

WATER NEWS

2021/22 1ST EDITION

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INKOMATI-USUTHU
CATCHMENT MANAGEMENT AGENCY

VISION

Sufficient, equitable and quality water
resources for all in the Inkomati-Usuthu
Water Management Area

MISSION

To efficiently manage water resources by
empowering our stakeholders in our quest to
contribute towards transformation by promoting
equal access to water and protecting the
environment

VALUES

Integrity
Batho Pele (Stakeholders Orientation)
Accountability
Diversity
Transparency

SLOGAN:

“INKOMATI-USUTHU CMA, YOUR PARTNER IN
WATER MANAGEMENT”



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IUCMA



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FOREWORD BY THE CEO



The Inkomati-Usuthu Catchment Management Agency (IUCMA) was the first catchment agency to be established in South Africa, as published in Government Notice No. 397 of 26 March 2004. The IUCMA is a body corporate listed in Schedule 3A of the Public Finance Management Act No. 1 of 1999 as a national entity and is managed by its Governing Board. The National Water Act No. 36 of 1998 provides the legislative framework for the IUCMA. Hence the objectives of the IUCMA entails the protection, use, development, conservation, management, and control of water resources within the WMA in order to ensure fair distribution of water and to improve water resource management at local level. This newsletter showcases the exhaustive mandate of the Inkomati-Usuthu Catchment Management Agency (IUCMA) in its quest to manage the catchment in a sustainable, equitable and efficient manner. And consequently, I am pleased to announce that the IUCMA has once again achieved a clean audit.

Domestic wastewater necessitates a need for integrated planning, digital monitoring, and early warning systems. In South Africa, water security, availability and the treatment of raw water to potable water remains a challenge

since the cooperation between Local Municipalities and Water Management Agencies needs to be improved. This crisis requires of us to interrogate our aged infrastructure, systems, skills and costs in order to ensure compliance with the Tripartite Interim IncoMaputo Agreement (IMA). The expertise of state engineers are also needed to assist with increased costs relating to projects. The IUCMA endeavours to engage with stakeholders to close the existing lawful use (ELU) process. We also plan to conduct a comprehensive water audit to update our water use database.

This year sees us reconfiguring the water sector in South Africa. The first phase of a consultation process was initiated in May/June 2021 in which the IUCMA has engaged with all existing irrigation boards, all government-controlled works/schemes, municipalities and registered water users (private and public) within its water management area. This process is guided and managed by a checklist and principles developed by the Department of Water and Sanitation (DWS). The second phase of this process has resumed in September 2021. A Transitional Steering Committee (SteerCom) will be elected from sector representatives whose objectives would be to develop the conceptual framework and draft the Constitution for the proposed Water User Association (WUA) in each specific area.

As a direct result of the Catchment Management Strategy, the IUCMA has commenced with a process to develop a Water Allocation Plan (WAP) which requires input from all its stakeholders. A WAP considers the needs of the environment during water resource management and is implemented by the CMA once gazetted by the Minister.



In order to efficiently manage the resources in its jurisdiction area, the IUCMA monitors the quality of water which contributes to the national monitoring system. Water quality is a key determinant for fitness for uses and the protection of the health and integrity of aquatic systems. These findings feed into the national monitoring system to determine water quality trends within the WMA as well as the compliance at Ecological Water Requirements (EWR) sites with Resource Quality Objects (RQOs) and International Obligation sites with set international water quality guidelines.

Additionally, the IUCMA monitors groundwater levels. As a result of the most recent statistical analysis in this regard, no pumping or groundwater development cutbacks are currently recommended and/or predicted.

River sand mining affects our water resources negatively and remains one of our grave challenges in the water management area. Individuals who intend to embark on instream mining of sand requires an authorisation/licence in terms of section 22 of the NWA. The DWS has developed guidelines in this regard and these guidelines are available in both hard and soft copy from DWS and the IUCMA. We urge all our users to be alert and to report illegal sand mining to the IUCMA.

I am indeed encouraged by the outcome of the following two legal matters:

- In *Leadall Investments Properties (Pty) Ltd v Inkomati-Usuthu Catchment Management Agency & Others* the Court found that Leadall has failed to exhaust internal remedies in terms of the National Water Act No. 36 of 1998, specifically

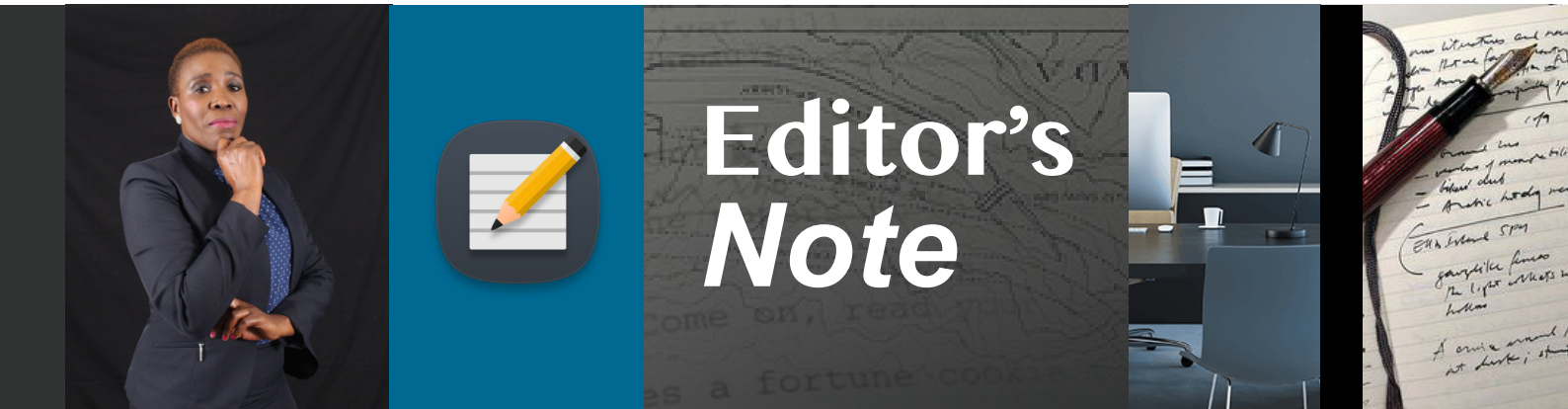
section 53(1), as envisaged in Promotion of Administrative Justice Act No. 3 of 2000. The application was dismissed with costs to Leadall.

- In *State v Thulile Lina Mabaso*, the Accused, Thulile Lina Mabaso was found in contravention of the National Water Act No. 36 of 1998 and the National Environmental Management Act No. 107 of 1998, read with the Criminal Procedure Act No. 51 of 1997. The IUCMA continues to monitor the situation for any further violation of the National Water Act.

Finally, the IUCMA, in conjunction with the DWS, endeavour to empower learners through education and capacity building. In this regard, a career exhibition was held at four schools, namely Rev SA Nkosi Secondary School, Zandelingpost Combined School, Ubuhlebuzile High School and Warburton Combined School. Learners were intrigued to hear about the numerous career options in the water industry and left the exhibition inspired.

The IUCMA continues to enjoin upon all its stakeholders and members of the public to nurture and protect our water resource at all cost. I therefore urge our stakeholders and members of the public to be our eyes and ears on the ground and to report any unauthorised or illegal activities. Together we can preserve our most precious commodity.

Adv. Bernard Shabangu
Acting Chief Executive Officer



Dear valued stakeholders

We at the Inkomati-Usuthu Catchment Management Agency (IUCMA) hope to find you in good health and great spirits despite these challenging times. Our second newsletter of the year informs you of all current and recent activities within the Water Management Area.

The COVID-19 pandemic has compelled the IUCMA to evaluate and reconsider its processes in respect of water resource management. The new insights gained during fruitful discussion with all stakeholders are currently being interrogated and alternatives are being contemplated. More information regarding integrated planning, digital monitoring and early warning systems to manage the water resource effectively can be found on Page 20 through 21.

Water quality is a priority since it dictates fitness for uses and the protection of the health and integrity of aquatic ecosystems. As the responsible authority within the jurisdiction, the IUCMA routinely monitors the chemical, physical and biological characteristics of water resources in the Inkomati-Usuthu WMA. You can find more information on Page 26 through 29 about the most recent study conducted.

The South African water sector has progressively been transforming since 1994. Subsequent to a Ministerial directive of the Department of Water and Sanitation, consultations were undertaken with all the relevant stakeholders. Information

about the establishment of Water User Associations and the transformation of Irrigation Boards in the IUCMA can be found on Page 14 through 17.

Mining is central to the economy of South Africa but the processes involved in mining, for example, river sand mining interferes with the natural environment. River sand mining is regulated in terms of the section 21 of the National Water Act No. 36 of 1998. You can read about the negative impacts of illegal river sand mining on our water resource on Page 38 through 39. In this regard, we are appealing to water users to report any illegal activity in this regard.

By monitoring groundwater levels the IUCMA ensures adequate groundwater storage within the Usuthu sub-catchment. Information about the groundwater status and recommendations in this regard can be found on Page 24 through 25.

Water is a limited resource hence the IUCMA together with its stakeholders has initiated a process to develop a Water Allocation Plan (WAP) that meets the environmental and stakeholder water needs. A detailed summary of the water allocation plan process can be found on Page 33 of this publication.

The IUCMA held a career exhibition at four schools in the Usuthu region in which learners were informed





about career choices in the water sector. Learners received packs which contained all the relevant information about South African universities that would assist them should they wish to apply to study at a tertiary institution. On Page 36 through 37 you can read a personal account of the career exhibition.

Page 18 through 19 provides a summary of *Leadal Investments Properties (PTY) Ltd v Inkomati-Usuthu Catchment Management Agency & Others*. In brief, the Court dismissed the application with costs to be paid by *Leadal Investments Properties*.

In *State v Thulile Lina Mabaso* the Accused was found guilty on all four charges of violating the National Water Act No. 36 of 1998. A succinct

summary of the charges and the outcome can be found on Page 22.

