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ISAAC MAGINA

**MANAGER, AGRICULTURE UNDERWRITING AND
MARKETING, AFRICA RE NIGERIA**



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Index-based Insurance to Address Farmer-Herder Conflict in Nigeria?

Established on 24 February 1976 (Over 47 Years Ago) in Yaoundé (Cameroon) through an initiative led by the African Development Bank (AfDB) and United Nations Conference on Trade and Development (UNCTAD).

Vision

To be the **leading reinsurer in Africa** delivering **outstanding quality service** to customers and other stakeholders.

Mission

Our mission is **to foster** the development of the insurance and reinsurance industry in Africa; **to promote** the growth of national, regional and sub-regional underwriting and retention capacities and **to support** the African economic development.

Distinguishing Africa	<ul style="list-style-type: none"> • AM Best: Top 50 Global Reinsurance Groups by Gross Written Premium: Ranked 47TH in 2023 (Only pan-African) • Standard & Poor's: Top 40 Global Reinsurance Groups by Net Written Premium: Ranked 38TH in 2023 (Only pan-African)
Proudly African	<ul style="list-style-type: none"> • Diversified Workforce: Formed and Managed by Africans (28 African Nationalities) • Ownership Structure: 42 African Member States, 113 (Re)insurance Companies • Privileged Market Access: Defined in Establishment and Shareholding Treaty.
Exporting Africa	<ul style="list-style-type: none"> • International Presence: Reinsurance Capacity Provider in Middle East, Asia and Brazil
Impacting Africa	<ul style="list-style-type: none"> • Corporate Mission: African economic development is in the DNA • Africa Re Foundation: Up to 2% of Annual Net Profit

Our Geographical Foot print

Africa Re writes business mainly from Africa complemented by selective underwriting from parts of the Middle East, Asia and Brazil.

Markets: Algeria, Libya, Morocco, Mauritania and Tunisia

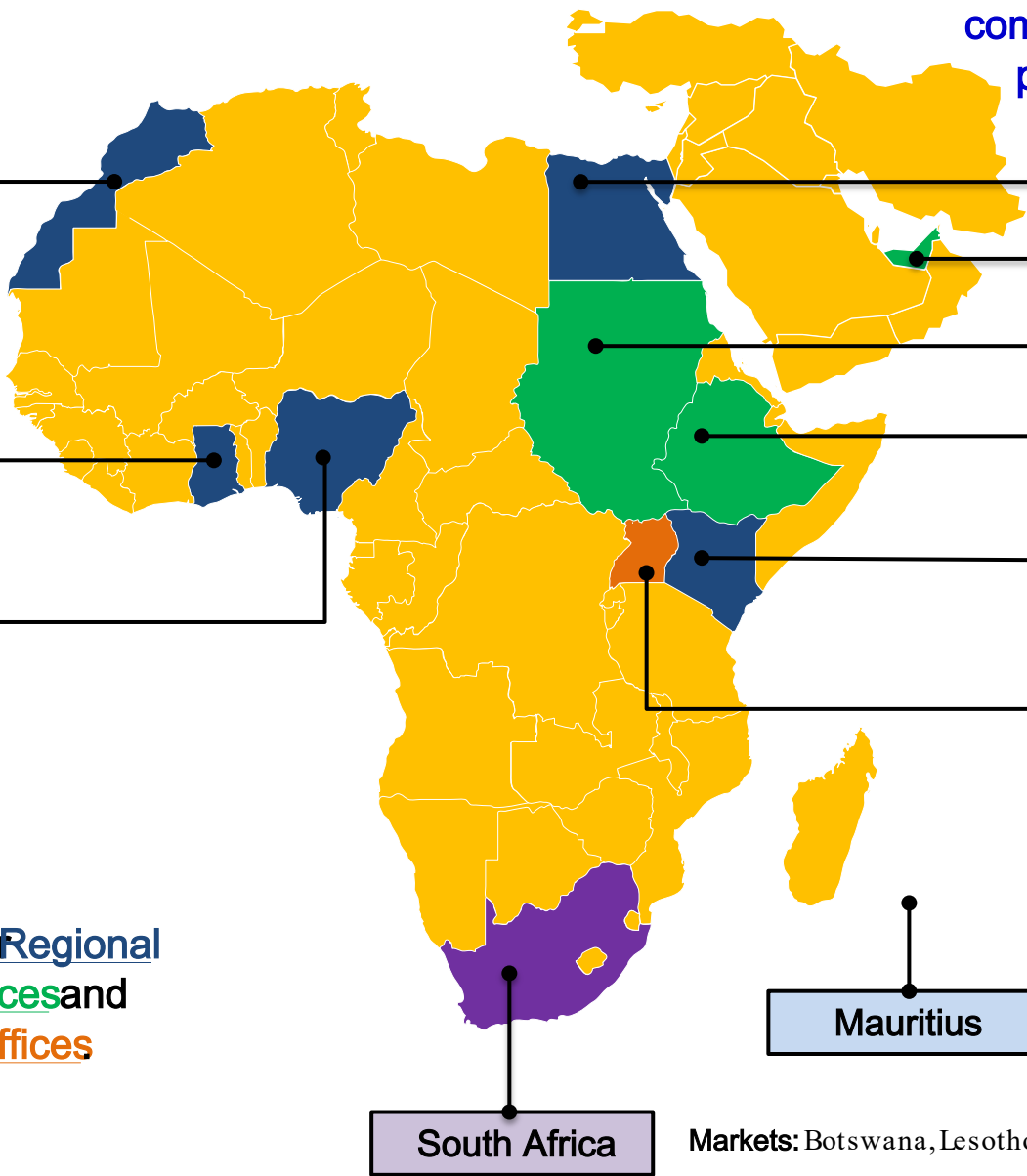
Morocco

Markets: Burkina Faso, Benin, Democratic Republic of Congo, Central African Republic, Republic of Congo, Côte d'Ivoire, Cameroon, Gabon, Guinea, Equatorial Guinea, Mali, Niger, Senegal, Chad and Togo

