Food and Agriculture Organization of the United Nations

Hand-in-Hand Initiative

Scaling-up Capacity, Partnerships and Investment to Accelerate Agrifood Systems Transformation in the Sahel

Regional initiative for the Sahel

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

S1 2023 Investment Forum follow up and Synergies

○ Regional level

- **Complementarity with:**
  - **PARIIS, GCF/GEF projects, One Sahel (USD 181 million SD3C + others)**
  - **Regional West Africa Food System Resilience Program (FSRP)**
  - **GCF: Regional Great Green Wall climate finance project (SURAGGWA), USD 250 million – Funding Proposal submitted to GCF for consideration**
- **High-level mission in Guinea** to visit and advocate for the preservation of the ecosystems and water resources of the **Fouta Djallon Massi**f:
  - A call
  - Roadmap
- **Joint ECOWAS, CILSS and FAO regional advocacy mission**
- **Regional HiH TCP operational (USD 0.5 million)**

○ Country level

Mali:
- National investment forum on 04 May 2023
- Discussion with Private sector (international development banks , international agricultural machinery and cooling equipment provider) around the two agropoles
- **Approx. US$ 66 million expected** investment from partnerships/negotiations

Gambia:
- Inclusive and Resilient Agricultural Value Chain Development Project (GIRAV-AF), **USD 73 Million** – Approved in 2024/World Bank.

Chad:
- Agribusiness and Rural Transformation Project (ProAGRI), **USD 180.25 million** – Approved in 2024 / World Bank

Niger:
- Livestock and Agriculture Modernization Project (LAMP), **USD 400 Mmllion** – Approved in 2024 / World Bank:.

- **Burkina Faso:** Programme to Strengthen Smallholder Resilience to Climate Change - RESI2P (IFAD, 116m USD)

The Outline

Section 1: The Sahel Overview

Section 2: Overview of the Regional Sahel HiH Initiative

- Approach and Keys pillars
- Agricultural typologies
- Complementarities
- 2023 IF follow-up

Section 3: Why investing in the Sahel

Addressing multidimensional challenges

Seizing opportunities

Section 4: The enabling environment

Section 5: Updated Investment proposals

Part 1: Irrigation:

- Why updating
- Types and assumptions
- Investment

Part 2: Market integration and trade

Part 3: Summary

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The Sahel: *An Overview*

- Burkina Faso
- Cameroon
- Chad
- Gambia
- Guinea
- Mauritania
- Mali
- Nigeria
- Niger
- Senegal

Source: U.N. Office for the Coordination of Humanitarian Affairs (OCHA)

10 UNISS Countries

Area ~ 3 Million km/sq

Rainfall

~ 100-200 mm (North)

~ 700-1000 mm (South)

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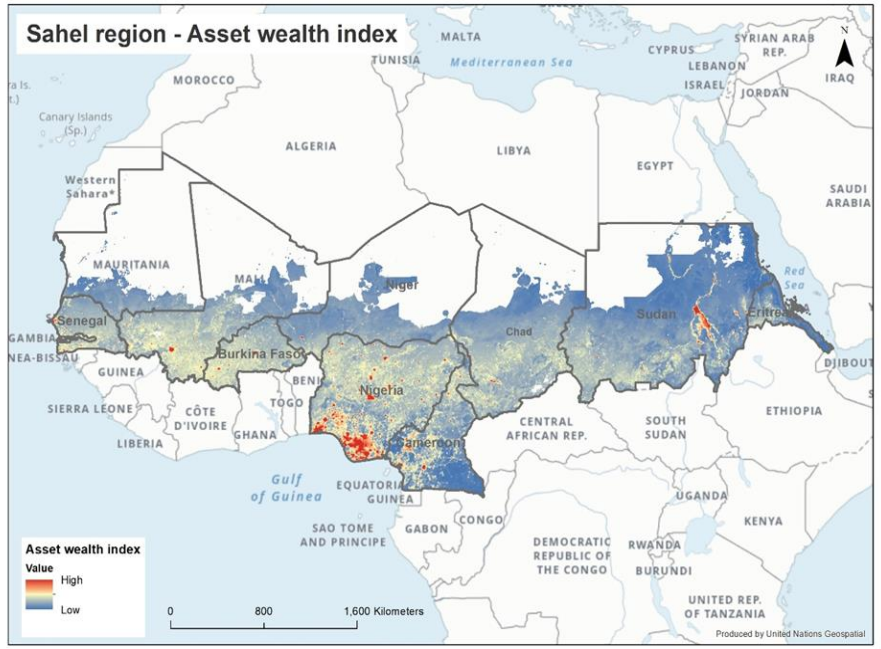
The Sahel: *Agriculture*

- Agriculture main provider of jobs for many countries
- Farmers are one of the most vulnerable and poorest group
- High cereal production with low productivity
- Rain-fed agriculture, subsistence crops and large unexploited livestock sector
- Low value added per worker (but higher than east Africa)
- Significant water resources vs limited irrigation
- All countries are net importers of food

	Agriculture % of GDP	Arable land %
Burkina Faso	20	21
Cameroon	21	13
Chad	23	4
Gambia	25	38
Guinea	27	13
Mali	36	5
Mauritania	19	1
Niger	40	14
Nigeria	24	37
Senegal	16	17
Average	25	



Source: FAO HiH-GIS based on ATLAS

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HiH Sahel Initiative Pillars and Priorities as agreed at the 1st HiH IF in 2022

Analysis/GIS, mapping of major initiatives, actors and partners relevant to HiH key pillars

→

Regional complementary new investments priorities proposals + Synergies and Partnerships

⇄

Consultations/validation with Governments and Regional Bodies through the HiH coordination structure

Pilar 1

Ensuring sustainable land and water management and governance

Investment in irrigation based on the 5 common types in the Sahel

Pilar 2

Transformation of agri-food production, postproduction systems and trade

Investments and enabling infrastructure and policies to support agriculture commodity value chains and trade

Pilar 3

Strengthening technical and institutional capacities for resilience building and transformational leadership

Capacity building training and Technical assistance

Contribute to eradicate poverty (SDG1), hunger and malnutrition (SDG2) and reduce inequalities (SDG10).

