



South Sudan Investment Cases

World Food Forum | Rome, Italy | 15-17 October 2024



Food and Agriculture Organization
of the United Nations



Hand-in-Hand
Initiative

South Sudan at a glance

Country area: 644 330 sq. km, 4% cultivated

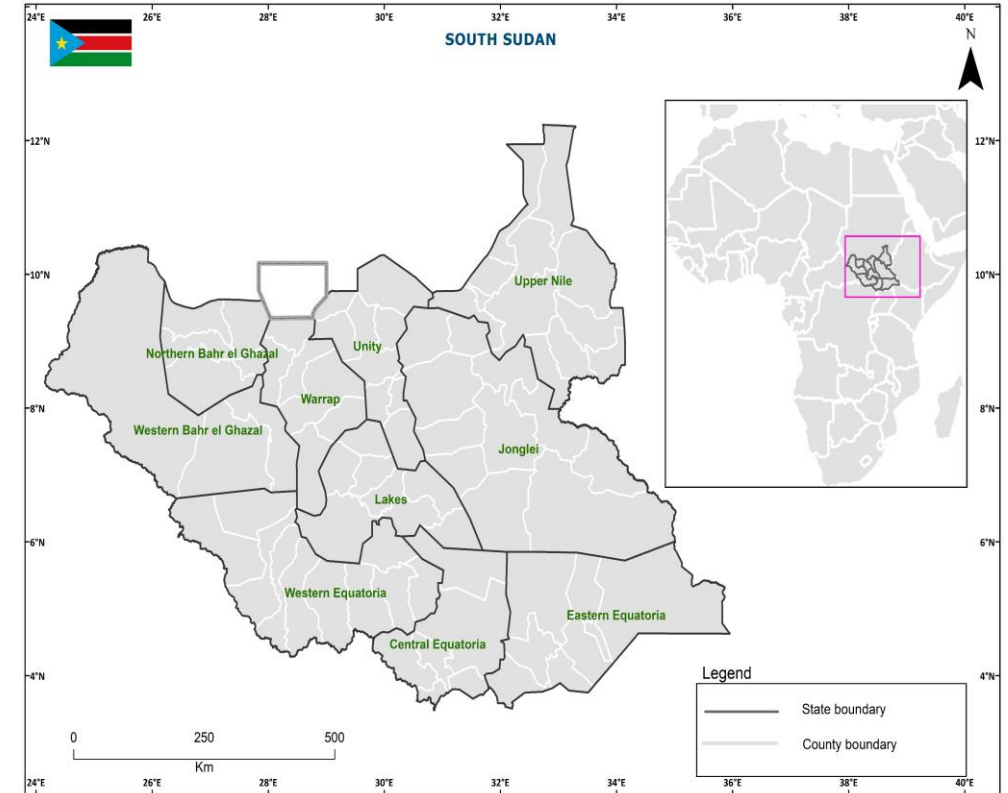
Population: 12.44 million (NBS 2021)

Agriculture: 15% of GDP, livestock 35 % of GDP and 36% of non-oil GDP

Employment in agriculture: 78% of total population

Livelihoods: 78% of rural population depend on farm crops and 70% on animal husbandry

Poverty rate: 82% of the population is classified as poor (World Bank, 2022)



Source: FAO, 2023

Update/Follow up from HIH Investment Forum 2023

Government of South Sudan mobilized USD 46.2 million from AfDB for rice, sorghum and fisheries value chains



Why invest in South Sudan?

UNTAPPED POTENTIAL FROM GROWING YOUNG POPULATION LIVING IN RURAL AREAS

Population growth rate (1.5%) above world average (0.9%).
Youth: 74% of the population

UNTAPPED POTENTIAL FROM AGRICULTURE LAND AND RICH ECOSYSTEM SERVICES

Over 80% of the land is suitable for agriculture - only 4% currently under cultivation (WB, 2022).

Agroecological conditions: High rainfall nine months per year, abundant water sources - high potential for irrigated agriculture.

Power generation from renewable resources has potential.

GOVERNMENT WILLINGNESS TO SUPPORT PRIVATE INVESTMENTS AND IMPROVE THE ENABLING ENVIRONMENT

Government is primarily concerned with supporting peace and promoting nation building in a step towards economic reconstruction.

Comprehensive Agriculture Master Plan (CAMP) - investment framework for agriculture with a long-term horizon of 25 years (2015-2040), including economic growth and livelihood improvement and agriculture sector transformation among others

Country COMPACT from 2022 focused on sorghum, sesame, rice and fisheries value chains **and food systems transformation agenda**



