



Food and Agriculture Organization
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WORLD
FOOD
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FAO
HAND-IN-HAND
INVESTMENT

Strengthening of the banana and dairy value chain in **Paraguay**



MINISTERIO DE
**AGRICULTURA Y
GANADERÍA**
PARAGUAY



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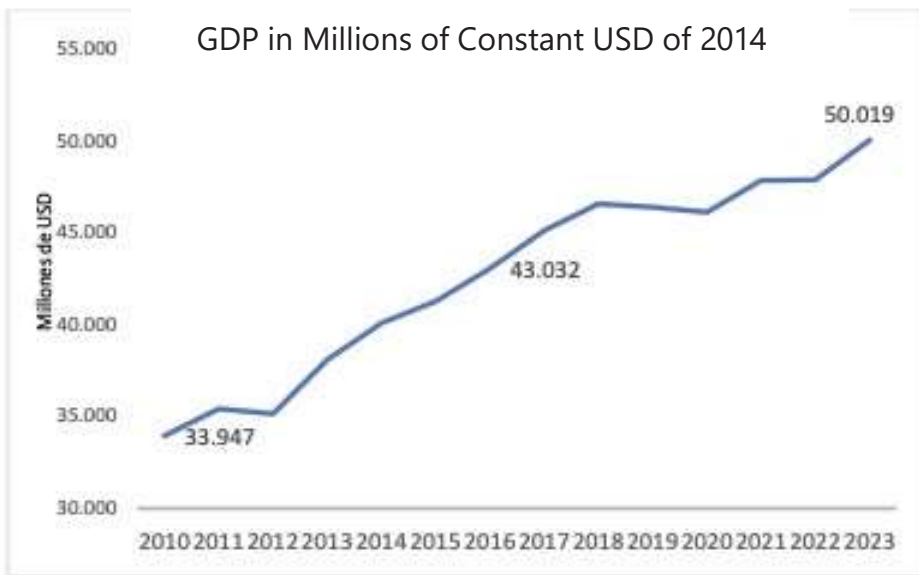
**GENERAL
OVERVIEW**



GENERAL OVERVIEW

Annual GDP growth rate:
4 % (prom. 2002-2022)

The rating has been growing:
to one point of investment grade

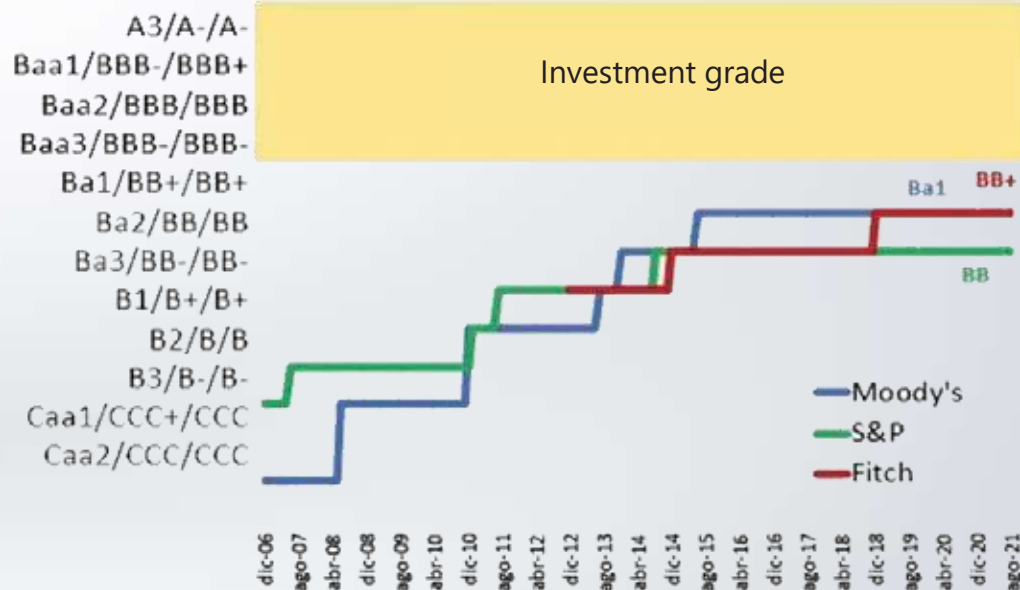


Source: anco entral del ara ua



Area: 40 M hectares

Population: 6 1 miiion



Source: anco entral del ara ua

Poverty rate went from 70.0% to 33.8% from 2002 to 2022.

