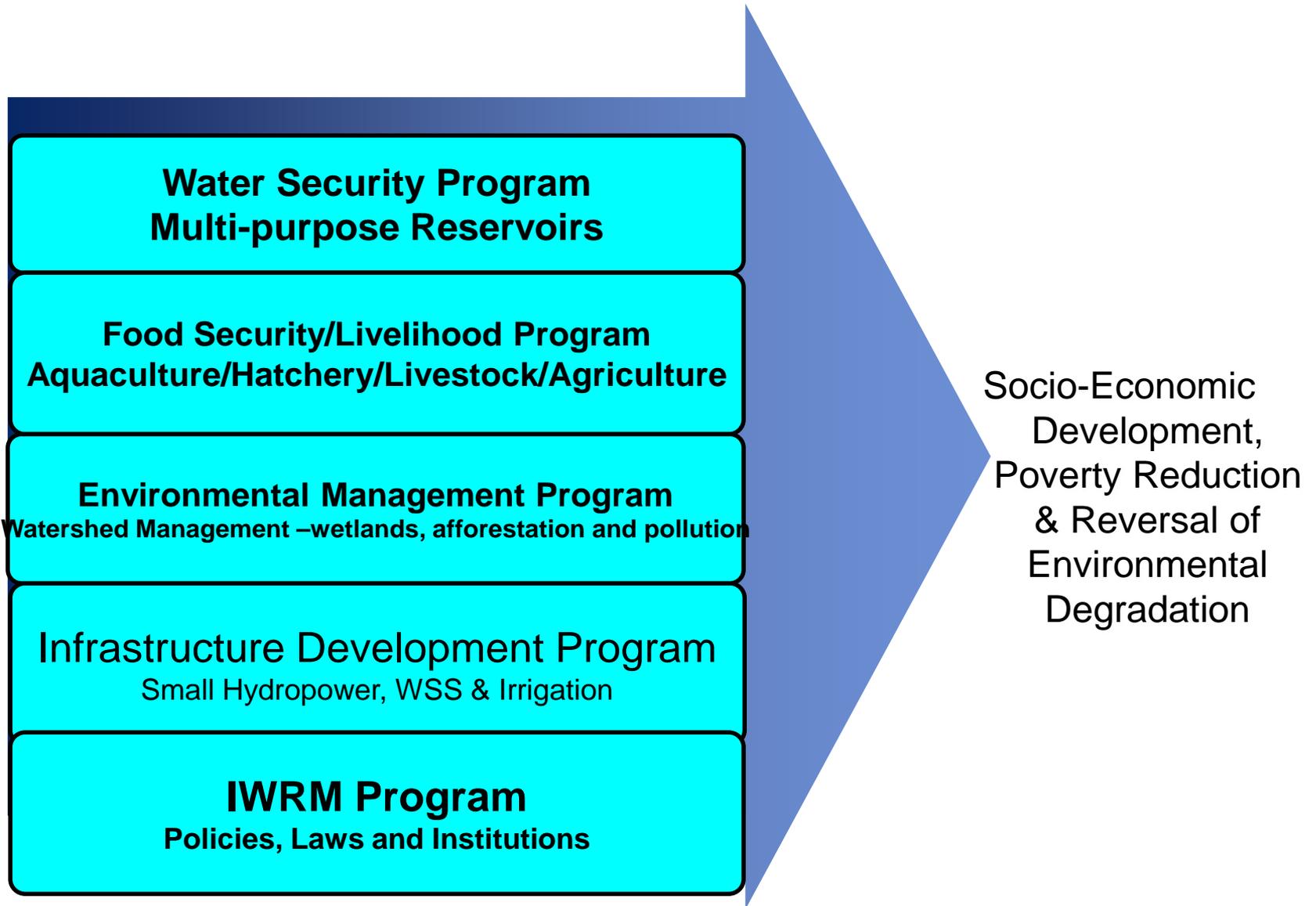




PROPOSED INFRASTRUCTURE INVESTMENT PROJECTS

SIO-MALABA-MALAKISI SUB BASIN.

SMM Investment Strategy



SMM Investment Strategy

■ Objectives of Investment Strategy:

- Identify broad investment areas and intervention measures to address transboundary water resources issues and challenges in the SMM catchments and stimulate environmentally sustainable socio-economic development.
- Develop a participatory investment implementation strategy consistent with the national planning principles and processes.

Water Security Program

- Multi-Purpose Storage Reservoirs for irrigation development, flood Mitigation, water supply, HEP development.