South Sudan: Country Food and Agriculture Delivery Compact - COMPACT

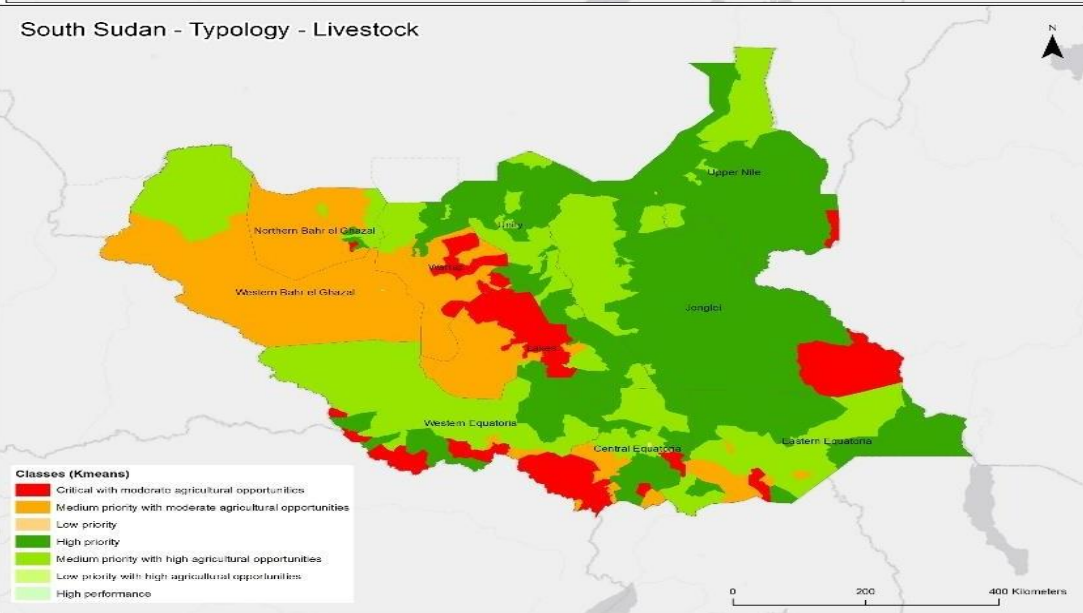
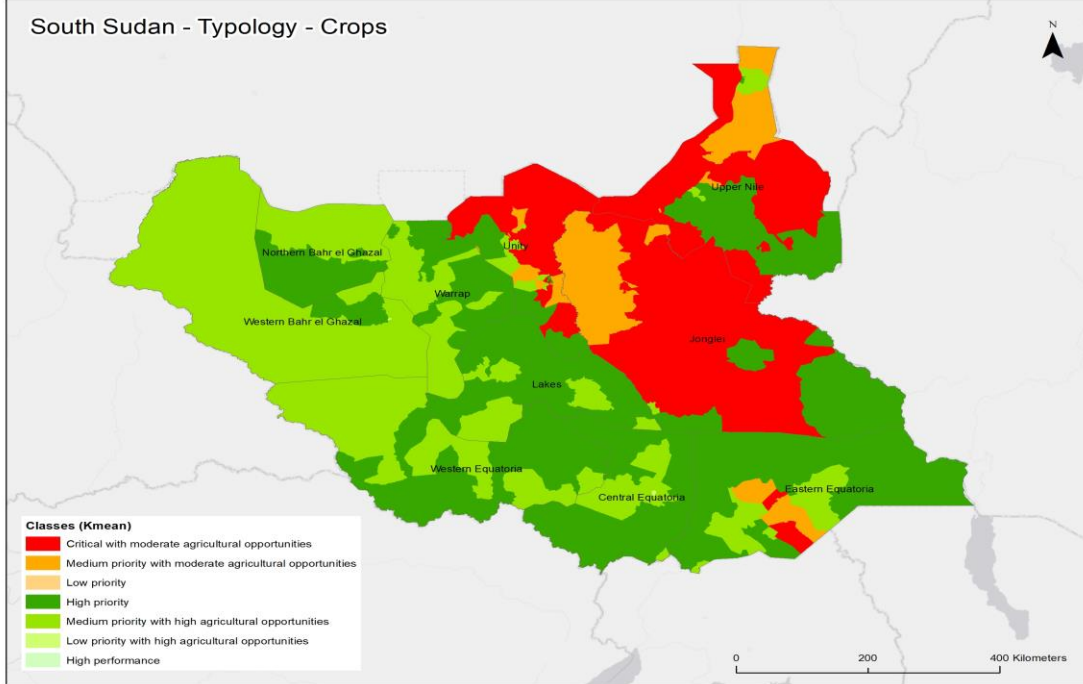
The vision of South Sudan 2040 prioritizes building a prosperous, productive and innovative nation; to be achieved through increasing agricultural productivity to enhance food and nutrition security.

COMPACT: 5 years Investment Plan aiming to transform agriculture and livestock into a thriving sector and a driving force for inclusive growth and economic diversification.

US\$ 1.15 billion dollar investments, four strategic value chains: Sorghum, Sesame, Fisheries and Rice.

The Hand in Hand initiative: enabling the identification mapping.





	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

FAO-Hand in Hand task force (2023)
Stochastic frontier analysis:

Typologies of territories identified based on poverty, agricultural potential, and efficiency to target investments and interventions in the framework of the Hand-in-Hand Initiative



Investing in Sorghum



Investing in Sorghum

Sorghum investment outlook

- National Sorghum production contributes to **76%** of the national food supply.
- Sorghum, accounts for about 70 percent of all cereals in the country, is a crucial staple crop for many South Sudanese and is widely cultivated throughout the country.
- About **80%** of HH grow sorghum (all States) with own seeds of local varieties.
- In 2022, national production reached **741 339 MT** in a production area of **759 469 hectares** - Yield is **0.98 MT/ha**.
- **Post harvest losses** are high – ranging from **40 to 50 percent** (source: FAO and WFP CFSAM 2023).
- South Sudan is the **6th largest importer** of sorghum in the **world**.
- Sorghum is the 4th most imported product in South Sudan.

Objective

- Increase sorghum production, storage and processing capacities.

Opportunities

- **Market demand.** Consumption of the crop takes many forms, the most widespread being sorghum flour to prepare flat bread (kisra), porridge (asseeda) and other meals. The country imported 132 551 MT - **\$26.3M**.
- **Highly resilient crop.** Community-based groups are already engaged in seed multiplication of locally adapted and well performing varieties.