Source: Instituto Nacional de Estadística (INE)

GENERAL OVERVIEW



Middle Class
57% (2022)



Inflation
4.4% (average, 15 years)



Agricultural and livestock chains
31% of GDP (2022)



Value Chain Total Employment
27% (2022)

Source: Instituto Nacional de Estadísticas, Banco Central del Paraguay



 **INVESTMENT
CLIMATE**

INVESTMENT CLIMATE



Best ranked in South America,
according to the Brazilian Institute of
Economics, FGV.

Dynamic Economy:

- Access to market
- High road and river connectivity with neighboring countries.
- Despite being landlocked, it has the third-largest fluvial transport fleet in the world.
- Improvement of road and social infrastructures.



Laws that favor foreign investment

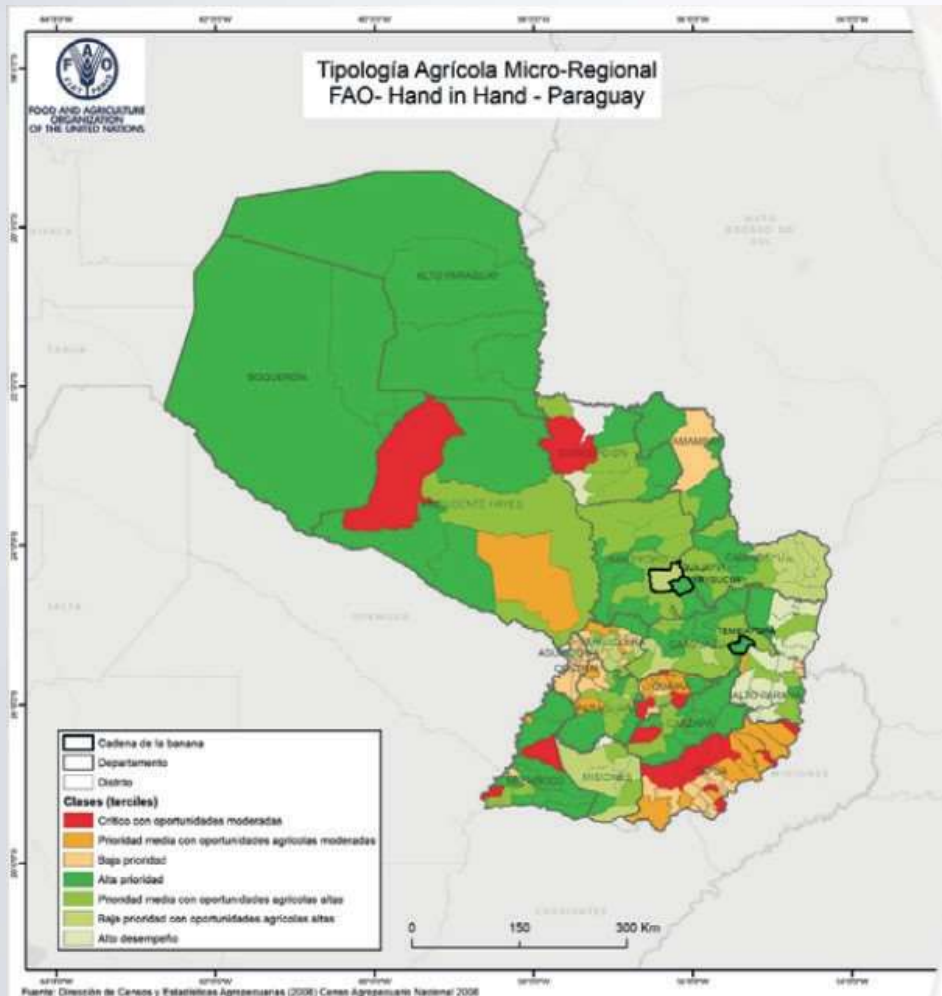
- "Investment Guarantees and Promotion of Job Creation and Socioeconomic Development" Law.
- "Investment Promotion Law: Incentives for Foreign Investment Projects".

