



**Food and Agriculture
Organization of the
United Nations**



**Hand-in-Hand
Initiative**

**INVESTMENT OPPORTUNITIES FOR THE AGRICULTURAL
TRANSFORMATION IN MADAGASCAR**

**Investment Forum
Rome, Italy
15 -17 October 2024**

CONTEXT: Economy



POPULATION

- 30.6 million in 2022
- About 80% in total areas
- Poverty rate 75.2% overall, 86% in rural areas

Source: World Bank, 2022

GDP

- Total GDP + \$15.3 billion
- GDP per capita: \$516.5
- Share of the primary sector : 21.1%

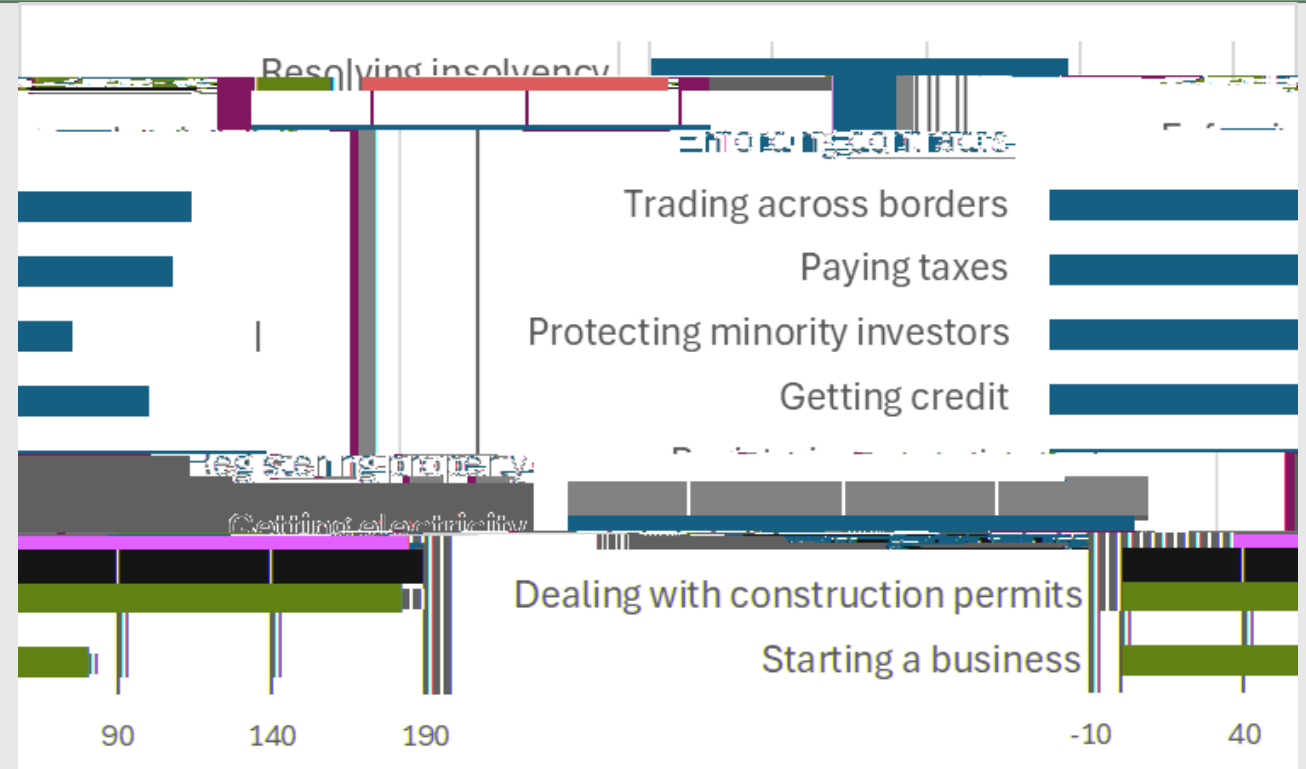
Source: (WDI, 2023)

ECONOMIC GROWTH

- Between 3.5% and 4.5% from 2021 to 2024
- Perspective: 4.6% in 2025/2026

Source: IMF, 2023

DOING BUSINESS PERFORMANCE (rank out of 190 countries)



Source: The World Bank, Economic Profile, Doing Business 2020

CONTEXT: Agriculture



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AGRICULTURAL PRODUCTION

- Mainly by smallholder farmers
- Average farm size: 1.2 hectares
- Subsistence agriculture by 56% of households
- Main commodities: rice, cassava, maize, vanilla, cattle, fisheries
- Highly affected by climate change (drought, cyclone, flooding, locust)
- Lack of information on prices, supply and demand

AGRICULTURAL PRODUCTIVITY

- Low yields: rice: 2.7 t/ha, maize: 1.8 t/ha, groundnut: 0.8 t/ha thus a huge potential to increase yields
- High costs of production factors, particularly imported inputs
- Low adoption rate of innovations and good agricultural practices (use of modern inputs, seeds, mechanization)