Investing in Sorghum

Key bottlenecks

- **Low productivity:** households, less than 2 acres of land in rain fed mixed cropping system. Limited access to quality inputs – seeds, fertilizers, labour, equipment and financial services.
- **Poor road infrastructure:** lack of storage facilities contributes to high costs of transportation, high level of post-harvest losses and limited access to reliable markets.
- Inadequate and weak extension systems

Risks

- **Climate and environmental risks:** Climate change impacts sorghum yields, as well as access to energy, water and other key resources. In addition, an inadequate management of waste from production and processing activities could impact the environment.
- **Financial / market risk:** Reductions in sales price and increases in costs of inputs.
- **Institutional / political risk:** Insecurity and potential conflict in target areas



Key investments

- **Certified sorghum seeds production and propagation:** 2385 Ha for certified sorghum production with 5 storage, seed drying and laboratory facilities in priority locations. Provision of farm machinery, equipment's and quality inputs, rural feeder roads, training centers. Set up tailored microfinance services to farmers groups
- **Storage and hulling facilities:** 10 Storage and processing facilities in priority locations with support to out grower farmers for sorghum production (8335 ha).

Mitigation measures

- High quality seeds propagated and disseminated to out-growers, renewable energy powered technologies and training to meet product quality and processing standards and waste management.
- **Strengthening of producer organization:** to Improve planning and risk management through contract farming and purchasing inputs and selling products in group
- **Co-management arrangements:** Including local stakeholders that support surveillance and conflict resolution

Sorghum

Investment Proposal

Cost estimates (USD)

Total investment required, USD	64,077,925
Government contribution/investment (USD)	3,203,896

Beneficiaries and Financial Outcome

Total direct beneficiaries	45,664
Total indirect beneficiaries	228,320
Average per capita income increase (USD)	638

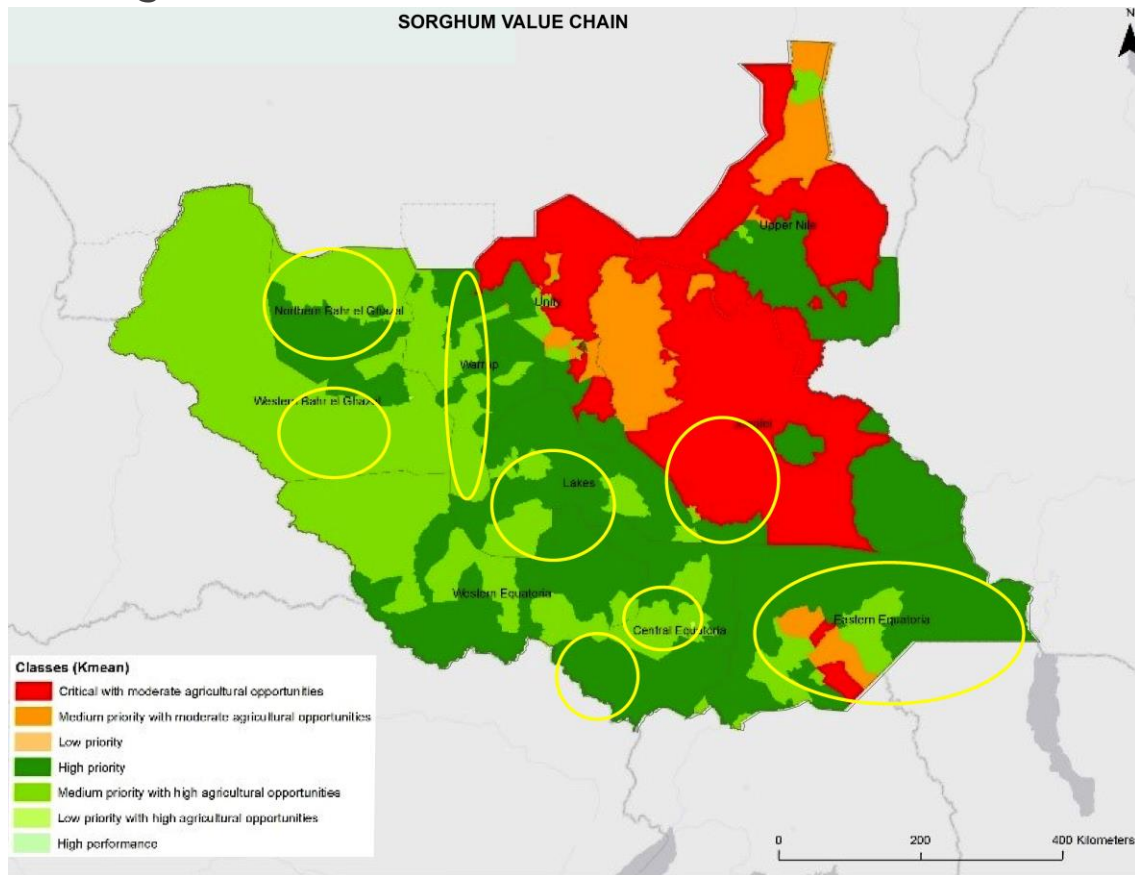
Economic analysis (10 years period and 10% discount rate)

Economic performance indicators

IRR	16.70%
NPV (USD)	7,669,633
B/C ratio	1.16
Investment payback period (years)	5

Priority locations

Wau in Western Bahr el Ghazal State
Warrap State
Aweil in Northern Bahr el Ghazal State
Yei in Central Equatoria State
Eastern Equatoria State
Lakes State
Bor in Jonglei State



Source : Stochastic frontier analysis FAO-HiH task force (2023)



Investing in Rice



Investing in Rice

Rice investment outlook

- Rice in South Sudan is ranked among the first four major staple cereals and is produced in **two types of rice production systems** (upland and lowland/paddy rice).
- In 2021, the country produced about **26 000 tons** of rice. **Yields vary from 0.4 to 1.6 MT / ha.**
- In 2021, South Sudan imported \$4 M in rice. Rice was the **62nd most imported product** in the country.

