Food and Agriculture Organization of the United Nations

Investment Plan for the development of the rice value chain

Investment Forum | Rome, Italy | 16 - 20 October 2023
Population (BUCREP)

- Population: 24,348,251 in 2019
- Young people under 15: 43.6%
- Activity rate: 76.2%
- Rural population: 43.7%
- Average age: 19 years old
- Natural growth rate: 2.6%

Economy and society

- Projected GDP growth rate in 2023: 4.3% (MINEPAT)
- Inflation rate in 2022: 2.3% (MINEPAT)
- GDP in 2022: USD 44.34 billion (World Bank)
- Main exports (2022):
  - Oil, gas, aluminium, timber, cocoa, coffee, tea, rubber, banana, (MINEPAT)
Cameroon: Context (2/2)

- Human Capital Development Index (HCI) in 2020: 3.9, ranked 151st out of 191 countries (World Bank)
- Poverty rate in 2022: 37.5% (World Bank)
- Acutely food-insecure population (phases 3 and 4 of the Harmonised Framework): 3.01 million people in March 2023 (MINADER)
Rice subsector objectives and challenges (1/2)

Contribute to the implementation of the national rice strategy updated in May 2023

Each Cameroonian consumes an average of 25 kg of milled rice per year.

In 2030:
- Cameroon domestic rice consumption needs will amount to 772,000 T
- Current investments will help cover 450,000 tonnes
- The investment plan aims to produce 322,000 T and
- Drop the proportion of imported rice from 75% to 0%

Challenges of the sector strategy
- Improving rural incomes
- Reducing rural poverty
- Creating decent jobs
- Promoting gender equity and food and nutrition security
- Boosting the local economy
Why invest in Cameroon's rice value chain? (1/2)

High farming potential

- 5 Agroecological Zones
- Arable land: 7.16 million ha
- Irrigable land: 2,809,800 ha
- Occupancy rate of irrigable land: 10%.
- Extensive agricultural research ecosystem
- Rainfall: 400 mm/year - 4,000 mm/year
- Floodplains and swampy areas: 3.4 million ha
- Groundwater reserves: 120 billion m3
- Inland waters: 4 million ha
- 400 km of coastline

Source: FAO-HIH Task force (2022)
Incentive taxation

• Corporate tax cuts, ranging from 25% to 75%, depending on the amount invested;
• Accelerated depreciation of fixed assets;
• Customs duty exemptions or reduced rate (5%) on imports of inputs, equipment and production materials
• Exemption from VAT on the purchase of pesticides, fertilisers and inputs, as well as equipment
• Exemption from tax and employers' contributions on salaries paid to seasonal agricultural workers
• Exemption from registration fees on deeds and agreements
• Property tax relief on company-owned properties
Hand in Hand in Cameroon

Rice value chain objectives and challenges

Objectives

• Help close the gap of 322,000 tonnes between production and consumption of milled rice
• Contribute to improving the balance of trade
• Increase people’s incomes without leaving anyone behind
• Reduce poverty, malnutrition and underemployment, while optimising carbon impacts
• Strengthen food and nutrition security
• Create decent jobs
• Promote gender equity

Intervention areas

Priority areas were targeted based on the MCDA used in the Hand in Hand initiative (efficiency, potential, poverty). It was refined by the Government in the light of:

Updated and disaggregated data on poverty and food security
Priority value chains
Other strategic data (secure land areas, security, social aspects)
Stakeholders and programmes

Rice production companies and ongoing programmes

- Yagoua Rice Expansion and Modernisation Company (SEMRY) in the Far North and North Regions (99 years, USD 22.7 million in equity)
- Upper Nun Valley Development Authority (UNVDA) in the North-West and West Regions (99 years, USD 7.7 million equity)
- Avangane Irrigated Rice Pilot Farm (FPRIA-C) in the Centre Region (5 years, USD 2.4 million)
- Commodity Value Chain Development Support Project (PADFA II), in the West, North-West, North and Far-North Regions (5 years, USD 34.5 million)
- Irrigated and Rainfed Rice Development Project (PRODERIP) in the Centre, South, East, North-West and West Regions (5 years, USD 7.1 million)
- The Chari-Logone Integrated Rural Development Project (PDRI-CL) in the Far-North Region (5 years, USD 16.8 million)