PRODUCTION INFRASTRUCTURE

- Lack of maintenance of irrigation infrastructure
- Poor road conditions (main roads, feeder roads, and roads to access markets)
- Lack of storage facilities and processing units
- Improving access to land and land rights



CONTEXT: Enabling Environment



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- More than 30 million hectares available agricultural land (RGPH 2018)
- Reform on the land sector, New law on land certification, Long-term lease for large tract of land
- Availability of land grazing in the south, south-west, west and north-west
- Important livestock sector with 9 million head of zebus and 2.3 million head of small ruminants (FAOSTAT, 2024)
- Young population, availability of labor
- Irrigation infrastructure: 83% of rice fields with irrigation, but highly variable quality
- Existing innovation stocks (production technology, improved varieties...)



CONTEXTE : Opportunités de marchés

- **High domestic demand (and increasing) for food crops**
 - 3.35 million tons for rice
 - 330,000 tons for maize
 - 30,000 tons for red meat
- **Access to regional markets**
 - Indian Ocean Commission - COI: 56 million consumers
 - SADC: 354 million consumers
 - COMESA: 640 million consumers
- **Partnership Agreement**
 - EPA (EU markets)
 - AGOA (USA markets)



ENABLING ENVIRONMENT: Institutions



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- Economic Development Board of Madagascar (EDBM): One-stop window for creation of enterprises, access to land (long-term lease), hiring foreign workers
- Functional Agricultural Chamber
- Existence of professional value chain platform such as the rice, poultry, livestock, organic production, etc.
- “Guichet Agricole” to improve farmers’ access to products and services in one place (land, credit, extension services, agricultural equipment, inputs, commercialization, storage...)



Guichet Agricole à Sakay,
region Bongolava

ENABLING ENVIRONMENT: Taxes and Investment Protection



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TAX SYSTEM

- Attractive tax system for free zones enterprises:
 - 0% profit tax rate for 5 years; then 10% afterward
 - No import taxes, tariffs and VAT for production and construction equipment
 - Unrestricted use of dividends
- Possibility of full repatriation of profits after paying taxes

PROTECTION OF INVESTMENTS

- Madagascar is a MIGA member

ENABLING ENVIRONMENT: Policies and Strategies

- “Program Emergence Madagascar” includes Agriculture
- Compact for Food and Agriculture (2022-2028)
- Ongoing updates of policies and sectoral strategies:
 - Agriculture, Livestock, and Fisheries Sectoral Program
 - National Investment Plan for Agriculture, Livestock, and Fisheries
 - Rice National Development Strategy
 - Livestock Action Plan
 - Various sub-sectoral strategies on seeds, extension services and services to farmers, fertilizer uses, mechanization...
- Law on land use (certification for non-titled private land, long-term lease up to 30-99 years)
- (New) Law on Agricultural Aggregation and Law on cooperatives

PRIORITY VALUE CHAINS FOR HiH INVESTMENTS



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- **Priority value chains in the compact : Rice, Maize, Red meat**
- **Strong domestic and international demand**
 - **Production deficit** for rice and maize; traditional and low added value production system for red meat
 - Opportunities for **import substitution** for rice and maize, for **increasing the low domestic consumption** for red meat
- **Objectif of the 2022-2028 Compact**
 - Increase production
 - Improve storage and conservation
 - Increase value added through processing
- Opportunities to **reduce GHG emissions** and to improve smallholder farmers' **adaptation**

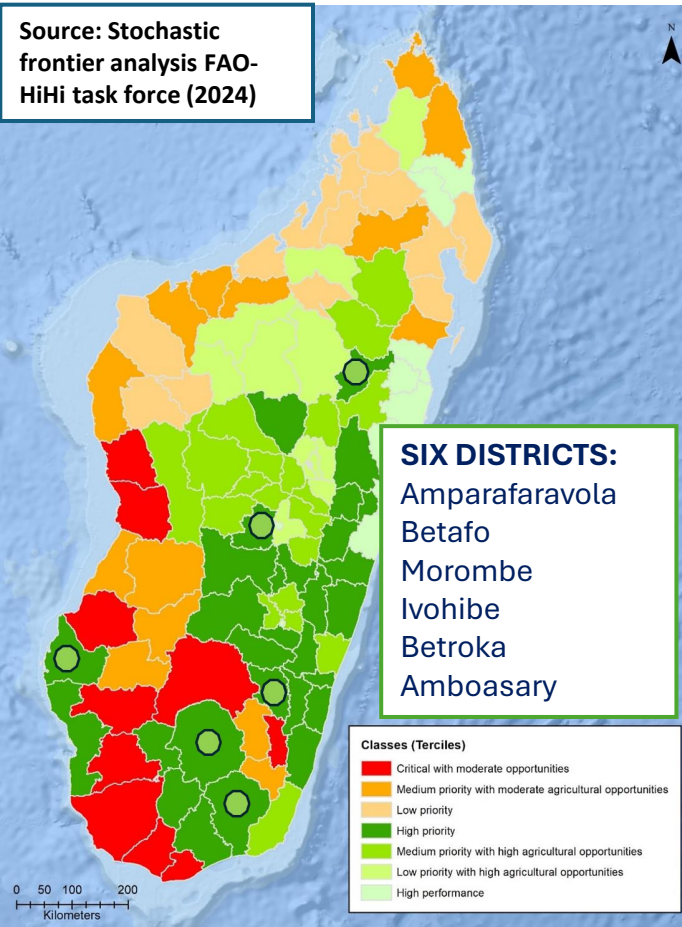
PRIORITY VALUE CHAINS FOR HiH INVESTMENTS