Tax Structure

- VAT: 10%
- Corporate income tax: 10%
- Personal income tax: 10%



INVESTMENT NOTES OF PARAGUAY



The Ministry of Agriculture and Livestock has specific strategies for the emerging banana and dairy value chains.

The agricultural extension service supports both value chains with technical assistance.

These are key to generating income for family farmers.

Private actors and farmers, have participated in the preparation of the two projects.



**BANANA
INVESTMENT
NOTES**



BANANA INVESTMENT NOTES

The selection of this value chain jointly defined between the Ministry of Agriculture and Livestock and the private sector.

National Plan for the development of the banana value chain.

The objective is to increase the productivity of banana crops on family farms by at least 40%.

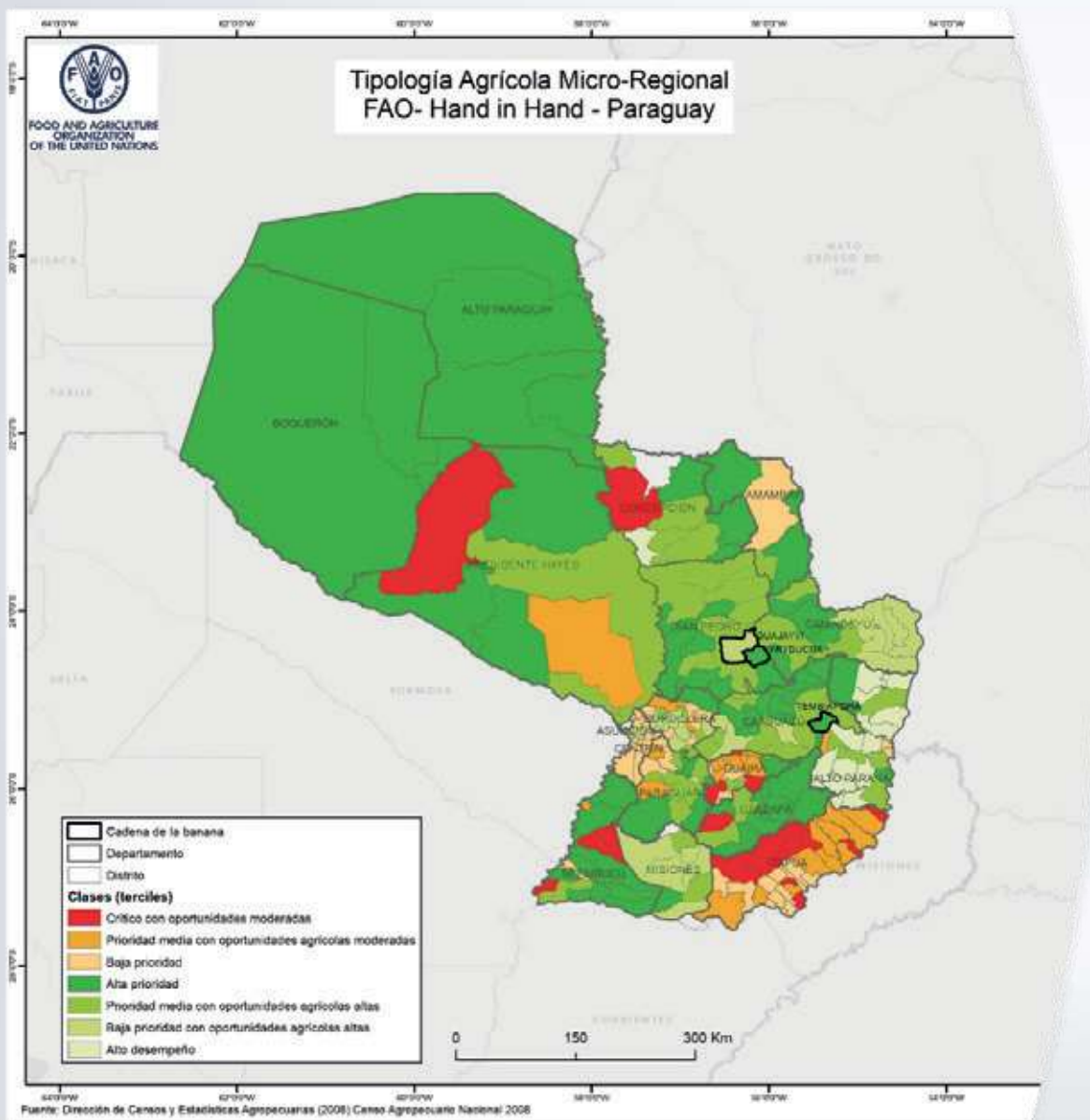
- includes the optimization and modernization of production, industrial, and commercial systems.
- More than 2,300 family farmers are included

