

Gloria Insurance Inc.

The Challenge

The agriculture industry and its production face high risk due to climate change. The rising temperatures illustrated in COP21 reports are greatly impacting farmers' livelihood. **Over the past 35 years, Madagascar has endured numerous droughts.** Farmers are not equipped to mitigate such risks and expect to produce at the same output. The decline in production **affects the overall economy as it employs 82% of its labor force.** When climate shocks occur, farmers lose their entire seasonal crop yield, cannot recover the damage, and are not supported properly by government subsidiaries and aid. The FAO forecasts that 730 000 people will be severely food insecure in the Big Island by March 2020. **"In some localities, the drought has caused: 75% loss of rice crops, the number of meals has decreased in 60% of the communes, temporary migration to flee drought and hunger has been observed, forcing most families to eat insects."** On average, prices remained steady or decreased minimally from April to May in the south despite the onset of the harvest period due to expected below-average production. **Staple food prices in urban markets also decreased, by 10 percent,** but remain above average.

Madagascar produces the largest vanilla harvest in the world and Malagasy vanilla accounts for **80-85% of the global vanilla market. Producing 60 percent of the global supply,** Madagascar is the largest producer of natural vanilla. Coffee, Cloves, and Cocoa are also important cash crops as they make up 100,000+ tons in production.

This reality became possible due to poor management practices by the decision-makers in agriculture. **Farmers to some extent understand the risks and uncertainties of climate. However, the ever-growing demand worsened the climatic conditions. Natural disasters in Madagascar caused an estimated \$420 million USD in damages in 2017. Without action, Madagascar entices a climate refugees crisis, a collapsing economy, and a famine crisis.** While some farmers may have access to post-disaster financial relief, aid often comes too late and covers too little.

The Opportunity

Indexed-Based Insurance

Index-based insurance is a relatively new development. Many pilot projects have been started, but scaling up has happened only in a few countries, notably India. Unlike traditional indemnity-based insurance, the solution **will have less moral hazard** as the solution **will not incentivize farmers to neglect good risk management due to lower premium costs and will have fewer processing delays associated with verifying claims.** Index-based insurance will be providing coverage for specific risks that can be captured by the **selected indexes at an aggregate scale** rather than at the individual level. In our solution, the plan is to use the amount of rain as an index, and if rainfall does not happen during the right times, the insurance will be paid out to farmers.

The Solution

Gloria Insurance Inc.'s solution is to implement an **insurance system to educate farmers on climate** change management, mitigate climate change disasters, and provide insurance services readily. **The most promising financial tool is Index-based Insurance.** This index has proven its success in many countries of Southeast Asia and Sub-Saharan Africa, the two largest producers in the agricultural sector. The Index-based Insurance infrastructure differs from other insurances because payouts are **pre-determined based on environmental events** such as a drought.

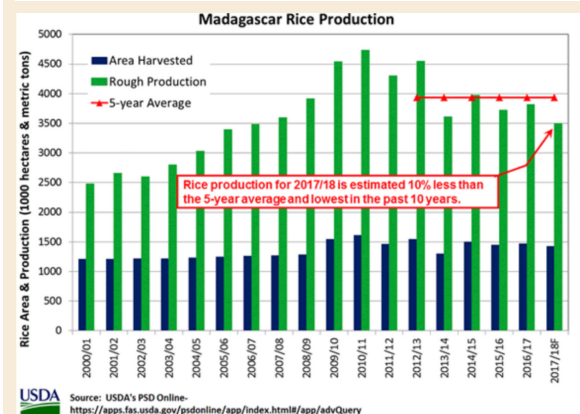
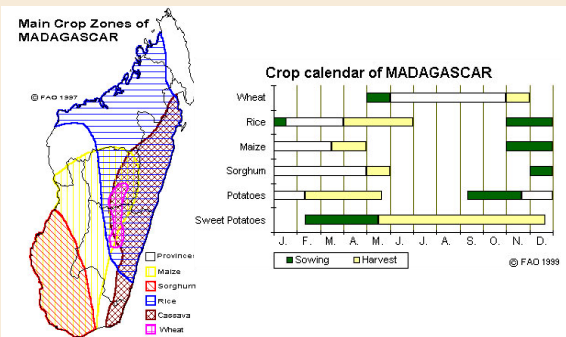
Benefits

- **Improved farmers' livelihoods** as they get more access to credits and chances to focus on productivity and profitability;
- **Investments into infrastructure** as the solution will increase the use of multiple data sources (e.g. meteorological and agronomic data) and **help in setting preventative measures** in agriculture;
- An additional support to government risk management strategies as the solution will support the development and access programs developed by authority and address the risks not covered by them due to lack of funds.

