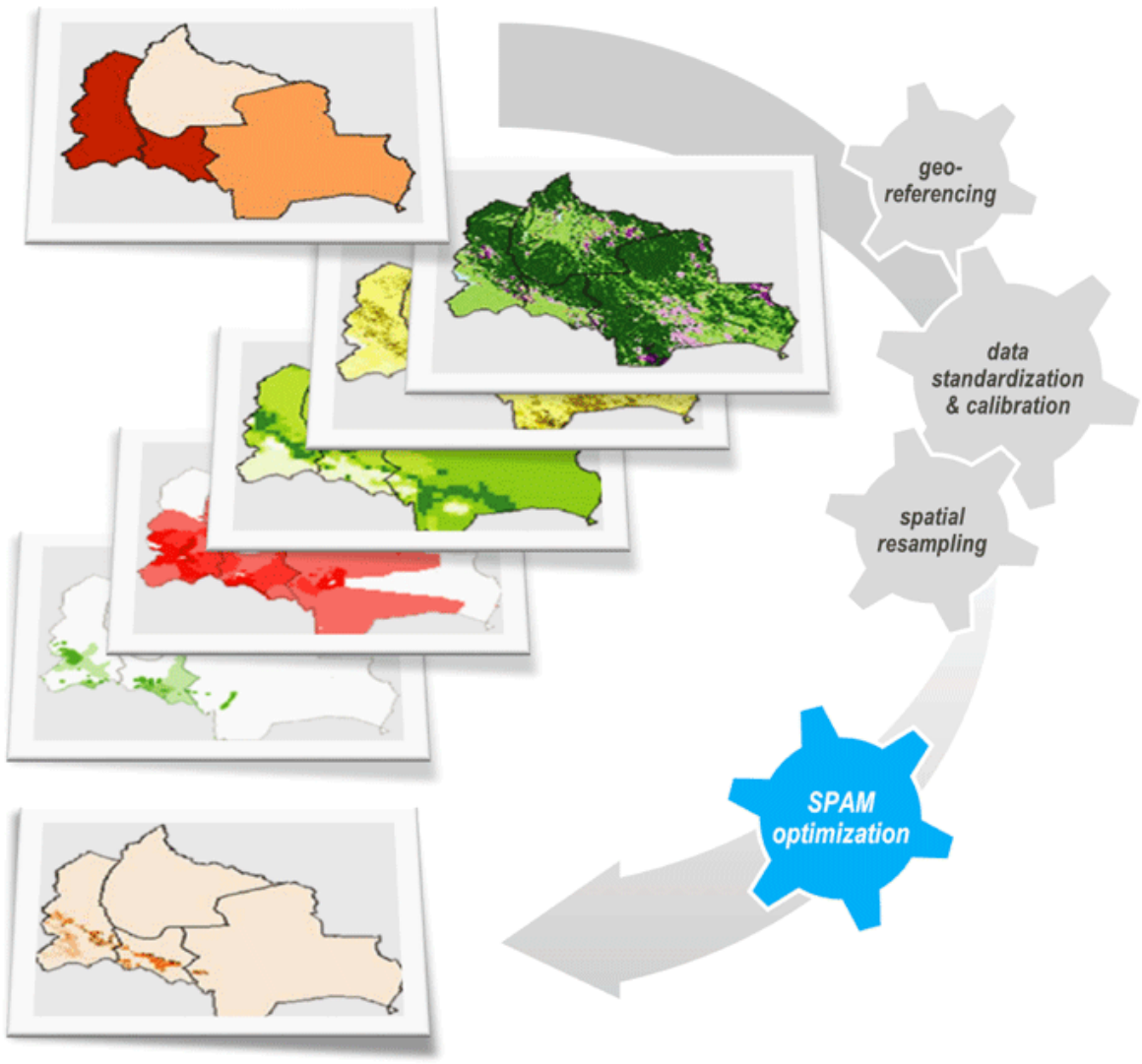
SPAM datasets

Sub-national crop production statistics
(42 commodities)