Paraguay consolidated its presence in Argentina: USD 19.5 million in 2021
- Market share increased from 0.01% to 12% between 2000 and 2020.

Argentina, Uruguay and Chile are potential markets for Paraguay.



BANANA INVESTMENT NOTES



Main districts are located in areas of medium and high priority of the agricultural typology.

Direct beneficiaries:

- Family farmers (less than 20 ha.): 2,300
- Packinghouse workers: 200
- Transportation workers: 70

Indirect beneficiaries:

- Around 10,000 people

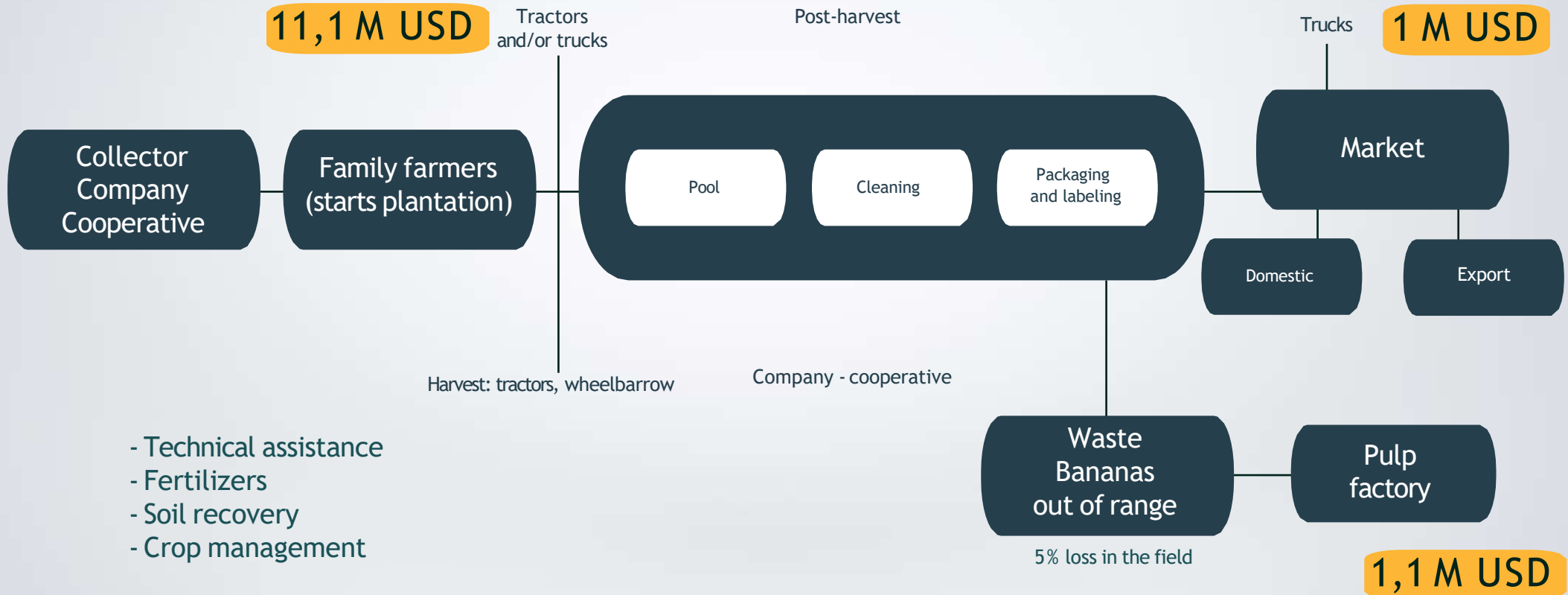
Current average annual sales:

- 1,390 USD (800 boxes per hectare)

Projected average annual sales:

- 2,250 USD (1,300 boxes per hectare) starting from year 4.

BANANA INVESTMENT NOTES



This project will strengthen the functioning of the whole value chain.

BANANA INVESTMENT NOTES

The project will focus on:



- Improving productivity per hectare
- Capitalizing on comparative advantages: favorable conditions for banana production (sunlight hours)
- Utilizing fruits that are not suitable for the market: industries
- Reaching nearby regional markets: Uruguay and Chile

Cost-benefit analysis:



- NPV (Net Present Value): 39,947,635 USD
- IRR (Internal Rate of Return): 31.6%
- Initial Investment: 13,257,554 USD
- Investment per producer: 5,003 USD
- Implementation period: 10 years



BANANA INVESTMENT

NOTES

Risk and mitigation measures

New pest attacks

Response: Research and application of agricultural defenses

Market and uncertainty in Argentina

Response: Exploration and penetration into other markets

Reach

- 2,300 family farmers
- 10,000 hectares of improved crops
- 1,000 irrigation systems installed and operating
- 3 banana flour factories
- 20% increase in income
- Increased export volume





**INVESTMENT
NOTES OF
THE DAIRY
CHAIN**



INVESTMENT NOTES OF THE DAIRY CHAIN

The selection of this value chain was jointly defined by the Ministry of Agriculture and Livestock and the private sector.

National Plan for the Promotion of the Dairy Value Chain

Paraguay has a strong industrial investment in milk processing and significant open markets.