Programmes currently starting

- Rice value chain development project responsible for the modernisation in the North-West, West and Far-North Regions (5 years, USD 87.5 million)
- Benoue Valley Investment Development and Enhancement Project (Viva Bénoué) in the North Region (5 years, USD 218.6 million)
- The Logone Valley Investment Development and Enhancement Project (VIVA-LOGONE) in the Far-North Region (5 years, USD 218.6 million)
- Agricultural Infrastructure and Value Chain Development Project in the South-West Region (5 years, USD 22.7 million)
- Project to develop 10,000 ha of irrigated areas in Logone Birni
- Project to develop 6,000 ha of land in the locality of Zina
Irrigated rice (largescale producers)

Production of 175,500 tonnes of milled rice from average areas of 5,000 ha irrigated perimeters

Justification

- Highest productivity despite negative environmental impacts
- Land available and directly accessible
- Existing local experience

Summary data

- Investment required: USD 505.8 million
- Areas to be created: 25,000 hectares
- Target yields: 6 tonnes/ha
terace
- Two (02) seasons per year
- NPV (14, 32%): USD 93.7 million
- IRR: 37.44
- B/C ratio: 1.27
- Payback period: 4.5 years

Direct beneficiaries: 25,000
Indirect beneficiaries: 150,000
Additional income: USD 712.27/beneficiary/year

State contribution (planned): USD 114.8 million
100% Construction and maintenance of roads, electrification of producers’ villages, tax and customs incentives on heavy equipment and hydro-agricultural developments, provision of land under concessions

Private funding (to be mobilised): USD 391 million
100% construction of warehouses/silos and husking units; labour force, seeds, pesticides, tools, packaging, land lease, 70% hydro-agricultural developments, 60% procurement of heavy agricultural equipment

Key information for investors

- Agreement on land secured by the State
- Staff recruitment and training
- Identification of input supply network
- Contractual arrangement with the actors of product marketing channels

Challenges

- Modernisation of the means of production
- Improvement of the rural living environment
- Processing of agricultural products
Irrigated rice (small-scale producers)

Production of 31,960 tonnes of milled rice from average areas of 1.5 ha irrigated perimeters

Key points for investors
- Contractual collaboration with small-scale producers
- Organisation of the input supply chain
- Product marketing Facilitation

Summary data
- Investment required: USD 117.8 million
- Area to be created: 5,170 hectares
- Target yields: 6 tonnes/hectare
- Two (02) production seasons per year
- NPV (14.32%): USD 29.2 million
- IRR: 44.08
- B/C ratio: 1.39
- Payback period: 3.5 years
- Direct beneficiaries: 3,447
- Indirect beneficiaries: 20,680
- Additional income: USD 1,006.56/beneficiary/year

State contribution (planned): USD 63.8 million
- 100% Construction and maintenance of roads, electrification of producers' villages, 90% subsidy for hydro-agricultural schemes
- Provision of land under concession

Private funding (to be mobilised): USD 54.0 million
- 100% Construction of warehouses/silos and setting up husking units, labour force, seeds, pesticides, tools, packaging, land lease, etc.; 10% of hydro-agricultural developments;

Justification
- 80% of farmers are small-scale producers
- Land available and directly accessible
- Local experience
- Significant impact on food security

Challenges
- Modernisation of the means of production
- Improvement of the rural living environment
- Processing of agricultural products

Typology map and irrigated rice farming (small-scale producers)