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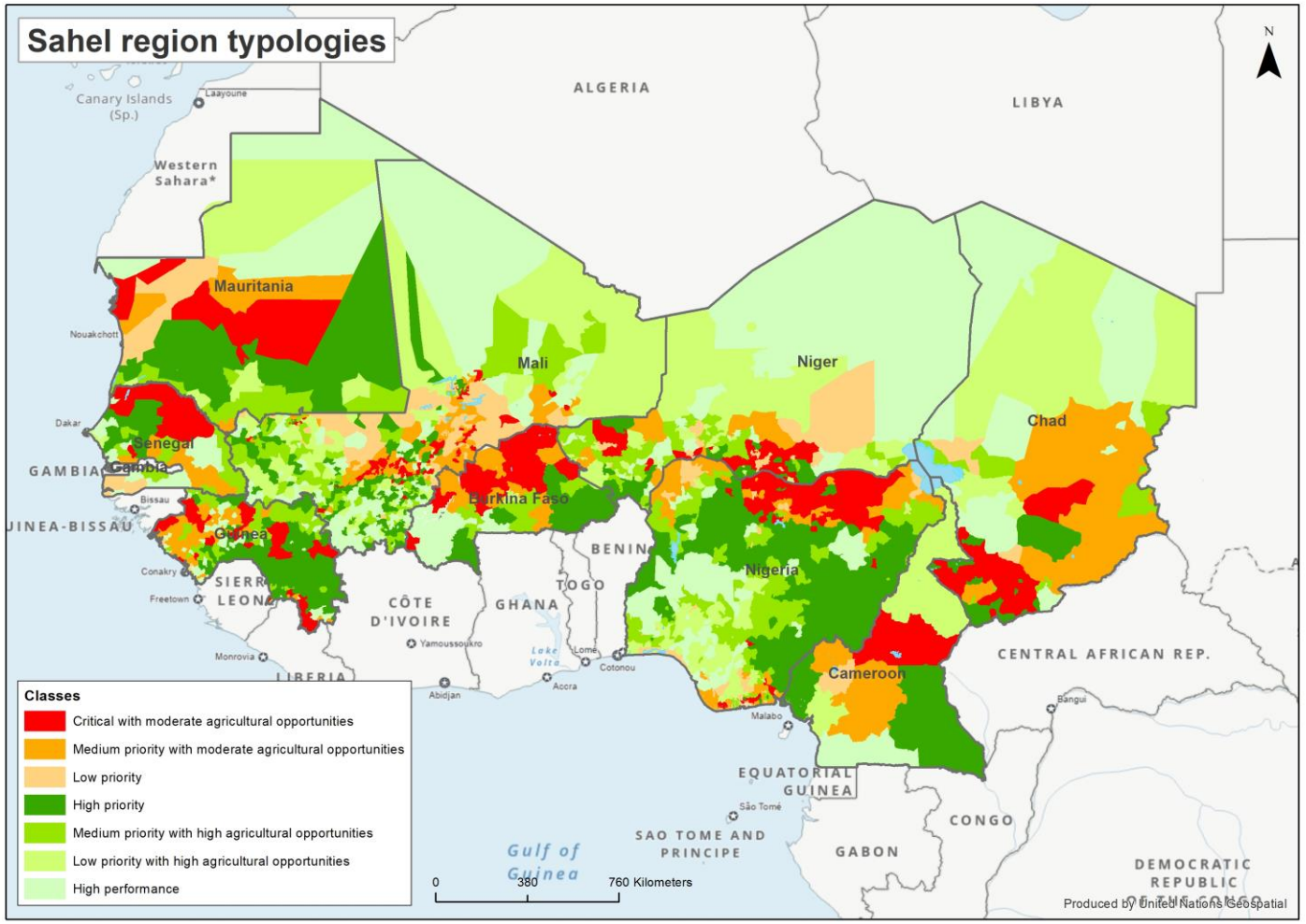

Map of agricultural typologies of the Sahel: priority areas for investment

	Poverty	Potential	Efficiency
Critical with moderate agricultural opportunities	High	Moderate	Any
Medium priority with moderate agricultural opportunities	Medium	Moderate	Any
Low priority	Moderate	Moderate	Any
High priority	High	Medium / High	Medium / Moderate
Medium priority with high agricultural opportunities	Medium	Medium / High	Medium / Moderate
Low priority with high agricultural opportunities	Moderate	Medium / High	Medium / Moderate
High performance	Moderate	Medium / High	High

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HiH Sahel a *multi-partner program* complementing ongoing efforts

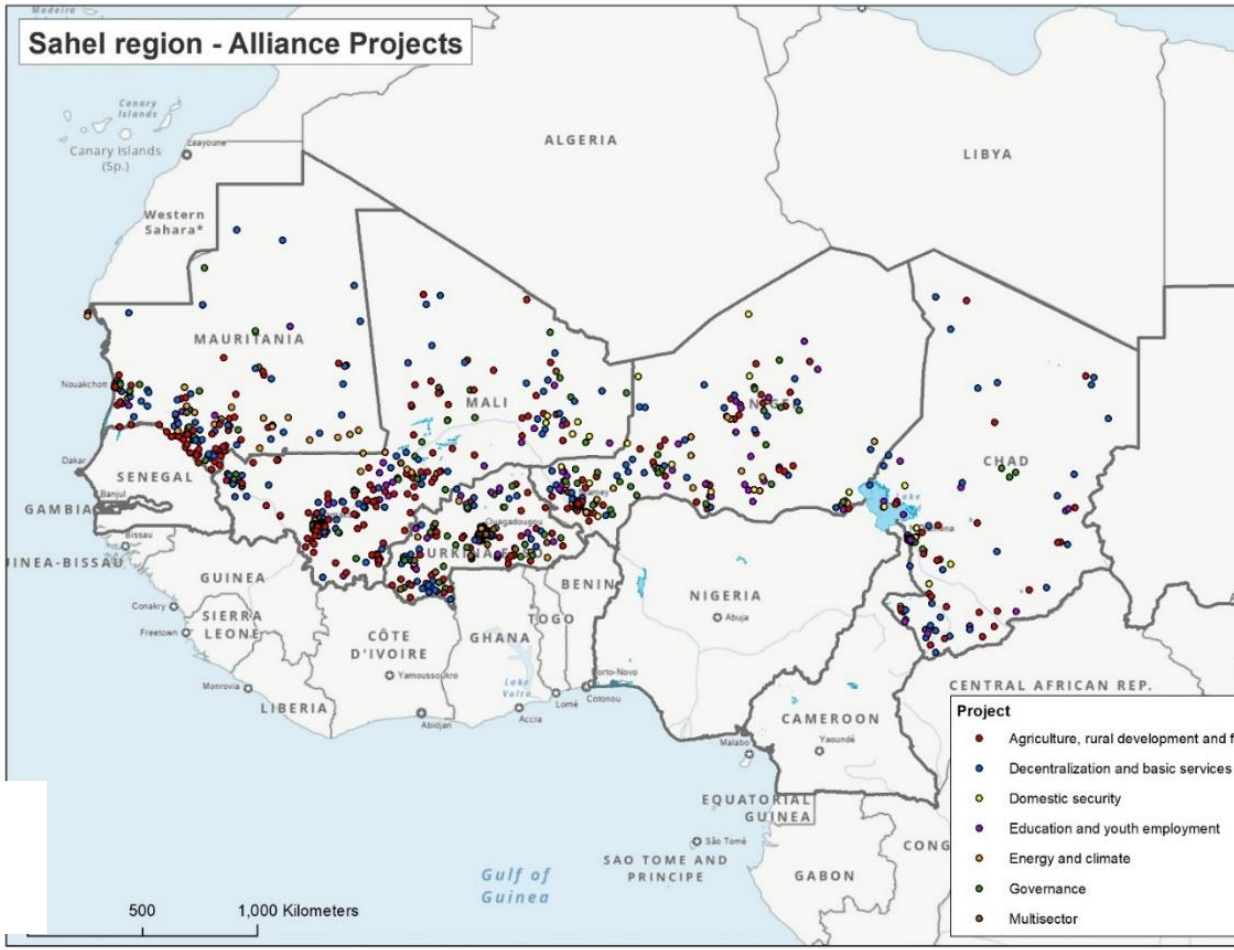
National governments and…..