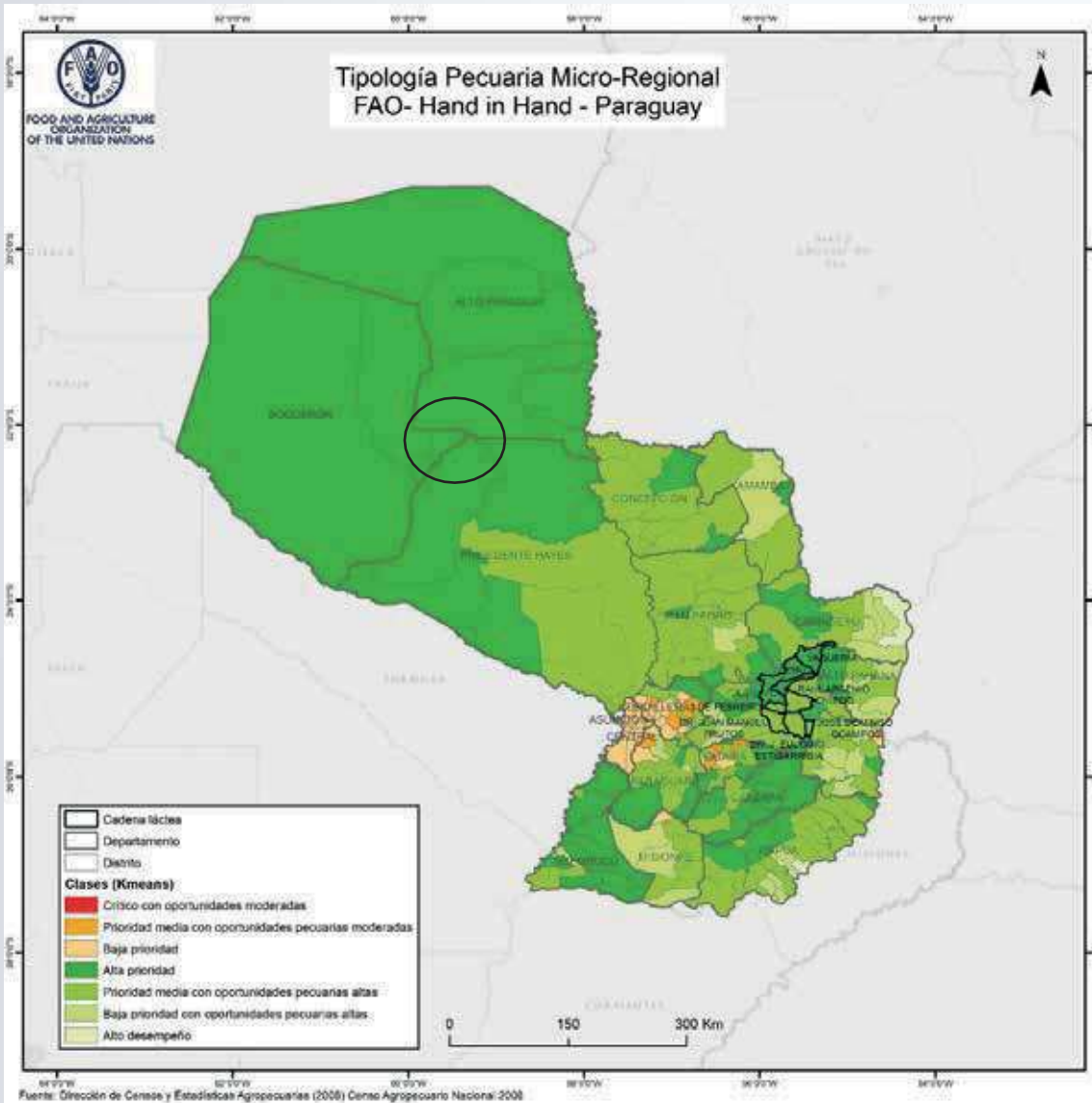
- Annual industrial capacity: 900 million liters
- Annual production of raw milk: 700 million liters
- Annual deficit of raw milk: 200 million liters (670,000 liters per day)

The objective is to increase the supply of raw milk in volume.

- Annual per capita consumption
In Paraguay: 135 liters
- In Latin America: 200 liters
- There is ample room for growth to meet domestic demand for both domestic consumption and powder milk exports.



INVESTMENT NOTES OF THE DAIRY CHAIN



Main districts are located in areas of medium and high priority of the livestock typology

Beneficiaries:

- Small-scale producers (less than 20 and 100 ha): 2750 in the Eastern region, 750 medium-sized producers in the Chaco region
- Indirect beneficiaries: 15.000

Improvement of productive and reproductive indices for 11,000 cows in the eastern region and 23,000 in the Chaco region