Infrastructure Development Program

- Small Hydropower Development Projects.
- Water Supply and Sanitation Project (Gravity Flow Schemes, Urban Water Supplies, Sewerage Systems, Urban Storm Water Drainage)
- Irrigation Development.

Environment Management Program

- Watershed Management/Catchment Afforestation Project.
- Wetland Management Project.
- Water Quality Management - Pollution Control Project/Solid Waste Management.

Food Security

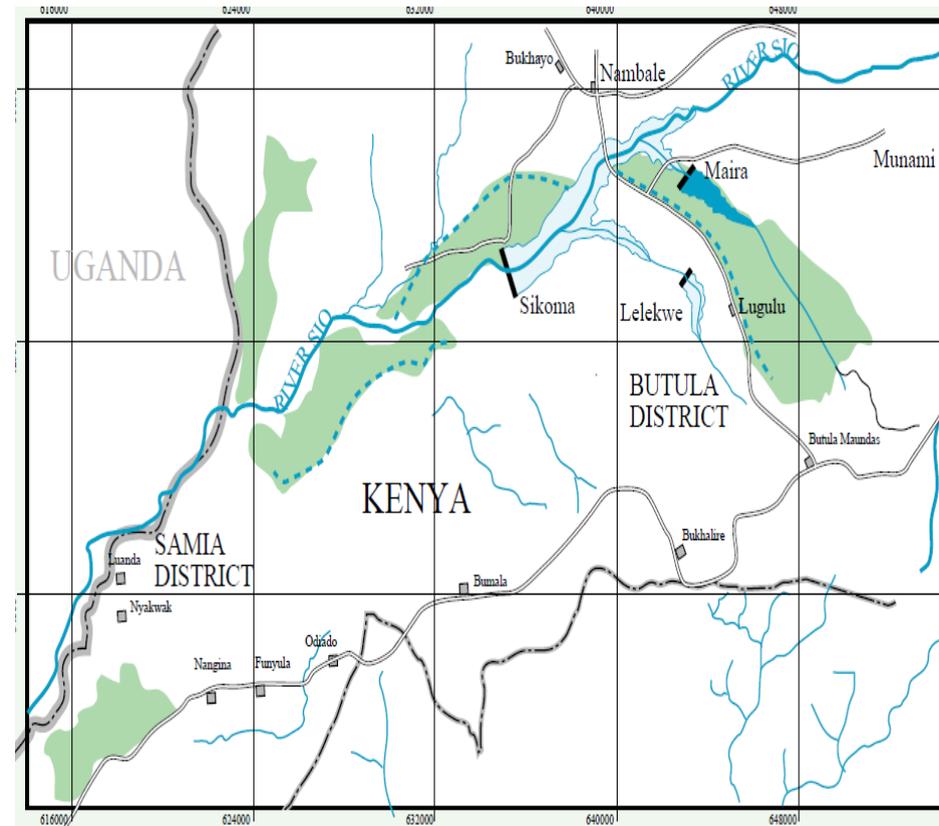
- SMM Transboundary Fisheries Project -Aquaculture Development and Regional Hatchery Development Project.
- Enhanced Agricultural and Livestock Production Project.
- Infrastructure for Market Access to improve Production

Prioritized Potential Dam sites

Proposed Dam	Dam Type	Dam Height (M)	Dam Capacity MCM
Amagoro	Composite	15	170
Sikoma	Composite	14.5	51.8
Kocholia	Composite	43	66.9
Angolola	Composite	22	13
Bulusambu	Composite	10	19.4
Auyo	Earthfill	10	50.1
Sio-Sango	Composite	18	6.2
Nyamatunga	Composite	14	2.0
Maira	Earthfill	6.29	11
Kwangamur	Earthfill	12	9.2
Nyabanja	Earthfill	12	11.8
Pokach	Earthfill	12	11.1
Lerekwe	Composite	16	5.8