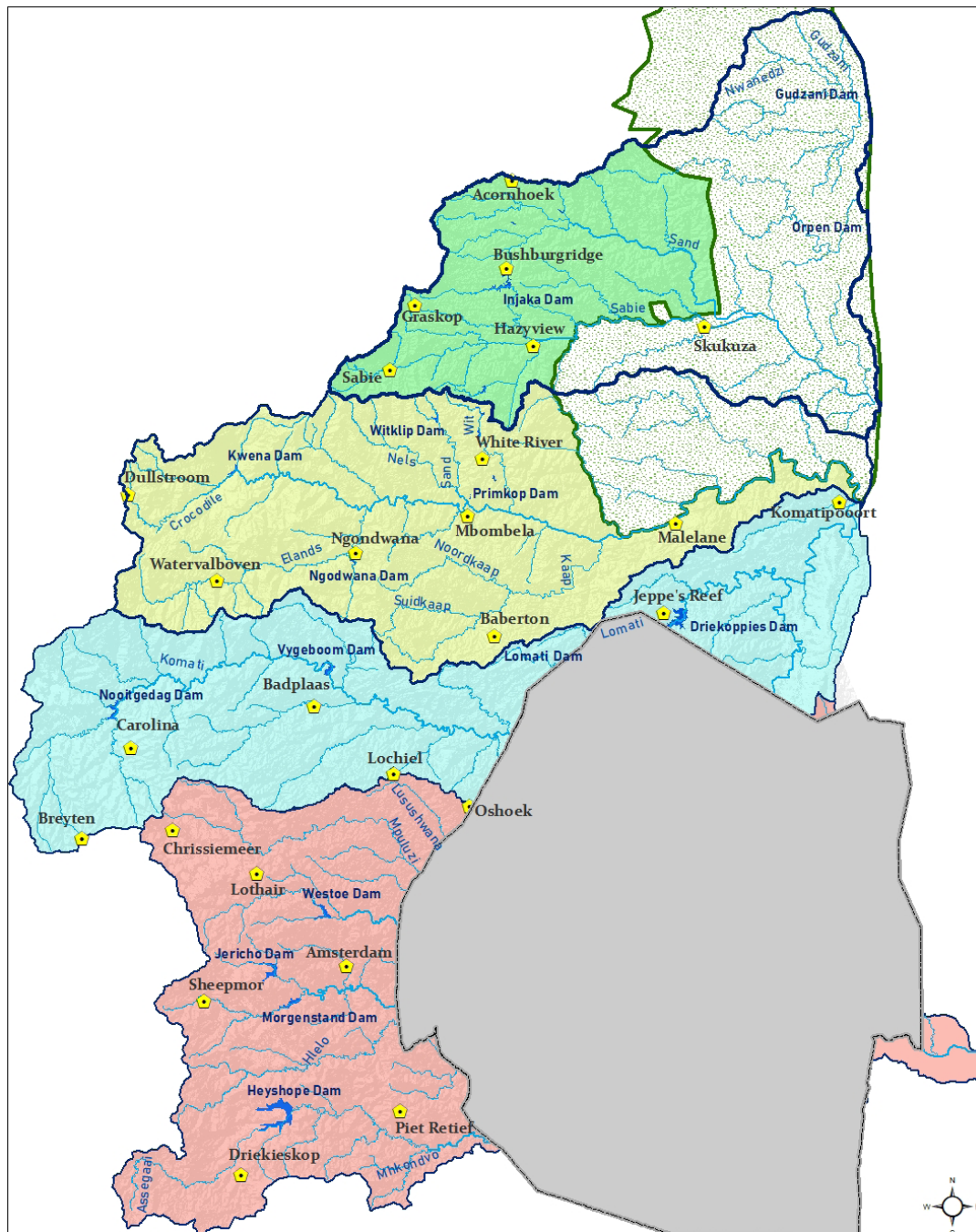
And finally, the IUCMA urges all our stakeholders and the general public to be vigilant and report any transgressions in the water industry. We also appeal to all stakeholders and the general public to increase their commitment to save and protect our precious resource for future generations.

Ms Sylvia Machimana



**QR CODE FOR THE
IUCMA WEBSITE**

INKOMATI-USUTHU WATER MANAGEMENT AREA



Legend

Inkomati Usuthu WMA

Catchment

- Sabie/Sand
- Crocodile
- Komati
- Usuthu
- Dams

Rivers

River Order

- 1
- 2
- 3
- 4

Towns

Kruger National Park

International Border

Water Management Areas



0 5 10 20 30 40 KM 1:995 706



IUCMA GETS CLEAN AUDIT FOR 2020/21

*“Unqualified audit opinions
since inception
2006-2021 and still going strong”*

WHAT THE IUCMA IS ALL ABOUT



Water resource management is all about balance, sharing and fairness

The National Water Act No. 36 of 1998 states that water needs to be shared fairly among everyone who needs it and that it should be protected for our children and their children and so on. To do this, everyone must work together to manage water resources in a sustainable, equitable, and efficient way.

1. ABOUT US

The Inkomati-Usuthu Catchment Management Agency (IUCMA) is the water resource management agency in the Inkomati-Usuthu Water Management Area (WMA). It is established in terms of section 78 of the National Water Act (Act 36 of 1998) to perform water resource management at local level. We are the first Catchment Management Agency (CMA) to be established in the country, as published in Government Notice No. 397 of 26 March 2004. The IUCMA is a body corporate listed in Schedule 3A of the Public Finance Management Act No 1 of 1999 (PFMA) as a national public entity. The Governing Board is accounting authority of the CMA. CMAs are established to improve decentralised decision making with stakeholders thereby improve water resource management at local level.

2. WHAT DO WE DO?

The IUCMA operates within the legislative framework of the National Water Act. Some of our functions include, but are not limited to:

- Inherent functions (s80) NWA

Investigate and advise interested persons on water resource management.

Compilation of the CMS.

Co-ordinate related activities of water users and WMLs.

Promote co-ordination of implementation of any applicable development plan.

Promote community participation in water resource management.

- Additional inherent functions

Prevention and remedying effects of water resource pollution as stipulated in section 19 of the NWA.

Control of emergency incidents in respect of water resource pollution as stipulated in section 20 of the NWA.

The temporary use of existing authorised irrigation water in terms of section 25(2) of the NWA.

Appoint in terms of section 124 Authorised Persons to perform inspection and remedy functions in respect of water resources in terms of section 125(1)–(3).

- Additional functions include:

Section 34(2): To register an existing lawful water use subject to section 26(1)(c).

Verification of existing WUs.

Chapter 5 of the NWA.

Section 57 – Application of pricing strategy (making and receiving of WU charges).



Section 124 - As WMI may appoint authorised persons.

Sections 125 –

Authorised persons may enter and cross properties to:

- Do routine inspections of water use under authorisation.
- Clean, repair, maintain, remove or demolish government water work operated by a WMI.
- Undertake work for cleaning, clearing, stabilising and repairing water resource and protecting the resource quality.
- Undertake work to comply with an obligation imposed on any person under the NWA in the case of failure by such person.

Section 145 of NWA – Duty as WMI to report to public –

- Flood which occurred or is likely to occur
- Drought which occurred or is likely to occur
- Water work which might fail or failed or might endanger life or property
- Levels likely to be reached by flood waters from time to time
- Any risk posed by the quality of water to life, health or property

Any matter connected with water or water resources which the public needs to know

Section 34 - Registration of existing lawful use

Section 35 - Validation and verification

Section 40, 41, 42 and 44

Licencing process

Section 51, 52

Amendment of licences

Section 53, 54, 55

Management of licences and licence conditions

Section 57, 58 - Water charges

3. HOW DO WE DO IT?

3.1. INVOLVING THE COMMUNITY

The management of resources entails protection, use, development, conservation, management, and control of water resources within the WMA as contemplated in the National Water Act (NWA) No. 36 of 1998. The National Water Act has three pillars i.e. equity, sustainability and efficiency.

Information continues on page 12



Everyone must take part in planning and making decisions about water resource issues that affect their lives. The IUCMA has established various platforms and processes to manage different factors affecting the catchment. Such platforms or processes aim to include everyone who may be affected. Various catchment forums are operating efficiently in all the sub-catchments. The forums are open, democratic and transparent, whereby everyone's voice counts. To ensure fairness in the processes, historically disadvantaged individuals (HDIs) are constantly being trained and empowered in water-related issues so that they can make informed decisions.

3.2. MAKING SURE THAT THE WATER STAYS HEALTHY

Water quality samples and variables are analysed and shared with stakeholders. All activities within the water management area are inspected and numerous follow-up inspections are conducted to ensure that the reported or identified transgressions are remedied. Water quality (physical, chemical and biological) monitoring is of prime importance to the IUCMA. Water samples are taken on a regular basis for chemical and microbiological analysis. The bio-monitoring of the rivers in the WMA is an important part of our monitoring activities. Checking the health of the plants and animals in and around a river is also a good way to ensure that the quality of the river water is fit for its intended uses. This is done through a dedicated unit "River health" equipped with a team of suitably qualified individuals under the Directorate of Water Resource Protection. Wetlands rehabilitation advisory services are provided to various stakeholders including mines – after such studies.

3.3. REGULATING WATER USE

To make sure that there is enough water for everyone who needs it, the IUCMA has to make sure that everyone follows the rules about water use by doing the following: sharing knowledge and expertise on

hydrological data network, sources and data acquisition; real time measurement of water quality; maintaining water resources information management database; using strategic adaptive management for river operations; establishing a flood forecasting and warning system for the Crocodile River Catchment. IUCMA has a successful operations committee that has brought the stakeholders together and has installed and maintain several real time runoff and rainfall gauges to improve the coverage for real time operations.

Stakeholder empowerment workshops are held to make sure that all concerned individuals are equipped with knowledge needed for taking part in water resources management regardless of their historical or educational background. To make sure that all water users adhere to the NWA, they need be in possession of a valid water use license to be able to abstract water from the resource. The IUCMA needs as much information as possible to ensure that the catchment is managed properly in support of sustainable economic and social development. It monitors social, technical, economic, environmental, and political (STEEP) factors related to water resource management in the water management area.

3.4. CO-OPERATIVE GOVERNANCE

All sectors and individuals must work together towards the same goal of making sure that the catchment is used sustainably, equitably, and efficiently. A dedicated unit of Institutions & Participation exists to make sure all stakeholders are mobilized to take part in decision making relating to water management in the water management area.

MEET THE NEW OVERHAULED IUCMA GOVERNING BOARD



Mr M.S. Mthembu
Chairperson



Ms S.D. Wiggins
Deputy Chairperson



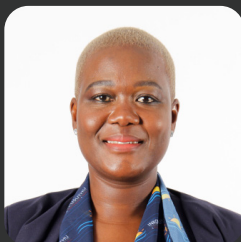
Mr W.B. Baird
Member



Ms L.M. Skhakhane
Member



Dr T. Kelly
Member



Ms L.C. Zulu
Member



Mr M. Gangazhe
Member



Adv G. Khoza
Member



Mr T. Mathebula
Board Secretary



Institutional reconfiguration and re-arrangements in the South African water sector. Establishment of Water User Associations and transformation of Irrigation Boards project in the Inkomati-Usuthu Water Management Area



*By Mr Hasani Makhubele
from Institutions and
Participation*

The current water legislation, as it stands, challenges the policies and values of the pre-1994 dispensation by framing water resource management within the context of two fundamental principles: equity and sustainable economic efficiency. These principles are strongly transformational in nature, seeking to move water legislation towards integration, redistribution and equity in allocation, sustainable water use, resource protection and stakeholder participation. The two principles (equity and economic efficiency) should be managed in such a manner that they are not found to be in conflict with each other. In achieving these principles, South Africa has progressively embarked on several constitutional reforms since 1994. Water governance is one of the prime reforms in the process.

Based on the water governance reform, the South African water sector has been evolving and taking strides in the implementation of the National Water Act No. 36 of 1998. The Inkomati-Usuthu Catchment Management Agency (IUCMA) as water resource management authority, is therefore playing its legislative role in facilitating the process of establishment of water management institutions

that enhance the decentralised management of its water resources at catchment level. The focus is to bring to the fore and include the previously marginalized, land disposed, historical homelands which are now trust lands without land ownership through a democratic process that will see a multitude of water user associations inclusive of all sectors.

Following the Department of Water and Sanitation's (DWS) Ministerial directive, the IUCMA has been engaging with all the existing Irrigation Boards (major and minor), all government-controlled works/schemes, municipalities, all authorised and registered water users (private and public) within its Water Management Area (WMA) regarding the transformation of Irrigation Boards and the establishment of the Water User Association (WUA) process.

As the process unfolds, the first phase of consultation meetings with all the affected and interested parties were conducted between May and June 2021, where inputs and comments regarding the proposed institutional scenarios including hydrological boundaries were solicited. The DWS has developed guiding principles and a checklist to be followed and used in facilitating this process.