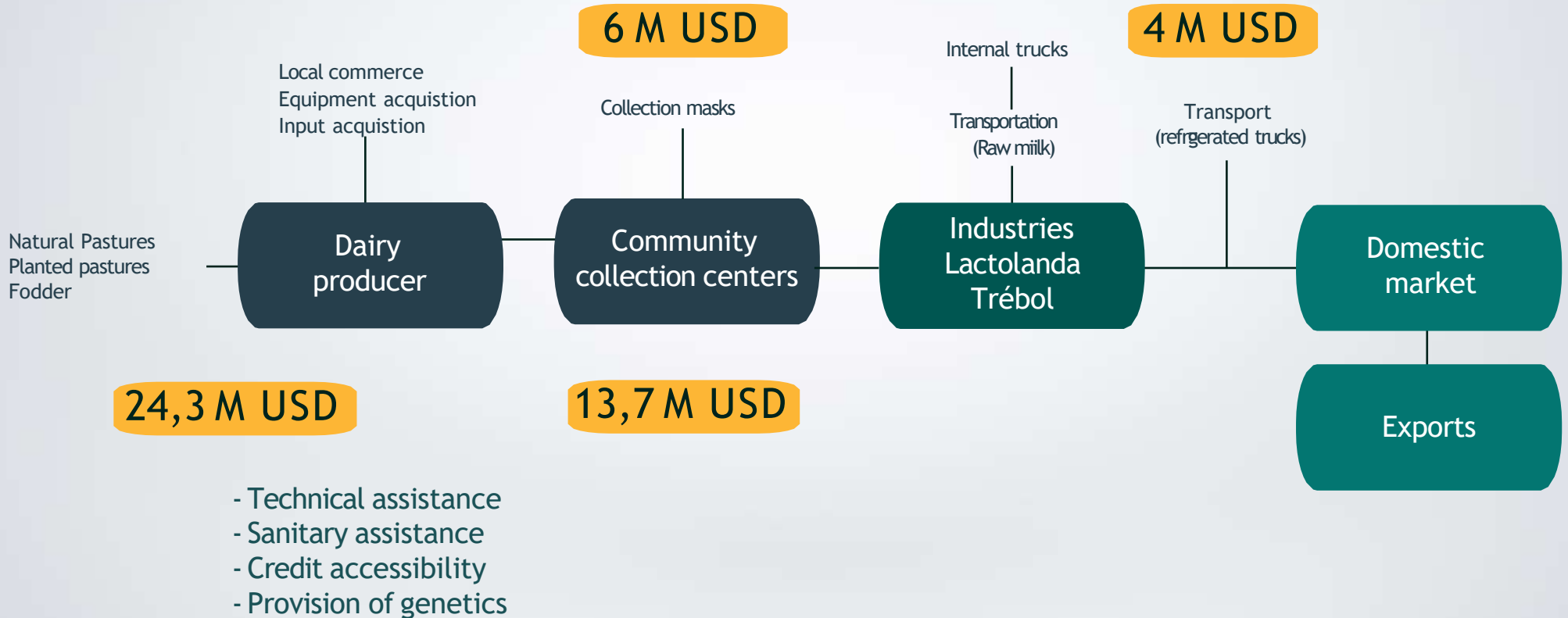
- Current production (liters per cow): between 3 and 6
- Production with the project: between 10 and 15

Current average annual sales:
852 USD (1,980 liters per year)

Average annual sale with the project: 2,131 USD (4,950 liters per year) starting in year 4



INVESTMENT NOTES OF THE DAIRY CHAIN



This project will strengthen the functioning of the whole value chain.

INVESTMENT NOTES OF THE DAIRY CHAIN



Cost-benefit analysis:

- NPV (Net Present Value): 137,498,914 USD
- IRR (Internal Return Rate): 29.2%
- Initial investment: 48,029,479 USD
- Investment per producer: 13,723 USD
- Implementation period: 10 years



Cost-benefit analysis:

- NPV (Net Present Value): 137,498,914 USD
- IRR (Internal Return Rate): 29.2%
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INVESTMENT NOTES OF THE DAIRY CHAIN