African Union · CEDEAO ECOWAS · CILSS · 2063 · RBM Réseau Bilital Maroobe

Banque Africaine de Développement / African Development Bank · African Development Fund / Fonds Africain de Développement · gef · Food and Agriculture Organization of the United Nations · UEMOA

Dakar 2 SUMMIT FEED AFRICA Food Sovereignty and Resilience · Green Climate Fund · UNISS · ROPPA Afrique Nourricière · CORAF

SAHEL COALITION · WFP · IFAD · WORLD BANK GROUP · GREAT GREEN WALL



…..and many others including private sector

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S3

Addressing multidimensional *challenges*

Challenges from climate change

- ✓ Repeated cycles of droughts, desertification and floods
- ✓ Exposed to climate change
- ✓ Yield prospects for key crops uncertain
- ✓ Livestock and pastoralists in risk
- ✓ Increased water scarcity locally

General challenges

- Poverty (ranging between 30 and 50 percent of the population)
- High food insecurity and widespread hunger and malnutrition in some regions
- Political and security challenges
- Population growth pressures / Urbanization
- Agriculture sector challenges (Low productivity and competitivity, limited access to markets for farmers, little value addition)
- Rural exodus and uncontrolled youth emigration

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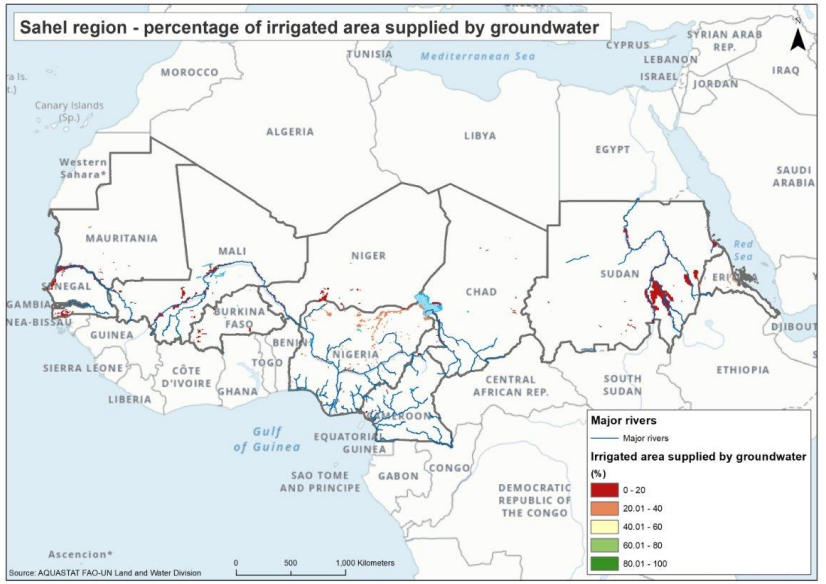
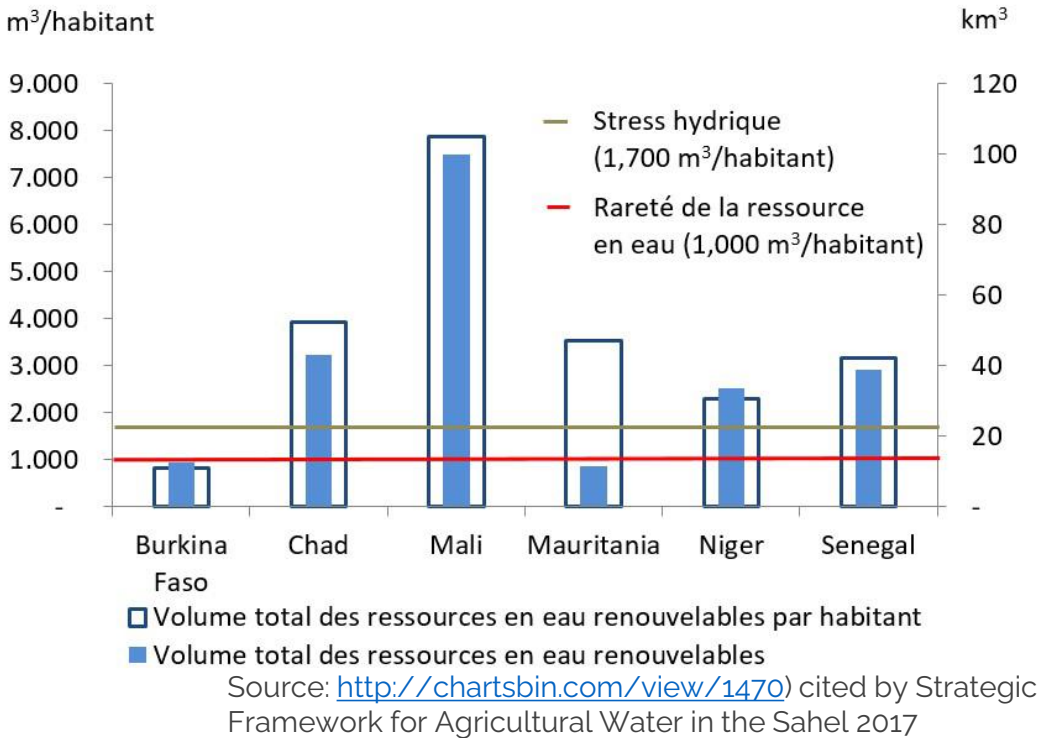
S3 Seizing *Opportunities*

- Large availability of transboundary water resources
- Abundant surface and groundwater resources
- Regional Food economy value more than doubled since 2010 and is expected to reach $480 billion by 2030 (OECD)
- Rapidly rising food demand at sub regional and continental levels conducive to the potential growth of the currently limited Intraregional trade
- Young population (65% less than 25 years)
- Investment opportunities in food production, infrastructure and trade
- ~90% of jobs expected to be created by 2030 in the food (OECD, cited by IFC 2022))
- Enabling environment put in place by many countries such as tax incentives for agrifood investment

Water resources in the Sahel





Source: http://chartsbin.com/view/1470) cited by Strategic Framework for Agricultural Water in the Sahel 2017

S4

The Sahel Enabling Environment/Opportunities

Impact investors and large organizations constrained by:

- Limited local capacities
- Bureaucracy / informality
- High turnover rates

Solutions emerge through:

- ✓ Innovative / flexible loans can have positive impact on growth
- ✓ Technical Assistance/Capacity development and Grants are key

Source: IWMI business climate survey

S5
Part 1

Updated Investment proposals – Part 1:
Regional irrigation investment

Key Bottlenecks	Key Investment Needed
Insufficient surface irrigation infrastructure limiting **yields** of key food and cash crops in Sahel regions.	Coordinated investment in irrigation infrastructure in **60,000 additional ha** suitable to surface water irrigation in ten countries, for **suitable food and cash crops** with high demand in the region.
Inadequate mechanisms to engage communities and individual small farmers	Adopt and promote adapted irrigation typologies, suitable to communities, as well as to individual agri-preneurs. Develop adequate capacities to manage irrigation schemes and equipment for about **125,500 farmers** and ensure adequate **water resources governance/management**
Insufficient quality and high cost of **irrigation** (pumping, distribution) and **production**	**Strengthen farmers capacities and** provide them with **high quality irrigation equipment** (solar pumps, small reservoirs, drip irrigation kits) through **adequate**

○ Risks	○ Mitigation measures
Limited availability, unaffordable costs, and poor reliability of **technologies**	Coordination for an efficient regional procurement mechanism and improved **trade** systems, allowing economy of scale and **quality** of inputs
Limited **adoption** by farmers	**Capacity development** and **concessional support** to ensure uptake of technologies from smallholder and vulnerable farmers
Competition for water resources use	Promote **participatory approaches and dialogue** including to stimulate shared use between farmers and pastoralists.