Several consultation meetings with members of the Irrigation Boards were conducted by the Inkomati Irrigation Forum (IIF) in the Inkomati catchment (Figure. 1) which is predominantly under Irrigation Districts. The IUCMA, through the Institutions & Participation Division, facilitated these consultation meetings with water users who are outside of the Irrigation Districts of the Inkomati catchment (Figure. 1) and for those water users who are within the Irrigation Districts but are not members of any Irrigation Board. During these consultation meetings, the proposed institutional scenarios that were shared with the water users included the hydrological boundaries, the issues around membership and voting rights which will now be inclusive of all water use activities, not only for irrigation like the current role of the Irrigation Boards who only control and collect revenue for bulk and raw irrigation water. Other pertinent issues shared in the consultation meetings

were how these scenarios were developed. In crafting the proposed scenarios, we were looking at each catchment:

- ▣ the area;
- ▣ towns within the catchment;
- ▣ key economic activities;
- ▣ water requirements;
- ▣ water storage infrastructure;
- ▣ key challenges such as over allocated water or lower rainfall patterns; and finally
- ▣ existing Irrigation Boards.



PARTICIPATION: Stakeholders grasp information during the Crocodile Sub-Catchment at Ehlanzeni District Municipality Disaster Management Centre.

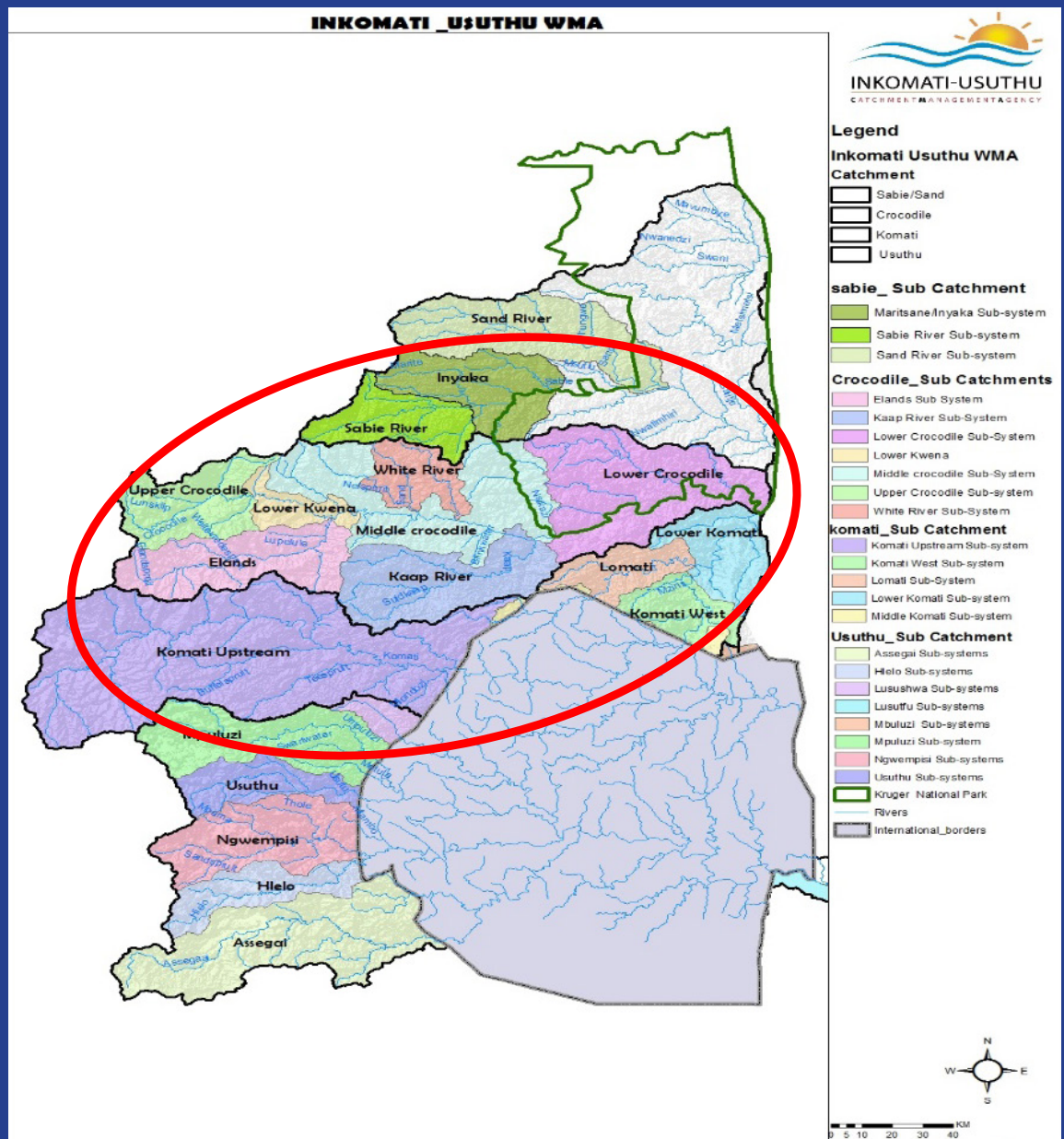


Figure: 1 Area inside and outside irrigation districts in the Inkomati-Usuthu Water Management Area

As we proceed to the next (second) phase of the sector specific consultations which will resume in September 2021, the nomination of sector representatives will be facilitated for members who will serve in the Transitional Steering Committee (SteerCom). These Committees will be responsible for developing the concept framework and the drafting the Constitution for the proposed Water User Association in each specific area. The IUCMA will thereafter assess all the proposals and draft

constitutions and determine compliance with the Guidelines and the Checklist developed by the DWS before submission to the Minister for final approval and gazetting of the Water User Associations.

For further information and inputs, please do not hesitate to contact the IUCMA office at 013 753 9000 or email Mr. Hasani Makhubele at hasanim@iucma.co.za.



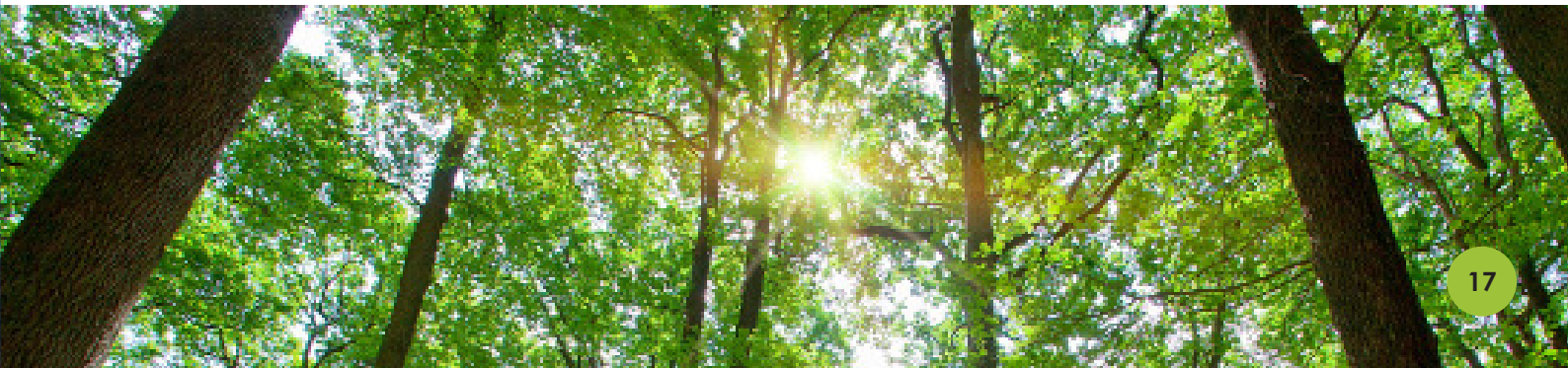
CONCENTRATION: Stakeholders concentrate as they grasp information during the Water User Association consultation in the Usuthu Sub-Catchment at Mkhondo Local Municipality.



ENGAGEMENT: Stakeholders engaging during the Water User Association in the Crocodile Sub-Catchment at Ehlanzeni District Municipality Disaster Management Centre.



ACTION: IUCMA's Mr Hasani Makhubele addressing the stakeholders during the Water User Associations consultation at Lower Komati area in Nkomazi Local Municipality at Mzinti Community Hall.



LEADAL INVESTMENTS PROPERTIES (PTY) LTD v INKOMATI- USUTHU CATCHMENT MANAGEMENT AGENCY & OTHERS



*By Mr Sphamandla Mchunu
from Executive Corporate
Services*

Summary

In this matter, the Applicant, Leadal Investments ("Leadal") approached the Mpumalanga Division of the High Court seeking an order reviewing and setting aside a decision by the First Respondent (IUCMA) to issue a directive in terms of section 53(1) of the National Water Act No. 36 of 1998 ("the Act"). The directive relates to water use activities which were not permitted by the IUCMA on one of its properties. Leadal, citing a myriad of reasons and sections, based their challenge and subsequent request for the Court to set aside the IUCMA's decision on the provisions of the Promotion of Administrative Justice Act No. 3 of 2000 ("PAJA").

The basis of the IUCMA's defense is a preliminary one, namely:

(i) That Leadal had not exhausted internal remedies provided for by the Act. The IUCMA thus draws the attention of Leadal and the Court to section 148(1)(j) of the Act which stipulates that stakeholders like Leadal are entitled to appeal the decisions of the IUCMA to the Water Tribunal. Leadal had failed to even consider taking the

matter on appeal to the Water Tribunal and instead approached the Court for a review in terms of PAJA.

Leadal also raised two preliminary issues, namely;

(i) That the CEO of IUCMA lacked the authority to depose to the affidavit on behalf of the IUCMA and the Department, and

(ii) That the evidence of two witnesses of the IUCMA should not be considered by the Court, for rather technical and somewhat immaterial reasons which I prefer not to discuss for purposes of this summary.

Leadal also raised substantive issues, namely;

(i) That Mr Magagula of the IUCMA had already taken a decision at one of the meetings between the parties that they did not contravene the provisions of the Act, and the IUCMA thus became disempowered to review (change) its own decision in the circumstances.

(ii) It would have served no purpose for Leadal to take the matter on appeal to the Water Tribunal because the decision itself (by the IUCMA through its CEO) was too and taken after a decision (by Mr Magagula) had already been taken).

(iii) Leadal contended that the circumstances in this matter are so extraordinary that they justify the Court exempting them from exhausting internal remedies. Moreover, an appeal would have been futile as the provision itself (section 48(1)(j)) states that the decision of the IUCMA would not have been suspended by the noting of the appeal. It is not within the scope of this summary, nor my inclination, to regurgitate the facts of the matter, save to say that there was no real dispute of fact and all the parties found commonality in the recording of events.

The Court found that:

1. RE: CEO's lack of authority:

Leadal completely misinterpreted the purpose of the rule on which it relied. The relevant rule sought to prevent lawyers from instituting legal action without the knowledge and/or consent of their clients, and not to prevent officials like CEOs from doing so.

2. RE: Evidence of IUCMA witnesses not to be considered:

The Court was satisfied that the mistake was a pure oversight on the part of the legal representatives of the IUCMA and decided to consider their evidence.