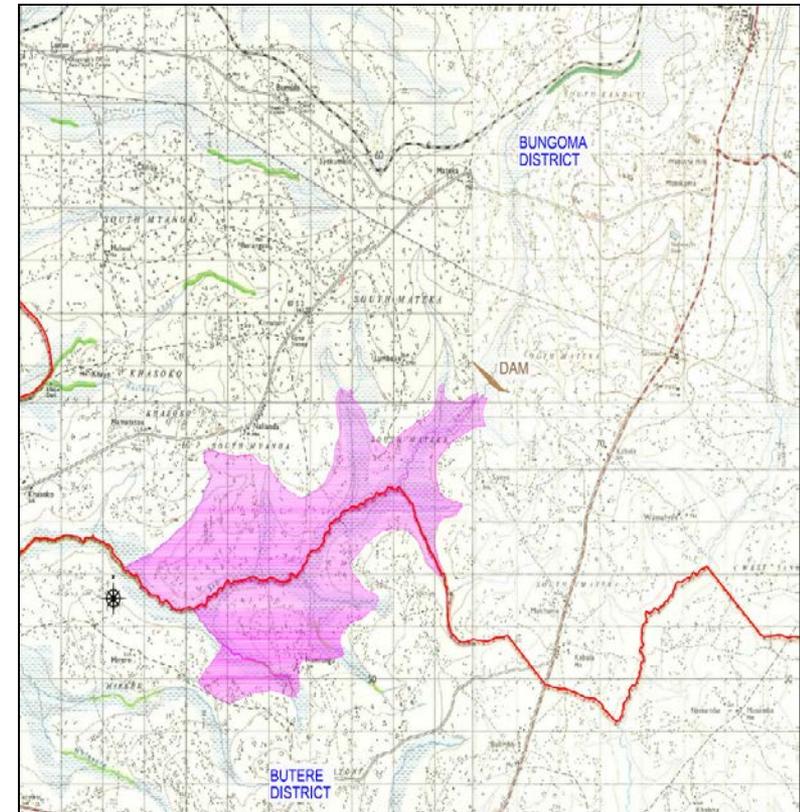
Maira/ Lower Sio Multipurpose Water Resources Development Project

- Unreliable rainfalls (low agricultural productivity/household food insecurity/persistent famine)
- 2000 ha of irrigation land (Lower Sio Irrigation Scheme) under development (National Irrigation Board)
- Dam height 11 m , capacity 6.2 MCM
- Water Security ensured – Water Storage
- Facilitating economic empowerment of local communities in the sub basin
- Contributing to Kenya’s Vision 2030
- Stabilizing national agricultural production,
- Improving land and water resources productivity,
- Benefit 3,000 people



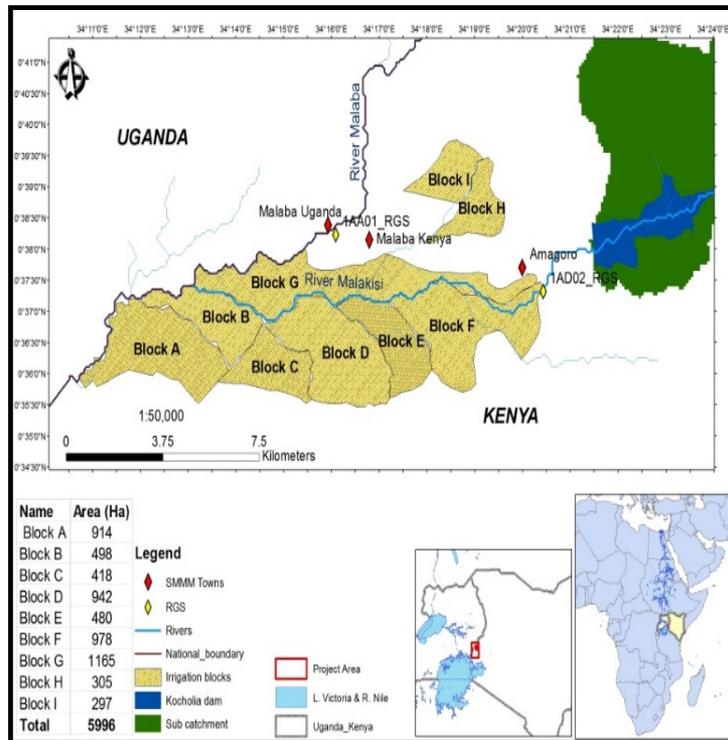
Sio-Sango Irrigation Development and Watershed Management Project

- Sio-Sango site is located on River Sio, Namulungu (Kakamega) and Kabula (Bungoma) county's
- Project consists of a dam and an irrigation scheme
- 24m height earth fill embankment dam, with a storage capacity of 3.92 MCM;
- 1,790 ha of irrigated agriculture;
- Mini-hydropower component of 206 kW;
- Water supply system to serve 20,000 people by 2035;
- Flow regulation for drought and flood control functions;
- restoration of degraded upstream sub-catchments.
- Investment requirements US\$ 37.2 million