Source: FAO-HH Task force (2022)
**Lowland rice (small-scale producers)**

**Production of 15,795 tonnes of milled rice from average areas of 1.5 ha lowlands**

- Hydro-agricultural development of flood lowlands
- Provision of key inputs: seeds, fertilisers, pesticides
- Extension of improved production techniques
- Structuring and providing support for producer organisations
- Construction of paddy and milled rice storage warehouses/silos
- Opening of rural roads and electrification of producer villages

**Key points for investors**
- Contractual collaboration with small-scale producers
- Organisation of the input supply chain
- Product marketing Facilitation

**Justification**
- 80% of farmers are small-scale producers
- Land available and directly accessible
- Well established local experience

**Summary data**
- Investment required: USD 32.8 million
- Areas to be created: 3,000
- Target yields: 4.5 tonnes/hectare
- Two production seasons per year
- NPV (14.32%): USD 5.2 million
- IRR: 26.7
- B/C ratio: 1.10
- Payback period: 3.5 years

- Direct beneficiaries: 2,000
- Indirect beneficiaries: 12,000
- Additional income: USD 761.18/beneficiary/year

**State funding (planned): USD 5.9 million**
- 100% Creation and maintenance of roads, electrification of producer villages,
- 30% agricultural developments and 20% construction of warehouses/silos; provision of land under concession

**Private funding (to be raised): USD 26.9 million**
- 100% and procurement of agricultural equipment, workforce, seeds, pesticides, tools, packaging, land lease; 70% of agricultural developments, 80% of the construction of warehouses/silos

**Challenges**
- Modernisation of the means of production
- Improvement of the rural living environment
- Processing of agricultural products

**Production of 15,795 tonnes of milled rice from average areas of 1.5 ha lowlands**

- Hydraulic extension of improved production techniques
- Structuring and providing support for producer organisations
- Construction of paddy and milled rice storage warehouses/silos
- Opening of rural roads and electrification of producer villages

**Typology map and lowland rice farming (small-scale producers)**

**Source:** FAO-HiH Task force (2022)
Rainfed rice (small-scale producers)

Production of **16,848 tonnes** of milled rice from average areas of **1.5 ha** rainfed farms

- Development of farms in the savannah
- Provision of key inputs: seeds, fertilisers, pesticides
- Extension of improved production techniques
- Structuring and providing support for producer organisations
- Construction of paddy and milled rice storage warehouses/silos
- Opening of rural roads and electrification of producer villages

**Key points for investors**
- Contractual collaboration with small-scale producers
- Organisation of the input supply chain
- Product marketing

**Justification**
- 80% of farmers are small-scale producers
- Land available and directly accessible
- Current yields can be quickly improved

**Summary data**
- Investment required: **USD 33.3 million**
- Areas to be created: **4,800 hectares**
- Targeted yields: 3 tonnes/hectare
- Two (02) production seasons per year
- NPV(14.32%): **USD 3.2 million**
- IRR: **32.11%**
- B/C ratio: 1.05
- Payback period: 3 years
- Direct beneficiaries: **3,200**
- Indirect beneficiaries: **19,200**
- Additional income: **USD 117.14/ben/year**

**State funding (planned): USD 2.9 million**
- 100% Creation and maintenance of roads, electrification of producer villages, subsidy
- 20% agricultural developments, construction of husking units and warehouses/silos;
- provision of land under concession

**Private Funding (to be mobilised): USD 30.4 million**
- 100% of labour force, seeds, pesticides, tools, packaging, land lease,
- 80% of agricultural developments, warehouses/silos and husking units

**Challenges**
- Modernisation of the means of production
- Improvement of the rural living environment
- Processing of agricultural products

**Typology map and rainfed rice farming (small-scale producers)**

Source: FAO–HiH Task force (2022)
Rainfed rice (largescale producers)

Production of **81,900 tonnes** of milled rice from average areas of **5,000 ha** rainfed farms

- Development of farms in the savannah
- Procurement of key inputs: seeds, fertilisers, pesticides
- Extension of improved production techniques
  - Managerial and commercial support
- Mechanisation of production
  - Semi industrialised husking of paddy rice
- Construction of paddy and milled rice storage warehouses/silos
- Opening of rural roads and electrification of producer villages