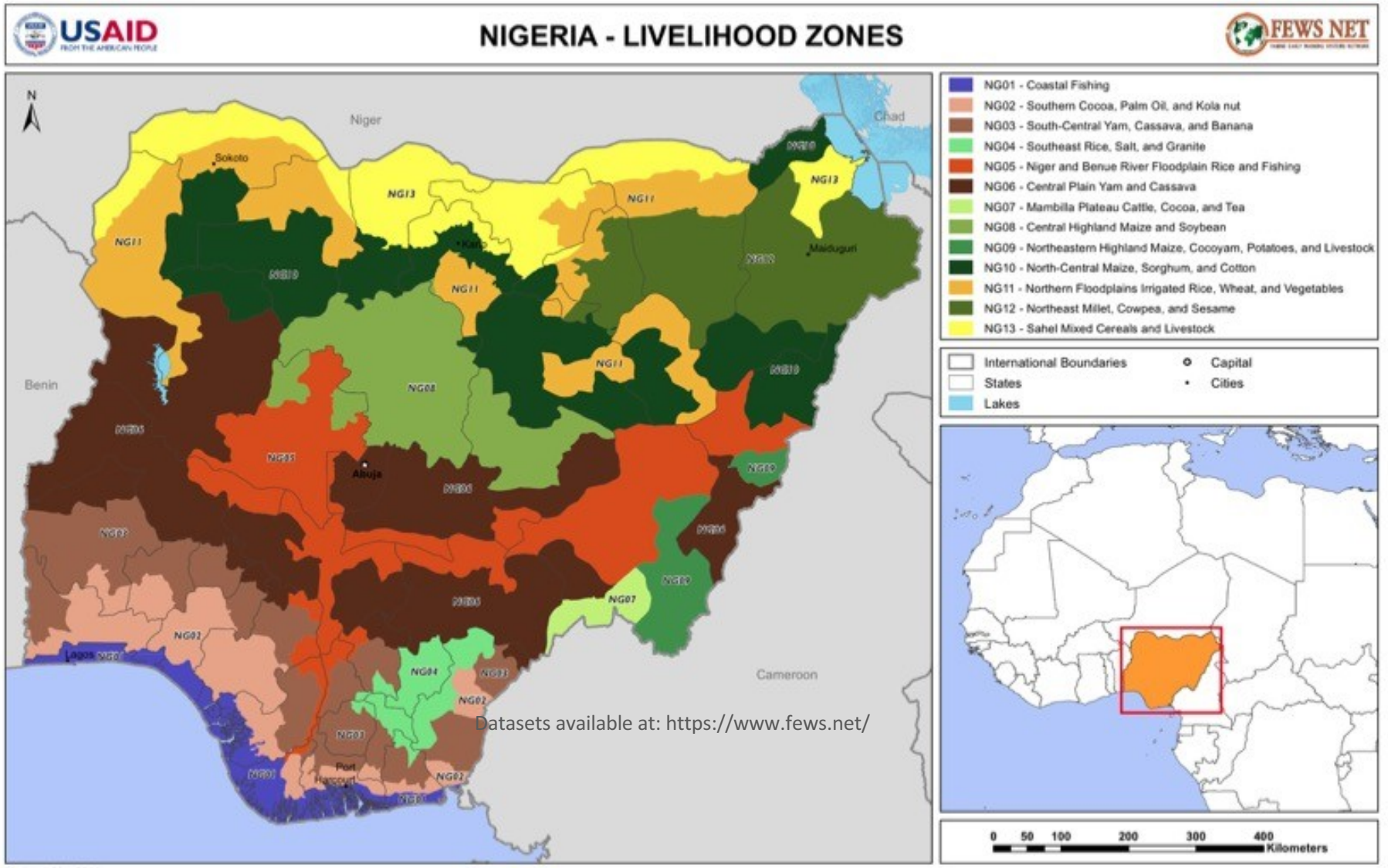
+ Land cover satellite data
+ Irrigated land
+ Rural population density
+ Crop suitability assessments
+ Cropping intensities
+ Prices
+ Other priors and mapped evidence of crop production …

