



A quartely publication

Chairman of the Board

Hon. Eng. Joshua Toro, REng,
MIEK

Ag. Chief Executive Officer

Eng. Charles Muasya

Chief Editor

Mr Daniel M. Nzonzo, HSC

Editor

Ms Rhoda Mbuvi

Writers

Ms Rhoda Mbuvi

Ms Brendah Rajwayi

Mr George Maina

Mr Johnbosco Obonyo

Mr Dennis Muchora

Mr Frankline Mainga

Mr Oscar Mutiga

Ms Grace Musila

Mrs Alice Nanette

Photographers

Ms Brendah Rajwayi

Mr George Maina

Mr Johbosco Obonyo

Ms Grace Musila

Graphic Designer

Mr George Maina

Content

06

How Lower Nzoia Irrigation Development Project will firm up Kenya's food security

09

History of Bunyala Irrigation Scheme

11

A trans-county scheme feeding residents

13

Swampy fields turned into farmlands

14

Demo farm in Bunyala Irrigation Scheme

25

One on One

Eng. Edwin Manyonge: Team-player who doesn't amplify challenges

To download a copy of our Newsletter and share feedback, visit our website www.irrigation.go.ke/Newsletter/

Word from the Editor



Mr. Daniel M. Nzonzo, HSC
Principal Corporate Communication Officer

It is January, the special month for setting resolutions and figuring out how to improve in the New Year. Focusing on possibilities, I look at the precious moments of 2022 and get convinced that the 2023 journey will be more meaningful.

Hoping everyone had a wonderful holiday season and preparing for this year, on behalf of Irrigation News team, I wish you a happy and prosperous 2023. We will continue to use this space to highlight matters irrigation in the country.

Dubbed the 'Lower Nzoia Irrigation Project Special Edition', this 15th issue features the project, its Block 8 Bunyala Irrigation Scheme history and its farming activities, specifically focusing on the hard-working farmers and how NIA's innovation is assisting them to do an excellent job and improve nutrition security.

This special edition also demystifies dykes as an irrigation term. For our interview, we engage Eng. Edwin Manyonge, the Scheme Manager in Bunyala in the One on One segment.

Looking forward to a great year.

Enjoy the read.

Chairman's Note



Chairman of the Board
Hon. Eng. Joshua Toro, REng, MIEK

It is an honour to witness the growth happening at the National Irrigation Authority (NIA) as a whole. The appointment of former NIA Chief Executive Officer, Mr. Gitonga Mugambi, EBS as the Principal Secretary in the State Department for Irrigation and for us to get an Acting Chief Executive Officer, Eng. Charles Muasya, from within the organization make me proud. Congratulations, gentlemen! I can vouch for you that Kenyans are secure in your leadership. May God lead you as you execute your respective mandates.

It was all ball-rolling in the second quarter of the 2022/2023 FY. We hosted His Excellency Hon. William Samoei Ruto, PhD, C.G.H, the President of the Republic of Kenya and Commander-in-Chief of the Defence Forces accompanied by Deputy President of the Republic of Kenya Hon. Rigathi Gachagua and other leaders from the National Government and County Government of Kirinyaga during the commissioning of Thiba Dam on October 15, 2022. The farmers at Mwea are now enjoying the fulfilled promise of bringing the dam to them and are busy in their farms.

In the same quarter, the Authority's management and other Senior Officials from the Ministry of Agriculture, Livestock, Fisheries and Cooperatives received the Deputy of Mission Counsellor, from the Embassy of Japan in Kenya, Kitagawa Yasuhisa, who visited Mwea Irrigation Scheme and Thiba Dam to assess the successful collaborations between the Government of Kenya and the Government of Japan. The Government of Japan is one of the greatest and most valuable partners of the government of Kenya. Through them, we have been able to deliver Thiba Dam, rehabilitate irrigation infrastructure and construct new canals to improve irrigation water conveyance in Mwea Irrigation Scheme.

In support of the President's directive on tree planting, the Authority led by the Acting CEO, Eng. Charles Muasya, and other Senior Managers joined the rest of the country in launching Forestry and Land Restoration Acceleration Programme that aims at managing, conserving and expanding forest sustainability towards attaining the targeted minimum 30 percent forest cover nationally by 2032 and reducing gas emissions. We planted 1,000 Hass avocado seedlings near Thiba Dam and distributed a similar number to Mwea Irrigation Scheme farmers in support of the programme.

As we escalate the great works in 2023, I wish our staff, farmers, and all partners God's grace and strength to be our shield.

Word from the CEO



Eng. Charles Muasya
Ag. CEO National Irrigation Authority

I am excited to bring you the 15th issue of Irrigation News. Additionally, I am very grateful to the Board of Directors for seeing me fit to sit in as the Acting Chief Executive Officer for the Authority. I come in aware that the shoes left by Mr. Gitonga Mugambi, EBS, the former CEO, now the Principal Secretary, State Department for Irrigation, are bigger than mine. Nonetheless, I commit to do my best to reduce the food deficit in this country by spearheading the fulfilment of the Authority's mission: Provide and Coordinate Sustainable Development and Management of Irrigation Services.