HIH Sahel Irrigation Investments :
Prioritized

Type 1: Small scale community-managed reservoirs for irrigation
Type 2: Small scale private investment for high value added crops
Type 3: Improved shallow irrigation with Solar powered irrigation pumps and small reservoirs

Irrigation in the Sahel – Type 1

Small scale community-managed reservoirs for irrigation

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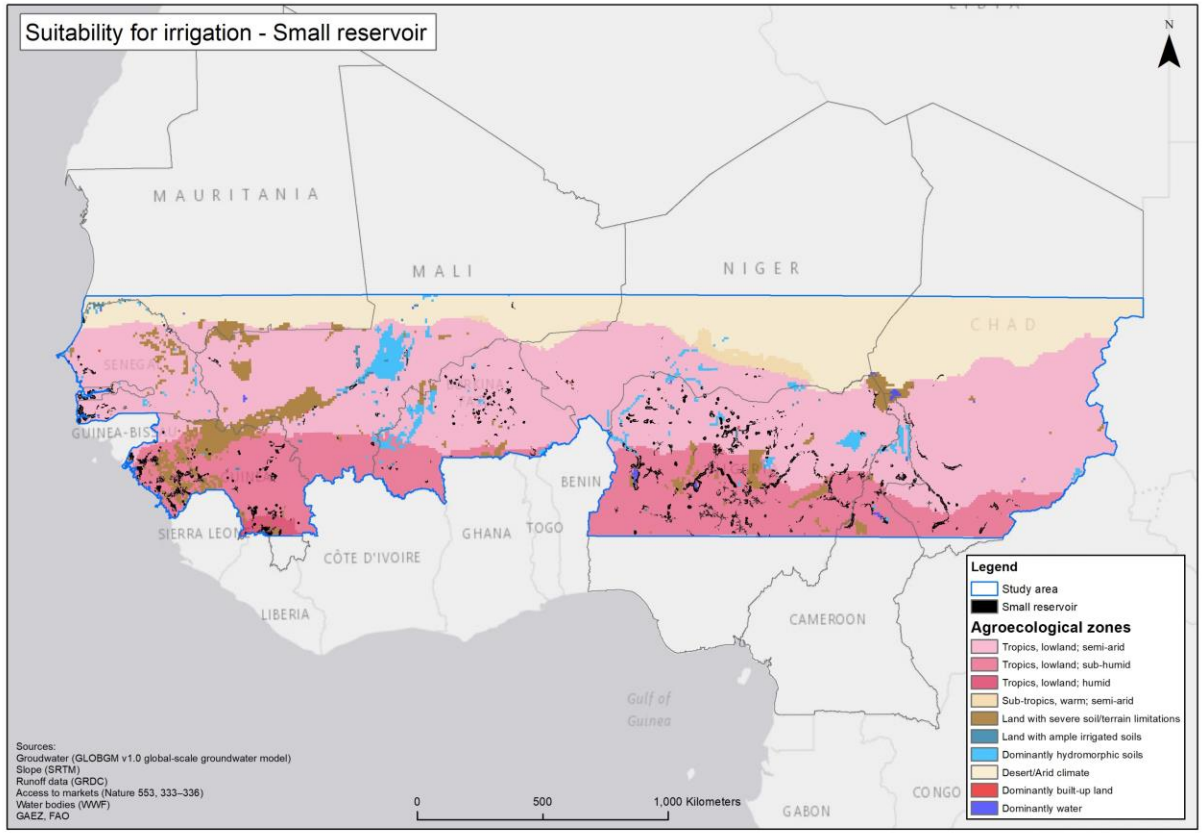
Burkina Faso 1,800 ha
Investment: $11.9 million
NPV $5.5 million
IRR 14%
Beneficiaries 3,600

Guinea 7,100 ha
Investment $58.4 million
NPV $23.0 million
IRR 16%
Beneficiaries 14,200

Senegal 400 ha
Investment $1.7 million
NPV $3.7 million
IRR 17%
Beneficiaries 200

Mauritania 2000 ha
Investment $5.7 million
NPV $0.7 million
IRR 10%
Beneficiaries 2,667



Source: FAO HiH-GIS analysis team

Nigeria 21,000 ha
Investment $172.6 million
NPV $31.7 million
IRR 23%
Beneficiaries 42,000

Mixed horticulture investment present substantial opportunities

Chad 2,400 ha
Investment $17.3 million
NPV $6.2 million
IRR 15%
Beneficiaries 8,000

Niger 1,800 ha
Investment $11.8 million
NPV $17.5 million
IRR 27%
Beneficiaries 6,000

Storage investment allowing high returns

Gambia 1,600 ha
Investment $12.2 million
NPV $5.6 million
IRR 15%
Beneficiaries 1,280

Mali 3,100 ha
Investment $17.0 million
NPV $7.9 million
IRR 15%
Beneficiaries 10,333

Cameroon 3,800 ha
Investment $31.2 million
NPV $15.1 million
IRR 17%
Beneficiaries 2,533

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Irrigation in the Sahel – Type 1

Small scale community-managed reservoirs for irrigation

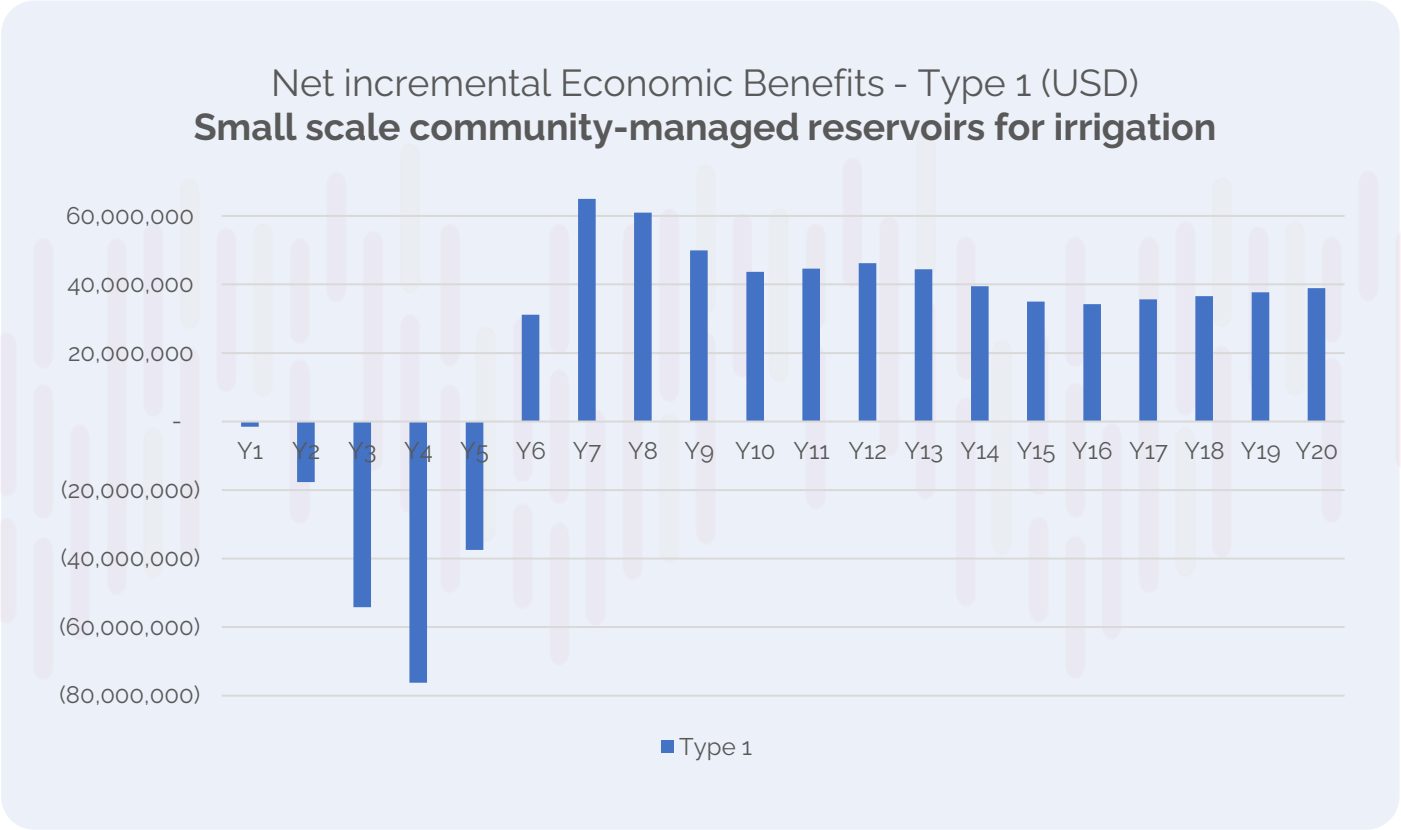
Total hectares targeted: **45,000**

Capital Investment required :
376.6 million USD over five years,
including:
34.0 million USD as private investment (9%)