SPAM Database

Rasterized crop area, production, value of production, yields



FEWS NET – Livelihood Zones

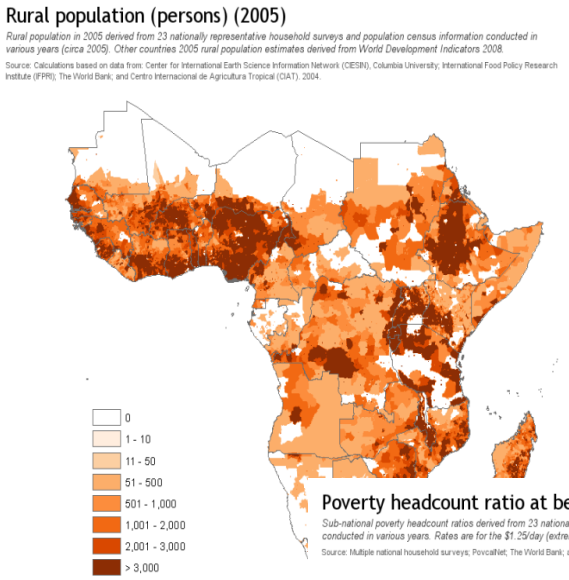


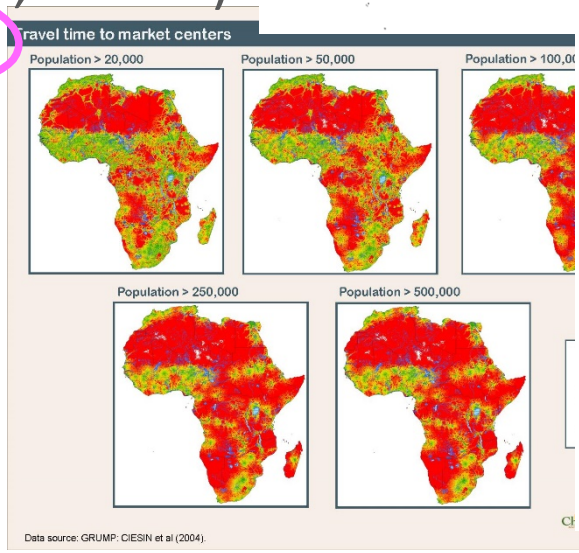
Using large datasets

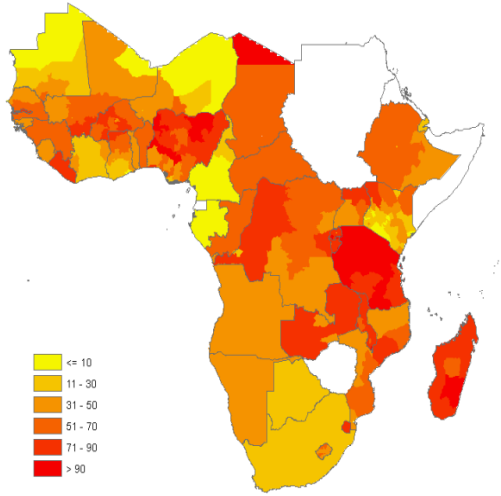
Second-order filter -> Socio-economics

Examples:

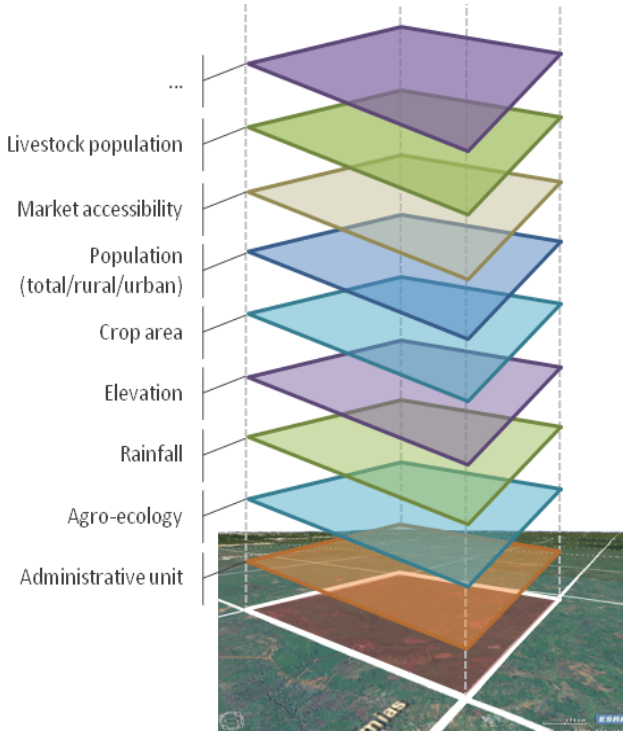
- Population (CIESIN)
- Poverty (PovcalNet)
- Market access (Grump, CIESIN)
- Gender (HH surveys)







CELL5M Geo-spatial Database



>750 data layers for SSA @ 10 x 10 kilometer pixels

Category	Sub-category (Number of data layers)
Agriculture	Harvested Area of Crops (134) Crop Production (134) Value of Crop Production (134) Crop Yield (134) Crop Yield Variability (2) Livestock (16)
Demographics	Health and Nutrition (90) Income and Poverty (36) Population (12)
Agroecology	Agroecological Zones (4) Climate (7) Elevation (1) Farming Systems (2) Land Cover and Land Use (21) Pests and Diseases (8) Soil Resources (19)
Markets	Marketshed (1) Portshed (1) Travel Time (11)

Development Domains

Example:
Development Domains in Ethiopia

Three layers:

- Agricultural Potential
- Population Density
- Market Access

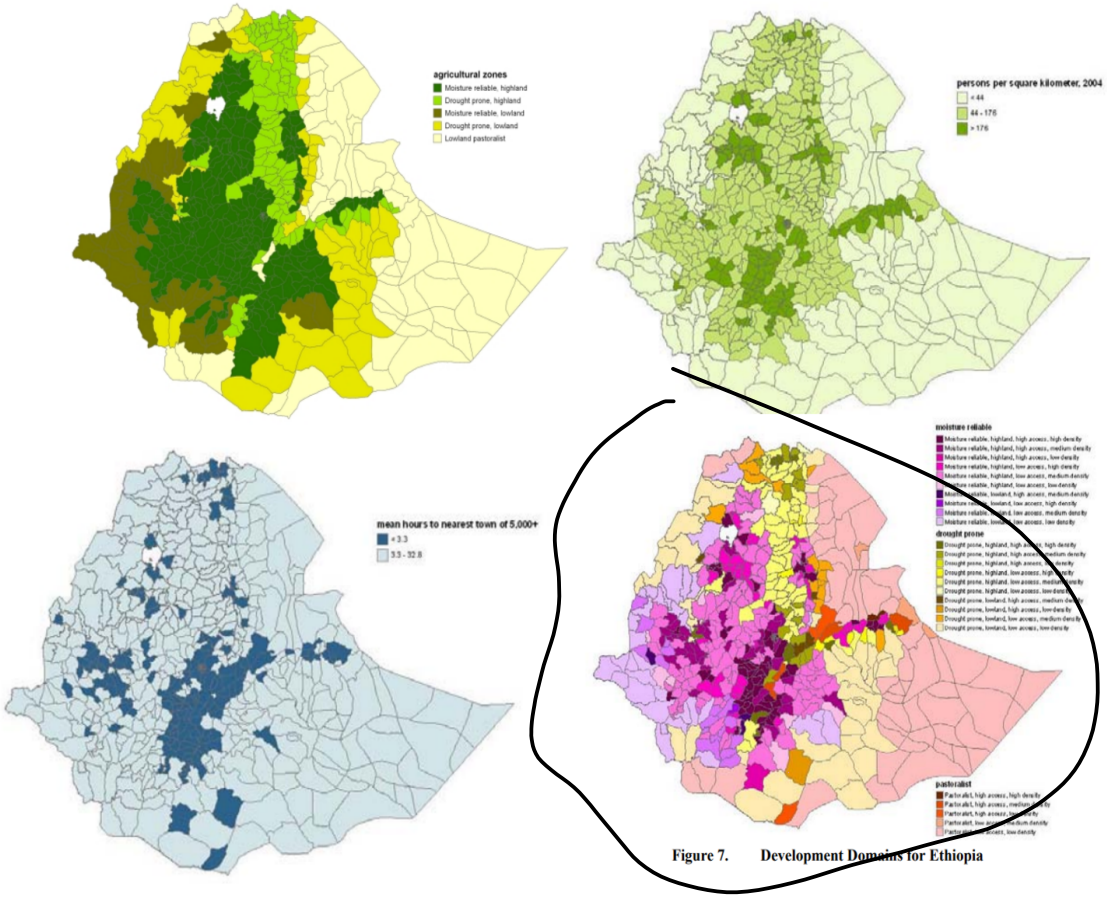


Figure 7. Development Domains for Ethiopia

Chamberlin et al 2006

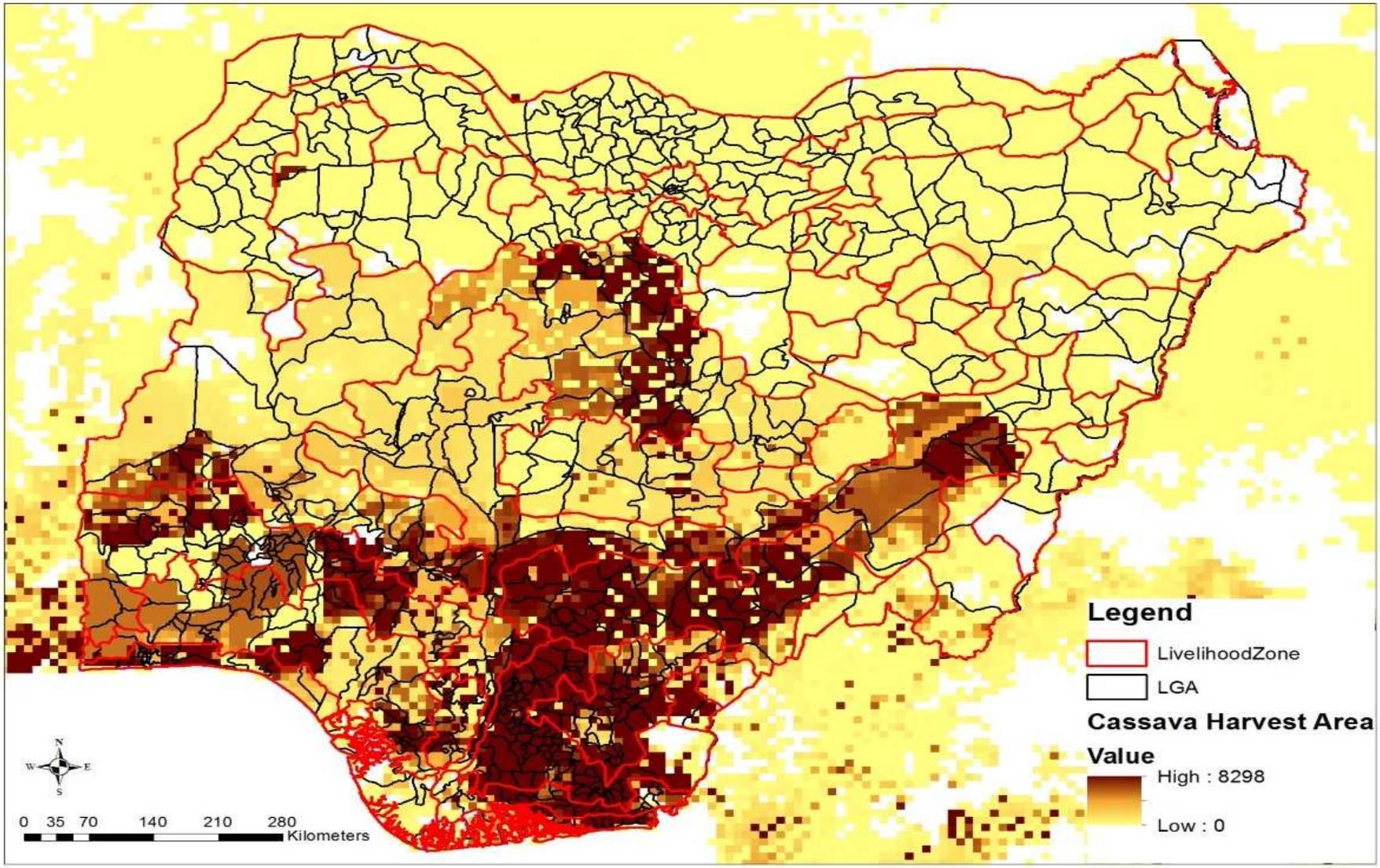
Sourcing gender-sensitive data

Example: World Bank's Living Standards Measurement Study - Integrated Surveys on Agriculture (LSMS-ISA)*