	PROMOTION OF CLIMATE SMART – LOW GHG EMISSIONS RICE PRODUCTION	MAIZE PRODUCTION WITH CLIMATE SMART TECHNOLOGIES AND SOIL QUALITY RESTORATION	PROMOTION OF LOW-GHG EMISSIONS LIVESTOCK PRODUCTION TECHNIQUES
PRODUCTION	<ul style="list-style-type: none"> 2.92 MT of milled rice (Source: SNDR, 2023) 	<ul style="list-style-type: none"> 230,000 T of maize (Source: MinAE/STATAGRI, 2023) 	<ul style="list-style-type: none"> 9 million head of zebus 2.3 million head of small ruminants
DEMAND	<ul style="list-style-type: none"> Domestic demand: 3.36 MT of milled rice Import: 424,000 T (\$198 million) in 2023 (Source: ITC Trade Maps) 	<ul style="list-style-type: none"> Domestic demand: 330,000 T Gap estimated at: 100,000 T (Source: MinAE, 2023) 	<ul style="list-style-type: none"> Domestic demand: 31,000 T estimated < 1 kg per capita per year (Source: MinAE, 2023)
OPPORTUNITIES	<ul style="list-style-type: none"> Fill in domestic demand (440,000 T gaps) Export opportunities of specialty rice to the EU and US markets 	<ul style="list-style-type: none"> Fill in domestic demand 100,000 T Export opportunity for 96,000 T to the COI markets 	<ul style="list-style-type: none"> High domestic demand for red meat in urban areas Export opportunity using existing accredited slaughterhouses

PRIORITY DISTRICTS FOR HiH INVESTMENTS

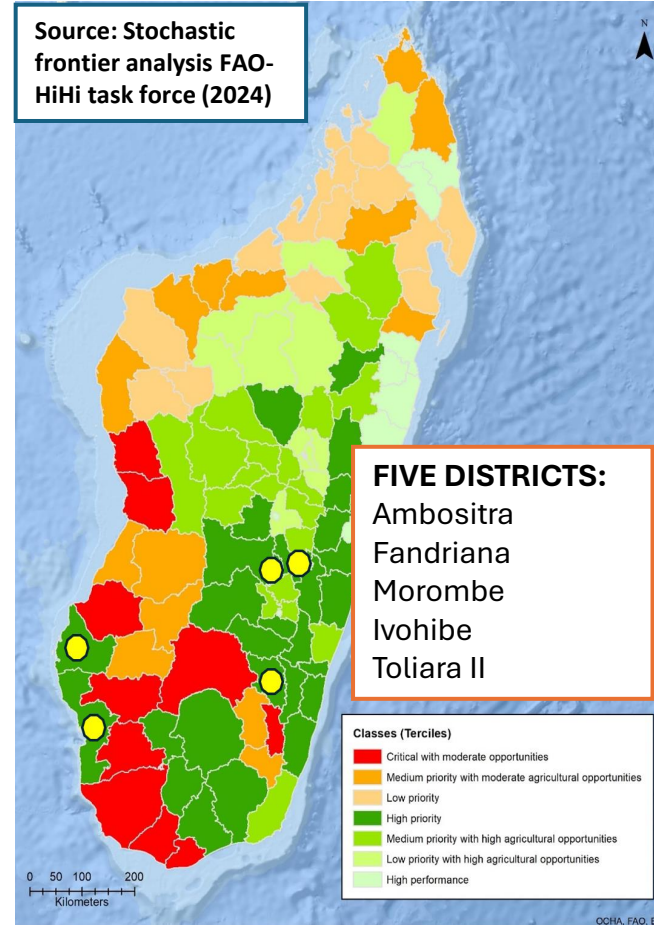
PROMOTION OF CLIMATE SMART – LOW GHG EMISSIONS RICE PRODUCTION

Source: Stochastic frontier analysis FAO-HiHi task force (2024)