Key points for investors

- State Secured Land Agreement
- Staff recruitment and training
- Identification of the input supply network
- Contractual arrangements with stakeholders in the product marketing channels

**Justification**

- Proximity to major consumption centres
- Existence of relevant State secured land
- Current yields can be quickly improved

**Summary data**

- Investment required: USD 112.1 million
- Areas to be created: 20,000 hectares
- Targeted yields: 3.5 tonnes/hectare
- 02 production seasons per year
- NPV(14.32%): USD 13.8 million
- IRR: 35.76%
- B/C ratio: 1.06
- Payback period: 4.5 years
- Direct beneficiaries: 20,000
- Indirect beneficiaries: 120,000
- Additional income: 259.36 USD/ben/year

**State funding (planned): 13.9 million USD**

- Creation and maintenance of roads, electrification of production areas, tax and customs incentives for agricultural developments, procurement of heavy equipment, construction of warehouses/silos and establishment of husking units; Provision of land under concession

**Private funding (to be mobilised): 98.2 million USD**

- 100% labour force, seeds, pesticides, tools, packaging, land lease
- 60% construction of warehouses/silos, 70% of agricultural developments and heavy equipment; 80% of the cost of setting up husking units

**Challenges**

- Conversion of some rice importers to producers
- Processing of agricultural products

**Source:** FAO-HH Task force (2022)
Rice-fish farming (small-scale producers)

Simultaneous production of 26 tonnes of milled rice and 12 tonnes of fish from average areas of 1.5 ha pilot irrigated farms

Hydro-agricultural development of small irrigated areas

Extension of improved production techniques and managerial support

Provision of key inputs: seeds, fertilisers, fry, fish feed

Mechanisation of plowing
Semi-industrialised husking of paddy rice

Key points for investors

- Contractual collaboration with small producers
- Organisation of the input supply chain
- Product marketing facilitation
- Access to credit for the financing of hydro-agricultural investments

Justification

- 80% of farmers are small producers
- Land available and directly mobilizable
- Fish is also a strategic ingredient consumed with rice.

Summary data

Investment required: USD 270,063
Areas to be created: 10 hectares
Targeted yields: 4.5 tonnes/hectare
01 production season per year
NPV(14.32%): USD 8.2 million
IRR: 39.84%
B/C Ratio: 1.23
Payback period: 3.5 years
Direct beneficiaries: 07
Indirect beneficiaries: 42
Additionnel income: USD 947.56/beneficiaries/year

State contribution (planned): USD 40,356
Provision of land under concession; 30% subsidy for developments

Private Financing (to be mobilised): USD 229,706
70% of hydro-agricultural developments
100% procurement of agricultural equipment Labour force, seeds, pesticides, tools, packaging, land lease

Challenges

- Modernisation of the means of production
- Improvement of the rural living environment
- Processing of agricultural products
Smart development of the rice value chain in terms of climate and soil requirements

In the nationally determined contributions, the Government of Cameroon pledges to reduce emissions by 35% (by 2030). Cameroon has a national GHG inventory system which is a tool.

- Adoption of the intensive rice farming system: innovative farming techniques
- Rationalised water management, to reduce the time of farm flooding such as Alternating wetting and drying (AWD), saving water (22-39%)\(^1\), and to break up the layer of stagnant water in rice farms to replenish oxygen and reduce bacteria
- Use of bio-inputs (organic fertilizers and natural pesticides)
- Use of “cable” bacteria capable of reducing methane emissions by more than 90%\(^2\)
- Urea coating with neem oil
- Recycling straw and rice husks into uses such as off-rice composting, mushroom production (avoiding methane emissions, generating additional income)