3. RE: Lack of exhaustion of internal remedies by Leadal:

Leadal did not comply with the provisions of PAJA in that it failed to exhaust internal remedies envisaged in the National Water Act and further failed to apply to Court for an exemption to do so. Leadal also did not demonstrate that its attempt to exhaust internal remedies had somewhat been frustrated.

In conclusion, the Court stated that it found no evidence before it that supports why Leadal chose to overlook the provisions of section 148(1)(j) and not exhaust internal remedies. It stated that any Court should loath arrogating powers that vest (by legislation) on another body such as the Tribunal unless exceptional circumstances exist. In this case, it found no exceptional circumstances justifying its premature interference.

The Court further states that it is correct that section 148(2)(a) of the Act states that an appeal to the Tribunal does not suspend a directive issued in terms of sections 19(3), 20(4) (d) or 53(1) pending the disposal of the appeal; but nothing prevented Leadal from launching an application to suspend the process prescribed in the directive pending the finalisation of the appeal. That application would most likely have succeeded. Leadal has failed to exhaust internal remedies in terms of the Act as envisaged in PAJA and its application for reviews stands to be dismissed.

The application was thus dismissed with costs to be paid by Leadal.

COVID 19 RESPONSE: CURRENT AND FUTURE WATER RESOURCE MANAGEMENT



*By Dr Jennifer Molwantwa from
Executive Water Resource
Management*

The advent of COVID-19 has not only brought doom and gloom to the globe, continent, country, and the Water Management Area (WMA) but has made true the saying: "Out of every crisis, opportunities will arise". It is only how we implement and with what - which begs the question.

One of the earliest known interventions to deal with the COVID-19 pandemic was potable water for the purpose of washing hands. This meant not only is water availability a requirement but critically important is the quality that it must be fit for a purpose. The water resource is continuously being negatively impacted by domestic wastewater, mining decants, agricultural diffuse pollution and other industrial effluents (we must be cognisant of the baseline levels of elements in the area. For this article, let us focus on domestic wastewater impacts and the need for integrated planning, digital monitoring, and early warning systems as an integral part of water management through the entire value chain.

The link between water resource and water services (the water value chain) is the best kept open secret where the two authorities namely Local Municipality (water service provider) and the Catchment Management Agency (Water Resource Management) should be working uniformly to ensure water security, availability, acceptable quality, high standard of treatment of raw water to potable and sewage to discharge all in the best interest of public good and human rights. Unfortunately, this is far from our reality in South Africa and Inkomati-Usuthu Water Management Area (IUWMA). The risk posed by the actual reality includes human health, economic and environmental to which little or no attention is being paid and when it is given attention, there is a sense of helplessness about the cost of doing nothing or doing something.

The solution to this crisis lies in the status quo analysis of the infrastructure, systems, skills, and costs. We must acknowledge that the world has moved far beyond an individual walking miles to collect a sample and analyse it in a lab. Similarly, that a leak is detected from water splashing onto the road or even believing that the water we drink is not recycled from the wastewater discharged into the resource. The aged infrastructure needs to be repaired and interlinked to ensure that every drop (~90%) is accounted for. The wastewater must be treated to acceptable discharge levels to be fit for use in compliance to the Reserve (human health and ecological), strategic use, agriculture, poverty eradication, inter-catchment transfers and in the most unfortunate cases, to support the destitute and vulnerable members of our communities that use raw water for domestic purposes. This means, our systems must be effective in analysing data near real time and pick up abnormalities so that there can be early warning to those downstream users awaiting every drop for whatever the purpose. The IUCMA is using telemetric monitoring at strategic locations to ensure compliance with the RQOs, pick up quality/ flow abnormalities and to ensure compliance with the Tripartite Interim IncoMaputo Agreement (IIMA) between the Republics of South Africa, Mozambique, and the Kingdom of eSwatini. These systems and technologies require a skilled workforce, and a patriotic civil society that value every investment made towards infrastructure, properly managed infrastructure development projects with high standards of quality and guarantees that can last up to 50 years.

The level of accountability placed on the Local Municipality through the green and blue drop must be of such a standard that human rights are at the centre due to the quality of water produced and effluent discharged. The financial allocation of various grants from National Treasury, Cooperative Governance and Water and Sanitation departments as well as District Municipality, in the case of disasters and drought, should be ring-fenced for water projects and these must be of quality and be concluded on budget and on time. High level of project management in government is essential.

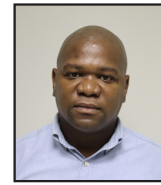
A dire need exists for state engineers to control and balance the costs associated with engineering project management that skyrockets from one project to another despite the regulations set by professional bodies. The interaction between engineering and science must be in the best interest of human rights and the environment to ensure that attention is being paid to the water balance where every drop of drinking water provided, an equal treatment capacity is in place. The slogan: "water is life, sanitation is dignity" means little if there is minimal consideration for the resource from which water is abstracted for treatment and to which treated effluent is discharged.

It is critical that the case for water be made by all in society as climate change and its effect are felt daily as we manage our resources. Louder voices must be heard on efficient use of water in all sectors, for efficient and optimised processes, efficient agricultural practices, the water mix source (including surface, ground, grey and rainwater), re-use, desalination, and conservation of water. The IUWMA experienced a five-year long drought which was effectively managed using advanced systems, stakeholder engagement and strategic adaptive management. It is anticipated that these droughts will be more frequent and will threaten water security, socio-economic development and human health for an increasing period of time. Society and government need to come to an agreement to pay for water services such as water resource charges, water discharge charges, infrastructure charges and research levies where possible. The true cost of water, like energy is around the corner while this finite resource is considered life with no cost.

The impact of solid waste in the rivers, specifically disposable napkins is a big challenge. The IUCMA intends to follow up with the manufacturers to understand their cradle to grave model and socio-environmental responsibilities. We further experience reduced yield from the alien invasive plants which we intend to remove through one of our projects. There is a serious need for all users to practice water conservation and demand management where the necessary allocations should be made for a specific use to ensure that there is equitable access to quality water for all in the Inkomati-Usuthu WMA by 2030.

The IUCMA will engage stakeholders to close the existing lawful use (ELU) process and focus on the implementation of the National Water Act. In this regard, a comprehensive water audit will be conducted to align and update our water use database and ensure that we know and can measure what we are managing. We are further encouraged by the unfolding process of irrigation board transformation and the establishment of water user associations. This will see a wall-to-wall inclusion of all water users to form part of decision making in the protection of the water resources under the leadership of the IUCMA as a water resource management authority.

Look out for and support our Compliance, Monitoring and Enforcement officials out there as their work is in the best interest of protecting human rights. We encourage you to report all unauthorised and illegal activities including river sand mining, obstruction of resources, spillages and blockages of sewage, construction taking place within the flood lines and wetland areas, discharge of waste into the resource by honey suckers and individuals disposing of used disposable nappies in the resource. The resource is finite. Let us protect it for future generations.



By Mr Andrew Mbhalati from Compliance Monitoring and Enforcement and Mr Sphamandla Mchunu from Executive Corporate Services

STATE v THULILE LINA MABASO

Summary

In this matter, the Accused Thulile Lina Mabaso ("Mabaso") faced four charges of violating the National Water Act (NWA) No. 36 of 1998 and the National Environmental Management Act (NEMA) No. 107 of 1998, read with the Criminal Procedure Act No. 51 of 1977. The charges were:

- a) Unlawfully and illegally excavating sand from the Kaap River and thereby impeding and diverting the flow of water in the watercourse without first obtaining a Water Use Licence;
- b) Unlawfully and illegally excavating sand from the Kaap River and thereby altering the bed, banks and characteristics of the river without first obtaining a Water Use Licence;
- c) Removed vegetation and sand from the bed and banks of the Kaap River, which conduct is likely to have a detrimental effect on the environment; and
- d) Failing to comply with a lawfully issued Directive in terms of section 53(1) of the National Water Act.

The Mpumalanga Regional Court, sitting in Mbombela, heard evidence and a plea in terms of Section 112 of the Criminal Procedure Act was tendered.

On 25 January 2021, the Accused was found guilty on all counts and, after hearing oral evidence both in mitigation and in aggravation, the Court passed the following sentence:

- a) Payment of a R100 000,00 fine or five years imprisonment wholly suspended on condition that the Accused is not found guilty of violating the National Water Act within the five years; and
- b) That the Accused must approach the Department of Environmental Affairs with a plan on how she intended to rehabilitate the excavated land and that the Department approves and supervises the implementation of that plan.

The IUCMA is closely monitoring the conduct of the convicted person and any other people engaged in the farm to ensure that no further violations of the National Water Act occur.

IBWiWC



3RD INCOMATI BASIN WOMEN IN WATER CONFERENCE

Date: 14 - 16 November 2021

**Venue: Ingwenyama Conference &
Sports Resort, White River**

THEME:

“Valuing Water during disaster”

For any enquiries:

Ms Liketso Khaile: khailel@iucma.co.za or Ms Gugu Motha: mothag@iucma.co.za

Tel: 013 753 9000/9015/9021

BASELINE GEOHYDROLOGICAL STATUS OF THE USUTHU SUB-CATCHMENT



By (from left to right) Dr Tendai Sawunyama,
Dr Teboho Shakhane from Resource Planning and Operations

An overview of the groundwater quantity status issued by the Inkomati-Usuthu Catchment Management Agency (IUCMA)

The IUCMA continuously monitors groundwater levels as proxy for groundwater storage dynamics within the Usuthu sub-catchment. The measured groundwater levels are examined for potential: 1) breach of objective values, 2) groundwater level trends, and 3) a sudden large drop or rise in groundwater levels against the objective values which are used to inform the groundwater resource management responses.

Groundwater levels from selected boreholes change with rainfall fluctuations, although there is a lag period that leads to high and low water levels in dry and wet season respectively (Fig. 1). The

fluctuations are predominantly minimal; however, in few instances, the fluctuations are far below objective values which coincides with a period of the 2015-2016 El Niño-related drought.

From the 2015-2016 drought period, water levels have been progressively exhibiting an upward trend. The increases, ranging between 2.18 m and 6.81 m are at an average rate of 0.44-1.75 m/yr whilst the shifts from objective values positively ranged between 44.6%-73.8% (1.42-5.92 m) (Table 1).

Borehole Amsterdam_W5N0006 (not shown in the table) exhibited steady groundwater levels within the objective values. However, values with a notable increase of six metres (6 m) between November 2017 and November 2019 lead to a per cent increase from the objective values of about 67.6% (5m).