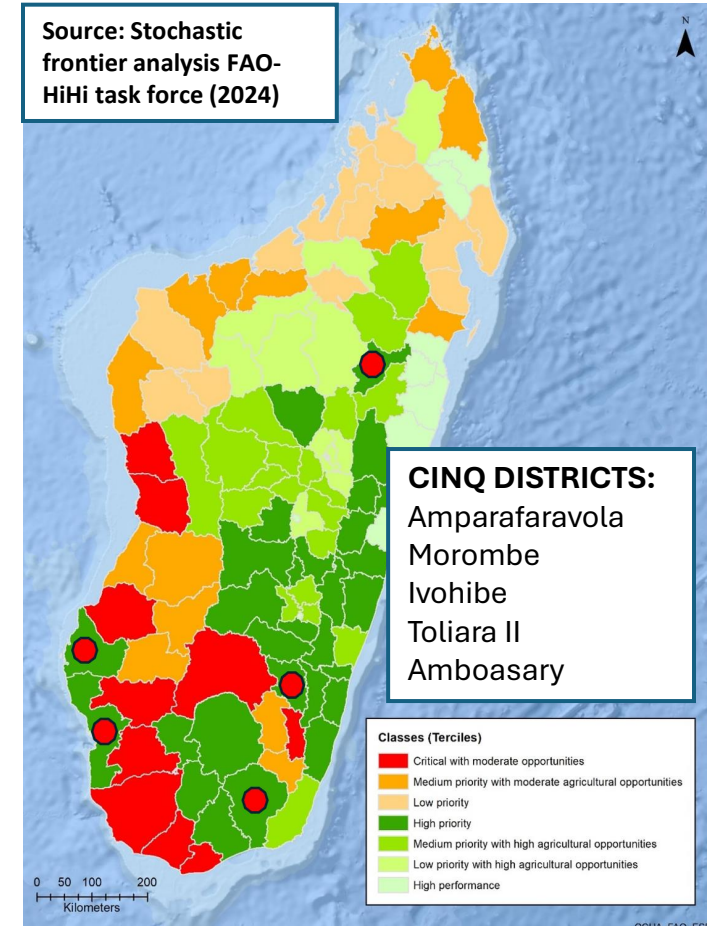
MAIZE PRODUCTION WITH CLIMATE SMART TECHNOLOGIES AND SOIL QUALITY RESTORATION

Source: Stochastic frontier analysis FAO-HiHi task force (2024)



PROMOTION OF LOW-GHG EMISSIONS LIVESTOCK PRODUCTION TECHNIQUES

Source: Stochastic frontier analysis FAO-HiHi task force (2024)



1: PROMOTION OF CLIMATE SMART – LOW GHG EMISSIONS RICE PRODUCTION

BOTTLENECKS

- Lack of irrigation system constraining adoption of innovations and productivity
- Low use of modern inputs, mechanization, and use of improved seeds
- Lack of modern rice mills and certification for specialty rice export
- Limited access and high costs of finance, lack of information on prices, supply and demand
- Poor market access, high costs of transportation between farms and markets
- Issues of access and right for non-titled private land and Agricultural Investment Zones