Fund Size

Target Fund Size:	USD \$50M
Geography:	South Madagascar
Asset Group:	Private Credit and Structure Credit
Investors:	Sovereigns, Foundations, Private Investors, Family Offices
Target IRR:	10%-15%
Time Horizon:	10 years

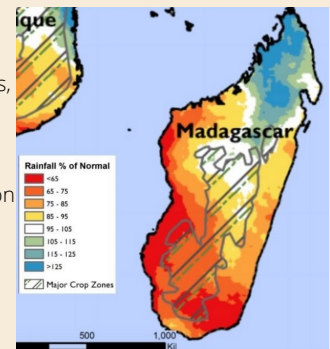
Geography



Madagascar's Climate

Tropical on the coasts, moderate in the highlands, arid in the south.

5.2% percent (3 million hectares) is under of 58.2 million hectares) is under cultivation; of this hectareage, less than 2 million hectares are permanently cultivated.



Market Size

Madagascar **employs 24 million farmers and represents 82% of the population.** Gloria Insurance Inc. wants to **target the southern rural farmers (1.5 million farmers)** who are the most affected by the drought.

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Objective: Sustainable Economic Livelihoods

Illustrative Metrics

Change in Crop Production Output & Export

Migration to Areas without Drought

Business Continuity (e.g. number of jobs created)

Implemented Sustainable Farming Practices

Education Hours

Implementation

Distribution Network: To deploy such premiums Gloria Insurance Inc. will provide their services through mobile phone apps. With **more than five million mobile money account** subscriptions, there are **significantly more mobile money account users than bank account users**. In Madagascar, there are three major Mobile Network Operators (MNOs): Orange via Orange Money, Airtel via Airtel Money, and Telma via mVola. Additionally, **the deployment of trucks will have a greater outreach** to those who cannot be serviced via mobile money accounts.

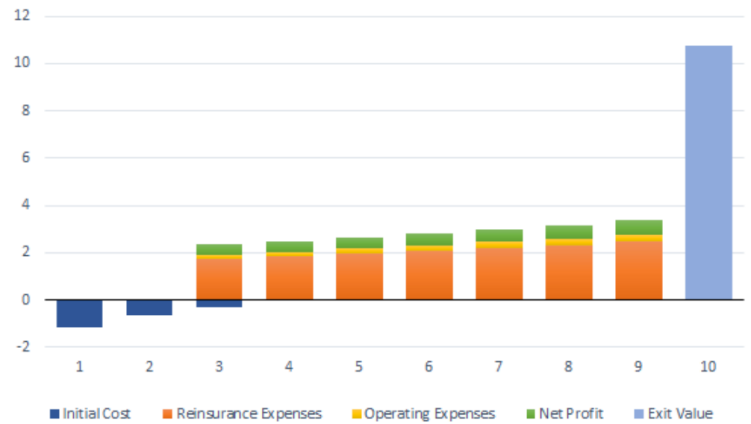
Sustainable Farming Management Training: The use of tech and mobile phones will prove its success as it will offer services as well as provide sustainable farming management training via games. The games will train farmers to install:

- **Rainwater harvesting:** During the rainy season, farmers dig baobab tree trunks to turn them into rainwater reservoirs.
- **Solar pumps:** It allows people to handle their water supply for drinking, farming, farm animals watering, irrigation, & other housing applications.
- **Drip irrigation:** Maximize use of available water

Reinsurance: "Big Six" (e.g. Swiss Re, Munich Re, Lloyd's) global reinsurers have been very involved in the African market due to low penetration. However, economic volatility and political unrest pose a greater risk for foreign companies. The partnership with African providers will give an advantage of protectionist policies and aid in minimizing risk. **African Risk Capacity Insurance Company Limited (ARC Ltd)** is a leader in drought insurance. In July 2020, the reinsurer gave **\$2.13 million USD to the Government of Madagascar**. Clearly, this market is underfunded. Gloria would be working alongside actuarial consulting such as **Deloitte**.