Cote d'Ivoire

Nigeria

Markets: Ghana, Gambia, Liberia, Nigeria and Sierra Leone



Egypt

UAE

Sudan

Ethiopia

Kenya

Uganda

Markets: Egypt, Sudan, South Sudan and **Middle East** There is also a Retakaful Subsidiary in the Egypt Office.

The UAE and Sudan Offices are consolidated in the Cairo Office.

Markets: Burundi, Djibouti, Eritrea, Ethiopia, Kenya, Malawi, Rwanda, Somalia, Tanzania, Uganda, Zambia and Zimbabwe

The Ethiopia and Uganda Offices are consolidated in the Cairo Office.

Markets: Angola, Cape Verde, Guinea-Bissau, Comoros, Madagascar, Mauritius, Mozambique, Seychelles, São Tomé & Príncipe, **Brazil and Asia**

Markets: Botswana, Lesotho, Namibia, Swaziland and South Africa

Africa Re is all around you with our **Regional Offices, Subsidiaries, Contact Offices and Underwriting Representative Offices**



Climate Insurance in Africa: Challenging Market realities

1. Data, infrastructure and technology:

- **Data** Missing or poor-quality data, who owns the data.
- **Technology:** Improve efficiency and enhanced underwriting capabilities

2. Policy, regulations and government involvement:

- **Incentives:** (premium subsidies, tax incentives)
- **Regulatory framework:** evolving understanding and capacity building.
- **Insurance Pilots:** No systematic support from government.

3. Financial literacy, awareness creation and trust issues

- Insurance knowledge and simplifying insurance concepts e.g. *basis risk*



Why the Focus on Resilience building for Communities through Insurance

1. Our motivation

- Aligned with Africa Re's mission to support economic development activities in Africa
- New products and Portfolio diversification
- Bridging the protection gap & increased insurance penetration

2. Where we see opportunities!

- Governments /social protection program (Food, Employment & Security)
- **Incentives:** premium subsidies, tax incentives.
- Strong and broad partnership through PPP

3. The Specific Challenges

- Distribution infrastructure and technology
- Capacity building, awareness creation, trust issues
- Institutional Set up and alignment of goals



Addressing Farmers Herder Conflicts through Insurance in Northern Nigeria

1. Long standing symbiotic relationship between pastoralist and Herders
2. Established Conflict resolution mechanisms conflict is not new but may lead to loss of lives!
3. Conflicts emerge because of many factors including political incitement, long standing intercommunal tensions, grazing grounds
4. Fast depleting grazing corridors due to increased human activity and drought/flooding conditions.
5. Frequent severe droughts isolated and linked to conflict
6. Insurance players attempt to provide a solutionAnimal encroachment cover!
7. Need for scientific basis in designing a well through out solution



Solution Ideation Process



AIID– Africa (Agency for Inclusive Innovation Development)

Innovations and Business



Agile and responsive agency platform



Custom and universal human-generated data and insights

Research and Development



Co-designing climate risk innovations



Tracking behavioural change



Consultancy and advisory

Background: The Challenge

Context– Fact

Farmers and Herders in Nigeria

- Livelihood– dependent on the availability of natural resources
- Heterogenous- Spatial and temporal distribution of resources

Cooperation/Resource Sharing and Competition

- Not a rosy picture of interaction
- The system absorbs the disruption in the past – predictable patterns.

Challenge

Climate Variability, Weather-induced shocks

☐ Increasing weather-related shocks

- Exacerbated by environmental, structural, sociopolitical and related factors.

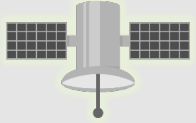
☐ Unpredictability of resource availability and access

- Farmer-Herder conflict intensified.

The Puzzle

Can climate insurance address the problem of weather-induced shocks and thereby mitigate farmer-herder conflict in northern and central Nigeria?