In the spirit of 100-day target setting, I am working with the management and office of the Principal Secretary, State Department for Irrigation to fast-track the approval of the Authority's Human Resource instruments, which will in turn increase our human capital required to meet the Authority's mandate of delivering water to every irrigable acre in Kenya. I am also working with a team, already in place, to re-engineer our service delivery processes in a manner that they are customer-centred. This will ensure that Kenyans are served promptly and satisfactorily as we endeavour to make this country food-secure.

Since assuming office, I have held meetings with the Management, Staff and different stakeholders, including contractors, consultants and service providers working on different irrigation projects and programmes across the country. Among other goals, the target is to agree on a Rapid Results Initiative (RRI) that will see faster completion of some of our ongoing flagship projects and realise substantial milestones on other projects within this Financial Year. The projects, among others, are Galana Kulalu Food Security Project, Bura Irrigation Development Project, Rwabura Irrigation Project, and Mwea Irrigation Development Project.

Finally, yet importantly, let us encourage one another, treat each other like family, and spread the joy of co-existence. What is leadership without being a servant? I look forward to serving you.



Lower Nzoia Irrigation Project
in Busia County

How Lower Nzoia Irrigation Development Project will firm up Kenya's food security



By [Brendah Rajwayi](#)

The National Irrigation Authority started implementing the Lower Nzoia Irrigation Project in June 12, 2018 with the goal of mitigating floods and increasing the acreage under irrigation in Busia and Siaya counties.

Divided into two phases, it sits on both banks of the mighty

River Nzoia.

The Ministry of Water, Sanitation and Irrigation, through the Kenya Water Security and Climate Resilience Program (KWSCRIP) signed a contract with Lahmeyer International GmbH (Lead Firm) on October 4, 2016 in a joint venture with GFA Consulting Group GmbH, both of Germany. It is in association with Quadrant Engineering Consultants of Kenya who provide consulting services in connection with the Improvement of Flood Mitigation Structures (IFMS) on Lower Nzoia River and the Lower Nzoia Irrigation Project (LNIP), known as the Lower Nzoia Project (LNP).

The World Bank and KfW are financing the LNIP component with a contribution from the beneficiaries and GoK, while the World Bank and GoK are funding the IFMS.

Implementation of Lower Nzoia Irrigation Project

Construction works of the Lower Nzoia Irrigation Project Lot: Phase 1 undertaken by Sinohydro Corporation Ltd of China targets to benefit 12,600 farmers through irrigation and drainage services by putting 10,000 acres under production on the left bank. The second phase is expected to bring another 10,000 acres under irrigation on the right side. The beneficiaries are expected

to put 5,000 acres under high-value crops and 5,000 acres under rice and other food crops, thereby generating an estimated revenue of KSh4.8 billion annually.

Objectives of Lower Nzoia Irrigation Project: Phase 1

Phase 1 of LNIP, currently at 65.8 per cent completion and 85.5 per cent time lapse targets to convey irrigation water through gravity, control the perennial flooding of Nzoia River through construction of a dyke as well as link the Bunyala Irrigation Scheme to the Lower Nzoia gravity intake through construction of a canal.

This will enable farmers get water through gravity and greatly reduce cost of production. Currently, Bunyala Irrigation Scheme gets its waters from River Nzoia through pumping and flows by gravity through open earth channels to the farms. With an average farm holding size of between one and four acres per farmer, the Bunyala Irrigation Scheme now has more than 2,500 households as beneficiaries, up from its initial population of 150 households. The scheme lies in Block 8 of the Lower Nzoia Irrigation Project whose designed irrigation potential is 20,000 acres (10,000 acres in phase 1 and 10,000 acres in phase 2) on both banks of the river with more than 20,000 beneficiaries spread over Busia and Siaya counties.

Irrigation Project: Phase 1

Components of the first phase include the construction of a diversion weir, intake structure, covered connecting channel, head works canal, emergency weir, sand trap, access road, main canal box culverts, main canal aqueduct, main canal duckbill weirs, and main canal cross drainage. In addition to the rehabilitation of Bunyala Irrigation Scheme infrastructure, there is the construction of Bunyala and Nyadorera irrigation management facilities.

Several parties are implementing the Lower Nzoia Irrigation Project with the National Irrigation Authority overseeing its irrigation and drainage infrastructure development aspect while supporting agricultural production and establishment of market linkages through a value chain approach. The Authority is

also supporting the expansion of Bunyala Irrigation Scheme as well as progressive transfer of responsibilities and decision making from the NIA to farmers organized in Irrigation Water Users Association and project management.

In implementing LNIDP, the Authority has co-ordinated farmers into producer groups under which they are being trained in agronomy through field demonstrations on selected plots and a demonstration farm in Bunyala. This is expected to boost their production capacity once LNIP is complete and the Authority is building the capacity of farmer cooperatives to facilitate marketing of produce.

Nonetheless, the implementation of the project has been slowed down by land compensation, denying the



Components of Lower Nzoia

Lower Nzoia Irrigation Project canal

contractor access to the sites for construction works. To address this challenge, however, the design of the tertiaries has been reviewed and roads removed thereby reducing the size of land required and eliminating the need for acquisition. This is expected to hasten

completion.

Implementation of LNIP aims at steering the country towards achieving food security and enhancing nutrition and standards of living.