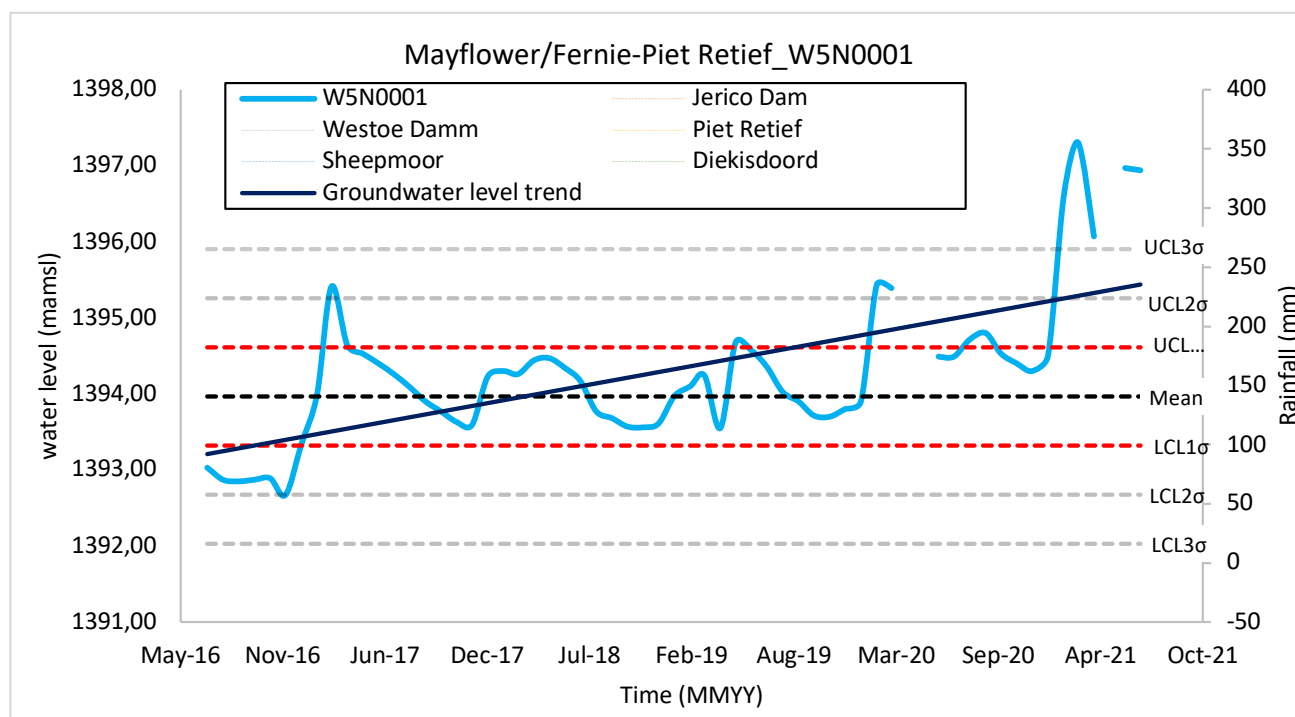


Fig. 1 A Mayflower groundwater hydrograph superimposed onto the rainfall in Usuthu sub-catchment.

Table 1 Statistical analysis of groundwater level hydrographs for a five-year (5-yr) period (2016 to 2021).

site ID	Mayflower W5N0001	Mayflower W5N0002	Cangaza W5N0003	Kwa-Gandlanga W5N0004	Athalia W5N0006
Max (mamsl)	1397.31	1362.43	1352.49	1188.41	1197.57
Min (mamsl)	1392.67	1355.62	1350.31	1183.80	1194.70
Rate (m/year)	0.93	1.36	0.44	0.92	0.57
Objective values	1393.97	1357.41	1351.07	1186.35	1195.89
% Increase***	72.04	73.79	65.17	44.63	58.56

***from objective values

The following conclusions are subsequently made:

- ▣ Groundwater resources in Usuthu sub-catchment are predominantly constrained by rainfall patterns where groundwater levels increase due to groundwater recharge following significant precipitation events and vice versa.
- ▣ Progressive increasing trends of groundwater levels for the past five years effectively indicate progressive replenishment of groundwater storage in the catchment, and
- ▣ Increasing trends imply that groundwater recharge balances the potential impact of the surrounding groundwater demand or use (i.e. existing water use and potential natural discharge into local streams and springs are being sufficiently replaced by recharge).

Against the conclusions made above, no pumping or groundwater development cutbacks are currently recommended and/or envisaged. The IUCMA will continue to monitor groundwater quantity status and evoke adjustments in allowable groundwater extractions or resource developments should the need arise in the sub-catchment.

Issued by the Inkomati-Usuthu CMA-Contact:
IUCMA: Resource Planning and Operations
Manager: Dr Tendai Sawunyama on 013-753
9000 or sawunyamat@iucma.co.za and Senior
Scientist: Geohydrology Dr Teboho Shakhane
on shakhanet@iucma.co.za.

ANNUAL WATER QUALITY STATUS REPORT

FOR THE INKOMATI-USUTHU WMA
2020/21 FINANCIAL YEAR



By (From left to right) Mr Marcus Selepe
and Ms Caroline Tlowana Resource Quality
Monitoring

1. INTRODUCTION AND BACKGROUND

1.1 Introduction

The Inkomati-Usuthu Catchment Management Agency (IUCMA) is the responsible authority within the jurisdiction of the Inkomati-Usuthu Water Management Area (WMA). The WMA is located in the eastern part of the country and falls wholly within the Mpumalanga Provincial boundary as depicted in Figure 1 below. The IUCMA is responsible for three (3) of the nine (9) demarcated WMAs. The WMA is part of international basins called the Incomati River Basin and Maputo River Basin. The water resources in the area are strategically important for international obligations as well as inter-basin transfers for power generation. As an authority, the IUCMA is responsible for managing, controlling, protecting and monitoring water resources in its area of responsibility.

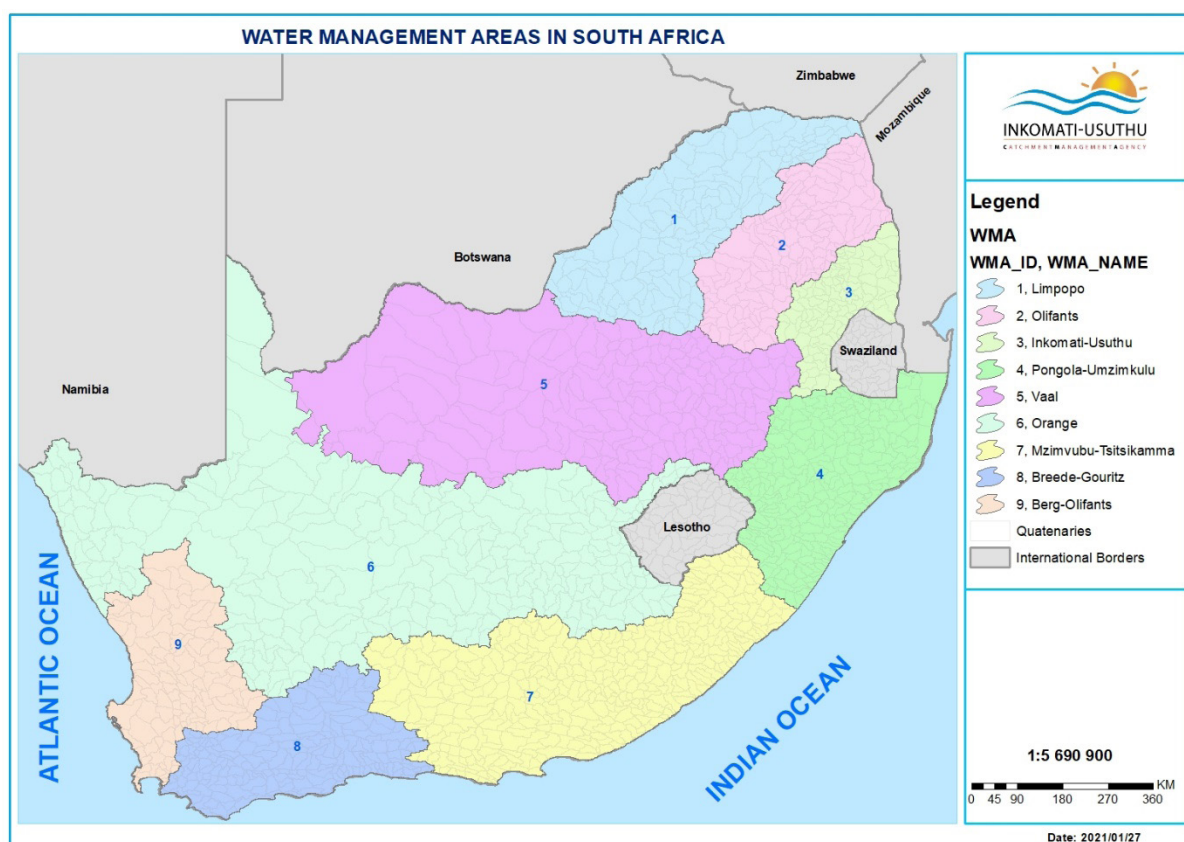


Figure 1: Map of South Africa indicating the nine (9) WMAs.

1.2 Background

Chapter 14 of the National Water Act No. 36 of 1998 (NWA) requires the Minister to establish national monitoring systems for the collection of appropriate data and information that are adequate and responsive to the present and future challenges of efficient management of the South Africa's water resources. The Inkomati-Usuthu Catchment Management Agency (IUMCA) conducts regional water quality monitoring in the Inkomati-Usuthu WMA which feeds into the national monitoring system.

Water quality is vital as it determines fitness for uses and the protection of the health and integrity of aquatic ecosystems, and is described as having chemical, physical, and biological characteristics (DWS, 1996). Surface water quality within Inkomati-Usuthu WMA is measured by means of a physical, chemical and microbiological monitoring programme conducted monthly through grab sampling. The samples are then submitted to a South African National Accreditation System (SANAS) accredited laboratory for analysis. The variables of concern differ from catchment to catchment and are based on the types of activities occurring within a specific catchment. Monitoring is conducted for both surface water to determine the water resource quality as well as at the discharge points for Compliance Monitoring and Enforcement (CME) purposes to establish the water users' compliance to the conditions of their respective authorisations or set standards.

For this report, the surface water quality monitoring points for Ecological Water Requirement (EWR) Sites and International Obligation have been selected for reporting purposes, since it would not be practical to report on all 264 monitoring sites. The data reported were collected over a period of twelve (12) months (January 2020- December 2020) within the WMA.

The water quality status of parameters is compared with the Resource Quality Objectives (RQO) published in the Government Gazette dated 30 December 2016, the Target Water Quality Guideline limits (TWQG) and International Water

Quality Guideline limits as per the Tripartite Interim Agreement between the Republic of Mozambique, the Republic of South Africa (RSA) and the Kingdom of eSwatini. The water quality status for compliance is represented by the colour green and for non-compliance is represented by the colour red throughout the report unless indicated otherwise.

2. Objectives

- To determine the water quality trends within the Inkomati-Usuthu Water Management Area.
- To determine compliance at Ecological Water Requirements (EWR) Sites with Resource Quality Objectives (RQOs) and International Obligation sites with set international water quality guidelines.

3. Methodology

3.1 Study Area

The physical, chemical and microbiological programme of water resources takes place within the jurisdiction of the Inkomati-Usuthu WMA and comprises of Sabie/Sand Catchment, Crocodile Catchment, Komati Catchment and Usuthu Catchment as illustrated in [Figure 2](#) below. The IUWMA is situated in the north-eastern part of South Africa in the Mpumalanga Province. It borders on Mozambique in the east and on eSwatini in the south-east. The water management area extends over several parallel river catchments which all drain in a general easterly direction, and flow together at the border with Mozambique or within Mozambique, to form the Incomati River which discharges into the Indian Ocean immediately north of Maputo at Villa Laisa, while the Usuthu River confluences with the Pongola River to form the Maputo River which discharges into the Indian Ocean South of Maputo and is called Maputo basin.