Kocholia/Amoni Amagoro Horticultural & Food Crops Value Chain Development project

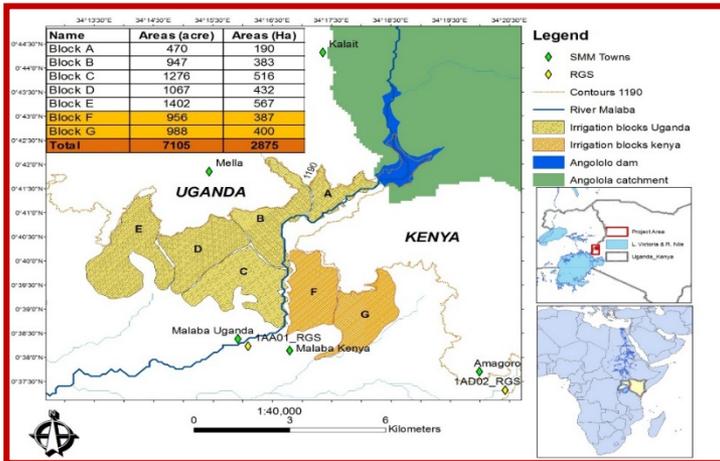
Layout of Kocholia /Amoni-Amagoro Scheme



- Project consists of a dam and an irrigation scheme covers Amoni –Amagoro , Teso North .Busia County, Kenya.
- Kocholia dam site is located on River Malakisi
- The Project lies within the sectoral plans for Kenya and is part of the investment programs prioritized by Kenya for implementation.
- 43m height composite dam, with a storage capacity of 66.9 MCM;
- 4,000 ha of irrigated agriculture(food security/improved incomes; benefit 5,000 people.
- Hydropower component of kW; 1091
- Water supply system to serve 16,000 people by 2035;
- Flow regulation for drought and flood control functions;
- Restoration of degraded upstream sub-catchments.
- Investment outlay 56.9Million usd

Shared Angololo multipurpose water resources development project

- Layout of Angololo

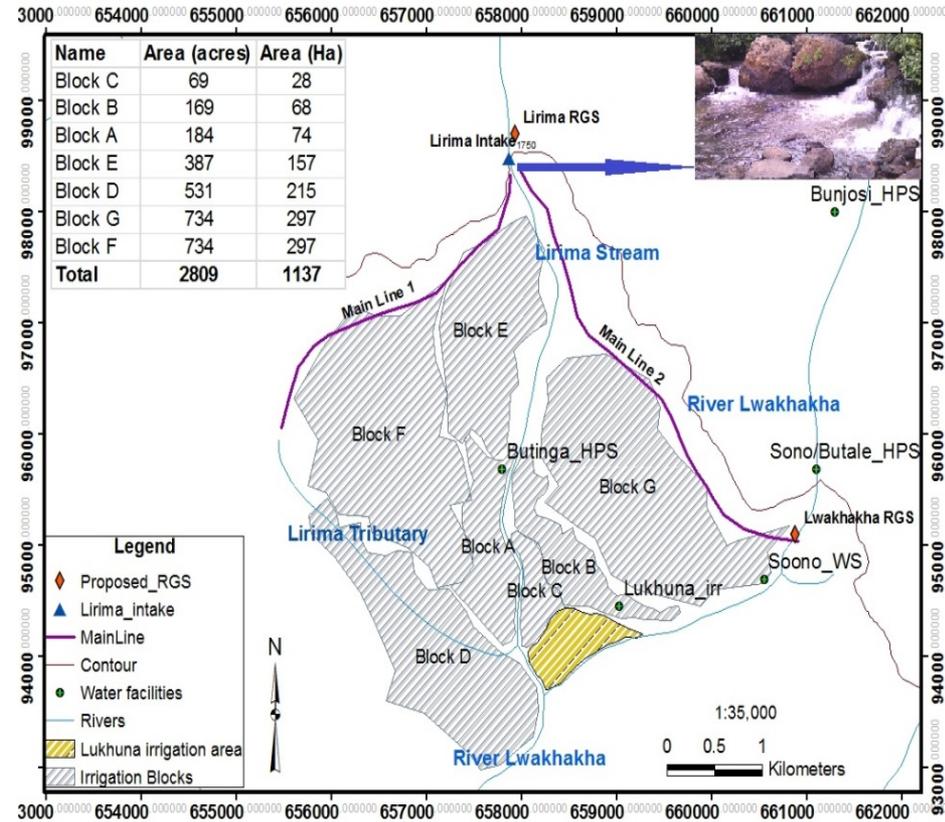


- Angololo project is located on River Malaba shared between Kenya and Uganda.
- It covers Osajai and Kamuria locations in Teso North , Kenya and Mella sub county in Tororo, Uganda
- Project consists of a dam and an irrigation scheme
- Reservoir capacity -13MCM
- Dam Height-22m
- 2,500 ha of irrigated agriculture (food security/improved incomes) ;
- Restoration of degraded upstream sub-catchment
- Investment requirement 43.5 Million usd