Lined canal in Lower Nzoia Irrigation Project

Completion status of LNIP

No.	Component	% of completion
1.	Diversion weir (1 No.)	100
2.	Intake Structure and AVIO gates (1 No.)	98
3.	Covered Connecting Channel (145m)	100
4.	Head Works Canal and service road (2.76 km)	99
5.	Emergency Weir and AVIS gate (1 No.)	99
6.	Sand Trap (1 No.)	100
7.	Main Canal (Lined) (Irrigation Blocks 1-5: 21.8 km)	89
8.	Main Canal Box Culverts, Duckbill weirs, Cross Drainage structures	88
9.	Main Canal Aqueduct (1 No.)	100
10.	Nyadorera Irrigation Management Facilities	89
11.	Bunyala Irrigation Management Facilities	90
12.	Bunyala Scheme Rehabilitation	90
13.	Rehabilitation of Bunyala buildings	90
14.	Main Canal (Unlined) (Irrigation Blocks 6,7,10: 9.65km)	0
15.	Secondary Canal, Structures and Service Road (Irrigation Blocks 6,8-14: 29.6 km)	0
16.	Tertiary Canal, Structures and Service Road (Irrigation Blocks 1-14:43km)	0

The History of Bunyala Irrigation Scheme



By **George Maina**

Bunyala Irrigation Scheme is one of the seven public schemes in Kenya started in 1969. Unlike other schemes such as Mwea Irrigation Scheme where Mau detainees were as labourers, Bunyala was a pilot.

Located in Busia/Siaya counties, the scheme gets its irrigation waters from River Nzoia through pumping and flows by gravity through open earth channels to the farms. Its main crop has been paddy rice that is suitable for the region.



Land preparation in Bunyala Irrigation Scheme in 1954



Eng. Edwin Manyonge

Bunyala is working on a two-cropping programme per year. The scheme is also working on an alternative crop within the 12-month period alongside rice.

The scheme has had 534 acres under irrigation from 1969 up to 2006. In 2007, the National Irrigation Authority started an expansion to boost food production in the area. Due to increased demand for rice, two new pump sets were installed in 2005 and two more in 2007.

This brought the combined discharge to 1.2 cubic metres per second. The canals were also widened, an intervention

that has grown the acreage to more than 3,126 in the main scheme and other expansion areas such as Muluwa, Nemali, Munaka, Luwamoro, Nanjomi, Buhowa, Siamungu Nandikiny, Magavera, and Ruamba by 2022. The scheme has a potential of 20,000 acres (on both banks of River Nzoia) with more than 20,000 direct beneficiaries spreading over Busia and Siaya counties.

It was part of Western Kenya schemes (Ahero, West Kano and South West Kano) until 2014 when the Authority granted it autonomy so as to ensure effective management and seamless delivery of irrigation services.

Currently, the National Irrigation Authority is implementing Lower Nzoia



A farmer winnowing rice in Kano plains, 1960



A farmer transplanting rice in his paddy field in 1954

Irrigation Development Project with the aim of shifting from pump-fed to gravity irrigation, which is cheaper. Once complete, the project will support Bunyala Irrigation Scheme farmers with enough water for irrigation through gravity and support an additional 10,000 acres of rice production. Once the project is complete, the full potential of 20,000 acres will be realized.

According to the Scheme Manager, Eng. Edwin Manyonge, Bunyala is working on a two-cropping programme per year. The

scheme is also working on an alternative crop within the 12-month period alongside rice. The alternative crop will add yields to the farmer,

thereby increasing their income and help in fixing of the soils from pest related to rice.



Farmers transplanting rice in Bunyala Irrigation Scheme in 2020



Rice fields in Bunyala Irrigation Scheme

A trans-county scheme feeding residents



By **Rhoda Mbuvi**

Bunyala Irrigation Scheme cuts across and serve two sub-counties of Bunyala and Alego Usonga in Busia and Siaya respectively. The scheme is rich in terms of value addition. It is offering a full farming cycle from ensuring farmers use certified seeds, maintain their crops,

use the right chemicals well, use mechanized farming, store produce well and do marketing, including milling and branding. The scheme is also investing a lot in floods mitigation.

It has ventured into making sure farmers crop certified seeds for maximum production, hence supplies them with certified rice seed. Before, farmers used to travel all the way to Ahero in Kisumu County and worse to Mwea Irrigation Scheme in Kirinyaga County to access the certified seeds (over 500km).

This would tempt them to use uncertified seed that compromises production and the quality of the produce. “We keep the seed for the farmers and treat it at time of need because you cannot keep the seed beyond three weeks since it loses the nutrients during the treatment, ‘the longer it stays, the more the nutrients are lost’” said Eng. Edwin Manyonge, the Bunyala Irrigation Scheme manager. Currently we have 748 bags of Komboka seed rice and 565 bags of IR 2793 variety.

In its uniqueness, at any given

time, there is a crop in the fields in different stages. The irrigation potential in the area is about 20,000 acres with more than 20,000 direct beneficiaries spread over Busia and Siaya counties. As explained by Eng. Edwin Manyonge, “in increasing cropping intensity and diversification, we are keen on ensuring two crops per season to increase rice production and in increasing yield per unit area.”

While at it, the scheme holds capacity-building forums during field days. Among the areas of interest is how to farm, maintaining the crops, chemical application, harvest, storing and marketing produce. The scheme is also training farmers in collaboration with Busia County government in rice crop management, said Eng. Manyonge.