Objective

- Increase rice production, productivity and commercialization from **Aweil Rice Scheme (ARS)**.

Opportunities

- Domestic demand is growing at 23,000 tons/year and the average per capita consumption is projected as 3 kg/year (AfDB, 2013).
- Huge potential to increase efficiency and production scale to become competitive and substitute imports.



Key bottlenecks

- **Damaged rice farms and infrastructure** such as irrigation canals which need to be rehabilitated.
- **Lack of knowledge and practices:** in climate smart/resilient rice production techniques such as the promotion of integrated nutrient management, promotion of climate-smart/resilient rice varieties and maximizing water use efficiency in rice production, poor soil and water management practices.
- **Limited rice research and technology dissemination**
- **Rice quality:** lack of rice processing machineries, poor rice storage facilities, and poor access to credit facilities

Risks

- Climate change impacts rice yield, as well as access to energy, water and other key resources.
- **Financial / market risk:** Fluctuations in market price and increases in costs of inputs.
- **Institutional / political risk:** Insecurity and potential conflict in target areas. Sustainability of ARS.

Key investments

- **Infrastructure development:** Rehabilitation of rice irrigation canals, 4600 Ha under the Aweil Rice Scheme (1000 Ha in process with AfDB).
- **Upscaling access to sustainable improved rice inputs and services:** Development of sustainable improved rice seed and stock, increase mechanization. Promoting credit input schemes.
- **Climate smart and resilience rice production:** Demonstrate and introduce improved rice production techniques.
- **Provision of technical support** for the Aweil Rice Research Center (ARS).
- **Enhance marketing:** Rehabilitation of 25 km road access, introduction of small-scale post – harvest processing and value addition equipment for farmers groups and enterprises.

Mitigation measures

- **Climate Smart and Resilient Agriculture:** Improved seed varieties propagated and disseminated. Use of energy efficient and renewable energy technologies and training.
- **Strengthening producer organizations:** to improve their planning and market participation and collective bargaining power.
- **Co-management arrangements of ARS :** PPP, including local stakeholders that support surveillance and conflict resolution in target areas.



Rice

Investment Proposal

Cost estimates (USD)

Total investment required (USD)	25,965,953
Government contribution/investment (USD)	1,298,298

Beneficiaries and Financial Outcome

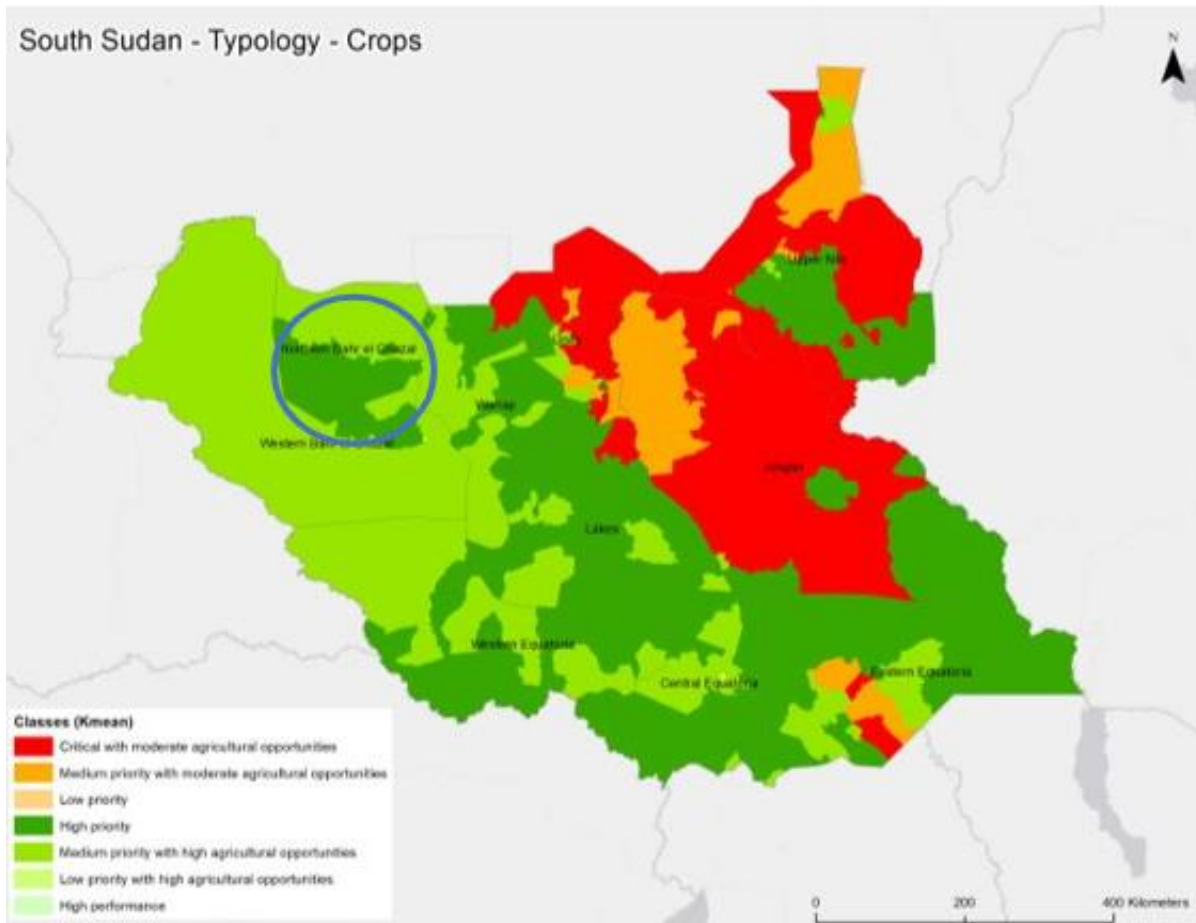
Total beneficiaries (Direct)	20,784
Total beneficiaries (Indirect)	103,920
Average per capita income increase (USD)	640