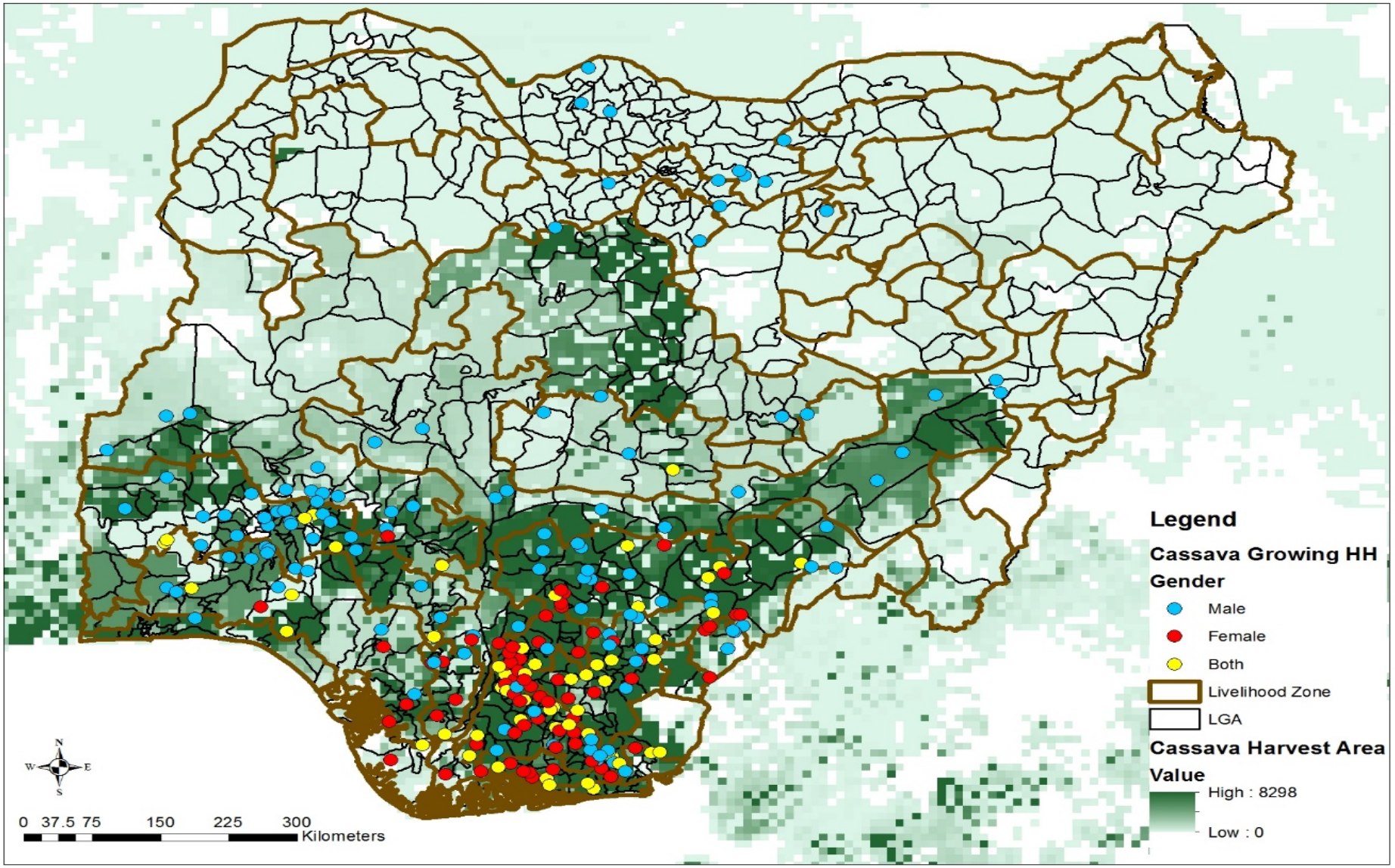
Others: WEAI & DHS

* LSMS-ISA data are nationally-representative and multi-topic, with geo-referenced household and plot locations, and