Eng. Edwin Manyonge

The Scheme has come in immensely in linking farmers to markets and for the first time, the farmers have not fallen into the Ugandan's brokers

The Scheme, informed by the 2020 floods, bottled up with 2011 floods, built a 36,000-bag store. “Farmers lost their paddy in their sight, hence the need to construct a store with a capacity of 36,000 bags,” said Eng. Manyonge. The store was officially commissioned by Hon. Eng. Joshua Toro, REng, MIEK, chairman of the Board of Directors, on Saturday March 27, 2021. “It is built in a manner that is able to withstand the last highest flood levels of 400mm. A dyke has been constructed around the store to mitigate floods. Farmers are very happy with the store,” Eng. Manyonge further said. As Christopher Pele testifies, the store came in at the right time and is grateful to the Government through the National Irrigation Authority. Farmers lost a harvest of about 3,000 bags and hit the markets too.

Deliberate efforts have been put to secure the farmers from rice brokers, Eng Manyonge

said. “The Scheme has come in immensely in linking farmers to markets and for the first time, the farmers have not fallen into the Ugandan's brokers. Unlike before when the market was from Uganda, this year, the market has been good. We are in good hands”, said Ochieng’ a farmer at the Scheme.

“We have been marketing the Scheme and for the last one year we have seen private players coming in. We have had the County Government of Siaya and the Ministry of Agriculture show interest. The Ministry gave us two mills for cooperatives to add value to their rice. Construction has commenced. Once completed, farmers will not go all the way to Kisumu to mill and they will no longer opt to sell their rice as paddy for other players in the value chain to do other processes.” The business opportunities for the private player is huge in the scheme.

The Scheme is planning to brand its rice to access the market as Bunyala Irrigation Scheme. Eng. Manyonge says the scheme is eyeing giving “an identity to rice produced here. Currently we supply a lot of rice but you will not find it in the supermarket shelves as such. We are fast-tracking the process, based on how fast the mill will be finalized, projecting by June 2023.”

Bunyala Irrigation Scheme was started in 1959 with an initial acreage of 534 acres under rice production. The acreage has since expanded to more than 3,000 acres, benefitting more than 2,500 farming households. Its average yield is 2,500 kg per acre.

The above interventions have increased food security. In the financial year 2021/2022, the rice yield increased to more than 10,000 tonnes, up from 7,000 tonnes the previous year. The scheme is focused on increasing rice production to improve livelihood of farmers through efficient and effective irrigation system and management.

Swampy fields turned into farmlands



By Johnbosco Obonyo

Water is a valuable resource that if used properly will make Kenya a food-secure nation. To achieve its vision of delivering water to every irrigable acre, the Authority has continuously used every opportunity and available drop to increase area under irrigation.

A case in point is the Bunyala Irrigation Scheme's Magavera expansion area that draws its waters from the Yala swamp and River Nzoia's main drain. The Authority conducted a study to determine the suitability of the swampy farms with a goal of using them for irrigation. Undertaken by the Authority's Ahero Irrigation Research Station, the studies confirmed that the water quality is safe for food production and subsequent release to the lake.

The Bunyala Irrigation Scheme embraced irrigating with waters from its drain canal. The quest to manage the water and control floods, which have threatened the residents for decades, gave rise to this innovation.

In October 2021, irrigation infrastructure installation started and, in addition to expanding the Bunyala Irrigation Scheme's Magavera



Swampy areas in Bunyala Irrigation Scheme

area by 600 acres, this innovation also controlled the pumping costs. Since June 2022, 400 acres have been under production, giving a total of 765.25 tonnes of rice currently.

"We are collaborating closely with the farmers, who are very enthusiastic and are committed to this project, and together we are achieving high yields of, on average, 50 bags of 80kg per acre," Eng. Edwin Manyonge, the Bunyala Scheme Manager, said.

After the National Irrigation Authority started rice farming

in the former swampy areas, the Magavera farmers are ecstatic and report reaping big.

"This project has been very beneficial to me. I used to lease farms in the main Bunyala Irrigation Scheme and now I am able to produce food from my farm," Nyangi Maina, a farmer in Magavera said. "Through doing commercial rice farming, I am able to feed my family, send my kids to school, and buy them clothes. I am hoping for continued growth in this area so I can acquire more farmland," she adds.



Rice fields in Bunyala Irrigation Scheme

Demo farms to boost horticulture in Bunyala



Aerial view of the Bunyala Demo farm



By Grace Musila

The National Irrigation Authority through the Lower Nzoia Irrigation Development Project in Busia County has set up demonstration farms in Bunyala to upscale horticulture. The Authority made the step after realizing that farmers in the region lacked the knowledge in setting up nurseries and picking the right varieties of horticultural seeds.

A demo farm is a piece of land used for teaching techniques and technologies, showcasing new or improved crops. Demo farms, coming in various sizes, are used for research and testing new methods against traditional ones. They could hold different types of

crops and crop varieties.

To ensure farmers get the best quality and knowledge of growing these crops, the scheme operates a commercial seedling nursery.

According to the Bunyala Irrigation Scheme Manager, Eng. Edwin Manyonge, “It is a shed net where we practice development of clean planting materials, propagate seedlings and sell to farmers.”

He says “it is simply a nursery in a controlled environment. We realized the challenge of farmers getting the correct and clean seedlings, hence began this commercial seed nursery, which was the first in



Seedlings grown inside the greenhouse in the demo farm

the region.” Eng Manyonge praises the uptake by farmers since the seedlings in the first trial cycle in 2021 were supplied for free. The project is now in its fifth cycle.