NPV: **169.8 million USD**

IRR (20-year): **18.0%**

Technology: 20-year life cycle of solar panels and 4-year life cycle of pumps with a progressive adoption rate by communities



Accounting for climate change impact: country specific reduction in yield according to climate hazards

Irrigation in the Sahel – Type 2

Small scale private investment for high value added crops

Hand-in-Hand Initiative

Piloting private sector irrigation investment: 1,500 hectares

Solar-based surface pump solutions contribute to the scale-up of shallow water use

Private sector investment with and high potential for high value added per hectare

High demand from communities, complementing ongoing and planned operations

Gambia
Investment $0.4 million
NPV 0.1 million
IRR 18%
Beneficiaries 53

Mauritania
Investment $0.36 million
NPV $0.08 million
IRR 14%
Beneficiaries 53

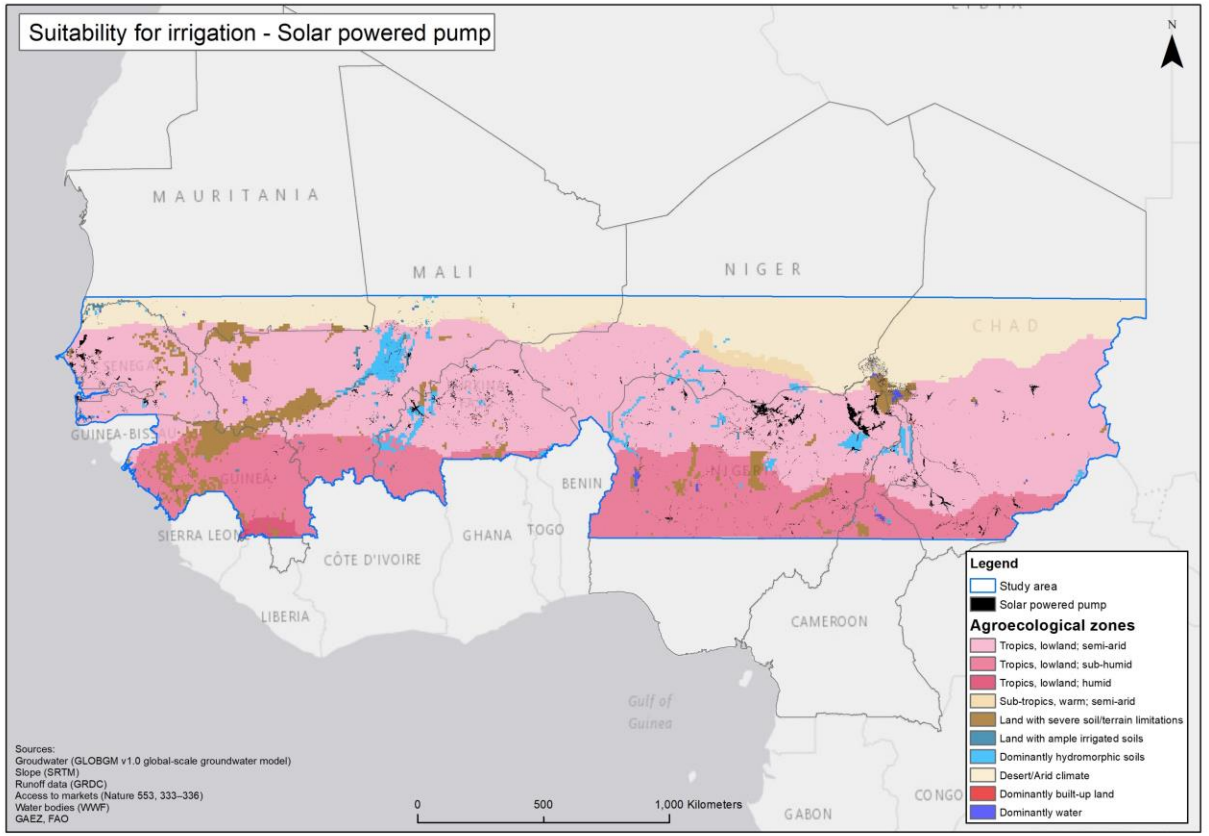
Niger
Investment $0.45 million
NPV $0.4 million
IRR 31%
Beneficiaries 80

Mali
Investment $1.9 million
NPV $1.0 million
IRR 25%
Beneficiaries 280

Guinea
Investment $0.75 million
NPV $0.45 million
IRR 22%
Beneficiaries 93

Burkina Faso
Investment $2.1 million
NPV $1.1 million
IRR 24%
Beneficiaries 160

Cameroon
Investment $1.1 million
NPV $0.6 million
IRR 25%
Beneficiaries 133



Source: FAO HiH-GIS analysis team

Senegal
Investment $3.5 million
NPV $2.9 million
IRR 24%
Beneficiaries 320

Chad
Investment $1.8 million
NPV $1.7 million
IRR 45%
Beneficiaries 240
Mixed horticulture investment presenting high return opportunities

Nigeria
Investment $3.9 million
NPV $1.1 million
IRR 23%
Beneficiaries 180

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Irrigation in the Sahel – Type 2