KEY INVESTMENTS

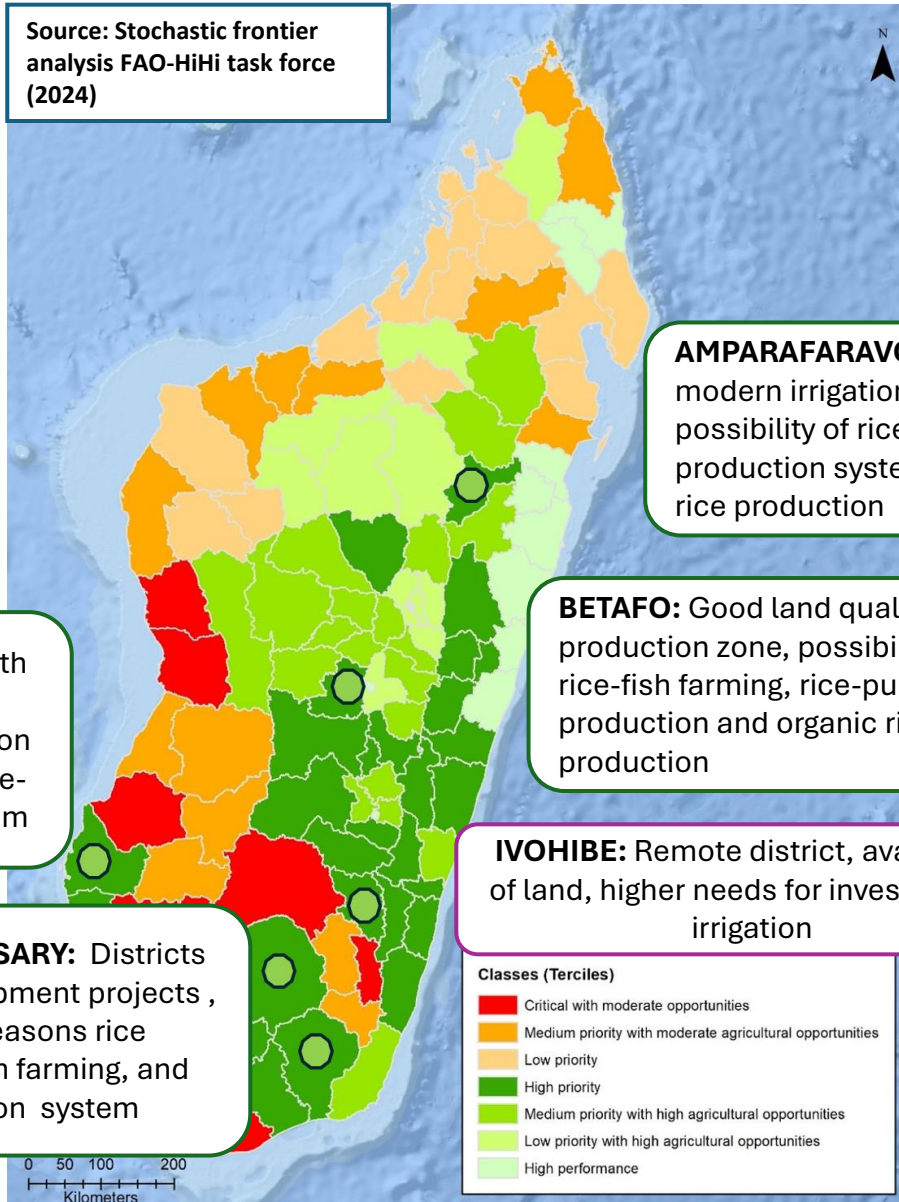
- Maintenance and construction of irrigation system (6.750 Ha), Watershed reforestation: \$ 20.56 millions (Public sector)
- Farm equipment, rice-fish farming infrastructure, technical assistance, capacity building for women and youth, production and use of improved seeds \$ 11.28 million (Public and Private sectors)
- Improving quality of rice mills, storage and paddy processing, Export of specialty rice with out-grower schemes: \$1.49 million (Private sector)
- Pilot activity to improve access to finance for rice using available credit guarantee program (with SOLIDIS) for production, commercialization, and storage of paddy/rice, Digitalization of the supply chains, information on prices, supply and demand: \$ 1.36 (Public and Private sectors)
- Construction / renovation of feeder roads, access to market roads (150 km) : \$13.5 millions (Public sector)
- Support inclusive land certification through mass certification : \$ 0.25 million (Public sector)

RISKS AND MITIGATIONS

- **Climate change:**
Adoption of innovations targeting low emissions GHG, and improving households' resilience (adaptation), Investment on gravity irrigation dams and solar powered irrigation systems
- **Lack of production:**
More focus on out-grower scheme production systems, contract farming, aggregation, digitalization of access to information
- **Access to finance:**
Coordination with the Agricultural Development Fund of MinAE, MFI, and banks; and use of existing credit guarantee programs
- **Access to land:**
Enforcement of the law on land rights, update is needed, updates of the Community Land Occupation Plan (PLOF)

1: PROMOTION OF CLIMATE SMART – LOW GHG EMISSIONS RICE PRODUCTION

Source: Stochastic frontier analysis FAO-HiHi task force (2024)



AMPARAFARAVOLA: District with modern irrigation system, possibility of rice-pulse production system and organic rice production

BETAFO: Good land quality, rice production zone, possibility of rice-fish farming, rice-pulse production and organic rice production

IVOHIBE: Remote district, availability of land, higher needs for investment in irrigation

MOROMBE: District with good irrigation system, possibility of two-season rice production and rice-pulse production system

BETROKA, AMBOASARY: Districts with several development projects, possibility of two-seasons rice production, rice-fish farming, and rice-pulse production system

IMPACT OF HIH INVESTMENT PACKAGES

- Increase of paddy production: 48,000 T, export of 3,000 T of specialty rice

PROFITABILITY INDICATORS

- Total investments: \$ 48.4 Million
- Internal Rate of Return: 22.1 %
- NPV: \$ 11.1 million

SOCIO-ECONOMIC INDICATORS

- Number of direct beneficiaries: 9,500
- Number of indirect beneficiaries: 49,400
- Average increase in farm income: \$860/Ha/year

ENVIRONNEMENTAL IMPACT

- GHG emission reduction

2: MAIZE PRODUCTION WITH CLIMATE SMART TECHNOLOGIES AND SOIL QUALITY RESTORATION

GOULOTS D'ETRANGLEMENTS

- Low productivity, occasional drought during growing seasons, poor soil fertility
- Low use of modern inputs, mechanization, and use of improved seeds
- Lack of modern collection and storage system, missing norms and standards
- Limited access and high costs of finance, lack of information on prices, supply and demand
- Poor market access, high costs of transportation between farms and markets
- Issues of access and right for non-titled private land and Agricultural Investment Zones

