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Editor's Note



Mr Daniel M. Nzonzo, HSC
Principal Corporate Communication
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Happy New Year, our esteemed readers! It is with great pleasure that we bid farewell to 2023 and usher in 2024 focused on another set of thrilling adventure and growth together. We hope that you experienced happiness, joy and treasured moments during the holiday season.

We are excited to start 2024 with a focus on the Perkerra Irrigation Scheme and our irrigation projects in Baringo County. In this edition, we are sharing insights about these projects and innovations that could change the agricultural landscape and give our communities in the region a brighter future.

Additionally, we are privileged to publish an interview with the Scheme Manager, Perkerra Irrigation Scheme, Mr Daniel Waweru. His expertise and passion for his work play a pivotal role in the success of the schemes and its neighbouring projects. He shares his insights on the future of irrigation and imparts valuable advice to budding professionals.

We commit to maintaining the momentum as the New Year gets underway by giving you captivating, enjoyable and practical articles that highlight our progress in irrigation.

We value your opinion, so keep commenting. On behalf of the Irrigation News team, I wish you a fantastic year of prosperity, growth and abundance.

Enjoy the read.



Chairman's Note

The Board has witnessed notable undertakings at the Authority during the second quarter of the year started in October 2023. Top of the list is the successful recruitment and appointment of the substantive Chief Executive Officer effective December 7, 2023.

Congratulations Eng Charles Muasya, MBS for winning the race! The Board is confident that your commitment to service delivery will put the Authority on a firmer pedestal of growth. Your leadership, expertise and dedication will undoubtedly drive the Authority towards achieving food security through provision and co-ordination of sustainable development and management of irrigation services in Kenya. We pledge our support to you as you embody the vision and commitment necessary to steer the Authority toward realising its mandate in line with the Bottom Up Transformation Agenda (BeTA).

I am thrilled to announce a valuable addition to our team, Mr Julius K. Ndumbi, who joins us as a representative of the farmers — a crucial voice in our quest for sustainable agricultural development. His expertise, grounded on the realities of farming communities, will enrich our discussions and decisions, ensuring that the Authority remains focused on the needs and aspirations of those we serve.

To my fellow Board members, every member of staff, our esteemed stakeholders, let us remain committed to the cause. Together, we will continue to



Eng Gilbert Maluki
Chairman of the Board

harness innovation, foster collaborations, and drive sustainable irrigation practices including solarisation of our pumping systems, use of gravity-fed irrigation system, as well as maximising on water storage to enhance food production and reduce the cost of living in Kenya.

The journey ahead demands dedication, innovation, and a unified vision. Let us stand united in our pursuit to revolutionise irrigation services, empower our farmers and secure a prosperous future for our nation.

I wish you a prosperous 2024.

CEO's Note



Eng Charles Muasya, MBS
Chief Executive Officer

I am honoured and excited to have been appointed as the Chief Executive Officer of the National Irrigation Authority effective last month. I am grateful to God for granting me this opportunity to serve the people of Kenya. I thank the Board of Directors for entrusting me with this noble responsibility of leading the institution. Additionally, I am grateful to the management and staff who gave me their full support while in acting position.

Critically, steering the Authority forward and ensuring that we deliver on our mandate as anchored in the Constitution and other economic blueprints is the ultimate goal. The Constitution of Kenya provides for “the right to adequate food for all”, the Sustainable Development Goals (SDG 1&2) advocate for “No poverty and zero hunger,” the National Irrigation Development Strategy (2023-2027), which we are finalising, will focus on irrigation expansion and maximum use of the installed irrigation infrastructure while the Bottom-Up Transformation

Agenda (BeTA) also known as THE PLAN marks agriculture as the foundation of the economy. It is worth reiterating that 80-89 percent of Kenya’s agricultural land requires irrigation, while only four percent of this is irrigated today. Thus, irrigation is the single most important game-changer in agriculture.

THE PLAN also commits to reduce dependence on basic food imports by 30 percent, revamp underperforming/collapsed export crops and expand emerging ones such as horticultural crops, increase access to water for irrigation by adopting Public Private Partnership (PPP) model where large reservoirs are viable; development of Turkana aquifers through PPP; and, deploying climate-smart agriculture technologies among others.

Statistics show that the NIA has a huge responsibility to turn around food production in the Country. About 4.5 million people are food-insecure, 15 out of 23 arid and semi-arid (ASAL) counties are in widespread water stress, extreme vegetation deficits, as well as flooding in others while many water sources that have been resilient to climate variability are drying up.