information on production and identity of managers, owners and laborers at plot level

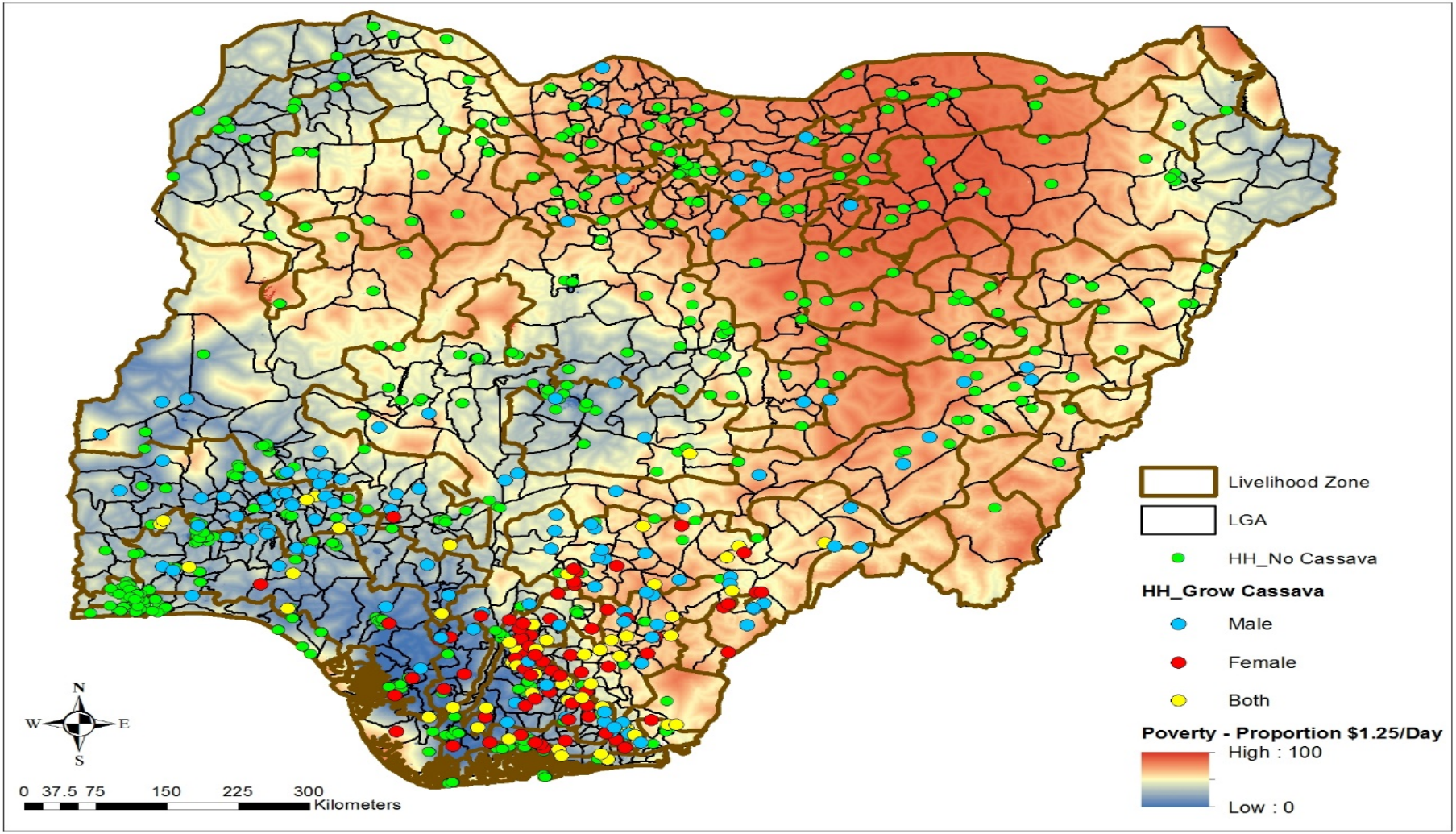
Example: Cassava in Nigeria (FEWS NET + SPAM)