Risk and mitigation measures

Disease, example: mastitis

Response: sanitation

Excess production

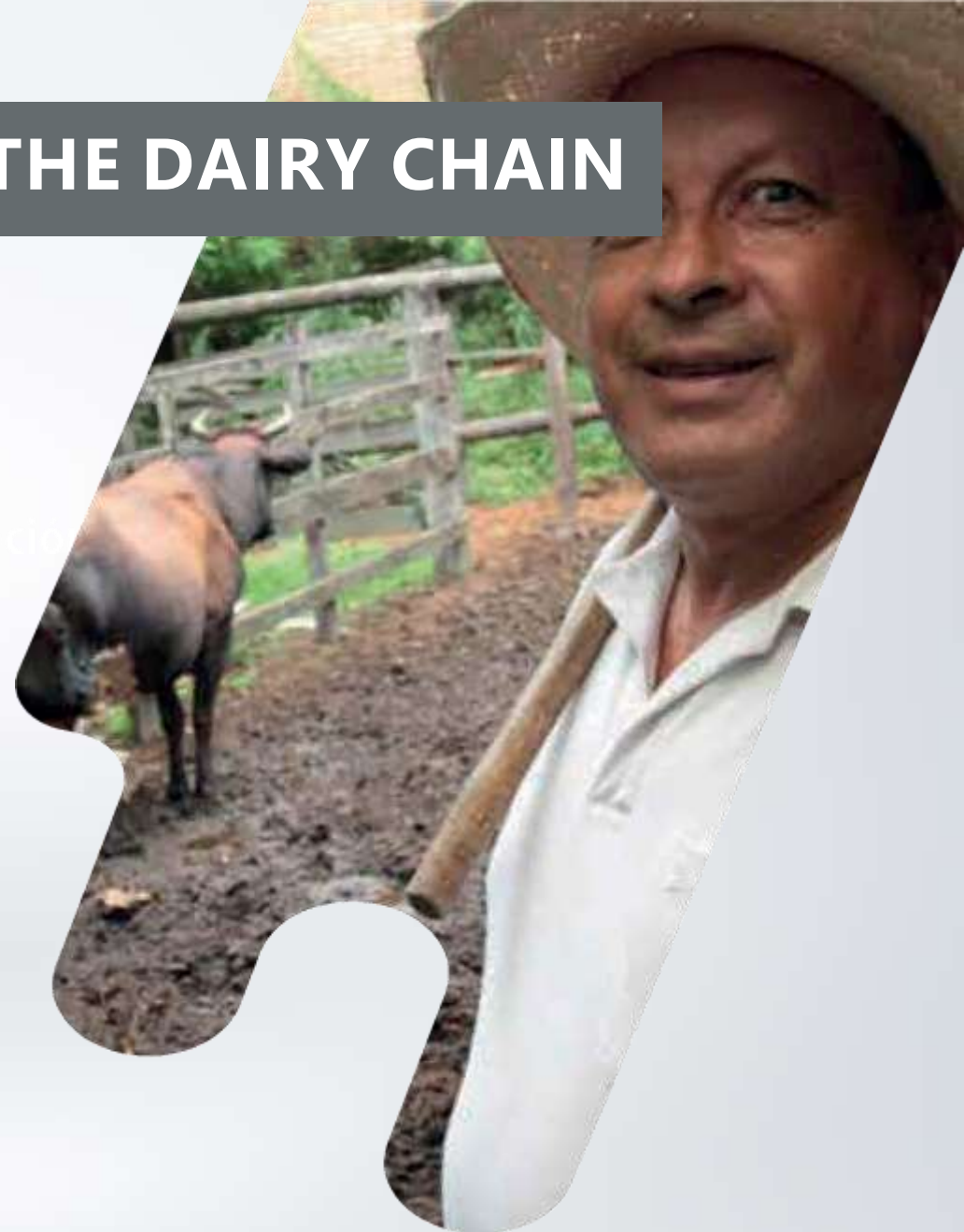
Response: production of powder milk

Smuggling of particular dairy products

Response: border controls

Reach

- 3,500 producers
- 800 renewed milking and milk collection systems
- 15% increase in agricultural productivity
- 20% increase in income



Summary

USD 61.3 M
Total
Investment Plan

30%
Average IRR

6,070
Direct beneficiaries
25,000
Indirect beneficiaries

USD \$1,069
Increase in
income

109.8 MT *
Emissions reduction
per capita

1

Intervention: Banana Value Chain

Cost (USD): US\$ 13.3 million

IRR (%)
31,6%

NPV (Net Present Value)
US\$ 39,9M

Sustainability benefits:

Direct Beneficiaries: 2.570
Indirect beneficiaries: 10.000 ,
Increase per capita income: US\$ 860

Reduction in greenhouse gas emissions: 31,234
tCO2 eq (tonnes of carbon dioxide equivalent)

2

Intervention: Dairy Value Chain

Cost (USD): US\$ 48 million

IRR (%)
29, 2%

NPV (Net Present Value)
US\$ 137,4M

Sustainability benefits:

Direct Beneficiaries: 3.500
Indirect beneficiaries: 15.000
Increase per capita income: US\$ 1.279

Reduction in greenhouse gas emissions: 78,614
tCO2 eq (tonnes of carbon dioxide equivalent)