INVESTISSEMENTS CLES

- Farm equipment, post-harvest processing, storage, Reforestation, Large scale agricultural production, Construction of supplementary irrigation with renewable energy, soil quality restoration with agro-ecological techniques: \$ 12.5 million (Public and Private sectors)
- Technical assistance, capacity building of women and youth, production and use of improved seeds: \$ 1.75 million (Public and private sectors)
- Modernization of collection and storage facilities, updating and enforcement of norms and standards: \$0.64 million (Private sector)
- Pilot activity to improve access to finance for maize using available credit guarantee program (with SOLIDIS) for production, commercialization, and storage of paddy/rice, Digitalization of the supply chains, information on prices, supply and demand: \$ 1.36 (Public and Private sectors)
- Construction / renovation of feeder roads and access to market roads (125 km) : \$11.25 million (Public sector)
- Support inclusive land certification through mass certification : US\$ 0.25 million (Public sector)

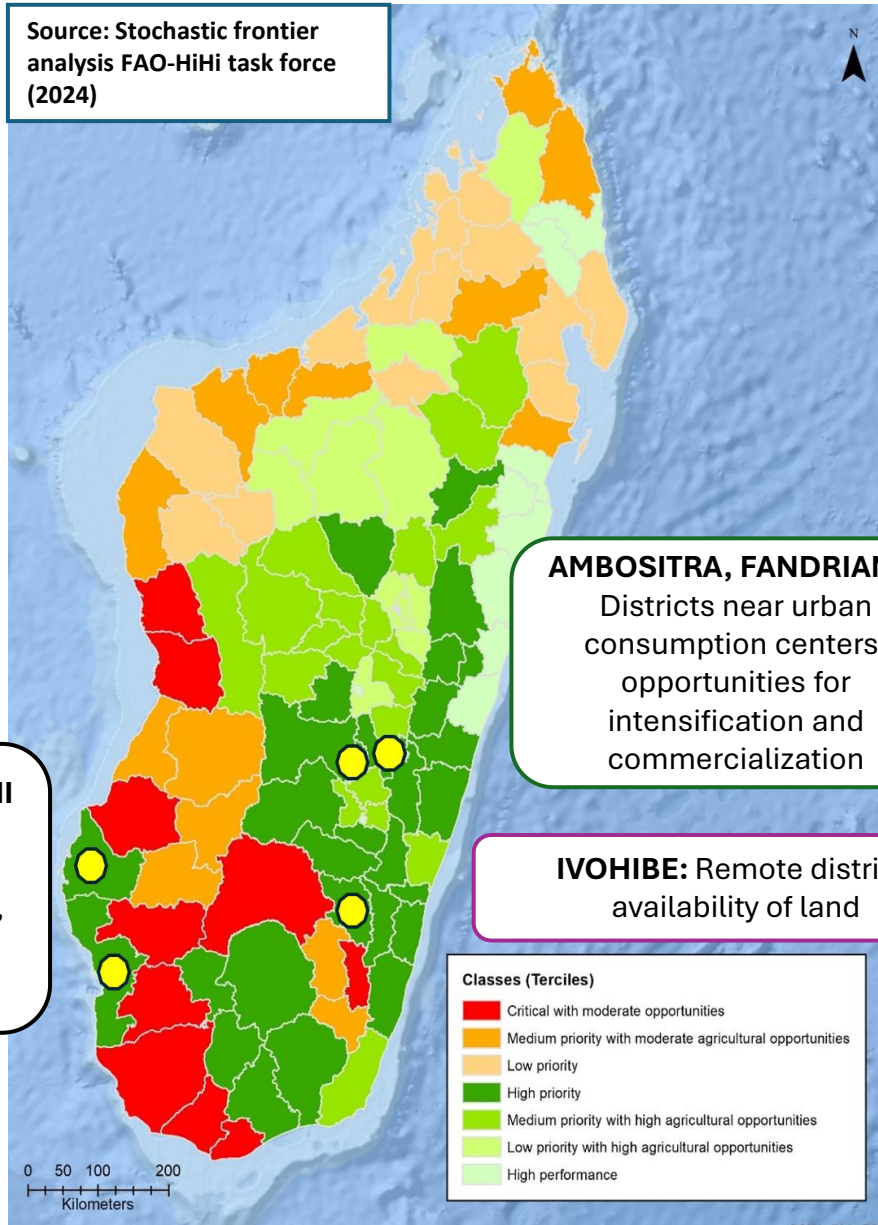
RISQUES ET MITIGATIONS

- **Climate change:**
Adoption of innovations targeting low emissions GHG, and improving households' resilience (adaptation), Investment on solar powered supplementary irrigation systems
- **Lack of production:**
More focus on out-grower scheme production systems, contract farming, aggregation, digitalization of access to information, adoption of agro-ecological production techniques
- **Access to finance:**
Coordination with the Agricultural Development Fund of MinAE, MFI, and banks; and use of existing credit guarantee programs
- **Access to land:**
Enforcement of the law on land rights, update is needed, updates of the Community Land Occupation Plan (PLOF)