The Medium Term Plan (MTP IV 2023-2027) has set deliberate targets for the Authority on the food security goal. Some of the targets include increasing area under irrigation from the current 664,000 acres to 1,289,142 acres by 2027/28, increasing water harvesting and storage for irrigation from the current 55.4 million cubic metres to 2.4 billion cubic metres by 2027/2028 and increasing production of rice from the current 200,000 metric tonnes to 700,000 metric tonnes and maize from the current

34 million 90kg bags to 54 million such bags.

To realise these targets, we will focus on the maximum utilisation of installed irrigation infrastructure to ensure enhanced production while working to complete all the ongoing large-scale projects such as Bura, Mwea, Galana, Lower Nzoia, Rwabura, and Turkana. We will also continue expanding our irrigation schemes as we onboard new projects under the Expanded National Irrigation Programme, water harvesting, spate, drought resilience in ASALs, small and mega dams, PPPs among

other programmes. The Authority will leverage technology through data analytics and remote sensing to monitor water and moisture levels in the schemes and projects to ensure efficient use of water.

May all members of staff be fully committed to executing our mandate and work to realise our country food security targets. With the resources we have and as we strive to mobilise more, let us give our best shot.

May we all have a productive 2024.

70 years of work and growth at Perkerra Irrigation Scheme



Mau Mau detainees constructing Perkerra Irrigation Scheme main canal in 1956.



By **George Maina**

Perkerra Irrigation Scheme construction started in 1954 after several feasibility

studies, including the last in 1936, showed the Njemps plains were suitable for irrigation.

The construction did not start in 1936 as expected due to lack of funds until the declaration of “state of emergency” in 1952 that saw the Mau Mau detainees held in Marigat made to start working on the site as a form of punishment.

According to Reuben Yasaningo, a farmer who worked with the colonisers as the scheme was getting off the starting blocks, the detainees constructed infrastructure such as canals and main intake from morning to 1pm. “Many died during the construction of the intake from accidents when construction objects hit them. After the daily works, there was a headcount to ensure that none of detainees had escaped,” Mr Yasaningo said.

“Apart from the deaths, the detainees also braved high temperatures and battled diseases such as malaria that was rampant. However, the weekly collection of drugs and house sprays kept mosquitoes and the diseases at bay while the Scheme took shape,” says Mr Richard Arap Sitaki, a farmer during the colonial days.

In 1959, the Scheme was closed due to the dwindling numbers of farmers but the British colonialists thought fast and tapped farmers from

all the locations in Baringo to work within the Scheme from where they were housed. When farming activities began at Perkerra, the first crops were onions, chilies, and tomatoes.

Later, due to stiff competition from Tanzania onion farmers and traders, Perkerra farmers tried maize farming and contacted Kenya Seed Company that agreed to be on board and the first crop was planted in 1976.

Due to increased popularity of maize production in the Scheme, other neighbouring irrigation stations such as Eldume, Sandai, Kapkuikui and Kamoskoi, which were community-based and getting their waters from Molo River, Lorwai Springs and Kiserian River picked up maize.

Perkerra is one of the seven public irrigation schemes under the management of the National Irrigation Authority (NIA). It is situated 100km North of Nakuru near Marigat Township in Marigat Sub-County, Baringo County.

It derives its waters from the only permanent river in the sub-county but sits on a gazetted area of 5,800 acres, 2,750 developed while the remainder is used for settlement, public utilities and subsistence farming.

Over the years, the NIA has expanded the Scheme and improved its infrastructure such as the reconstruction of the intake works that had almost collapsed. Some of these revamps have endeared the Baringo County residents to continue farming and expand.

Despite the many benefits, farmers here face a major challenge of floods that destroy the streams as well as farms during the rainy seasons. However, the NIA has designed the proposed Radat Dam that will hold more than 120 million cubic metres of water. Its construction will, among other benefits and goals, help to step up the expansion of Perkerra Irrigation Scheme from the current 2,750 acres to more than 50,000 acres.

Currently, the Scheme has 1,625 registered



Perkerra Irrigation Scheme's main canal being used to irrigate maize and banana crops in 1956.

farm households owning plots ranging from 0.5 to four acres each. The Scheme has a directly dependent population of approximately 23,000 people while the benefits stretch beyond Baringo County through jobs, water supply, improved food security, and giving farmers a steady flow of income by selling their produce within the region and elsewhere.