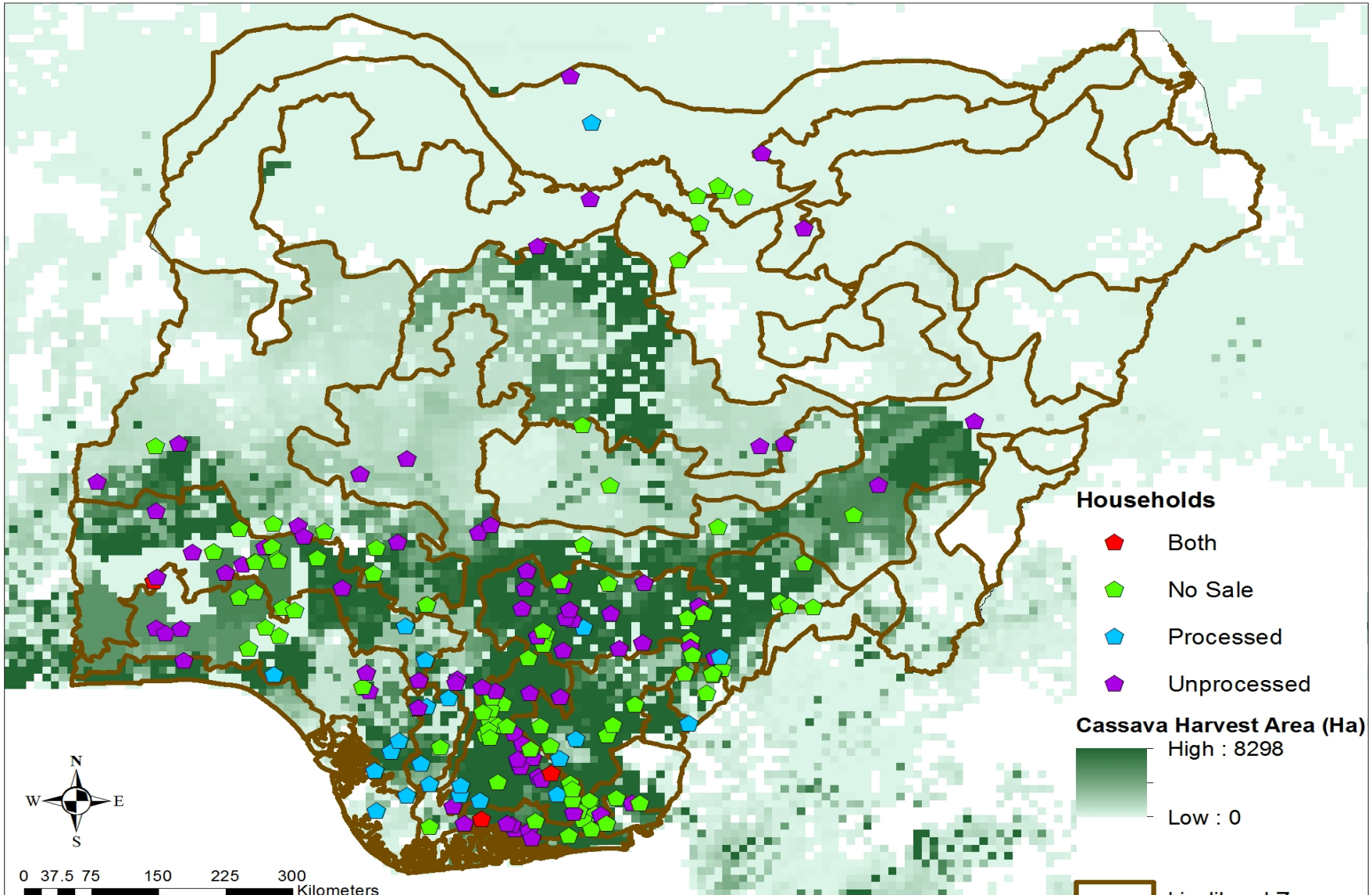
Where are women cassava farmers relative to men? (LSMS)