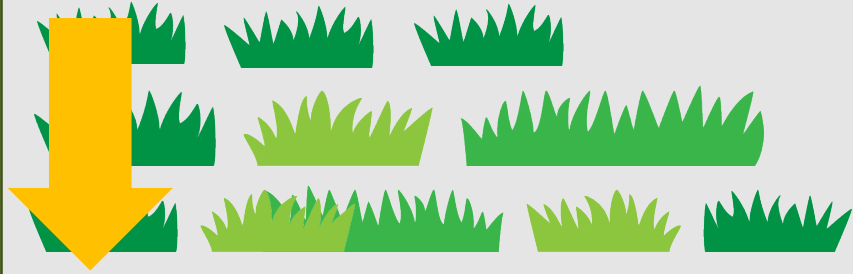




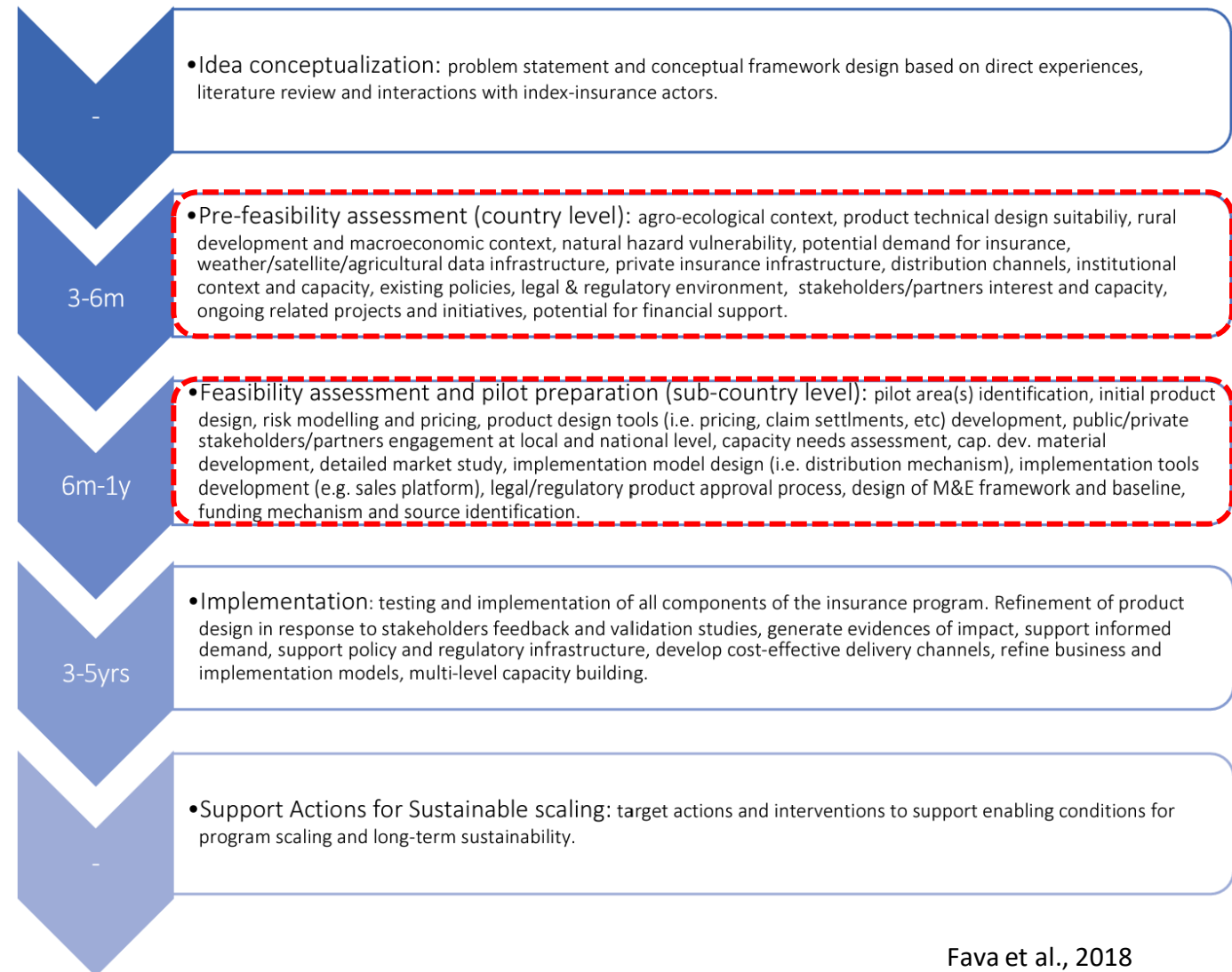
Index-insurance feasibility study

Focus

- Weather-related shocks– historical trends and extent.
- Farmer-herder conflict– trends and relationship with weather-related shocks
- How can we design insurance product that can mitigate this?



Key phases of development of an index insurance program



How?

1. Multidisciplinary team:

Remote Sensing, Socioeconomy, Institutional, Actuary, and Market and Capacity Development

2. Methodology

- Raw and secondary data– vegetation, conflict, economy outlooks, financial inclusions (northern and central Nigeria)
- Primary data– FGDs and KIIs with farmers, herders, and associations (farmers' and herders') Bauchi and Plateau
 - Government officials, private sectors, and other service providers– Lagos and Abuja