2: MAIZE PRODUCTION WITH CLIMATE SMART TECHNOLOGIES AND SOIL QUALITY RESTORATION



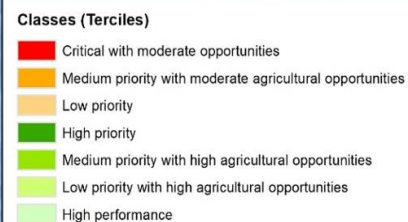
Source: Stochastic frontier analysis FAO-HiHi task force (2024)



MOROMBE, TOLIARA II
: Opportunities for maize production with soil quality restoration, possible large scale maize production

AMBOSITRA, FANDRIANA:
Districts near urban consumption centers, opportunities for intensification and commercialization

IVOHIBE: Remote district, availability of land



IMPACT OF HIH INVESTMENT PACKAGES

- Increase of maize production: 46,000 T

PROFITABILITY INDICATORS

- Total investments: \$ 27.7 Million
- Internal Rate of Return: 18.7 %
- NPV: \$ 4.5 million

SOCIO-ECONOMIC INDICATORS

- Number of direct beneficiaries: 5,100
- Number of indirect beneficiaries: 26,500
- Average increase in farm income: \$251/Ha/year

ENVIRONNEMENTAL IMPACT

- GHG emission reduction

3. PROMOTION OF LOW-GHG EMISSIONS LIVESTOCK PRODUCTION TECHNIQUES

BOTTLENECKS

- Extensive livestock production system, low productivity, lack of access to water and good quality grazing
- Limited access to animal breeder, high inbreeding, no access to quality forage, animal health providers and veterinary products, and technical assistance
- Low value added for red meat, lack of modern slaughterhouses
- Limited access and high costs of finance, lack of information on prices, supply and demand
- Poor market access, high costs of transportation between farms and markets, low demand for small ruminant meat
- Issues of access and right for non-titled private land and Agricultural Investment Zones

INVESTISSEMENTS CLES

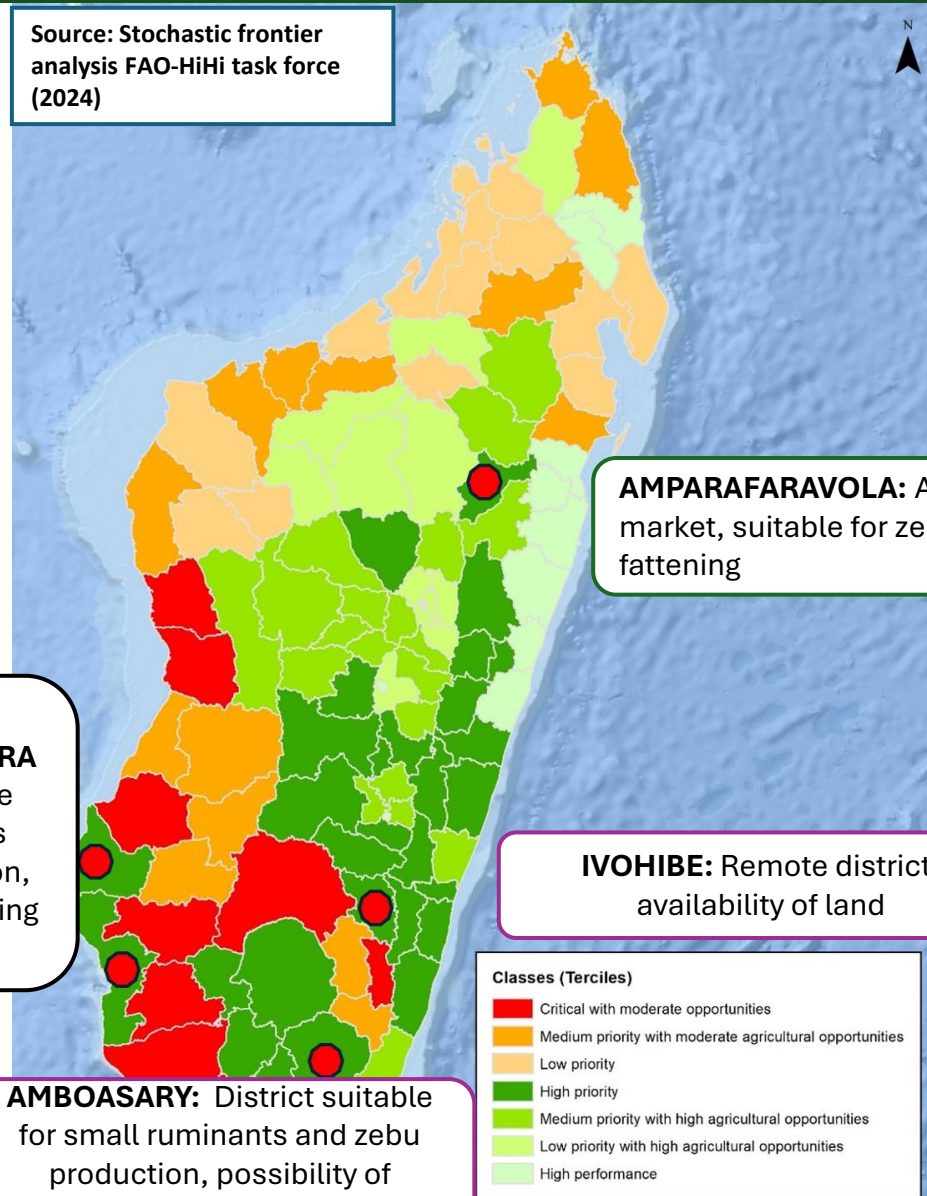
- Out-grower livestock fattening, mainly by women, ranching for zebu production, production and use of quality forage: \$ 1.21 million (Private sector)
- Technical assistance, capacity building for women and youths, Increase the number of animal health agents and supply of veterinary products, import of breeders for cattle and small ruminants, kits and seeds for artificial insemination, forage seeds production, immunization infrastructure, and social and community pact : \$ 4.75 million (Private and Public sectors)
- Improved and modern meat processing units: \$ 9.1 million (Private sector)
- Pilot activity to improve access to finance for livestock using available credit guarantee program (with SOLIDIS) for production, commercialization, and meat processing, digitalization of the supply chains, information on prices, supply and demand: \$1.6 million (Public and Private sectors)
- Construction / renovation of feeder roads and access to market roads (125 km), campaign to increase small ruminant meat consumption : \$11.25 million (Public sector)
- Support inclusive land certification through mass certification : US\$ 0.25 million (Public sector)