Economic analysis (10 years period and 10% discount rate)

Economic performance indicators

IRR	17.7%
NPV (USD)	5,532,513
B/C ratio	1.31
Investment payback period (years)	6

Aweil Rice Scheme



Source: Stochastic frontier analysis FAO-HiH task force (2023)



Investing in Livestock



Investing in Meat

Meat investment outlook

- Livestock production is agropastoral/pastoral system of local **nondescript** breeds.
- Meat plays a crucial role in the daily diets of most families, consumed during socio-cultural events, and serves as a vital food source during times of crop failure.
- In 2022, national production was **246 185 MT**
- **840 tons of bovine meat imported** to South Sudan in 2022.
- There are no meat packaging or processing facilities in South Sudan.

Objective

- Improve meat (from **cattle and small ruminants**) production, processing and commercialization.

Opportunities

- **Market demand.** increasing urbanization, increased income from salaried jobs lead to high demand on meat (3 % increase in meat products/year).
- **Large population of livestock reared :** Availability of suitable land for livestock rearing (including pasture, water and conducive weather conditions)



Investing in Meat

Key bottlenecks

- **Low production and productivity** due to limited access to quality inputs, credit and seasonal cattle migration.
- **Limited offtake:** Traditional perceptions/practices - pastoralist view livestock as assets and reserves and they are kept for numbers
- **Poor hygiene,** lack of slaughter and processing facilities and skills, and lack of electricity.
- **Limited access to markets** due to poor roads and market infrastructure.

Risks

- **Climate and environmental risks:** Climate change impact on available feed and water.
- **Financial / market risk:** fluctuation in sale prices and increase in inputs cost.
- **Institutional / political risk:** Insecurity and potential conflict in target areas among livestock keepers and with crop farmers regarding land.

Key investments

- **Livestock breed improvement,** artificial insemination (75000 improved semen straws), introduce hybrids (8 exotic bulls). Introduce animal husbandry technicians to 50000 progressive farmers to enhance productivity and production of native breeds.
- **Expand** existing private agroveterinary suppliers (05), shops (42) and private animal health providers.
- **Introduce** appropriate fodder and feed production and processing and rangeland management. Expanding natural rangeland pastures, cultivated fodder crops (50000Ha). Processing residues from sorghum, sesame, fisheries, rice and other crops. Introduce use of feedlots technology.
- **Establishing meat marketing and processing** facilities : 3 auction yards and 3 modern slaughterhouses.
- **Improve access to water** harvesting infrastructure (14 water catchment basins) and solar powered boreholes (38)

Mitigation measures

- **Improved livestock production practices :** Enhancing sustainable feed production, improving management of grazing areas. Improve livestock health and Introduce breeds which are adapted to climatic conditions.
- **Strengthen marketing:** Improve auction yards, meat preservation, slaughtering and processing for value addition. Strengthen capacity of groups/cooperatives/SMEs in marketing.
- **Co-management arrangements :** Participatory intervention with livestock keepers and farmers on conflict management in target areas.



Investing in Milk

Milk investment outlook

- In 2022 milk production was 3.45 million tons, down from 3.66 million tons in the previous year.
- Milk is a vital component of the South Sudanese' diets, enjoyed both fresh and fermented.
- South Sudan imported US\$6.56M of concentrated milk in 2021. Milk powder imports increased from 99 tons in 2013 to 4,386.53 tons in 2022, an average annual rate of 163%.



Objective

- Improve milk production, processing and commercialization.

Opportunities

- Growing local demand for fresh and processed milk byproducts, most of which are currently imported.
- **Potential to sustainably increase production and productivity.** Large livestock population and suitable agroecological conditions to improve production and productivity of milk and by-products to serve the local market.

Investing in Milk

Key bottlenecks

- **Low productivity** limited access to inputs, improved livestock breeds, veterinary and extension services
- **Poor livestock management and market access:** traditional husbandry system. Seasonal livestock movement away from markets in search of water and pasture
- **Underdeveloped processing and storage facilities,** hygiene and food safety issues, leading to post-harvest losses and limiting marketing options

Risks

- **Climate and environmental risks:** Frequency and intensity of droughts and floods impacts on feed and water resources, increased pests and diseases occurrence.
- **Financial / market risk:** Fluctuations in sales price and increases in costs of inputs.
- **Institutional / political risk:** Insecurity and potential conflict in target areas



Key investments

- **Livestock breed improvement,** establishment of 2 liquid nitrogen plants for provision of artificial insemination.
- **Improved fodder and feed production :** Provide 600 hay baling equipment and 300 fodder choppers. Set up 6 livestock feed processing plants (15 Tons/hour capacity)
- **Water harvesting infrastructure :** 10 water catchment basins of 40,000 m³ and 20 solar power boreholes with elevated tanks of 3000 liters
- **Set up 5 milk collection centers and 5 milk processing plants in** Kapoeta, Juba, Wau, Aweil and Kuajok

Mitigation measures

- **Sustainable fodder and feed production and disease control :** Enhancing feed production and processing and veterinary services provision.
- **Strengthening of producer organizations:** collective market participation and bargaining power, enhance milk preservation and processing for value addition.
- **Co-management arrangements:** Participatory intervention with livestock keepers and farmers on conflict management in target areas.