Every cockpit tray holds about 200 seedlings that are transferred to the main field after 128 days before they are sold to the farmers. A seedling goes for between Ksh3 to Ksh10, depending on variety. Preparing the seedlings in a cockpit is economical and easier compared to farm nurseries because the cockpit holds more seeds in a smaller space. The shed net measures 8m by 15m, can hold 200 trays and secure 40,000 seedlings.

According to Eng. Manyonge, the demo farms are also used to test crops that do well around Bunyala. Several crops have been tested with mixed results, but the tests guide farmers on the picking the right varieties.

The demo farms have also been used to partner with seed companies that also run crop tests, providing a platform where the Authority shares technologies and other knowledge with the aim of helping the farmer get the best crop variety. These companies are Kenya Seed Company, Simlaw Seeds among others.

Farmers are trained in handling crops, agronomy and management of the seedlings after planting, Eng Manyonge says, adding that they are linked to markets to reduce post-harvest losses and secure the right prices.



1. 1 & 2: H.E the President William Samoei Ruto, PhD, CGH (wearing a hat) during a tour of Galana Kulalu Food Security Project accompanied by Hon. Alice Wahome (second left), the Water, Sanitation and Irrigation Cabinet Secretary, Governors Hon. Johnson Sakaja of Nairobi (in a striped shirt), Abdulswamad Nassir of Mombasa (third left), Gideon Mung'aro of Kilifi (third right) and Rtd Maj Dhado Godana of Tana River County on January 3, 2023.
2. 3: Ministry of Agriculture and Livestock Development Cabinet Secretary Hon. Mithika Linturi (watering a tree) and other leaders from national and county governments spearheading the national tree planting in Meru County in line with the President William Ruto's directive on tree planting on December 21, 2022.
3. 4: Irrigation Principal Secretary Mr. Gitonga Mugambi, EBS (planting a tree) and other

national and county governments spearheading the national tree planting in Meru County in line with the President's directive on tree planting on December 21, 2022.



4. 5&6: National Irrigation Authority Ag. Chief Executive Officer Eng. Charles Muasya plants a tree (photo 6) as he led the Authority's staff and other stakeholders (photo 5) during the launch of Forestry and Land Restoration Acceleration Programme at Thiba Dam on December 21, 2022.

5. 7: The Deputy Chief of Mission Counsellor from

the Embassy of Japan, Kitagawa Yasuhisa (in a black T-shirt) received by Deputy General Manager (Operations) Mr. Joel Tanui (in a white cap), Mwea Irrigation Scheme Manager Mr. Innocent Ariemba (right of Kitagawa) and other leaders from the County Government of Kirinyaga on December 7, 2022 when he visited Mwea Irrigation Scheme and Thiba Dam to assess the collaborations between the governments of Kenya and Japan.

End of year performance review, December 16, 2022 at Safari Park Hotel





Staff News




Congratulations

Mr. Gitonga Mugambi, EBS

for being Appointed as the

**Principal Secretary, State Department
for Irrigation in the Ministry of
Water, Sanitation and Irrigation.**

Hongera

water to every irrigable acre




CONGRATULATIONS

Eng. Charles Muasya

*for being appointed by the Board
of Directors as the*

**Acting Chief Executive Officer
of the National Irrigation Authority.**

**We look forward to working with you
in achieving food security and nutrition
in Kenya.**

HONGERA

Water to every irrigable acre



Congratulations

Unto you a child is born, a son given, Josephine Muchiri. May he grow in wisdom, in stature, and in favour with God and man. He is a heritage from the Lord, a reward from Him; and like arrows in the hands of a warrior, may he be unto you.






Happy Retirement!

We appreciate each one of our retired staff members for their many years of commitment to the Authority and selfless service to the country. Your integrity and friendship will be fondly remembered. It is time to enjoy the fruits of your labour.

A publication of the National Irrigation Authority

Forest cover: NIA revives fruit tree nurseries



By [Oscar Mutiga](#)

H.E. President William Samoei Ruto, PhD, launched the Forestry and Land Restoration Acceleration Programme to increase the country's forest cover to 30 per cent by 2032 from the current 12.13 per cent. The programme is a response to the ravaging climate challenges and to improve Kenya's mitigation. The President asked State and non-State actors to embrace tree planting dubbed #Towards15BillionTrees and starting the #JazaMiti campaign.

In support of the programme, on December 21, 2022, the National Irrigation Authority, led by the Acting Chief

Executive Officer, Eng. Charles Muasya joined the drive by planting 1,000 Hass avocado seedlings near Thiba Dam. Another 1,000 pieces were distributed to Mwea Irrigation Scheme farmers.

The CEO assured the farmers that the Authority was reviving its tree nurseries in Mwea Irrigation Agricultural Development Centre, Bura Irrigation Scheme, Tana Irrigation Scheme, Perkerra Irrigation Scheme and Ahero Irrigation Scheme.

The five tree nurseries will be instrumental in the production of fruit tree seedlings for crops such as mangoes, avocados, macadamia and coconuts. The seedlings will be distributed across the country with the aim of increasing the forest cover as well as serving as a source of income and food. He committed to support the nurseries to produce enough seedlings to support the national agenda.