- Innovative use of husks and straw (energy production, livestock feed, natural fertiliser production, etc.) will provide new local business opportunities and additional sources of income for farmers, while mitigating the effects of climate change.
- Use of organic fertilisers and conservative farming techniques to protect against rapid soil degradation
- Use of seed varieties that are tolerant to environmental stresses such as drought and flooding and resistant to current and future local climatic conditions, with the same production yield to help reduce water and fertiliser use
- Mapping of flooding regime and measurement of nitrous oxide emissions on various rice farms and reporting of such emissions and to optimise the use of nitrogen and organic matters to reduce emissions of these two important greenhouse gases

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1) Wetting and Drying: Reducing Greenhouse Gas Emissions and Saving Water from Rice Production, World Research Institute December 2014
2) Cable bacteria reduce methane emissions from rice-vegetated soils, Vincent V. Scholz, Rainer U. Meckenstock, Lars Peter Nielsen & Nils Risgaard-Petersen
Cameroon: Investment opportunities

**SUMMARY**

- **US$ 802.2 million**
  - Total cost
  - **Including:** **US$ 201.4 million**
    - State
    - **US$ 600.8 million**
      - Private
  - **37.46%**
  - Average IRR
  - **53,653** direct beneficiaries
  - **321,922** indirect beneficiaries
  - **US$ 528.70**
    - Average increase in income per beneficiary
  - **+10,926,207.6 t CO2 emitted**
    - Will be offset according to the nationally determined contribution

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**IRRIGATED RICE FARMING**

1a: Small-scale producers
1b: Large-scale producers

- **Investment costs**
  - 1a: **USD 117.8 million**
  - 1b: **USD 505.8 million**

- **IRR (%)**
  - 1a: **44.08%**
  - 1b: **37.44%**

- **NPV (14.32%)**
  - 1a: **USD 29.2 million**
  - 1b: 93.7 million USD

- **Payback period**
  - 1a: 3.5 years
  - 1b: 4.5 years

- **Sustainability benefits**
  - **Beneficiaries**:
    - Direct: **1a: 3,447**
    - Indirect: **1a: 20,681**
  - Additional income per beneficiary:
    - 1a: **USD 1,006, 56 USD/ben/year**
    - 1b: **USD 712.27/ben/year**
  - Carbon: **+7,952,411 t CO2 emitted**

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**RAINFED RICE FARMING**

1a: Small-scale producers
1b: Large-scale producers

- **Investment costs**
  - 1a: **USD 33.3 million**
  - 1b: **USD 112.1 million**

- **IRR (%)**
  - 1a: **32.11%**
  - 1b: **35.3%**

- **NPV (14.32%)**
  - 1a: **USD 3.2 million**
  - 1b: 13.6 millions USD

- **Payback period**
  - 1a: 3 years
  - 1b: 4.5 years

- **Sustainability benefits**
  - **Beneficiaries**:
    - Direct: **1a: 3,200**
    - Indirect: **1a: 19,200**
  - Additional income per beneficiary:
    - 1a: **USD 117.4/ben/year**
    - 1b: **USD 259.36/ben/year**
  - Carbon: **+2,835,438.6 t CO2 emitted**

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**LOWLAND RICE FARMING**

1a: Small-scale producers

- **Investment costs**
  - 1a: **USD 32.8 million**

- **IRR (%)**
  - **26.7%**

- **NPV (14.32%)**
  - **USD 5.2 million**

- **Payback period**
  - 1a: 3 years

- **Sustainability benefits**
  - **Beneficiaries**:
    - Direct: **2,000**
    - Indirect: **12,000**
  - Additional income per beneficiary:
    - USD 761.18/ben/year
  - Carbon: **+146,157 t CO2 emitted**

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**RICE-FISH FARMING**

1a: Small-scale producers

- **Investment costs**
  - **USD 270,063**

- **IRR (%)**
  - **39.84%**

- **NPV (14.32%)**
  - **USD 63,101**

- **Payback period**
  - 1a: 3.5 years

- **Sustainability benefits**
  - **Beneficiaries**:
    - Direct: **07**
    - Indirect: **42**
  - Additional income per beneficiary:
    - USD 947.56/ben/year
  - Carbon: **-5799 t CO2 emitted**