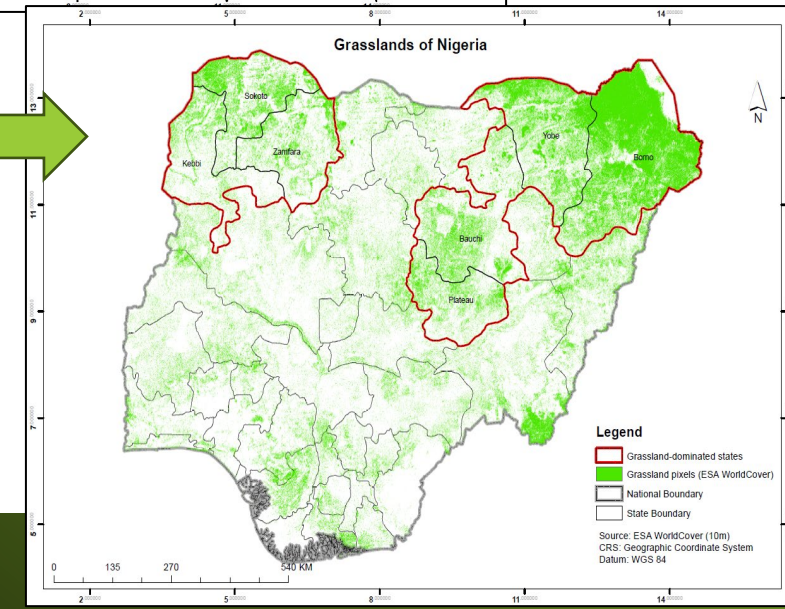
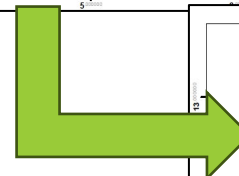
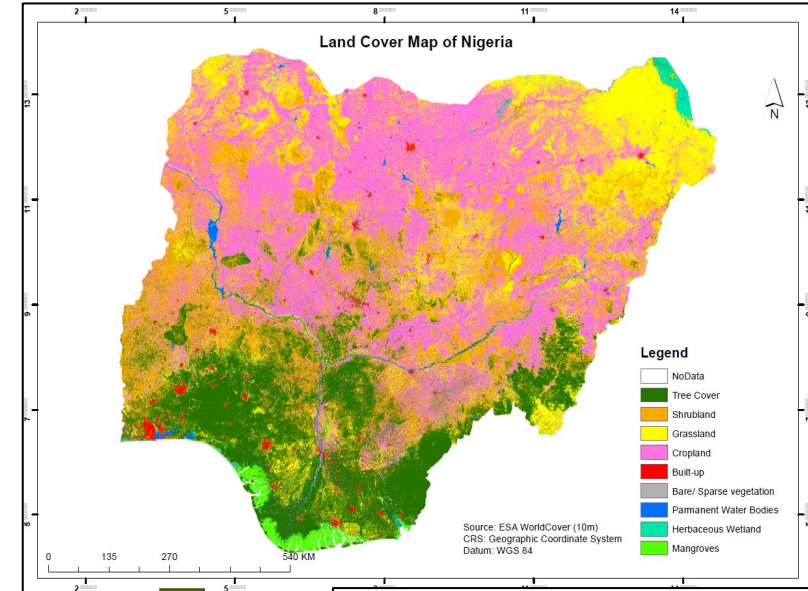
Technical: Understanding the Rangeland

Dominance of pastoral lands:

- Arid and semiarid landscapes (ASALs)
- IBLI required spatial aggregation based on homogenous LU/LC