Small scale private investment for high value added crops

Hand-in-Hand Initiative

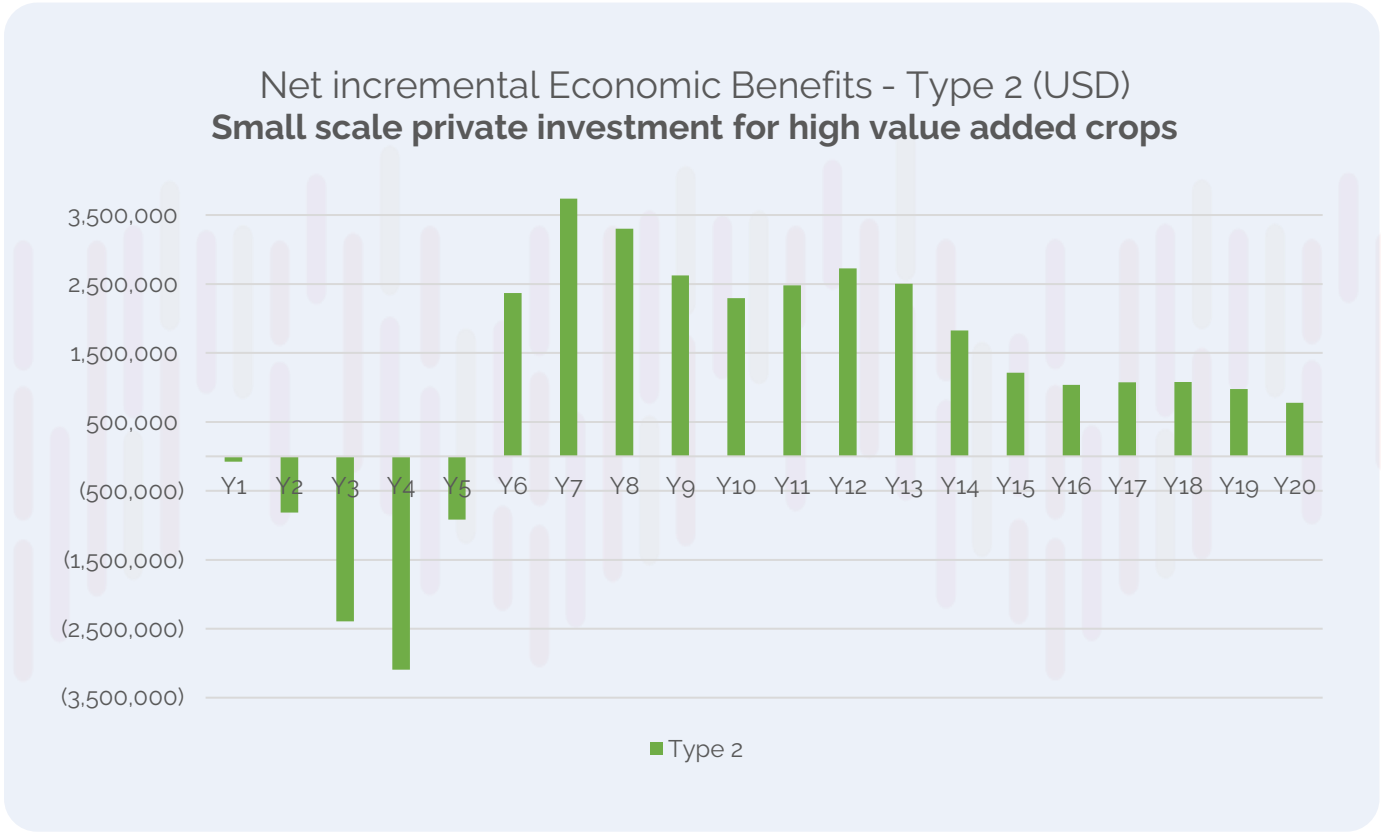
Total hectares targeted: **1,500**

Capital Investment required :
17.1 million USD, over five years,
including:
8.1 million USD as private investment (46%)

NPV: **10.2 million USD**

IRR (20-year): **24.6%**

Technology: irrigation equipment (including solar pumps, fenced enclosure, drip irrigation kits) for small-scale agri-entrepreneurs, suitable for high value-added crops.



Accounting for climate change impact: country specific reduction in yield according to climate hazards

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Irrigation in the Sahel – Type 3

Improved shallow irrigation with Solar powered irrigation pumps and small reservoirs

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Potential for irrigation: 13,500 hectares

Solar-based surface pump solutions contribute to the scale-up of shallow water use

Community investment with and high potential for food security increase

High demand from communities, complementing ongoing and planned operations

Gambia 360 ha
Investment $3.3 million
NPV 1.4 million
IRR 17%
Beneficiaries 1,200

Mauritania 360 ha
Investment $2.3 million
NPV $0.6 million
IRR 18%
Beneficiaries 1,200

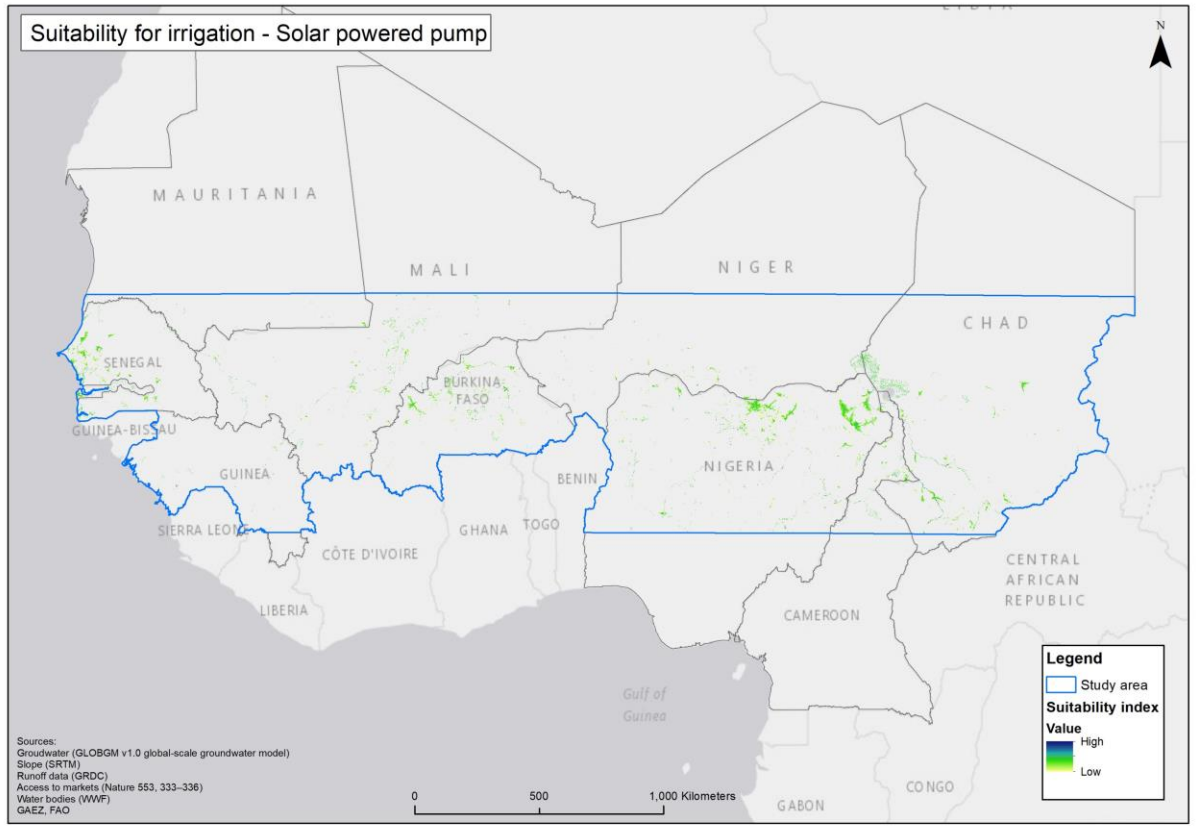
Niger 540 ha
Investment $3.2 million
NPV $4.2 million
IRR 25%
Beneficiaries 1,800

Mali 1,890 ha
Investment $21.8 million
NPV $16.2 million
IRR: 22%
Beneficiaries 6,300

Guinea 630 ha
Investment $5.8 million
NPV $2.0 million
IRR 13%
Beneficiaries 840

Burkina Faso 1,080 ha
Investment $16.7 million
NPV $10.2 million
IRR 19%
Beneficiaries 3,600

Cameroon 900 ha
Investment $8.2 million
NPV $7.4 million
IRR 25%
Beneficiaries 600



Source: FAO HiH-GIS analysis team

Senegal 2,880 ha
Investment $26.4 million
NPV $13.0 million
IRR 17%
Beneficiaries 5,760

Chad 1,620 ha
Investment $14.6 million
NPV $7.6 million
IRR 22%
Beneficiaries 5,400

Nigeria 3,240 ha
Investment $29.7 million
NPV $9.5 million
IRR 23%
Beneficiaries 6,480

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Irrigation in the Sahel – Type 3

Improved shallow irrigation with Solar powered irrigation pumps and small reservoirs