Eng. Muasya stressed the importance of increasing tree cover in the country in relation to irrigation, saying that having reliable and sustainable irrigation water goes hand in hand with planting more trees, especially in the water catchment areas.

Fruit tree seedlings are instrumental in addressing climate change in two ways, namely climate change mitigation through increasing carbon sinks by sequestering carbon and they are a source of food and livelihoods for farmers and hence address climate change adaptation.

Dr Ruto asked Kenyans to intentionally place environmental conservation at the centre of socio-economic transformation.



[launch of the Forestry and Land Restoration Acceleration Programme in Thiba dam](#)

What are Dykes?



By Frankline Mainga

Flooding rekindles discussions about dykes as one of the possible ways of controlling the surging waters that may cause death, destroy infrastructure and sweep crops, leading to untold suffering and hunger.

In this issue of Irrigation News, we look at these structures and their use.

Dykes are flood mitigation structures created in a naturally occurring ridge/river that prevents water from flowing beyond a certain height. These flood control structures are used to protect coastlines, riverbanks, agricultural fields, homes, urban areas and other properties. Dykes act as the first line of defence against overflowing rivers, storm surges, rising seas and oceans. They are constructed by excavated earth materials and/or sand bags.

Application of dykes

In agriculture, especially for paddy fields, dykes are constructed to conserve water for rice cultivation. The dykes are hand-installed to help manage irrigation waters in the fields.

In rivers and streams, dykes are constructed in river banks to prevent the flood waters that damage properties. Examples are the Budalang'i dykes constructed on river Nzoia and the Daua dykes in Mandera.

Other types of dykes are constructed on the coastlines to secure them from water tides that might spill over and destroy properties.

What to consider during construction:

- Dykes are constructed on both banks along river/canal/stream.
- Alignment (toe of slope) of the dyke is set apart 0.5m to 3.0m from the existing canal banks considering stability.
- Extreme bending portion is improved with smooth alignment.
- Embankment materials are basically obtained in the adjacent borrow pit clay soil.
- Extra embankment (10 to 30cm height) is needed on

the crown (top surface for surface ground sinkage (subside)).

- Top surface of dyke crown is inclined towards side ditches for surface drainage.
- Side drain at the land side is provided for drainage in the land area.
- Slopes and top width (crown) are covered using sod (turf) to protect it from flow attacking.

Lower Nzoia Irrigation Project Phase 1 currently at 65.8% completion and 85.5% of its objectives is to control the perennial flooding of River Nzoia through the construction of a dyke as well as link the Bunyala Irrigation Scheme to the Lower Nzoia gravity intake through a canal.



A dyke in Bunyala Irrigation Scheme

The recommended standard dimensions of dyke is as follows;

Item	Dimensions of Dykes (m)				Remarks
	Height/Depth	Top width	Bottom width	Dyke slope	
Dyke jointly used as community road	1.0 (minimum)	2 to 3	6 to 7	1:2	Dyke surface is protected by sodding
Ditch for drain	0.5	1.5	0.5	1:1	Apart from 0,5 to 1.0m from foot to dyke

Word Search (National Cohesion and Principles of Governance)

The National Irrigation Authority is committed to promoting National Values and Principles of Governance as per Article 10 (2) of the Constitution of Kenya. They include: Patriotism, National Unity, Sharing and Devolution of Power, Rule of Law, Democracy and Participation of the People, Human Dignity, Equity, Social Justice, Inclusiveness, Equality, Human Rights, Non-Discrimination, Protection of the Marginalized, Good Governance, Integrity, Transparency and Accountability and Sustainable Development.

Trace eight (8) values below.

Z	D	A	K	C	P	Y	A	K	Q	S	V	W	E	O
B	K	P	S	Q	V	N	E	W	Y	D	E	K	Q	N
R	U	L	E	O	F	L	A	W	K	E	Q	I	U	K
J	X	O	I	Y	C	A	R	C	O	M	E	D	I	P
L	K	P	S	N	M	W	B	N	X	Q	I	H	T	W
S	S	E	N	E	V	I	S	U	L	C	N	I	Y	S
I	B	G	N	Z	M	E	Q	U	A	L	I	T	V	F
P	S	O	C	I	A	L	J	U	S	T	I	C	E	Y
G	O	O	D	G	O	V	E	R	N	A	N	C	E	H
X	O	T	P	A	T	R	I	O	T	I	S	M	S	I

ANSWERS FOR THE PREVIOUS WORD SEARCH

National Irrigation Authority's seven (7) core values are as follows:

Z	D	A	K	C	P	Y	A	K	Q	S	V	W	Y	O
B	I	N	T	E	G	R	I	T	Y	D	E	K	V	N
E	P	T	I	D	V	X	V	W	K	E	Q	I	U	K
Y	T	I	L	A	U	Q	Y	R	C	I	U	M	Y	P
L	K	P	A	S	S	I	O	N	X	Q	I	H	Z	W
H	Q	O	K	Y	X	W	J	D	F	J	T	T	P	S
I	B	G	N	Z	M	F	R	E	D	I	Y	Z	K	F
M	S	I	L	A	N	O	I	S	S	E	F	O	R	P
W	M	U	E	I	N	N	O	V	A	T	I	O	N	H
X	O	T	P	H	Z	Y	J	O	P	J	V	J	W	I

Thanks for walking the journey with us

Promoting national cohesion, integration



By **Dennis Muchora**

Strategies are approaches aimed at achieving specified goals. A strategy can also be a plan of action designed to achieve a long-term or overall aim. To succeed in promotion of national cohesion and integration we require deliberate strategies.

