ISAAC MAGINA
MANAGER, AGRICULTURE UNDERWRITING AND MARKETING, AFRICA RE NIGERIA

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Index-based Insurance to Address FarmeHerder 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).

**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.

**Vision**

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

### Distinguishing Africa

- **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

- **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

- **International Presence**: Reinsurance Capacity Provider in Middle East, Asia and Brazil

### Impacting Africa

- **Corporate Mission**: African economic development is in the DNA
- **Africa Re Foundation**: Up to 2% of Annual Net Profit
Africa Re is all around you with our Regional Offices, Subsidiaries, Contact Offices and Underwriting Representative Offices.

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

Côte d'Ivoire

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

Nigeria

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.

Egypt

UAE

Sudan

Ethiopia

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.

Kenya

Uganda

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

Mauritius

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

South Africa
• Since 2006 providing reinsurance and technical support to Agric and climate insurance programs in Africa

• 50+ insurance companies in African Countries

• Over 3 mio small holder farmers

• Support both indemnity and Parametric programs

• E.g., Kenya Agriculture Insurance program KAIP, Anchor Borrowers Program Nigeria, SIIPE Ethiopia, Uganda Agriculture Insurance Scheme, KLIP

• Growth of Agriculture insurance programs through PPP initiatives

• USD 360 mio in premiums. Southern and Eastern Africa contribute more than 80% of premium

• West Africa is largely green field
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 partnerships 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 solution Animal 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

### 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 can design insurance product that can mitigate this?
Key phases of development of an index insurance program

- **Idea conceptualization:** problem statement and conceptual framework design based on direct experiences, literature review and interactions with index-insurance actors.

- **Pre-feasibility assessment (country level):** agro-ecological context, product technical design suitability, rural development and macroeconomic context, natural hazard vulnerability, potential demand for insurance, weather/satellite/agricultural data infrastructure, private insurance infrastructure, distribution channels, institutional context and capacity, existing policies, legal & regulatory environment, stakeholders/partners interest and capacity, ongoing related projects and initiatives, potential for financial support.

- **Feasibility assessment and pilot preparation (sub-country level):** pilot area(s) identification, initial product design, risk modelling and pricing, product design tools (i.e. pricing, claim settlements, etc) development, public/private stakeholders/partners engagement at local and national level, capacity needs assessment, cap. dev. material development, detailed market study, implementation model design (i.e. distribution mechanism), implementation tools development (e.g. sales platform), legal/regulatory product approval process, design of M&E framework and baseline, funding mechanism and source identification.

- **Implementation:** testing and implementation of all components of the insurance program. Refinement of product design in response to stakeholders feedback and validation studies, generate evidences of impact, support informed demand, support policy and regulatory infrastructure, develop cost-effective delivery channels, refine business and implementation models, multi-level capacity building.

- **Support Actions for Sustainable scaling:** target actions and interventions to support enabling conditions for program scaling and long-term sustainability.

Fava et al., 2018
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 KII 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 semi-arid landscapes (ASALs)
- IBLI required spatial aggregation based on homogenous LU/LC

Here we use \textit{ESAWorldCover} product at 10m resolution (2020 product validated)
- Mask out grasslands
- States with >40% grass
- 7 northern states
- 140 LGAs
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: Weather-related 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.

<table>
<thead>
<tr>
<th>Indicators (2021)</th>
<th>Farming Community</th>
<th>Pastoral Community</th>
</tr>
</thead>
<tbody>
<tr>
<td>Livelihood – Crop</td>
<td>From 60-70%</td>
<td>30%</td>
</tr>
<tr>
<td>Livelihood – Livestock</td>
<td>30-40%</td>
<td>70%</td>
</tr>
<tr>
<td>Farmland Ownership (National = 1.39ha)</td>
<td>High ( Majority): &gt;2.1ha/HH</td>
<td>Low: &lt;0.5ha/HH</td>
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<tr>
<td>Livestock Ownership (TLU)</td>
<td>Moderate: 5 TLUs</td>
<td>High: 15 TLUs</td>
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<tr>
<td>Financial Service</td>
<td>Low to moderate</td>
<td>Low</td>
</tr>
<tr>
<td>Mobile Money</td>
<td>Moderate</td>
<td>Low to Moderate</td>
</tr>
<tr>
<td>Literacy</td>
<td>Moderate</td>
<td>Low</td>
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<tr>
<td>Poverty Index</td>
<td>Varies widely</td>
<td>Often High</td>
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</tbody>
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Studied States – Plateau and Bauchi
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 agriculture 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 non-migratory livestock groups.
b) **Neglect**: or 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: Index-Based 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

<table>
<thead>
<tr>
<th>What Exists?</th>
<th>What’s Missing?</th>
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<tbody>
<tr>
<td>✓  A Favorable Policy Environment</td>
<td>×  Availability of Reliable Data</td>
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<tr>
<td>✓  Reinsurance Market Development</td>
<td>×  Strong Public-Private Partnerships</td>
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<tr>
<td></td>
<td>×  Financial Literacy and Awareness</td>
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<tr>
<td></td>
<td>×  Affordability – farmers (better), pastoralists (low)</td>
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<tr>
<td></td>
<td>×  Insurance demand – high (if it reduces conflict)</td>
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<td>×  Good Product Quality/Design</td>
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<td>×  Efficient Distribution Channels</td>
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<td>×  Technology</td>
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<td>×  Continuous Research and Product Refinement</td>
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<td>×  Scalable Pilot Programs</td>
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<td>×  Bundling Insurance</td>
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