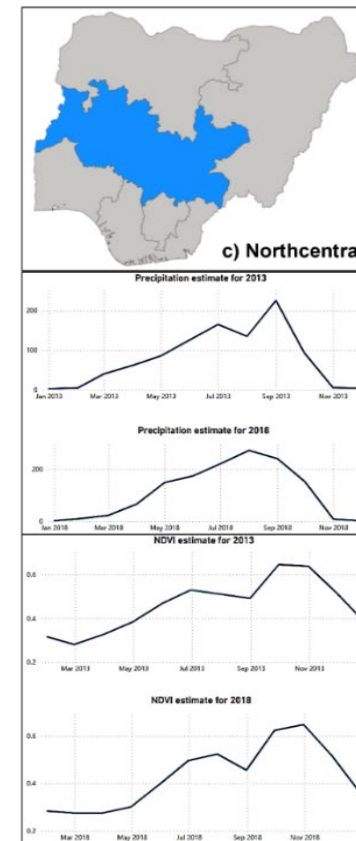
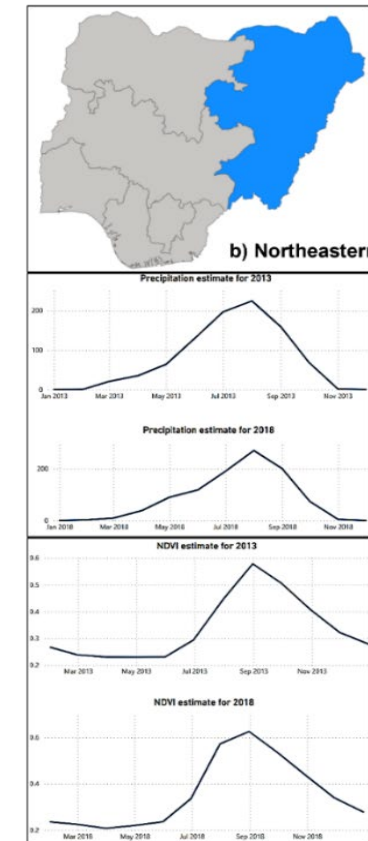
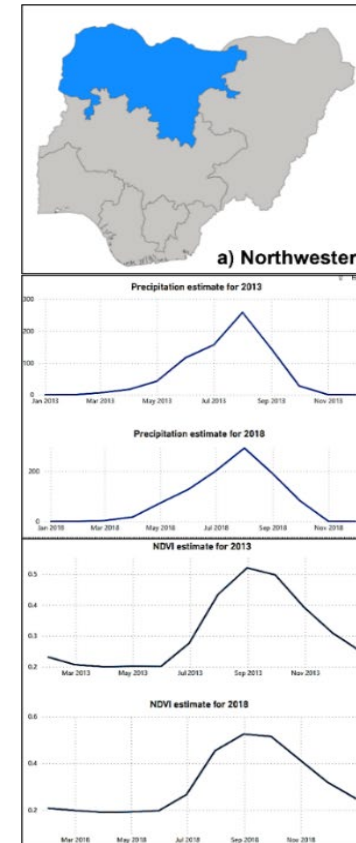
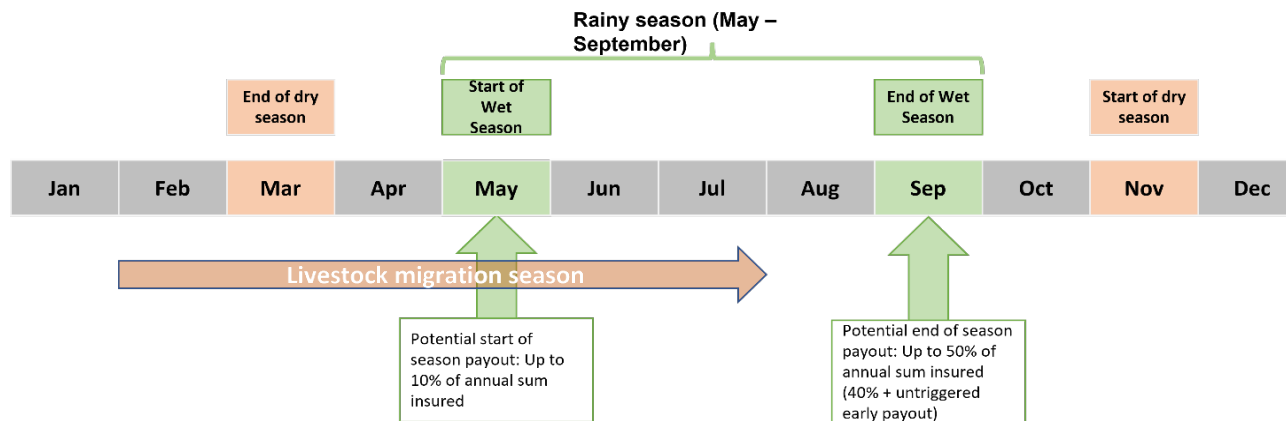
Here we use **ESA WorldCover** product at 10m resolution (2020 product validated)