The strategic importance of national values and principles of governance is explained in several articles of the Constitution of Kenya including Article 10. Promotion of the national values and principles of governance among individuals, families, communities, workplaces, and the nation is aimed at achieving social, economic, and political transformation.

The Sessional Paper No. 9 of 2013 on National Cohesion and Integration identifies the following strategies to promote national cohesion and integration:

Strengthening vital institutions for cohesion and integration, addressing socio-economic inequalities, management of ethnic and socio-cultural diversity, conflict prevention, management, and

reconciliation. This includes national and county legislative institutions, the Judiciary, and public service institutions. Addressing socio-economic inequalities through devolution, fight against corruption, developing specific economic zones, addressing youth unemployment, access to quality public education, access to quality healthcare and effective management of natural resources.

Management of ethnic and socio-cultural diversity by promoting inter-ethnic social activities, inter-religious dialogue, dispute resolution, and cultural activities. In addition, establishing exchange programmes across diverse groups, cultural centres, and use of media to broadcast messages of social

cohesion.

Conflict Management and Reconciliation: This can be achieved by revitalizing traditional reconciliation, mainstreaming peace education, encouraging inter-communal dialogue, developing early response systems, and, more importantly, ensuring balanced economic growth.

Ensuring the rule of law, security, and order: Implementing the Constitution of Kenya, streamlining the flow of communication between security agencies and decision-making bodies, continuous training of law enforcers, enhancing use of intelligence information in conflict resolution, and institutionalising use of

NATIONAL VALUES AND PRINCIPLES OF GOVERNANCE



alternative dispute resolution.
Addressing the unemployment challenge through:

Developing robust career guidance and apprenticeship programmes and offering demand-driven training and certification for young Kenyans.

- Using digital platforms to broaden geographic scope of job opportunities
- Financing small and medium enterprises and extending such financing to rural areas.
- Expanding opportunities for the youth in jobs training and employment; enhancing industry attachment, internship and volunteerism opportunities; increasing access to basic business skills training; and improving access to credit.

Entrenching positive value systems in all segments of society: All government agencies and stakeholders should ensure national values are mainstreamed in everyday life of Kenyans by.

- Sensitizing all stakeholders on national values.
- Upholding and nurturing national values and principles of governance.
- Enhancing systems, programmes and guidelines for the promotion of national values.
- Identifying and using role models to promote national cohesion and integration and recruiting change agents.
- Entrenching national values in performance management system.
- Implementing key policies to enhance a

values culture that promotes harmonious ethnic relations

- Recognising and rewarding values champions to foster national cohesion and integration.

Establishing mechanisms for communication and information sharing. Government agencies and stakeholders should implement a participatory communication strategy to facilitate sharing of information, dialogue, and feedback on national cohesion by:

- Encouraging/sponsoring cross-cultural study tours and exchange programmes.
- Strengthening grassroot structures such as council of elders to promote national cohesion.
- Expanding and supporting fora and avenues that allow for the exercise of the freedom of expression through traditional and digital media platforms.
- Monitoring and evaluating the impact of the communication strategies.

Promotion of national cohesion and integration requires implementation of effective strategies by all actors.

In subsequent Irrigation News' issues, we shall unpack what the Authority is doing to promote each strategy.

These insights are as shared by the Directorate of National Cohesion and values.

Dennis Muchora is a national cohesion and values focal point person for the Authority.



Send them to
complaints@irrigation.go.ke
We will act.

Do you have any complaints
about our services?
Worry not because we got you!



Eng. Edwin Manyonge,
Scheme Manager Bunyala
Irrigation Scheme



By **George Maina**

Eng. Edwin Manyonge: Team-player who doesn't amplify challenges

Eng. Edwin Manyonge is the Bunyala Irrigation Scheme Manager. He has a Bachelor's degree in civil engineering. We sat down with him for a candid talk about his work, profession

and life. Here are the excerpts of the interview.

How would you describe yourself?

I am an ambitious person, team player and a responsible

person with more than 15 years experience in the engineering field.

How was it growing up?

Wow! Growing up! My first recollection that comes to

mind is in 1984. I was four years old, however, it was a sad event when I saw a neighbour being carried in a bed to hospital before he died. On the bright side, I was born on July 25, 1980, being a middle child in a family of 11 children. My father was a military man, hence spent most of his time in the military camp. My mother was a social worker who loved education and was very strict about school. I remember when I was transferred to a different school because she thought I had zero competition, and feared I would make it to university but without the right grade. At that point after topping all through my school life, I suddenly dropped to position 38 (laughs). I did not know what to do, what and how to tell her because she was so adamant about excelling in school. Let's just say what happened next is history.

Your schooling...

I joined nursery school at Matumbufu Baptist Primary in 1985 and sat for my KCPE examination in 1994 in the same school. I scored 479 marks out of a possible 700 in seven subjects. However, I could not join Form One in first term because school fees was a big deal at the time. I joined Bungoma Town High School (not existing now), a day school, in second term instead of having to stay at home the whole year to get school fees for my school of choice. I then transferred to Kimilili Boys High School, which is now known as St. Luke Kimilili Boys High School in Form Two in 1996. I sat for my KCSE exam in 1998 and scored an A- (minus) of 86 points, topping my class. I later joined the University of Nairobi in the year 2000 to study Civil Engineering for five years.