Information continues on page 28 and 29

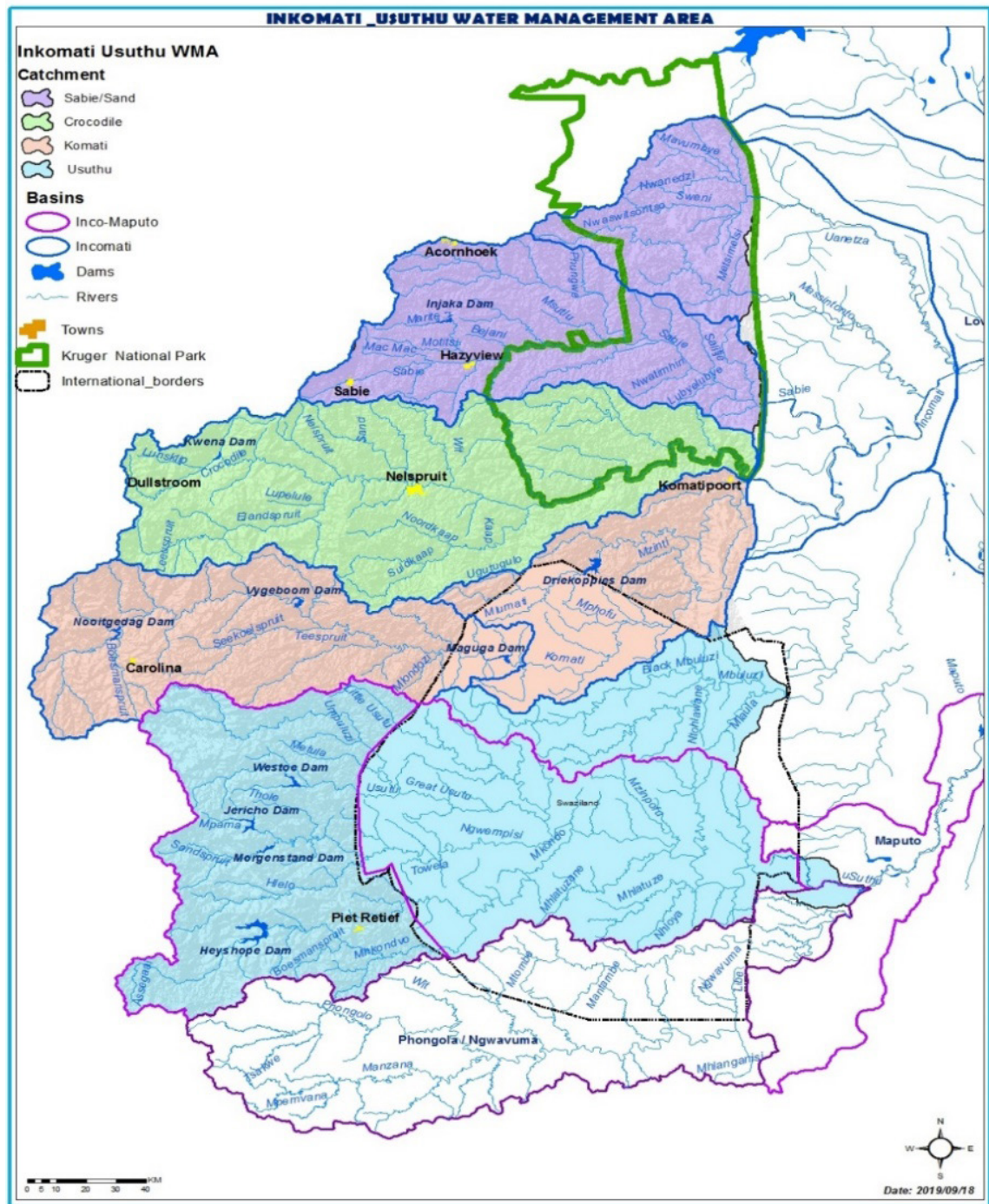


Figure 2: Inkomati-Usuthu Water Management Area

3.2. Materials and Methods

The water quality sample bottles were marked with the site code, date and time of sample collection using a permanent marker. There were no additives introduced in the microbial sample collecting bottles as they were pre-sterilised. The grab sample method was used for chemical and microbiological sampling. The caps of the bottles were not removed until the sample was ready to be taken. Some of the samples were taken on bridges using a bucket and bailer. The bucket was rinsed three times before collecting the sample and filling the sampling bottles.

One (1) litre chemical sample collecting bottles were rinsed three times before they were filled. The 300ml microbial sample collecting bottles were not rinsed since they were sterilised; ample air space was left in the sample bottle to facilitate mixing by shaking.

Both chemical and microbial water quality samples were stored in two separate cooler boxes and preserved with ice packs or cubes. The samples were then submitted to a SANAS accredited laboratory for analysis and microbiological samples were delivered within 12 hours to the laboratory. The HydroNet system was used to display and interpret water quality data collected over a period of twelve (12) months for the sites monitored.

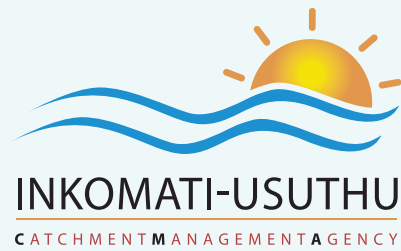


Figure 3: Chemical and Microbiological samples taken at Komati River downstream of Vygeboom Dam at R38 bridge using the bailer and the bucket



Figure 4: IUCMA official taking a water quality chemical sample at a tributary of Seekoeispruit in the Komati Catchment

Download the detailed report available on the IUCMA website: www.iucma.co.za



Illegal Sand Mining in a watercourse is an offense and is prohibited

To report please call IUCMA @ 013 753 9000



REPORT WATER POLLUTION INCIDENTS

The IUCMA is aware that pollution incidents

occur occasionally in the the catchment. Therefore, for any water pollution incidents like sewage leakages and others, please report at water@iucma.co.za



OR CALL US AT
013 753 9000

OR ALTERNATIVELY DROP US A MESSAGE ON
THE "CONTACT US" BUTTON ON THE WEBSITE.

www.iucma.co.za

You can also report to the Catchment
Management Forum in your area.



SOME OF THE **DAMS** WITHIN THE INKOMATI-USUTHU WATER MANAGEMENT AREA



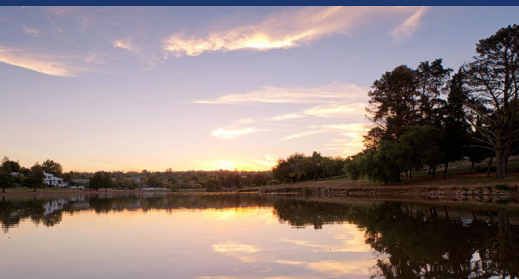
The **Primkop dam** has a total length of 5.88 km



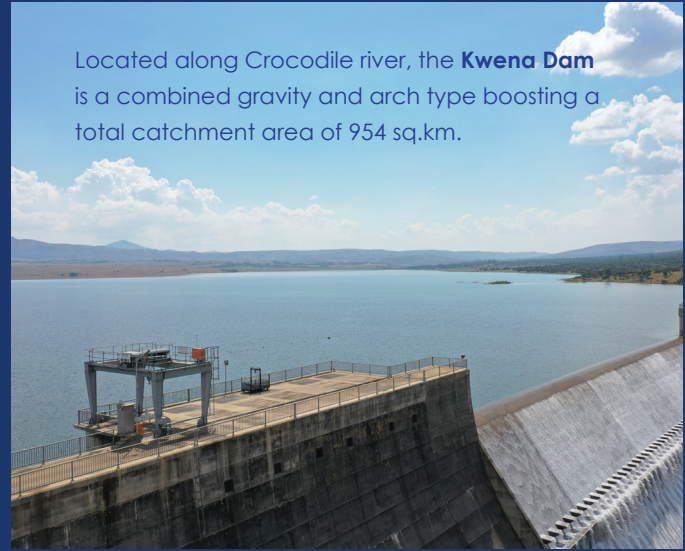
The **Driekoppies Dam** along the Lomati river boost a full capacity of 251 Mm³ and was opened in 1998.



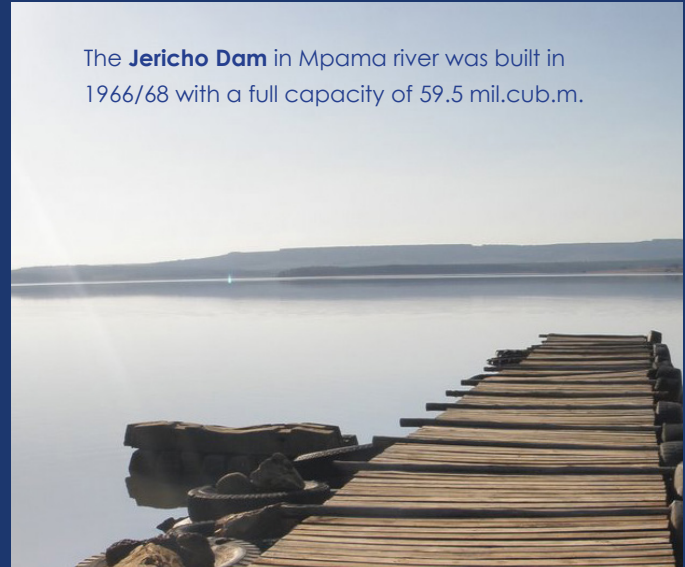
Da Gama Dam was established in 1977 along the Witwaters river and boost a full capacity of 13.58 mil. cub.m.



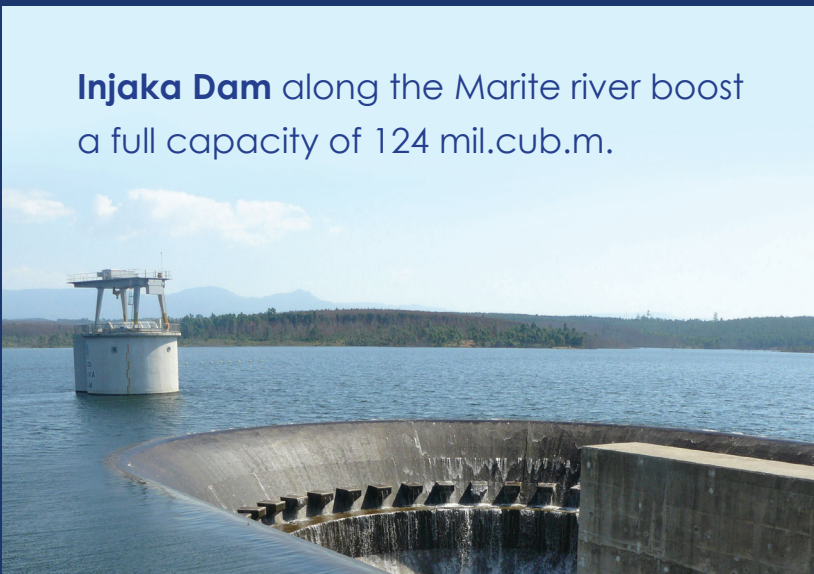
The **Vygeboom Dam** built in 1969 along the Komati river boost a full capacity of 78 mil.cub.m.



Located along Crocodile river, the **Kwena Dam** is a combined gravity and arch type boosting a total catchment area of 954 sq.km.



The **Jericho Dam** in Mpama river was built in 1966/68 with a full capacity of 59.5 mil.cub.m.



Injaka Dam along the Marite river boost a full capacity of 124 mil.cub.m.



Witklip dam along the Sand river near Sabie was opened in 1969 boosting a full capacity of 12.97 mil.