Lirima Irrigation Development and Watershed Management Project

Project Description and Expected Benefits:

- Located at Kilongo Manafwa district
- Beneficiaries 5,154 people in the 14 villages
- Command area -341 ha of land to be put under irrigated agriculture.
- Watershed management program for catchments upstream of the proposed irrigation infrastructure.
- Improved market infrastructure and outlets; greater participation in rural economy by small-holder farmers
- Improved water resources monitoring for Lirima and Lwakhakha rivers through establishment of 2 river gauging stations.

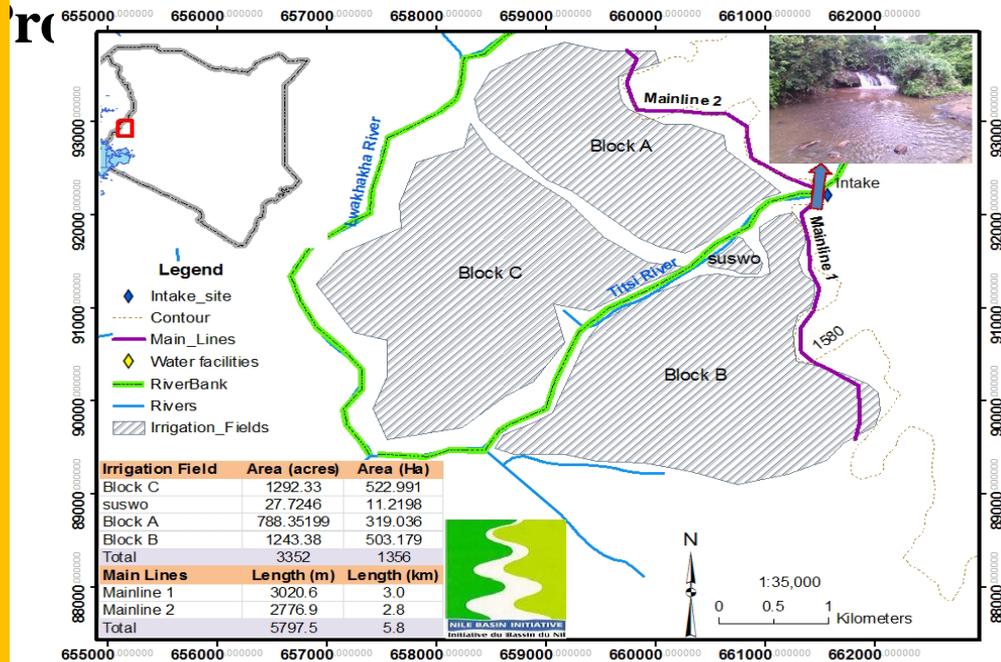


Project sub component	Investment costs (USD)
Bee keeping	446
Irrigation	1,023,083
IWM	121,878
Design Studies	300,000
Total	1,445,407

Titsi Irrigation Development and Watershed Management

Project Description and Expected Benefits:

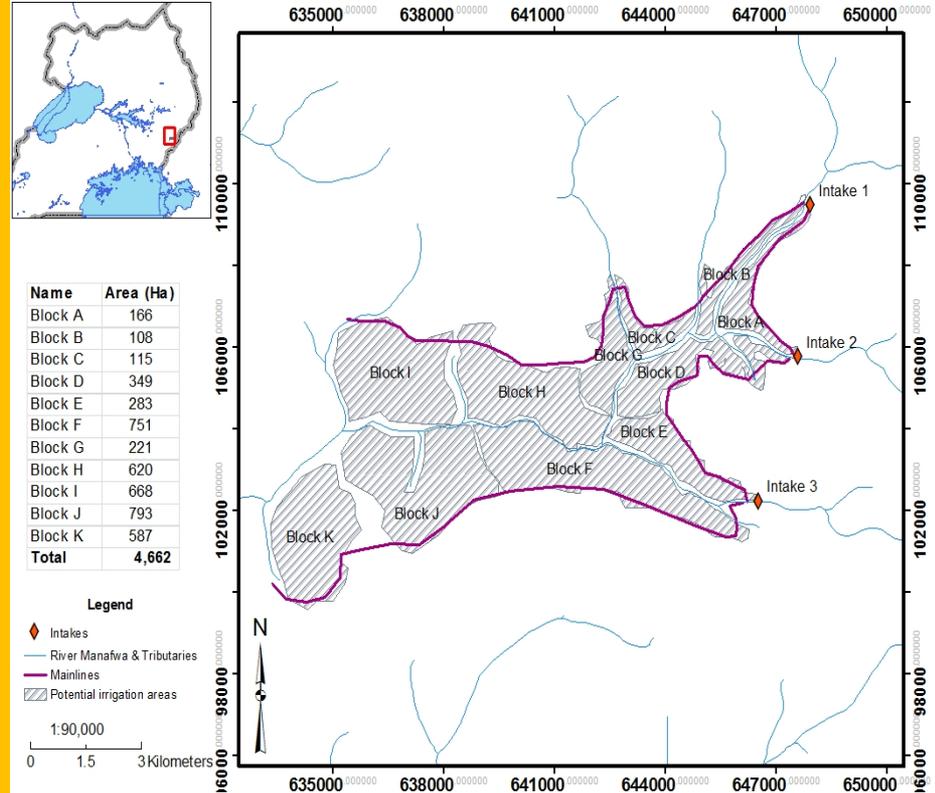
- Located in Cheptais district in Bungoma County, Kenya
- Beneficiaries -3,100 people within Cheptais Sub County
- Irrigation infrastructure developed to enable 315 ha of land to be put under irrigated agriculture.
- Watershed management program for catchments upstream of the proposed irrigation infrastructure.
- Improved market infrastructure and outlets; greater participation in rural economy by small-holder farmers
- Improved water resources monitoring for Titsi river through establishment of 2 new river gauging stations.



Project sub component	Investment Costs (USD)
Bee keeping	1,646
Irrigation	1,209,000
IWM	202,018
Pre investment	300,000
Total	1,712,665

Project Description and Expected Benefits:

- Located in Bukhabusi , Manafwa district , Uganda
- Beneficiaries 6,200 people in the 20 villages
- Command area 480 ha of land to be put under irrigated agriculture.
- Watershed management program for catchments upstream of the proposed irrigation infrastructure.
- Improved market infrastructure and outlets; greater participation in rural economy by small-holder farmers
- Improved water resources monitoring for Manafwa river through establishment of 3 new river gauging stations.

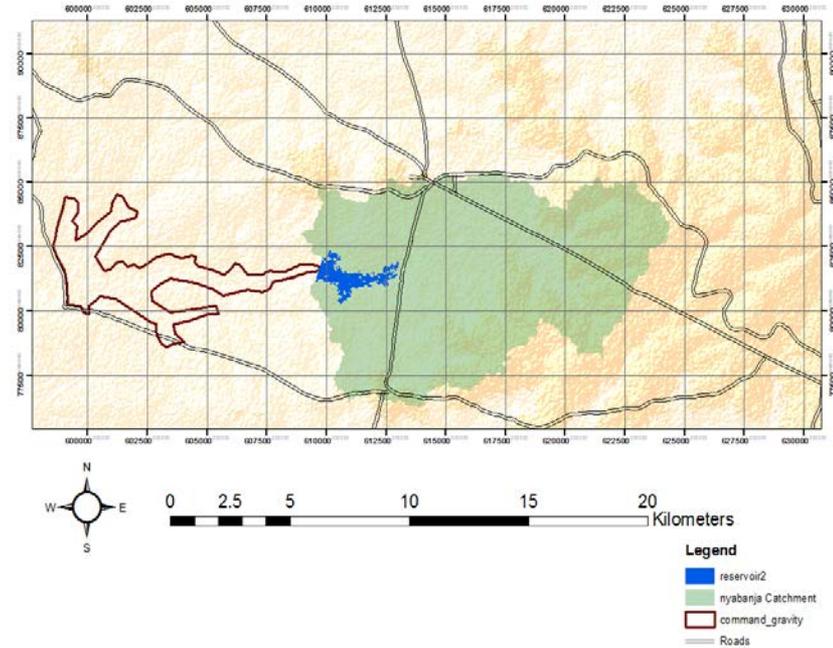


Project sub component	Investment Cost USD
Bee keeping	2,771
Irrigation	1,440,000
IWM	1,199,239
Design studies	300,000
Total	2,942,011