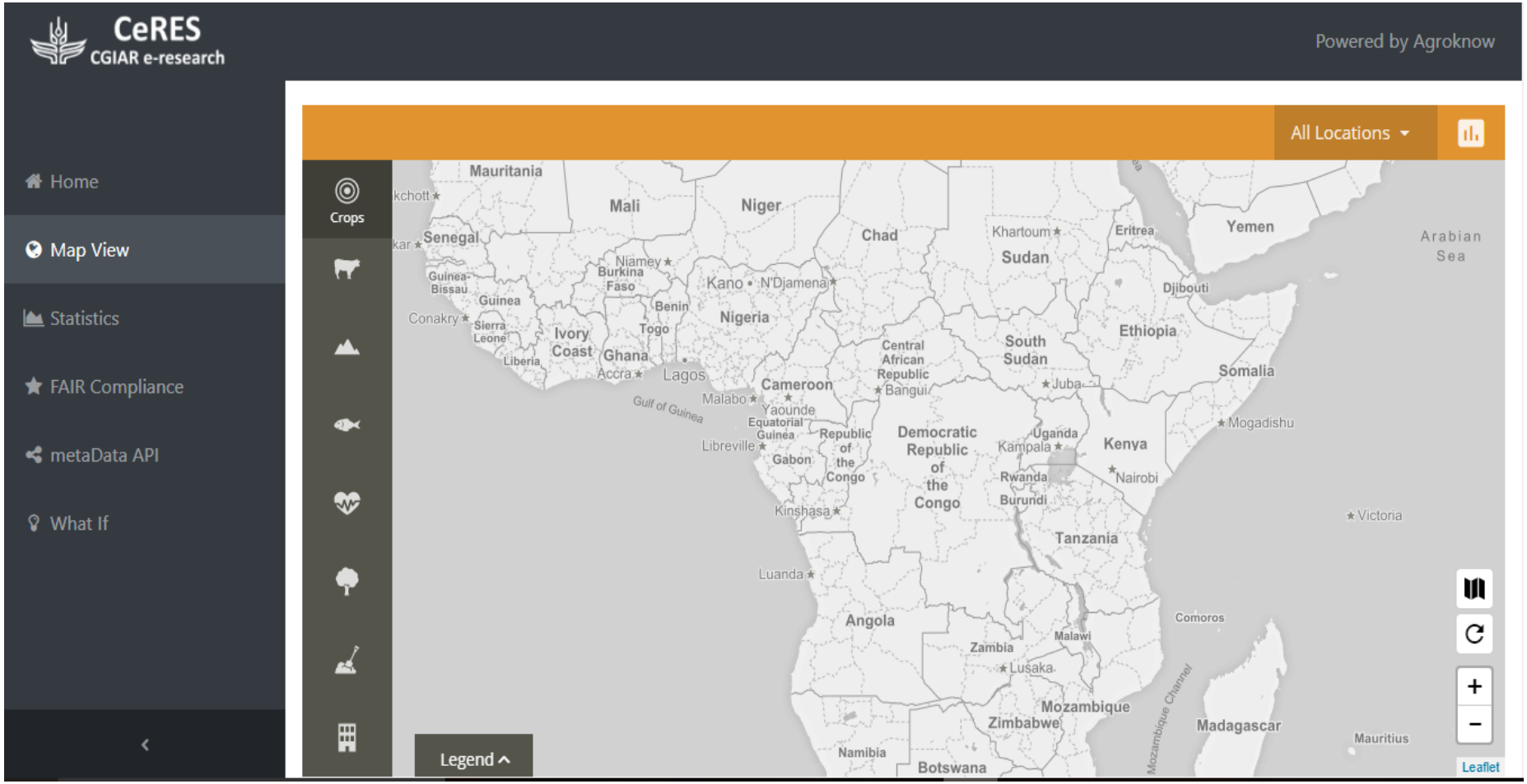
Where are poor women cassava farmers relative to men?



Households who sell Processed or Unprocessed Cassava - or No Sale



Big Data Platform (beta)…
coming soon!



http://ceres.bigdata.cgiar.org/mapview.php

Conclusions

What are the constraints faced by poor farmers and what drives their crop needs and preferences?

What is gender-relevant and what is not?

- Several spatially-explicit demographic and biophysical datasets available
- Micro-level gender-sensitive data increasingly available via HH surveys (e.g., LSMS-ISA, WEAI & DHS)
- What about the Value Chain???

Conclusions

Use STP as a conceptual framework for gender and social targeting

Socio-economic targeting precedes gender targeting

Make gender instrumental

Improve design of targeting studies

- ✓ Jointly define the research question
- ✓ Use the STP framework as a checklist or matrix
- ✓ Use mixed methods to generate data
- ✓ Think at scale