The current approach to the management of Perkerra Irrigation Scheme is Participatory Irrigation Management (PIM), where the Authority and the farmers through Irrigation Water Users Association (IWUA), Marigat Farmers' Cooperative Society (MFCS), and Perkerra Mix Cooperative Society (PMCS) are in partnership in the management of the scheme each having distinct roles in the PIM.

Among other roles, the Authority handles operation and maintenance of the primary and secondary irrigation infrastructure, rehabilitation and modernisation of infrastructure, farmers' capacity building, and stakeholder management.

The water users association, hosted within the scheme's compound, collects operation and maintenance fee while managing the operation and maintenance of tertiary irrigation infrastructure, and conflict management.

How Perkerra feeds, generates income for Baringo



Green grams in Perkerra Irrigation Scheme.



By Rhoda Mbuvi

Consumers and sellers of farm produce at Marigat Town—known for pure honey—in Baringo County share all praises for Perkerra Irrigation Scheme. “We are in business because of

helping to lift her business.

“You know, kitu inatusaidia sana na Scheme ni (what the scheme helps us with is) we get these produce at an affordable price, it is near and more importantly the produce is available even in dry seasons”.

Mr. Daniel Waweru, the Scheme Manager, says land preparation for the main crop season usually starts in February and ends in April while planting begins in March through May and harvesting is in September. The second crop is planted in October and harvested in January.

Mr. Charles Kipchumba and Phylis Kiptui are some of the farmers leasing land at the Scheme, the former having been at it for more than two years. Mr Kipchumba says the investment is worth his time and money because it is reliable unlike rain-fed agriculture.

“What attracted me to farming is that it is one of the activities that have helped me in investing. Farming pays. Marigat is dry, and if we depend on rain-fed farming, we will not be able to feed ourselves. The truth is that irrigation has come in handy. It is building the Marigat economy.” For Ms Phylis Kiptui who came in around 2020, she heard of seed maize farming in Perkerra through a friend and leased land. She currently has one acre under maize and another under green grams.

the Scheme,” they have declared.

Valentine Chebon, a seller, says, “I am a business woman here in Marigat town selling honey, watermelon and paw paws all from Perkerra Irrigation Scheme. My stock is because of irrigation and it has been helpful.”

For Agnes Chepkeitany, popularly known as ‘Shosh wa Marigat’, the Scheme has kept her in business for many years, selling bananas, paw paws, pumpkins, and honey. Faith Towet says she has benefited a lot from Perkerra Irrigation Scheme. “I get all types of food crops there like vegetables, fruits, which are very fresh. I get income daily, I cannot go to bed hungry,” she adds.

Edna J. Tanui Omara, who runs a vegetable shop says her business depends on the Scheme. “There is life in Marigat because of the Perkerra Irrigation Scheme,” she says. Celestine Kipserem is wowed by the accessibility and affordability of the produce,

Perkerra Irrigation Scheme has a gazetted area of 5,800 acres of which 2,750 acres have been developed while the remainder is used for settlement, public utilities and subsistence farming.

Says Mr. Waweru: “The Scheme has 1,625 registered farm households owning farming plots ranging from 0.5 to four acres each. Out of this 496 households have been settled on village plots. The Scheme has a directly dependent population of approximately 23,000 people. The Scheme has an area developed for gravity fed irrigation on an inclined plain layout, using furrow irrigation with water pushed from the feeder canals directly into furrows.”

Perkerra also supports neighbouring irrigation schemes such as Eldume, Sandai, Kamoskoi (Loboi) and Kapkuikui that the National Irrigation Authority has upgraded.

“For sustainability, the Scheme in bridging the required annual budget of Ksh30 million from Ksh8 million by looking at increasing the operation and maintenance charges from Ksh2,000/acre/season for all crops to Ksh7,500/acre/season. This was agreed upon by stakeholders and the Scheme management resolved to implement the new rates gradually. Starting April 2024, Seed Maize Operation and Maintenance fee will be charged at Ksh4,000/acre/season while the charges for legumes and other crops will temporarily remain at Ksh2,000/acre/season,” Mr Waweru explained.