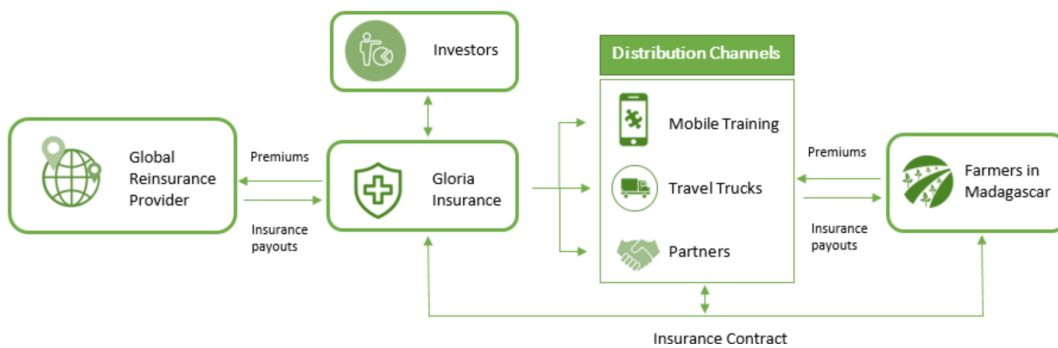
Projections

Cashflow Projections in US\$ Millions



1. Initial outlay, Yr1 \$1M, Yr2 \$0.6M, Yr3 \$0.3M
2. Full implementation rollout (Yr3-10) \$1.95M
3. Initial cost to include Insurance contract design, Distribution network contracts, Infrastructure, Local Sales Force recruitment, Customer Training
4. Operating Expenses forecasted at 9% of premiums revenue and included 3% sales commission
5. Market Penetration growing from 6.25% in Year 3 to 10
6. Premiums to be received from farmers estimated at 15% of the insured harvest value. Reinsurance premiums estimated at 12% of insured harvest value.
7. Assumed that farmers will insure 40% of their total harvest value
8. 6.25% terminal growth rate
9. The expected IRR is 10-15%

Fund Diagram



Risk

Mitigation

High volatility	Reinsurance providers bear risk of payout volatility and expect speedy settlement of claims.
Design Risk	A cause-effect relationship, a variation in the level of drought should ideally have a 100% correlation to the crop yield.
Variability Price or Market Risk	Disruptions of business models by changing demand preferences(drop crops price or low production), technologies or regulation.
Institutional Risk	Tax laws, chemical use regulations, animal waste regulations, and the level of price impact on the farm business.
Financial Risk	Rising interest rates, the prospect of loans being called by lenders, and restricted credit availability are also aspects of financial risk.
Currency risk	Currency hedging for USD-dominated investment.
Underpricing	Reinsurance providers bear risk of underpricing.
Other Factors	Crop insurance considers all farms in a given area to be homogenous units. In reality, this is not the case. The yield would widely differ from farm to farm from irrigation, the soil type of the farm etc.

Partnerships



USAID will invest in our company and will help reach farmers. Their support **will encourage farmers to take insurance premiums.**



Food and Agriculture Organization (FAO) is a government agency who will support Gloria Insurance Inc. to **enter the market as a credible company.**

Impact



- 2. **ZERO HUNGER**: Motivates farmers to expand cultivated cropland areas in the contiguous states
- 8. **DECENT WORK AND ECONOMIC GROWTH**: Reduce the farmer's exposure to financial and regulatory risks.
- 9. **INDUSTRY INNOVATION AND INFRASTRUCTURE**: Implementation of Rainwater harvesting, Solar pumps, Drip irrigation.
- 12. **RESPONSIBLE CONSUMPTION AND PRODUCTION**: Covered systemic risk-increase can manage variation in commodity prices
- 17. **PARTNERSHIPS FOR THE GOALS**: Disasters are covered with alternative risk transfers via public and private partners

Addressing COVID-19

Country	Cases	Recovered	Deaths
Madagascar	19,065	18,215	281

Madagascar's strategy to confront COVID-19 has resulted in a total of 281 deaths. Antananarivo, the capital of Madagascar has been impacted the most by this crisis. Thus, the projections account for COVID.