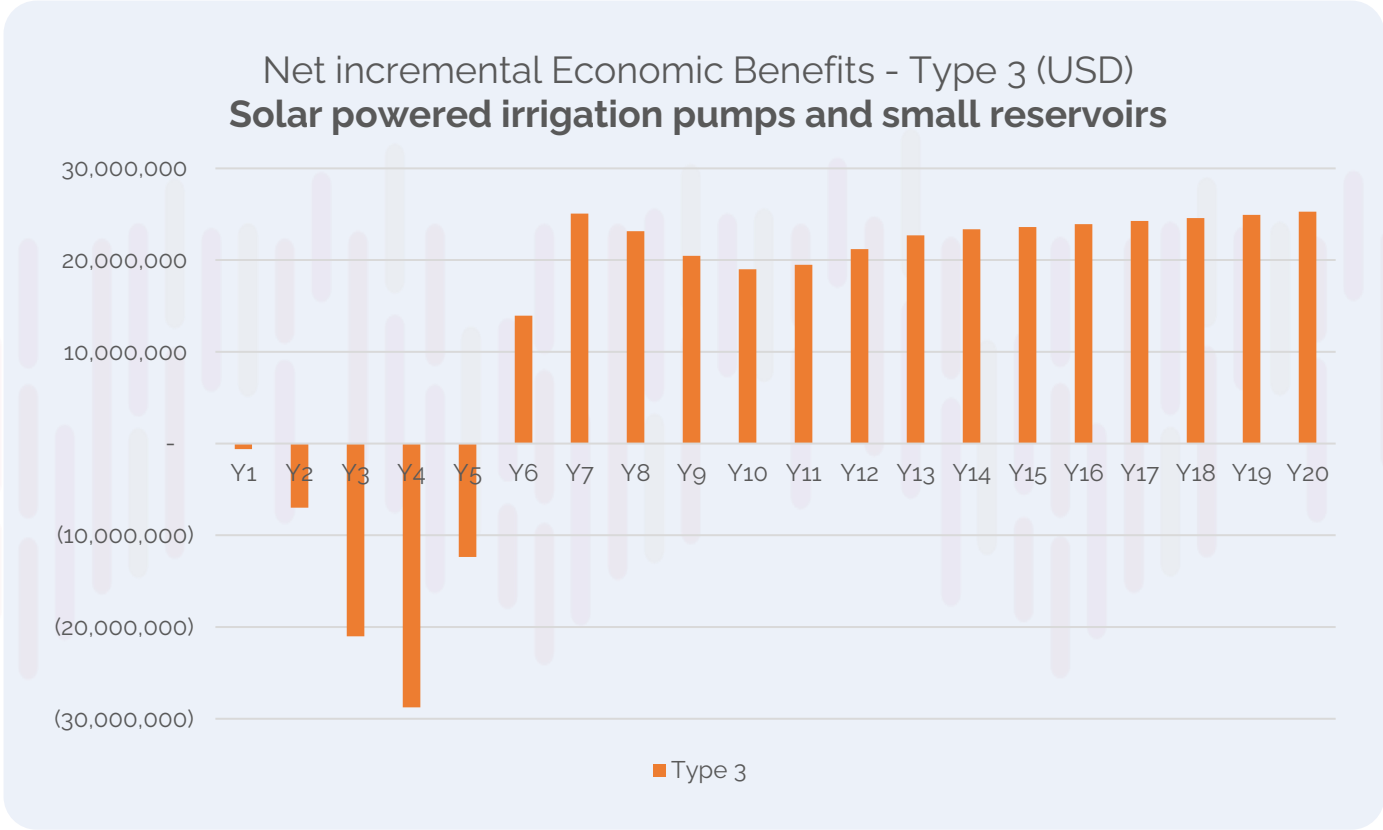
Total hectares targeted: **13,500**

Capital Investment required :
142.9 million USD , over five years,
including:
13.2 million USD as private investment (9%)

NPV: **102.1 million USD**

IRR (20-year): **21.4%**

Technology: rehabilitation or construction of small-scale water reservoir, with 20-year life cycle of solar panels and 4-year life cycle of pumps with a progressive adoption rate by small communities



Accounting for climate change impact: country specific reduction in yield according to climate hazards

S5
Part 2

Market Integration and trade: *main barriers*

Potential:

Market integration and trade is an engine of growth, development and food security

Regional trade has potential in stabilizing domestic food markets

Challenges:

- Limited diversification outside region / high levels of informal trade
- Distortionary trade policies, non trade barriers, weak transport and communications infrastructure, inefficient customs procedures
- Limited market infrastructure and non-market facilities
- Lack of political will and implementation of regional agreements

High import and export tariffs

Region/Country	Average duty on imports	Average duty on exports
Africa	**18.4**	**8.6**
ECOWAS	**14.2**	**5.6**
Burkina Faso	14.2	3.7
Gambia	16.4	5.1
Guinea	13.8	9.5
Mali	14.2	4.2
Niger	14.2	9.9
Nigeria	13.9	7.8
Senegal	14.8	8.3

Source: IFPRI, 2021

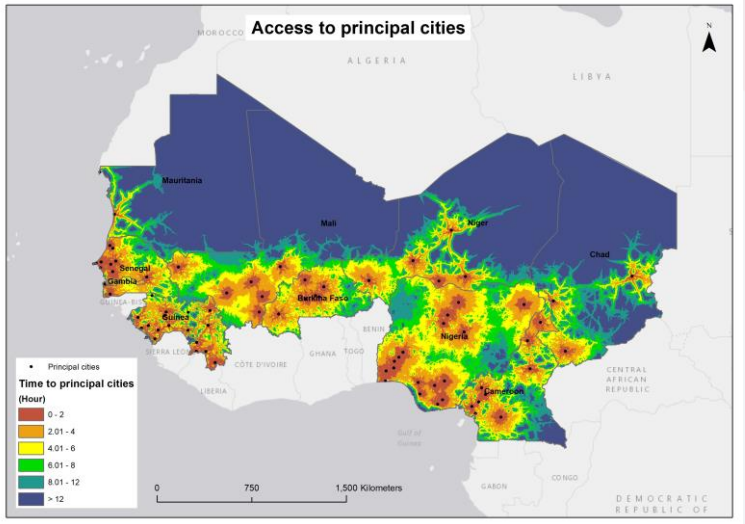
Non-tariff measures

Country	prevalence score	frequency index (%)
Burkina Faso	3.2	99.3
Cameroon	3.1	84.6
Gambia	11.2	90.4
Mali	5.5	100
Mauritania	3.9	89.8
Niger	3.1	94.8
Nigeria	8.8	100
Senegal	2.5	76.5

Source: Bouet, Bao et Traore (2020)

Transportation infrastructure

Domestic Transport Time (hours)*	Domestic Transport cost (USD)
30	671



*Sources: HiH Gis for the map & WB, Ease of doing business, 2020

Market Integration and trade: *measures to address barriers*

1 High import and export tariffs

Sole removal of tariffs can increase intra-African trade of food and agricultural products **20-30%**

Strengthening of the regional community to reduce tariffs.

Political collaboration to implement AfCFTA

Reduction of **50% on import and export tariffs** in the agricultural sector, **in three phases**, represents a **decrease in tariff collection** for all Sahel countries.
Cost per phase: ~389 million USD
Total cost: ~1.2 billion USD

2 Non-tariff measures

Measures to harmonize NTMs: removing NTBs and increasing the regulatory overlap of technical measures (harmonization, convergence, and mutual recognition).