To mitigate against the huge shortfall during the peak period, the Scheme undertakes the following water management strategies:

- Rotational Irrigation: Developing a need-based water distribution plan where blocks irrigate at intervals
- Irrigation water re-use: Downstream users benefit from water provided through main drain back to irrigation units
- Maintenance of conveyance and distribution infrastructure to reduce losses
- Cropping programme: Consultative cropping agreed at start of every season to control field activities in and water use
- Night Irrigation: Farmers occasionally irrigating overnight.

Major challenges facing the Scheme include:

Open earth canals and drainage system: Irrigation and drainage infrastructure has undergone major rehabilitation during the last one year for farmers to manage water distribution in the fields. However, the open earth channels need to be lined to increase water conveyance efficiency. This will reduce seepage to increase water availability to crops and command area.

Irrigation water shortage: Construction of the proposed Radat Dam will help alleviate water shortages, especially during the dry season. The dam will ensure 200 percent crop intensification within the Scheme and command an extra 15,000 – 20,000 acres for cropping.

Conflicts between pastoralists and arable farmers: Perkerra Irrigation Scheme lies in a semi-arid land characterised by pastoralism. The animals stray into irrigation fields in search of water and pasture which leads to destruction of irrigation canals and crops. Due to erratic climatic conditions, there has been increased conflict between farmers and pastoralists, increasing operation and maintenance costs.

Maize diseases and pests: The Maize Lethal Necrosis disease has largely been controlled by adhering to the cropping programme and crop diversification. The Fall Army worms attack was not severe this time due to above-average rainfall. However, there have been cases of Leaf Rust disease because of heavy rains. Through integrated pest and disease management by the scheme, this was contained.

Lack of drying and storage facilities: Drying of seed maize remains a major challenge due to a lack of yards and stores. In the last season, farmers incurred more than 15 percent post-harvest losses attributed to high rainfall.

Lack of market for horticultural produce. The climatic conditions favour production of tomatoes, onions, butternuts, watermelon and vegetables but their market is unreliable.

An alliance of farming success at Perkerra Irrigation Scheme



By Brenda Rajwayi

In the sun-soaked expanse of Perkerra Irrigation Scheme, a collaborative triumph unfolds, redefining the agricultural landscape and transforming the lives of local farmers. At the centre of this stands the National Irrigation Authority that coordinates a convergence of stakeholders to foster agricultural prosperity.

The Scheme, established in 1956 has a potential acreage of 20,000 but about 2,500 acres are under irrigation, benefitting 1,625 households. The main crop is seed maize and others such as green grams, okra, cowpeas, watermelon, onions and vegetables. This venture has been made possible through collaborations.

Phyllis Kiptui, a seed-maize farmer at Perkerra Irrigation Scheme since 2020, reports a transformed life. “Despite some challenges such as low water levels during the dry season resulting from climate change, what keeps me going is that I am still making some profit which has enabled me



A tomato farmer in Perkerra Irrigation Scheme.

to sustain my family,” she says. She is grateful for the training on best practices she receives that supports crop intensification, thereby enabling her to get the most from her farm. Phyllis is under contract farming with Kenya Seed Company, hence has ready market for her produce. Simon Kitilit, a farmer in Kapkuikui Irrigation Project has been a beneficiary of these collaborations since 2010. He grows tomatoes in his one-acre farm that enables him to educate his children.

James Kipyia, who has leased one acre to grow tomatoes in Kapkuikui joined the venture because of the good reports on contract farming. He also farms at Eldume Irrigation Project since 2002. Mr. Kipyia came to Kapkuikui bearing good tidings, as his name suggests; new. He has introduced water pumping using gas cylinder that he says has proven economical compared to using a generator

and says the farm produces food and generates income.

In Kamoskoi Irrigation project, farmers like Christopher Koech, the secretary, counts his achievements, including buying a ploughing tractor that farmers contract at a subsidized rate.

Alex Rotok, a youth in Kamosokoi, is in contract farming where he crops tomatoes in two acres and maize in four acres. Thanks to the ready market provided by Kenya Seed Company, he says the venture is profitable. Seed companies, cooperatives and the government have forged an alliance, catalysing growth in seed production in the scheme. The collaboration echoes through the fields as Kenya Seed, Simlaw Seeds, East Africa Seed Company, KEPHIS, KALRO, County Government, National Government, political leadership, Ministry of

Agriculture and Livestock, financial institutions, and AFC among others engage farmers in farming, research, and food production.