DEVELOPMENT OF A WATER ALLOCATION PLAN FOR INKOMATI-USUTHU WATER MANAGEMENT AREA



*By Dr Tendai Sawunyama from
Resource Planning and Operations*

1. Introduction

The Inkomati-Usuthu Catchment Management Agency (IUCMA) in conjunction with its stakeholders are embarking on a process to develop a Water Allocation Plan (WAP) for the Water Management Area following the development of a Catchment Management Strategy (CMS). A WAP ensures that the needs of the environment are considered when determining the volume of water available for different water uses and sets the rules on water use allocation to ensure sustainable use of water resources. Water users may apply for Water Use Authorisation (license, general authorisation, etc), according to the rules and limits in a gazetted WAP. A water licence offers an ongoing right to take water from the resource.

2. Why is a water allocation plan important?

Water is a finite resource that must be shared by competing needs. Due to it being limited an assurance must be provided to current and future users. A WAP provides this assurance by ensuring sustainable use of water that considers the environmental, social and economic needs.

3. What is the water allocation plan process?

3.1 Prescription of a water resource

Important water resources in the Inkomati-Usuthu Water Management Area are protected and managed as per the National Water Act of 1998, which requires that water be protected, used, and developed for all users and the environment, currently and in the future.

3.2 Development of a water allocation plan

Each prescribed water resource must have a WAP developed by a CMA. Scientific investigations and stakeholder engagements are undertaken to ensure that the developed WAP meets environmental and stakeholder water needs.

There are six (6) stages in the development of a water allocation plan:

- Risk assessment is conducted to identify risks to the water resource and water users, including the environment.
- Stakeholder consultation process is undertaken whereby stakeholders are given an opportunity to provide input into the content of the water allocation plan, based on the risks it is aiming to manage.
- Draft WAP is prepared considering comments made about risks to the water resource, the environment and water users.
- A second round of consultation is undertaken to seek stakeholder inputs and views about the draft water allocation plan.
- The CMA then considers stakeholder inputs when making decisions on any changes to the draft WAP before submitting the final WAP to the Minister.
- Every 10 years, or whenever necessary, the adopted WAP is reviewed to ensure effective management of risks to the water resource, the environment, and the stakeholders.

4. Implementation of a water allocation plan: licences and permits

A WAP is implemented by the CMA once gazetted by the Minister. Allocation of the water resource to existing and new users will be managed by the CMA/DWS, according to the rules and limits in the gazetted WAP.

Issued by the Inkomati-Usuthu CMA-
Contact: IUCMA: Resource Planning
and Operations Manager: Dr Tendai
Sawunyama on 013-753 9000 or
sawunyamat@iucma.co.za.



6th INTERNATIONAL TRANSBOUNDARY WATER MANAGEMENT CONFERENCE (REMCO)

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Venue: Ingwenyama Conference & Sport Resort

For more information:

Ms Liketso Khaile at khailel@iucma.co.za or 078 451 0139 - General Information

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CAREER EXHIBITIONS



By Ms Siphephile Mhlongo
from institutions and
Participation



EXPRESSION: One of the learners of Zangelingspost Combined School expresses himself during the IUCMA Career Exhibition at Mkhondo Local Municipality.

ENRICHMENT: The learners of Zangelingspost High School during the IUCMA Career Exhibition at Mkhondo Local Municipality.

Career guidance is so important more especially for learners in rural areas. It gives them the opportunity to access information about career choices. It guides learners on which courses to apply for in line with the subjects that they are doing. When I was doing Grade 12, I never applied for admission to a tertiary institution and ended up taking a gap year. I did not know what I wanted to be until I attended university.

From my personal experience, the career exhibition that we had were fruitful for the learners in all four schools. The information given to learners by the IUCMA and the Department of Water and Sanitation (DWS) helped learners

to discover careers in the water industry. I would say learners from Rev SA Nkosi Secondary School, Zangelingspost Combined School, Ubuhlebuzile High School and Warburton Combined School were privileged, because they were given an opportunity to decide on which career path to take in line with their subjects; some of us did not have that privilege. In their presentations, Mr Thabiso Nkosi and Mr Sibonangaye Mkhathshwa informed learners of the possible fields of study in science and the general stream. However, bursaries offered by the institution and DWS only cover scarce skills. Learners were encouraged to work hard to qualify for bursaries and that the minimum requirements should not limit them.



CONCENTRATION: IUCMA's Mr Thabiso Nkosi presenting career information to the learners of Warburton Combined School during the IUCMA Career Exhibition at Gert Sibande District Municipality.



CONCENTRATION: The learners of Warburton Combined School during the IUCMA Career Exhibition at Gert Sibande District Municipality.



INFORMATION SHARING: The learners of Ubuhlebuzile High School during the IUCMA Career Exhibition at Mkhondo Local Municipality.



FOCUS: The learners of Ubuhlebuzile High School during the IUCMA Career Exhibition in the Gert Sibande Municipality

Ubuhlebuzile High School cooperated with the presenters. All learners who were asked questions answered correctly. It was interesting to see how the physical science teacher and the learners were interacting; it felt like revision. This showed us the level of dedication of the learners to their subject. It also gave them an opportunity to receive a package from the IUCMA and the Department of Water and Sanitation.

When I was doing Grade 12, we had to pay to attend career exhibitions. I would say the IUCMA and the DWS are doing an amazing job by conducting career exhibitions and disseminating information to learners. The learners are now aware of which university to apply for if they want to do certain courses. It is very important for learners to be educated and be made aware of the various choices that they have. I believe every learner from the schools where a career exhibition was held will apply for admission after they were informed of various career choices and received a pack with information regarding South African universities.

Learners showed keen interest in the careers presented to them judging by the questions they asked during the presentations. The IUCMA should continue to empower learners through education awareness and capacity building.

RIVER SAND MINING

- WHAT YOU NEED TO KNOW



By (from left to right) Mr Andrew Mbhalati and Ms Busi Mahlangu from Compliance Monitoring and Enforcement

1. Background

The Inkomati-Usuthu Catchment Management Agency (IUCMA) is facing serious challenges in the water management area about illegal river sand mining which has negative impact on the water resource.

2. What is sand mining?

Sand mining is the extraction of sand through a river bed or instream for use in the construction industry. Mining is of great importance to the South African economy. It should however be recognised that the processes of prospecting, extracting, concentrating, refining, and transporting minerals have great potential for disrupting the natural environment (Rabie et al., 1994). The environmental effects caused by the mining of sand from a river, is no exception, often causing adverse impacts to biota and their habitats.

Sand-mining operations are classified into four types, namely:

- **Dry-pit mining:** mining of pits on dry ephemeral streambed and exposed sand bars with conventional shovel, trucks, bulldozers, scrapers or loaders. Dry pits are located above water table.
- **Wet-pit mining:** involves the use of dragline or hydraulic excavators to remove sand or gravel from below the water table or in a perennial stream channel. In wet pits dewatering or partial dewatering is frequently undertaken to allow the site to be more easily excavated.

- **Bar skimming:** this requires scraping off the top layer from gravel bar without excavating below the summer water level.

- **Mining of pits on adjacent flood plains or river terraces:** this refers to the mining of a pit that has

been isolated from a main river channel. Sudden changes in channel course during a flood, or in the gradual migration of the channel may breach small levees and the channel will shift into the sand or gravel pits.

(Hill and Kleynhans, 1999; McDivitt et.al., 1990)

3. Impacts of sand mining on the water resource

Some of the negative impacts of sand mining includes the following:

- **Operation of heavy equipment in the channel bed**

This can cause hydrocarbon pollution which can spread downstream and into ground water afterwards.

- **Altering the channel hydraulics**

Stockpiles and overburden left in the river or floodplain can alter channel hydraulics during high flows. River sand mining can also affect ground water system and the uses that locals make of the river, such as livestock falling and being trapped to death in the pools. It can also increase turbidity of water, thereby making domestic water use impossible. The deep pools may slow flows preventing downstream users to access the resource.

- **Impacts on recreational use**

Changes to the river channel, riparian habitat or floodplains can affect hiking, canoeing, boating, fishing, places of religion, cultural places, housing by fragmentation of the river continuum. It also affects migratory species.

4. Legal requirements for sand mining in terms of the National Water Act, 36 of 1998 (NWA)

In terms of (s21) of the NWA: in-stream mining of sand is a water use activity and requires authorisation/licence in terms of section 22 of the NWA.

Section 21(c) of the NWA: impeding or diverting the flow of water in a watercourse.

Section 21(1) of the NWA: altering the bed, banks, course or characteristics of a watercourse.

In terms of Government Notice No. 704 of 1999 and Regulation 10(1), 10(2) make provision for additional regulation related to winning sand and alluvial minerals from a watercourse as follows:

- No person may extract sand, alluvial minerals or other materials from the channel of a watercourse or estuary, unless reasonable precautions are taken to:
- Ensure that the stability of the watercourse or estuary is not affected by such operations;
- Prevent scouring and erosion of the watercourse or estuary which may result from such operations or work incidental thereto;
- Prevent damage to in-stream or riparian habitat through erosion, sedimentation, alteration of vegetation or structure of

the watercourse or estuary, or alteration of the flow characteristics of the watercourse or estuary; or

- Every person winning sand, alluvial minerals or other materials from the bed of a watercourse or estuary must:
- Construct treatment facilities to treat the water to the standard prescribed in Government Notice No. R.991 dated 26 May 1984 as amended or by any subsequent regulation under the Act before returning the water to the watercourse or estuary;
- Limit stockpiles or sand dumps established on the bank of any watercourse or estuary to that realised in two days of production, and all other production must be stockpiled or dumped outside of the 1:50 year flood-line or more than a horizontal distance of 100 metres from any watercourse or estuary; and
- Implement control measures that will prevent the pollution of any water resource by oil, grease, fuel or chemicals.

The Department of Water and Sanitation (DWS) has developed a Sand Mine Guideline for South Africa for water use authorisation of Sand Mining/ Gravel Extraction, and a Best Practice Guideline for Water Resource Protection in South African Mining Industry A1, Small Scale Mining (Standard Format). These guidelines are available at DWS and Inkomati-Usuthu Catchment Management Agency (IUCMA) in both hard and soft copy.

•Alleged illegal sand mining can be reported to the IUCMA on 013 753 9000 or at water@iucma.co.za

Issued by the Inkomati-Usuthu CMA-Contact:

IUCMA: Control Environmental Officer

Ms Busisiwe Mahlangu

Tel.: 013 753 9000 or

Email: mahlangub@iucma.co.za

For latest river flow and dam levels visit:

<http://riverops.inkomaticma.co.za/>

<http://iucma.co.za>



**Illegal Dumping
in a watercourse is an
offense and is prohibited**



**Illegal Damming
in a watercourse is an
offense and is prohibited**

***Report any water-related
illegal activities to the
Inkomati-Usuthu Catchment Management Agency***

013 753 9000

WATER SAVING TIPS



Kettles should
not be filled

to the brim but with just enough water for your needs. This will reduce your electricity bill too.



Taking a bath can use between

80 and 150

litres of water per bath.



Do not overfill

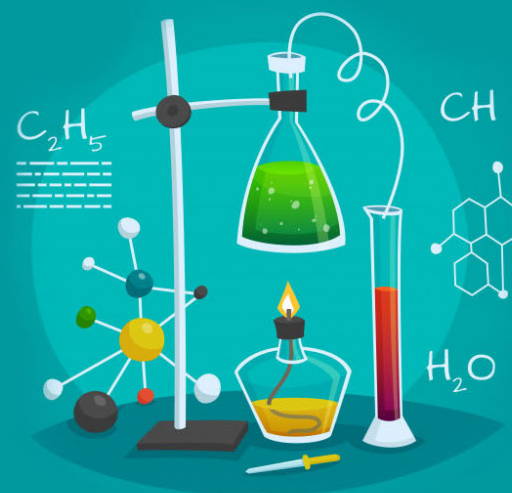
containers like pots, as this may result in using more energy to heat the water.