Nyabanja Irrigation Development and Watershed Management Project

Project Description and Expected Benefits:

- Project will involve the construction of a dam at Nyabanja village, Nabuyoga sub-county, Tororo district in Eastern Uganda to form a storage reservoir to impound 8.5 M3
- Irrigation infrastructure to command 1,700 ha and auxiliary infrastructure for water supply and flood control
- Watershed management program for catchments upstream of the proposed irrigation/dam infrastructure.
- Improved market infrastructure and outlets; greater participation in rural economy by local farmers
- Improved water resources monitoring for Malaba river through establishment of 2 new river gauging stations.

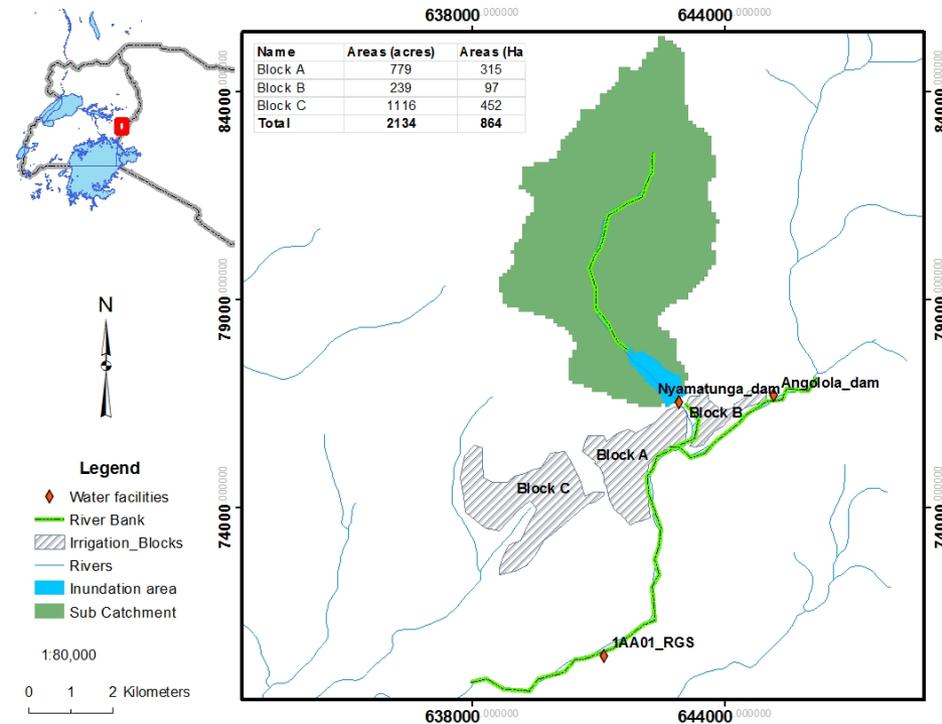


Project sub components	Investment costs (USD)
Design studies/ESIA/RAP	1,600,000.00
Dam storage Infrastructure	10,617,500
Bee keeping	4871.504
Irrigation and drainage Infrastructure	5,100,000
Fisheries	25,500
Water Supply Infrastructure	500,000
IWM	1,223,701.44
Total	19,071,572.944

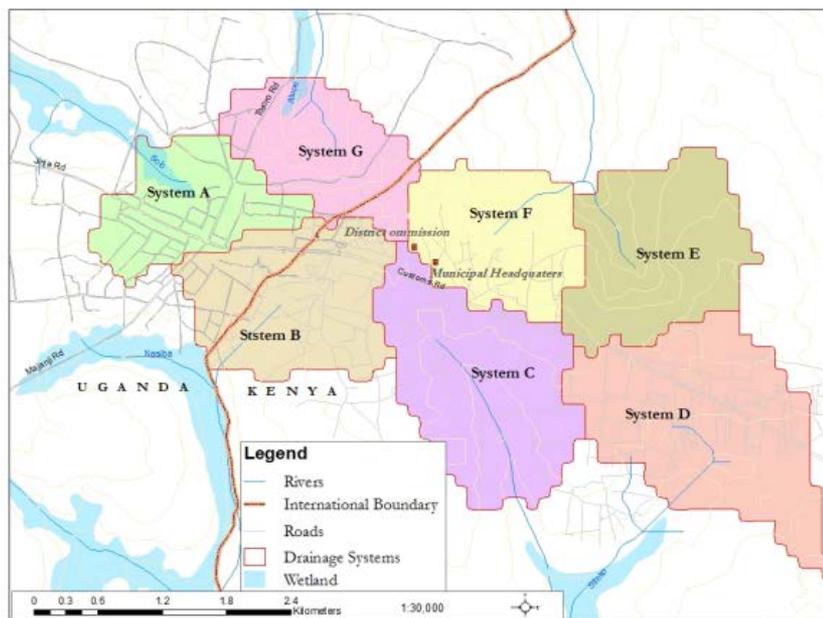
Nyamatumunga Irrigation Development and Watershed Management Project