The current approach to the management of Perkerra Irrigation Scheme is Participatory Irrigation Management (PIM), where the Authority and the farmers through Irrigation Water Users Association (IWUA), Marigat Farmers' Cooperative Society (MFCS), and Perkerra Mix Cooperative Society (PMCS) are in partnership in the management of the scheme each having distinct roles in the PIM.

IWUA collects operation and maintenance fee, formulates and enforces by-laws, ensures equitable distribution and efficient use, operates and maintains tertiary irrigation infrastructure, and manages conflicts while the Authority handles operation and maintenance of the primary and secondary irrigation infrastructure, rehabilitation and modernisation of infrastructure, capacity building, and stakeholder management.

Perkerra's cropping programme is drawn at the beginning of every season to guide its two cropping cycles with the main one seeing farmers contracted by Kenya Seed Company to grow seed maize. During the second season, farmers are contracted by Simlaw or East Africa Seed Company to produce legumes (green grams, okra, and cow peas). Other crops planted in the short season are climate-resilient crops like Nerica rice, cassava, sorghum and finger millet.



Farmers harvesting green grams in Perkerra Irrigation Scheme.

To come up with a cropping programme, a number of key stakeholders are involved, including famers and farmer leaders, growers/cooperative societies, seed companies, Ministry of Agriculture, KEPHIS, county government, Kenya Meteorological Department, Water Resources Authority, and National Government Administration officers. The cropping programme is a testament to meticulous planning and synergy and accounts for every pivotal factor, from water availability for irrigation, to the allocation of contracts and the readiness of machinery.

Farmers in the scheme engage in contract farming with different seed companies, including Kenya Seed, Pannar, and East Africa Seed Company to produce various seed varieties including H513, DH04, H624, H516, PH1, H6506, DK8039, H519, Ultravetis, Dryland, and Duma. This has contributed to increased seed production, resulting from early maturity, assured market, and prompt payment. In the year 2022, farmers planted 2,500 acres of seed maize for Kenya Seed Company on contract at a negotiated price of Ksh82.00 per kilogramme. Farmers delivered a total of 5,003 tonnes to Kenya Seed valued at Ksh410.216 million.

Charles Kipchumba, a seed and commercial maize farmer in the scheme, says the key to earning from farming is tenacity, consistency and following the cropping programme. He grows the seed maize under contract with Kenya Seed Company. "Other than maize, I grow tomatoes and vegetables which enable me to not only feed my family but also sustain them by selling the surplus," he adds.

In the Perkerra Irrigation Scheme, it is not just about cultivation, it is about scripting a story of unity, resilience, and transformation. Each season, a new chapter unfolds, symbolising the power of collaboration in turning barren lands into a thriving oases and sowing the seeds of prosperity for generations to come.

Youth find more than a hustle as farmers at Perkerra



Aaron Kiplagat and Charles Kipchumba (inset) work in their farms at Perkerra Irrigation Scheme.



By **George Muiruri**

Perkerra Irrigation Scheme is a testimony of how water and farming can change lives of young people positively. Here, the youth have taken to farming as the country searches for long-term solutions to tackle food security, build

economic empowerment and create jobs. “We have more than 10,000 youth actively partaking irrigation farming here at Perkerra Irrigation Scheme and the numbers are increasing,” says Mr Daniel Waweru, the Scheme Manager.

He attests that with the number of youth actively involved in agriculture, the scheme has become more noticeable in recent years. “These vibrant and creative young people are changing the story of farming in the area, drawn by the prospect of sustainable living and the chance to make a positive

impact in agriculture.”

During an interview with the Irrigation News team, Andrew Chebon, a youth in the Scheme stated that farming at Perkerra is not just about sowing seeds, but about cultivating economic opportunities. “As young farmers gain experience and expertise, they are not only meeting local and national demands for agricultural products but are also establishing themselves as entrepreneurs in their own right,” Mr Chebon said.

What started as a side hustle, he says, has become “the main hustle”. He explains. “Farming has really had

a good impact in my life. It has given me a 360-degree complete turn of events. As for me and my young family, we are living well courtesy of farming,” Mr Chebon adds.

Mr Chebon challenges the youth to get down to farming as the right way into a bright future. “Do not fear, saying it is a dirty work. It is the way to go. It is the future. You can earn comfortably from farming”. Mr Chebon left a white collar job, even after earning a Master’s degree to concentrate on his 2.5 acres of tomatoes, an acre of pawpaws and two acres of green grams.