- Mask out grasslands
- States with >40% grass
- 7 northern states
- 140 LGAs



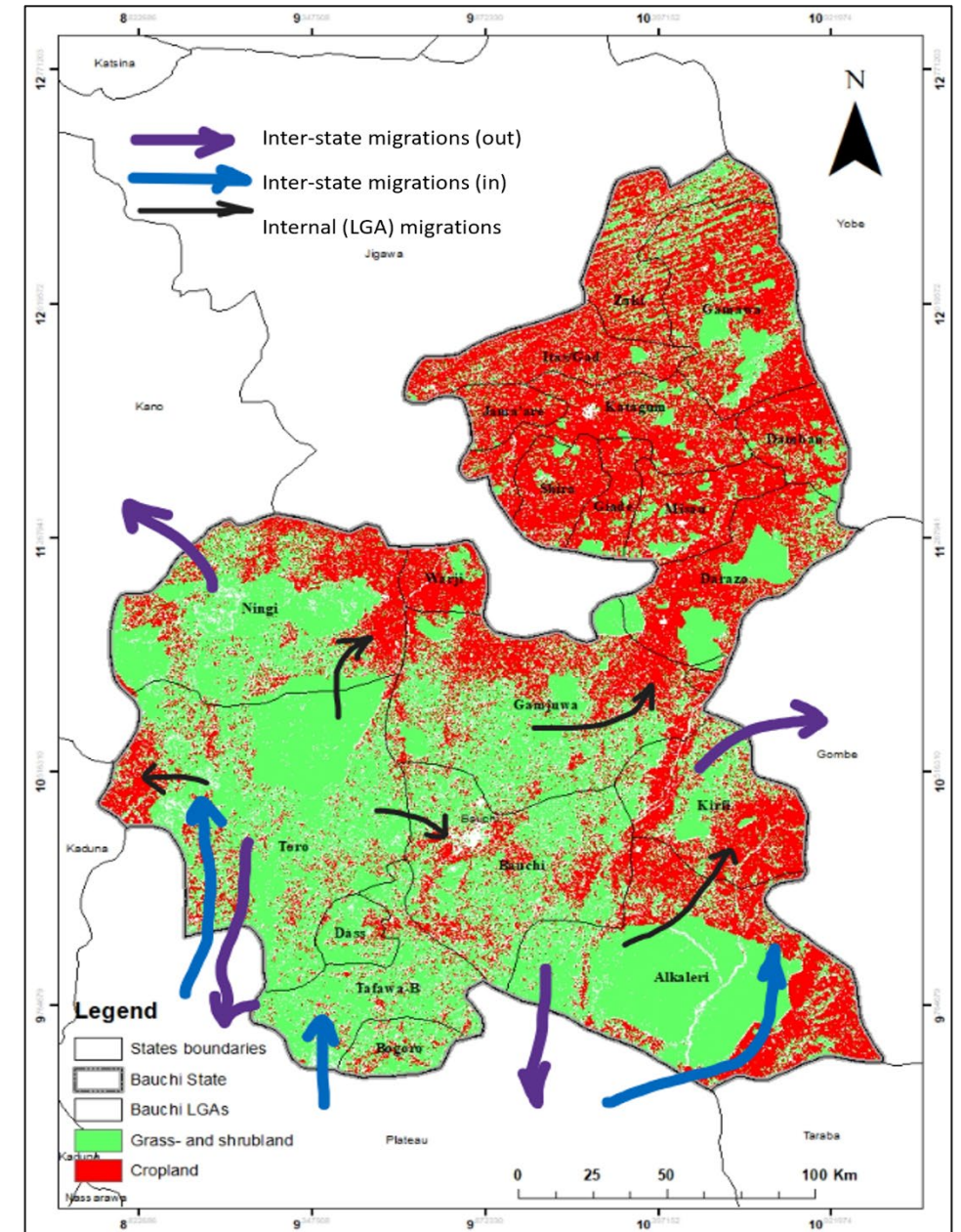
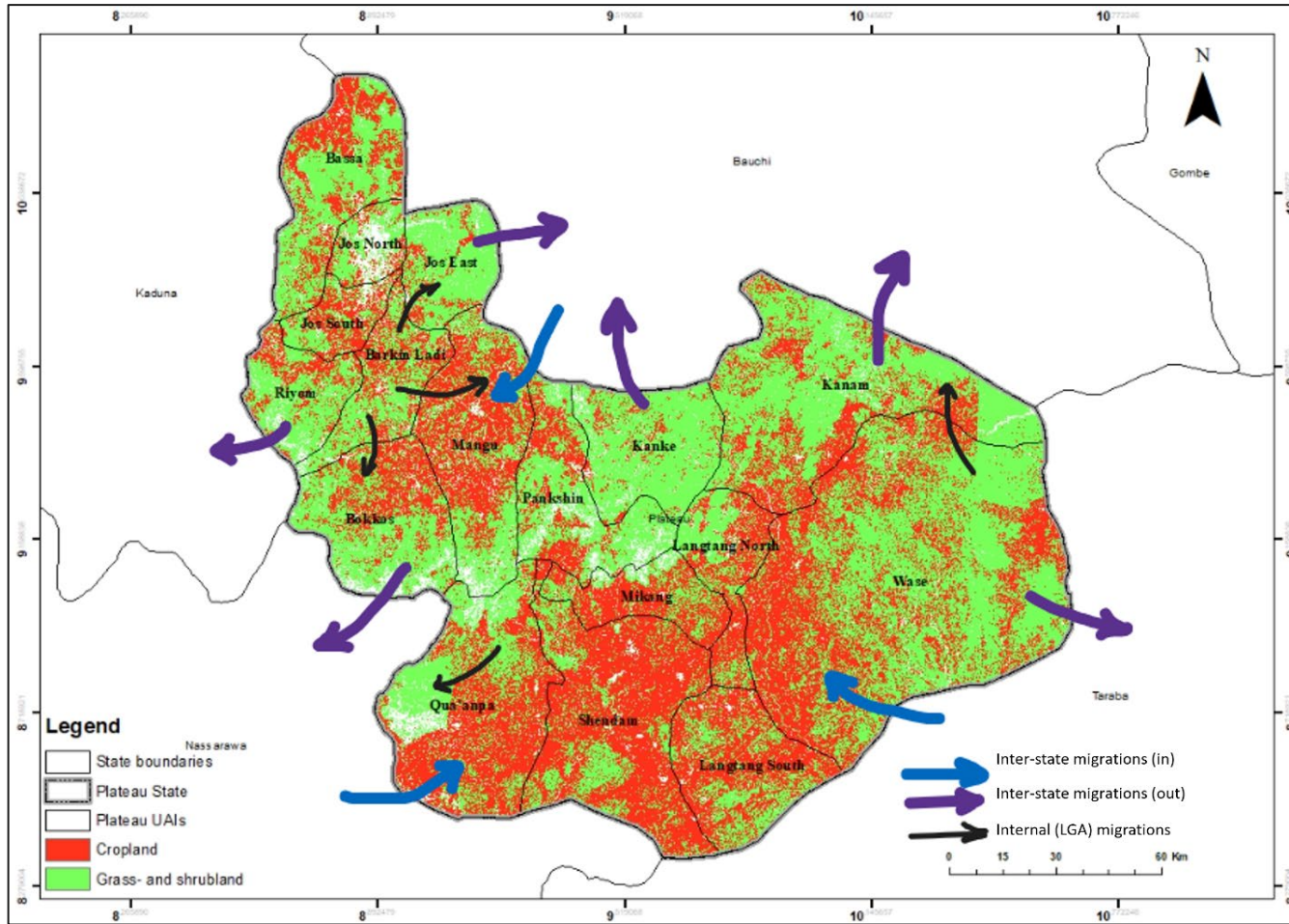
Technical: Seasonality

Seasonality— a pre-condition to understand resource availability and thereby possibility of linking with conflict



- We use rainfall estimates (CHIPS) and vegetation condition (NDVI) to check seasonality
- This was later confirmed through primary fieldwork