Investing in Poultry

Poultry investment outlook

- Poultry production in South Sudan is primarily free range system. Around 6.05 million chicken are produced annually. Currently there are 20 small scale and 2 medium scale commercial producers mainly located around Juba.
- Poultry meat and eggs are essential food sources for socio-cultural and religious events.
- In 2022, South Sudan imported 2 668 tons of poultry meat down from 3 882 tons in previous year, mainly frozen chicken, a decrease of 31.26%.

Objective

- To increase poultry production, processing and commercialization.

Opportunities

- **High market demand** in towns and urban centers.
- Low initial investment cost
- Poultry production can easily be managed by **women and youth** and other disadvantaged groups to provide employment and livelihood.
- Quick turn over (for broilers 8-10 weeks)
- Emergence of seed oil processing factories and grain millers in South Sudan (providing seed cake and grain bran for poultry feeds)



Key bottlenecks

- Limited access to Day-old chicks, and other value chain services.
- Lack of availability of locally produced poultry feeds.
- Groceries/supermarkets or hotels require regular supply of chicken and eggs.
- Limited access to cold storage for slaughtered chicken.

Risks

- **Climate and environmental risks:** Climate change impact on available feed and increase diseases.
- **Competition with import:** from neighboring countries and international markets.
- **Institutional / political risk:** Insecurity and potential conflict in target areas



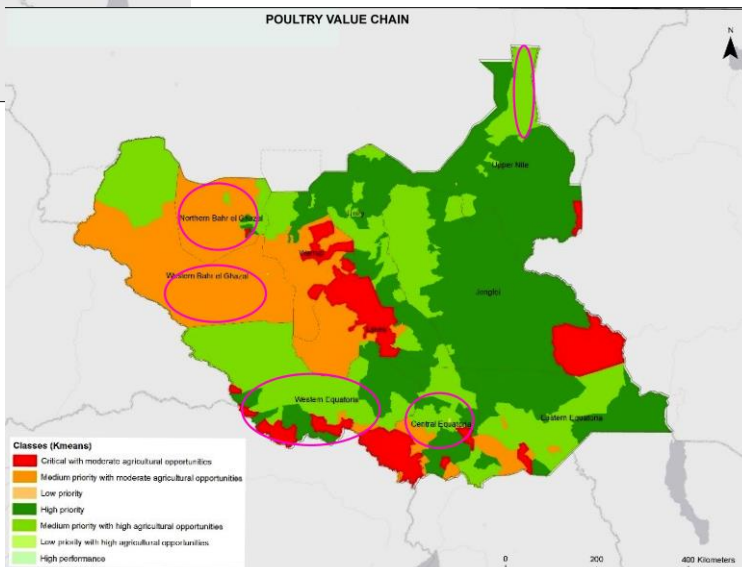
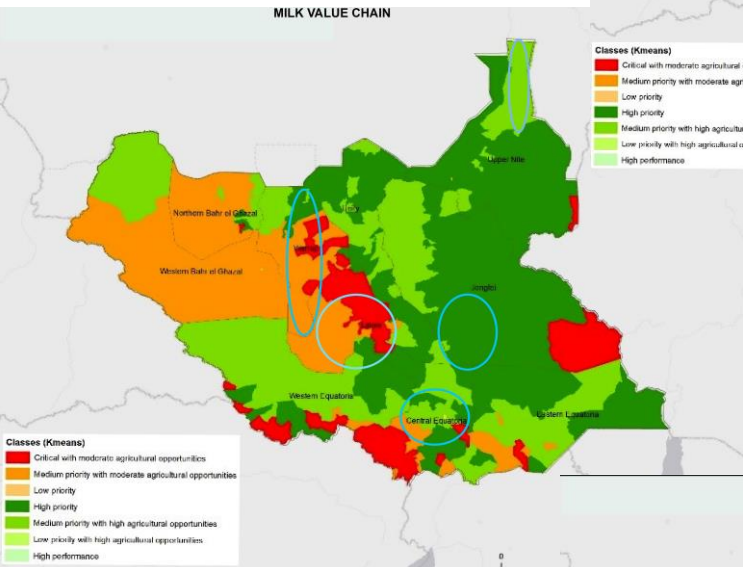
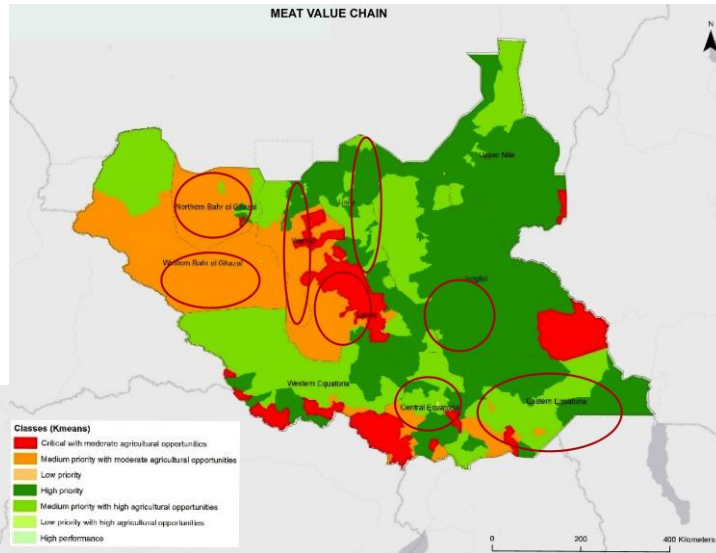
Key investments

- **Installation of 5 hatcheries** for production of day old chicks (broilers and layers).
- **Set up 1 poultry feed processing mill (2 tons/hour)**, from locally produced grains including residues and byproducts from sorghum, sesame, fisheries and rice.
- **Set up 5 marketing cooperative/SMEs:** for regular improved market supply, including outgrower schemes.
- **Establishment of 5 poultry slaughterhouses** for hygienic slaughtering, processing of packaging and storage (cold chains) for smallholder farmers and poultry outgrowers.