Best memories growing up?

When growing up, my siblings and I were always in the top three positions for which we were awarded packets of milk (Maziwa ya Nyayo, as the supplies were known). The first position got 27 strips of milk, the second 18 strips and the third placed got nine. We would go home carrying cartons of milk (tulikuwa wengi [we were many in the family]).



Eng. Edwin Manyonge in Bunyala Demo farm

How did you join the job market?

After university, I stayed with a friend in Kawangware for a few days while looking for a job. I distributed copies my CV but got no response. I called my friend James Muturi, now an engineer at Maji House and asked him to lend me some cash to print more CV copies. Muturi instead offered to print as many copies as I wanted from his office since he did not have the money. While there, his boss came in, we had a chat and he asked me to help his messenger deliver some documents within the city centre; I did. He asked me to return the next day. To my surprise, that was an interview and that's how I got my first job as a graduate engineer in September 2006. My first project was the Mariakani-Kilifi road where I was part of the design team with a company called Strotel Afrique.

While working there I got a call that I had been shortlisted for a job through my details at the University of Nairobi. The call was from the National Irrigation Board, now the National Irrigation Authority. I reluctantly dropped my papers and after two weeks the board interviewed me. My interview was the shortest but got the job after the second interview. My biggest challenge was how to break the news to my employer then, as we had a cordial working relationship. However, he released me diligently. I worked at the head office and then transferred to the Western

Schemes in Ahero. In October 2014, I came to Bunyala Irrigation Scheme (independent from the Western Schemes) as the Scheme Manager up to date.

Your experience as a scheme manager in Bunyala Irrigation Scheme.

I have worked in Bunyala Irrigation Scheme for eight years now. When I reported here, the scheme had 1,300 acres under irrigation. We have expanded to more than 3,100 acres. When I came, the scheme was managed from Ahero until it was separated on July 1, 2015. Six months from my reporting in Bunyala, I was working alone without technical staff and a few offices. We now have 10 permanent staff and 30 casuals. When I started up in the scheme, the canal was carrying 0.8 cubic metres of water; we have expanded to 1.2 cubic metres. There was one crop per year, which made sections of the scheme to have one crop in 18 months. One crop would be grown in Phase 1 until harvesting before moving to phase two of the main scheme. We have developed mechanisms to ensure farmers have continuous cropping throughout the year.

How has your growing up moulded you into the person you are today?

When growing up I wanted to be a lawyer. I looked up to Amos Wako, the former Attorney General of Kenya and the first Senator of Busia County. Actually, my law dream affected my grades while in school since I barely focused on sciences, but I took a turning point in Form Three. My dad had warned me about going to university to study teaching. "You will never get a coin from me to do teaching!" he would say (Laughs). My other option was medicine that I missed by a point; I had 45 points, the requirement was 46 points. Imagine just one point! I opted to re-apply and chose civil engineering. Engineering has become so dear to me.

Advice to the youth?

Be patient to go through the process. The youth in this generation want to skip all the steps. They want to wake up one day and find themselves rich. Life is a process and for you to be at the top you must work and work to reach the top. There are no shortcuts in life.

Typical working day



Aerial shot of rice fields in Bunyala Irrigation Scheme



Combine harvester harvesting rice in Bunyala Irrigation Scheme

My programme is basically a straight line. I go to the office, the house and then church. Very straight.

Challenges encountered along the way.

I do not like wasting time glorifying challenges. If there is a challenge, I normally find ways of going around them. I go to church, and I have a personal spiritual motto that says I will never amplify what the devil is doing. I do not amplify challenges.

Anyway, as a manager, of course, I have had challenges, one of which has been the community understanding what you are doing. For example, in areas like Rwambua, the community resisted. It took a lot of sensitization to make them understand that the expansion was for their own benefit. Resistance delays project implementation.

Another challenge has been the machinery. We do not have enough machines in the Scheme. We have one excavating machine, which is not enough. As we continue to expand, we require more.

As I came in, I did not know how to manage

stakeholders' interests. Every stakeholder has an interest, which needs to be managed well. If you do not manage their interests, the farmer will not benefit.

Apart from being a successful engineer...

(He interjects) I am many things. A husband, a father, a farmer but, most importantly, I am a fisher of men; winning souls for Christ. I was recently commissioned as a Pastor in Deliverance Church Race Course on September 4, 2022. (<https://www.youtube.com/watch?v=qCCGoy1yByk>)

(He plays the keyboard too... (<https://www.youtube.com/watch?v=BUxC-pw3Qa0>))

Your mantra?

Let my job speak for me and if it gets to a point where I must explain myself, then I know I have not done enough.



VISION

“Water to every irrigable acre”

MISSION

“Provide and Coordinate Sustainable Development and Management of Irrigation Services in Kenya.”

CONTACTS

Irrigation House, Lenana Road,
P.o Box 30372-00100
Nairobi, Kenya
0711 061 140



National Irrigation Authority



@irrigation_Auth



National Irrigation Authority



ceo@irrigation.go.ke, Communication@irrigation.go.ke



www.irrigation.go.ke