Technical: Mobility



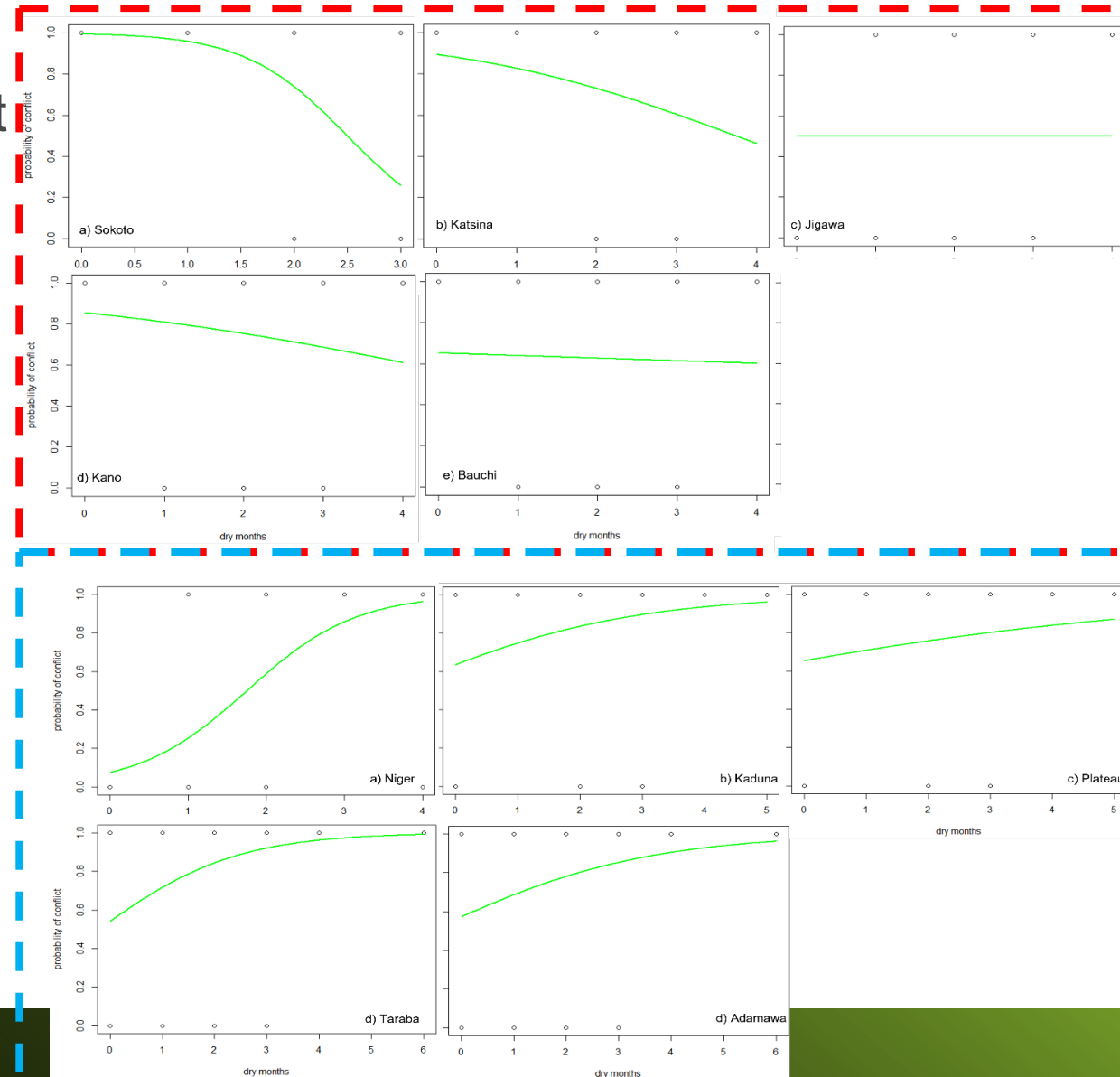
Technical: Weatherrelated shock and Conflict

Results from Logit regression

- Majority of northern states- no rise in conflicts with increase in dry months/drought events
- Northcentral states- proportionate increase in conflict cases with incidents of drought

Conflict Hotspots

- Along major transport routes like road highways
- In croplands, especially those bordering grazing fields.
- Former grazing reserves
- Stocking routes which have been converted to croplands.



Socio-economy

- Central Nigeria– predominantly farming.
- Northern Nigeria– predominantly livestock.

Key indicators

- Limited financial inclusion,
- Low financial literacy,
- Low mobile money penetration,
- High poverty index.

Studied States – Plateau and Bauchi

Indicators (2021)	Farming Community	Pastoral Community
Livelihood– Crop	From 60-70%	30%
Livelihood– Livestock	30-40%	70%
Farmland Ownership (National = 1.39ha)	High (Majority): >2.1ha/HH	Low: <0.5ha/HH
Livestock Ownership (TLU)	Moderate: 5 TLUs	High: 15 TLUs
Financial Service	Low to moderate	Low
Mobile Money	Moderate	Low to Moderate
Literacy	Moderate	Low
Poverty Index (national= 27.6)	Varies widely	Often High

Two livelihoods, Two insurance products, One conflict

- The study found out that
 - **frequent** incidents of weather induced **shock** in pastoral areas
 - seasonal movement of livestock/pastoralists- **northern to northcentral**
 - **strong correlation between drought and incidents of conflict (farmer-herder)** in northcentral parts
 - It's **feasible to develop an insurance product** that can contribute to reducing the farmer-herder conflict strategies.