Mr Waweru says that the introduction of new concepts and cutting-edge farming techniques have improved youth involvement in farming within the Scheme. With their technological know-how, the younger generation is incorporating precision agriculture, smart farming, and sustainable practices to thrive in agriculture.

In addition to increasing productivity, these progressive farmers are also making a significant contribution to reducing the negative environmental effects of agriculture. The Scheme is becoming more sustainable as a result of adopting the environment-friendly practices and efficient use of resources.

As unemployment becomes a pressing issue for many young people by the day, farming in Perkerra Irrigation Scheme emerges as a

viable and fulfilling source of employment. Interviews reveal how individuals have not only found personal fulfilment in farming but have also become job creators.

Aron Kiplagat, a maize farmer, encourages his peers that farmers are not just employees but are also employers. “By starting small and growing sustainably, we create jobs for ourselves and others. It is a cycle of empowerment.”

For Daniel Kemboi and Theopilus Kiptoo, farming is the way to go for youth since they test, enjoy and live the fruits of farming. Mr Kemboi started in 2001 right from school and “I have not struggled to get employment. Following my parent’s example, I started farming small and it has sustained me since. I am satisfied with farming.” He is practising minimal tillage, which he says is economical since the crops use undisturbed nutrients.

From Perkerra Irrigation Scheme emerges youth accounts of inventiveness, economic empowerment, a strong sense of community, and environmental awareness that depict a generation using land to prosper as opposed to simply inheriting it.

Not only do the crops stand tall as the sun sets over the green fields of Perkerra, but the aspirations and tenacity of the young farmers also symbolise a bountiful harvest of hope for Kenya’s agricultural landscape.



A youth inspecting his green grams in Perkerra Irrigation Scheme.

History Pictorial



Members of the Ilchamus community watch detainees work in Perkerra River in 1956.



Ilchamus community members study the progress of the scheme's main canal under construction in 1956.



Perkerra Irrigation Scheme canal intake at the boulder weir in 1956



Perkerra Irrigation Scheme's main canal being used to irrigate maize and banana crops in 1956.



An agricultural officer engages an onion farmer at Perkerra Irrigation Scheme in 1963.



Canal drops in Perkerra Irrigation Scheme in 1956.

Pictorial



1



2



3



4

Principal Secretary, and the Authority's Chief Executive Officer, Eng Charles Muasya, MBS, inspect maize harvested from Galana Kulalu Food Security Project on November 2, 2023.

3. Mr. Zachariah M. Njeru, EGH (centre), the Water, Sanitation and Irrigation Cabinet Secretary, plants a tree in Lari Forest, Kiambu County, during the National Tree Planting Day on November 13, 2023.
4. Mr. Zachariah M. Njeru, EGH (left), the Water, Sanitation and Irrigation Cabinet Secretary, signs the Performance Contract for the Financial Year 2023/2024 with the National Irrigation Authority Board Chairman Eng Gilbert Maluki (centre) and an independent Board Member, Mr. George Githae (right). Mr. Ephantus Kimotho, CBS (standing, left), the Irrigation Principal Secretary and the Authority's Chief Executive Officer, Eng Charles Muasya, MBS, (standing, right) witness the signing on October 18, 2023.

1. H.E. Hon. William Samoei Ruto, PhD., CGH. President of the Republic of Kenya and Commander-In-Chief of the Kenya Defence Forces, officially opens Bura Irrigation and Settlement Scheme Rehabilitation Project headworks gate on November 4, 2023.
2. Mr. Zachariah M. Njeru, EGH (in a cap), the Water, Sanitation and Irrigation Cabinet Secretary, Mr Ephantus Kimotho, CBS (second left), the Irrigation

Staff News



On December 8, 2023, the Board confirmed Eng Charles Mutinda Muasya, MBS (center) as the Chief Executive Officer of the National Irrigation Authority effective December 7, 2023. This was after a competitive recruitment process that started on October 17, 2023 through a public notice.

Through Gazette issue Vol.CXXV-No.260 dated December 11, 2023, Eng. Charles Mutinda Muasya, the Chief Executive Officer, was awarded the Moran of the Order of the Burning Spear (MBS), a presidential honour.

Congratulations, Sir.



Congratulations

Congratulations Mercy Aching'ai Wafula and Tracy Lavender Adhiambo on the arrival of your bundles of joy. May the Almighty God guard and guide them at all times.