Mitigation measures

- **Improved poultry production practices** : breeds and housing structures adopted to climate extremes, manure management, and animal health services.
- Poultry feed as the largest cost in poultry production, will be produced from local crops and byproducts.
- **Strengthening of producer organizations:** collective market participation and bargaining power, enhance poultry preservation and processing for value addition.
- Co-management arrangements: Participatory conflict management in target areas

Priority locations



Source: Stochastic frontier analysis FAO-HiH task force (2023)



Livestock

Investment Proposal

Cost estimates (USD)

Total investment required (USD)	164,390,800
Government contribution/investment (USD)	8,219,540

Beneficiaries and Financial Outcome

Total direct beneficiaries	442,596
Total indirect beneficiaries	2,212,980
Average per capita income increase (USD)	945

Economic analysis (10 years period and 10% discount rate)

Economic performance indicators	
IRR	19.41%
NPV (USD)	61,555,749
B/C ratio	1.22
Investment payback period (years)	7

Scaling up Fisheries Investment



Invest in Fisheries

Fisheries investment outlook

- South Sudan has abundant inland fisheries resources and produces about **265 000 tons / year**. 1.7 million people depend directly on fisheries for their livelihoods.
- Fish: essential source of protein in the daily diet, significantly contributes to food security, particularly during times of crop failure or food shortages in the country.
- Potential sustainable yield from wild fisheries is conservatively estimated in the order of **300,000 tons/year**, worth about **USD 300 million per year**. States with abundant fisheries resource including Eastern Equatoria (Nimule), Central Equatoria (Terekeka), Upper Nile, Jonglei, Unity, Northern Bahr el Ghazal, Warrap, and Lakes.
- About **70% of the fish catch is processed** in fishing camps and villages by **smoking, sun drying and salting**. The rest is sold fresh whole.
- **Post-harvest losses overpass 60 %** of the total fish catch due to improper handling, storage, processing and transport. (FAO and WB fisheries assessment 2023)
- **Export of dried fish to DRC and Uganda has significantly increased over the last 2 years** due to enhanced road infrastructure. Estimated that fish export currently earns 30 million USD in export earning. **To be upscaled.**



Objective

- Increase the capacity and value of capture fisheries to cover growing demand from **domestic and export markets**.

Key activities and priority locations

- There is high potential in three areas of the Nile-Sobat corridor:
- *Fisheries development along the Sobat River, including: fishers from Akobo, Ulang and Nasir (all in Upper Nile State); landing sites in Malakal (Upper Nile State), Nasir and Bor (Jonglei); and **enhanced market access** in the region and to Juba (CES).
- *Fisheries development along the White Nile from Terekeka (CES) to Nimule (Eastern Equatoria), including: fishers support and landing sites in Terekeka and Nimule and **enhanced market access** in the regions and to Juba (CES).
- *Fisheries development in the upper Nile-Sobat basin, including: fishers support and landing sites in Tonga (Upper Nile), New Fangak (Unity State) and Rubkena (Unity State); and **enhanced market access** in the region, mainly through Bentiu (Unity State) and Malakal.





Key bottlenecks

- **Limited access** to improved fishing gear and boats.
- **62% of the total fish catch is wasted/lost** due to lack of cold chain or improved preservation technology, banking and finance services and other value chain services.
- **Low level of road infrastructure in some of the fishing areas.** Rain seasonality having a strong influence on fish catch and transport.
- Lack of fish processing plants/value added, such as fish flour which is in high demand for food assistance/aid.
- **Poor Sanitary standards and traceability along the value chain.**
- **High transportation costs** due to poor infrastructure.

Risks

- **Climate/environmental risks:** Incidences of extreme climate events such as droughts and floods.
- **Financial/market risk:** Fluctuations in sales price, lack of access to banking, finance. High inflation.
- **Institutional/political risk:** Insecurity and potential conflict in target areas