- Therefore, proposed solutions:
 1. Insurance for farmers- protection against animal encroachment
 2. Insurance for pastoralists- protection against drought

Proposed Insurance Product Pastoral/Livestock Encroachment Insurance Policy

Coverage

- Physical damage to crops encroachment
- Damage to farming infrastructure (e.g., fencing, irrigation systems).
- Harm to household properties within the farm perimeter during livestock migration/ encroachment

Basis of Indemnity of Damaged Crop Assets

- Losses quantification - primary agricultures insurance policy document.
- Evaluation - yield loss against historical and regional yield data.
- Market value of crops – partial and total loss

Exclusions

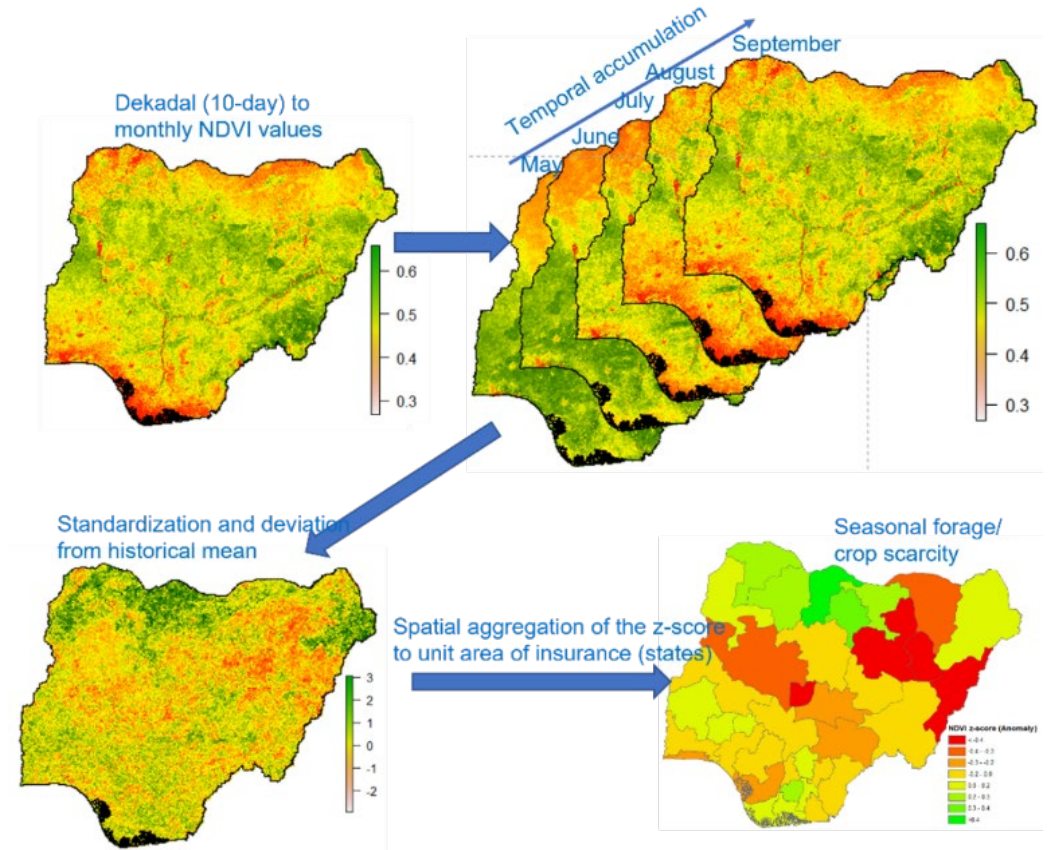
- a) **Damage-** insured's own livestock or smaller nonmigratory livestock groups.
- b) **Neglector** failure to adopt known preventive measures.
- c) Crop failure due to **pests, climate, fire**, etc.
- d) Losses **post** the established **harvesting** deadline.
- e) Crops along **livestock migratory routes and grazing lands**

Proposed Insurance Product 2: IndexBased Livestock Insurance (Livestock herders)

- Peril– Forage scarcity due to drought
- Insured Animals– Cattle, goat, and sheep changed to TLU

Calculation process:

- Spatial aggregation – Pixel to the lowest level of administrative boundaries
- Temporal aggregation – Daily/ Weekly/ Monthly to seasonal
- Index computation – Normalization through Z-Score
- Threshold triggers – Percentile ranking (trigger vs. exit)
- Computing payout rates – Based on historical payouts
- TSI/ Maximum payouts etc.



Index Based Livestock Insurance solution for herder/farmer conflict for Nigeria.

Product Solution

With two components to address needs of either side of conflict

- a. Index Based Livestock Insurance (Livestock herders)
- b. Indemnity Animal Encroachment cover (Crop farmers)

Premium Funding

- a. Index Based Livestock Insurance direct premium paid by herders or associations
- b. Animal Encroachment Cover: Insurer portfolio cover sold as a rider on treaty/facultative.

Claims Settlement:

- a. Based on IBLI Index verified by a calculating agent
- b. IBLI trigger payment made to insurer. Leverage insurers claim management infrastructure and technology.



Enabling Factors for Successful Insurance Pilot and Scaling: Gaps

What Exists?	What's Missing?
<ul style="list-style-type: none">✓ A Favorable Policy Environment✓ Reinsurance Market Development	<ul style="list-style-type: none">× Availability of Reliable Data× Strong Public-Private Partnerships× Financial Literacy and Awareness× Affordability – farmers (better), pastoralists (low)× Insurance demand – high (if it reduces conflict)× Good Product Quality/Design× Efficient Distribution Channels× Technology× Continuous Research and Product Refinement× Scalable Pilot Programs× Bundling Insurance



Agency for Inclusive Innovation
Development– (AIID- Africa)

Thank You