To our NIA members who mourned the departure of their dear ones, may God's comfort be your portion



On November 13, 2023, staff from Head office, Regions, Schemes and Stations participated in the national tree planting geared towards rallying Kenyans to plant at least 15 billion trees by 2032 to increase the forest cover to 30 percent in efforts to tame climate change. The National Irrigation Authority planted 21,105 trees.

Seepage: Causes and mitigation in agriculture



By Johnbosco Obonyo

Irrigation is essential to agriculture because it provides water to crops for development and output. However, unplanned water loss, known as seepage, impedes effective agricultural water use. Among the causes of seepage are soil permeability, poor canal lining, and structural faults in irrigation infrastructure, such as fractures and leaks in pipes and channels. These problems may increase over time due to wear and tear.

Seepage lowers overall efficiency of the irrigation system, a key challenge in water-stressed areas. Indeed, a continuous seepage can cause waterlogging in some places, causing soil salinity and deterioration. Salt build-up hurts soil fertility and agricultural output.

Farmers suffer financial losses as a result of the increased expenses involved with pumping

more water to compensate for seepage. Furthermore, reduced yields reduce their revenue.

To address seepage, it is critical to invest in high-quality canal lining materials such as concrete or geomembranes. Regular maintenance and periodic inspections are required to address emergent concerns as soon as possible. By providing water directly to the root zone of crops, contemporary technologies such as drip irrigation and precision agriculture may drastically minimise water wastage. Remote sensing technologies and monitoring systems that use real-time data to aid decision-making and maintain effective water management may quickly identify and remedy seepage woes.

Promoting the development of crops that use less water or are well-suited to the local environment can help conserve water and reduce the consequences of seepage. The problem of seepage in irrigation systems need more attention and effective approaches to increase water use by addressing the core causes of seepage and implementing mitigation. In turn, this promotes sustainable agricultural methods and contributes to the long-term health of our ecosystems. Sustainable water management is critical to food security and mitigating the effects of climate change on agriculture.



Unlined canal.

Word Search

Solutions for the previous puzzle on Mega Dams:

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

For this edition, attempt locating eight irrigation projects that are part of the Expanded National Irrigation Programme in the Lower Eastern and Coast Region as featured in the last (18th) issue of Irrigation News’.

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



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Mr. Daniel Waweru
Scheme Manager, Perkerra Irrigation Scheme

Mr. Daniel Waweru: Engineer who prays and works like a soldier



By **Johnbosco Obonyo**

Mr. Daniel Waweru, the Perkerra Irrigation Scheme Manager,

has more than 18 years' experience in the irrigation sector. He has a Bachelor's degree in Water Engineering from Technical University of Kenya (TUK), formerly The Kenya Polytechnic.

Married with three children, Mr. Waweru practises Christian ideals of honesty, discipline and integrity that he links to his Catholic upbringing and his father who was well-known for

his spiritual leaning. Born in Londiani, Kericho County, he sat down with Irrigation News team to talk about his life journey.

Early life and upbringing

My father was an outstanding teacher, dedicated husband and adoring father of seven sons. He is well-known for his uncompromising adherence to discipline, profound spirituality and determination

to establishing Christian values and moral ideals in both his family and students. He recognised the delicate balance between discipline and tenderness, ensuring that his seven sons felt both the direction and warmth of a loving family. His affection and support established a firm basis for their growth and development.

My father always began every task with a minute of prayer. His faith is not only a personal practice, it is an essential component he passed down to his children. He led the family in prayer, rosary, bible study and spiritual conversations. He encouraged the need for applying them daily.

Best memories growing up?

I recall affectionately the simple pleasures of my boyhood, when the centre of entertainment was the bustling village game competitions. The community would congregate to cheer on local teams in sports such as football and other regional games. The dynamic environment, applauding crowds and friendly rivalry generated a sense of unity and excitement.

I enjoyed going on routine lengthy walks to attend sports competitions with friends. The walks gave us an opportunity to share memories, laugh and connect in a special way as we traversed the picturesque countryside that filled us with peace amid the blossoming nature.

Your schooling?

I schooled at Kamuingi Primary School from Nursery to Class Eight then Londiani High School and later joined the Kenya Polytechnic to study water engineering.

My shift from the simplicity of rural life to the complexity of city life was fraught with difficulties, particularly in the area of communication. In a period when letters were dominant, I frequently struggled with the distance that separated me from my family and the slowness with which I received updates.