Rationale and Relevance

- located in Mella sub county in Nyamatunga village, Tororo district in Eastern Uganda.
- flood control , increased agricultural production through irrigated agriculture (412ha),provision of water for livestock watering, and domestic water supply(10,000 people).
- Contribute to improved water availability through storage, food security, reduction of environmental degradation and adaptation to climate change.
- Community livelihoods improvement, reduction of poverty and boost local and regional economic development



Busia Pollution Control Project

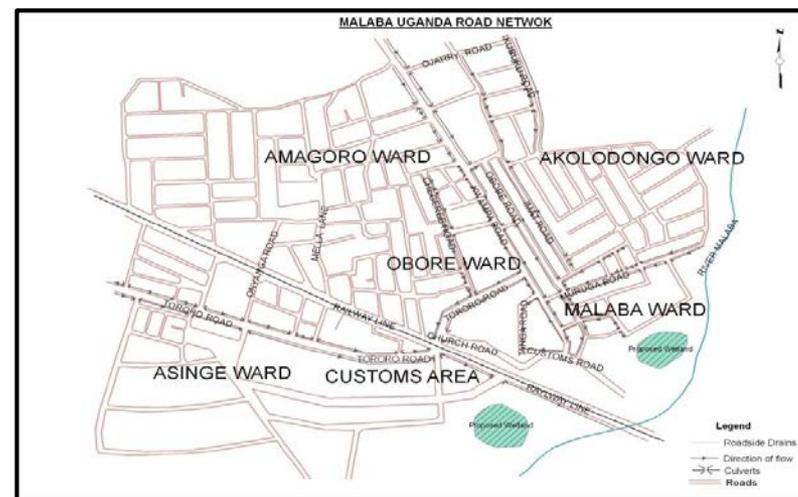


Component	Description	Cost (USD)
1	Refurbishment of the drainage system	6,699,790
2.1	Strategy for minimization of waste	800,000
2.2	Capital costs of a 70 ton composting plant	842,688
2.3	Operation and maintenance costs for two composting plants 15 year	1,425,760
3	Institutional support and capacity building	500,000
4	Compensation for implementation of the RAP	300,000
	Total	10,568,238

SYSTEM	Area (Ha)	USD Equivalent
Drainage A	164.4	1,353,797.28
Drainage B	241.1	1,400,958.93
Drainage C	293.5	1,431,514.44
Drainage D	282	1,260,590.48
Drainage E&F	432	689,312.30
Drainage G	175.4	563,616.92
Total		6,699,790.33

Malaba/Lwakhakha Cross Border Pollution Control Project

COMPONENTS	Budget US \$
Storm Water and Drainage Improvement	4,963,264
Solid Waste Management	525,163
Institutional Support & Capacity Building	542,913
Total Project Investment Cost	6,031,340



Solid Waste Management in Lwakhakha

Project Cost component	Short Term	Medium Term	Long Term
	2012 - 2017	2017 -2022	2022-2032
Capital Cost , USD	166,188	90,682	200,988
Operation and Maintenance, USD	192,471	232,235	438,353
Total Cost, USD	358,659	322,918	639,341

Solid Waste Management in Bungoma

Project Cost component	Short Term	Medium Term	Long Term
	2012 - 2017	2017 -2022	2022-2032
Capital Cost , USD	1,350,288	543,294	1,238,212
Operation and Maintenance, USD	495,059	555,765	720,941
Total Cost, USD	1,845,347	1,099,059	1,959,153

Irrigation Demonstration Schemes

- Lukhuna- benefiting 500 people with annual benefits of US\$ 30,000 from production of high value crops
- Sitabicha/Suswo -benefiting 450 people with annual benefits of US\$ 25,000 mainly from production of high value crops





End