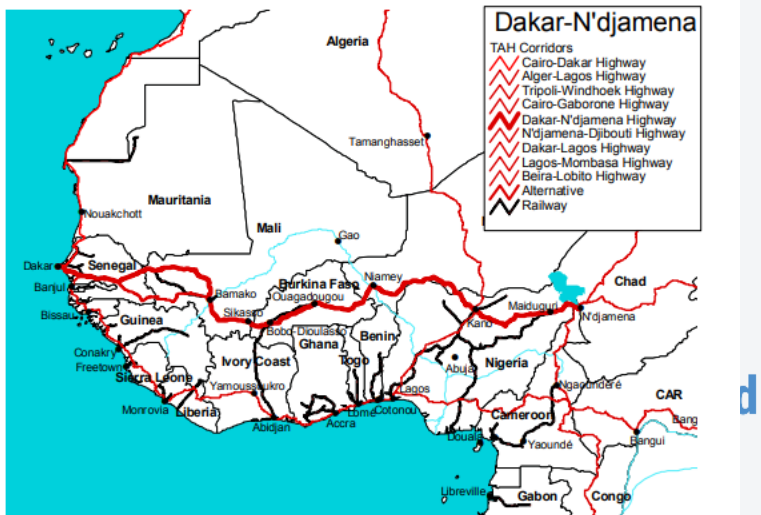
Political coordination in the region

Support the current functioning reporting mechanism for private sector to raise problems and to detect NTBs: tradebarriers.org

Costs incurred from reducing NTB's in 50% in three phases:
Cost per phase; 295 million USD
Total cost: ~858 million USD

3 Transportation infrastructure

Rehabilitation of corridors from fair to good: **Trans-African Highway 1, 3, 5, 6 and 7** from the Trans-African Highway network routes.
Total investment to build missing roads and rehabilitate current roads (5,467 kms): **~1.3 billion USD**
Implementation in 3 phases with a **cost per phase of 425 million USD**



Estimated benefits of Market integration and trade in the Sahel – Phase 1 (5 years)

Country	"Investments" by country for 1 phase in million $US	Estimated returns IRR (%)
Burkina Faso	30	76
Cameron	66	51
Chad	106	13
Gambia	16	5
Guinea	74	23
Mali	120	14
Mauritania	48	12
Niger	111	21
Nigeria	417	61
Senegal	122	20
Total	**1,109**	

Net Benefit Phase 1: $ 419 million USD per year

Integration in a 3-phase implementation over 20 years

Additional impacts / benefits:

50% reduction in transport costs and non-tariffs barriers can increase the region's GDP by **0.6%** (FAO 2022)

Extreme poverty reduction in West Africa attributable to AFCFTA: **12 million people** (WB, 2020)

Reductions in **poverty** in **Nigeria 7 million** and **Niger 5.4 million**

Removing NTBs can increase **wages** between **0.1-1.6%** (UNCTAD, 2018)

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Market integration and trade

Additional investment necessary to create market and non-market infrastructure:

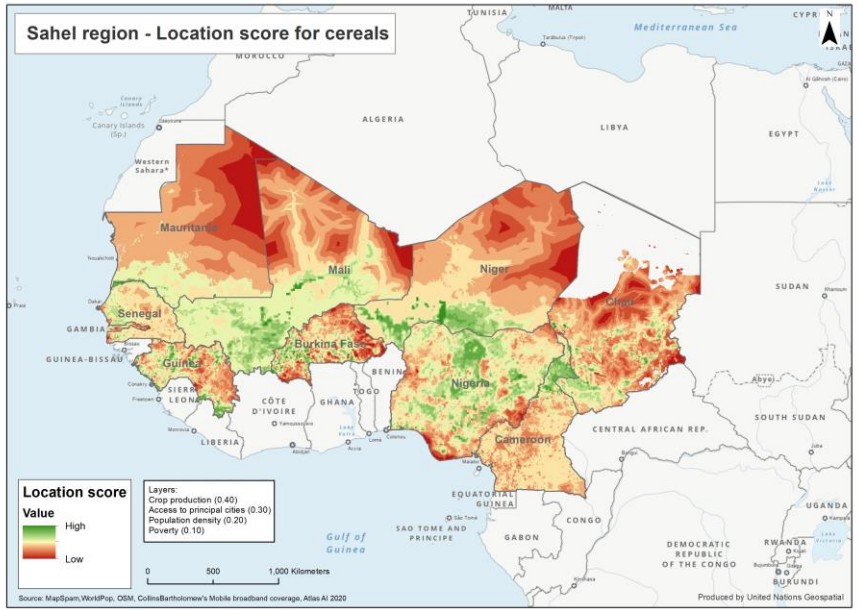
Development of agro enterprises, including MSME, such as agro-processing units, slaughterhouses, Cold storage facilities, collection centers for crops and dairy products

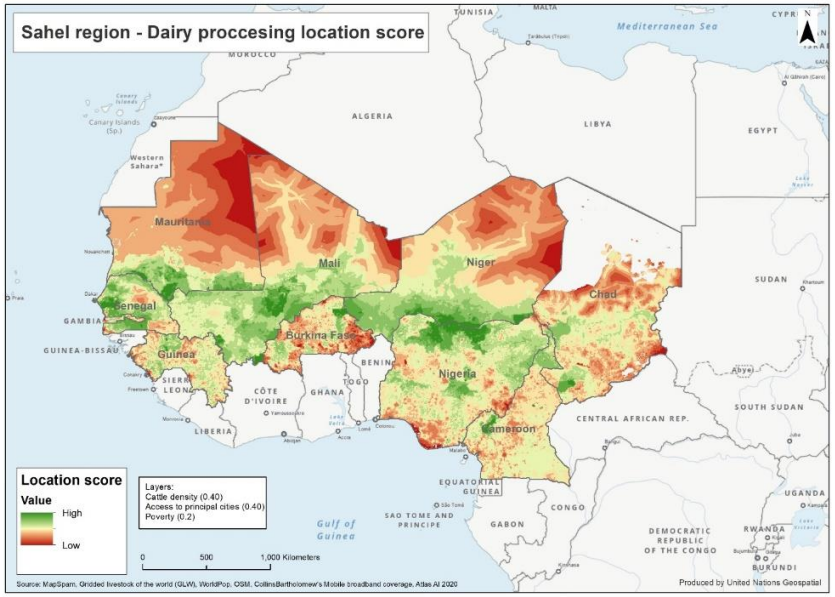
Supporting Agropoles (feasibility studies)

Supporting services (e.g. energy, water infrastructure, veterinary centers, telecommunications)

Related investment needs to be estimated!

Candidate locations for markets and supporting facilities





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SUMMARY SAHEL INVESTMENT PLAN

Hand-in-Hand Initiative

Total Investment
Irrigation: 536 Million USD
Market integration: 1.1 Billion USD

Average IRR
Irrigation: 21.3%
Market integration: 31%

Irrigation direct Beneficiaries: 749,748
Market integration Beneficiaries 48.9 million

498,692 MT
Co2e
Emissions

1

Intervention

Type 3: Community investment
Solar powered irrigation pumps

Cost (USD)
Total: **142.9 million**,
of which:
Private: **13.2 million (9%)**

Economic parameters:
IRR: **21.4%**
NPV: **USD 102.1 million**

Sustainability Benefits

Direct beneficiaries: 198,085 ind.

Indirect beneficiaries: 48,954 ind.

Average income increase per capita/ year: 176 US$

Net CO_2e sequestration (20-yrs): 114,149 mt

1

Intervention

Type 1: Community investment
Small reservoirs

Cost (USD)
Total: **376.6 million**,
of which:
Private : **34.0 million (9%)**

Economic parameters:
IRR: **18.0%**
NPV: **USD 169.8 million**

Sustainability Benefits

Direct beneficiaries: 542,154 ind.

Indirect beneficiaries: 135,519 ind.

Average income increase per capita / year: 477 US$

Net CO_2e sequestration (20-yrs): 371,860 mt

2

Intervention

Type 2: Private sector investment
Solar pumps

Cost (USD)
Total: **17.4 million**,
of which:
Private: **8.1 million (46%)**

Economic parameters:
IRR: **24.6%**
NPV: **USD 10.2 million**

Sustainability Benefits

Direct beneficiaries: 9,510 ind.

Indirect beneficiaries: 4,537 ind.

Average income increase per capita / year: 202 US$

Net CO_2e sequestration (20-yrs): 12,683 mt

3

Intervention

Market and trade integration - Phase 1

Cost (USD)

US$ 1.1 billion for Phase 1

IRR (%)

31%

Net Benefit

US$ 419 million

Sustainability Benefits

Direct beneficiaries: 48.9 million

Income increase per capita: 36 USD