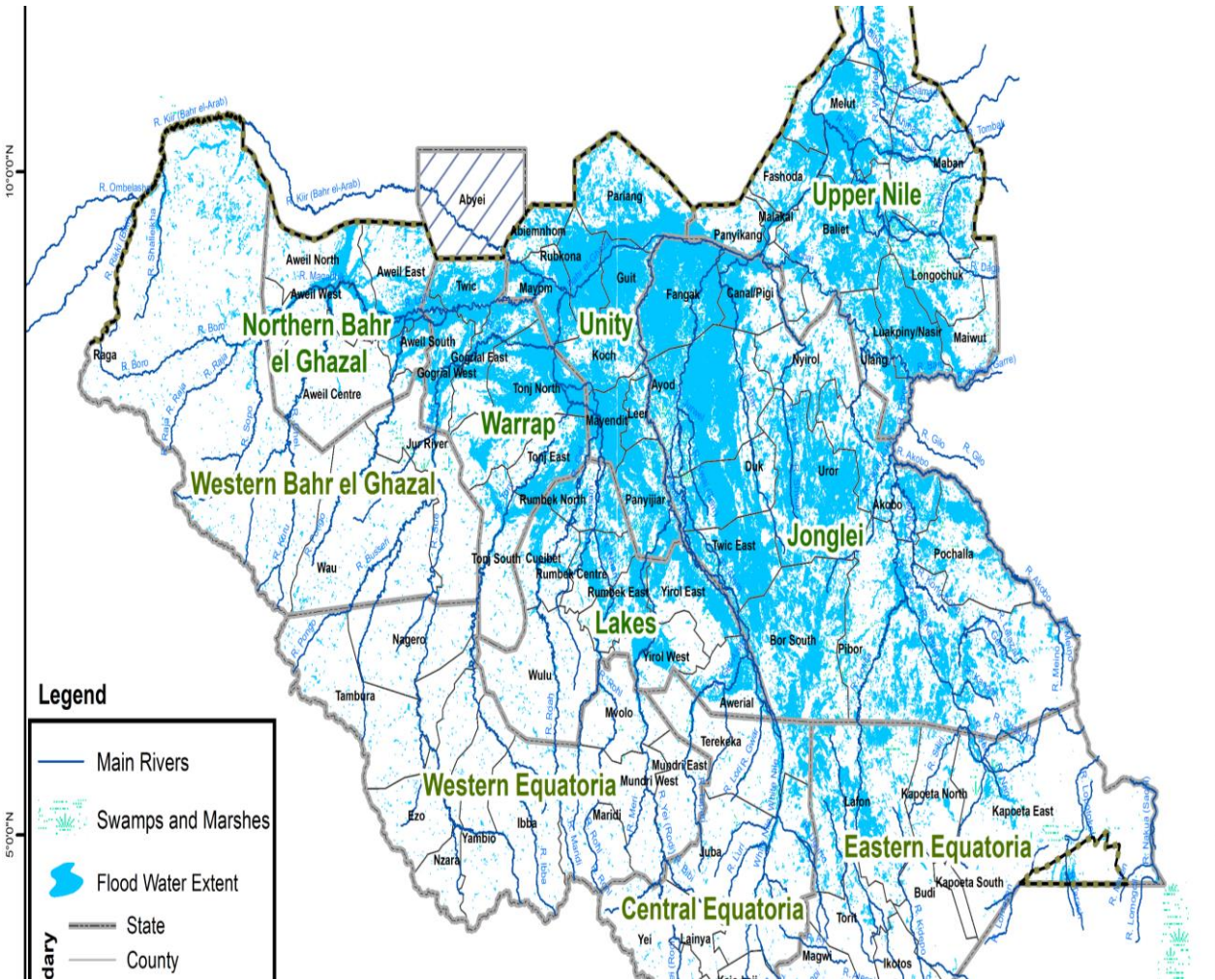
Key investments

- **Provide materials and supplies to fisherfolk:** including 254 canoes, 84 motorboats, appropriate mesh size nets.
- 1170 sets of fish processing equipment, 90 smoking units, 100 solar dryers, generators, ice machines, refrigerators. Set up quality and standard control system.
- **Improved fish transport equipment:** 12 refrigerated trucks, 6 container boats, and 12 dry trucks.
- **Improved access roads from 5 fish landing sites** (Bor, Malakal, Adok, Terekeka, and Renk) to fish market/main roads.
- **Set up 3 Fish flour processing plants** (1.5 tons/plant/day).

Mitigation measures

- Promotion of climate smart technologies and improved road and drainage.
- Improve access to market information through dissemination of targeted SMS message delivery at fishing camps, radio broadcasts public announcements through FM radio on demand, availability and fish price.
- Community ownership and buy-in to minimize conflict

Flood prone fishing areas



Source: FAO, 2023



Fisheries

Investment Proposal

Cost estimates (USD)

Total investment required (USD)	24,806,592
Government contribution/investment (USD)	1,240,330

Beneficiaries and Financial Outcome

Total beneficiaries (Direct)	9,594
Total beneficiaries (Indirect)	47,970
Average per capita income increase (USD)	1,621

Economic analysis (10 years period and 10% discount rate)

Economic performance indicators

IRR	21.65%
NPV (USD)	3,509,518
B/C ratio	1.16
Investment payback period (years)	5



Summary

Total Investment : USD 280 M
Government investment : USD 14 M
Investment Gap : USD 266 M

16-23 %
Range of IRR

USD 79 M
NPV

~3.11 M
Total
beneficiaries

~USD 918
Average per
capita income
Increase

~3.03 M tCO₂eq
Emission
Reduction over
20 years

Sorghum

Total investment: USD 64.08 M
Government support : USD 3.20 M
Investment Gap : USD 60.88 M

IRR (%): 16.70
NPV: USD 7.7 M

Direct Beneficiaries – smallholder
farmer households: 45,664

Indirect beneficiaries : 228,320

Average per capita income
increase : 638 USD/year

Employment (direct and indirect):
43,520 jobs

Rice

Total investment USD 25.97 M
Government support USD 1.3 M
Investment Gap : USD 24.67 M

IRR (%): 17.17
NPV: USD 5.53 M

Direct Beneficiaries-
smallholder farm households:
20,784

Indirect beneficiaries : 103,920

Average per capita income
increase : 640 USD/year

Employment (direct and indirect):
19,800 jobs

Livestock

Total investment USD 164.39 M
Government support USD 8.22 M
Investment Gap : USD 156.17 M

IRR (%): 19.41
NPV: USD 61.56 M

Direct Beneficiaries –farmer
households: 442,596

Indirect beneficiaries : 2,212,980

Average per capita income
increase : 945 USD/year

Employment (direct and indirect):
421,520 jobs

Fisheries

Total investment USD 24.81 M
Government support USD 1.24 M
Investment Gap : USD 23.57 M

IRR (%): 21.65
NPV: USD 3.51 M

Direct Beneficiaries –
fisher households : 9,594

Indirect beneficiaries : 47,970

Average per capita income
increase : 1,621 USD/year

Employment (direct and
indirect): 9,360 jobs