RISQUES ET MITIGATIONS

- **Climate change:**
Adoption of innovations targeting low emissions GHG, and improving households' resilience (adaptation), Investment in improved grazing and access to water
- **Lack of production:**
Import of breeders, setting up of artificial insemination and breeding centers, digitalization of access to information, aggregation and contract farming
- **Access to finance:**
Coordination with the Agricultural Development Fund of MinAE, MFI, and banks; and use of existing credit guarantee programs
- **Access to land:**
Enforcement of the law on land rights, update is needed, updates of the Community Land Occupation Plan (PLOF)

3. PROMOTION OF LOW-GHG EMISSIONS LIVESTOCK PRODUCTION TECHNIQUES

Source: Stochastic frontier analysis FAO-HiHi task force (2024)



IMPACT OF HIH INVESTMENT PACKAGES

- Increase of red meat production: 7,500 T

PROFITABILITY INDICATORS

- Total investments: \$ 28.2 Million
- Internal Rate of Return: 20.9%
- NPV: \$ 6.3 million

SOCIO-ECONOMIC INDICATORS

- Number of direct beneficiaries: 1,500
- Number of indirect beneficiaries: 8,000
- Average increase in farm income: \$1,250/year

ENVIRONNEMENTAL IMPACT

- GHG emission reduction

SUMMARY OF THE INVESTMENT PLAN



Hand-in-Hand
Initiative



\$ 104,4 M

Total investment

\$ 28,3 M

Government
contribution (est.)

\$21,8 M

NPV

20,8%

Overall IRR

16.100

Beneficiaries

84.000

Indirect Beneficiaries

XX MT

CO₂-e Emissions

Intervention

1

Rice

Cost

\$ 48,4 M

IRR

22,1%

NPV

\$ 11,1 million

Sustainable Benefits

Direct beneficiaries: 9.500

Indirect beneficiaries: 49.500

Additional income per beneficiary: \$829
/ha/year

CO₂-eq-emission: - X t

Intervention

2

Maize

Cost

\$ 27,75 M

IRR

18,7%

NPV

\$ 4,5 million

Sustainable Benefits

Direct beneficiaries: 5.100

Indirect beneficiaries: 26.500

Additional income per beneficiary:
\$251/ha/year

CO₂-eq-emission: - X t

Intervention

3

Viange rouge

Coût

\$ 28,2 M

TRI

20,9 %

VAN

\$ 6,3 millions

Sustainable Benefits

Direct beneficiaries: 1,500

Indirect beneficiaries: 8,000

Additional income per beneficiary:
\$1.250/year

CO₂-eq-emission: - X t