Having grown up in the village, I struggled to adjust to the fast-paced city lifestyle, fighting to get fare to commute to college. Staying at Githurai 44, I walked to Githurai 45 to catch a bus at a cheaper fare as compared to

the matatus that carried passengers beyond capacity. Tulikua tunapangwa kama mzigo (We were squeezed like luggage).

I usually had morning and late evening classes and to keep myself busy before the next class, I walked with my friend George Nyakundi to St. Peter's Clavers and Cathedral Bookshop to read Christian materials for free.

The recollections of the daily fights for survival in the city have left me cherishing my village life that I treasure as my identity.

Did you choose engineering?

Certainly. I realised my genuine love for engineering, a path I took after receiving advice from my elder brother, who worked in the field of electrical engineering. His advice to look into other engineering fields that matched my interests prompted me to consider water engineering. His counsel sparked an interest in me, leading to enrolling in the course. As I delved into water engineering, I felt a growing affinity for it, captivated by the prospect of making contributions to sustainable water management and environmental conservation.

How did you join the job market?

After graduation, I applied for a position with the Catholic Diocese of Nakuru where I worked for some time. I briefly ventured into business in Kisumu and later got a job with the National Irrigation Authority in 2007, where I worked as a water management technician for a year. I was in that position for four years at Perkerra Irrigation Scheme before being transferred to the Katilu Irrigation Scheme to start the project. I briefly went to Tana Irrigation Scheme before the transfer that brought me back to Perkerra Irrigation Scheme as the Manager.

What was your experience in Katilu?

I arrived there in 2011 on a motorbike. While the residents expected me to have brought them goodies they were used to, I had come here to grow farming, promote food security and deliver financial freedom. Life in Katilu had challenges such as language barrier, lack of knowledge among the people about farming dynamics and different ideologies. The location was isolated, with little connectivity,

making communication difficult. I could not listen to radio, contacting home was difficult and newspapers frequently delayed by a day since I sourced them from Lodwar.

To communicate with my wife and colleagues, I had to find a specific spot where a 2G network was accessible to get a summary of the day's news.

I began working with the community, guiding them through participatory farming. Despite the initial hiccups, my positive attitude, along with the power of prayer, proved beneficial. We successfully brought the Katilu Irrigation Scheme to life with the help of the local chief and leaders, overcoming hurdles and supporting community development. I went there as a soldier and left as a soldier.

Your entry into Perkerra Irrigation Scheme as the Scheme Manager?

When I arrived at Perkerra Irrigation Scheme in 2023, the first order of business was to sensitise the farmers on the rules and regulations of the Irrigation Act 2019 and on the digitisation of the NIA's services. The water users association (IWUA) election had not been held for some time and had to regularise this. Sensitisation is ongoing as we work to stabilise the scheme through building and maintenance of the infrastructure to stabilise water supply and improve crop production. This will be achieved through the cooperation of all the stakeholders and the implementation of Radat Dam under the public private partnership (PPP) programme.



Perkerra Irrigation Scheme Intake.

Challenges encountered along the way?

Building of an intake and a 2.5-mile canal

in Katilu Irrigation Scheme was a daunting task. The soft, wet ground posed considerable challenges, making surveying the marshy area difficult. Understanding the landscape became critical to developing a strategy that would withstand environmental vagaries.

Despite the challenges, the project continued and every hurdle became an opportunity for creativity. The team's tenacity was steadfast through the then Deputy General Manager (Operations) Mr. Daniel Atula's guidance, spurred by the awareness that the project would bring groundbreaking benefits to the community.

Finally, the construction of the intake and canal was not only a triumph against obstacles, but also a tribute to human inventiveness in the face of hardship. This infrastructure transformed the land into a source of food, demonstrating the ability of engineering to overcome obstacles.

Accomplishments?

My biggest accomplishment was the opening of Katilu Irrigation Scheme.

Message to your staff and farmers?

My staff are committed to providing excellent customer service, so I call on them to keep up the fantastic job. Let us work as a family, support and appreciate each other.

I urge farmers to be aware that we cherish and value their work/opinion. Let us work together to take the lead in irrigated agriculture. We value their contributions and are committed to assisting them in achieving their common goals and ensuring their financial security.

Advice to the youth?

Be patient, work hard and further your studies and career development.

Parting shot?

Pray and dedicate everything to God.



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“Water to every irrigable acre”

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