Fix a **leaking toilet** otherwise it can waste up to
100 000 litres.

CAREER GUIDANCE

FOR LEARNERS IN WATER RESOURCE MANAGEMENT



The Inkomati-Usuthu Catchment Management Agency (IUCMA) is an agency that has been established in terms of the relevant section of the National Water Act, Act 36 of 1998. The IUCMA has been established by the National Department of Water Affairs (DWA) in terms of the Act, to specifically implement certain sections of the Act. The mentioned sections of the Act address the management, protection, development and prevention of pollution of the national water resources.

The IUCMA is the first agency to be established by the DWA in the Mpumalanga area. The IUCMA has the responsibility to protect and manage the Crocodile River, Sabie, Inkomati Rivers and their tributaries within the Inkomati Water Management Area.

Career options and study opportunities in the form of financial assistance are offered by IUCMA. Since the IUCMA is a science focused institution, subject choices during high school should include science, geographical sciences, biological sciences and mathematics.

The breakdown of career choices offered by the IUCMA is indicated below:

1. Water Resource Specialist/Manager

Academic qualifications:

- 1.1. Bachelor of Science degree in (Aquaculture; Biology; Chemistry; Chemical Engineering; Biochemistry; Microbiology, Limnology; Zoology; Botany; Civil Engineering)
- 1.2. Bachelor of Science in Environmental Sciences (Geography; Geographical Information System; Geology)
- 1.3. Bachelor of Technology Water Care
- 1.4. Bachelor of Technology Analytical Chemistry

2. Hydrologist

Academic qualification:

- 2.1. Bachelor of Science (Hydrology; Hydrological Modelling; Water Quality Modelling)

3. Aquatic scientist

Academic qualification:

- 3.1. Bachelor of Science (River Health; Aquaculture; Bio-monitoring; Water and Waste Water; Water Quality Management; Zoology; botany; Limnology)



4. Water Resources Planners

Academic qualification:

- 4.1. Bachelor of Science/Engineering (Water Engineering; Chemical; Waste Water Treatment; Water Resources Modelling)

5. Water Resources Compliance Monitoring and Enforcement

Academic qualifications:

- 5.1. Bachelor of Science degree in (Biology; Chemistry; Chemical Engineering; Biochemistry; Microbiology, Environmental Law; Hydrology; Geohydrology; Civil Engineering)
- 5.2. Bachelor of Science in Environmental Sciences in (Geography; Environmental Law, Geographical Information System)

5.3. Law degree (Environmental Law)

6. Geohydrologist

Academic qualifications:

- 6.1. Bachelor of Science (Hydro-geology; Hydrology)
- 6.2. Bachelor of Technology (Geo-hydrology; Hydrology; Water Resources Modelling; Water Quality Management)

7. Stakeholder Management

Academic Qualifications:

- 7.1. Bachelor of Arts (Developmental Studies; Public Administration; Public Management; Social Studies)
- 7.2. Bachelor of Technology (Developmental Studies; Public Administration; Public Management)

LIST OF SOUTH AFRICAN UNIVERSITIES


EASTERN CAPE

NELSON MANDELA
UNIVERSITY

Tel: 041 504 1111
Website: www.mandela.ac.za
Email: info@mandela.ac.za

WSU
Walter Sisulu University

Tel: 047 502 2200
Website: www.wsu.ac.za
Email: postmaster@wsu.ac.za


RHODES UNIVERSITY
Where leaders learn

Tel: 046 603 8148
Website: www.ru.ac.za
Email: registration@ru.ac.za


University of Fort Hare
Together in Excellence

Tel: 040 653 2312
Website: www.ufh.ac.za
Email: admissions@ufh.ac.za

NORTHERN CAPE


SOL PLAATJE
UNIVERSITY

Tel: 018 299 1111/2222
Website: www.nwu.ac.za
Email: information@spu.ac.za

"For more Universities view page 36 and 37"

LIMPOPO



University of Venda
Creating Future Leaders

Tel: 015 962 8000
Website: www.univen.ac.za
Email: info@univen.ac.za



Tel: 015 268 9111
Website: www.ul.ac.za
Email: enrolment@ul.ac.za



FREE STATE



**Central University of
Technology, Free State**

Tel: 051 507 3911
Website: www.cut.ac.za
Email: tomttemple@cut.ac.za



UFS·UV
UNIVERSITY OF THE FREE STATE
UNIVERSITEIT VAN DIE VRYSTAAT
YUNIBESITHI YA FREISTATA

Tel: 051 401 2114
Website: www.ufs.ac.za
Email: Studentadmin@ufs.ac.za



KWAZULU NATAL



Tel: 031 373 2411
Website: www.dut.ac.za
Email: info@dut.ac.za



Tel: 031 260 2227
Website: www.unizulu.ac.za
Email: enquiries@ukzn.ac.za



**UNIVERSITY OF
ZULULAND**

Tel: 035 902 6000
Website: www.ukzn.ac.za
Email: info@unizulu.ac.za



Tel: 031 907 7111
Website: www.mut.ac.za
Email: info@mut.ac.za

NORTH WEST



Tel: 018 299 1111/2222
Website: www.nwu.ac.za
Email: applicationsug@nwu.ac.za

MPUMALANGA



**UNIVERSITY OF
MPUMALANGA**

Tel: 018 299 1111/2222
Website: www.nwu.ac.za
Email: info@ump.ac.za

GAUTENG



Tel: 011 717 1102
Website: www.wits.ac.za
Email: studentaffairs@wits.ac.za



Tel: 012 429 3111
Website: www.unisa.ac.za
Email: study-info@unisa.ac.za



**Tshwane University
of Technology**
We empower people

Tel: 021 382 5911
Website: www.tut.ac.za
Email: info@ump.ac.za



**UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA**

Tel: 012 420 4111
Website: www.up.ac.za
Email: ssc@up.ac.za



Your world to a better future

Tel: 016 950 9214/5
Website: www.vut.ac.za
Email: reception@vut.ac.za



**UNIVERSITY
OF
JOHANNESBURG**

Tel: 011 489 3000
Website: www.uj.ac.za
Email: mylife@uj.ac.za

WESTERN CAPE



**UNIVERSITY of the
WESTERN CAPE**

Tel: 021 959 3900
Website: www.uwc.ac.za
Email: admissions@uwc.ac.za



Tel: 021 650 9111
Website: www.uct.ac.za
Email: admissions@uct.ac.za



Tel: 021 808 9111
Website: www.sun.ac.za
Email: info@sun.ac.za

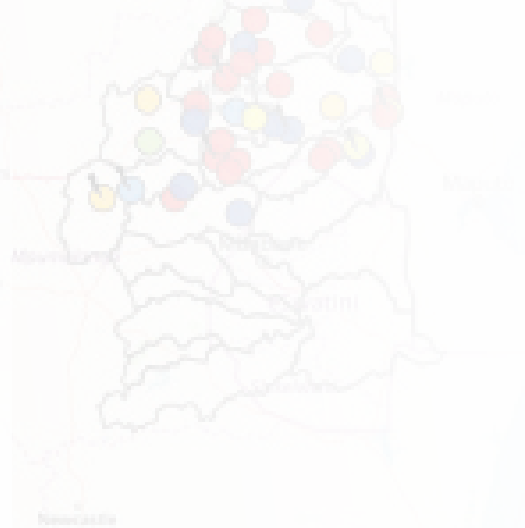


Tel: 021 959 3900
Website: www.cput.ac.za
Email: info@cput.ac.za



(K1H016) Bullelepruit 2:00:00	3.27	m³/s
(K1H017) Komati Riv 5:00:00	3.05	m³/s
(K1H023) Canal From 2:00:00	0.26	m³/s
(K1H033) Komati Riv 6:00:00	6.69	m³/s
(K1H038) Komati Riv 7:48:00	58.04	m³/s
(K1H040) Komati Riv 2:00:00	1.70	m³/s
(K1H052) Mkomati riv 2:00:00	1.45	m³/s
(K1H053) Komati Riv 6:00:00	0.00	m³/s
(K2H055) Nels River 16:00:00	2.00	m³/s
(K2H000) Krokodil Riv 7:48:00	0.60	m³/s
(K2H000) Gwesera Riv 2:00:00	0.40	m³/s
(K2H010) Noordkopp 8:00:00	1.03	m³/s
(K2H013) Krokodil Riv 6:00:00	3.28	m³/s

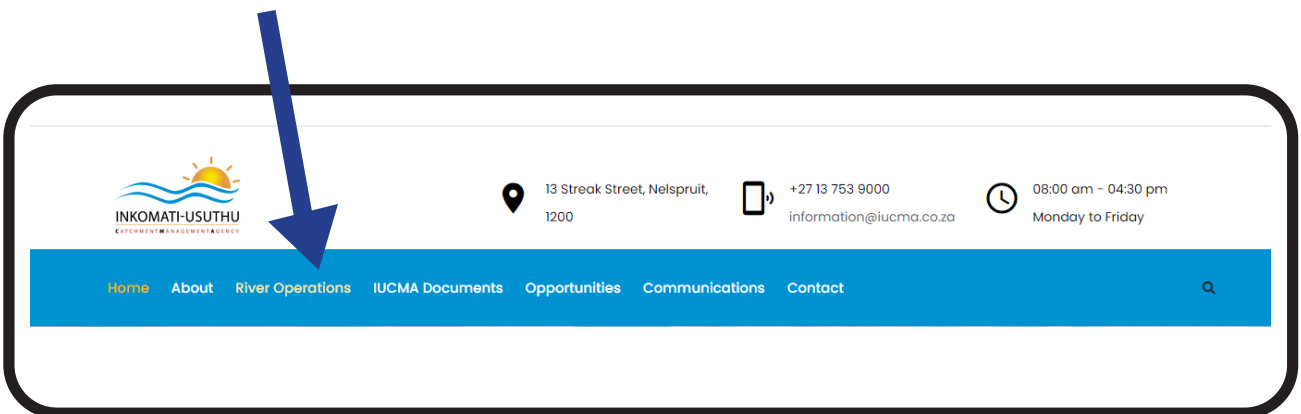
RIVER OPERATIONS WEB PORTAL



The Inkomati-Usuthu Catchment Management Agency is committed to bring you all the information you need to enable you to use water wisely and considerably. The IUCMA has established a web portal for River Operations that brings you the daily flows of the water in the Catchment. To gain access to this information, please log on to

<http://riverops.inkomaticma.co.za/>

The link to the River Operations portal is also available on the website at www.iucma.co.za to access it go to the **IUCMA website** on click **river operations web portal**.





USED CANS AND PLASTICS

Pollute Our Dams, Streams and Rivers

***Take action against pollution and be
involved in cleaning campaigns***

Tel: 013 753 9000 | Website: www.iucma.co.za

*Inkomati-Usuthu CMA, your
partner in water management*



**Private bag X11214,
Mbombela, 1200**

**Suite 801, The MAXSA Building,
13 Streak Street, Mbombela, 1200**

**Tel: 013 753 9000
www.iucma.co.za**



INKOMATI-USUTHU

CATCHMENT MANAGEMENT AGENCY